

TYPICAL SECTION

GENERAL NOTE

Capacity: HS20-44 Loading and Alternate Military Loading.

Specifications:

Construction - Va. Department of Transportation Road and Bridge Specifications, 1991.
Design - AASHTO Standard Specifications for Highway Bridges, 1983, including Interim Specifications, 1984, 1985 and VDOT Modifications, using Load Factor Design.

All concrete shall be Class A4.

Deformed reinforcing bars shall conform to ASTM A615, Grade 60. All reinforcing bar dimensions on the detailed drawings are to centers of bars except where otherwise noted and are subject to fabrication and construction tolerances.

Construction joints shall be constructed and bonded in accordance with the current Road and Bridge Specifications.

Barrels more than 35' in length shall be poured in sections by providing vertical construction joints, not exceeding 25' between joints nor more than 30' from ends of barrels.

** All bends shall be made with a pin diameter as listed in TABLE A except for Bars BH3 & BH4 which shall have a pin diameter of 24 bar diameters.

Dimensions on bar diagrams are out-to-out of bars. Bars are straight and #4 in size unless otherwise shown. BL2 shall be #3 in size.

The number of BL1 & BL2 bars shown in the table is the number of longitudinal bars shown in the Typical Section and may not equal the total number of bars required. BL1 & BL2 shall have a lap of 30 bar diameters at splices. At construction joints, first placed bars shall project 30 bar diameters beyond the joint. Estimated QUAN./LF shown for reinforcing steel does not include quantity for laps of BL1 & BL2 bars. The additional weight per longitudinal lap is shown in the table.

The centers of main reinforcing bars shall be 2" from the face of the concrete.

When concrete protective coating is required, all steel shall be epoxy-coated. All reinforcing steel for culverts under 0 to 2 foot fills shall be epoxy-coated.

At the Contractor's option, BV1 & BV2 bars may be spliced at the permissible construction joint in order to facilitate construction. No additional compensation shall be provided for the increase in reinforcing steel quantity due to the splices.

Bar HW2 shall be 4" less than culvert height in length.

Headwall quantities shown assume wingwalls are to be built at a 45° angle to the headwall.

The designs are applicable to the fill height and other conditions indicated. Any change in the conditions invalidates these designs.

Wingwalls referenced by letter apply when the acceptable foundation level is the same for both box and wings. If foundation levels are different, the height of the wingwall shall be adjusted by selection of another lettered wingwall of appropriate height. For wingwall details, refer to standard series BCW for the appropriate fill slope.

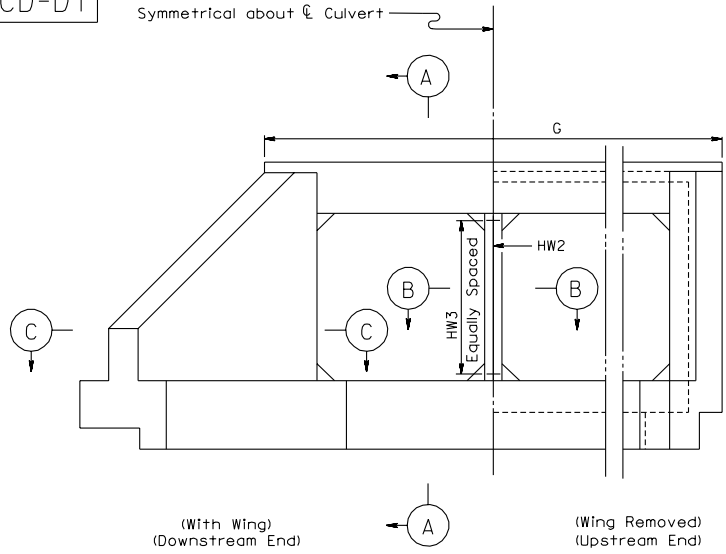
For details of extending existing boxes, refer to Standard BCE-01.

For modification of details for skewed culverts, see the Skewed Box Details included in the road plans.

This standard shall be used with the BCD standard series.

BCD-DT

Symmetrical about $\text{\textcircled{C}}$ Culvert



END ELEVATION

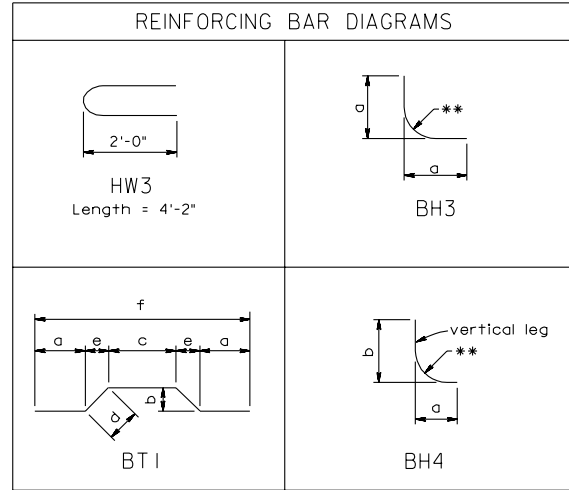
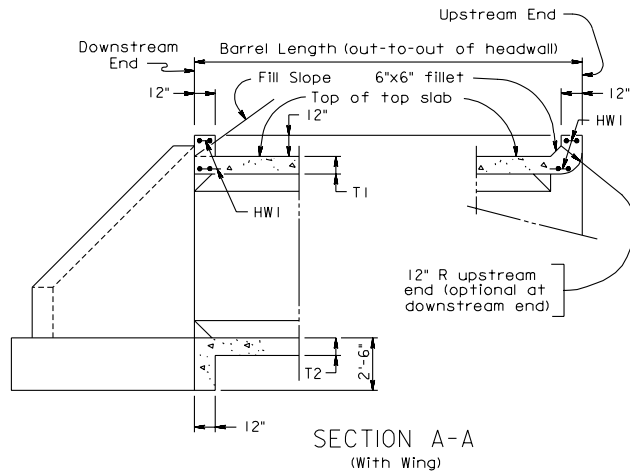
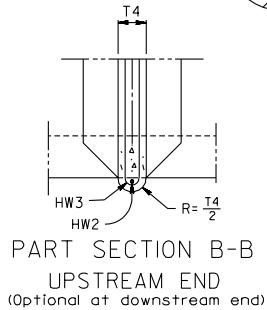


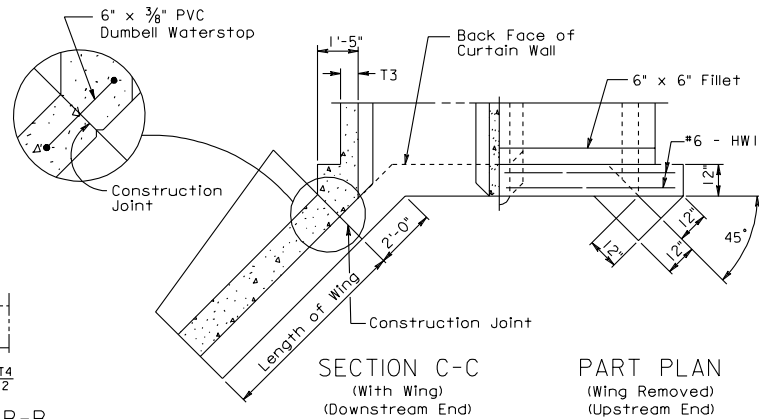
TABLE A	
Bar Size	Pin Dia.
#3	2 1/4"
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"
#9	9"



SECTION A-A
(With Wing)



PART SECTION B-B
UPSTREAM END
(Optional at downstream end)



SECTION C-C
(With Wing)
(Downstream End)

PART PLAN
(Wing Removed)
(Upstream End)

BCD-02

DIMENSIONS								REINFORCING STEEL																											
SPAN	HGHT	T1	T2	T3	T4							BH1				BH2				BH3				BH4				BV1				BV2			
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	
3	3	8"	8"	8"	8"	6	6'-0"	12	6'-0"	1	1'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	2'-8"	4'-6"	4	12"	4'-0"	4	12"	4'-0"	4	12"	4'-0"
3	4	8 1/4"	8 1/4"	8"	8"	6	6'-0"	12	6'-0"	2	2'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	3'-2 1/4"	5'-0"	4	12"	5'-0"	4	12"	5'-0"	4	12"	5'-0"
4	3	8 1/4"	8 1/4"	8"	8"	8	8'-0"	16	8'-0"	1	1'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	2'-8 1/4"	4'-9"	4	10 1/2"	4'-0"	4	12"	4'-0"	4	12"	4'-0"
4	4	8 1/2"	8 1/2"	8"	8"	8	8'-0"	16	8'-0"	2	2'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-2 1/2"	5'-3"	4	12"	5'-1"	4	12"	5'-1"	4	12"	5'-1"
4	5	8 1/2"	8 1/2"	8"	8"	8	8'-0"	16	8'-0"	3	3'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-8 1/2"	5'-9"	4	12"	6'-1"	4	12"	6'-1"	4	12"	6'-1"
4	6	8 1/2"	8 1/2"	8"	8"	8	8'-0"	16	8'-0"	4	4'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	4'-2 1/2"	6'-3"	4	12"	7'-1"	4	12"	7'-1"	4	12"	7'-1"
5	3	8 1/2"	8 1/2"	8"	8"	10	10'-0"	20	10'-0"	1	1'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	2'-8 1/2"	4'-11"	4	12"	4'-1"	4	12"	4'-1"	4	12"	4'-1"
5	4	8 1/2"	8 1/2"	8"	8"	10	10'-0"	20	10'-0"	2	2'-0"	4	11"	10'-8"	4	11"	11'-8"	--	---	----	----	4	11"	2'-6"	3'-2 1/2"	5'-5"	4	12"	5'-1"	4	12"	5'-1"	4	12"	5'-1"
5	5	8 1/2"	8 1/2"	8"	8"	10	10'-0"	20	10'-0"	3	3'-0"	4	11"	10'-8"	4	11"	11'-8"	--	---	----	----	4	11"	2'-6"	3'-8 1/2"	5'-11"	4	12"	6'-1"	4	12"	6'-1"	4	12"	6'-1"
5	6	8 1/2"	8 1/2"	8"	8"	10	10'-0"	20	10'-0"	4	4'-0"	4	11"	10'-8"	4	11"	11'-8"	--	---	----	----	4	11"	2'-6"	4'-2 1/2"	6'-5"	4	12"	7'-1"	4	12"	7'-1"	4	12"	7'-1"
5	7	8 3/4"	8 3/4"	8"	8"	10	10'-0"	20	10'-0"	5	5'-0"	4	11"	10'-8"	4	11"	11'-8"	--	---	----	----	4	11"	2'-6"	4'-8 3/4"	7'-0"	4	12"	8'-2"	4	12"	8'-2"	4	12"	8'-2"
6	4	8 1/2"	8 1/2"	8"	8"	12	12'-0"	24	12'-0"	2	2'-0"	4	10"	12'-3"	4	10"	13'-8"	--	---	----	----	4	10"	2'-8 3/8"	3'-2 1/2"	5'-8"	4	12"	5'-1"	4	12"	5'-1"	4	12"	5'-1"
6	5	8 3/4"	8 3/4"	8"	8"	12	12'-0"	24	12'-0"	3	3'-0"	4	10"	12'-3"	4	10"	13'-8"	--	---	----	----	4	10"	2'-8 3/8"	3'-8 3/4"	6'-2"	4	12"	6'-2"	4	12"	6'-2"	4	12"	6'-2"
6	6	8 3/4"	8 3/4"	8"	8"	12	12'-0"	24	12'-0"	4	4'-0"	4	9"	12'-3"	4	9"	13'-8"	--	---	----	----	4	9"	2'-8 3/8"	4'-2 3/4"	6'-8"	4	12"	7'-2"	4	12"	7'-2"	4	12"	7'-2"
6	7	8 3/4"	8 3/4"	8"	8"	12	12'-0"	24	12'-0"	5	5'-0"	4	9"	12'-3"	4	9"	13'-8"	--	---	----	----	4	9"	2'-8 3/8"	4'-8 3/4"	7'-2"	4	12"	8'-2"	4	12"	8'-2"	4	12"	8'-2"
6	8	8 3/4"	8 3/4"	8"	8"	12	12'-0"	24	12'-0"	6	6'-0"	4	9"	12'-3"	4	9"	13'-8"	--	---	----	----	4	9"	2'-8 3/8"	5'-2 3/4"	7'-8"	4	12"	9'-2"	4	12"	9'-2"	4	12"	9'-2"
7	4	8 3/4"	8 3/4"	8"	8"	14	14'-0"	28	14'-0"	2	2'-0"	4	9"	13'-10"	4	9"	15'-8"	4	9"	2'-10 3/4"	5'-6"	4	9"	2'-10 3/4"	3'-2 3/4"	5'-10"	4	12"	5'-2"	4	11"	5'-2"	4	11"	5'-2"
7	6	8 3/4"	8 3/4"	8"	8"	14	14'-0"	28	14'-0"	4	4'-0"	4	8"	13'-10"	4	8"	15'-8"	4	8"	2'-10 3/4"	5'-6"	4	8"	2'-10 3/4"	4'-2 3/4"	6'-10"	4	12"	7'-2"	4	11 1/2"	7'-2"	4	11 1/2"	7'-2"
7	8	8 3/4"	8 3/4"	8"	8"	14	14'-0"	28	14'-0"	6	6'-0"	4	8"	13'-10"	4	8"	15'-8"	4	8"	2'-10 3/4"	5'-6"	4	8"	2'-10 3/4"	5'-2 3/4"	7'-10"	4	12"	9'-2"	4	12"	9'-2"	4	12"	9'-2"
7	10	9"	9"	8"	8"	14	14'-0"	28	14'-0"	8	8'-0"	5	12"	13'-10"	5	12"	15'-8"	4	12"	2'-10 3/4"	5'-6"	5	12"	2'-10 3/4"	6'-3"	8'-10"	4	12"	11'-2"	4	12"	11'-2"	4	12"	11'-2"
8	4	8 3/4"	8 3/4"	8"	8"	16	16'-0"	32	16'-0"	2	2'-0"	5	11"	15'-6"	5	11"	17'-8"	4	11"	3'-1 1/4"	5'-11"	5	11"	3'-1 1/4"	3'-2 3/4"	6'-0"	4	12"	5'-2"	4	10"	5'-2"	4	10"	5'-2"
8	6	8 3/4"	8 3/4"	8"	8"	16	16'-0"	32	16'-0"	4	4'-0"	5	11"	15'-6"	5	11"	17'-8"	4	11"	3'-1 1/4"	5'-11"	5	11"	3'-1 1/4"	4'-2 3/4"	7'-0"	4	12"	7'-2"	4	10"	7'-2"	4	10"	7'-2"
8	8	9"	9"	8"	8"	16	16'-0"	32	16'-0"	6	6'-0"	5	11"	15'-6"	5	11"	17'-8"	4	11"	3'-1 1/4"	5'-11"	5	11"	3'-1 1/4"	5'-3"	8'-0"	4	12"	9'-2"	4	10 1/2"	9'-2"	4	10 1/2"	9'-2"
8	10	9"	9"	8"	8"	16	16'-0"	32	16'-0"	8	8'-0"	5	10"	15'-6"	5	10"	17'-8"	4	10"	3'-1 1/4"	5'-11"	5	10"	3'-1 1/4"	6'-3"	9'-0"	4	12"	11'-2"	4	11"	11'-2"	4	11"	11'-2"
9	4	8 3/4"	8 3/4"	8"	8"	18	18'-0"	36	18'-0"	2	2'-0"	5	10"	17'-1"	5	10"	19'-8"	4	10"	3'-3 5/8"	6'-4"	5	10"	3'-3 5/8"	3'-2 3/4"	6'-2"	4	12"	5'-2"	4	9"	5'-2"	4	9"	5'-2"
9	6	8 3/4"	8 3/4"	8"	8"	18	18'-0"	36	18'-0"	4	4'-0"	5	9"	17'-1"	5	9"	19'-8"	4	9"	3'-3 5/8"	6'-4"	5	9"	3'-3 5/8"	4'-2 3/4"	7'-2"	4	12"	7'-2"	4	9 1/2"	7'-2"	4	9 1/2"	7'-2"
9	8	9 1/2"	9 1/2"	8"	8"	18	18'-0"	36	18'-0"	6	6'-0"	5	10"	17'-1"	5	10"	19'-8"	4	10"	3'-3 5/8"	6'-4"	5	10"	3'-3 5/8"	5'-3 1/2"	8'-3"	4	12"	9'-3"	4	10"	9'-3"	4	10"	9'-3"
9	10	9 3/4"	9 3/4"	8"	8"	18	18'-0"	36	18'-0"	8	8'-0"	5	9"	17'-1"	5	9"	19'-8"	4	9"	3'-3 5/8"	6'-4"	5	9"	3'-3 5/8"	6'-3 3/4"	9'-3"	4	12"	11'-3"	4	10 1/2"	11'-3"	4	10 1/2"	11'-3"
9	12	9 3/4"	9 3/4"	8"	8"	18	18'-0"	36	18'-0"	10	10'-0"	6	12"	17'-1"	6	12"	19'-8"	5	12"	3'-3 5/8"	6'-3"	6	12"	3'-3 5/8"	7'-3 3/4"	10'-3"	4	11 1/2"	13'-3"	4	11 1/2"	13'-3"	4	11 1/2"	13'-3"
10	4	9 1/2"	9 1/2"	8"	8"	20	20'-0"	40	20'-0"	2	2'-0"	5	9"	18'-8"	5	9"	21'-8"	4	9"	3'-6"	6'-9"	5	9"	3'-6"	3'-3 1/2"	6'-6"	4	12"	5'-3"	4	8 1/2"	5'-3"	4	8 1/2"	5'-3"
10	6	9 1/2"	9 1/2"	8"	8"	20	20'-0"	40	20'-0"	4	4'-0"	5	9"	18'-8"	5	9"	21'-8"	4	9"	3'-6"	6'-9"	5	9"	3'-6"	4'-3 1/2"	7'-6"	4	12"	7'-3"	4	9"	7'-3"	4	9"	7'-3"
10	8	9 3/4"	9 3/4"	8"	8"	20	20'-0"	40	20'-0"	6	6'-0"	6	12"	18'-8"	6	12"	21'-8"	5	12"	3'-6"	6'-8"	6	12"	3'-6"	5'-3 3/4"	8'-5"	4	12"	9'-3"	4	10"	9'-3"	4	10"	9'-3"
10	10	9 3/4"	9 3/4"	8"	8"	20	20'-0"	40	20'-0"	8	8'-0"	5	8"	18'-8"	5	8"	21'-8"	4	8"	3'-6"	6'-9"	5	8"	3'-6"	6'-3 3/4"	9'-6"	4	12"	11'-3"	4	10"	11'-3"	4	10"	11'-3"
10	12	10"	10"	8"	8"	20	20'-0"	40	20'-0"	10	10'-0"	5	8"	18'-8"	5	8"	21'-8"	4	8"	3'-6"	6'-9"	5	8"	3'-6"	7'-4"	10'-6"	4	11 1/2"	13'-4"	4	10"	13'-4"	4	10"	13'-4"
12	6	10 1/2"	10 1/2"	8"	8"	24	24'-0"	48	24'-0"	4	4'-0"	6	12"	21'-10"	6	12"	25'-8"	5	12"	3'-10 3/4"	7'-6"	6	12"	3'-10 3/4"	4'-4 1/2"	7'-10"	4	12"	7'-5"	4	8"	7'-5"	4	8"	7'-5"
12	8	10 3/4"	10 3/4"	8"	8"	24	24'-0"	48	24'-0"	6	6'-0"	5	8"	21'-10"	5	8"	25'-8"	4	8"	3'-10 3/4"	7'-6"	5	8"	3'-10 3/4"	5'-4 3/4"	9'-0"	4	12"	9'-5"	4	9"	9'-5"	4	9"	9'-5"
12	10	10 3/4"	10 3/4"	8"	8"	24	24'-0"	48	24'-0"	8	8'-0"	6	10"	21'-10"	6	10"	25'-8"	5	10"	3'-10 3/4"	7'-6"	6	10"	3'-10 3/4"	6'-4 3/4"	9'-11"	4	12"	11'-5"	4	10"	11'-5"	4	10"	11'-5"
12	12	11"	11"	8"	8"	24	24'-0"	48	24'-0"	10	10'-0"	6	9"	21'-10"	5	9"	25'-8"	5	9"	3'-10 3/4"	7'-6"	5	9"	3'-10 3/4"	7'-5"	11'-0"	4	12"	13'-6"	4	10"	13'-6"	4	10"	13'-6"

DOUBLE BOX CULVERTS
0 TO 2 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

SPAN		HIGHT		REINFORCING STEEL														QUAN./LF		HEADWALLS								WINGWALL
(FT.)	(FT.)	SIZE	SPACING C-C	BTI										REINFORCING STEEL (LBS/FT)	CONCRETE CLASS. (CY/FT)	REINFORCING STEEL (LBS/FT)	G		HWI		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)		
				a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS				HEADWALL LENGTH	SIZE	LENGTH									
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'- 11"	38	12	35.966	0.694	83.447	9'- 6"	6	9'- 2"	1	4	1.433	67.988	1.425	55.073	A		
3	4	4	12"	2'- 8 3/4"	0'- 4 3/4"	1'- 6 3/8"	0'- 6 1/4"	0'- 4"	7'- 7 7/8"	-----	7'- 11"	38	18	38.084	0.780	89.711	9'- 6"	6	9'- 2"	1	5	1.530	71.439	1.516	55.073	C		
4	3	4	12"	3'- 6 3/8"	0'- 4 3/4"	1'- 11 1/4"	0'- 6 1/4"	0'- 4"	9'- 8"	-----	9'- 11"	48	12	44.316	0.807	99.018	11'- 6"	6	11'- 2"	1	4	1.632	80.004	1.631	67.089	A		
4	4	4	12"	3'- 6 1/4"	0'- 5"	1'- 11"	0'- 6 1/2"	0'- 4 1/4"	9'- 8"	-----	9'- 11"	48	18	46.434	0.896	104.741	11'- 6"	6	11'- 2"	1	5	1.728	83.455	1.721	67.089	C		
4	5	4	12"	3'- 6 1/4"	0'- 5"	1'- 11"	0'- 6 1/2"	0'- 4 1/4"	9'- 8"	-----	9'- 11"	48	24	48.552	0.970	111.005	11'- 6"	6	11'- 2"	1	6	1.827	86.907	1.813	67.089	E		
4	6	4	12"	3'- 6 1/4"	0'- 5"	1'- 11"	0'- 6 1/2"	0'- 4 1/4"	9'- 8"	-----	9'- 11"	48	30	50.670	1.044	117.269	11'- 6"	6	11'- 2"	1	7	1.926	90.358	1.906	67.089	G		
5	3	4	12"	4'- 3 7/8"	0'- 5"	2'- 3 3/4"	0'- 6 1/2"	0'- 4 1/4"	11'- 8"	-----	11'- 11"	58	12	52.666	0.927	113.062	13'- 6"	6	13'- 2"	1	4	1.828	92.020	1.834	79.105	A		
5	4	4	11"	4'- 3 7/8"	0'- 5"	2'- 3 3/4"	0'- 6 1/2"	0'- 4 1/4"	11'- 8"	-----	11'- 11"	58	18	54.784	1.000	124.802	13'- 6"	6	13'- 2"	1	5	1.927	95.471	1.927	79.105	C		
5	5	4	11"	4'- 3 7/8"	0'- 5"	2'- 3 3/4"	0'- 6 1/2"	0'- 4 1/4"	11'- 8"	-----	11'- 11"	58	24	56.902	1.073	131.187	13'- 6"	6	13'- 2"	1	6	2.026	98.923	2.019	79.105	E		
5	6	4	11"	4'- 3 7/8"	0'- 5"	2'- 3 3/4"	0'- 6 1/2"	0'- 4 1/4"	11'- 8"	-----	11'- 11"	58	30	59.020	1.147	137.572	13'- 6"	6	13'- 2"	1	7	2.125	102.374	2.112	79.105	G		
5	7	4	11"	4'- 3 3/4"	0'- 5 1/4"	2'- 3 1/2"	0'- 6 1/8"	0'- 4 1/2"	11'- 8"	-----	12'- 0"	58	36	61.138	1.239	144.545	13'- 6"	6	13'- 2"	1	8	2.220	105.825	2.200	79.105	I		
6	4	4	10"	5'- 1 1/2"	0'- 5"	2'- 8 1/2"	0'- 6 1/2"	0'- 4 1/4"	13'- 8"	-----	13'- 11"	68	18	63.134	1.103	147.805	15'- 6"	6	15'- 2"	1	5	2.127	107.487	2.133	91.121	C		
6	5	4	10"	5'- 1 3/8"	0'- 5 1/4"	2'- 8 1/4"	0'- 6 3/8"	0'- 4 1/2"	13'- 8"	-----	14'- 0"	68	24	65.252	1.198	154.693	15'- 6"	6	15'- 2"	1	6	2.220	110.939	2.219	91.121	E		
6	6	4	9"	5'- 1 3/8"	0'- 5 1/4"	2'- 8 1/4"	0'- 6 3/8"	0'- 4 1/2"	13'- 8"	-----	14'- 0"	68	30	67.370	1.271	170.709	15'- 6"	6	15'- 2"	1	7	2.319	114.390	2.312	91.121	G		
6	7	4	9"	5'- 1 3/8"	0'- 5 1/4"	2'- 8 1/4"	0'- 6 3/8"	0'- 4 1/2"	13'- 8"	-----	14'- 0"	68	36	69.488	1.345	177.419	15'- 6"	6	15'- 2"	1	8	2.417	117.841	2.405	91.121	I		
6	8	4	9"	5'- 1 3/8"	0'- 5 1/4"	2'- 8 1/4"	0'- 6 3/8"	0'- 4 1/2"	13'- 8"	-----	14'- 0"	68	42	71.606	1.418	184.128	15'- 6"	6	15'- 2"	1	9	2.516	121.293	2.498	91.121	K		
7	4	4	9"	5'- 11"	0'- 5 1/4"	3'- 1 1/8"	0'- 6 3/8"	0'- 4 1/2"	15'- 8 1/8"	-----	16'- 0"	78	18	71.484	1.229	194.732	17'- 6"	6	17'- 2"	1	5	2.318	119.503	2.331	103.137	C		
7	6	4	8"	5'- 11"	0'- 5 1/4"	3'- 1 1/8"	0'- 6 3/8"	0'- 4 1/2"	15'- 8 1/8"	-----	16'- 0"	78	30	75.720	1.375	223.564	17'- 6"	6	17'- 2"	1	7	2.516	126.406	2.516	103.137	G		
7	8	4	8"	5'- 11"	0'- 5 1/4"	3'- 1 1/8"	0'- 6 3/8"	0'- 4 1/2"	15'- 8 1/8"	-----	16'- 0"	78	42	79.956	1.522	237.011	17'- 6"	6	17'- 2"	1	9	2.714	133.309	2.702	103.137	K		
7	10	5	12"	5'- 10 7/8"	0'- 5 5/8"	3'- 1 7/8"	0'- 7 3/8"	0'- 4 3/4"	15'- 8 1/8"	-----	16'- 0"	78	54	84.192	1.694	248.707	17'- 6"	6	17'- 2"	1	11	2.904	140.211	2.880	103.137	O		
8	4	5	11"	6'- 8 1/2"	0'- 5 3/8"	3'- 5 3/8"	0'- 7"	0'- 4 1/2"	17'- 7 7/8"	-----	17'- 11"	88	18	79.834	1.334	241.539	19'- 6"	6	19'- 2"	1	5	2.516	131.519	2.535	115.153	C		
8	6	5	11"	6'- 8 1/2"	0'- 5 3/8"	3'- 5 3/8"	0'- 7"	0'- 4 1/2"	17'- 7 7/8"	-----	17'- 11"	88	30	84.070	1.481	256.481	19'- 6"	6	19'- 2"	1	7	2.714	138.422	2.721	115.153	G		
8	8	5	11"	6'- 8 3/8"	0'- 5 5/8"	3'- 5 5/8"	0'- 7 3/8"	0'- 4 3/4"	17'- 7 7/8"	-----	18'- 0"	88	42	88.306	1.655	270.912	19'- 6"	6	19'- 2"	1	9	2.903	145.325	2.897	115.153	K		
8	10	5	10"	6'- 8 3/8"	0'- 5 5/8"	3'- 5 5/8"	0'- 7 3/8"	0'- 4 3/4"	17'- 7 7/8"	-----	18'- 0"	88	54	92.542	1.801	302.391	19'- 6"	6	19'- 2"	1	11	3.101	152.227	3.083	115.153	O		
9	4	5	10"	7'- 6 1/8"	0'- 5 3/8"	3'- 10 3/4"	0'- 7"	0'- 4 1/2"	19'- 8"	-----	20'- 0"	98	18	88.184	1.439	281.575	21'- 6"	6	21'- 2"	1	5	2.714	143.535	2.740	127.169	C		
9	6	5	9"	7'- 6 1/8"	0'- 5 3/8"	3'- 10 3/4"	0'- 7"	0'- 4 1/2"	19'- 8"	-----	20'- 0"	98	30	92.420	1.584	318.683	21'- 6"	6	21'- 2"	1	7	2.912	150.438	2.925	127.169	G		
9	8	5	10"	7'- 5 3/4"	0'- 6 1/8"	3'- 10"	0'- 8 1/8"	0'- 5 1/4"	19'- 8"	-----	20'- 0"	98	42	96.656	1.825	312.110	21'- 6"	6	21'- 2"	1	9	3.096	157.341	3.097	127.169	L		
9	10	5	9"	7'- 5 5/8"	0'- 6 3/8"	3'- 9 3/4"	0'- 8 3/8"	0'- 5 1/2"	19'- 8"	-----	20'- 0"	98	54	100.892	2.001	349.834	21'- 6"	6	21'- 2"	1	11	3.284	164.243	3.272	127.169	P		
9	12	6	12"	7'- 5 5/8"	0'- 6 1/2"	3'- 9 3/4"	0'- 8 1/2"	0'- 5 1/2"	19'- 8"	-----	20'- 0"	98	66	105.128	2.147	385.357	21'- 6"	6	21'- 2"	1	13	3.482	171.146	3.458	127.169	T		
10	4	5	9"	8'- 3 3/8"	0'- 6 1/8"	4'- 2 3/4"	0'- 8 1/8"	0'- 5 1/4"	21'- 8"	-----	22'- 0"	108	18	96.534	1.645	329.403	23'- 6"	6	23'- 2"	1	5	2.894	155.551	2.926	139.185	D		
10	6	5	9"	8'- 3 3/8"	0'- 6 1/8"	4'- 2 3/4"	0'- 8 1/8"	0'- 5 1/4"	21'- 8"	-----	22'- 0"	108	30	100.770	1.792	345.162	23'- 6"	6	23'- 2"	1	7	3.092	162.454	3.112	139.185	H		
10	8	6	12"	8'- 3 1/4"	0'- 6 1/2"	4'- 2 1/2"	0'- 8 1/2"	0'- 5 1/2"	21'- 8"	-----	22'- 0"	108	42	105.006	1.971	380.754	23'- 6"	6	23'- 2"	1	9	3.277	169.357	3.285	139.185	L		
10	10	5	8"	8'- 3 1/4"	0'- 6 3/8"	4'- 2 1/2"	0'- 8 3/8"	0'- 5 1/2"	21'- 8"	-----	22'- 0"	108	54	109.242	2.117	407.060	23'- 6"	6	23'- 2"	1	11	3.475	176.259	3.471	139.185	P		
10	12	5	8"	8'- 3 1/8"	0'- 6 5/8"	4'- 2 1/4"	0'- 8 3/4"	0'- 5 3/4"	21'- 8"	-----	22'- 1"	108	66	113.478	2.298	424.989	23'- 6"	6	23'- 2"	1	13	3.661	183.162	3.644	139.185	T		
12	6	6	12"	9'- 10 1/8"	0'- 7 1/4"	4'- 11 3/8"	0'- 9 5/8"	0'- 6 1/4"	25'- 8 1/8"	-----	26'- 1"	128	30	117.470	2.181	420.953	27'- 6"	6	27'- 2"	1	7	3.417	186.486	3.450	163.217	H		
12	8	5	8"	9'- 10"	0'- 7 3/8"	4'- 11 1/8"	0'- 9 1/8"	0'- 6 1/2"	25'- 8 1/8"	-----	26'- 1"	128	42	121.706	2.367	447.275	27'- 6"	6	27'- 2"	1	9	3.600	193.389	3.621	163.217	L		
12	10	6	10"	9'- 10"	0'- 7 1/2"	4'- 11 1/8"	0'- 9 1/8"	0'- 6 1/2"	25'- 8 1/8"	-----	26'- 1"	128	54	125.942	2.511	513.660	27'- 6"	6	27'- 2"	1	11	3.798	200.291	3.806	163.217	P		
12	12	6	9"	9'- 9 7/8"	0'- 7 3/4"	4'- 10 7/8"	0'- 10 1/4"	0'- 6 3/4"	25'- 8 1/8"	-----	26'- 1"	128	66	130.178	2.699	516.218	27'- 6"	6	27'- 2"	1	13	3.980	207.194	3.976	163.217	T		

BCD-05

DIMENSIONS										REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	T4						BH1			BH2			BH3			BH4			BV1			BV2						
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	6	6'-0"	6	6'-0"	1	1'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	2'-8"	4'-6"	4	12"	4'-0"	4	12"	4'-0"
3	4	8"	8"	8"	8"	6	6'-0"	6	6'-0"	2	2'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	3'-2"	5'-0"	4	12"	5'-0"	4	12"	5'-0"
4	3	8"	8"	8"	8"	8	8'-0"	8	8'-0"	1	1'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	2'-8"	4'-8"	4	12"	4'-0"	4	12"	4'-0"
4	4	8"	8"	8"	8"	8	8'-0"	8	8'-0"	2	2'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-2"	5'-2"	4	12"	5'-0"	4	12"	5'-0"
4	5	8"	8"	8"	8"	8	8'-0"	8	8'-0"	3	3'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-8"	5'-8"	4	12"	6'-0"	4	12"	6'-0"
4	6	8"	8"	8"	8"	8	8'-0"	8	8'-0"	4	4'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	4'-2"	6'-2"	4	12"	7'-0"	4	12"	7'-0"
5	3	8"	8"	8"	8"	10	10'-0"	10	10'-0"	1	1'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	2'-8"	4'-11"	4	12"	4'-0"	4	12"	4'-0"
5	4	8"	8"	8"	8"	10	10'-0"	10	10'-0"	2	2'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	3'-2"	5'-5"	4	12"	5'-0"	4	12"	5'-0"
5	5	8"	8"	8"	8"	10	10'-0"	10	10'-0"	3	3'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	3'-8"	5'-11"	4	12"	6'-0"	4	12"	6'-0"
5	6	8"	8"	8"	8"	10	10'-0"	10	10'-0"	4	4'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	4'-2"	6'-5"	4	12"	7'-0"	4	12"	7'-0"
5	7	8"	8"	8"	8"	10	10'-0"	10	10'-0"	5	5'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	4'-8"	6'-11"	4	12"	8'-0"	4	12"	8'-0"
6	4	8"	8"	8"	8"	12	12'-0"	12	12'-0"	2	2'-0"	4	12"	12'-3"	4	12"	13'-8"	4	12"	2'-8 3/8"	5'-2"	4	12"	2'-8 3/8"	3'-2"	5'-7"	4	12"	5'-0"	4	12"	5'-0"
6	5	8"	8"	8"	8"	12	12'-0"	12	12'-0"	3	3'-0"	4	12"	12'-3"	4	12"	13'-8"	4	12"	2'-8 3/8"	5'-2"	4	12"	2'-8 3/8"	3'-8"	6'-1"	4	12"	6'-0"	4	12"	6'-0"
6	6	8"	8"	8"	8"	12	12'-0"	12	12'-0"	4	4'-0"	4	12"	12'-3"	4	12"	13'-8"	4	12"	2'-8 3/8"	5'-2"	4	12"	2'-8 3/8"	4'-2"	6'-7"	4	12"	7'-0"	4	12"	7'-0"
6	7	8"	8"	8"	8"	12	12'-0"	12	12'-0"	5	5'-0"	4	12"	12'-3"	4	12"	13'-8"	4	12"	2'-8 3/8"	5'-2"	4	12"	2'-8 3/8"	4'-8"	7'-1"	4	12"	8'-0"	4	12"	8'-0"
6	8	8"	8"	8"	8"	12	12'-0"	12	12'-0"	6	6'-0"	4	12"	12'-3"	4	12"	13'-8"	4	12"	2'-8 3/8"	5'-2"	4	12"	2'-8 3/8"	5'-2"	7'-7"	4	12"	9'-0"	4	12"	9'-0"
7	4	8"	8"	8"	8"	14	14'-0"	14	14'-0"	2	2'-0"	4	11"	13'-10"	4	11"	15'-8"	--	---	----	----	5	11"	2'-10 3/4"	3'-2"	5'-9"	4	12"	5'-0"	4	11 1/2"	5'-0"
7	6	8"	8"	8"	8"	14	14'-0"	14	14'-0"	4	4'-0"	4	11"	13'-10"	4	11"	15'-8"	--	---	----	----	5	11"	2'-10 3/4"	4'-2"	6'-9"	4	12"	7'-0"	4	12"	7'-0"
7	8	8"	8"	8"	8"	14	14'-0"	14	14'-0"	6	6'-0"	4	10"	13'-10"	4	10"	15'-8"	4	10"	2'-10 3/4"	5'-6"	4	10"	2'-10 3/4"	5'-2"	7'-10"	4	12"	9'-0"	4	12"	9'-0"
7	10	8"	8"	8"	8"	14	14'-0"	14	14'-0"	8	8'-0"	4	9"	13'-10"	4	9"	15'-8"	4	9"	2'-10 3/4"	5'-6"	4	9"	2'-10 3/4"	6'-2"	8'-10"	4	12"	11'-0"	4	12"	11'-0"
8	4	8"	8"	8"	8"	16	16'-0"	16	16'-0"	2	2'-0"	4	8"	15'-6"	4	8"	17'-8"	4	8"	3'-1 1/4"	5'-11"	4	8"	3'-1 1/4"	3'-2"	6'-0"	4	12"	5'-0"	4	10"	5'-0"
8	6	8"	8"	8"	8"	16	16'-0"	16	16'-0"	4	4'-0"	5	11"	15'-6"	5	11"	17'-8"	4	11"	3'-1 1/4"	5'-11"	5	11"	3'-1 1/4"	4'-2"	6'-11"	4	12"	7'-0"	4	10"	7'-0"
8	8	8"	8"	8"	8"	16	16'-0"	16	16'-0"	6	6'-0"	5	11"	15'-6"	5	11"	17'-8"	4	11"	3'-1 1/4"	5'-11"	5	11"	3'-1 1/4"	5'-2"	7'-11"	4	12"	9'-0"	4	10"	9'-0"
8	10	8"	8"	8"	8"	16	16'-0"	16	16'-0"	8	8'-0"	5	10"	15'-6"	5	10"	17'-8"	4	10"	3'-1 1/4"	5'-11"	5	10"	3'-1 1/4"	6'-2"	8'-11"	4	12"	11'-0"	4	10 1/2"	11'-0"
9	4	8"	8"	8"	8"	18	18'-0"	18	18'-0"	2	2'-0"	5	9"	17'-1"	4	9"	19'-8"	4	9"	3'-3 5/8"	6'-4"	5	9"	3'-3 5/8"	3'-2"	6'-2"	4	12"	5'-0"	4	9"	5'-0"
9	6	8 1/4"	8 1/4"	8"	8"	18	18'-0"	18	18'-0"	4	4'-0"	5	10"	17'-1"	5	10"	19'-8"	4	10"	3'-3 5/8"	6'-4"	5	10"	3'-3 5/8"	4'-2 1/4"	7'-2"	4	12"	7'-0"	4	10"	7'-0"
9	8	8 1/2"	8 1/2"	8"	8"	18	18'-0"	18	18'-0"	6	6'-0"	5	9"	17'-1"	5	9"	19'-8"	4	9"	3'-3 5/8"	6'-4"	5	9"	3'-3 5/8"	5'-2 1/2"	8'-2"	4	12"	9'-1"	4	10"	9'-1"
9	10	9"	9"	8"	8"	18	18'-0"	18	18'-0"	8	8'-0"	6	12"	17'-1"	5	12"	19'-8"	4	12"	3'-3 5/8"	6'-4"	6	12"	3'-3 5/8"	6'-3"	9'-2"	4	12"	11'-2"	4	10"	11'-2"
9	12	9"	9"	8"	8"	18	18'-0"	18	18'-0"	10	10'-0"	6	8"	17'-1"	5	8"	19'-8"	4	8"	3'-3 5/8"	6'-4"	5	8"	3'-3 5/8"	7'-3"	10'-3"	4	11 1/2"	13'-2"	4	11"	13'-2"
10	4	8 1/2"	8 1/2"	8"	8"	20	20'-0"	20	20'-0"	2	2'-0"	5	9"	18'-8"	5	9"	21'-8"	--	---	----	----	6	9"	3'-6"	3'-2 1/2"	6'-4"	4	12"	5'-1"	4	8"	5'-1"
10	6	8 3/4"	8 3/4"	8"	8"	20	20'-0"	20	20'-0"	4	4'-0"	5	9"	18'-8"	5	9"	21'-8"	4	9"	3'-6"	6'-9"	5	9"	3'-6"	4'-2 3/4"	7'-5"	4	12"	7'-2"	4	9"	7'-2"
10	8	9"	9"	8"	8"	20	20'-0"	20	20'-0"	6	6'-0"	6	12"	18'-8"	6	12"	21'-8"	4	12"	3'-6"	6'-9"	6	12"	3'-6"	5'-3"	8'-4"	4	12"	9'-2"	4	10"	9'-2"
10	10	9 1/4"	9 1/4"	8"	8"	20	20'-0"	20	20'-0"	8	8'-0"	5	8"	18'-8"	5	8"	21'-8"	4	8"	3'-6"	6'-9"	5	8"	3'-6"	6'-3 1/4"	9'-5"	4	12"	11'-2"	4	10"	11'-2"
10	12	9 3/4"	9 3/4"	8"	8"	20	20'-0"	20	20'-0"	10	10'-0"	6	10"	18'-8"	5	10"	21'-8"	4	10"	3'-6"	6'-9"	5	10"	3'-6"	7'-3 3/4"	10'-6"	4	12"	13'-3"	4	10"	13'-3"
12	6	9 3/4"	9 3/4"	8"	8"	24	24'-0"	24	24'-0"	4	4'-0"	5	8"	21'-10"	5	8"	25'-8"	4	8"	3'-10 3/4"	7'-6"	5	8"	3'-10 3/4"	4'-3 3/4"	7'-11"	4	12"	7'-3"	4	7 1/2"	7'-3"
12	8	9 3/4"	9 3/4"	8"	8"	24	24'-0"	24	24'-0"	6	6'-0"	6	11"	21'-10"	6	11"	25'-8"	4	11"	3'-10 3/4"	7'-6"	6	11"	3'-10 3/4"	5'-3 3/4"	8'-10"	4	12"	9'-3"	4	8"	9'-3"
12	10	10 1/4"	10 1/4"	8"	8"	24	24'-0"	24	24'-0"	8	8'-0"	6	9"	21'-10"	6	9"	25'-8"	4	9"	3'-10 3/4"	7'-6"	6	9"	3'-10 3/4"	6'-4 1/4"	9'-10"	4	12"	11'-5"	4	10"	11'-5"
12	12	10 1/4"	10 1/4"	8"	8"	24	24'-0"	24	24'-0"	10	10'-0"	7	12"	21'-10"	7	12"	25'-8"	5	12"	3'-10 3/4"	7'-6"	7	12"	3'-10 3/4"	7'-4 1/4"	10'-9"	4	12"	13'-5"	4	10"	13'-5"

Sheet 1 of 2

For Typical Section, notes and other details, refer to standard BCD-DT.

DOUBLE BOX CULVERTS
2 TO 5 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

1003.06

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS								WINGWALL				
(FT.)	(FT.)	SIZE	SPACING C-C	BTI									LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/LONG. JT)	CONCRETE CL. A3 A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HWI		NO. HW2 BARS	NO. HW3 BARS		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)
				a	b	c	d	e	f	g	HEADWALL LENGTH	SIZE							LENGTH										
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'-11"	32	12	30.956	0.695	79.439	9'- 6"	6	9'- 2"	1	4	1.433	67.988	1.425	55.073	A			
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'-11"	32	18	33.074	0.768	85.703	9'- 6"	6	9'- 2"	1	5	1.531	71.439	1.517	55.073	C			
4	3	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'-11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'-11"	40	12	37.636	0.792	92.688	11'- 6"	6	11'- 2"	1	4	1.635	80.004	1.634	67.089	A			
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'-11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'-11"	40	18	39.754	0.866	98.952	11'- 6"	6	11'- 2"	1	5	1.734	83.455	1.726	67.089	C			
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'-11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'-11"	40	24	41.872	0.940	105.216	11'- 6"	6	11'- 2"	1	6	1.833	86.907	1.819	67.089	E			
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'-11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'-11"	40	30	43.990	1.013	111.480	11'- 6"	6	11'- 2"	1	7	1.932	90.358	1.912	67.089	G			
5	3	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	11'- 8"	-----	11'-11"	48	12	44.316	0.890	106.159	13'- 6"	6	13'- 2"	1	4	1.837	92.020	1.843	79.105	A			
5	4	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	11'- 8"	-----	11'-11"	48	18	46.434	0.964	112.423	13'- 6"	6	13'- 2"	1	5	1.936	95.471	1.935	79.105	C			
5	5	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	11'- 8"	-----	11'-11"	48	24	48.552	1.037	118.687	13'- 6"	6	13'- 2"	1	6	2.035	98.923	2.028	79.105	E			
5	6	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	11'- 8"	-----	11'-11"	48	30	50.670	1.111	124.951	13'- 6"	6	13'- 2"	1	7	2.134	102.374	2.121	79.105	G			
5	7	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	11'- 8"	-----	11'-11"	48	36	52.788	1.185	131.215	13'- 6"	6	13'- 2"	1	8	2.233	105.825	2.214	79.105	I			
6	4	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	13'- 8"	-----	13'-11"	56	18	53.114	1.060	139.477	15'- 6"	6	15'- 2"	1	5	2.138	107.487	2.144	91.121	C			
6	5	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	13'- 8"	-----	13'-11"	56	24	55.232	1.134	145.741	15'- 6"	6	15'- 2"	1	6	2.237	110.939	2.237	91.121	E			
6	6	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	13'- 8"	-----	13'-11"	56	30	57.350	1.208	152.005	15'- 6"	6	15'- 2"	1	7	2.336	114.390	2.330	91.121	G			
6	7	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	13'- 8"	-----	13'-11"	56	36	59.468	1.281	158.269	15'- 6"	6	15'- 2"	1	8	2.435	117.841	2.423	91.121	I			
6	8	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	13'- 8"	-----	13'-11"	56	42	61.586	1.355	164.533	15'- 6"	6	15'- 2"	1	9	2.534	121.293	2.515	91.121	K			
7	4	4	11"	5'-11 3/8"	0'- 4 1/2"	3'- 1 1/8"	0'- 5 7/8"	0'- 3 3/4"	15'- 8 1/8"	-----	15'-11"	64	18	59.794	1.158	155.533	17'- 6"	6	17'- 2"	1	5	2.341	119.503	2.353	103.137	C			
7	6	4	11"	5'-11 3/8"	0'- 4 1/2"	3'- 1 1/8"	0'- 5 7/8"	0'- 3 3/4"	15'- 8 1/8"	-----	15'-11"	64	30	64.030	1.305	169.650	17'- 6"	6	17'- 2"	1	7	2.539	126.406	2.539	103.137	G			
7	8	4	10"	5'-11 3/8"	0'- 4 1/2"	3'- 1 1/8"	0'- 5 7/8"	0'- 3 3/4"	15'- 8 1/8"	-----	15'-11"	64	42	68.266	1.451	198.156	17'- 6"	6	17'- 2"	1	9	2.736	133.309	2.724	103.137	K			
7	10	4	9"	5'-11 3/8"	0'- 4 1/2"	3'- 1 1/8"	0'- 5 7/8"	0'- 3 3/4"	15'- 8 1/8"	-----	15'-11"	64	54	72.502	1.597	224.415	17'- 6"	6	17'- 2"	1	11	2.934	140.211	2.910	103.137	O			
8	4	4	8"	6'- 8 7/8"	0'- 4 1/2"	3'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	17'- 7 7/8"	-----	17'-11"	72	18	66.474	1.252	219.693	19'- 6"	6	19'- 2"	1	5	2.543	131.519	2.562	115.153	C			
8	6	5	11"	6'- 8 7/8"	0'- 4 5/8"	3'- 6 5/8"	0'- 6"	0'- 3 3/4"	17'- 7 7/8"	-----	17'-11"	72	30	70.710	1.398	244.924	19'- 6"	6	19'- 2"	1	7	2.741	138.422	2.748	115.153	G			
8	8	5	11"	6'- 8 7/8"	0'- 4 5/8"	3'- 6 5/8"	0'- 6"	0'- 3 3/4"	17'- 7 7/8"	-----	17'-11"	72	42	74.946	1.545	259.865	19'- 6"	6	19'- 2"	1	9	2.939	145.325	2.933	115.153	K			
8	10	5	10"	6'- 8 7/8"	0'- 4 5/8"	3'- 6 5/8"	0'- 6"	0'- 3 3/4"	17'- 7 7/8"	-----	17'-11"	72	54	79.182	1.691	291.375	19'- 6"	6	19'- 2"	1	11	3.137	152.227	3.119	115.153	O			
9	4	5	9"	7'- 6 1/2"	0'- 4 5/8"	3'-11 1/2"	0'- 6"	0'- 3 3/4"	19'- 8"	-----	19'-11"	80	18	73.154	1.347	270.604	21'- 6"	6	21'- 2"	1	5	2.745	143.535	2.771	127.169	C			
9	6	5	10"	7'- 6 1/2"	0'- 4 7/8"	3'-11 1/4"	0'- 6 1/4"	0'- 4"	19'- 8"	-----	19'-11"	80	30	77.390	1.525	283.329	21'- 6"	6	21'- 2"	1	7	2.933	150.438	2.946	127.169	G			
9	8	5	9"	7'- 6 1/4"	0'- 5 1/8"	3'-11"	0'- 6 5/8"	0'- 4 1/4"	19'- 8"	-----	19'-11"	80	42	81.626	1.701	321.531	21'- 6"	6	21'- 2"	1	9	3.120	157.341	3.121	127.169	K			
9	10	6	12"	7'- 6"	0'- 5 3/4"	3'-10 1/2"	0'- 7 1/2"	0'- 4 3/4"	19'- 8"	-----	20'- 0"	80	54	85.862	1.910	330.984	21'- 6"	6	21'- 2"	1	11	3.297	164.243	3.285	127.169	O			
9	12	4	8"	7'- 6"	0'- 5 1/2"	3'-10 1/2"	0'- 7 1/4"	0'- 4 3/4"	19'- 8"	-----	20'- 0"	80	66	90.098	2.054	383.924	21'- 6"	6	21'- 2"	1	13	3.495	171.146	3.471	127.169	S			
10	4	5	9"	8'- 3 7/8"	0'- 5 1/8"	4'- 3 3/4"	0'- 6 5/8"	0'- 4 1/4"	21'- 8"	-----	21'-11"	88	18	79.834	1.511	306.403	23'- 6"	6	23'- 2"	1	5	2.924	155.551	2.956	139.185	C			
10	6	5	9"	8'- 3 3/4"	0'- 5 3/8"	4'- 3 1/2"	0'- 7"	0'- 4 1/2"	21'- 8"	-----	22'- 0"	88	30	84.070	1.691	331.079	23'- 6"	6	23'- 2"	1	7	3.109	162.454	3.129	139.185	G			
10	8	6	12"	8'- 3 5/8"	0'- 5 3/4"	4'- 3 1/4"	0'- 7 1/2"	0'- 4 3/4"	21'- 8"	-----	22'- 0"	88	42	88.306	1.871	356.871	23'- 6"	6	23'- 2"	1	9	3.295	169.357	3.303	139.185	K			
10	10	5	8"	8'- 3 1/2"	0'- 5 1/8"	4'- 3"	0'- 7 3/4"	0'- 5"	21'- 8"	-----	22'- 0"	88	54	92.542	2.051	392.934	23'- 6"	6	23'- 2"	1	11	3.499	176.259	3.495	139.185	P			
10	12	6	10"	8'- 3 1/4"	0'- 6 1/2"	4'- 2 1/2"	0'- 8 1/2"	0'- 5 1/2"	21'- 8"	-----	22'- 0"	88	66	96.778	2.266	397.586	23'- 6"	6	23'- 2"	1	13	3.673	183.162	3.656	139.185	T			
12	6	5	8"	9'-10 1/2"	0'- 6 3/8"	5'- 1/8"	0'- 8 3/8"	0'- 5 1/2"	25'- 8 1/8"	-----	26'- 0"	104	30	97.430	2.061	415.520	27'- 6"	6	27'- 2"	1	7	3.463	186.486	3.496	163.217	H			
12	8	6	11"	9'-10 1/2"	0'- 6 1/2"	5'- 1/8"	0'- 8 1/2"	0'- 5 1/2"	25'- 8 1/8"	-----	26'- 0"	104	42	101.666	2.208	436.782	27'- 6"	6	27'- 2"	1	9	3.660	193.389	3.681	163.217	L			
12	10	6	9"	9'-10 1/4"	0'- 7"	4'-11 3/4"	0'- 9 1/4"	0'- 6"	25'- 8 1/8"	-----	26'- 1"	104	54	105.902	2.429	523.549	27'- 6"	6	27'- 2"	1	11	3.828	200.291	3.837	163.217	P			
12	12	7	12"	9'-10 1/4"	0'- 7 7/8"	4'-11 3/4"	0'- 9 1/4"	0'- 5 7/8"	25'- 8"	-----	26'- 1"	104	66	110.138	2.575	553.713	27'- 6"	6	27'- 2"	1	13	4.026	207.194	4.022	163.217	T			

STRUCTURE AND BRIDGE DIVISION

DOUBLE BOX CULVERTS
2 TO 5 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

1003.07

BCD-10

DIMENSIONS								REINFORCING STEEL																								
SPAN	HGHT	T1	T2	T3	T4							BH1		BH2		BH3		BH4			BV1		BV2									
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	6	6'-0"	6	6'-0"	1	1'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	2'-8"	4'-6"	4	12"	4'-0"	4	12"	4'-0"
3	4	8"	8"	8"	8"	6	6'-0"	6	6'-0"	2	2'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	3'-2"	5'-0"	4	12"	5'-0"	4	12"	5'-0"
4	3	8"	8"	8"	8"	8	8'-0"	8	8'-0"	1	1'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	2'-8"	4'-8"	4	12"	4'-0"	4	12"	4'-0"
4	4	8"	8"	8"	8"	8	8'-0"	8	8'-0"	2	2'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-2"	5'-2"	4	12"	5'-0"	4	12"	5'-0"
4	5	8"	8"	8"	8"	8	8'-0"	8	8'-0"	3	3'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-8"	5'-8"	4	12"	6'-0"	4	12"	6'-0"
4	6	8"	8"	8"	8"	8	8'-0"	8	8'-0"	4	4'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	4'-2"	6'-2"	4	12"	7'-0"	4	12"	7'-0"
5	3	8"	8"	8"	8"	10	10'-0"	10	10'-0"	1	1'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	2'-8"	4'-11"	4	12"	4'-0"	4	12"	4'-0"
5	4	8"	8"	8"	8"	10	10'-0"	10	10'-0"	2	2'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	3'-2"	5'-5"	4	12"	5'-0"	4	12"	5'-0"
5	5	8"	8"	8"	8"	10	10'-0"	10	10'-0"	3	3'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	3'-8"	5'-11"	4	12"	6'-0"	4	12"	6'-0"
5	6	8"	8"	8"	8"	10	10'-0"	10	10'-0"	4	4'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	4'-2"	6'-5"	4	12"	7'-0"	4	12"	7'-0"
5	7	8"	8"	8"	8"	10	10'-0"	10	10'-0"	5	5'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	4'-8"	6'-11"	4	12"	8'-0"	4	12"	8'-0"
6	4	8"	8"	8"	8"	12	12'-0"	12	12'-0"	2	2'-0"	4	12"	12'-3"	4	12"	13'-8"	--	---	----	----	4	12"	2'-8 3/8"	3'-2"	5'-7"	4	12"	5'-0"	4	12"	5'-0"
6	5	8"	8"	8"	8"	12	12'-0"	12	12'-0"	3	3'-0"	4	12"	12'-3"	4	12"	13'-8"	--	---	----	----	4	12"	2'-8 3/8"	3'-8"	6'-1"	4	12"	6'-0"	4	12"	6'-0"
6	6	8"	8"	8"	8"	12	12'-0"	12	12'-0"	4	4'-0"	4	12"	12'-3"	4	12"	13'-8"	--	---	----	----	4	12"	2'-8 3/8"	4'-2"	6'-7"	4	12"	7'-0"	4	12"	7'-0"
6	7	8"	8"	8"	8"	12	12'-0"	12	12'-0"	5	5'-0"	4	12"	12'-3"	4	12"	13'-8"	--	---	----	----	4	12"	2'-8 3/8"	4'-8"	7'-1"	4	12"	8'-0"	4	12"	8'-0"
6	8	8"	8"	8"	8"	12	12'-0"	12	12'-0"	6	6'-0"	4	12"	12'-3"	4	12"	13'-8"	3	12"	2'-8 3/8"	5'-2"	4	12"	2'-8 3/8"	5'-2"	7'-7"	4	12"	9'-0"	4	12"	9'-0"
7	4	8"	8"	8"	8"	14	14'-0"	14	14'-0"	2	2'-0"	4	12"	13'-10"	4	12"	15'-8"	--	---	----	----	5	12"	2'-10 3/4"	3'-2"	5'-9"	4	12"	5'-0"	4	12"	5'-0"
7	6	8"	8"	8"	8"	14	14'-0"	14	14'-0"	4	4'-0"	4	12"	13'-10"	4	12"	15'-8"	4	12"	2'-10 3/4"	5'-6"	4	12"	2'-10 3/4"	4'-2"	6'-10"	4	12"	7'-0"	4	12"	7'-0"
7	8	8"	8"	8"	8"	14	14'-0"	14	14'-0"	6	6'-0"	4	12"	13'-10"	4	12"	15'-8"	4	12"	2'-10 3/4"	5'-6"	4	12"	2'-10 3/4"	5'-2"	7'-10"	4	12"	9'-0"	4	12"	9'-0"
7	10	8"	8"	8"	8"	14	14'-0"	14	14'-0"	8	8'-0"	4	11"	13'-10"	4	11"	15'-8"	--	---	----	----	5	11"	2'-10 3/4"	6'-2"	8'-9"	4	12"	11'-0"	4	12"	11'-0"
8	4	8 1/4"	8 1/4"	8"	8"	16	16'-0"	16	16'-0"	2	2'-0"	4	10"	15'-6"	4	10"	17'-8"	--	---	----	----	5	10"	3'-1 1/4"	3'-2 1/4"	6'-0"	4	9"	5'-0"	4	12"	5'-0"
8	6	8 1/2"	8 1/2"	8"	8"	16	16'-0"	16	16'-0"	4	4'-0"	4	10"	15'-6"	4	10"	17'-8"	3	10"	3'-1 1/4"	6'-0"	4	10"	3'-1 1/4"	4'-2 1/2"	7'-1"	4	12"	7'-1"	4	12"	7'-1"
8	8	8 3/4"	8 3/4"	8"	8"	16	16'-0"	16	16'-0"	6	6'-0"	4	9"	15'-6"	4	9"	17'-8"	3	9"	3'-1 1/4"	6'-0"	4	9"	3'-1 1/4"	5'-2 3/4"	8'-1"	4	12"	9'-2"	4	12"	9'-2"
8	10	9"	9"	8"	8"	16	16'-0"	16	16'-0"	8	8'-0"	5	10"	15'-6"	4	10"	17'-8"	--	---	----	----	5	10"	3'-1 1/4"	6'-3"	9'-0"	4	12"	11'-2"	4	12"	11'-2"
9	4	9 1/4"	9 1/4"	8"	8"	18	18'-0"	18	18'-0"	2	2'-0"	5	9"	17'-1"	4	9"	19'-8"	4	9"	3'-3 5/8"	6'-4"	4	9"	3'-3 5/8"	3'-3 1/4"	6'-4"	4	8 1/2"	5'-2"	4	12"	5'-2"
9	6	9 1/2"	9 1/2"	8"	8"	18	18'-0"	18	18'-0"	4	4'-0"	5	9"	17'-1"	4	9"	19'-8"	3	9"	3'-3 5/8"	6'-5"	4	9"	3'-3 5/8"	4'-3 1/2"	7'-4"	4	12"	7'-3"	4	12"	7'-3"
9	8	9 3/4"	9 3/4"	8"	8"	18	18'-0"	18	18'-0"	6	6'-0"	5	9"	17'-1"	4	9"	19'-8"	3	9"	3'-3 5/8"	6'-5"	4	9"	3'-3 5/8"	5'-3 3/4"	8'-4"	4	12"	9'-3"	4	12"	9'-3"
9	10	9 3/4"	9 3/4"	8"	8"	18	18'-0"	18	18'-0"	8	8'-0"	5	9"	17'-1"	4	9"	19'-8"	4	9"	3'-3 5/8"	6'-4"	4	9"	3'-3 5/8"	6'-3 3/4"	9'-4"	4	12"	11'-3"	4	12"	11'-3"
9	12	10"	10"	8"	8"	18	18'-0"	18	18'-0"	10	10'-0"	5	8"	17'-1"	4	8"	19'-8"	4	8"	3'-3 5/8"	6'-4"	4	8"	3'-3 5/8"	7'-4"	10'-4"	4	8"	13'-4"	4	12"	13'-4"
10	4	10"	10"	8"	8"	20	20'-0"	20	20'-0"	2	2'-0"	5	8"	18'-8"	4	8"	21'-8"	4	8"	3'-6"	6'-9"	4	8"	3'-6"	3'-4"	6'-7"	4	8"	5'-4"	4	12"	5'-4"
10	6	10 1/4"	10 1/4"	8"	8"	20	20'-0"	20	20'-0"	4	4'-0"	5	9"	18'-8"	5	9"	21'-8"	--	---	----	----	5	9"	3'-6"	4'-4 1/4"	7'-6"	4	12"	7'-5"	4	12"	7'-5"
10	8	10 1/2"	10 1/2"	8"	8"	20	20'-0"	20	20'-0"	6	6'-0"	5	9"	18'-8"	5	9"	21'-8"	--	---	----	----	5	9"	3'-6"	5'-4 1/2"	8'-7"	4	12"	9'-5"	4	12"	9'-5"
10	10	10 3/4"	10 3/4"	8"	8"	20	20'-0"	20	20'-0"	8	8'-0"	5	10"	18'-8"	5	10"	21'-8"	3	10"	3'-6"	6'-10"	5	10"	3'-6"	6'-4 3/4"	9'-7"	4	12"	11'-5"	4	12"	11'-5"
10	12	10 3/4"	10 3/4"	8"	8"	20	20'-0"	20	20'-0"	10	10'-0"	5	10"	18'-8"	5	10"	21'-8"	4	10"	3'-6"	6'-9"	5	10"	3'-6"	7'-4 3/4"	10'-7"	4	8 1/2"	13'-5"	4	12"	13'-5"
12	6	12"	12"	8"	8"	24	24'-0"	24	24'-0"	4	4'-0"	6	9"	21'-10"	5	9"	25'-8"	4	9"	3'-10 3/4"	7'-6"	4	9"	3'-10 3/4"	4'-6"	8'-2"	4	11"	7'-8"	4	12"	7'-8"
12	8	12 1/4"	12 1/4"	8"	8"	24	24'-0"	24	24'-0"	6	6'-0"	6	9"	21'-10"	5	9"	25'-8"	4	9"	3'-10 3/4"	7'-6"	4	9"	3'-10 3/4"	5'-6 1/4"	9'-2"	4	12"	9'-9"	4	12"	9'-9"
12	10	12 1/2"	12 1/2"	8"	8"	24	24'-0"	24	24'-0"	8	8'-0"	6	9"	21'-10"	5	9"	25'-8"	--	---	----	----	5	9"	3'-10 3/4"	6'-6 1/2"	10'-1"	4	12"	11'-9"	4	12"	11'-9"
12	12	12 1/2"	12 1/2"	8"	8"	24	24'-0"	24	24'-0"	10	10'-0"	6	9"	21'-10"	6	9"	25'-8"	--	---	----	----	6	9"	3'-10 3/4"	7'-6 1/2"	11'-0"	4	10"	13'-9"	4	12"	13'-9"

DOUBLE BOX CULVERTS
5 TO 10 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

SPAN		HIGHT		REINFORCING STEEL										QUAN./LF		HEADWALLS								WINGWALL		
(FT.)	(FT.)	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/LONG. JT)	CONCRETE CL. A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HW1		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)		INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'- 11"	32	12	30.956	0.695	79.439	9'- 6"	6	9'- 2"	1	4	1.433	67.988	1.425	55.073	A
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'- 11"	32	18	33.074	0.768	85.703	9'- 6"	6	9'- 2"	1	5	1.531	71.439	1.517	55.073	C
4	3	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'- 11"	40	12	37.636	0.792	92.688	11'- 6"	6	11'- 2"	1	4	1.635	80.004	1.634	67.089	A
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'- 11"	40	18	39.754	0.866	98.952	11'- 6"	6	11'- 2"	1	5	1.734	83.455	1.726	67.089	C
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'- 11"	40	24	41.872	0.940	105.216	11'- 6"	6	11'- 2"	1	6	1.833	86.907	1.819	67.089	E
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'- 11"	40	30	43.990	1.013	111.480	11'- 6"	6	11'- 2"	1	7	1.932	90.358	1.912	67.089	G
5	3	3	12"	4'- 4"	0'- 4 3/8"	2'- 4 1/8"	0'- 5 7/8"	0'- 3 7/8"	11'- 7 7/8"	-----	11'- 11"	48	12	44.316	0.891	99.200	13'- 6"	6	13'- 2"	1	4	1.837	92.020	1.843	79.105	A
5	4	3	12"	4'- 4"	0'- 4 3/8"	2'- 4 1/8"	0'- 5 7/8"	0'- 3 7/8"	11'- 7 7/8"	-----	11'- 11"	48	18	46.434	0.964	105.464	13'- 6"	6	13'- 2"	1	5	1.936	95.471	1.935	79.105	C
5	5	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	11'- 8"	-----	11'- 11"	48	24	48.552	1.037	118.687	13'- 6"	6	13'- 2"	1	6	2.035	98.923	2.028	79.105	E
5	6	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	11'- 8"	-----	11'- 11"	48	30	50.670	1.111	124.951	13'- 6"	6	13'- 2"	1	7	2.134	102.374	2.121	79.105	G
5	7	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	11'- 8"	-----	11'- 11"	48	36	52.788	1.185	131.215	13'- 6"	6	13'- 2"	1	8	2.233	105.825	2.214	79.105	I
6	4	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	13'- 8"	-----	13'- 11"	56	18	53.114	1.061	125.672	15'- 6"	6	15'- 2"	1	5	2.138	107.487	2.144	91.121	C
6	5	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	13'- 8"	-----	13'- 11"	56	24	55.232	1.135	131.936	15'- 6"	6	15'- 2"	1	6	2.237	110.939	2.237	91.121	E
6	6	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	13'- 8"	-----	13'- 11"	56	30	57.350	1.209	138.200	15'- 6"	6	15'- 2"	1	7	2.336	114.390	2.330	91.121	G
6	7	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	13'- 8"	-----	13'- 11"	56	36	59.468	1.282	144.464	15'- 6"	6	15'- 2"	1	8	2.435	117.841	2.423	91.121	I
6	8	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	13'- 8"	-----	13'- 11"	56	42	61.586	1.355	158.499	15'- 6"	6	15'- 2"	1	9	2.534	121.293	2.515	91.121	K
7	4	4	12"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 1/8"	0'- 5 7/8"	0'- 3 3/4"	15'- 8 1/8"	-----	15'- 11"	64	18	59.794	1.159	147.546	17'- 6"	6	17'- 2"	1	5	2.341	119.503	2.353	103.137	C
7	6	4	12"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 1/8"	0'- 5 7/8"	0'- 3 3/4"	15'- 8 1/8"	-----	15'- 11"	64	30	64.030	1.305	166.367	17'- 6"	6	17'- 2"	1	7	2.539	126.406	2.539	103.137	G
7	8	4	12"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 1/8"	0'- 5 7/8"	0'- 3 3/4"	15'- 8 1/8"	-----	15'- 11"	64	42	68.266	1.453	178.895	17'- 6"	6	17'- 2"	1	9	2.736	133.309	2.724	103.137	K
7	10	4	11"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 1/8"	0'- 5 7/8"	0'- 3 3/4"	15'- 8 1/8"	-----	15'- 11"	64	54	72.502	1.599	198.464	17'- 6"	6	17'- 2"	1	11	2.934	140.211	2.910	103.137	O
8	4	4	10"	6'- 8 3/4"	0'- 4 3/4"	3'- 6 3/8"	0'- 6 1/4"	0'- 4"	17'- 7 7/8"	-----	17'- 11"	72	18	66.474	1.283	182.386	19'- 6"	6	19'- 2"	1	5	2.534	131.519	2.553	115.153	C
8	6	4	10"	6'- 8 3/8"	0'- 5"	3'- 6 1/8"	0'- 6 1/2"	0'- 4 1/4"	17'- 7 7/8"	-----	17'- 11"	72	30	70.710	1.458	193.740	19'- 6"	6	19'- 2"	1	7	2.723	138.422	2.730	115.153	G
8	8	4	9"	6'- 8 1/2"	0'- 5 1/4"	3'- 5 5/8"	0'- 6 1/8"	0'- 4 1/2"	17'- 7 7/8"	-----	18'- 0"	72	42	74.946	1.631	220.356	19'- 6"	6	19'- 2"	1	9	2.912	145.325	2.906	115.153	K
8	10	4	10"	6'- 8 3/8"	0'- 5 1/2"	3'- 5 5/8"	0'- 7 1/4"	0'- 4 3/4"	17'- 7 7/8"	-----	18'- 0"	72	54	79.182	1.806	239.275	19'- 6"	6	19'- 2"	1	11	3.101	152.227	3.083	115.153	O
9	4	4	9"	7'- 5 7/8"	0'- 5 3/4"	3'- 10 1/4"	0'- 7 5/8"	0'- 5"	19'- 8"	-----	20'- 0"	80	18	73.154	1.503	240.157	21'- 6"	6	21'- 2"	1	5	2.711	143.535	2.737	127.169	D
9	6	4	9"	7'- 5 3/4"	0'- 6"	3'- 10"	0'- 8"	0'- 5 1/4"	19'- 8"	-----	20'- 0"	80	30	77.390	1.682	241.260	21'- 6"	6	21'- 2"	1	7	2.899	150.438	2.912	127.169	H
9	8	4	9"	7'- 5 5/8"	0'- 6 1/4"	3'- 9 3/4"	0'- 8 3/8"	0'- 5 1/2"	19'- 8"	-----	20'- 1"	80	42	81.626	1.860	254.827	21'- 6"	6	21'- 2"	1	9	3.086	157.341	3.087	127.169	L
9	10	4	9"	7'- 5 5/8"	0'- 6 1/4"	3'- 9 3/4"	0'- 8 3/8"	0'- 5 1/2"	19'- 8"	-----	20'- 1"	80	54	85.862	2.007	277.942	21'- 6"	6	21'- 2"	1	11	3.284	164.243	3.272	127.169	P
9	12	4	8"	7'- 5 1/2"	0'- 6 1/2"	3'- 9 1/2"	0'- 8 5/8"	0'- 5 3/4"	19'- 8"	-----	20'- 1"	80	66	90.098	2.182	322.702	21'- 6"	6	21'- 2"	1	13	3.471	171.146	3.447	127.169	T
10	4	4	8"	8'- 3 3/8"	0'- 6 1/2"	4'- 2 1/4"	0'- 8 5/8"	0'- 5 3/4"	21'- 8"	-----	22'- 1"	88	18	79.834	1.716	282.888	23'- 6"	6	23'- 2"	1	5	2.870	155.551	2.902	139.185	D
10	6	5	9"	8'- 3"	0'- 6 7/8"	4'- 2"	0'- 9 1/8"	0'- 6"	21'- 8"	-----	22'- 1"	88	30	84.070	1.897	305.203	23'- 6"	6	23'- 2"	1	7	3.055	162.454	3.075	139.185	H
10	8	5	9"	8'- 2 7/8"	0'- 7 1/8"	4'- 1 3/4"	0'- 9 1/2"	0'- 6 1/4"	21'- 8"	-----	22'- 1"	88	42	88.306	2.078	321.085	23'- 6"	6	23'- 2"	1	9	3.241	169.357	3.249	139.185	L
10	10	5	10"	8'- 2 3/4"	0'- 7 3/8"	4'- 1 1/2"	0'- 9 3/8"	0'- 6 1/2"	21'- 8"	-----	22'- 1"	88	54	92.542	2.259	326.146	23'- 6"	6	23'- 2"	1	11	3.427	176.259	3.422	139.185	P
10	12	5	10"	8'- 2 3/4"	0'- 7 3/8"	4'- 1 1/2"	0'- 9 3/8"	0'- 6 1/2"	21'- 8"	-----	22'- 1"	88	66	96.778	2.405	357.699	23'- 6"	6	23'- 2"	1	13	3.625	183.162	3.608	139.185	T
12	6	5	9"	9'- 9 3/8"	0'- 8 5/8"	4'- 9 7/8"	0'- 11 5/8"	0'- 7 3/4"	25'- 8 1/8"	-----	26'- 2"	104	30	97.430	2.424	389.599	27'- 6"	6	27'- 2"	1	7	3.326	186.486	3.359	163.217	H
12	8	5	9"	9'- 9 1/4"	0'- 8 7/8"	4'- 9 5/8"	1'- 0"	0'- 8"	25'- 8 1/8"	-----	26'- 3"	104	42	101.666	2.612	402.541	27'- 6"	6	27'- 2"	1	9	3.509	193.389	3.530	163.217	L
12	10	5	9"	9'- 9 1/8"	0'- 9 1/8"	4'- 9 3/8"	1'- 1/4"	0'- 8 1/4"	25'- 8 1/8"	-----	26'- 3"	104	54	105.902	2.799	409.110	27'- 6"	6	27'- 2"	1	11	3.691	200.291	3.700	163.217	P
12	12	5	9"	9'- 9 1/8"	0'- 9 1/8"	4'- 9 3/8"	1'- 1/4"	0'- 8 1/4"	25'- 8 1/8"	-----	26'- 3"	104	66	110.138	2.942	486.083	27'- 6"	6	27'- 2"	1	13	3.889	207.194	3.885	163.217	T

STRUCTURE AND BRIDGE DIVISION

DOUBLE BOX CULVERTS
5 TO 10 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

BCD-15

DIMENSIONS										REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	T4						BH1				BH2				BH3				BH4				BV1			BV2		
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	6	6'-0"	6	6'-0"	1	1'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	2'-8"	4'-6"	4	12"	4'-0"	4	12"	4'-0"
3	4	8"	8"	8"	8"	6	6'-0"	6	6'-0"	2	2'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	3'-2"	5'-0"	4	12"	5'-0"	4	12"	5'-0"
4	3	8"	8"	8"	8"	8	8'-0"	8	8'-0"	1	1'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	2'-8"	4'-8"	4	12"	4'-0"	4	12"	4'-0"
4	4	8"	8"	8"	8"	8	8'-0"	8	8'-0"	2	2'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-2"	5'-2"	4	12"	5'-0"	4	12"	5'-0"
4	5	8"	8"	8"	8"	8	8'-0"	8	8'-0"	3	3'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-8"	5'-8"	4	12"	6'-0"	4	12"	6'-0"
4	6	8"	8"	8"	8"	8	8'-0"	8	8'-0"	4	4'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	4'-2"	6'-2"	4	12"	7'-0"	4	12"	7'-0"
5	3	8"	8"	8"	8"	10	10'-0"	10	10'-0"	1	1'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	2'-8"	4'-11"	4	12"	4'-0"	4	12"	4'-0"
5	4	8"	8"	8"	8"	10	10'-0"	10	10'-0"	2	2'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	3'-2"	5'-5"	4	12"	5'-0"	4	12"	5'-0"
5	5	8"	8"	8"	8"	10	10'-0"	10	10'-0"	3	3'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	3'-8"	5'-11"	4	12"	6'-0"	4	12"	6'-0"
5	6	8"	8"	8"	8"	10	10'-0"	10	10'-0"	4	4'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	4'-2"	6'-5"	4	12"	7'-0"	4	12"	7'-0"
5	7	8"	8"	8"	8"	10	10'-0"	10	10'-0"	5	5'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	4'-8"	6'-11"	4	12"	8'-0"	4	12"	8'-0"
6	4	8"	8"	8"	8"	12	12'-0"	12	12'-0"	2	2'-0"	4	12"	12'-3"	4	12"	13'-8"	4	12"	2'-8 3/8"	5'-2"	4	12"	2'-8 3/8"	3'-2"	5'-7"	4	12"	5'-0"	4	12"	5'-0"
6	5	8"	8"	8"	8"	12	12'-0"	12	12'-0"	3	3'-0"	4	12"	12'-3"	4	12"	13'-8"	4	12"	2'-8 3/8"	5'-2"	4	12"	2'-8 3/8"	3'-8"	6'-1"	4	12"	6'-0"	4	12"	6'-0"
6	6	8"	8"	8"	8"	12	12'-0"	12	12'-0"	4	4'-0"	4	12"	12'-3"	4	12"	13'-8"	4	12"	2'-8 3/8"	5'-2"	4	12"	2'-8 3/8"	4'-2"	6'-7"	4	12"	7'-0"	4	12"	7'-0"
6	7	8"	8"	8"	8"	12	12'-0"	12	12'-0"	5	5'-0"	4	12"	12'-3"	4	12"	13'-8"	4	12"	2'-8 3/8"	5'-2"	4	12"	2'-8 3/8"	4'-8"	7'-1"	4	12"	8'-0"	4	12"	8'-0"
6	8	8 1/4"	8 1/4"	8"	8"	12	12'-0"	12	12'-0"	6	6'-0"	4	12"	12'-3"	4	12"	13'-8"	4	12"	2'-8 3/8"	5'-2"	4	12"	2'-8 3/8"	5'-2 1/4"	7'-7"	4	12"	9'-0"	4	12"	9'-0"
7	4	8 3/4"	8 3/4"	8"	8"	14	14'-0"	14	14'-0"	2	2'-0"	4	11"	13'-10"	4	11"	15'-8"	--	---	----	----	5	11"	2'-10 3/4"	3'-2 3/4"	5'-10"	4	11"	5'-2"	4	12"	5'-2"
7	6	9"	9"	8"	8"	14	14'-0"	14	14'-0"	4	4'-0"	4	11"	13'-10"	4	11"	15'-8"	4	11"	2'-10 3/4"	5'-6"	4	11"	2'-10 3/4"	4'-3"	6'-11"	4	12"	7'-2"	4	12"	7'-2"
7	8	9 1/4"	9 1/4"	8"	8"	14	14'-0"	14	14'-0"	6	6'-0"	4	11"	13'-10"	4	11"	15'-8"	4	11"	2'-10 3/4"	5'-6"	4	11"	2'-10 3/4"	5'-3 1/4"	7'-11"	4	12"	9'-2"	4	12"	9'-2"
7	10	9 1/2"	9 1/2"	8"	8"	14	14'-0"	14	14'-0"	8	8'-0"	4	11"	13'-10"	4	11"	15'-8"	3	11"	2'-10 3/4"	5'-7"	5	11"	2'-10 3/4"	6'-3 1/2"	8'-10"	4	9"	11'-3"	4	12"	11'-3"
8	4	10 1/4"	10 1/4"	8"	8"	16	16'-0"	16	16'-0"	2	2'-0"	5	9"	15'-6"	4	9"	17'-8"	3	9"	3'-1 1/4"	6'-0"	4	9"	3'-1 1/4"	3'-4 1/4"	6'-2"	4	10 1/2"	5'-5"	4	12"	5'-5"
8	6	10 1/2"	10 1/2"	8"	8"	16	16'-0"	16	16'-0"	4	4'-0"	5	9"	15'-6"	4	9"	17'-8"	--	---	----	----	4	9"	3'-1 1/4"	4'-4 1/2"	7'-3"	4	12"	7'-5"	4	12"	7'-5"
8	8	10 3/4"	10 3/4"	8"	8"	16	16'-0"	16	16'-0"	6	6'-0"	5	9"	15'-6"	4	9"	17'-8"	3	9"	3'-1 1/4"	6'-0"	4	9"	3'-1 1/4"	5'-4 3/4"	8'-3"	4	12"	9'-5"	4	12"	9'-5"
8	10	11"	11"	8"	8"	16	16'-0"	16	16'-0"	8	8'-0"	5	9"	15'-6"	4	9"	17'-8"	--	---	----	----	5	9"	3'-1 1/4"	6'-5"	9'-2"	4	10"	11'-6"	4	12"	11'-6"
9	4	11 1/4"	11 1/4"	8"	8"	18	18'-0"	18	18'-0"	2	2'-0"	5	8"	17'-1"	4	8"	19'-8"	3	8"	3'-3 5/8"	6'-5"	4	8"	3'-3 5/8"	3'-5 1/4"	6'-6"	4	10"	5'-6"	4	12"	5'-6"
9	6	11 1/2"	11 1/2"	8"	8"	18	18'-0"	18	18'-0"	4	4'-0"	5	8"	17'-1"	4	8"	19'-8"	--	---	----	----	4	8"	3'-3 5/8"	4'-5 1/2"	7'-6"	4	12"	7'-7"	4	12"	7'-7"
9	8	11 3/4"	11 3/4"	8"	8"	18	18'-0"	18	18'-0"	6	6'-0"	5	8"	17'-1"	4	8"	19'-8"	--	---	----	----	4	8"	3'-3 5/8"	5'-5 3/4"	8'-6"	4	12"	9'-8"	4	12"	9'-8"
9	10	11 3/4"	11 3/4"	8"	8"	18	18'-0"	18	18'-0"	8	8'-0"	5	8"	17'-1"	4	8"	19'-8"	3	8"	3'-3 5/8"	6'-5"	4	8"	3'-3 5/8"	6'-5 3/4"	9'-6"	4	11"	11'-8"	4	12"	11'-8"
9	12	12 1/4"	12 1/4"	8"	8"	18	18'-0"	18	18'-0"	10	10'-0"	5	8"	17'-1"	4	8"	19'-8"	4	8"	3'-3 5/8"	6'-4"	5	8"	3'-3 5/8"	7'-6 1/4"	10'-6"	5	9"	13'-9"	4	12"	13'-9"
10	4	12 1/4"	12 1/4"	8"	8"	20	20'-0"	20	20'-0"	2	2'-0"	5	9"	18'-8"	5	9"	21'-8"	--	---	----	----	5	9"	3'-6"	3'-6 1/4"	6'-8"	4	9"	5'-9"	4	12"	5'-9"
10	6	12 1/2"	12 1/2"	8"	8"	20	20'-0"	20	20'-0"	4	4'-0"	5	9"	18'-8"	5	9"	21'-8"	3	9"	3'-6"	6'-10"	4	9"	3'-6"	4'-6 1/2"	7'-9"	4	12"	7'-9"	4	12"	7'-9"
10	8	12 3/4"	12 3/4"	8"	8"	20	20'-0"	20	20'-0"	6	6'-0"	5	9"	18'-8"	5	9"	21'-8"	3	9"	3'-6"	6'-10"	4	9"	3'-6"	5'-6 3/4"	8'-10"	4	12"	9'-9"	4	12"	9'-9"
10	10	13"	13"	8"	8"	20	20'-0"	20	20'-0"	8	8'-0"	5	9"	18'-8"	5	9"	21'-8"	--	---	----	----	5	9"	3'-6"	6'-7"	9'-9"	4	11 1/2"	11'-10"	4	12"	11'-10"
10	12	13"	13"	8"	8"	20	20'-0"	20	20'-0"	10	10'-0"	5	9"	18'-8"	5	9"	21'-8"	4	9"	3'-6"	6'-9"	5	9"	3'-6"	7'-7"	10'-9"	4	6"	13'-10"	4	12"	13'-10"
12	6	14 3/4"	14 3/4"	8"	8"	24	24'-0"	24	24'-0"	4	4'-0"	6	8"	21'-10"	4	8"	25'-8"	3	8"	3'-10 3/4"	7'-7"	4	8"	3'-10 3/4"	4'-8 3/4"	8'-4"	4	12"	8'-1"	4	12"	8'-1"
12	8	15"	15"	8"	8"	24	24'-0"	24	24'-0"	6	6'-0"	6	8"	21'-10"	4	8"	25'-8"	3	8"	3'-10 3/4"	7'-7"	4	8"	3'-10 3/4"	5'-9"	9'-5"	4	12"	10'-2"	4	12"	10'-2"
12	10	15 1/4"	15 1/4"	8"	8"	24	24'-0"	24	24'-0"	8	8'-0"	6	8"	21'-10"	4	8"	25'-8"	4	8"	3'-10 3/4"	7'-6"	4	8"	3'-10 3/4"	6'-9 1/4"	10'-5"	4	12"	12'-3"	4	12"	12'-3"
12	12	15 1/2"	15 1/2"	8"	8"	24	24'-0"	24	24'-0"	10	10'-0"	6	8"	21'-10"	5	8"	25'-8"	4	8"	3'-10 3/4"	7'-6"	5	8"	3'-10 3/4"	7'-9 1/2"	11'-4"	4	6"	14'-3"	4	12"	14'-3"

DOUBLE BOX CULVERTS
10 TO 15 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS										WINGWALL
(FT.)	(FT.)	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/LONG. JT)	CONCRETE CL. A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G HEADWALL LENGTH	HW1 SIZE	HW1 LENGTH	NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)		
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'- 11"	32	12	30.956	0.695	79.439	9'- 6"	6	9'- 2"	1	4	1.433	67.988	1.425	55.073	A	
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'- 11"	32	18	33.074	0.768	85.703	9'- 6"	6	9'- 2"	1	5	1.531	71.439	1.517	55.073	C	
4	3	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'- 11"	40	12	37.636	0.792	92.688	11'- 6"	6	11'- 2"	1	4	1.635	80.004	1.634	67.089	A	
4	4	3	12"	3'- 6 1/2"	0'- 4 3/8"	1'- 11 3/8"	0'- 5 7/8"	0'- 3 7/8"	9'- 8 1/8"	-----	9'- 11"	40	18	39.754	0.866	93.161	11'- 6"	6	11'- 2"	1	5	1.734	83.455	1.726	67.089	C	
4	5	3	12"	3'- 6 1/2"	0'- 4 3/8"	1'- 11 3/8"	0'- 5 7/8"	0'- 3 7/8"	9'- 8 1/8"	-----	9'- 11"	40	24	41.872	0.940	99.425	11'- 6"	6	11'- 2"	1	6	1.833	86.907	1.819	67.089	E	
4	6	3	12"	3'- 6 1/2"	0'- 4 3/8"	1'- 11 3/8"	0'- 5 7/8"	0'- 3 7/8"	9'- 8 1/8"	-----	9'- 11"	40	30	43.990	1.014	105.689	11'- 6"	6	11'- 2"	1	7	1.932	90.358	1.912	67.089	G	
5	3	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	11'- 8"	-----	11'- 11"	48	12	44.316	0.890	106.159	13'- 6"	6	13'- 2"	1	4	1.837	92.020	1.843	79.105	A	
5	4	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	11'- 8"	-----	11'- 11"	48	18	46.434	0.964	112.423	13'- 6"	6	13'- 2"	1	5	1.936	95.471	1.935	79.105	C	
5	5	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	11'- 8"	-----	11'- 11"	48	24	48.552	1.037	118.687	13'- 6"	6	13'- 2"	1	6	2.035	98.923	2.028	79.105	E	
5	6	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	11'- 8"	-----	11'- 11"	48	30	50.670	1.111	124.951	13'- 6"	6	13'- 2"	1	7	2.134	102.374	2.121	79.105	G	
5	7	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	11'- 8"	-----	11'- 11"	48	36	52.788	1.185	131.215	13'- 6"	6	13'- 2"	1	8	2.233	105.825	2.214	79.105	I	
6	4	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	13'- 8"	-----	13'- 11"	56	18	53.114	1.060	139.477	15'- 6"	6	15'- 2"	1	5	2.138	107.487	2.144	91.121	C	
6	5	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	13'- 8"	-----	13'- 11"	56	24	55.232	1.134	145.741	15'- 6"	6	15'- 2"	1	6	2.237	110.939	2.237	91.121	E	
6	6	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	13'- 8"	-----	13'- 11"	56	30	57.350	1.208	152.005	15'- 6"	6	15'- 2"	1	7	2.336	114.390	2.330	91.121	G	
6	7	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	13'- 8"	-----	13'- 11"	56	36	59.468	1.281	158.269	15'- 6"	6	15'- 2"	1	8	2.435	117.841	2.423	91.121	I	
6	8	4	12"	5'- 1 5/8"	0'- 4 3/4"	2'- 8 3/4"	0'- 6 1/4"	0'- 4"	13'- 8"	-----	13'- 11"	56	42	61.586	1.376	164.533	15'- 6"	6	15'- 2"	1	9	2.528	121.293	2.509	91.121	K	
7	4	4	11"	5'- 11"	0'- 5 1/4"	3'- 1 1/8"	0'- 6 1/8"	0'- 4 1/2"	15'- 8 1/8"	-----	16'- 0"	64	18	59.794	1.232	156.816	17'- 6"	6	17'- 2"	1	5	2.318	119.503	2.331	103.137	C	
7	6	4	11"	5'- 10 7/8"	0'- 5 1/2"	3'- 7/8"	0'- 7 1/4"	0'- 4 3/4"	15'- 8 1/8"	-----	16'- 0"	64	30	64.030	1.403	175.689	17'- 6"	6	17'- 2"	1	7	2.509	126.406	2.509	103.137	G	
7	8	4	11"	5'- 10 3/4"	0'- 5 3/4"	3'- 5 1/8"	0'- 7 5/8"	0'- 5"	15'- 8 1/8"	-----	16'- 0"	64	42	68.266	1.575	188.460	17'- 6"	6	17'- 2"	1	9	2.718	133.309	2.706	103.137	L	
7	10	4	11"	5'- 10 5/8"	0'- 6"	3'- 3 1/8"	0'- 8"	0'- 5 1/4"	15'- 8 1/8"	-----	16'- 1"	64	54	72.502	1.746	213.925	17'- 6"	6	17'- 2"	1	11	2.908	140.211	2.884	103.137	P	
8	4	4	9"	6'- 7 3/4"	0'- 6 3/4"	3'- 4 3/8"	0'- 9"	0'- 6"	17'- 7 7/8"	-----	18'- 1"	72	18	66.474	1.503	211.166	19'- 6"	6	19'- 2"	1	5	2.481	131.519	2.500	115.153	D	
8	6	4	9"	6'- 7 5/8"	0'- 7"	3'- 4 1/8"	0'- 9 3/8"	0'- 6 1/4"	17'- 7 7/8"	-----	18'- 1"	72	30	70.710	1.678	211.816	19'- 6"	6	19'- 2"	1	7	2.670	138.422	2.676	115.153	H	
8	8	4	9"	6'- 7 1/2"	0'- 7 1/4"	3'- 3 3/8"	0'- 9 3/4"	0'- 6 1/2"	17'- 7 7/8"	-----	18'- 1"	72	42	74.946	1.852	237.267	19'- 6"	6	19'- 2"	1	9	2.858	145.325	2.853	115.153	L	
8	10	4	9"	6'- 7 3/8"	0'- 7 1/2"	3'- 3 5/8"	0'- 10 1/8"	0'- 6 3/4"	17'- 7 7/8"	-----	18'- 2"	72	54	79.182	2.027	260.134	19'- 6"	6	19'- 2"	1	11	3.047	152.227	3.029	115.153	P	
9	4	4	8"	7'- 4 7/8"	0'- 7 3/4"	3'- 8 1/4"	0'- 10 1/2"	0'- 7"	19'- 8"	-----	20'- 2"	80	18	73.154	1.750	250.181	21'- 6"	6	21'- 2"	1	5	2.627	143.535	2.653	127.169	D	
9	6	4	8"	7'- 4 3/4"	0'- 8"	3'- 8"	0'- 10 3/4"	0'- 7 1/4"	19'- 8"	-----	20'- 2"	80	30	77.390	1.929	248.322	21'- 6"	6	21'- 2"	1	7	2.814	150.438	2.828	127.169	H	
9	8	4	8"	7'- 4 5/8"	0'- 8 1/4"	3'- 7 3/4"	0'- 11 1/8"	0'- 7 1/2"	19'- 8"	-----	20'- 2"	80	42	81.626	2.107	262.409	21'- 6"	6	21'- 2"	1	9	3.002	157.341	3.003	127.169	L	
9	10	4	8"	7'- 4 5/8"	0'- 8 1/4"	3'- 7 3/4"	0'- 11 1/8"	0'- 7 1/2"	19'- 8"	-----	20'- 2"	80	54	85.862	2.253	292.166	21'- 6"	6	21'- 2"	1	11	3.199	164.243	3.188	127.169	P	
9	12	4	8"	7'- 4 3/8"	0'- 8 3/4"	3'- 7 1/4"	0'- 11 7/8"	0'- 8"	19'- 8"	-----	20'- 3"	80	66	90.098	2.457	359.409	21'- 6"	6	21'- 2"	1	13	3.376	171.146	3.352	127.169	T	
10	4	5	9"	8'- 2"	0'- 8 7/8"	4'- 0"	1'- 0"	0'- 8"	21'- 8"	-----	22'- 3"	88	18	79.834	2.021	294.626	23'- 6"	6	23'- 2"	1	5	2.761	155.551	2.793	139.185	D	
10	6	5	9"	8'- 1 7/8"	0'- 9 1/8"	3'- 11 3/4"	1'- 1 1/4"	0'- 8 1/4"	21'- 8"	-----	22'- 3"	88	30	84.070	2.202	306.151	23'- 6"	6	23'- 2"	1	7	2.947	162.454	2.967	139.185	H	
10	8	5	9"	8'- 1 3/4"	0'- 9 3/8"	3'- 11 1/2"	1'- 5/8"	0'- 8 1/2"	21'- 8"	-----	22'- 3"	88	42	88.306	2.383	319.866	23'- 6"	6	23'- 2"	1	9	3.132	169.357	3.140	139.185	L	
10	10	5	9"	8'- 1 5/8"	0'- 9 5/8"	3'- 11 1/4"	1'- 1"	0'- 8 3/4"	21'- 8"	-----	22'- 3"	88	54	92.542	2.564	339.695	23'- 6"	6	23'- 2"	1	11	3.318	176.259	3.313	139.185	P	
10	12	5	9"	8'- 1 5/8"	0'- 9 5/8"	3'- 11 1/4"	1'- 1"	0'- 8 3/4"	21'- 8"	-----	22'- 3"	88	66	96.778	2.708	396.956	23'- 6"	6	23'- 2"	1	13	3.516	183.162	3.499	139.185	T	
12	6	5	8"	9'- 8"	0'- 11 3/8"	4'- 7 1/8"	1'- 3 1/2"	0'- 10 1/2"	25'- 8 1/8"	-----	26'- 5"	104	30	97.430	2.866	385.333	27'- 6"	6	27'- 2"	1	7	3.159	186.486	3.193	163.217	H	
12	8	5	8"	9'- 7 7/8"	0'- 11 1/8"	4'- 6 1/8"	1'- 3 3/8"	0'- 10 3/4"	25'- 8 1/8"	-----	26'- 5"	104	42	101.666	3.053	399.754	27'- 6"	6	27'- 2"	1	9	3.342	193.389	3.363	163.217	L	
12	10	5	8"	9'- 7 3/4"	0'- 11 1/8"	4'- 6 1/8"	1'- 4 1/8"	0'- 11"	25'- 8 1/8"	-----	26'- 5"	104	54	105.902	3.239	426.793	27'- 6"	6	27'- 2"	1	11	3.543	200.291	3.552	163.217	Q	
12	12	5	8"	9'- 7 5/8"	1'- 1/8"	4'- 6 3/8"	1'- 4 1/2"	0'- 11 1/4"	25'- 8 1/8"	-----	26'- 5"	104	66	110.138	3.421	513.736	27'- 6"	6	27'- 2"	1	13	3.726	207.194	3.722	163.217	U	

STRUCTURE AND BRIDGE DIVISION

DOUBLE BOX CULVERTS
10 TO 15 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

BCD-20

DIMENSIONS								REINFORCING STEEL																								
SPAN	HGHT	T1	T2	T3	T4							BH1		BH2		BH3		BH4				BV1		BV2								
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	6	6'-0"	6	6'-0"	1	1'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	2'-8"	4'-6"	4	12"	4'-0"	4	12"	4'-0"
3	4	8"	8"	8"	8"	6	6'-0"	6	6'-0"	2	2'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	3'-2"	5'-0"	4	12"	5'-0"	4	12"	5'-0"
4	3	8"	8"	8"	8"	8	8'-0"	8	8'-0"	1	1'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	2'-8"	4'-8"	4	12"	4'-0"	4	12"	4'-0"
4	4	8"	8"	8"	8"	8	8'-0"	8	8'-0"	2	2'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-2"	5'-2"	4	12"	5'-0"	4	12"	5'-0"
4	5	8"	8"	8"	8"	8	8'-0"	8	8'-0"	3	3'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-8"	5'-8"	4	12"	6'-0"	4	12"	6'-0"
4	6	8"	8"	8"	8"	8	8'-0"	8	8'-0"	4	4'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	4'-2"	6'-2"	4	12"	7'-0"	4	12"	7'-0"
5	3	8"	8"	8"	8"	10	10'-0"	10	10'-0"	1	1'-0"	4	12"	10'-8"	4	12"	11'-8"	4	12"	2'-6"	4'-9"	4	12"	2'-6"	2'-8"	4'-11"	4	12"	4'-0"	4	12"	4'-0"
5	4	8"	8"	8"	8"	10	10'-0"	10	10'-0"	2	2'-0"	4	12"	10'-8"	4	12"	11'-8"	3	12"	2'-6"	4'-10"	4	12"	2'-6"	3'-2"	5'-5"	4	12"	5'-0"	4	12"	5'-0"
5	5	8"	8"	8"	8"	10	10'-0"	10	10'-0"	3	3'-0"	4	12"	10'-8"	4	12"	11'-8"	3	12"	2'-6"	4'-10"	4	12"	2'-6"	3'-8"	5'-11"	4	12"	6'-0"	4	12"	6'-0"
5	6	8"	8"	8"	8"	10	10'-0"	10	10'-0"	4	4'-0"	4	12"	10'-8"	4	12"	11'-8"	3	12"	2'-6"	4'-10"	4	12"	2'-6"	4'-2"	6'-5"	4	12"	7'-0"	4	12"	7'-0"
5	7	8"	8"	8"	8"	10	10'-0"	10	10'-0"	5	5'-0"	4	12"	10'-8"	4	12"	11'-8"	4	12"	2'-6"	4'-9"	4	12"	2'-6"	4'-8"	6'-11"	4	12"	8'-0"	4	12"	8'-0"
6	4	9 1/4"	9 1/4"	8"	8"	12	12'-0"	12	12'-0"	2	2'-0"	4	12"	12'-3"	4	12"	13'-8"	4	12"	2'-8 3/8"	5'-2"	4	12"	2'-8 3/8"	3'-3 1/4"	5'-8"	4	12"	5'-2"	4	12"	5'-2"
6	5	9 1/2"	9 1/2"	8"	8"	12	12'-0"	12	12'-0"	3	3'-0"	4	12"	12'-3"	4	12"	13'-8"	4	12"	2'-8 3/8"	5'-2"	4	12"	2'-8 3/8"	3'-9 1/2"	6'-3"	4	12"	6'-3"	4	12"	6'-3"
6	6	9 1/2"	9 1/2"	8"	8"	12	12'-0"	12	12'-0"	4	4'-0"	4	12"	12'-3"	4	12"	13'-8"	4	12"	2'-8 3/8"	5'-2"	4	12"	2'-8 3/8"	4'-3 1/2"	6'-9"	4	12"	7'-3"	4	12"	7'-3"
6	7	9 1/2"	9 1/2"	8"	8"	12	12'-0"	12	12'-0"	5	5'-0"	4	12"	12'-3"	4	12"	13'-8"	4	12"	2'-8 3/8"	5'-2"	4	12"	2'-8 3/8"	4'-9 1/2"	7'-3"	4	12"	8'-3"	4	12"	8'-3"
6	8	9 3/4"	9 3/4"	8"	8"	12	12'-0"	12	12'-0"	6	6'-0"	4	12"	12'-3"	4	12"	13'-8"	4	12"	2'-8 3/8"	5'-2"	4	12"	2'-8 3/8"	5'-3 3/4"	7'-9"	4	12"	9'-3"	4	12"	9'-3"
7	4	10 1/2"	10 1/2"	8"	8"	14	14'-0"	14	14'-0"	2	2'-0"	4	10"	13'-10"	4	10"	15'-8"	3	10"	2'-10 3/4"	5'-7"	4	10"	2'-10 3/4"	3'-4 1/2"	6'-0"	4	12"	5'-5"	4	12"	5'-5"
7	6	10 3/4"	10 3/4"	8"	8"	14	14'-0"	14	14'-0"	4	4'-0"	4	10"	13'-10"	4	10"	15'-8"	--	----	----	4	10"	2'-10 3/4"	4'-4 3/4"	7'-0"	4	12"	7'-5"	4	12"	7'-5"	
7	8	11"	11"	8"	8"	14	14'-0"	14	14'-0"	6	6'-0"	4	10"	13'-10"	4	10"	15'-8"	3	10"	2'-10 3/4"	5'-7"	4	10"	2'-10 3/4"	5'-5"	8'-1"	4	12"	9'-6"	4	12"	9'-6"
7	10	11 1/4"	11 1/4"	8"	8"	14	14'-0"	14	14'-0"	8	8'-0"	4	10"	13'-10"	4	10"	15'-8"	3	10"	2'-10 3/4"	5'-7"	5	10"	2'-10 3/4"	6'-5 1/4"	9'-0"	5	10 1/2"	11'-6"	4	12"	11'-6"
8	4	11 3/4"	11 3/4"	8"	8"	16	16'-0"	16	16'-0"	2	2'-0"	5	9"	15'-6"	4	9"	17'-8"	3	9"	3'-1 1/4"	6'-0"	4	9"	3'-1 1/4"	3'-5 3/4"	6'-4"	4	12"	5'-8"	4	12"	5'-8"
8	6	12"	12"	8"	8"	16	16'-0"	16	16'-0"	4	4'-0"	5	9"	15'-6"	4	9"	17'-8"	--	----	----	4	9"	3'-1 1/4"	4'-6"	7'-4"	4	12"	7'-8"	4	12"	7'-8"	
8	8	12 1/4"	12 1/4"	8"	8"	16	16'-0"	16	16'-0"	6	6'-0"	5	9"	15'-6"	4	9"	17'-8"	3	9"	3'-1 1/4"	6'-0"	4	9"	3'-1 1/4"	5'-6 1/4"	8'-4"	4	12"	9'-9"	4	12"	9'-9"
8	10	12 1/2"	12 1/2"	8"	8"	16	16'-0"	16	16'-0"	8	8'-0"	5	9"	15'-6"	4	9"	17'-8"	4	9"	3'-1 1/4"	5'-11"	4	9"	3'-1 1/4"	6'-6 1/2"	9'-5"	4	7"	11'-9"	4	12"	11'-9"
9	4	13"	13"	8"	8"	18	18'-0"	18	18'-0"	2	2'-0"	5	9"	17'-1"	5	9"	19'-8"	3	9"	3'-3 5/8"	6'-5"	4	9"	3'-3 5/8"	3'-7"	6'-7"	4	11 1/2"	5'-10"	4	12"	5'-10"
9	6	13 1/4"	13 1/4"	8"	8"	18	18'-0"	18	18'-0"	4	4'-0"	5	9"	17'-1"	5	9"	19'-8"	--	----	----	4	9"	3'-3 5/8"	4'-7 1/4"	7'-8"	4	12"	7'-10"	4	12"	7'-10"	
9	8	13 1/4"	13 1/4"	8"	8"	18	18'-0"	18	18'-0"	6	6'-0"	5	9"	17'-1"	5	9"	19'-8"	3	9"	3'-3 5/8"	6'-5"	4	9"	3'-3 5/8"	5'-7 1/4"	8'-8"	4	12"	9'-10"	4	12"	9'-10"
9	10	13 1/2"	13 1/2"	8"	8"	18	18'-0"	18	18'-0"	8	8'-0"	5	9"	17'-1"	5	9"	19'-8"	3	9"	3'-3 5/8"	6'-5"	5	9"	3'-3 5/8"	6'-7 1/2"	9'-7"	4	7 1/2"	11'-11"	4	12"	11'-11"
9	12	13 3/4"	13 3/4"	8"	8"	18	18'-0"	18	18'-0"	10	10'-0"	5	9"	17'-1"	5	9"	19'-8"	3	9"	3'-3 5/8"	6'-5"	6	9"	3'-3 5/8"	7'-7 3/4"	10'-7"	4	4 1/2"	14'-0"	4	12"	14'-0"
10	4	14 1/2"	14 1/2"	8"	8"	20	20'-0"	20	20'-0"	2	2'-0"	6	9"	18'-8"	5	9"	21'-8"	3	9"	3'-6"	6'-10"	4	9"	3'-6"	3'-8 1/2"	6'-11"	4	11 1/2"	6'-1"	4	12"	6'-1"
10	6	14 1/2"	14 1/2"	8"	8"	20	20'-0"	20	20'-0"	4	4'-0"	6	9"	18'-8"	5	9"	21'-8"	3	9"	3'-6"	6'-10"	4	9"	3'-6"	4'-8 1/2"	7'-11"	4	12"	8'-1"	4	12"	8'-1"
10	8	14 3/4"	14 3/4"	8"	8"	20	20'-0"	20	20'-0"	6	6'-0"	6	9"	18'-8"	5	9"	21'-8"	3	9"	3'-6"	6'-10"	4	9"	3'-6"	5'-8 3/4"	9'-0"	4	12"	10'-1"	4	12"	10'-1"
10	10	15"	15"	8"	8"	20	20'-0"	20	20'-0"	8	8'-0"	6	9"	18'-8"	5	9"	21'-8"	3	9"	3'-6"	6'-10"	5	9"	3'-6"	6'-9"	9'-11"	4	7 1/2"	12'-2"	4	12"	12'-2"
10	12	15"	15"	8"	8"	20	20'-0"	20	20'-0"	10	10'-0"	6	9"	18'-8"	5	9"	21'-8"	3	9"	3'-6"	6'-10"	6	9"	3'-6"	7'-9"	10'-10"	4	4 1/2"	14'-2"	4	12"	14'-2"
12	6	17 3/4"	17 3/4"	8"	8"	24	24'-0"	24	24'-0"	4	4'-0"	6	8"	21'-10"	5	8"	25'-8"	--	----	----	4	8"	3'-10 3/4"	4'-11 3/4"	8'-7"	4	12"	8'-7"	4	12"	8'-7"	
12	8	17 3/4"	17 3/4"	8"	8"	24	24'-0"	24	24'-0"	6	6'-0"	6	8"	21'-10"	5	8"	25'-8"	--	----	----	4	8"	3'-10 3/4"	5'-11 3/4"	9'-7"	4	12"	10'-7"	4	12"	10'-7"	
12	10	18"	18"	8"	8"	24	24'-0"	24	24'-0"	8	8'-0"	6	8"	21'-10"	5	8"	25'-8"	4	8"	3'-10 3/4"	7'-6"	4	8"	3'-10 3/4"	7'-0"	10'-8"	4	7"	12'-8"	4	12"	12'-8"
12	12	18"	18"	8"	8"	24	24'-0"	24	24'-0"	10	10'-0"	6	8"	21'-10"	5	8"	25'-8"	4	8"	3'-10 3/4"	7'-6"	5	8"	3'-10 3/4"	8'-0"	11'-7"	4	4 1/2"	14'-8"	4	11 1/2"	14'-8"

DOUBLE BOX CULVERTS
15 TO 20 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

SPAN		HIGHT		REINFORCING STEEL														QUAN./LF		HEADWALLS								WINGWALL	
(FT.)	(FT.)	SIZE	SPACING C-C	BTI										NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/LONG. JT)	CONCRETE CLASS (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HWI		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)		OUTLET REINFORCING STEEL (LBS)
				a	b	c	d	e	f	g	LENGTH	HEADWALL LENGTH	SIZE						LENGTH										
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'- 11"	32	12	30.956	0.695	79.439	9'- 6"	6	9'- 2"	1	4	1.433	67.988	1.425	55.073	A			
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'- 11"	32	18	33.074	0.768	85.703	9'- 6"	6	9'- 2"	1	5	1.531	71.439	1.517	55.073	C			
4	3	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'- 11"	40	12	37.636	0.792	92.688	11'- 6"	6	11'- 2"	1	4	1.635	80.004	1.634	67.089	A			
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'- 11"	40	18	39.754	0.866	98.952	11'- 6"	6	11'- 2"	1	5	1.734	83.455	1.726	67.089	C			
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'- 11"	40	24	41.872	0.940	105.216	11'- 6"	6	11'- 2"	1	6	1.833	86.907	1.819	67.089	E			
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'- 11"	40	30	43.990	1.013	111.480	11'- 6"	6	11'- 2"	1	7	1.932	90.358	1.912	67.089	G			
5	3	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	11'- 8"	-----	11'- 11"	48	12	44.316	0.889	118.851	13'- 6"	6	13'- 2"	1	4	1.837	92.020	1.843	79.105	A			
5	4	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	11'- 8"	-----	11'- 11"	48	18	46.434	0.963	119.693	13'- 6"	6	13'- 2"	1	5	1.936	95.471	1.935	79.105	C			
5	5	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	11'- 8"	-----	11'- 11"	48	24	48.552	1.037	125.957	13'- 6"	6	13'- 2"	1	6	2.035	98.923	2.028	79.105	E			
5	6	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	11'- 8"	-----	11'- 11"	48	30	50.670	1.110	132.221	13'- 6"	6	13'- 2"	1	7	2.134	102.374	2.121	79.105	G			
5	7	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	11'- 8"	-----	11'- 11"	48	36	52.788	1.184	143.907	13'- 6"	6	13'- 2"	1	8	2.233	105.825	2.214	79.105	I			
6	4	4	12"	5'- 1 1/8"	0'- 5 3/4"	2'- 7 3/4"	0'- 7 7/8"	0'- 5"	13'- 8"	-----	14'- 0"	56	18	53.114	1.168	140.257	15'- 6"	6	15'- 2"	1	5	2.127	107.487	2.133	91.121	D			
6	5	4	12"	5'- 1"	0'- 6"	2'- 7 1/2"	0'- 8"	0'- 5 1/4"	13'- 8"	-----	14'- 0"	56	24	55.232	1.264	146.966	15'- 6"	6	15'- 2"	1	6	2.220	110.939	2.220	91.121	F			
6	6	4	12"	5'- 1"	0'- 6"	2'- 7 1/2"	0'- 8"	0'- 5 1/4"	13'- 8"	-----	14'- 0"	56	30	57.350	1.337	153.230	15'- 6"	6	15'- 2"	1	7	2.319	114.390	2.313	91.121	H			
6	7	4	12"	5'- 1"	0'- 6"	2'- 7 1/2"	0'- 8"	0'- 5 1/4"	13'- 8"	-----	14'- 0"	56	36	59.468	1.411	159.494	15'- 6"	6	15'- 2"	1	8	2.418	117.841	2.406	91.121	J			
6	8	4	12"	5'- 7/8"	0'- 6 1/4"	2'- 7 1/4"	0'- 8 3/8"	0'- 5 1/2"	13'- 8"	-----	14'- 1"	56	42	61.586	1.506	165.869	15'- 6"	6	15'- 2"	1	9	2.511	121.293	2.492	91.121	L			
7	4	4	10"	5'- 10 7/8"	0'- 7"	2'- 11 3/8"	0'- 9 3/8"	0'- 6 1/4"	15'- 8 1/8"	-----	16'- 1"	64	18	59.794	1.404	166.388	17'- 6"	6	17'- 2"	1	5	2.285	119.503	2.297	103.137	D			
7	6	4	10"	5'- 10"	0'- 7 1/4"	2'- 11 1/8"	0'- 9 3/4"	0'- 6 1/2"	15'- 8 1/8"	-----	16'- 2"	64	30	64.030	1.577	169.507	17'- 6"	6	17'- 2"	1	7	2.475	126.406	2.475	103.137	H			
7	8	4	10"	5'- 9 3/4"	0'- 7 1/2"	2'- 10 7/8"	0'- 10 1/8"	0'- 6 3/4"	15'- 8 1/8"	-----	16'- 2"	64	42	68.266	1.748	193.136	17'- 6"	6	17'- 2"	1	9	2.666	133.309	2.653	103.137	L			
7	10	4	10"	5'- 9 3/4"	0'- 7 3/4"	2'- 10 3/8"	0'- 10 1/2"	0'- 7"	15'- 8 1/8"	-----	16'- 2"	64	54	72.502	1.917	234.183	17'- 6"	6	17'- 2"	1	11	2.856	140.211	2.831	103.137	P			
8	4	4	9"	6'- 7"	0'- 8 1/4"	3'- 2 7/8"	0'- 11 1/8"	0'- 7 1/2"	17'- 7 7/8"	-----	18'- 2"	72	18	66.474	1.669	211.543	19'- 6"	6	19'- 2"	1	5	2.427	131.519	2.446	115.153	D			
8	6	4	9"	6'- 6 7/8"	0'- 8 1/2"	3'- 2 5/8"	0'- 11 1/2"	0'- 7 3/4"	17'- 7 7/8"	-----	18'- 2"	72	30	70.710	1.845	212.929	19'- 6"	6	19'- 2"	1	7	2.616	138.422	2.622	115.153	H			
8	8	4	9"	6'- 6 3/4"	0'- 8 3/4"	3'- 2 3/8"	0'- 11 7/8"	0'- 8"	17'- 7 7/8"	-----	18'- 3"	72	42	74.946	2.019	238.751	19'- 6"	6	19'- 2"	1	9	2.804	145.325	2.799	115.153	L			
8	10	4	9"	6'- 6 5/8"	0'- 9"	3'- 2 1/8"	1'- 1/4"	0'- 8 1/4"	17'- 7 7/8"	-----	18'- 3"	72	54	79.182	2.192	272.727	19'- 6"	6	19'- 2"	1	11	2.993	152.227	2.975	115.153	P			
9	4	5	9"	7'- 4"	0'- 9 5/8"	3'- 6 1/2"	1'- 1"	0'- 8 3/4"	19'- 8"	-----	20'- 3"	80	18	73.154	1.964	270.991	21'- 6"	6	21'- 2"	1	5	2.553	143.535	2.579	127.169	D			
9	6	5	9"	7'- 3 7/8"	0'- 9 7/8"	3'- 6 1/4"	1'- 1 3/8"	0'- 9"	19'- 8"	-----	20'- 3"	80	30	77.390	2.143	271.500	21'- 6"	6	21'- 2"	1	7	2.740	150.438	2.754	127.169	H			
9	8	5	9"	7'- 3 7/8"	0'- 9 7/8"	3'- 6 1/4"	1'- 1 3/8"	0'- 9"	19'- 8"	-----	20'- 3"	80	42	81.626	2.289	297.787	21'- 6"	6	21'- 2"	1	9	2.938	157.341	2.939	127.169	L			
9	10	5	9"	7'- 3 3/4"	0'- 10 1/8"	3'- 6"	1'- 1 3/4"	0'- 9 1/4"	19'- 8"	-----	20'- 4"	80	54	85.862	2.465	340.082	21'- 6"	6	21'- 2"	1	11	3.126	164.243	3.114	127.169	P			
9	12	5	9"	7'- 3 5/8"	0'- 10 3/8"	3'- 5 3/4"	1'- 2 1/8"	0'- 9 1/2"	19'- 8"	-----	20'- 4"	80	66	90.098	2.639	403.252	21'- 6"	6	21'- 2"	1	13	3.313	171.146	3.289	127.169	T			
10	4	5	9"	8'- 7/8"	0'- 11 1/8"	3'- 9 3/4"	1'- 3 3/8"	0'- 10 1/4"	21'- 8"	-----	22'- 4"	88	18	79.834	2.325	317.650	23'- 6"	6	23'- 2"	1	5	2.652	155.551	2.685	139.185	D			
10	6	5	9"	8'- 7/8"	0'- 11 1/8"	3'- 9 3/4"	1'- 3 3/8"	0'- 10 1/4"	21'- 8"	-----	22'- 4"	88	30	84.070	2.472	330.715	23'- 6"	6	23'- 2"	1	7	2.850	162.454	2.870	139.185	H			
10	8	5	9"	8'- 3/4"	0'- 11 3/8"	3'- 9 1/2"	1'- 3 1/2"	0'- 10 1/2"	21'- 8"	-----	22'- 5"	88	42	88.306	2.653	344.662	23'- 6"	6	23'- 2"	1	9	3.036	169.357	3.043	139.185	L			
10	10	5	9"	8'- 5/8"	0'- 11 5/8"	3'- 9 1/4"	1'- 3 3/8"	0'- 10 3/4"	21'- 8"	-----	22'- 5"	88	54	92.542	2.832	387.593	23'- 6"	6	23'- 2"	1	11	3.221	176.259	3.217	139.185	P			
10	12	5	9"	8'- 5/8"	0'- 11 5/8"	3'- 9 1/4"	1'- 3 3/8"	0'- 10 3/4"	21'- 8"	-----	22'- 5"	88	66	96.778	2.975	450.860	23'- 6"	6	23'- 2"	1	13	3.419	183.162	3.402	139.185	T			
12	6	6	8"	9'- 6 1/2"	1'- 2 1/2"	4'- 4 1/8"	1'- 7 3/4"	1'- 1 1/2"	25'- 8 1/8"	-----	26'- 7"	104	30	97.430	3.344	436.565	27'- 6"	6	27'- 2"	1	7	2.996	186.486	3.029	163.217	I			
12	8	6	8"	9'- 6 1/2"	1'- 2 1/2"	4'- 4 1/8"	1'- 7 3/4"	1'- 1 1/2"	25'- 8 1/8"	-----	26'- 7"	104	42	101.666	3.491	450.429	27'- 6"	6	27'- 2"	1	9	3.194	193.389	3.215	163.217	M			
12	10	6	8"	9'- 6 3/8"	1'- 2 3/4"	4'- 3 3/8"	1'- 8 1/8"	1'- 1 3/4"	25'- 8 1/8"	-----	26'- 7"	104	54	105.902	3.675	506.997	27'- 6"	6	27'- 2"	1	11	3.376	200.291	3.385	163.217	Q			
12	12	6	8"	9'- 6 3/8"	1'- 2 3/4"	4'- 3 3/8"	1'- 8 1/8"	1'- 1 3/4"	25'- 8 1/8"	-----	26'- 7"	104	66	110.138	3.818	568.012	27'- 6"	6	27'- 2"	1	13	3.574	207.194	3.570	163.217	U			

BCD-25

DIMENSIONS								REINFORCING STEEL																								
SPAN	HGHT	T1	T2	T3	T4							BH1		BH2		BH3		BH4				BV1		BV2								
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	6	6'-0"	6	6'-0"	1	1'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	2'-8"	4'-6"	4	12"	4'-0"	4	12"	4'-0"
3	4	8"	8"	8"	8"	6	6'-0"	6	6'-0"	2	2'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	3'-2"	5'-0"	4	12"	5'-0"	4	12"	5'-0"
4	3	8"	8"	8"	8"	8	8'-0"	8	8'-0"	1	1'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	2'-8"	4'-8"	4	12"	4'-0"	4	12"	4'-0"
4	4	8"	8"	8"	8"	8	8'-0"	8	8'-0"	2	2'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-2"	5'-2"	4	12"	5'-0"	4	12"	5'-0"
4	5	8"	8"	8"	8"	8	8'-0"	8	8'-0"	3	3'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-8"	5'-8"	4	12"	6'-0"	4	12"	6'-0"
4	6	8"	8"	8"	8"	8	8'-0"	8	8'-0"	4	4'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	4'-2"	6'-2"	4	12"	7'-0"	4	12"	7'-0"
5	3	9"	9"	8"	8"	10	10'-0"	10	10'-0"	1	1'-0"	4	12"	10'-8"	4	12"	11'-8"	3	12"	2'-6"	4'-10"	4	12"	2'-6"	2'-9"	5'-0"	4	12"	4'-2"	4	12"	4'-2"
5	4	9"	9"	8"	8"	10	10'-0"	10	10'-0"	2	2'-0"	4	12"	10'-8"	4	12"	11'-8"	3	12"	2'-6"	4'-10"	4	12"	2'-6"	3'-3"	5'-6"	4	12"	5'-2"	4	12"	5'-2"
5	5	9 1/4"	9 1/4"	8"	8"	10	10'-0"	10	10'-0"	3	3'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	3'-9 1/4"	6'-0"	4	12"	6'-2"	4	12"	6'-2"
5	6	9 1/4"	9 1/4"	8"	8"	10	10'-0"	10	10'-0"	4	4'-0"	4	12"	10'-8"	4	12"	11'-8"	3	12"	2'-6"	4'-10"	4	12"	2'-6"	4'-3 1/4"	6'-6"	4	12"	7'-2"	4	12"	7'-2"
5	7	9 1/4"	9 1/4"	8"	8"	10	10'-0"	10	10'-0"	5	5'-0"	4	12"	10'-8"	4	12"	11'-8"	4	12"	2'-6"	4'-9"	4	12"	2'-6"	4'-9 1/4"	7'-0"	4	12"	8'-2"	4	12"	8'-2"
6	4	10 3/4"	10 3/4"	8"	8"	12	12'-0"	12	12'-0"	2	2'-0"	4	12"	12'-3"	4	12"	13'-8"	3	12"	2'-8 3/8"	5'-2"	4	12"	2'-8 3/8"	3'-4 3/4"	5'-10"	4	12"	5'-5"	4	12"	5'-5"
6	5	10 3/4"	10 3/4"	8"	8"	12	12'-0"	12	12'-0"	3	3'-0"	4	11"	12'-3"	4	11"	13'-8"	--	---	----	----	4	11"	2'-8 3/8"	3'-10 3/4"	6'-4"	4	12"	6'-5"	4	12"	6'-5"
6	6	11"	11"	8"	8"	12	12'-0"	12	12'-0"	4	4'-0"	4	11"	12'-3"	4	11"	13'-8"	--	---	----	----	4	11"	2'-8 3/8"	4'-5"	6'-10"	4	12"	7'-6"	4	12"	7'-6"
6	7	11"	11"	8"	8"	12	12'-0"	12	12'-0"	5	5'-0"	4	11"	12'-3"	4	11"	13'-8"	4	11"	2'-8 3/8"	5'-2"	4	11"	2'-8 3/8"	4'-11"	7'-4"	4	12"	8'-6"	4	12"	8'-6"
6	8	11"	11"	8"	8"	12	12'-0"	12	12'-0"	6	6'-0"	4	11"	12'-3"	4	11"	13'-8"	4	11"	2'-8 3/8"	5'-2"	4	11"	2'-8 3/8"	5'-5"	7'-10"	4	10 1/2"	9'-6"	4	12"	9'-6"
7	4	12 1/4"	12 1/4"	8"	8"	14	14'-0"	14	14'-0"	2	2'-0"	4	9"	13'-10"	4	9"	15'-8"	--	---	----	----	4	9"	2'-10 3/4"	3'-6 1/4"	6'-2"	4	12"	5'-9"	4	12"	5'-9"
7	6	12 3/4"	12 3/4"	8"	8"	14	14'-0"	14	14'-0"	4	4'-0"	4	9"	13'-10"	4	9"	15'-8"	--	---	----	----	4	9"	2'-10 3/4"	4'-6 3/4"	7'-2"	4	12"	7'-9"	4	12"	7'-9"
7	8	12 3/4"	12 3/4"	8"	8"	14	14'-0"	14	14'-0"	6	6'-0"	4	9"	13'-10"	4	9"	15'-8"	3	9"	2'-10 3/4"	5'-7"	4	9"	2'-10 3/4"	5'-6 3/4"	8'-2"	4	11"	9'-9"	4	12"	9'-9"
7	10	13"	13"	8"	8"	14	14'-0"	14	14'-0"	8	8'-0"	4	9"	13'-10"	4	9"	15'-8"	3	9"	2'-10 3/4"	5'-7"	5	9"	2'-10 3/4"	6'-7"	9'-2"	5	9"	11'-10"	4	12"	11'-10"
8	4	13 3/4"	13 3/4"	8"	8"	16	16'-0"	16	16'-0"	2	2'-0"	5	8"	15'-6"	4	8"	17'-8"	--	---	----	----	4	8"	3'-1 1/4"	3'-7 3/4"	6'-6"	4	12"	6'-0"	4	12"	6'-0"
8	6	13 3/4"	13 3/4"	8"	8"	16	16'-0"	16	16'-0"	4	4'-0"	5	8"	15'-6"	4	8"	17'-8"	--	---	----	----	4	8"	3'-1 1/4"	4'-7 3/4"	7'-6"	4	12"	8'-0"	4	12"	8'-0"
8	8	14"	14"	8"	8"	16	16'-0"	16	16'-0"	6	6'-0"	5	9"	15'-6"	4	9"	17'-8"	3	9"	3'-1 1/4"	6'-0"	4	9"	3'-1 1/4"	5'-8"	8'-6"	4	12"	10'-0"	4	12"	10'-0"
8	10	14"	14"	8"	8"	16	16'-0"	16	16'-0"	8	8'-0"	5	9"	15'-6"	4	9"	17'-8"	3	9"	3'-1 1/4"	6'-0"	5	9"	3'-1 1/4"	6'-8"	9'-5"	4	6"	12'-0"	4	12"	12'-0"
9	4	15 1/4"	15 1/4"	8"	8"	18	18'-0"	18	18'-0"	2	2'-0"	6	9"	17'-1"	5	9"	19'-8"	--	---	----	----	4	9"	3'-3 5/8"	3'-9 1/4"	6'-10"	4	12"	6'-3"	4	12"	6'-3"
9	6	15 1/2"	15 1/2"	8"	8"	18	18'-0"	18	18'-0"	4	4'-0"	6	9"	17'-1"	5	9"	19'-8"	--	---	----	----	4	9"	3'-3 5/8"	4'-9 1/2"	7'-10"	4	12"	8'-3"	4	12"	8'-3"
9	8	15 1/2"	15 1/2"	8"	8"	18	18'-0"	18	18'-0"	6	6'-0"	6	9"	17'-1"	5	9"	19'-8"	3	9"	3'-3 5/8"	6'-5"	4	9"	3'-3 5/8"	5'-9 1/2"	8'-10"	4	12"	10'-3"	4	12"	10'-3"
9	10	15 1/2"	15 1/2"	8"	8"	18	18'-0"	18	18'-0"	8	8'-0"	6	9"	17'-1"	5	9"	19'-8"	3	9"	3'-3 5/8"	6'-5"	5	9"	3'-3 5/8"	6'-9 1/2"	9'-9"	4	6"	12'-3"	4	12"	12'-3"
9	12	15 1/2"	15 1/2"	8"	8"	18	18'-0"	18	18'-0"	10	10'-0"	6	9"	17'-1"	5	9"	19'-8"	4	9"	3'-3 5/8"	6'-4"	6	9"	3'-3 5/8"	7'-9 1/2"	10'-8"	7	1 1/2"	14'-3"	4	12"	14'-3"
10	4	16 3/4"	16 3/4"	8"	8"	20	20'-0"	20	20'-0"	2	2'-0"	6	9"	18'-8"	4	9"	21'-8"	--	---	----	----	4	9"	3'-6"	3'-10 3/4"	7'-2"	4	12"	6'-6"	4	12"	6'-6"
10	6	16 3/4"	16 3/4"	8"	8"	20	20'-0"	20	20'-0"	4	4'-0"	6	9"	18'-8"	5	9"	21'-8"	--	---	----	----	4	9"	3'-6"	4'-10 3/4"	8'-2"	4	12"	8'-6"	4	11 1/2"	8'-6"
10	8	17"	17"	8"	8"	20	20'-0"	20	20'-0"	6	6'-0"	6	9"	18'-8"	5	9"	21'-8"	3	9"	3'-6"	6'-10"	4	9"	3'-6"	5'-11"	9'-2"	4	12"	10'-6"	4	11 1/2"	10'-6"
10	10	17"	17"	8"	8"	20	20'-0"	20	20'-0"	8	8'-0"	6	9"	18'-8"	5	9"	21'-8"	3	9"	3'-6"	6'-10"	5	9"	3'-6"	6'-11"	10'-1"	4	6"	12'-6"	4	11 1/2"	12'-6"
10	12	17 1/4"	17 1/4"	8"	8"	20	20'-0"	20	20'-0"	10	10'-0"	6	9"	18'-8"	5	9"	21'-8"	4	9"	3'-6"	6'-9"	6	9"	3'-6"	7'-11 1/4"	11'-0"	7	1 1/2"	14'-6"	4	11 1/2"	14'-6"
12	6	19 3/4"	19 3/4"	8"	8"	24	24'-0"	24	24'-0"	4	4'-0"	7	9"	21'-10"	6	9"	25'-8"	--	---	----	----	4	9"	3'-10 3/4"	5'-1 3/4"	8'-9"	4	12"	9'-0"	4	10"	9'-0"
12	8	19 3/4"	19 3/4"	8"	8"	24	24'-0"	24	24'-0"	6	6'-0"	7	9"	21'-10"	6	9"	25'-8"	3	9"	3'-10 3/4"	7'-7"	4	9"	3'-10 3/4"	6'-1 3/4"	9'-9"	4	12"	11'-0"	4	10"	11'-0"
12	10	19 3/4"	19 3/4"	8"	8"	24	24'-0"	24	24'-0"	8	8'-0"	7	9"	21'-10"	6	9"	25'-8"	3	9"	3'-10 3/4"	7'-7"	5	9"	3'-10 3/4"	7'-1 3/4"	10'-9"	4	6"	13'-0"	4	10"	13'-0"
12	12	19 3/4"	19 3/4"	8"	8"	24	24'-0"	24	24'-0"	10	10'-0"	7	9"	21'-10"	6	9"	25'-8"	3	9"	3'-10 3/4"	7'-7"	6	9"	3'-10 3/4"	8'-1 3/4"	11'-8"	7	1 1/2"	15'-0"	4	10"	15'-0"

DOUBLE BOX CULVERTS
20 TO 25 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

SPAN		HIGHT		REINFORCING STEEL														QUAN./LF		HEADWALLS								WINGWALL
(FT.)	(FT.)	SIZE	SPACING C-C	BTI										REINFORCING STEEL (LBS/FT)	CONCRETE CL. A3 (CY)	REINFORCING STEEL (LBS/FT)	G		HWI		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)		
				a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS				HEADWALL LENGTH	SIZE	LENGTH									
3	3	4	12"	2'- 8 1/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'- 11"	32	12	30.956	0.695	79.439	9'- 6"	6	9'- 2"	1	4	1.433	67.988	1.425	55.073	A		
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'- 11"	32	18	33.074	0.768	85.703	9'- 6"	6	9'- 2"	1	5	1.531	71.439	1.517	55.073	C		
4	3	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'- 11"	40	12	37.636	0.792	92.688	11'- 6"	6	11'- 2"	1	4	1.635	80.004	1.634	67.089	A		
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'- 11"	40	18	39.754	0.866	98.952	11'- 6"	6	11'- 2"	1	5	1.734	83.455	1.726	67.089	C		
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'- 11"	40	24	41.872	0.940	105.216	11'- 6"	6	11'- 2"	1	6	1.833	86.907	1.819	67.089	E		
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'- 11"	40	30	43.990	1.013	111.480	11'- 6"	6	11'- 2"	1	7	1.932	90.358	1.912	67.089	G		
5	3	4	12"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	11'- 8"	-----	12'- 0"	48	12	44.316	0.964	114.208	13'- 6"	6	13'- 2"	1	4	1.820	92.020	1.825	79.105	A		
5	4	4	12"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	11'- 8"	-----	12'- 0"	48	18	46.434	1.037	120.472	13'- 6"	6	13'- 2"	1	5	1.919	95.471	1.918	79.105	C		
5	5	4	12"	4'- 3 1/2"	0'- 5 3/4"	2'- 3"	0'- 7 5/8"	0'- 5"	11'- 8"	-----	12'- 0"	48	24	48.552	1.130	119.467	13'- 6"	6	13'- 2"	1	6	2.032	98.923	2.025	79.105	F		
5	6	4	12"	4'- 3 1/2"	0'- 5 3/4"	2'- 3"	0'- 7 5/8"	0'- 5"	11'- 8"	-----	12'- 0"	48	30	50.670	1.203	133.000	13'- 6"	6	13'- 2"	1	7	2.131	102.374	2.118	79.105	H		
5	7	4	12"	4'- 3 1/2"	0'- 5 3/4"	2'- 3"	0'- 7 5/8"	0'- 5"	11'- 8"	-----	12'- 0"	48	36	52.788	1.276	144.687	13'- 6"	6	13'- 2"	1	8	2.230	105.825	2.210	79.105	J		
6	4	4	12"	5'- 3/8"	0'- 7 1/4"	2'- 6 1/4"	0'- 9 3/4"	0'- 6 1/2"	13'- 8"	-----	14'- 1"	56	18	53.114	1.298	135.447	15'- 6"	6	15'- 2"	1	5	2.092	107.487	2.098	91.121	D		
6	5	4	11"	5'- 3/8"	0'- 7 1/4"	2'- 6 1/4"	0'- 9 3/4"	0'- 6 1/2"	13'- 8"	-----	14'- 1"	56	24	55.232	1.372	140.337	15'- 6"	6	15'- 2"	1	6	2.191	110.939	2.191	91.121	F		
6	6	4	11"	5'- 1/4"	0'- 7 1/2"	2'- 6"	0'- 10 1/8"	0'- 6 3/4"	13'- 8"	-----	14'- 2"	56	30	57.350	1.467	147.066	15'- 6"	6	15'- 2"	1	7	2.284	114.390	2.277	91.121	H		
6	7	4	11"	5'- 1/4"	0'- 7 1/2"	2'- 6"	0'- 10 1/8"	0'- 6 3/4"	13'- 8"	-----	14'- 2"	56	36	59.468	1.540	168.512	15'- 6"	6	15'- 2"	1	8	2.383	117.841	2.370	91.121	J		
6	8	4	11"	5'- 1/4"	0'- 7 1/2"	2'- 6"	0'- 10 1/8"	0'- 6 3/4"	13'- 8"	-----	14'- 2"	56	42	61.586	1.613	176.711	15'- 6"	6	15'- 2"	1	9	2.482	121.293	2.463	91.121	L		
7	4	4	9"	5'- 9 1/4"	0'- 8 3/4"	2'- 9 5/8"	0'- 11 1/8"	0'- 8"	15'- 8 1/8"	-----	16'- 3"	64	18	59.794	1.577	168.350	17'- 6"	6	17'- 2"	1	5	2.233	119.503	2.245	103.137	D		
7	6	4	9"	5'- 9"	0'- 9 1/4"	2'- 9 1/8"	1'- 1/2"	0'- 8 1/2"	15'- 8 1/8"	-----	16'- 3"	64	30	64.030	1.773	181.768	17'- 6"	6	17'- 2"	1	7	2.416	126.406	2.416	103.137	H		
7	8	4	9"	5'- 9"	0'- 9 1/4"	2'- 9 1/8"	1'- 1/2"	0'- 8 1/2"	15'- 8 1/8"	-----	16'- 3"	64	42	68.266	1.919	207.568	17'- 6"	6	17'- 2"	1	9	2.613	133.309	2.601	103.137	L		
7	10	4	9"	5'- 8 1/8"	0'- 9 1/2"	2'- 8 1/8"	1'- 7/8"	0'- 8 3/4"	15'- 8 1/8"	-----	16'- 3"	64	54	72.502	2.089	255.461	17'- 6"	6	17'- 2"	1	11	2.804	140.211	2.779	103.137	P		
8	4	4	8"	6'- 6"	0'- 10 1/4"	3'- 7/8"	1'- 2"	0'- 9 1/2"	17'- 7 7/8"	-----	18'- 4"	72	18	66.474	1.891	217.592	19'- 6"	6	19'- 2"	1	5	2.355	131.519	2.374	115.153	D		
8	6	4	8"	6'- 6"	0'- 10 1/4"	3'- 7/8"	1'- 2"	0'- 9 1/2"	17'- 7 7/8"	-----	18'- 4"	72	30	70.710	2.038	231.456	19'- 6"	6	19'- 2"	1	7	2.553	138.422	2.559	115.153	H		
8	8	5	9"	6'- 5 7/8"	0'- 10 5/8"	3'- 5/8"	1'- 2 3/8"	0'- 9 3/4"	17'- 7 7/8"	-----	18'- 4"	72	42	74.946	2.212	258.495	19'- 6"	6	19'- 2"	1	9	2.741	145.325	2.736	115.153	L		
8	10	5	9"	6'- 5 7/8"	0'- 10 5/8"	3'- 5/8"	1'- 2 3/8"	0'- 9 3/4"	17'- 7 7/8"	-----	18'- 4"	72	54	79.182	2.356	306.482	19'- 6"	6	19'- 2"	1	11	2.939	152.227	2.921	115.153	P		
9	4	5	9"	7'- 2 7/8"	0'- 11 1/8"	3'- 4 1/4"	1'- 4 1/8"	0'- 11"	19'- 8"	-----	20'- 5"	80	18	73.154	2.241	281.162	21'- 6"	6	21'- 2"	1	5	2.477	143.535	2.503	127.169	E		
9	6	5	9"	7'- 2 3/4"	1'- 1/8"	3'- 4"	1'- 4 1/2"	0'- 11 1/4"	19'- 8"	-----	20'- 5"	80	30	77.390	2.419	294.581	21'- 6"	6	21'- 2"	1	7	2.664	150.438	2.678	127.169	I		
9	8	5	9"	7'- 2 3/4"	1'- 1/8"	3'- 4"	1'- 4 1/2"	0'- 11 1/4"	19'- 8"	-----	20'- 5"	80	42	81.626	2.565	320.867	21'- 6"	6	21'- 2"	1	9	2.862	157.341	2.863	127.169	M		
9	10	5	9"	7'- 2 3/4"	1'- 1/8"	3'- 4"	1'- 4 1/2"	0'- 11 1/4"	19'- 8"	-----	20'- 5"	80	54	85.862	2.710	369.855	21'- 6"	6	21'- 2"	1	11	3.060	164.243	3.048	127.169	Q		
9	12	5	9"	7'- 2 3/4"	1'- 1/8"	3'- 4"	1'- 4 1/2"	0'- 11 1/4"	19'- 8"	-----	20'- 5"	80	66	90.098	2.852	446.001	21'- 6"	6	21'- 2"	1	13	3.258	171.146	3.234	127.169	U		
10	4	6	9"	7'- 11 3/4"	1'- 1 1/2"	3'- 7 1/2"	1'- 6 3/8"	1'- 1 1/2"	21'- 8"	-----	22'- 6"	88	18	79.834	2.631	311.934	23'- 6"	6	23'- 2"	1	5	2.562	155.551	2.594	139.185	E		
10	6	6	9"	7'- 11 3/4"	1'- 1 1/2"	3'- 7 1/2"	1'- 6 3/8"	1'- 1 1/2"	21'- 8"	-----	22'- 6"	88	30	84.070	2.776	347.513	23'- 6"	6	23'- 2"	1	7	2.760	162.454	2.780	139.185	I		
10	8	6	9"	7'- 11 5/8"	1'- 1 3/4"	3'- 7 1/4"	1'- 6 3/4"	1'- 3/4"	21'- 8"	-----	22'- 6"	88	42	88.306	2.956	374.751	23'- 6"	6	23'- 2"	1	9	2.946	169.357	2.953	139.185	M		
10	10	6	9"	7'- 11 5/8"	1'- 1 3/4"	3'- 7 1/4"	1'- 6 3/4"	1'- 3/4"	21'- 8"	-----	22'- 6"	88	54	92.542	3.101	424.856	23'- 6"	6	23'- 2"	1	11	3.143	176.259	3.139	139.185	Q		
10	12	6	9"	7'- 11 1/2"	1'- 2"	3'- 7"	1'- 7 1/8"	1'- 1"	21'- 8"	-----	22'- 7"	88	66	96.778	3.277	503.315	23'- 6"	6	23'- 2"	1	13	3.329	183.162	3.312	139.185	U		
12	6	6	9"	9'- 5 1/2"	1'- 4 1/2"	4'- 2 1/8"	1'- 10 5/8"	1'- 3 1/2"	25'- 8 1/8"	-----	26'- 9"	104	30	97.430	3.662	467.331	27'- 6"	6	27'- 2"	1	7	2.874	186.486	2.908	163.217	I		
12	8	6	9"	9'- 5 1/2"	1'- 4 1/2"	4'- 2 1/8"	1'- 10 5/8"	1'- 3 1/2"	25'- 8 1/8"	-----	26'- 9"	104	42	101.666	3.808	496.491	27'- 6"	6	27'- 2"	1	9	3.072	193.389	3.093	163.217	M		
12	10	6	9"	9'- 5 1/2"	1'- 4 1/2"	4'- 2 1/8"	1'- 10 5/8"	1'- 3 1/2"	25'- 8 1/8"	-----	26'- 9"	104	54	105.902	3.952	494.312	27'- 6"	6	27'- 2"	1	11	3.270	200.291	3.279	163.217	Q		
12	12	6	9"	9'- 5 1/2"	1'- 4 1/2"	4'- 2 1/8"	1'- 10 5/8"	1'- 3 1/2"	25'- 8 1/8"	-----	26'- 9"	104	66	110.138	4.095	619.939	27'- 6"	6	27'- 2"	1	13	3.468	207.194	3.464	163.217	U		

BCD-30

DIMENSIONS								REINFORCING STEEL																								
SPAN	HGHT	T1	T2	T3	T4							BH1		BH2		BH3		BH4			BV1		BV2									
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	6	6'-0"	6	6'-0"	1	1'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	2'-8"	4'-6"	4	12"	4'-0"	4	12"	4'-0"
3	4	8"	8"	8"	8"	6	6'-0"	6	6'-0"	2	2'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	3'-2"	5'-0"	4	12"	5'-0"	4	12"	5'-0"
4	3	8 1/2"	8 1/2"	8"	8"	8	8'-0"	8	8'-0"	1	1'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	2'-8 1/2"	4'-9"	4	12"	4'-1"	4	12"	4'-1"
4	4	8 1/2"	8 1/2"	8"	8"	8	8'-0"	8	8'-0"	2	2'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-2 1/2"	5'-3"	4	12"	5'-1"	4	12"	5'-1"
4	5	8 3/4"	8 3/4"	8"	8"	8	8'-0"	8	8'-0"	3	3'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-8 3/4"	5'-9"	4	12"	6'-2"	4	12"	6'-2"
4	6	8 3/4"	8 3/4"	8"	8"	8	8'-0"	8	8'-0"	4	4'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	4'-2 3/4"	6'-3"	4	12"	7'-2"	4	12"	7'-2"
5	3	10 1/4"	10 1/4"	8"	8"	10	10'-0"	10	10'-0"	1	1'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	2'-10 1/4"	5'-1"	4	12"	4'-5"	4	12"	4'-5"
5	4	10 1/4"	10 1/4"	8"	8"	10	10'-0"	10	10'-0"	2	2'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	3'-4 1/4"	5'-7"	4	12"	5'-5"	4	12"	5'-5"
5	5	10 1/4"	10 1/4"	8"	8"	10	10'-0"	10	10'-0"	3	3'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	3'-10 1/4"	6'-1"	4	12"	6'-5"	4	12"	6'-5"
5	6	10 1/4"	10 1/4"	8"	8"	10	10'-0"	10	10'-0"	4	4'-0"	4	12"	10'-8"	4	12"	11'-8"	3	12"	2'-6"	4'-10"	4	12"	2'-6"	4'-4 1/4"	6'-7"	4	12"	7'-5"	4	12"	7'-5"
5	7	10 1/4"	10 1/4"	8"	8"	10	10'-0"	10	10'-0"	5	5'-0"	4	12"	10'-8"	4	12"	11'-8"	4	12"	2'-6"	4'-9"	4	12"	2'-6"	4'-10 1/4"	7'-1"	4	12"	8'-5"	4	12"	8'-5"
6	4	12 1/4"	12 1/4"	8"	8"	12	12'-0"	12	12'-0"	2	2'-0"	4	11"	12'-3"	4	11"	13'-8"	--	---	----	----	4	11"	2'-8 3/8"	3'-6 1/4"	5'-11"	4	12"	5'-9"	4	12"	5'-9"
6	5	12 1/4"	12 1/4"	8"	8"	12	12'-0"	12	12'-0"	3	3'-0"	4	11"	12'-3"	4	11"	13'-8"	--	---	----	----	4	11"	2'-8 3/8"	4'-1/4"	6'-5"	4	12"	6'-9"	4	12"	6'-9"
6	6	12"	12"	8"	8"	12	12'-0"	12	12'-0"	4	4'-0"	4	11"	12'-3"	4	11"	13'-8"	3	11"	2'-8 3/8"	5'-2"	4	11"	2'-8 3/8"	4'-6"	6'-11"	4	12"	7'-8"	4	12"	7'-8"
6	7	12"	12"	8"	8"	12	12'-0"	12	12'-0"	5	5'-0"	4	10"	12'-3"	4	10"	13'-8"	3	10"	2'-8 3/8"	5'-2"	4	10"	2'-8 3/8"	5'-0"	7'-5"	4	12"	8'-8"	4	12"	8'-8"
6	8	12"	12"	8"	8"	12	12'-0"	12	12'-0"	6	6'-0"	4	10"	12'-3"	4	10"	13'-8"	--	---	----	----	5	10"	2'-8 3/8"	5'-6"	7'-10"	4	8"	9'-8"	4	12"	9'-8"
7	4	13 3/4"	13 3/4"	8"	8"	14	14'-0"	14	14'-0"	2	2'-0"	5	9"	13'-10"	4	9"	15'-8"	--	---	----	----	4	9"	2'-10 3/4"	3'-7 3/4"	6'-3"	4	12"	6'-0"	4	12"	6'-0"
7	6	13 3/4"	13 3/4"	8"	8"	14	14'-0"	14	14'-0"	4	4'-0"	5	9"	13'-10"	4	9"	15'-8"	--	---	----	----	4	9"	2'-10 3/4"	4'-7 3/4"	7'-3"	4	12"	8'-0"	4	12"	8'-0"
7	8	13 3/4"	13 3/4"	8"	8"	14	14'-0"	14	14'-0"	6	6'-0"	5	9"	13'-10"	4	9"	15'-8"	3	9"	2'-10 3/4"	5'-7"	4	9"	2'-10 3/4"	5'-7 3/4"	8'-3"	4	8 1/2"	10'-0"	4	12"	10'-0"
7	10	13 3/4"	13 3/4"	8"	8"	14	14'-0"	14	14'-0"	8	8'-0"	5	9"	13'-10"	4	9"	15'-8"	3	9"	2'-10 3/4"	5'-7"	5	9"	2'-10 3/4"	6'-7 3/4"	9'-3"	4	5"	12'-0"	4	12"	12'-0"
8	4	15 1/2"	15 1/2"	8"	8"	16	16'-0"	16	16'-0"	2	2'-0"	5	8"	15'-6"	4	8"	17'-8"	--	---	----	----	4	8"	3'-1 1/4"	3'-9 1/2"	6'-8"	4	12"	6'-3"	4	12"	6'-3"
8	6	15 1/2"	15 1/2"	8"	8"	16	16'-0"	16	16'-0"	4	4'-0"	5	8"	15'-6"	4	8"	17'-8"	--	---	----	----	4	8"	3'-1 1/4"	4'-9 1/2"	7'-8"	4	12"	8'-3"	4	12"	8'-3"
8	8	15 1/2"	15 1/2"	8"	8"	16	16'-0"	16	16'-0"	6	6'-0"	5	8"	15'-6"	4	8"	17'-8"	3	8"	3'-1 1/4"	6'-0"	4	8"	3'-1 1/4"	5'-9 1/2"	8'-8"	4	8 1/2"	10'-3"	4	12"	10'-3"
8	10	15 1/2"	15 1/2"	8"	8"	16	16'-0"	16	16'-0"	8	8'-0"	5	8"	15'-6"	4	8"	17'-8"	3	8"	3'-1 1/4"	6'-0"	5	8"	3'-1 1/4"	6'-9 1/2"	9'-7"	4	5"	12'-3"	4	12"	12'-3"
9	4	17 1/4"	17 1/4"	8"	8"	18	18'-0"	18	18'-0"	2	2'-0"	6	9"	17'-1"	5	9"	19'-8"	--	---	----	----	4	9"	3'-3 5/8"	3'-11 1/4"	7'-0"	4	12"	6'-6"	4	11"	6'-6"
9	6	17 1/4"	17 1/4"	8"	8"	18	18'-0"	18	18'-0"	4	4'-0"	6	9"	17'-1"	5	9"	19'-8"	--	---	----	----	4	9"	3'-3 5/8"	4'-11 1/4"	8'-0"	4	12"	8'-6"	4	11"	8'-6"
9	8	17 1/2"	17 1/2"	8"	8"	18	18'-0"	18	18'-0"	6	6'-0"	6	9"	17'-1"	5	9"	19'-8"	3	9"	3'-3 5/8"	6'-5"	4	9"	3'-3 5/8"	5'-11 1/2"	9'-0"	4	8"	10'-7"	4	11"	10'-7"
9	10	17 1/2"	17 1/2"	8"	8"	18	18'-0"	18	18'-0"	8	8'-0"	6	9"	17'-1"	5	9"	19'-8"	4	9"	3'-3 5/8"	6'-4"	4	9"	3'-3 5/8"	6'-11 1/2"	10'-0"	5	7 1/2"	12'-7"	4	11"	12'-7"
9	12	17 1/2"	17 1/2"	8 1/2"	8"	18	18'-0"	18	18'-0"	10	10'-0"	6	9"	17'-1"	5	9"	19'-8"	3	9"	3'-4 7/8"	6'-6"	6	9"	3'-4 7/8"	7'-11 1/2"	10'-11"	5	5 1/2"	14'-7"	4	11"	14'-7"
10	4	18 1/2"	18 1/2"	8"	8"	20	20'-0"	20	20'-0"	2	2'-0"	6	8"	18'-8"	4	8"	21'-8"	--	---	----	----	4	8"	3'-6"	4'-1/2"	7'-3"	4	12"	6'-9"	4	10"	6'-9"
10	6	18 3/4"	18 3/4"	8"	8"	20	20'-0"	20	20'-0"	4	4'-0"	6	9"	18'-8"	5	9"	21'-8"	--	---	----	----	4	9"	3'-6"	5'-3/4"	8'-4"	4	12"	8'-9"	4	10"	8'-9"
10	8	18 3/4"	18 3/4"	8"	8"	20	20'-0"	20	20'-0"	6	6'-0"	6	9"	18'-8"	5	9"	21'-8"	3	9"	3'-6"	6'-10"	4	9"	3'-6"	6'-3/4"	9'-4"	4	8 1/2"	10'-9"	4	10"	10'-9"
10	10	19"	19"	8"	8"	20	20'-0"	20	20'-0"	8	8'-0"	6	9"	18'-8"	5	9"	21'-8"	3	9"	3'-6"	6'-10"	5	9"	3'-6"	7'-1"	10'-3"	5	7 1/2"	12'-10"	4	10"	12'-10"
10	12	19 1/4"	19 1/4"	8 1/2"	8"	20	20'-0"	20	20'-0"	10	10'-0"	6	9"	18'-8"	5	9"	21'-8"	3	9"	3'-6 1/2"	6'-11"	6	9"	3'-6 1/2"	8'-1 1/4"	11'-3"	7	10 1/2"	14'-10"	4	10"	14'-10"
12	6	22 1/4"	22 1/4"	8"	8"	24	24'-0"	24	24'-0"	4	4'-0"	7	9"	21'-10"	6	9"	25'-8"	--	---	----	----	4	9"	3'-10 3/4"	5'-4 1/4"	9'-0"	4	12"	9'-4"	4	10"	9'-4"
12	8	22 1/4"	22 1/4"	8"	8"	24	24'-0"	24	24'-0"	6	6'-0"	7	9"	21'-10"	6	9"	25'-8"	3	9"	3'-10 3/4"	7'-7"	4	9"	3'-10 3/4"	6'-4 1/4"	10'-0"	4	8"	11'-4"	4	10"	11'-4"
12	10	22 1/4"	22 1/4"	8"	8"	24	24'-0"	24	24'-0"	8	8'-0"	7	9"	21'-10"	6	9"	25'-8"	3	9"	3'-10 3/4"	7'-7"	5	9"	3'-10 3/4"	7'-4 1/4"	10'-11"	5	7 1/2"	13'-4"	4	10"	13'-4"
12	12	22 1/2"	22 1/2"	8 1/2"	8"	24	24'-0"	24	24'-0"	10	10'-0"	7	9"	21'-10"	6	9"	25'-8"	3	9"	3'-11 1/4"	7'-8"	6	9"	3'-11 1/4"	8'-4 1/2"	11'-11"	6	7 1/2"	15'-5"	4	10"	15'-5"

Sheet 1 of 2

For Typical Section, notes and other details, refer to standard BCD-DT.

DOUBLE BOX CULVERTS
25 TO 30 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

1003.16

SPAN		HIGHT		REINFORCING STEEL														QUAN./LF		HEADWALLS								WINGWALL	
(FT.)	(FT.)	SIZE	SPACING C-C	BTI										NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/LONG. JT)	CONCRETE CL. A3 (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HW1		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)		OUTLET REINFORCING STEEL (LBS)
				a	b	c	d	e	f	g	LENGTH	HEADWALL LENGTH	SIZE						LENGTH										
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'- 11"	32	12	30.956	0.695	79.439	9'- 6"	6	9'- 2"	1	4	1.433	67.988	1.425	55.073	A			
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'- 11"	32	18	33.074	0.768	85.703	9'- 6"	6	9'- 2"	1	5	1.531	71.439	1.517	55.073	C			
4	3	4	12"	3'- 6 1/4"	0'- 5"	1'- 11"	0'- 6 1/2"	0'- 4 1/4"	9'- 8"	-----	9'- 11"	40	12	37.636	0.823	93.133	11'- 6"	6	11'- 2"	1	4	1.629	80.004	1.628	67.089	A			
4	4	4	12"	3'- 6 1/4"	0'- 5"	1'- 11"	0'- 6 1/2"	0'- 4 1/4"	9'- 8"	-----	9'- 11"	40	18	39.754	0.897	99.397	11'- 6"	6	11'- 2"	1	5	1.728	83.455	1.721	67.089	C			
4	5	4	12"	3'- 6 1/8"	0'- 5 1/4"	1'- 10 3/4"	0'- 6 1/8"	0'- 4 1/2"	9'- 8"	-----	10'- 0"	40	24	41.872	0.986	105.995	11'- 6"	6	11'- 2"	1	6	1.824	86.907	1.811	67.089	E			
4	6	4	12"	3'- 6 1/8"	0'- 5 1/4"	1'- 10 3/4"	0'- 6 1/8"	0'- 4 1/2"	9'- 8"	-----	10'- 0"	40	30	43.990	1.059	112.259	11'- 6"	6	11'- 2"	1	7	1.923	90.358	1.903	67.089	G			
5	3	4	12"	4'- 3"	0'- 6 3/4"	2'- 2"	0'- 9"	0'- 6"	11'- 8"	-----	12'- 1"	48	12	44.316	1.057	107.941	13'- 6"	6	13'- 2"	1	4	1.816	92.020	1.822	79.105	B			
5	4	4	12"	4'- 3"	0'- 6 3/4"	2'- 2"	0'- 9"	0'- 6"	11'- 8"	-----	12'- 1"	48	18	46.434	1.130	114.205	13'- 6"	6	13'- 2"	1	5	1.915	95.471	1.915	79.105	D			
5	5	4	12"	4'- 3"	0'- 6 3/4"	2'- 2"	0'- 9"	0'- 6"	11'- 8"	-----	12'- 1"	48	24	48.552	1.204	120.469	13'- 6"	6	13'- 2"	1	6	2.014	98.923	2.007	79.105	F			
5	6	4	12"	4'- 3"	0'- 6 3/4"	2'- 2"	0'- 9"	0'- 6"	11'- 8"	-----	12'- 1"	48	30	50.670	1.277	134.002	13'- 6"	6	13'- 2"	1	7	2.113	102.374	2.100	79.105	H			
5	7	4	12"	4'- 3"	0'- 6 3/4"	2'- 2"	0'- 9"	0'- 6"	11'- 8"	-----	12'- 1"	48	36	52.788	1.350	145.689	13'- 6"	6	13'- 2"	1	8	2.212	105.825	2.193	79.105	J			
6	4	4	11"	4'- 11 5/8"	0'- 8 3/4"	2'- 4 3/4"	0'- 11 7/8"	0'- 8"	13'- 8"	-----	14'- 3"	56	18	53.114	1.428	135.328	15'- 6"	6	15'- 2"	1	5	2.056	107.487	2.062	91.121	D			
6	5	4	11"	4'- 11 5/8"	0'- 8 3/4"	2'- 4 3/4"	0'- 11 7/8"	0'- 8"	13'- 8"	-----	14'- 3"	56	24	55.232	1.502	141.713	15'- 6"	6	15'- 2"	1	6	2.155	110.939	2.155	91.121	F			
6	6	4	11"	4'- 11 3/8"	0'- 8 1/2"	2'- 5"	0'- 11 1/2"	0'- 7 3/4"	13'- 8"	-----	14'- 2"	56	30	57.350	1.553	156.232	15'- 6"	6	15'- 2"	1	7	2.260	114.390	2.254	91.121	H			
6	7	4	10"	4'- 11 3/4"	0'- 8 1/2"	2'- 5"	0'- 11 1/2"	0'- 7 3/4"	13'- 8"	-----	14'- 2"	56	36	59.468	1.626	171.469	15'- 6"	6	15'- 2"	1	8	2.359	117.841	2.347	91.121	J			
6	8	4	10"	4'- 11 3/4"	0'- 8 1/2"	2'- 5"	0'- 11 1/2"	0'- 7 3/4"	13'- 8"	-----	14'- 2"	56	42	61.586	1.699	188.965	15'- 6"	6	15'- 2"	1	9	2.458	121.293	2.439	91.121	L			
7	4	4	9"	5'- 8 1/2"	0'- 10 1/4"	2'- 8 1/8"	1'- 2"	0'- 9 1/2"	15'- 8 1/8"	-----	16'- 4"	64	18	59.794	1.724	183.296	17'- 6"	6	17'- 2"	1	5	2.188	119.503	2.200	103.137	D			
7	6	4	9"	5'- 8 1/2"	0'- 10 1/4"	2'- 8 1/8"	1'- 2"	0'- 9 1/2"	15'- 8 1/8"	-----	16'- 4"	64	30	64.030	1.871	196.715	17'- 6"	6	17'- 2"	1	7	2.386	126.406	2.386	103.137	H			
7	8	4	9"	5'- 8 1/2"	0'- 10 1/4"	2'- 8 1/8"	1'- 2"	0'- 9 1/2"	15'- 8 1/8"	-----	16'- 4"	64	42	68.266	2.017	226.831	17'- 6"	6	17'- 2"	1	9	2.584	133.309	2.571	103.137	L			
7	10	4	9"	5'- 8 1/2"	0'- 10 1/4"	2'- 8 1/8"	1'- 2"	0'- 9 1/2"	15'- 8 1/8"	-----	16'- 4"	64	54	72.502	2.161	275.694	17'- 6"	6	17'- 2"	1	11	2.781	140.211	2.757	103.137	P			
8	4	4	8"	6'- 5 1/8"	1'- 0"	2'- 11 1/8"	1'- 4 1/2"	0'- 11 1/4"	17'- 7 7/8"	-----	18'- 5"	72	18	66.474	2.085	219.095	19'- 6"	6	19'- 2"	1	5	2.310	131.519	2.329	115.153	E			
8	6	4	8"	6'- 5 1/8"	1'- 0"	2'- 11 1/8"	1'- 4 1/2"	0'- 11 1/4"	17'- 7 7/8"	-----	18'- 5"	72	30	70.710	2.232	232.958	19'- 6"	6	19'- 2"	1	7	2.508	138.422	2.515	115.153	I			
8	8	4	8"	6'- 5 1/8"	1'- 0"	2'- 11 1/8"	1'- 4 1/2"	0'- 11 1/4"	17'- 7 7/8"	-----	18'- 5"	72	42	74.946	2.378	265.997	19'- 6"	6	19'- 2"	1	9	2.706	145.325	2.700	115.153	M			
8	10	4	8"	6'- 5 1/8"	1'- 0"	2'- 11 1/8"	1'- 4 1/2"	0'- 11 1/4"	17'- 7 7/8"	-----	18'- 5"	72	54	79.182	2.522	318.363	19'- 6"	6	19'- 2"	1	11	2.904	152.227	2.886	115.153	Q			
9	4	5	9"	7'- 1 1/8"	1'- 1 1/8"	3'- 2 1/4"	1'- 7"	1'- 1"	19'- 8"	-----	20'- 7"	80	18	73.154	2.488	283.677	21'- 6"	6	21'- 2"	1	5	2.393	143.535	2.418	127.169	E			
9	6	5	9"	7'- 1 1/8"	1'- 1 1/8"	3'- 2 1/4"	1'- 7"	1'- 1"	19'- 8"	-----	20'- 7"	80	30	77.390	2.635	297.339	21'- 6"	6	21'- 2"	1	7	2.590	150.438	2.604	127.169	I			
9	8	5	9"	7'- 1 3/4"	1'- 2 1/8"	3'- 2"	1'- 7 3/8"	1'- 1 1/4"	19'- 8"	-----	20'- 7"	80	42	81.626	2.811	331.170	21'- 6"	6	21'- 2"	1	9	2.778	157.341	2.779	127.169	M			
9	10	5	9"	7'- 1 3/4"	1'- 2 1/8"	3'- 2"	1'- 7 3/8"	1'- 1 1/4"	19'- 8"	-----	20'- 7"	80	54	85.862	2.956	372.645	21'- 6"	6	21'- 2"	1	11	2.976	164.243	2.964	127.169	Q			
9	12	5	9"	7'- 2 1/4"	1'- 2 1/8"	3'- 2"	1'- 7 3/8"	1'- 1 1/4"	19'- 9"	-----	20'- 8"	80	66	90.098	3.145	447.204	21'- 6"	6	21'- 2"	1	13	3.128	171.146	3.104	127.169	U			
10	4	5	8"	7'- 10 7/8"	1'- 3 1/8"	3'- 5 3/4"	1'- 8 3/4"	1'- 2 1/4"	21'- 8"	-----	22'- 8"	88	18	79.834	2.868	312.906	23'- 6"	6	23'- 2"	1	5	2.477	155.551	2.510	139.185	E			
10	6	6	9"	7'- 10 3/4"	1'- 3 1/2"	3'- 5 1/2"	1'- 9 1/4"	1'- 2 1/2"	21'- 8"	-----	22'- 8"	88	30	84.070	3.048	351.287	23'- 6"	6	23'- 2"	1	7	2.663	162.454	2.683	139.185	I			
10	8	6	9"	7'- 10 3/4"	1'- 3 1/2"	3'- 5 1/2"	1'- 9 1/4"	1'- 2 1/2"	21'- 8"	-----	22'- 8"	88	42	88.306	3.193	384.857	23'- 6"	6	23'- 2"	1	9	2.861	169.357	2.869	139.185	M			
10	10	6	9"	7'- 10 5/8"	1'- 3 3/4"	3'- 5 1/4"	1'- 9 5/8"	1'- 2 3/4"	21'- 8"	-----	22'- 8"	88	54	92.542	3.371	439.031	23'- 6"	6	23'- 2"	1	11	3.047	176.259	3.042	139.185	Q			
10	12	6	9"	7'- 11"	1'- 4"	3'- 5"	1'- 9 7/8"	1'- 3"	21'- 9"	-----	22'- 9"	88	66	96.778	3.595	507.054	23'- 6"	6	23'- 2"	1	13	3.186	183.162	3.168	139.185	U			
12	6	7	9"	9'- 4 1/4"	1'- 7 1/8"	3'- 11 3/4"	2'- 2 1/8"	1'- 5 7/8"	25'- 8"	-----	26'- 11"	104	30	97.430	4.060	508.772	27'- 6"	6	27'- 2"	1	7	2.741	186.486	2.775	163.217	J			
12	8	7	9"	9'- 4 1/4"	1'- 7 1/8"	3'- 11 3/4"	2'- 2 1/8"	1'- 5 7/8"	25'- 8"	-----	26'- 11"	104	42	101.666	4.206	545.503	27'- 6"	6	27'- 2"	1	9	2.939	193.389	2.960	163.217	N			
12	10	7	9"	9'- 4 1/4"	1'- 7 1/8"	3'- 11 3/4"	2'- 2 1/8"	1'- 5 7/8"	25'- 8"	-----	26'- 11"	104	54	105.902	4.350	600.110	27'- 6"	6	27'- 2"	1	11	3.137	200.291	3.145	163.217	R			
12	12	7	9"	9'- 4 5/8"	1'- 7 3/8"	3'- 11 1/2"	2'- 2 1/2"	1'- 6 1/8"	25'- 9"	-----	27'- 0"	104	66	110.138	4.581	673.249	27'- 6"	6	27'- 2"	1	13	3.271	207.194	3.267	163.217	V			

BCD-35

DIMENSIONS								REINFORCING STEEL																									
SPAN	HGHT	T1	T2	T3	T4							BH1				BH2				BH3				BH4				BV1			BV2		
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH		
3	3	8"	8"	8"	8"	6	6'-0"	6	6'-0"	1	1'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	2'-8"	4'-6"	4	12"	4'-0"	4	12"	4'-0"	
3	4	8"	8"	8"	8"	6	6'-0"	6	6'-0"	2	2'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	3'-2"	5'-0"	4	12"	5'-0"	4	12"	5'-0"	
4	3	9 1/2"	9 1/2"	8"	8"	8	8'-0"	8	8'-0"	1	1'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	2'-9 1/2"	4'-10"	4	12"	4'-3"	4	12"	4'-3"	
4	4	9 1/2"	9 1/2"	8"	8"	8	8'-0"	8	8'-0"	2	2'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-3 1/2"	5'-4"	4	12"	5'-3"	4	12"	5'-3"	
4	5	9 1/2"	9 1/2"	8"	8"	8	8'-0"	8	8'-0"	3	3'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-9 1/2"	5'-10"	4	12"	6'-3"	4	12"	6'-3"	
4	6	9 1/4"	9 1/4"	8"	8"	8	8'-0"	8	8'-0"	4	4'-0"	4	12"	9'-1"	4	12"	9'-8"	3	12"	2'-3 5/8"	4'-5"	4	12"	2'-3 5/8"	4'-3 1/4"	6'-4"	4	12"	7'-2"	4	12"	7'-2"	
5	3	11"	11"	8"	8"	10	10'-0"	10	10'-0"	1	1'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	2'-11"	5'-2"	4	12"	4'-6"	4	12"	4'-6"	
5	4	11"	11"	8"	8"	10	10'-0"	10	10'-0"	2	2'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	3'-5"	5'-8"	4	12"	5'-6"	4	12"	5'-6"	
5	5	11"	11"	8"	8"	10	10'-0"	10	10'-0"	3	3'-0"	4	12"	10'-8"	4	12"	11'-8"	--	---	----	----	4	12"	2'-6"	3'-11"	6'-2"	4	12"	6'-6"	4	12"	6'-6"	
5	6	11 1/4"	11 1/4"	8"	8"	10	10'-0"	10	10'-0"	4	4'-0"	4	12"	10'-8"	4	12"	11'-8"	3	12"	2'-6"	4'-10"	4	12"	2'-6"	4'-5 1/4"	6'-8"	4	12"	7'-6"	4	12"	7'-6"	
5	7	11 1/4"	11 1/4"	8"	8"	10	10'-0"	10	10'-0"	5	5'-0"	4	12"	10'-8"	4	12"	11'-8"	4	12"	2'-6"	4'-9"	4	12"	2'-6"	4'-11 1/4"	7'-2"	4	10"	8'-6"	4	12"	8'-6"	
6	4	13"	13"	8"	8"	12	12'-0"	12	12'-0"	2	2'-0"	4	10"	12'-3"	4	10"	13'-8"	--	---	----	----	4	10"	2'-8 3/8"	3'-7"	6'-0"	4	12"	5'-10"	4	12"	5'-10"	
6	5	13"	13"	8"	8"	12	12'-0"	12	12'-0"	3	3'-0"	4	10"	12'-3"	4	10"	13'-8"	--	---	----	----	4	10"	2'-8 3/8"	4'-1"	6'-6"	4	12"	6'-10"	4	12"	6'-10"	
6	6	13"	13"	8"	8"	12	12'-0"	12	12'-0"	4	4'-0"	4	10"	12'-3"	4	10"	13'-8"	--	---	----	----	4	10"	2'-8 3/8"	4'-7"	7'-0"	4	12"	7'-10"	4	12"	7'-10"	
6	7	13"	13"	8"	8"	12	12'-0"	12	12'-0"	5	5'-0"	4	10"	12'-3"	4	10"	13'-8"	3	10"	2'-8 3/8"	5'-2"	4	10"	2'-8 3/8"	5'-1"	7'-6"	4	10 1/2"	8'-10"	4	12"	8'-10"	
6	8	13"	13"	8"	8"	12	12'-0"	12	12'-0"	6	6'-0"	4	10"	12'-3"	4	10"	13'-8"	--	---	----	----	5	10"	2'-8 3/8"	5'-7"	7'-11"	5	10 1/2"	9'-10"	4	12"	9'-10"	
7	4	15 1/4"	15 1/4"	8"	8"	14	14'-0"	14	14'-0"	2	2'-0"	5	9"	13'-10"	4	9"	15'-8"	--	---	----	----	4	9"	2'-10 3/4"	3'-9 1/4"	6'-5"	4	12"	6'-3"	4	12"	6'-3"	
7	6	15 1/2"	15 1/2"	8"	8"	14	14'-0"	14	14'-0"	4	4'-0"	5	9"	13'-10"	4	9"	15'-8"	--	---	----	----	4	9"	2'-10 3/4"	4'-9 1/2"	7'-5"	4	12"	8'-3"	4	12"	8'-3"	
7	8	15 1/2"	15 1/2"	8"	8"	14	14'-0"	14	14'-0"	6	6'-0"	5	9"	13'-10"	4	9"	15'-8"	3	9"	2'-10 3/4"	5'-7"	4	9"	2'-10 3/4"	5'-9 1/2"	8'-5"	4	6 1/2"	10'-3"	4	12"	10'-3"	
7	10	15 1/2"	15 1/2"	8"	8"	14	14'-0"	14	14'-0"	8	8'-0"	5	9"	13'-10"	4	9"	15'-8"	3	9"	2'-10 3/4"	5'-7"	5	9"	2'-10 3/4"	6'-9 1/2"	9'-4"	5	6 1/2"	12'-3"	4	12"	12'-3"	
8	4	17"	17"	8"	8"	16	16'-0"	16	16'-0"	2	2'-0"	6	9"	15'-6"	5	9"	17'-8"	--	---	----	----	4	9"	3'-1 1/4"	3'-11"	6'-9"	4	12"	6'-6"	4	10 1/2"	6'-6"	
8	6	17 1/4"	17 1/4"	8"	8"	16	16'-0"	16	16'-0"	4	4'-0"	6	9"	15'-6"	5	9"	17'-8"	--	---	----	----	4	9"	3'-1 1/4"	4'-11 1/4"	7'-9"	4	12"	8'-6"	4	10 1/2"	8'-6"	
8	8	17 1/4"	17 1/4"	8"	8"	16	16'-0"	16	16'-0"	6	6'-0"	5	9"	15'-6"	5	9"	17'-8"	--	---	----	----	5	9"	3'-1 1/4"	5'-11 1/4"	8'-9"	4	6 1/2"	10'-6"	4	11"	10'-6"	
8	10	17"	17"	8"	8"	16	16'-0"	16	16'-0"	8	8'-0"	5	9"	15'-6"	5	9"	17'-8"	--	---	----	----	6	9"	3'-1 1/4"	6'-11"	9'-7"	5	6 1/2"	12'-6"	4	11"	12'-6"	
9	4	19"	19"	8"	8"	18	18'-0"	18	18'-0"	2	2'-0"	6	9"	17'-1"	5	9"	19'-8"	--	---	----	----	4	9"	3'-3 5/8"	4'-1"	7'-1"	4	12"	6'-10"	4	10"	6'-10"	
9	6	19"	19"	8"	8"	18	18'-0"	18	18'-0"	4	4'-0"	6	9"	17'-1"	5	9"	19'-8"	--	---	----	----	4	9"	3'-3 5/8"	5'-1"	8'-1"	4	12"	8'-10"	4	10"	8'-10"	
9	8	19"	19"	8"	8"	18	18'-0"	18	18'-0"	6	6'-0"	6	9"	17'-1"	5	9"	19'-8"	3	9"	3'-3 5/8"	6'-5"	4	9"	3'-3 5/8"	6'-1"	9'-1"	4	6 1/2"	10'-10"	4	10"	10'-10"	
9	10	19"	19"	8"	8"	18	18'-0"	18	18'-0"	8	8'-0"	6	9"	17'-1"	5	9"	19'-8"	3	9"	3'-3 5/8"	6'-5"	5	9"	3'-3 5/8"	7'-1"	10'-1"	6	9"	12'-10"	4	10"	12'-10"	
9	12	19"	19"	9 1/4"	8"	18	18'-0"	18	18'-0"	10	10'-0"	6	9"	17'-1"	5	9"	19'-10"	3	9"	3'-4 7/8"	6'-7"	6	9"	3'-4 7/8"	8'-1"	11'-1"	7	10 1/2"	14'-10"	4	10"	14'-10"	
10	4	20 3/4"	20 3/4"	8"	8"	20	20'-0"	20	20'-0"	2	2'-0"	6	8"	18'-8"	4	8"	21'-8"	--	---	----	----	4	8"	3'-6"	4'-2 3/4"	7'-6"	4	12"	7'-1"	4	10"	7'-1"	
10	6	20 3/4"	20 3/4"	8"	8"	20	20'-0"	20	20'-0"	4	4'-0"	6	8"	18'-8"	4	8"	21'-8"	--	---	----	----	4	8"	3'-6"	5'-2 3/4"	8'-6"	4	12"	9'-1"	4	10"	9'-1"	
10	8	20 3/4"	20 3/4"	8"	8"	20	20'-0"	20	20'-0"	6	6'-0"	7	9"	18'-8"	5	9"	21'-8"	3	9"	3'-6"	6'-10"	4	9"	3'-6"	6'-2 3/4"	9'-6"	4	6 1/2"	11'-1"	4	10"	11'-1"	
10	10	20 1/2"	20 1/2"	8"	8"	20	20'-0"	20	20'-0"	8	8'-0"	7	9"	18'-8"	6	9"	21'-8"	--	---	----	----	6	9"	3'-6"	7'-2 1/2"	10'-4"	6	9"	13'-1"	4	10"	13'-1"	
10	12	20 1/2"	20 1/2"	9 1/4"	8"	20	20'-0"	20	20'-0"	10	10'-0"	7	9"	18'-8"	5	9"	21'-10"	3	9"	3'-7 1/4"	7'-0"	6	9"	3'-7 1/4"	8'-2 1/2"	11'-5"	7	10 1/2"	15'-1"	4	10"	15'-1"	
12	6	24 3/4"	24 3/4"	8"	8"	24	24'-0"	24	24'-0"	4	4'-0"	7	9"	21'-10"	6	9"	25'-8"	--	---	----	----	4	9"	3'-10 3/4"	5'-6 3/4"	9'-2"	4	12"	9'-9"	4	9 1/2"	9'-9"	
12	8	24 3/4"	24 3/4"	8"	8"	24	24'-0"	24	24'-0"	6	6'-0"	7	9"	21'-10"	6	9"	25'-8"	3	9"	3'-10 3/4"	7'-7"	4	9"	3'-10 3/4"	6'-6 3/4"	10'-2"	4	6"	11'-9"	4	9 1/2"	11'-9"	
12	10	24 3/4"	24 3/4"	8"	8"	24	24'-0"	24	24'-0"	8	8'-0"	7	9"	21'-10"	6	9"	25'-8"	3	9"	3'-10 3/4"	7'-7"	5	9"	3'-10 3/4"	7'-6 3/4"	11'-2"	5	6"	13'-9"	4	9 1/2"	13'-9"	
12	12	25"	25"	9 1/4"	8"	24	24'-0"	24	24'-0"	10	10'-0"	7	9"	21'-10"	6	9"	25'-10"	3	9"	4'-0"	7'-10"	6	9"	4'-0"	8'-7"	12'-2"	5	5"	15'-10"	4	9 1/2"	15'-10"	

DOUBLE BOX CULVERTS
30 TO 35 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

SPAN		HIGHT		REINFORCING STEEL														QUAN./LF		HEADWALLS								WINGWALL
(FT.)	(FT.)	SIZE	SPACING C-C	BTI									NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/LONG. JT)	CONCRETE CL. A3 (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HWI		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	
				a	b	c	d	e	f	g	LENGTH	HEADWALL LENGTH						SIZE	LENGTH									
3	3	4	12"	2'- 8 1/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'- 11"	32	12	30.956	0.695	79.439	9'- 6"	6	9'- 2"	1	4	1.433	67.988	1.425	55.073	A		
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'- 11"	32	18	33.074	0.768	85.703	9'- 6"	6	9'- 2"	1	5	1.531	71.439	1.517	55.073	C		
4	3	4	12"	3'- 5 3/4"	0'- 6"	1'- 10"	0'- 8"	0'- 5 1/4"	9'- 8"	-----	10'- 0"	40	12	37.636	0.885	93.913	11'- 6"	6	11'- 2"	1	4	1.636	80.004	1.635	67.089	B		
4	4	4	12"	3'- 5 3/4"	0'- 6"	1'- 10"	0'- 8"	0'- 5 1/4"	9'- 8"	-----	10'- 0"	40	18	39.754	0.958	100.177	11'- 6"	6	11'- 2"	1	5	1.735	83.455	1.728	67.089	D		
4	5	4	12"	3'- 5 3/4"	0'- 6"	1'- 10"	0'- 8"	0'- 5 1/4"	9'- 8"	-----	10'- 0"	40	24	41.872	1.032	106.441	11'- 6"	6	11'- 2"	1	6	1.834	86.907	1.821	67.089	F		
4	6	4	12"	3'- 5 3/8"	0'- 5 3/4"	1'- 10 1/4"	0'- 7 3/8"	0'- 5"	9'- 8"	-----	10'- 0"	40	30	43.990	1.090	119.125	11'- 6"	6	11'- 2"	1	7	1.936	90.358	1.916	67.089	H		
5	3	4	12"	4'- 2 5/8"	0'- 7 1/2"	2'- 1 1/4"	0'- 10 1/8"	0'- 6 3/4"	11'- 8"	-----	12'- 2"	48	12	44.316	1.112	108.497	13'- 6"	6	13'- 2"	1	4	1.803	92.020	1.809	79.105	B		
5	4	4	12"	4'- 2 5/8"	0'- 7 1/2"	2'- 1 1/4"	0'- 10 1/8"	0'- 6 3/4"	11'- 8"	-----	12'- 2"	48	18	46.434	1.186	114.761	13'- 6"	6	13'- 2"	1	5	1.902	95.471	1.902	79.105	D		
5	5	4	12"	4'- 2 5/8"	0'- 7 1/2"	2'- 1 1/4"	0'- 10 1/8"	0'- 6 3/4"	11'- 8"	-----	12'- 2"	48	24	48.552	1.259	121.025	13'- 6"	6	13'- 2"	1	6	2.001	98.923	1.994	79.105	F		
5	6	4	12"	4'- 2 1/2"	0'- 7 3/4"	2'- 1"	0'- 10 1/2"	0'- 7"	11'- 8"	-----	12'- 2"	48	30	50.670	1.351	134.559	13'- 6"	6	13'- 2"	1	7	2.096	102.374	2.083	79.105	H		
5	7	4	12"	4'- 2 1/2"	0'- 7 3/4"	2'- 1"	0'- 10 1/2"	0'- 7"	11'- 8"	-----	12'- 2"	48	36	52.788	1.424	148.517	13'- 6"	6	13'- 2"	1	8	2.195	105.825	2.175	79.105	J		
6	4	4	10"	4'- 11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	13'- 8"	-----	14'- 3"	56	18	53.114	1.492	143.396	15'- 6"	6	15'- 2"	1	5	2.039	107.487	2.045	91.121	D		
6	5	4	10"	4'- 11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	13'- 8"	-----	14'- 3"	56	24	55.232	1.566	149.927	15'- 6"	6	15'- 2"	1	6	2.138	110.939	2.137	91.121	F		
6	6	4	10"	4'- 11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	13'- 8"	-----	14'- 3"	56	30	57.350	1.639	156.459	15'- 6"	6	15'- 2"	1	7	2.237	114.390	2.230	91.121	H		
6	7	4	10"	4'- 11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	13'- 8"	-----	14'- 3"	56	36	59.468	1.712	174.001	15'- 6"	6	15'- 2"	1	8	2.336	117.841	2.323	91.121	J		
6	8	4	10"	4'- 11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	13'- 8"	-----	14'- 3"	56	42	61.586	1.785	193.809	15'- 6"	6	15'- 2"	1	9	2.434	121.293	2.416	91.121	L		
7	4	4	9"	5'- 7 3/4"	0'- 11 3/4"	2'- 6 5/8"	1'- 4 1/8"	0'- 11"	15'- 8 1/8"	-----	16'- 5"	64	18	59.794	1.872	184.707	17'- 6"	6	17'- 2"	1	5	2.162	119.503	2.174	103.137	E		
7	6	4	9"	5'- 7 5/8"	1'- 0"	2'- 6 5/8"	1'- 4 1/2"	0'- 11 1/4"	15'- 8 1/8"	-----	16'- 6"	64	30	64.030	2.044	198.274	17'- 6"	6	17'- 2"	1	7	2.352	126.406	2.352	103.137	I		
7	8	4	9"	5'- 7 5/8"	1'- 0"	2'- 6 5/8"	1'- 4 1/2"	0'- 11 1/4"	15'- 8 1/8"	-----	16'- 6"	64	42	68.266	2.189	234.476	17'- 6"	6	17'- 2"	1	9	2.550	133.309	2.538	103.137	M		
7	10	4	9"	5'- 7 5/8"	1'- 0"	2'- 6 5/8"	1'- 4 1/2"	0'- 11 1/4"	15'- 8 1/8"	-----	16'- 6"	64	54	72.502	2.333	285.487	17'- 6"	6	17'- 2"	1	11	2.748	140.211	2.723	103.137	Q		
8	4	5	9"	6'- 4 3/8"	1'- 1 5/8"	2'- 9 5/8"	1'- 6 5/8"	1'- 3 3/4"	17'- 7 7/8"	-----	18'- 6"	72	18	66.474	2.249	260.195	19'- 6"	6	19'- 2"	1	5	2.256	131.519	2.275	115.153	E		
8	6	5	9"	6'- 4 1/4"	1'- 1 7/8"	2'- 9 3/8"	1'- 7"	1'- 1"	17'- 7 7/8"	-----	18'- 6"	72	30	70.710	2.424	273.995	19'- 6"	6	19'- 2"	1	7	2.445	138.422	2.452	115.153	I		
8	8	5	9"	6'- 4 1/4"	1'- 1 7/8"	2'- 9 5/8"	1'- 7"	1'- 1"	17'- 7 7/8"	-----	18'- 6"	72	42	74.946	2.570	297.465	19'- 6"	6	19'- 2"	1	9	2.643	145.325	2.637	115.153	M		
8	10	5	9"	6'- 4 3/8"	1'- 1 5/8"	2'- 9 5/8"	1'- 6 5/8"	1'- 3 3/4"	17'- 7 7/8"	-----	18'- 6"	72	54	79.182	2.686	355.228	19'- 6"	6	19'- 2"	1	11	2.850	152.227	2.832	115.153	Q		
9	4	6	9"	7'- 1"	1'- 3 3/4"	3'- 1 1/2"	1'- 9 5/8"	1'- 2 3/4"	19'- 8"	-----	20'- 8"	80	18	73.154	2.702	311.429	21'- 6"	6	21'- 2"	1	5	2.319	143.535	2.345	127.169	E		
9	6	6	9"	7'- 1"	1'- 3 3/4"	3'- 1 1/2"	1'- 9 5/8"	1'- 2 3/4"	19'- 8"	-----	20'- 8"	80	30	77.390	2.849	325.382	21'- 6"	6	21'- 2"	1	7	2.517	150.438	2.530	127.169	I		
9	8	6	9"	7'- 1"	1'- 3 3/4"	3'- 1 1/2"	1'- 9 5/8"	1'- 2 3/4"	19'- 8"	-----	20'- 8"	80	42	81.626	2.994	364.449	21'- 6"	6	21'- 2"	1	9	2.714	157.341	2.715	127.169	M		
9	10	6	9"	7'- 1"	1'- 3 3/4"	3'- 1 1/2"	1'- 9 5/8"	1'- 2 3/4"	19'- 8"	-----	20'- 8"	80	54	85.862	3.138	420.579	21'- 6"	6	21'- 2"	1	11	2.912	164.243	2.901	127.169	Q		
9	12	6	9"	7'- 2 1/4"	1'- 3 3/4"	3'- 1 1/2"	1'- 9 5/8"	1'- 2 3/4"	19'- 10 1/2"	-----	20'- 11"	80	66	90.098	3.399	480.691	21'- 6"	6	21'- 2"	1	13	2.994	171.146	2.969	127.169	U		
10	4	6	8"	7'- 9 3/4"	1'- 5 1/2"	3'- 3 1/2"	2'- 0"	1'- 4 1/2"	21'- 8"	-----	22'- 9"	88	18	79.834	3.171	346.475	23'- 6"	6	23'- 2"	1	5	2.369	155.551	2.401	139.185	E		
10	6	6	8"	7'- 9 3/4"	1'- 5 1/2"	3'- 3 1/2"	2'- 0"	1'- 4 1/2"	21'- 8"	-----	22'- 9"	88	30	84.070	3.318	360.873	23'- 6"	6	23'- 2"	1	7	2.566	162.454	2.586	139.185	I		
10	8	6	9"	7'- 9 3/4"	1'- 5 1/2"	3'- 3 1/2"	2'- 0"	1'- 4 1/2"	21'- 8"	-----	22'- 9"	88	42	88.306	3.462	420.359	23'- 6"	6	23'- 2"	1	9	2.764	169.357	2.772	139.185	M		
10	10	6	9"	7'- 9 3/8"	1'- 5 1/4"	3'- 3 3/4"	1'- 11 3/4"	1'- 4 1/4"	21'- 8"	-----	22'- 9"	88	54	92.542	3.569	514.893	23'- 6"	6	23'- 2"	1	11	2.974	176.259	2.969	139.185	Q		
10	12	6	9"	7'- 11 1/8"	1'- 5 1/4"	3'- 3 3/4"	1'- 11 3/4"	1'- 4 1/4"	21'- 10 1/2"	-----	23'- 0"	88	66	96.778	3.834	538.338	23'- 6"	6	23'- 2"	1	13	3.054	183.162	3.036	139.185	U		
12	6	7	9"	9'- 3"	1'- 9 5/8"	3'- 9 1/4"	2'- 5 3/4"	1'- 8 3/8"	25'- 8"	-----	27'- 1"	104	30	97.430	4.461	512.322	27'- 6"	6	27'- 2"	1	7	2.589	186.486	2.623	163.217	J		
12	8	7	9"	9'- 3"	1'- 9 5/8"	3'- 9 1/4"	2'- 5 3/4"	1'- 8 3/8"	25'- 8"	-----	27'- 1"	104	42	101.666	4.606	557.349	27'- 6"	6	27'- 2"	1	9	2.787	193.389	2.808	163.217	N		
12	10	7	9"	9'- 3"	1'- 9 5/8"	3'- 9 1/4"	2'- 5 3/4"	1'- 8 3/8"	25'- 8"	-----	27'- 1"	104	54	105.902	4.750	617.101	27'- 6"	6	27'- 2"	1	11	2.985	200.291	2.994	163.217	R		
12	12	7	9"	9'- 4 1/8"	1'- 9 7/8"	3'- 9"	2'- 6 1/8"	1'- 8 5/8"	25'- 10 1/2"	-----	27'- 4"	104	66	110.138	5.058	684.910	27'- 6"	6	27'- 2"	1	13	3.044	207.194	3.039	163.217	V		

BCD-40

DIMENSIONS										REINFORCING STEEL																									
SPAN	HGHT	T1	T2	T3	T4						BH1				BH2				BH3				BH4				BV1		BV2						
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH			
3	3	8"	8"	8"	8"	6	6'-0"	6	6'-0"	1	1'-0"	4	12"	7'-6"	4	12"	7'-8"	4	12"	2'-1 1/4"	3'-11"	4	12"	2'-1 1/4"	2'-8"	4'-6"	4	12"	4'-0"	4	12"	4'-0"	4	12"	4'-0"
3	4	8"	8"	8"	8"	6	6'-0"	6	6'-0"	2	2'-0"	4	12"	7'-6"	4	12"	7'-8"	3	12"	2'-1 1/4"	4'-0"	4	12"	2'-1 1/4"	3'-2"	5'-0"	4	12"	5'-0"	4	12"	5'-0"	4	12"	5'-0"
4	3	10"	10"	8"	8"	8	8'-0"	8	8'-0"	1	1'-0"	4	12"	9'-1"	4	12"	9'-8"	--	--	----	----	4	12"	2'-3 5/8"	2'-10"	4'-10"	4	12"	4'-4"	4	12"	4'-4"	4	12"	4'-4"
4	4	10"	10"	8"	8"	8	8'-0"	8	8'-0"	2	2'-0"	4	12"	9'-1"	4	12"	9'-8"	--	--	----	----	4	12"	2'-3 5/8"	3'-4"	5'-4"	4	12"	5'-4"	4	12"	5'-4"	4	12"	5'-4"
4	5	10"	10"	8"	8"	8	8'-0"	8	8'-0"	3	3'-0"	4	12"	9'-1"	4	12"	9'-8"	--	--	----	----	4	12"	2'-3 5/8"	3'-10"	5'-10"	4	12"	6'-4"	4	12"	6'-4"	4	12"	6'-4"
4	6	10"	10"	8"	8"	8	8'-0"	8	8'-0"	4	4'-0"	4	12"	9'-1"	4	12"	9'-8"	3	12"	2'-3 5/8"	4'-5"	4	12"	2'-3 5/8"	4'-4"	6'-4"	4	12"	7'-4"	4	12"	7'-4"	4	12"	7'-4"
5	3	12"	12"	8"	8"	10	10'-0"	10	10'-0"	1	1'-0"	4	11"	10'-8"	4	11"	11'-8"	--	--	----	----	4	11"	2'-6"	3'-0"	5'-3"	4	12"	4'-8"	4	12"	4'-8"	4	12"	4'-8"
5	4	12"	12"	8"	8"	10	10'-0"	10	10'-0"	2	2'-0"	4	11"	10'-8"	4	11"	11'-8"	--	--	----	----	4	11"	2'-6"	3'-6"	5'-9"	4	12"	5'-8"	4	12"	5'-8"	4	12"	5'-8"
5	5	12"	12"	8"	8"	10	10'-0"	10	10'-0"	3	3'-0"	4	11"	10'-8"	4	11"	11'-8"	--	--	----	----	4	11"	2'-6"	4'-0"	6'-3"	4	12"	6'-8"	4	12"	6'-8"	4	12"	6'-8"
5	6	12 1/4"	12 1/4"	8"	8"	10	10'-0"	10	10'-0"	4	4'-0"	4	11"	10'-8"	4	11"	11'-8"	3	11"	2'-6"	4'-10"	4	11"	2'-6"	4'-6 1/4"	6'-9"	4	12"	7'-9"	4	12"	7'-9"	4	12"	7'-9"
5	7	12 1/4"	12 1/4"	8"	8"	10	10'-0"	10	10'-0"	5	5'-0"	4	11"	10'-8"	4	11"	11'-8"	4	11"	2'-6"	4'-9"	4	11"	2'-6"	5'-1/4"	7'-3"	4	8"	8'-9"	4	12"	8'-9"	4	12"	8'-9"
6	4	14 1/4"	14 1/4"	8"	8"	12	12'-0"	12	12'-0"	2	2'-0"	4	9"	12'-3"	4	9"	13'-8"	--	--	----	----	4	9"	2'-8 3/8"	3'-8 1/4"	6'-1"	4	12"	6'-0"	4	12"	6'-0"	4	12"	6'-0"
6	5	14 1/2"	14 1/2"	8"	8"	12	12'-0"	12	12'-0"	3	3'-0"	4	9"	12'-3"	4	9"	13'-8"	--	--	----	----	4	9"	2'-8 3/8"	4'-2 1/2"	6'-8"	4	12"	7'-1"	4	12"	7'-1"	4	12"	7'-1"
6	6	14 1/4"	14 1/4"	8"	8"	12	12'-0"	12	12'-0"	4	4'-0"	4	9"	12'-3"	4	9"	13'-8"	--	--	----	----	4	9"	2'-8 3/8"	4'-8 1/4"	7'-1"	4	12"	8'-0"	4	12"	8'-0"	4	12"	8'-0"
6	7	14 1/4"	14 1/4"	8"	8"	12	12'-0"	12	12'-0"	5	5'-0"	4	9"	12'-3"	4	9"	13'-8"	3	9"	2'-8 3/8"	5'-2"	4	9"	2'-8 3/8"	5'-2 1/4"	7'-7"	4	8"	9'-0"	4	12"	9'-0"	4	12"	9'-0"
6	8	14 1/4"	14 1/4"	8"	8"	12	12'-0"	12	12'-0"	6	6'-0"	4	9"	12'-3"	4	9"	13'-8"	--	--	----	----	5	9"	2'-8 3/8"	5'-8 1/4"	8'-1"	4	6"	10'-0"	4	12"	10'-0"	4	12"	10'-0"
7	4	16 1/4"	16 1/4"	8"	8"	14	14'-0"	14	14'-0"	2	2'-0"	5	8"	13'-10"	4	8"	15'-8"	--	--	----	----	4	8"	2'-10 3/4"	3'-10 1/4"	6'-6"	4	12"	6'-4"	4	11"	6'-4"	4	11"	6'-4"
7	6	16 1/4"	16 1/4"	8"	8"	14	14'-0"	14	14'-0"	4	4'-0"	5	9"	13'-10"	4	9"	15'-8"	--	--	----	----	4	9"	2'-10 3/4"	4'-10 1/4"	7'-6"	4	12"	8'-4"	4	11"	8'-4"	4	11"	8'-4"
7	8	16 1/4"	16 1/4"	8"	8"	14	14'-0"	14	14'-0"	6	6'-0"	5	9"	13'-10"	5	9"	15'-8"	3	9"	2'-10 3/4"	5'-7"	4	9"	2'-10 3/4"	5'-10 1/4"	8'-6"	4	6"	10'-4"	4	11"	10'-4"	4	11"	10'-4"
7	10	16 1/4"	16 1/4"	8 1/2"	8"	14	14'-0"	14	14'-0"	8	8'-0"	5	9"	13'-10"	5	9"	15'-9"	3	9"	2'-11 1/4"	5'-8"	5	9"	2'-11 1/4"	6'-10 1/4"	9'-6"	6	9"	12'-4"	4	11"	12'-4"	4	11"	12'-4"
8	4	18 1/4"	18 1/4"	8"	8"	16	16'-0"	16	16'-0"	2	2'-0"	6	9"	15'-6"	5	9"	17'-8"	--	--	----	----	4	9"	3'-1 1/4"	4'-1/4"	6'-10"	4	12"	6'-9"	4	10"	6'-9"	4	10"	6'-9"
8	6	18 1/2"	18 1/2"	8"	8"	16	16'-0"	16	16'-0"	4	4'-0"	6	9"	15'-6"	5	9"	17'-8"	--	--	----	----	4	9"	3'-1 1/4"	5'-1/2"	7'-11"	4	12"	8'-9"	4	10"	8'-9"	4	10"	8'-9"
8	8	18 3/4"	18 3/4"	8"	8"	16	16'-0"	16	16'-0"	6	6'-0"	6	9"	15'-6"	6	9"	17'-8"	--	--	----	----	5	9"	3'-1 1/4"	6'-3/4"	8'-10"	4	6"	10'-9"	4	10"	10'-9"	4	10"	10'-9"
8	10	18 1/2"	18 1/2"	8 1/2"	8"	16	16'-0"	16	16'-0"	8	8'-0"	6	9"	15'-6"	5	9"	17'-9"	--	--	----	----	6	9"	3'-1 3/4"	7'-1/2"	9'-9"	4	4"	12'-9"	4	10"	12'-9"	4	10"	12'-9"
9	4	20 1/4"	20 1/4"	8"	8"	18	18'-0"	18	18'-0"	2	2'-0"	6	9"	17'-1"	5	9"	19'-8"	--	--	----	----	4	9"	3'-3 5/8"	4'-2 1/4"	7'-3"	4	12"	7'-0"	4	10"	7'-0"	4	10"	7'-0"
9	6	20 1/4"	20 1/4"	8"	8"	18	18'-0"	18	18'-0"	4	4'-0"	6	9"	17'-1"	5	9"	19'-8"	--	--	----	----	4	9"	3'-3 5/8"	5'-2 1/4"	8'-3"	4	12"	9'-0"	4	10"	9'-0"	4	10"	9'-0"
9	8	20 1/4"	20 1/4"	8"	8"	18	18'-0"	18	18'-0"	6	6'-0"	6	9"	17'-1"	5	9"	19'-8"	3	9"	3'-3 5/8"	6'-5"	4	9"	3'-3 5/8"	6'-2 1/4"	9'-3"	4	6"	11'-0"	4	10"	11'-0"	4	10"	11'-0"
9	10	20"	20"	8 1/2"	8"	18	18'-0"	18	18'-0"	8	8'-0"	6	9"	17'-1"	5	9"	19'-9"	3	9"	3'-4 1/8"	6'-6"	5	9"	3'-4 1/8"	7'-2"	10'-2"	4	4"	13'-0"	4	10"	13'-0"	4	10"	13'-0"
9	12	20 1/2"	20 1/2"	10"	8"	18	18'-0"	18	18'-0"	10	10'-0"	6	9"	17'-1"	5	9"	20'-0"	3	9"	3'-5 5/8"	6'-9"	6	9"	3'-5 5/8"	8'-2 1/2"	11'-3"	6	7 1/2"	15'-1"	4	10"	15'-1"	4	10"	15'-1"
10	4	22 3/4"	22 3/4"	8"	8"	20	20'-0"	20	20'-0"	2	2'-0"	6	8"	18'-8"	5	8"	21'-8"	--	--	----	----	4	8"	3'-6"	4'-4 3/4"	7'-8"	4	12"	7'-6"	4	10"	7'-6"	4	10"	7'-6"
10	6	22 3/4"	22 3/4"	8"	8"	20	20'-0"	20	20'-0"	4	4'-0"	6	8"	18'-8"	5	8"	21'-8"	--	--	----	----	4	8"	3'-6"	5'-4 3/4"	8'-8"	4	11 1/2"	9'-6"	4	10"	9'-6"	4	10"	9'-6"
10	8	22 1/2"	22 1/2"	8"	8"	20	20'-0"	20	20'-0"	6	6'-0"	6	8"	18'-8"	5	8"	21'-8"	3	8"	3'-6"	6'-10"	4	8"	3'-6"	6'-4 1/2"	9'-7"	5	9"	11'-5"	4	10"	11'-5"	4	10"	11'-5"
10	10	22 1/4"	22 1/4"	8 1/2"	8"	20	20'-0"	20	20'-0"	8	8'-0"	6	8"	18'-8"	5	8"	21'-9"	3	8"	3'-6 1/2"	6'-11"	5	8"	3'-6 1/2"	7'-4 1/4"	10'-7"	5	6"	13'-4"	4	10"	13'-4"	4	10"	13'-4"
10	12	22 1/4"	22 1/4"	10"	8"	20	20'-0"	20	20'-0"	10	10'-0"	7	9"	18'-8"	6	9"	22'-0"	3	9"	3'-8"	7'-2"	6	9"	3'-8"	8'-4 1/4"	11'-7"	6	7 1/2"	15'-4"	4	10"	15'-4"	4	10"	15'-4"
12	6	26 3/4"	26 3/4"	8"	8"	24	24'-0"	24	24'-0"	4	4'-0"	7	9"	21'-10"	6	9"	25'-8"	--	--	----	----	4	9"	3'-10 3/4"	5'-8 3/4"	9'-4"	4	10"	10'-2"	4	8 1/2"	10'-2"	4	8 1/2"	10'-2"
12	8	26 1/2"	26 1/2"	8"	8"	24	24'-0"	24	24'-0"	6	6'-0"	7	9"	21'-10"	6	9"	25'-8"	3	9"	3'-10 3/4"	7'-7"	4	9"	3'-10 3/4"	6'-8 1/2"	10'-4"	4	5 1/2"	12'-1"	4	8 1/2"	12'-1"	4	8 1/2"	12'-1"
12	10	26 1/2"	26 1/2"	8 1/2"	8"	24	24'-0"	24	24'-0"	8	8'-0"	7	9"	21'-10"	6	9"	25'-9"	3	9"	3'-11 1/4"	7'-8"	5	9"	3'-11 1/4"	7'-8 1/2"	11'-4"	6	8"	14'-1"	4	8 1/2"	14'-1"	4	8 1/2"	14'-1"
12	12	26 3/4"	26 3/4"	10"	8"	24	24'-0"	24	24'-0"	10	10'-0"	7	9"	21'-10"	6	9"	26'-0"	3	9"	4'-3/4"	7'-11"	6	9"	4'-3/4"	8'-8 3/4"	12'-5"	5	5"	16'-2"	4	8 1/2"	16'-2"	4	8 1/2"	16'-2"

Sheet 1 of 2 For Typical Section, notes and other details, refer to standard BCD-DT.

1003.20	<h2 style="margin: 0;">DOUBLE BOX CULVERTS</h2> <p style="margin: 0;">35 TO 40 FT. FILLS</p> <p style="margin: 0;">VIRGINIA DEPARTMENT OF TRANSPORTATION</p>	<p style="margin: 0;">STRUCTURE AND BRIDGE DIVISION</p>
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SPAN		HIGHT		REINFORCING STEEL														QUAN./LF		HEADWALLS										WINGWALL
(FT.)	(FT.)	SIZE	SPACING C-C	BTI									NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/LONG. JT)	CONCRETE CL. A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G			HWI			NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	
				a	b	c	d	e	f	g	LENGTH	HEADWALL LENGTH						SIZE	LENGTH	NO. HW2 BARS	NO. HW3 BARS									
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'- 11"	32	12	30.956	0.694	89.905	9'- 6"	6	9'- 2"	1	4	1.433	67.988	1.425	55.073	A				
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'- 11"	32	18	33.074	0.768	91.719	9'- 6"	6	9'- 2"	1	5	1.531	71.439	1.517	55.073	C				
4	3	4	12"	3'- 5 1/2"	0'- 6 1/2"	1'- 9 1/2"	0'- 8 5/8"	0'- 5 3/4"	9'- 8"	-----	10'- 1"	40	12	37.636	0.916	94.247	11'- 6"	6	11'- 2"	1	4	1.631	80.004	1.630	67.089	B				
4	4	4	12"	3'- 5 1/2"	0'- 6 1/2"	1'- 9 1/2"	0'- 8 5/8"	0'- 5 3/4"	9'- 8"	-----	10'- 1"	40	18	39.754	0.989	100.511	11'- 6"	6	11'- 2"	1	5	1.730	83.455	1.722	67.089	D				
4	5	4	12"	3'- 5 1/2"	0'- 6 1/2"	1'- 9 1/2"	0'- 8 5/8"	0'- 5 3/4"	9'- 8"	-----	10'- 1"	40	24	41.872	1.063	106.775	11'- 6"	6	11'- 2"	1	6	1.829	86.907	1.815	67.089	F				
4	6	4	12"	3'- 5 1/2"	0'- 6 1/2"	1'- 9 1/2"	0'- 8 5/8"	0'- 5 3/4"	9'- 8"	-----	10'- 1"	40	30	43.990	1.136	119.681	11'- 6"	6	11'- 2"	1	7	1.928	90.358	1.908	67.089	H				
5	3	4	11"	4'- 2 1/8"	0'- 8 1/2"	2'- 1/4"	0'- 11 1/2"	0'- 7 3/4"	11'- 8"	-----	12'- 2"	48	12	44.316	1.186	114.631	13'- 6"	6	13'- 2"	1	4	1.786	92.020	1.791	79.105	B				
5	4	4	11"	4'- 2 1/8"	0'- 8 1/2"	2'- 1/4"	0'- 11 1/2"	0'- 7 3/4"	11'- 8"	-----	12'- 2"	48	18	46.434	1.259	121.016	13'- 6"	6	13'- 2"	1	5	1.885	95.471	1.884	79.105	D				
5	5	4	11"	4'- 2 1/8"	0'- 8 1/2"	2'- 1/4"	0'- 11 1/2"	0'- 7 3/4"	11'- 8"	-----	12'- 2"	48	24	48.552	1.333	127.402	13'- 6"	6	13'- 2"	1	6	1.984	98.923	1.977	79.105	F				
5	6	4	11"	4'- 2"	0'- 8 3/4"	2'- 0"	0'- 11 7/8"	0'- 8"	11'- 8"	-----	12'- 3"	48	30	50.670	1.424	142.061	13'- 6"	6	13'- 2"	1	7	2.078	102.374	2.065	79.105	H				
5	7	4	11"	4'- 2"	0'- 8 3/4"	2'- 0"	0'- 11 7/8"	0'- 8"	11'- 8"	-----	12'- 3"	48	36	52.788	1.497	160.208	13'- 6"	6	13'- 2"	1	8	2.177	105.825	2.158	79.105	J				
6	4	4	9"	4'- 10 5/8"	0'- 10 3/4"	2'- 2 3/4"	1'- 2 5/8"	0'- 10"	13'- 8"	-----	14'- 4"	56	18	53.114	1.600	153.580	15'- 6"	6	15'- 2"	1	5	2.009	107.487	2.015	91.121	D				
6	5	4	9"	4'- 10 1/2"	0'- 11"	2'- 2 1/2"	1'- 3"	0'- 10 1/4"	13'- 8"	-----	14'- 4"	56	24	55.232	1.695	160.808	15'- 6"	6	15'- 2"	1	6	2.102	110.939	2.102	91.121	F				
6	6	4	9"	4'- 10 5/8"	0'- 10 3/4"	2'- 2 3/4"	1'- 2 5/8"	0'- 10"	13'- 8"	-----	14'- 4"	56	30	57.350	1.747	166.998	15'- 6"	6	15'- 2"	1	7	2.207	114.390	2.201	91.121	H				
6	7	4	9"	4'- 10 5/8"	0'- 10 3/4"	2'- 2 3/4"	1'- 2 5/8"	0'- 10"	13'- 8"	-----	14'- 4"	56	36	59.468	1.819	190.080	15'- 6"	6	15'- 2"	1	8	2.306	117.841	2.293	91.121	J				
6	8	4	9"	4'- 10 5/8"	0'- 10 3/4"	2'- 2 3/4"	1'- 2 5/8"	0'- 10"	13'- 8"	-----	14'- 4"	56	42	61.586	1.892	209.944	15'- 6"	6	15'- 2"	1	9	2.405	121.293	2.386	91.121	L				
7	4	4	8"	5'- 7 1/4"	1'- 3/4"	2'- 5 5/8"	1'- 5 1/2"	1'- 0"	15'- 8 1/8"	-----	16'- 6"	64	18	59.794	1.969	201.010	17'- 6"	6	17'- 2"	1	5	2.132	119.503	2.144	103.137	E				
7	6	5	9"	5'- 7 1/4"	1'- 3/8"	2'- 5 5/8"	1'- 5 5/8"	1'- 0"	15'- 8 1/8"	-----	16'- 6"	64	30	64.030	2.116	216.305	17'- 6"	6	17'- 2"	1	7	2.330	126.406	2.330	103.137	I				
7	8	5	9"	5'- 7 1/4"	1'- 3/8"	2'- 5 5/8"	1'- 5 5/8"	1'- 0"	15'- 8 1/8"	-----	16'- 6"	64	42	68.266	2.260	270.635	17'- 6"	6	17'- 2"	1	9	2.528	133.309	2.515	103.137	M				
7	10	4	9"	5'- 7 3/4"	1'- 3/4"	2'- 5 5/8"	1'- 5 1/2"	1'- 0"	15'- 9 1/8"	-----	16'- 7"	64	54	72.502	2.445	306.461	17'- 6"	6	17'- 2"	1	11	2.687	140.211	2.662	103.137	Q				
8	4	5	9"	6'- 3 3/4"	1'- 2 7/8"	2'- 8 3/8"	1'- 8 3/8"	1'- 2"	17'- 7 7/8"	-----	18'- 7"	72	18	66.474	2.388	261.954	19'- 6"	6	19'- 2"	1	5	2.211	131.519	2.230	115.153	E				
8	6	5	9"	6'- 3 5/8"	1'- 3 3/8"	2'- 8 1/8"	1'- 8 3/4"	1'- 2 1/4"	17'- 7 7/8"	-----	18'- 7"	72	30	70.710	2.562	276.204	19'- 6"	6	19'- 2"	1	7	2.400	138.422	2.407	115.153	I				
8	8	5	9"	6'- 3 1/2"	1'- 3 3/8"	2'- 7 7/8"	1'- 9 1/8"	1'- 2 1/2"	17'- 7 7/8"	-----	18'- 8"	72	42	74.946	2.735	322.121	19'- 6"	6	19'- 2"	1	9	2.589	145.325	2.583	115.153	M				
8	10	5	9"	6'- 4 1/8"	1'- 3 3/8"	2'- 8 1/8"	1'- 8 3/4"	1'- 2 1/4"	17'- 8 7/8"	-----	18'- 8"	72	54	79.182	2.891	381.416	19'- 6"	6	19'- 2"	1	11	2.756	152.227	2.737	115.153	Q				
9	4	6	9"	7'- 3/8"	1'- 5"	2'- 11 1/4"	1'- 11 3/8"	1'- 4"	19'- 8"	-----	20'- 9"	80	18	73.154	2.856	312.846	21'- 6"	6	21'- 2"	1	5	2.266	143.535	2.292	127.169	E				
9	6	6	9"	7'- 3/8"	1'- 5"	2'- 11 1/4"	1'- 11 3/8"	1'- 4"	19'- 8"	-----	20'- 9"	80	30	77.390	3.003	326.799	21'- 6"	6	21'- 2"	1	7	2.464	150.438	2.477	127.169	I				
9	8	6	9"	7'- 3/8"	1'- 5"	2'- 11 1/4"	1'- 11 3/8"	1'- 4"	19'- 8"	-----	20'- 9"	80	42	81.626	3.148	368.316	21'- 6"	6	21'- 2"	1	9	2.662	157.341	2.663	127.169	M				
9	10	6	9"	7'- 1"	1'- 4 3/4"	2'- 11 1/2"	1'- 11"	1'- 3 3/4"	19'- 9"	-----	20'- 10"	80	54	85.862	3.302	423.078	21'- 6"	6	21'- 2"	1	11	2.829	164.243	2.818	127.169	Q				
9	12	6	9"	7'- 2 1/4"	1'- 5 1/4"	2'- 11"	1'- 11 3/4"	1'- 4 1/4"	20'- 0"	-----	21'- 1"	80	66	90.098	3.657	487.087	21'- 6"	6	21'- 2"	1	13	2.858	171.146	2.833	127.169	U				
10	4	6	8"	7'- 8 3/4"	1'- 7 1/2"	3'- 1 1/2"	2'- 2 1/8"	1'- 6 1/2"	21'- 8"	-----	22'- 11"	88	18	79.834	3.441	373.494	23'- 6"	6	23'- 2"	1	5	2.290	155.551	2.323	139.185	F				
10	6	6	8"	7'- 8 3/4"	1'- 7 1/2"	3'- 1 1/2"	2'- 2 1/8"	1'- 6 1/2"	21'- 8"	-----	22'- 11"	88	30	84.070	3.588	388.444	23'- 6"	6	23'- 2"	1	7	2.488	162.454	2.508	139.185	J				
10	8	6	8"	7'- 8 7/8"	1'- 7 1/4"	3'- 1 3/4"	2'- 2 1/2"	1'- 6 1/4"	21'- 8"	-----	22'- 11"	88	42	88.306	3.699	433.628	23'- 6"	6	23'- 2"	1	9	2.698	169.357	2.706	139.185	N				
10	10	6	8"	7'- 9 1/2"	1'- 7"	3'- 2"	2'- 2 1/8"	1'- 6"	21'- 9"	-----	23'- 0"	88	54	92.542	3.851	493.731	23'- 6"	6	23'- 2"	1	11	2.866	176.259	2.861	139.185	R				
10	12	6	9"	7'- 11"	1'- 7"	3'- 2"	2'- 2 1/8"	1'- 6"	22'- 0"	-----	23'- 3"	88	66	96.778	4.145	572.029	23'- 6"	6	23'- 2"	1	13	2.914	183.162	2.895	139.185	V				
12	6	7	9"	9'- 2"	1'- 11 5/8"	3'- 7 1/4"	2'- 8 1/2"	1'- 10 3/8"	25'- 8"	-----	27'- 2"	104	30	97.430	4.782	519.365	27'- 6"	6	27'- 2"	1	7	2.468	186.486	2.501	163.217	J				
12	8	7	9"	9'- 2 1/8"	1'- 11 3/8"	3'- 7 1/2"	2'- 8 1/8"	1'- 10 1/8"	25'- 8"	-----	27'- 2"	104	42	101.666	4.886	565.184	27'- 6"	6	27'- 2"	1	9	2.681	193.389	2.702	163.217	N				
12	10	7	9"	9'- 2 5/8"	1'- 11 3/8"	3'- 7 1/2"	2'- 8 1/8"	1'- 10 1/8"	25'- 9"	-----	27'- 3"	104	54	105.902	5.074	628.890	27'- 6"	6	27'- 2"	1	11	2.835	200.291	2.843	163.217	R				
12	12	7	9"	9'- 4"	1'- 11 5/8"	3'- 7 1/4"	2'- 8 1/2"	1'- 10 3/8"	26'- 0"	-----	27'- 6"	104	66	110.138	5.416	694.097	27'- 6"	6	27'- 2"	1	13	2.860	207.194	2.855	163.217	V				

BCD-45

DIMENSIONS						REINFORCING STEEL																													
SPAN	HGHT	T1	T2	T3	T4						BH1				BH2				BH3				BH4				BV1			BV2					
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8 1/2"	8 1/2"	8"	8"	6	6'-0"	6	6'-0"	1	1'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	2'-8 1/2"	4'-7"	4	12"	4'-1"	4	12"	4'-1"	4	12"	4'-1"
3	4	8 1/2"	8 1/2"	8"	8"	6	6'-0"	6	6'-0"	2	2'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	3'-2 1/2"	5'-1"	4	12"	5'-1"	4	12"	5'-1"	4	12"	5'-1"
4	3	10 3/4"	10 3/4"	8"	8"	8	8'-0"	8	8'-0"	1	1'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	2'-10 3/4"	4'-11"	4	12"	4'-5"	4	12"	4'-5"	4	12"	4'-5"
4	4	10 3/4"	10 3/4"	8"	8"	8	8'-0"	8	8'-0"	2	2'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-4 3/4"	5'-5"	4	12"	5'-5"	4	12"	5'-5"	4	12"	5'-5"
4	5	10 3/4"	10 3/4"	8"	8"	8	8'-0"	8	8'-0"	3	3'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-10 3/4"	5'-11"	4	12"	6'-5"	4	12"	6'-5"	4	12"	6'-5"
4	6	10 3/4"	10 3/4"	8"	8"	8	8'-0"	8	8'-0"	4	4'-0"	4	12"	9'-1"	4	12"	9'-8"	4	12"	2'-3 5/8"	4'-4"	4	12"	2'-3 5/8"	4'-4 3/4"	6'-5"	4	10 1/2"	7'-5"	4	12"	7'-5"	4	12"	7'-5"
5	3	13"	13"	8"	8"	10	10'-0"	10	10'-0"	1	1'-0"	4	11"	10'-8"	4	11"	11'-8"	--	---	----	----	4	11"	2'-6"	3'-1"	5'-4"	4	12"	4'-10"	4	12"	4'-10"	4	12"	4'-10"
5	4	13"	13"	8"	8"	10	10'-0"	10	10'-0"	2	2'-0"	4	11"	10'-8"	4	11"	11'-8"	--	---	----	----	4	11"	2'-6"	3'-7"	5'-10"	4	12"	5'-10"	4	12"	5'-10"	4	12"	5'-10"
5	5	13"	13"	8"	8"	10	10'-0"	10	10'-0"	3	3'-0"	4	11"	10'-8"	4	11"	11'-8"	--	---	----	----	4	11"	2'-6"	4'-1"	6'-4"	4	12"	6'-10"	4	12"	6'-10"	4	12"	6'-10"
5	6	13"	13"	8"	8"	10	10'-0"	10	10'-0"	4	4'-0"	4	11"	10'-8"	4	11"	11'-8"	3	11"	2'-6"	4'-10"	4	11"	2'-6"	4'-7"	6'-10"	4	11"	7'-10"	4	12"	7'-10"	4	12"	7'-10"
5	7	13"	13"	8"	8"	10	10'-0"	10	10'-0"	5	5'-0"	4	11"	10'-8"	4	11"	11'-8"	--	---	----	----	5	11"	2'-6"	5'-1"	7'-3"	4	7"	8'-10"	4	12"	8'-10"	4	12"	8'-10"
6	4	15 1/2"	15 1/2"	8"	8"	12	12'-0"	12	12'-0"	2	2'-0"	5	9"	12'-3"	4	9"	13'-8"	--	---	----	----	4	9"	2'-8 3/8"	3'-9 1/2"	6'-3"	4	12"	6'-3"	4	11"	6'-3"	4	11"	6'-3"
6	5	15 1/2"	15 1/2"	8"	8"	12	12'-0"	12	12'-0"	3	3'-0"	5	9"	12'-3"	4	9"	13'-8"	--	---	----	----	4	9"	2'-8 3/8"	4'-3 1/2"	6'-9"	4	12"	7'-3"	4	11 1/2"	7'-3"	4	11 1/2"	7'-3"
6	6	15 1/2"	15 1/2"	8"	8"	12	12'-0"	12	12'-0"	4	4'-0"	5	9"	12'-3"	4	9"	13'-8"	--	---	----	----	4	9"	2'-8 3/8"	4'-9 1/2"	7'-3"	4	10 1/2"	8'-3"	4	11 1/2"	8'-3"	4	11 1/2"	8'-3"
6	7	15 1/2"	15 1/2"	8"	8"	12	12'-0"	12	12'-0"	5	5'-0"	5	9"	12'-3"	4	9"	13'-8"	3	9"	2'-8 3/8"	5'-2"	4	9"	2'-8 3/8"	5'-3 1/2"	7'-9"	4	7"	9'-3"	4	11 1/2"	9'-3"	4	11 1/2"	9'-3"
6	8	15"	15"	8"	8"	12	12'-0"	12	12'-0"	6	6'-0"	4	9"	12'-3"	4	9"	13'-8"	--	---	----	----	5	9"	2'-8 3/8"	5'-9"	8'-1"	4	5 1/2"	10'-2"	4	11 1/2"	10'-2"	4	11 1/2"	10'-2"
7	4	18"	18"	8"	8"	14	14'-0"	14	14'-0"	2	2'-0"	5	8"	13'-10"	4	8"	15'-8"	--	---	----	----	4	8"	2'-10 3/4"	4'-0"	6'-8"	4	12"	6'-8"	4	10"	6'-8"	4	10"	6'-8"
7	6	17 3/4"	17 3/4"	8"	8"	14	14'-0"	14	14'-0"	4	4'-0"	5	8"	13'-10"	4	8"	15'-8"	--	---	----	----	4	8"	2'-10 3/4"	4'-11 3/4"	7'-7"	4	10 1/2"	8'-7"	4	10"	8'-7"	4	10"	8'-7"
7	8	17 3/4"	17 3/4"	8"	8"	14	14'-0"	14	14'-0"	6	6'-0"	5	8"	13'-10"	4	8"	15'-8"	3	8"	2'-10 3/4"	5'-7"	4	8"	2'-10 3/4"	5'-11 3/4"	8'-7"	6	11 1/2"	10'-7"	4	10"	10'-7"	4	10"	10'-7"
7	10	17 1/2"	17 1/2"	9"	8"	14	14'-0"	14	14'-0"	8	8'-0"	5	9"	13'-10"	5	9"	15'-10"	3	9"	2'-11 3/4"	5'-9"	5	9"	2'-11 3/4"	6'-11 1/2"	9'-7"	5	6"	12'-7"	4	10"	12'-7"	4	10"	12'-7"
8	4	19 1/2"	19 1/2"	8"	8"	16	16'-0"	16	16'-0"	2	2'-0"	6	9"	15'-6"	5	9"	17'-8"	--	---	----	----	4	9"	3'-1 1/4"	4'-1 1/2"	7'-0"	4	12"	6'-11"	4	10"	6'-11"	4	10"	6'-11"
8	6	19 3/4"	19 3/4"	8"	8"	16	16'-0"	16	16'-0"	4	4'-0"	6	9"	15'-6"	5	9"	17'-8"	--	---	----	----	4	9"	3'-1 1/4"	5'-1 3/4"	8'-0"	4	10"	9'-0"	4	10"	9'-0"	4	10"	9'-0"
8	8	20"	20"	8"	8"	16	16'-0"	16	16'-0"	6	6'-0"	6	9"	15'-6"	5	9"	17'-8"	--	---	----	----	5	9"	3'-1 1/4"	6'-2"	8'-11"	6	11 1/2"	11'-0"	4	10"	11'-0"	4	10"	11'-0"
8	10	19 3/4"	19 3/4"	9"	8"	16	16'-0"	16	16'-0"	8	8'-0"	6	9"	15'-6"	5	9"	17'-10"	--	---	----	----	6	9"	3'-2 1/4"	7'-1 3/4"	9'-11"	5	6"	13'-0"	4	10"	13'-0"	4	10"	13'-0"
9	4	22 1/4"	22 1/4"	8"	8"	18	18'-0"	18	18'-0"	2	2'-0"	6	9"	17'-1"	5	9"	19'-8"	--	---	----	----	4	9"	3'-3 5/8"	4'-4 1/4"	7'-5"	4	12"	7'-4"	4	10"	7'-4"	4	10"	7'-4"
9	6	22"	22"	8"	8"	18	18'-0"	18	18'-0"	4	4'-0"	6	9"	17'-1"	5	9"	19'-8"	--	---	----	----	4	9"	3'-3 5/8"	5'-4"	8'-4"	4	9 1/2"	9'-4"	4	10"	9'-4"	4	10"	9'-4"
9	8	21 3/4"	21 3/4"	8"	8"	18	18'-0"	18	18'-0"	6	6'-0"	6	9"	17'-1"	5	9"	19'-8"	3	9"	3'-3 5/8"	6'-5"	4	9"	3'-3 5/8"	6'-3 3/4"	9'-4"	5	8"	11'-3"	4	10"	11'-3"	4	10"	11'-3"
9	10	21 1/2"	21 1/2"	9"	8"	18	18'-0"	18	18'-0"	8	8'-0"	6	9"	17'-1"	5	9"	19'-10"	3	9"	3'-4 5/8"	6'-7"	5	9"	3'-4 5/8"	7'-3 1/2"	10'-4"	5	6"	13'-3"	4	10"	13'-3"	4	10"	13'-3"
9	12	22 1/4"	22 1/4"	10 1/2"	8"	18	18'-0"	18	18'-0"	10	10'-0"	6	9"	17'-1"	5	9"	20'-1"	3	9"	3'-6 1/8"	6'-10"	6	9"	3'-6 1/8"	8'-4 1/4"	11'-6"	5	5"	15'-4"	4	10"	15'-4"	4	10"	15'-4"
10	4	24 1/2"	24 1/2"	8"	8"	20	20'-0"	20	20'-0"	2	2'-0"	6	8"	18'-8"	5	8"	21'-8"	--	---	----	----	4	8"	3'-6"	4'-6 1/2"	7'-9"	4	12"	7'-9"	4	9"	7'-9"	4	9"	7'-9"
10	6	24 1/4"	24 1/4"	8"	8"	20	20'-0"	20	20'-0"	4	4'-0"	6	8"	18'-8"	5	8"	21'-8"	--	---	----	----	4	8"	3'-6"	5'-6 1/4"	8'-9"	4	9"	9'-8"	4	9"	9'-8"	4	9"	9'-8"
10	8	24 1/4"	24 1/4"	8"	8"	20	20'-0"	20	20'-0"	6	6'-0"	6	8"	18'-8"	5	8"	21'-8"	3	8"	3'-6"	6'-10"	4	8"	3'-6"	6'-6 1/4"	9'-9"	5	7 1/2"	11'-8"	4	9"	11'-8"	4	9"	11'-8"
10	10	24 1/4"	24 1/4"	9"	8"	20	20'-0"	20	20'-0"	8	8'-0"	7	9"	18'-8"	6	9"	21'-10"	3	9"	3'-7"	7'-0"	5	9"	3'-7"	7'-6 1/4"	10'-9"	6	8"	13'-8"	4	9"	13'-8"	4	9"	13'-8"
10	12	24 1/4"	24 1/4"	10 1/2"	8"	20	20'-0"	20	20'-0"	10	10'-0"	7	9"	18'-8"	6	9"	22'-1"	3	9"	3'-8 1/2"	7'-3"	6	9"	3'-8 1/2"	8'-6 1/4"	11'-10"	5	5"	15'-8"	4	9"	15'-8"	4	9"	15'-8"
12	6	28 1/4"	28 1/4"	8"	8"	24	24'-0"	24	24'-0"	4	4'-0"	8	9"	21'-10"	6	9"	25'-8"	--	---	----	----	4	9"	3'-10 3/4"	5'-10 1/4"	9'-6"	4	8"	10'-5"	4	7"	10'-5"	4	7"	10'-5"
12	8	28 1/4"	28 1/4"	8"	8"	24	24'-0"	24	24'-0"	6	6'-0"	7	9"	21'-10"	6	9"	25'-8"	3	9"	3'-10 3/4"	7'-7"	4	9"	3'-10 3/4"	6'-10 1/4"	10'-6"	4	4 1/2"	12'-5"	4	7 1/2"	12'-5"	4	7 1/2"	12'-5"
12	10	28 1/4"	28 1/4"	9 1/4"	8"	24	24'-0"	24	24'-0"	8	8'-0"	7	9"	21'-10"	6	9"	25'-10"	3	9"	4'-0"	7'-10"	5	9"	4'-0"	7'-10 1/4"	11'-6"	6	8"	14'-5"	4	7 1/2"	14'-5"	4	7 1/2"	14'-5"
12	12	28 1/2"	28 1/2"	10 1/2"	8"	24	24'-0"	24	24'-0"	10	10'-0"	7	9"	21'-10"	7	9"	26'-1"	3	9"	4'-1 1/4"	8'-0"	6	9"	4'-1 1/4"	8'-10 1/2"	12'-7"	8	12"	16'-5"	5	12"	16'-5"	5	12"	16'-5"

DOUBLE BOX CULVERTS
40 TO 45 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

SPAN		HIGHT		REINFORCING STEEL														QUAN./LF		HEADWALLS								WINGWALL					
(FT.)	(FT.)	SIZE	SPACING C-C	BTI										NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HWI		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)		OUTLET REINFORCING STEEL (LBS)				
				a	b	c	d	e	f	g	LENGTH							HEADWALL LENGTH	SIZE	LENGTH													
3	3	4	12"	2'- 8 5/8"	0'- 5"	1'- 6 1/8"	0'- 6 1/2"	0'- 4 1/4"	7'- 7 7/8"	-----	7'- 11"	32	12	30.956	0.719	79.885	9'- 6"	6	9'- 2"	1	4	1.430	67.988	1.422	55.073	A							
3	4	4	12"	2'- 8 5/8"	0'- 5"	1'- 6 1/8"	0'- 6 1/2"	0'- 4 1/4"	7'- 7 7/8"	-----	7'- 11"	32	18	33.074	0.793	86.149	9'- 6"	6	9'- 2"	1	5	1.529	71.439	1.515	55.073	C							
4	3	4	12"	3'- 5 1/8"	0'- 7 1/4"	1'- 8 3/4"	0'- 9 3/4"	0'- 6 1/2"	9'- 8"	-----	10'- 1"	40	12	37.636	0.962	94.692	11'- 6"	6	11'- 2"	1	4	1.622	80.004	1.621	67.089	B							
4	4	4	12"	3'- 5 1/8"	0'- 7 1/4"	1'- 8 3/4"	0'- 9 3/4"	0'- 6 1/2"	9'- 8"	-----	10'- 1"	40	18	39.754	1.036	100.956	11'- 6"	6	11'- 2"	1	5	1.721	83.455	1.714	67.089	D							
4	5	4	12"	3'- 5 1/8"	0'- 7 1/4"	1'- 8 3/4"	0'- 9 3/4"	0'- 6 1/2"	9'- 8"	-----	10'- 1"	40	24	41.872	1.109	107.220	11'- 6"	6	11'- 2"	1	6	1.820	86.907	1.807	67.089	F							
4	6	4	12"	3'- 5 1/8"	0'- 7 1/4"	1'- 8 3/4"	0'- 9 3/4"	0'- 6 1/2"	9'- 8"	-----	10'- 1"	40	30	43.990	1.182	126.478	11'- 6"	6	11'- 2"	1	7	1.919	90.358	1.899	67.089	H							
5	3	4	11"	4'- 1 5/8"	0'- 9 1/2"	1'- 11 1/4"	1'- 7/8"	0'- 8 3/4"	11'- 8"	-----	12'- 3"	48	12	44.316	1.260	115.440	13'- 6"	6	13'- 2"	1	4	1.768	92.020	1.774	79.105	B							
5	4	4	11"	4'- 1 5/8"	0'- 9 1/2"	1'- 11 1/4"	1'- 7/8"	0'- 8 3/4"	11'- 8"	-----	12'- 3"	48	18	46.434	1.333	121.826	13'- 6"	6	13'- 2"	1	5	1.867	95.471	1.867	79.105	D							
5	5	4	11"	4'- 1 5/8"	0'- 9 1/2"	1'- 11 1/4"	1'- 7/8"	0'- 8 3/4"	11'- 8"	-----	12'- 3"	48	24	48.552	1.407	128.211	13'- 6"	6	13'- 2"	1	6	1.966	98.923	1.959	79.105	F							
5	6	4	11"	4'- 1 5/8"	0'- 9 1/2"	1'- 11 1/4"	1'- 7/8"	0'- 8 3/4"	11'- 8"	-----	12'- 3"	48	30	50.670	1.480	143.478	13'- 6"	6	13'- 2"	1	7	2.065	102.374	2.052	79.105	H							
5	7	4	11"	4'- 1 5/8"	0'- 9 1/2"	1'- 11 1/4"	1'- 7/8"	0'- 8 3/4"	11'- 8"	-----	12'- 3"	48	36	52.788	1.553	161.033	13'- 6"	6	13'- 2"	1	8	2.164	105.825	2.145	79.105	J							
6	4	4	9"	4'- 10"	1'- 0"	2'- 1 1/2"	1'- 4 1/2"	0'- 11 1/4"	13'- 8"	-----	14'- 5"	56	18	53.114	1.706	167.999	15'- 6"	6	15'- 2"	1	5	1.998	107.487	2.004	91.121	E							
6	5	4	9"	4'- 10"	1'- 0"	2'- 1 1/2"	1'- 4 1/2"	0'- 11 1/4"	13'- 8"	-----	14'- 5"	56	24	55.232	1.780	174.370	15'- 6"	6	15'- 2"	1	6	2.097	110.939	2.097	91.121	G							
6	6	4	9"	4'- 10"	1'- 0"	2'- 1 1/2"	1'- 4 1/2"	0'- 11 1/4"	13'- 8"	-----	14'- 5"	56	30	57.350	1.853	182.712	15'- 6"	6	15'- 2"	1	7	2.196	114.390	2.190	91.121	I							
6	7	4	9"	4'- 10"	1'- 0"	2'- 1 1/2"	1'- 4 1/2"	0'- 11 1/4"	13'- 8"	-----	14'- 5"	56	36	59.468	1.926	207.093	15'- 6"	6	15'- 2"	1	8	2.295	117.841	2.282	91.121	K							
6	8	4	9"	4'- 10 1/4"	0'- 11 1/2"	2'- 2"	1'- 3 3/4"	0'- 10 3/4"	13'- 8"	-----	14'- 5"	56	42	61.586	1.956	213.820	15'- 6"	6	15'- 2"	1	9	2.387	121.293	2.368	91.121	L							
7	4	5	8"	5'- 6 3/8"	1'- 2 5/8"	2'- 3 3/8"	1'- 8 1/4"	1'- 1 3/4"	15'- 8 1/8"	-----	16'- 7"	64	18	59.794	2.141	222.404	17'- 6"	6	17'- 2"	1	5	2.080	119.503	2.092	103.137	E							
7	6	4	8"	5'- 6 1/2"	1'- 2 1/4"	2'- 4 1/8"	1'- 7 5/8"	1'- 1 1/2"	15'- 8 1/8"	-----	16'- 7"	64	30	64.030	2.264	219.206	17'- 6"	6	17'- 2"	1	7	2.285	126.406	2.285	103.137	I							
7	8	4	8"	5'- 6 1/2"	1'- 2 1/4"	2'- 4 1/8"	1'- 7 5/8"	1'- 1 1/2"	15'- 8 1/8"	-----	16'- 7"	64	42	68.266	2.409	263.597	17'- 6"	6	17'- 2"	1	9	2.483	133.309	2.471	103.137	M							
7	10	5	9"	5'- 7 5/8"	1'- 2 1/8"	2'- 4 3/8"	1'- 7 3/8"	1'- 1 1/4"	15'- 10 1/8"	-----	16'- 9"	64	54	72.502	2.607	329.667	17'- 6"	6	17'- 2"	1	11	2.609	140.211	2.584	103.137	Q							
8	4	6	9"	6'- 3 1/8"	1'- 4 1/4"	2'- 7 1/8"	1'- 10 1/4"	1'- 3 1/4"	17'- 7 7/8"	-----	18'- 8"	72	18	66.474	2.525	286.118	19'- 6"	6	19'- 2"	1	5	2.166	131.519	2.185	115.153	E							
8	6	5	9"	6'- 3"	1'- 4 3/8"	2'- 6 3/8"	1'- 10 1/2"	1'- 3 1/2"	17'- 7 7/8"	-----	18'- 8"	72	30	70.710	2.701	279.873	19'- 6"	6	19'- 2"	1	7	2.355	138.422	2.362	115.153	I							
8	8	5	9"	6'- 2 7/8"	1'- 4 5/8"	2'- 6 5/8"	1'- 10 7/8"	1'- 3 3/4"	17'- 7 7/8"	-----	18'- 9"	72	42	74.946	2.873	328.974	19'- 6"	6	19'- 2"	1	9	2.544	145.325	2.538	115.153	M							
8	10	5	9"	6'- 4"	1'- 4 3/8"	2'- 6 7/8"	1'- 10 1/2"	1'- 3 1/2"	17'- 9 3/8"	-----	18'- 10"	72	54	79.182	3.071	386.982	19'- 6"	6	19'- 2"	1	11	2.670	152.227	2.651	115.153	Q							
9	4	6	9"	6'- 11 3/8"	1'- 7"	2'- 9 1/4"	2'- 2 1/8"	1'- 6"	19'- 8"	-----	20'- 11"	80	18	73.154	3.103	315.087	21'- 6"	6	21'- 2"	1	5	2.200	143.535	2.226	127.169	F							
9	6	6	9"	6'- 11 1/2"	1'- 6 3/4"	2'- 9 1/2"	2'- 1 7/8"	1'- 5 3/4"	19'- 8"	-----	20'- 11"	80	30	77.390	3.219	332.025	21'- 6"	6	21'- 2"	1	7	2.409	150.438	2.422	127.169	J							
9	8	6	9"	6'- 11 5/8"	1'- 6 1/2"	2'- 9 3/4"	2'- 1 1/2"	1'- 5 1/2"	19'- 8"	-----	20'- 10"	80	42	81.626	3.333	375.157	21'- 6"	6	21'- 2"	1	9	2.617	157.341	2.618	127.169	N							
9	10	6	9"	7'- 3/4"	1'- 6 1/4"	2'- 10"	2'- 1 1/8"	1'- 5 1/4"	19'- 10"	-----	21'- 0"	80	54	85.862	3.530	428.648	21'- 6"	6	21'- 2"	1	11	2.742	164.243	2.730	127.169	R							
9	12	6	9"	7'- 1 7/8"	1'- 7"	2'- 9 1/4"	2'- 2 1/8"	1'- 6"	20'- 1"	-----	21'- 4"	80	66	90.098	3.924	495.159	21'- 6"	6	21'- 2"	1	13	2.751	171.146	2.725	127.169	V							
10	4	6	8"	7'- 7 7/8"	1'- 9 1/4"	2'- 11 3/4"	2'- 5 3/8"	1'- 8 1/4"	21'- 8"	-----	23'- 1"	88	18	79.834	3.678	376.694	23'- 6"	6	23'- 2"	1	5	2.206	155.551	2.238	139.185	F							
10	6	6	8"	7'- 8"	1'- 9"	3'- 0"	2'- 5"	1'- 8"	21'- 8"	-----	23'- 0"	88	30	84.070	3.791	395.118	23'- 6"	6	23'- 2"	1	7	2.416	162.454	2.436	139.185	J							
10	8	6	8"	7'- 8"	1'- 9"	3'- 0"	2'- 5"	1'- 8"	21'- 8"	-----	23'- 0"	88	42	88.306	3.936	444.336	23'- 6"	6	23'- 2"	1	9	2.614	169.357	2.621	139.185	N							
10	10	6	9"	7'- 9"	1'- 9"	3'- 0"	2'- 5"	1'- 8"	21'- 10"	-----	23'- 2"	88	54	92.542	4.165	520.837	23'- 6"	6	23'- 2"	1	11	2.726	176.259	2.720	139.185	R							
10	12	6	9"	7'- 10 1/2"	1'- 9"	3'- 0"	2'- 5"	1'- 8"	22'- 1"	-----	23'- 5"	88	66	96.778	4.469	583.261	23'- 6"	6	23'- 2"	1	13	2.764	183.162	2.745	139.185	V							
12	6	7	9"	9'- 1 1/4"	2'- 1 1/8"	3'- 5 3/4"	2'- 10 5/8"	1'- 11 1/8"	25'- 8"	-----	27'- 4"	104	30	97.430	5.019	566.571	27'- 6"	6	27'- 2"	1	7	2.396	186.486	2.429	163.217	K							
12	8	6	9"	9'- 1 1/4"	2'- 1"	3'- 5 5/8"	2'- 10 5/8"	2'- 0"	25'- 8 1/8"	-----	27'- 4"	104	42	101.666	5.169	539.946	27'- 6"	6	27'- 2"	1	9	2.593	193.389	2.614	163.217	O							
12	10	7	9"	9'- 2 1/2"	2'- 1 1/8"	3'- 5 3/4"	2'- 10 5/8"	1'- 11 7/8"	25'- 10 1/2"	-----	27'- 6"	104	54	105.902	5.423	637.604	27'- 6"	6	27'- 2"	1	11	2.679	200.291	2.686	163.217	S							
12	12	7	9"	9'- 3 5/8"	2'- 1 3/8"	3'- 5 1/2"	2'- 11"	2'- 1 1/8"	26'- 1"	-----	27'- 9"	104	66	110.138	5.748	745.475	27'- 6"	6	27'- 2"	1	13	2.717	207.194	2.712	163.217	W							

BCD-50

DIMENSIONS						REINFORCING STEEL																										
SPAN	HGHT	T1	T2	T3	T4							BH1			BH2			BH3			BH4			BV1			BV2					
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	9/4"	9/4"	8"	8"	6	6'-0"	6	6'-0"	1	1'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	2'-9 1/4"	4'-7"	4	12"	4'-2"	4	12"	4'-2"
3	4	9/4"	9/4"	8"	8"	6	6'-0"	6	6'-0"	2	2'-0"	4	12"	7'-6"	4	12"	7'-8"	--	---	----	----	4	12"	2'-1 1/4"	3'-3 1/4"	5'-1"	4	12"	5'-2"	4	12"	5'-2"
4	3	1 1/2"	1 1/2"	8"	8"	8	8'-0"	8	8'-0"	1	1'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	2'-11 1/2"	5'-0"	4	12"	4'-7"	4	12"	4'-7"
4	4	1 1/4"	1 1/4"	8"	8"	8	8'-0"	8	8'-0"	2	2'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-5 1/4"	5'-6"	4	12"	5'-6"	4	12"	5'-6"
4	5	1 1/4"	1 1/4"	8"	8"	8	8'-0"	8	8'-0"	3	3'-0"	4	12"	9'-1"	4	12"	9'-8"	--	---	----	----	4	12"	2'-3 5/8"	3'-11 1/4"	6'-0"	4	12"	6'-6"	4	12"	6'-6"
4	6	1 1/4"	1 1/4"	8"	8"	8	8'-0"	8	8'-0"	4	4'-0"	4	12"	9'-1"	4	12"	9'-8"	4	12"	2'-3 5/8"	4'-4"	4	12"	2'-3 5/8"	4'-5 1/4"	6'-6"	4	9"	7'-6"	4	12"	7'-6"
5	3	1 3/4"	1 3/4"	8"	8"	10	10'-0"	10	10'-0"	1	1'-0"	4	10"	10'-8"	4	10"	11'-8"	--	---	----	----	4	10"	2'-6"	3'-1 3/4"	5'-5"	4	12"	5'-0"	4	12"	5'-0"
5	4	1 3/4"	1 3/4"	8"	8"	10	10'-0"	10	10'-0"	2	2'-0"	4	10"	10'-8"	4	10"	11'-8"	--	---	----	----	4	10"	2'-6"	3'-7 3/4"	5'-11"	4	12"	6'-0"	4	12"	6'-0"
5	5	1 3/4"	1 3/4"	8"	8"	10	10'-0"	10	10'-0"	3	3'-0"	4	10"	10'-8"	4	10"	11'-8"	--	---	----	----	4	10"	2'-6"	4'-1 3/4"	6'-5"	4	12"	7'-0"	4	12"	7'-0"
5	6	1 3/4"	1 3/4"	8"	8"	10	10'-0"	10	10'-0"	4	4'-0"	4	10"	10'-8"	4	10"	11'-8"	--	---	----	----	4	10"	2'-6"	4'-7 3/4"	6'-11"	4	9"	8'-0"	4	12"	8'-0"
5	7	1 3/2"	1 3/2"	8"	8"	10	10'-0"	10	10'-0"	5	5'-0"	4	10"	10'-8"	4	10"	11'-8"	--	---	----	----	5	10"	2'-6"	5'-1 1/2"	7'-4"	5	10 1/2"	8'-11"	4	12"	8'-11"
6	4	16 1/4"	16 1/4"	8"	8"	12	12'-0"	12	12'-0"	2	2'-0"	5	9"	12'-3"	4	9"	13'-8"	--	---	----	----	4	9"	2'-8 3/8"	3'-10 1/4"	6'-3"	4	12"	6'-4"	4	10"	6'-4"
6	5	16"	16"	8"	8"	12	12'-0"	12	12'-0"	3	3'-0"	5	9"	12'-3"	4	9"	13'-8"	--	---	----	----	4	9"	2'-8 3/8"	4'-4"	6'-9"	4	12"	7'-4"	4	10"	7'-4"
6	6	16"	16"	8"	8"	12	12'-0"	12	12'-0"	4	4'-0"	5	9"	12'-3"	4	9"	13'-8"	--	---	----	----	4	9"	2'-8 3/8"	4'-10"	7'-3"	4	9"	8'-4"	4	10 1/2"	8'-4"
6	7	16"	16"	8"	8"	12	12'-0"	12	12'-0"	5	5'-0"	5	9"	12'-3"	4	9"	13'-8"	3	9"	2'-8 3/8"	5'-2"	4	9"	2'-8 3/8"	5'-4"	7'-9"	4	6 1/2"	9'-4"	4	10"	9'-4"
6	8	15 3/4"	15 3/4"	8"	8"	12	12'-0"	12	12'-0"	6	6'-0"	5	9"	12'-3"	4	9"	13'-8"	--	---	----	----	5	9"	2'-8 3/8"	5'-9 3/4"	8'-2"	6	11 1/2"	10'-3"	4	10 1/2"	10'-3"
7	4	18 1/4"	18 1/4"	8"	8"	14	14'-0"	14	14'-0"	2	2'-0"	6	9"	13'-10"	5	9"	15'-8"	--	---	----	----	4	9"	2'-10 3/4"	4'-1/4"	6'-8"	4	12"	6'-9"	4	10"	6'-9"
7	6	18 3/4"	18 3/4"	8"	8"	14	14'-0"	14	14'-0"	4	4'-0"	5	8"	13'-10"	5	8"	15'-8"	--	---	----	----	4	8"	2'-10 3/4"	5'-3/4"	7'-8"	4	9"	8'-9"	4	10"	8'-9"
7	8	18 3/4"	18 3/4"	8"	8"	14	14'-0"	14	14'-0"	6	6'-0"	5	8"	13'-10"	5	8"	15'-8"	3	8"	2'-10 3/4"	5'-7"	4	8"	2'-10 3/4"	6'-3/4"	8'-8"	5	7 1/2"	10'-9"	4	10"	10'-9"
7	10	18 1/4"	18 1/4"	9 3/4"	8"	14	14'-0"	14	14'-0"	8	8'-0"	5	8"	13'-10"	5	8"	15'-11"	3	8"	3'-1/2"	5'-11"	5	8"	3'-1/2"	7'-1/4"	9'-9"	6	9"	12'-9"	4	10"	12'-9"
8	4	20 3/4"	20 3/4"	8"	8"	16	16'-0"	16	16'-0"	2	2'-0"	6	9"	15'-6"	5	9"	17'-8"	--	---	----	----	4	9"	3'-1 1/4"	4'-2 3/4"	7'-1"	4	12"	7'-1"	4	10"	7'-1"
8	6	20 1/2"	20 1/2"	8"	8"	16	16'-0"	16	16'-0"	4	4'-0"	6	9"	15'-6"	5	9"	17'-8"	--	---	----	----	4	9"	3'-1 1/4"	5'-2 1/2"	8'-1"	4	8 1/2"	9'-1"	4	10"	9'-1"
8	8	20 1/2"	20 1/2"	8"	8"	16	16'-0"	16	16'-0"	6	6'-0"	6	9"	15'-6"	5	9"	17'-8"	--	---	----	----	5	9"	3'-1 1/4"	6'-2 1/2"	9'-0"	5	7 1/2"	11'-1"	4	10"	11'-1"
8	10	20 1/2"	20 1/2"	9 3/4"	8"	16	16'-0"	16	16'-0"	8	8'-0"	6	9"	15'-6"	5	9"	17'-11"	--	---	----	----	6	9"	3'-3"	7'-2 1/2"	10'-1"	4	4"	13'-1"	4	10"	13'-1"
9	4	23 1/2"	23 1/2"	8"	8"	18	18'-0"	18	18'-0"	2	2'-0"	7	9"	17'-1"	6	9"	19'-8"	--	---	----	----	4	9"	3'-3 5/8"	4'-5 1/2"	7'-6"	4	12"	7'-7"	4	9"	7'-7"
9	6	23 1/4"	23 1/4"	8"	8"	18	18'-0"	18	18'-0"	4	4'-0"	6	9"	17'-1"	6	9"	19'-8"	--	---	----	----	4	9"	3'-3 5/8"	5'-5 1/4"	8'-6"	4	8"	9'-6"	4	9"	9'-6"
9	8	23"	23"	8"	8"	18	18'-0"	18	18'-0"	6	6'-0"	6	9"	17'-1"	6	9"	19'-8"	4	9"	3'-3 5/8"	6'-4"	4	9"	3'-3 5/8"	6'-5"	9'-5"	4	4 1/2"	11'-6"	4	9"	11'-6"
9	10	23"	23"	9 3/4"	8"	18	18'-0"	18	18'-0"	8	8'-0"	6	9"	17'-1"	6	9"	19'-11"	3	9"	3'-5 3/8"	6'-8"	5	9"	3'-5 3/8"	7'-5"	10'-6"	5	6"	13'-6"	4	9"	13'-6"
9	12	23"	23"	11"	8"	18	18'-0"	18	18'-0"	10	10'-0"	6	9"	17'-1"	6	9"	20'-2"	3	9"	3'-6 5/8"	6'-11"	7	9"	3'-6 5/8"	8'-5"	11'-6"	7	9 1/2"	15'-6"	4	9"	15'-6"
10	4	25 1/2"	25 1/2"	8"	8"	20	20'-0"	20	20'-0"	2	2'-0"	7	8"	18'-8"	6	8"	21'-8"	--	---	----	----	4	8"	3'-6"	4'-7 1/2"	7'-10"	4	12"	7'-11"	4	8"	7'-11"
10	6	25 1/2"	25 1/2"	8"	8"	20	20'-0"	20	20'-0"	4	4'-0"	6	8"	18'-8"	6	8"	21'-8"	--	---	----	----	4	8"	3'-6"	5'-7 1/2"	8'-10"	5	12"	9'-11"	4	8"	9'-11"
10	8	25 1/4"	25 1/4"	8"	8"	20	20'-0"	20	20'-0"	6	6'-0"	6	8"	18'-8"	6	8"	21'-8"	3	8"	3'-6"	6'-10"	4	8"	3'-6"	6'-7 1/4"	9'-10"	4	4 1/2"	11'-11"	4	8"	11'-11"
10	10	25 1/4"	25 1/4"	9 3/4"	8"	20	20'-0"	20	20'-0"	8	8'-0"	6	8"	18'-8"	6	8"	21'-11"	3	8"	3'-7 3/4"	7'-1"	5	8"	3'-7 3/4"	7'-7 1/4"	10'-11"	7	11 1/2"	13'-11"	4	8"	13'-11"
10	12	25 1/4"	25 1/4"	11"	8"	20	20'-0"	20	20'-0"	10	10'-0"	7	9"	18'-8"	7	9"	22'-2"	--	---	----	----	7	9"	3'-9"	8'-7 1/4"	11'-11"	8	12"	15'-11"	4	8"	15'-11"
12	6	30 1/2"	30 1/2"	8"	8"	24	24'-0"	24	24'-0"	4	4'-0"	8	9"	21'-10"	6	9"	25'-8"	--	---	----	----	4	9"	3'-10 3/4"	6'-1/2"	9'-8"	5	10 1/2"	10'-9"	5	10 1/2"	10'-9"
12	8	30 1/4"	30 1/4"	8"	8"	24	24'-0"	24	24'-0"	6	6'-0"	7	9"	21'-10"	6	9"	25'-8"	3	9"	3'-10 3/4"	7'-7"	4	9"	3'-10 3/4"	7'-1/4"	10'-8"	6	9"	12'-8"	5	10 1/2"	12'-8"
12	10	30 1/4"	30 1/4"	9 3/4"	8"	24	24'-0"	24	24'-0"	8	8'-0"	7	9"	21'-10"	6	9"	25'-11"	3	9"	4'-1/2"	7'-11"	5	9"	4'-1/2"	8'-1/4"	11'-9"	5	5 1/2"	14'-8"	5	10 1/2"	14'-8"
12	12	30"	30"	11 1/4"	8"	24	24'-0"	24	24'-0"	10	10'-0"	8	9"	21'-10"	7	9"	26'-2"	3	9"	4'-2"	8'-2"	6	9"	4'-2"	9'-0"	12'-9"	8	12"	16'-8"	5	10 1/2"	16'-8"

Sheet 1 of 2

For Typical Section, notes and other details, refer to standard BCD-DT.

DOUBLE BOX CULVERTS
45 TO 50 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

1003.24

SPAN		HIGHT		REINFORCING STEEL													QUAN./LF		HEADWALLS							WINGWALL		
(FT.)	(FT.)	SIZE	SPACING C-C	BTI									NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HWI		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)		OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)
				a	b	c	d	e	f	g	LENGTH						HEADWALL LENGTH	SIZE	LENGTH									
3	3	4	12"	2'- 8/4"	0'- 5 3/4"	1'- 5 3/8"	0'- 7 5/8"	0'- 5"	7'- 7 7/8"	-----	8'- 0"	32	12	30.956	0.756	80.219	9'- 6"	6	9'- 2"	1	4	1.445	67.988	1.437	55.073	B		
3	4	4	12"	2'- 8/4"	0'- 5 3/4"	1'- 5 3/8"	0'- 7 5/8"	0'- 5"	7'- 7 7/8"	-----	8'- 0"	32	18	33.074	0.830	86.483	9'- 6"	6	9'- 2"	1	5	1.544	71.439	1.530	55.073	D		
4	3	4	12"	3'- 4 3/4"	0'- 8"	1'- 8"	0'- 10 3/4"	0'- 7 1/4"	9'- 8"	-----	10'- 2"	40	12	37.636	1.008	95.471	11'- 6"	6	11'- 2"	1	4	1.614	80.004	1.613	67.089	B		
4	4	4	12"	3'- 4 7/8"	0'- 7 3/4"	1'- 8 1/4"	0'- 10 1/2"	0'- 7"	9'- 8"	-----	10'- 2"	40	18	39.754	1.066	101.513	11'- 6"	6	11'- 2"	1	5	1.716	83.455	1.708	67.089	D		
4	5	4	12"	3'- 4 7/8"	0'- 7 3/4"	1'- 8 1/4"	0'- 10 1/2"	0'- 7"	9'- 8"	-----	10'- 2"	40	24	41.872	1.140	107.777	11'- 6"	6	11'- 2"	1	6	1.815	86.907	1.801	67.089	F		
4	6	4	12"	3'- 4 7/8"	0'- 7 3/4"	1'- 8 1/4"	0'- 10 1/2"	0'- 7"	9'- 8"	-----	10'- 2"	40	30	43.990	1.212	128.959	11'- 6"	6	11'- 2"	1	7	1.913	90.358	1.894	67.089	H		
5	3	4	10"	4'- 1 1/4"	0'- 10 1/4"	1'- 10 1/2"	1'- 2"	0'- 9 1/2"	11'- 8"	-----	12'- 4"	48	12	44.316	1.315	122.882	13'- 6"	6	13'- 2"	1	4	1.755	92.020	1.761	79.105	B		
5	4	4	10"	4'- 1 1/4"	0'- 10 1/4"	1'- 10 1/2"	1'- 2"	0'- 9 1/2"	11'- 8"	-----	12'- 4"	48	18	46.434	1.388	129.413	13'- 6"	6	13'- 2"	1	5	1.854	95.471	1.853	79.105	D		
5	5	4	10"	4'- 1 1/4"	0'- 10 1/4"	1'- 10 1/2"	1'- 2"	0'- 9 1/2"	11'- 8"	-----	12'- 4"	48	24	48.552	1.462	135.944	13'- 6"	6	13'- 2"	1	6	1.953	98.923	1.946	79.105	F		
5	6	4	10"	4'- 1 1/4"	0'- 10 1/4"	1'- 10 1/2"	1'- 2"	0'- 9 1/2"	11'- 8"	-----	12'- 4"	48	30	50.670	1.535	146.038	13'- 6"	6	13'- 2"	1	7	2.052	102.374	2.039	79.105	H		
5	7	4	10"	4'- 1 3/8"	0'- 10"	1'- 10 3/4"	1'- 1 5/8"	0'- 9 1/4"	11'- 8"	-----	12'- 4"	48	36	52.788	1.589	171.061	13'- 6"	6	13'- 2"	1	8	2.155	105.825	2.136	79.105	J		
6	4	4	9"	4'- 9 5/8"	1'- 3/4"	2'- 3/4"	1'- 5 1/2"	1'- 0"	13'- 8"	-----	14'- 6"	56	18	53.114	1.771	169.303	15'- 6"	6	15'- 2"	1	5	1.980	107.487	1.986	91.121	E		
6	5	4	9"	4'- 9 3/4"	1'- 1/2"	2'- 1"	1'- 5 1/8"	0'- 11 3/4"	13'- 8"	-----	14'- 6"	56	24	55.232	1.823	176.280	15'- 6"	6	15'- 2"	1	6	2.085	110.939	2.085	91.121	G		
6	6	4	9"	4'- 9 3/4"	1'- 1/2"	2'- 1"	1'- 5 1/8"	0'- 11 3/4"	13'- 8"	-----	14'- 6"	56	30	57.350	1.896	186.331	15'- 6"	6	15'- 2"	1	7	2.184	114.390	2.178	91.121	I		
6	7	4	9"	4'- 9 3/4"	1'- 1/2"	2'- 1"	1'- 5 1/8"	0'- 11 3/4"	13'- 8"	-----	14'- 6"	56	36	59.468	1.969	211.145	15'- 6"	6	15'- 2"	1	8	2.283	117.841	2.270	91.121	K		
6	8	4	9"	4'- 9 7/8"	1'- 1/4"	2'- 1 1/4"	1'- 4 3/4"	0'- 11 1/2"	13'- 8"	-----	14'- 5"	56	42	61.586	2.020	230.506	15'- 6"	6	15'- 2"	1	9	2.388	121.293	2.369	91.121	M		
7	4	5	9"	5'- 6 1/4"	1'- 2 7/8"	2'- 3 5/8"	1'- 8 3/8"	1'- 2"	15'- 8 1/8"	-----	16'- 7"	64	18	59.794	2.164	238.216	17'- 6"	6	17'- 2"	1	5	2.072	119.503	2.085	103.137	E		
7	6	5	8"	5'- 6"	1'- 3 3/8"	2'- 3 1/8"	1'- 9 1/8"	1'- 2 1/2"	15'- 8 1/8"	-----	16'- 8"	64	30	64.030	2.360	258.830	17'- 6"	6	17'- 2"	1	7	2.255	126.406	2.255	103.137	I		
7	8	4	8"	5'- 6"	1'- 3 3/4"	2'- 3 1/8"	1'- 9"	1'- 2 1/2"	15'- 8 1/8"	-----	16'- 8"	64	42	68.266	2.506	284.695	17'- 6"	6	17'- 2"	1	9	2.453	133.309	2.441	103.137	M		
7	10	4	8"	5'- 8"	1'- 2 3/4"	2'- 3 5/8"	1'- 8 3/8"	1'- 2"	15'- 11 3/8"	-----	16'- 11"	64	54	72.502	2.742	335.917	17'- 6"	6	17'- 2"	1	11	2.526	140.211	2.500	103.137	Q		
8	4	6	9"	6'- 2 1/2"	1'- 5 1/2"	2'- 5 5/8"	2'- 0"	1'- 4 1/2"	17'- 7 7/8"	-----	18'- 9"	72	18	66.474	2.663	287.238	19'- 6"	6	19'- 2"	1	5	2.121	131.519	2.141	115.153	E		
8	6	6	9"	6'- 2 5/8"	1'- 5 1/4"	2'- 6 1/8"	1'- 11 3/4"	1'- 4 1/4"	17'- 7 7/8"	-----	18'- 9"	72	30	70.710	2.782	306.188	19'- 6"	6	19'- 2"	1	7	2.328	138.422	2.335	115.153	I		
8	8	5	9"	6'- 2 5/8"	1'- 5 1/8"	2'- 6 1/8"	1'- 11 5/8"	1'- 4 1/4"	17'- 7 7/8"	-----	18'- 9"	72	42	74.946	2.929	332.082	19'- 6"	6	19'- 2"	1	9	2.526	145.325	2.520	115.153	M		
8	10	5	9"	6'- 4 3/8"	1'- 5 1/8"	2'- 6 1/8"	1'- 11 5/8"	1'- 4 1/4"	17'- 11 3/8"	-----	19'- 1"	72	54	79.182	3.217	387.579	19'- 6"	6	19'- 2"	1	11	2.580	152.227	2.561	115.153	Q		
9	4	6	9"	6'- 10 3/4"	1'- 8 1/4"	2'- 8"	2'- 4"	1'- 7 1/4"	19'- 8"	-----	21'- 0"	80	18	73.154	3.253	366.567	21'- 6"	6	21'- 2"	1	5	2.148	143.535	2.173	127.169	F		
9	6	6	9"	6'- 10 7/8"	1'- 8"	2'- 8 1/4"	2'- 3 5/8"	1'- 7"	19'- 8"	-----	21'- 0"	80	30	77.390	3.371	462.271	21'- 6"	6	21'- 2"	1	7	2.356	150.438	2.369	127.169	J		
9	8	6	9"	6'- 11"	1'- 7 3/4"	2'- 8 1/2"	2'- 3 1/4"	1'- 6 3/4"	19'- 8"	-----	20'- 11"	80	42	81.626	3.484	417.774	21'- 6"	6	21'- 2"	1	9	2.564	157.341	2.565	127.169	N		
9	10	6	9"	7'- 3/4"	1'- 7 3/4"	2'- 8 1/2"	2'- 3 1/4"	1'- 6 3/4"	19'- 11 1/2"	-----	21'- 3"	80	54	85.862	3.778	459.202	21'- 6"	6	21'- 2"	1	11	2.614	164.243	2.601	127.169	R		
9	12	6	9"	7'- 2"	1'- 7 3/4"	2'- 8 1/2"	2'- 3 1/4"	1'- 6 3/4"	20'- 2"	-----	21'- 5"	80	66	90.098	4.063	560.121	21'- 6"	6	21'- 2"	1	13	2.669	171.146	2.643	127.169	V		
10	4	6	8"	7'- 7 7/8"	1'- 10 1/4"	2'- 10 3/4"	2'- 6 3/4"	1'- 9 1/4"	21'- 8"	-----	23'- 1"	88	18	79.834	3.809	439.497	23'- 6"	6	23'- 2"	1	5	2.157	155.551	2.190	139.185	F		
10	6	6	8"	7'- 7 3/8"	1'- 10 1/4"	2'- 10 3/4"	2'- 6 3/4"	1'- 9 1/4"	21'- 8"	-----	23'- 1"	88	30	84.070	3.958	431.783	23'- 6"	6	23'- 2"	1	7	2.355	162.454	2.375	139.185	J		
10	8	6	8"	7'- 7 1/2"	1'- 10"	2'- 11"	2'- 6 3/8"	1'- 9"	21'- 8"	-----	23'- 1"	88	42	88.306	4.069	481.496	23'- 6"	6	23'- 2"	1	9	2.565	169.357	2.573	139.185	N		
10	10	6	8"	7'- 9 1/4"	1'- 10"	2'- 11"	2'- 6 3/8"	1'- 9"	21'- 11 1/2"	-----	23'- 5"	88	54	92.542	4.366	539.022	23'- 6"	6	23'- 2"	1	11	2.611	176.259	2.605	139.185	R		
10	12	7	9"	7'- 10 5/8"	1'- 10 1/8"	2'- 11 1/8"	2'- 6 3/8"	1'- 8 7/8"	22'- 2 1/8"	-----	23'- 7"	88	66	96.778	4.650	681.513	23'- 6"	6	23'- 2"	1	13	2.663	183.162	2.644	139.185	V		
12	6	7	9"	9'- 1 1/8"	2'- 3 3/8"	3'- 3 1/2"	3'- 1 7/8"	2'- 2 1/8"	25'- 8"	-----	27'- 6"	104	30	97.430	5.379	574.597	27'- 6"	6	27'- 2"	1	7	2.259	186.486	2.292	163.217	K		
12	8	7	9"	9'- 1 1/4"	2'- 3 1/8"	3'- 3 3/4"	3'- 1 1/2"	2'- 1 7/8"	25'- 8"	-----	27'- 5"	104	42	101.666	5.486	590.653	27'- 6"	6	27'- 2"	1	9	2.472	193.389	2.493	163.217	O		
12	10	7	9"	9'- 2"	2'- 3 1/8"	3'- 3 3/4"	3'- 1 1/2"	2'- 1 7/8"	25'- 11 1/2"	-----	27'- 9"	104	54	105.902	5.793	646.797	27'- 6"	6	27'- 2"	1	11	2.509	200.291	2.516	163.217	S		
12	12	7	9"	9'- 3 5/8"	2'- 2 7/8"	3'- 4"	3'- 1 1/8"	2'- 1 5/8"	26'- 2 1/2"	-----	28'- 0"	104	66	110.138	6.068	792.232	27'- 6"	6	27'- 2"	1	13	2.544	207.194	2.538	163.217	W		