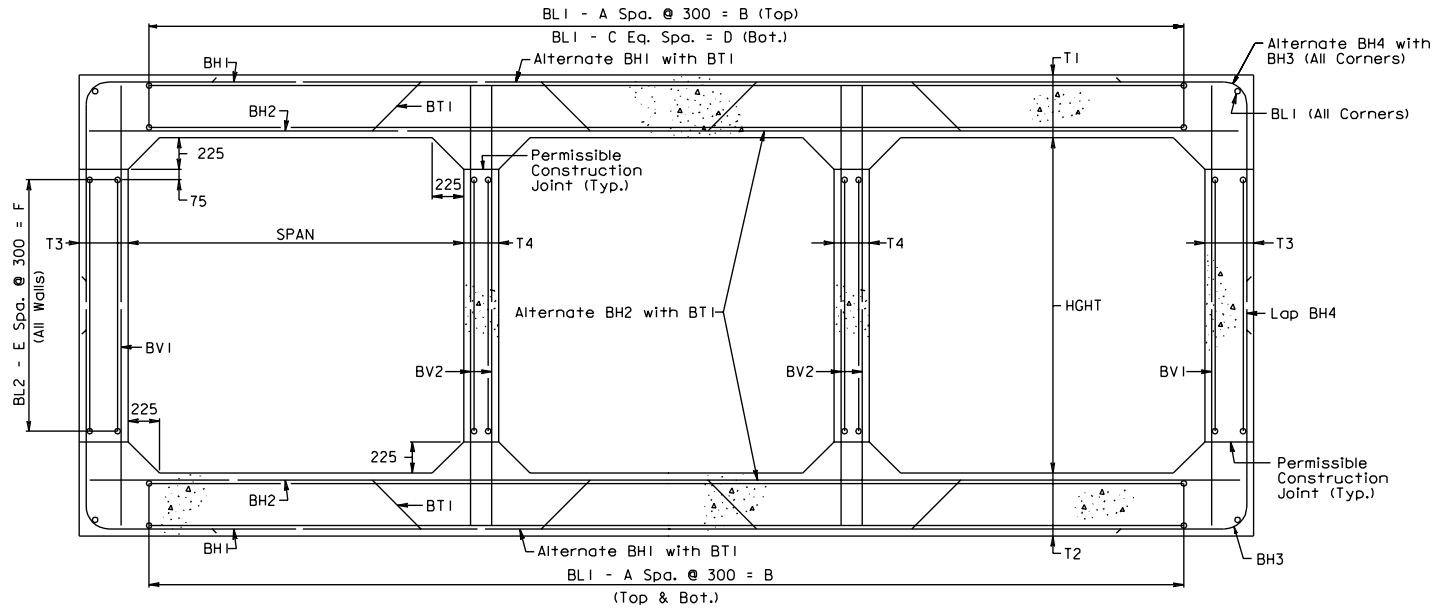


BT-DT



TYPICAL SECTION

(All dimensions are in mm unless otherwise noted)

Sheet 1 of 3

TRIPLE BOX CULVERTS  
STANDARD DETAILS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.01

## GENERAL NOTE

Capacity: MS18 Loading and Alternate Military Loading.

## Specifications:

Construction - Va. Department of Transportation Metric Road and Bridge Specifications, Current Edition.  
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 30.

Deformed reinforcing bars shall conform to ASTM A615M, Grade 420. 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 10 m in length shall be poured in sections by providing vertical construction joints, not exceeding 7 m between joints nor more than 9 m 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 #13 in size unless otherwise shown. BL2 shall be #10 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./meter 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 50 mm 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 0.6 m fills shall be epoxy-coated.

Bar HW2 shall be 100 mm 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 appropriate fill slope.

Depth of foundation shall be investigated in accordance with Sec. 401.03(b) of the specifications.

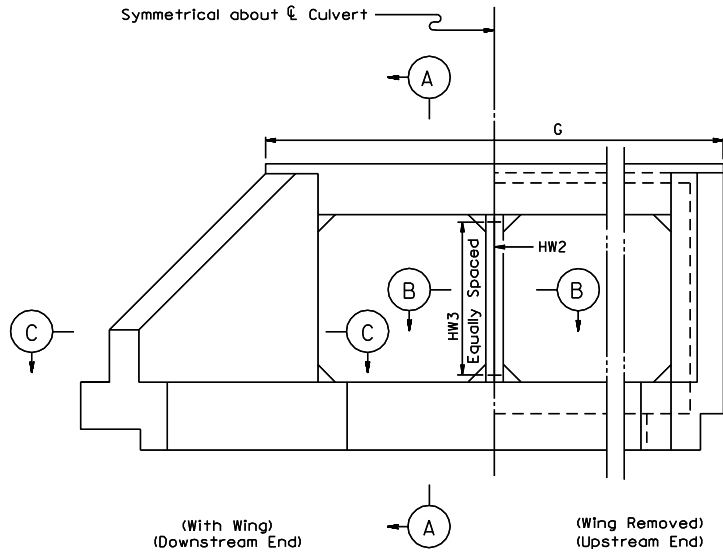
For details of extending existing boxes, refer to Standard BCE-01.

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

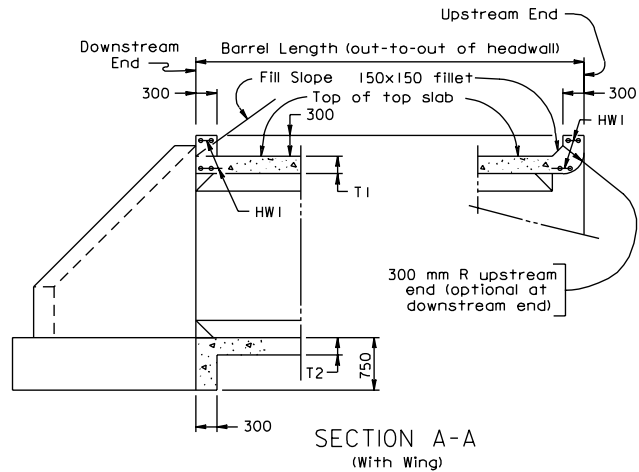
Dimensions shown in the tables are in millimeters with the exception of culvert span and height.

This standard shall be used with the BB standard series.

BT-DT



END ELEVATION



SECTION A-A  
(With Wing)

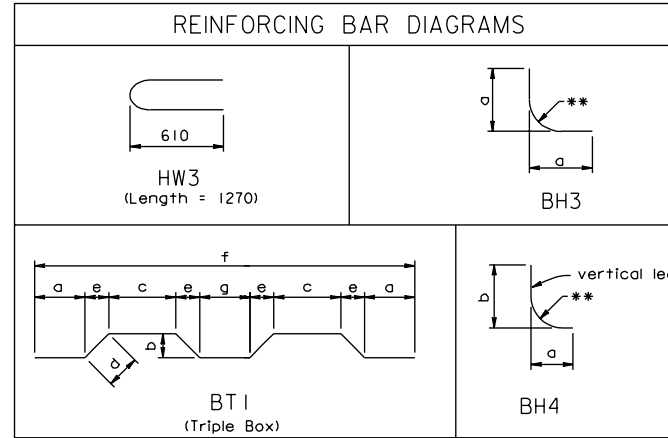
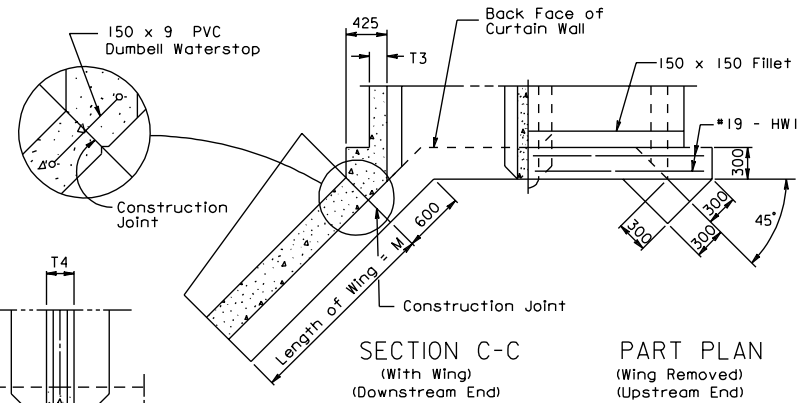


TABLE A	
Bar Size	Pin Dia.
#10	57
#13	76
#16	95
#19	114
#22	133
#25	152
#29	229
#33	254
#36	279



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

PART PLAN  
(Wing Removed)  
(Upstream End)

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

(All dimensions are in mm unless otherwise noted)

BT00.6

DIMENSIONS							REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	T4							BH1			BH2			BH3				BH4				BV1			
(m)	(m)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (mm)	INTERIOR WALL (mm)	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
0.91	0.91	200	200	200	200	9	2700	18	2700	1	300	13	300	3400	13	300	3450	--	--	--	--	13	300	640	810	1370	13	300	1220
0.91	1.21	200	200	200	200	9	2700	18	2700	2	600	13	300	3400	13	300	3450	--	--	--	--	13	300	640	970	1520	13	300	1520
1.21	0.91	207	207	200	200	12	3600	24	3600	1	300	13	300	4190	13	300	4370	13	300	700	1320	13	300	700	820	1450	13	300	1220
1.21	1.21	207	207	200	200	12	3600	24	3600	2	600	13	300	4190	13	300	4370	13	300	700	1320	13	300	700	970	1600	13	300	1520
1.21	1.52	207	207	200	200	12	3600	24	3600	3	900	13	300	4190	13	300	4370	13	300	700	1320	13	300	700	1120	1750	13	300	1830
1.21	1.82	207	207	200	200	12	3600	24	3600	4	1200	13	300	4190	13	300	4370	13	300	700	1320	13	300	700	1280	1910	13	300	2130
1.52	0.91	207	207	200	200	15	4500	30	4500	1	300	13	275	4980	16	275	5280	13	275	760	1450	13	275	760	820	1500	13	300	1220
1.52	1.21	207	207	200	200	15	4500	30	4500	2	600	13	250	4980	13	250	5280	13	250	760	1450	13	250	760	970	1650	13	300	1520
1.52	1.52	207	207	200	200	15	4500	30	4500	3	900	13	250	4980	13	250	5280	13	250	760	1450	13	250	760	1120	1800	13	300	1830
1.52	1.82	207	207	200	200	15	4500	30	4500	4	1200	13	250	4980	13	250	5280	13	250	760	1450	13	250	760	1280	1960	13	300	2130
1.52	2.13	207	207	200	200	15	4500	30	4500	5	1500	13	225	4980	13	225	5280	13	225	760	1450	13	225	760	1430	2110	13	300	2440
1.82	1.21	245	245	200	200	18	5400	36	5400	2	600	13	275	5770	13	275	6200	13	275	820	1570	13	275	820	1010	1750	13	300	1600
1.82	1.52	245	245	200	200	18	5400	36	5400	3	900	13	250	5770	13	250	6200	13	250	820	1570	13	250	820	1160	1910	13	300	1910
1.82	1.82	245	245	200	200	18	5400	36	5400	4	1200	13	250	5770	13	250	6200	13	250	820	1570	13	250	820	1310	2060	13	300	2210
1.82	2.13	245	245	200	200	18	5400	36	5400	5	1500	13	225	5770	13	225	6200	13	225	820	1570	13	225	820	1470	2210	13	300	2510
1.82	2.43	245	245	200	200	18	5400	36	5400	6	1800	13	225	5770	13	225	6200	13	225	820	1570	13	225	820	1620	2360	13	300	2820
2.13	1.21	240	240	200	200	21	6300	42	6300	2	600	13	225	6550	13	225	7110	13	225	880	1680	13	225	880	1000	1800	13	300	1600
2.13	1.82	240	240	200	200	21	6300	42	6300	4	1200	13	225	6550	16	225	7110	13	225	880	1680	13	225	880	1310	2110	13	300	2210
2.13	2.43	245	245	200	200	21	6300	42	6300	6	1800	13	200	6550	13	200	7110	13	200	880	1680	13	200	880	1620	2410	13	300	2820
2.13	3.04	245	245	200	200	21	6300	42	6300	8	2400	13	200	6550	13	200	7110	13	200	880	1680	13	200	880	1920	2720	13	300	3430
2.43	1.21	225	225	200	200	24	7200	48	7200	2	600	13	200	7370	13	200	8030	13	200	950	1800	13	200	950	990	1850	13	300	1570
2.43	1.82	225	225	200	200	24	7200	48	7200	4	1200	16	300	7370	16	300	8030	16	300	950	1800	16	300	950	1300	2130	13	300	2180
2.43	2.43	230	230	200	200	24	7200	48	7200	6	1800	16	275	7370	16	275	8030	16	275	950	1800	16	275	950	1610	2460	13	300	2790
2.43	3.04	245	245	200	200	24	7200	48	7200	8	2400	16	250	7370	16	250	8030	16	250	950	1800	16	250	950	1920	2770	13	300	3430
2.74	1.21	230	230	200	200	27	8100	54	8100	2	600	16	275	8150	16	275	8940	13	275	1010	1930	19	275	1010	1000	1880	13	300	1570
2.74	1.82	240	240	200	200	27	8100	54	8100	4	1200	16	250	8150	16	250	8940	13	250	1010	1930	16	250	1010	1310	2210	13	300	2210
2.74	2.43	240	240	200	200	27	8100	54	8100	6	1800	16	250	8150	16	250	8940	16	250	1010	1910	16	250	1010	1610	2510	13	300	2820
2.74	3.04	240	240	200	200	27	8100	54	8100	8	2400	16	225	8150	16	225	8940	16	225	1010	1910	16	225	1010	1920	2820	13	300	3430
2.74	3.65	245	245	200	200	27	8100	54	8100	10	3000	19	300	8150	19	300	8940	19	300	1010	1880	19	300	1010	2230	3120	13	290	4040
3.04	1.21	240	240	200	200	30	9000	60	9000	2	600	16	225	8940	16	225	9860	--	--	--	--	16	225	1070	1000	1980	13	300	1600
3.04	1.82	240	240	200	200	30	9000	60	9000	4	1200	16	250	8940	16	250	9860	13	250	1070	2060	16	250	1070	1310	2290	13	300	2210
3.04	2.43	240	240	200	200	30	9000	60	9000	6	1800	16	225	8940	16	225	9860	13	225	1070	2060	16	225	1070	1610	2590	13	300	2820
3.04	3.04	245	245	200	200	30	9000	60	9000	8	2400	16	225	8940	16	225	9860	13	225	1070	2060	16	225	1070	1920	2900	13	300	3430
3.04	3.65	245	245	200	200	30	9000	60	9000	10	3000	19	300	8940	19	300	9860	13	300	1070	2060	19	300	1070	2230	3170	13	290	4040
3.65	1.82	250	250	200	200	36	10800	72	10800	4	1200	16	225	10520	16	225	11680	--	--	--	--	19	225	1190	1320	2390	13	300	2240
3.65	2.43	250	250	200	200	36	10800	72	10800	6	1800	19	300	10520	19	300	11680	--	--	--	--	22	300	1190	1630	2670	13	300	2840
3.65	3.04	250	250	200	200	36	10800	72	10800	8	2400	16	200	10520	16	200	11680	13	200	1190	2290	16	200	1190	1930	3020	13	300	3450
3.65	3.65	260	260	200	200	36	10800	72	10800	10	3000	19	275	10520	19	275	11680	13	275	1190	2290	19	275	1190	2240	3300	13	290	4090

Sheet 1 of 3

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

## TRIPLE BOX CULVERTS 0 TO 0.6 m FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.04

REINFORCING STEEL																		
SPAN (m)	HIGHT (m)	BV2			BT1												NO. BL1 BARS	NO. BL2 BARS
		SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH				
0.91	0.91	13	300	1220	13	300	830	110	470	145	95	3450	450	3610	53	16		
0.91	1.21	13	300	1520	13	300	830	110	470	145	95	3450	450	3610	53	24		
1.21	0.91	13	300	1220	13	300	1080	120	590	155	100	4370	630	4550	68	16		
1.21	1.21	13	300	1520	13	300	1080	120	590	155	100	4370	630	4550	68	24		
1.21	1.52	13	300	1830	13	300	1080	120	590	155	100	4370	630	4550	68	32		
1.21	1.82	13	300	2130	13	300	1080	120	590	155	100	4370	630	4550	68	40		
1.52	0.91	13	300	1220	13	275	1320	120	710	155	100	5280	810	5460	83	16		
1.52	1.21	13	250	1520	13	250	1320	120	710	155	100	5280	810	5460	83	24		
1.52	1.52	13	250	1830	13	250	1320	120	710	155	100	5280	810	5460	83	32		
1.52	1.82	13	250	2130	13	250	1320	120	710	155	100	5280	810	5460	83	40		
1.52	2.13	13	250	2440	13	225	1320	120	710	155	100	5280	810	5460	83	48		
1.82	1.21	13	250	1600	13	275	1550	155	790	210	135	6200	960	6430	98	24		
1.82	1.52	13	250	1910	13	250	1550	155	790	210	135	6200	960	6430	98	32		
1.82	1.82	13	250	2210	13	250	1550	155	790	210	135	6200	960	6430	98	40		
1.82	2.13	13	250	2510	13	225	1550	155	790	210	135	6200	960	6430	98	48		
1.82	2.43	13	250	2820	13	225	1550	155	790	210	135	6200	960	6430	98	56		
2.13	1.21	13	240	1600	13	225	1790	150	920	200	130	7120	1150	7340	113	24		
2.13	1.82	13	215	2210	13	225	1790	150	920	200	130	7120	1150	7340	113	40		
2.13	2.43	13	225	2820	13	200	1790	155	920	210	135	7120	1140	7340	113	56		
2.13	3.04	13	225	3430	13	200	1790	155	920	210	135	7120	1140	7340	113	72		
2.43	1.21	13	190	1570	13	200	2040	135	1060	180	120	8020	1340	8230	128	24		
2.43	1.82	13	175	2180	16	300	2040	140	1060	185	120	8020	1340	8230	128	40		
2.43	2.43	13	175	2790	16	275	2040	145	1050	195	125	8020	1340	8230	128	56		
2.43	3.04	13	190	3430	16	250	2030	160	1040	210	135	8020	1320	8250	128	72		
2.74	1.21	13	165	1570	16	275	2280	145	1170	195	125	8940	1520	9140	143	24		
2.74	1.82	13	165	2210	16	250	2280	155	1170	205	130	8940	1510	9170	143	40		
2.74	2.43	13	165	2820	16	250	2280	155	1170	205	130	8940	1510	9170	143	56		
2.74	3.04	13	165	3430	16	225	2280	155	1170	205	130	8940	1510	9170	143	72		
2.74	3.65	13	165	4040	19	300	2280	165	1160	215	135	8940	1500	9170	143	88		
3.04	1.21	16	240	1600	16	225	2520	155	1290	205	130	9860	1700	10080	158	24		
3.04	1.82	16	240	2210	16	250	2520	155	1290	205	130	9860	1700	10080	158	40		
3.04	2.43	16	240	2820	16	225	2520	155	1290	205	130	9860	1700	10080	158	56		
3.04	3.04	13	165	3430	16	225	2520	160	1280	210	135	9860	1690	10080	158	72		
3.04	3.65	13	175	4040	19	300	2520	165	1280	215	135	9860	1690	10080	158	88		
3.65	1.82	16	200	2240	16	225	3010	165	1520	220	145	11690	2050	11910	188	40		
3.65	2.43	16	200	2840	19	300	3010	170	1520	225	145	11690	2050	11910	188	56		
3.65	3.04	13	140	3450	16	200	3010	165	1520	220	145	11690	2050	11910	188	72		
3.65	3.65	13	150	4090	19	275	3000	175	1510	230	150	11690	2040	11940	188	88		

BT00.6

SPAN (m)	HCHT (m)	REINFORCING STEEL (kg/LONG. JT)	QUAN./m						HEADWALLS						WINGWALL
			CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	G HEADWALL LENGTH	HW 1		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CL. A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)		
						SIZE	LENGTH								
0.91	0.91	22.63	2.421	181.45	4010	19	3910	2	8	1.470	46.66	1.456	34.96	A	
0.91	1.21	23.91	2.659	195.87	4010	19	3910	2	10	1.574	49.79	1.551	34.96	C	
1.21	0.91	28.31	2.836	232.48	4930	19	4830	2	8	1.686	54.89	1.679	43.18	A	
1.21	1.21	29.60	3.074	246.90	4930	19	4830	2	10	1.790	58.01	1.775	43.18	C	
1.21	1.52	30.88	3.320	261.58	4930	19	4830	2	12	1.897	61.15	1.871	43.18	E	
1.21	1.82	32.16	3.559	276.14	4930	19	4830	2	14	2.001	64.27	1.967	43.18	G	
1.52	0.91	33.99	3.212	301.52	5840	19	5740	2	8	1.913	63.02	1.913	51.32	A	
1.52	1.21	35.28	3.450	316.58	5840	19	5740	2	10	2.017	66.15	2.009	51.32	C	
1.52	1.52	36.56	3.696	332.90	5840	19	5740	2	12	2.123	69.29	2.106	51.32	E	
1.52	1.82	37.84	3.934	349.07	5840	19	5740	2	14	2.228	72.41	2.201	51.32	G	
1.52	2.13	39.12	4.178	385.56	5840	19	5740	2	16	2.334	75.55	2.298	51.32	I	
1.82	1.21	40.96	4.296	340.64	6760	19	6650	2	10	2.218	74.28	2.217	59.45	D	
1.82	1.52	42.24	4.539	375.22	6760	19	6650	2	12	2.324	77.42	2.313	59.45	F	
1.82	1.82	43.52	4.777	391.23	6760	19	6650	2	14	2.428	80.54	2.409	59.45	H	
1.82	2.13	44.80	5.020	430.17	6760	19	6650	2	16	2.534	83.68	2.505	59.45	J	
1.82	2.43	46.08	5.258	446.75	6760	19	6650	2	18	2.639	86.81	2.601	59.45	L	
2.13	1.21	46.64	4.669	423.17	7670	19	7570	2	10	2.441	82.51	2.448	67.68	D	
2.13	1.82	49.20	5.147	498.46	7670	19	7570	2	14	2.652	88.77	2.640	67.68	H	
2.13	2.43	51.76	5.704	527.17	7670	19	7570	2	18	2.855	95.03	2.824	67.68	L	
2.13	3.04	54.32	6.187	562.50	7670	19	7570	2	22	3.065	101.29	3.016	67.68	P	
2.43	1.21	52.32	4.848	507.80	8590	19	8480	2	10	2.651	90.64	2.664	75.81	C	
2.43	1.82	54.88	5.328	564.19	8590	19	8480	2	14	2.861	96.90	2.856	75.81	G	
2.43	2.43	57.44	5.888	635.05	8590	19	8480	2	18	3.090	103.17	3.067	75.81	L	
2.43	3.04	60.00	6.610	705.07	8590	19	8480	2	22	3.274	109.43	3.233	75.81	P	
2.74	1.21	58.00	5.344	607.82	9500	19	9400	2	10	2.889	98.87	2.911	84.04	D	
2.74	1.82	60.56	6.004	670.69	9500	19	9400	2	14	3.079	105.13	3.082	84.04	H	
2.74	2.43	63.12	6.484	729.92	9500	19	9400	2	18	3.290	111.39	3.274	84.04	L	
2.74	3.04	65.68	6.961	821.95	9500	19	9400	2	22	3.500	117.65	3.466	84.04	P	
2.74	3.65	68.25	7.528	905.42	9500	19	9400	2	26	3.701	123.92	3.648	84.04	T	
3.04	1.21	63.68	5.945	696.22	10410	19	10310	2	10	3.079	107.00	3.108	92.17	D	
3.04	1.82	66.24	6.429	728.05	10410	19	10310	2	14	3.290	113.26	3.300	92.17	H	
3.04	2.43	68.80	6.905	822.79	10410	19	10310	2	18	3.500	119.53	3.492	92.17	L	
3.04	3.04	71.36	7.487	858.91	10410	19	10310	2	22	3.699	125.79	3.672	92.17	P	
3.04	3.65	73.93	7.967	923.79	10410	19	10310	2	26	3.910	132.05	3.865	92.17	T	
3.65	1.82	77.60	7.521	893.94	12240	19	12140	2	14	3.689	129.62	3.714	108.53	H	
3.65	2.43	80.16	7.997	985.82	12240	19	12140	2	18	3.899	135.89	3.906	108.53	L	
3.65	3.04	82.73	8.475	1065.68	12240	19	12140	2	22	4.110	142.15	4.098	108.53	P	
3.65	3.65	85.29	9.191	1122.13	12240	19	12140	2	26	4.292	148.41	4.261	108.53	T	

Sheet 3 of 3

TRIPLE BOX CULVERTS  
0 TO 0.6 m FILLS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.06

BT01.5

DIMENSIONS								REINFORCING STEEL																					
SPAN (m)	HGHT (m)	T1 TOP SLAB	T2 BOTTOM SLAB	T3 EXTERIOR WALL (mm)	T4 INTERIOR WALL (mm)	A	B	C	D	E	F	BH1			BH2			BH3			BH4				BV1				
												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
0.91	0.91	200	200	200	200	9	2700	9	2700	1	300	13	300	3400	13	300	3450	--	--	--	--	13	300	640	810	1370	13	300	1220
0.91	1.21	200	200	200	200	9	2700	9	2700	2	600	13	300	3400	13	300	3450	--	--	--	--	13	300	640	970	1520	13	300	1520
1.21	0.91	200	200	200	200	12	3600	12	3600	1	300	13	300	4190	13	300	4370	--	--	--	--	13	300	700	810	1420	13	300	1220
1.21	1.21	200	200	200	200	12	3600	12	3600	2	600	13	300	4190	13	300	4370	--	--	--	--	13	300	700	970	1570	13	300	1520
1.21	1.52	200	200	200	200	12	3600	12	3600	3	900	13	300	4190	13	300	4370	--	--	--	--	13	300	700	1120	1730	13	300	1830
1.21	1.82	200	200	200	200	12	3600	12	3600	4	1200	13	300	4190	13	300	4370	--	--	--	--	13	300	700	1270	1880	13	300	2130
1.52	0.91	200	200	200	200	15	4500	15	4500	1	300	13	300	4980	13	300	5280	13	300	760	1450	13	300	760	810	1500	13	300	1220
1.52	1.21	200	200	200	200	15	4500	15	4500	2	600	13	300	4980	13	300	5280	13	300	760	1450	13	300	760	970	1650	13	300	1520
1.52	1.52	200	200	200	200	15	4500	15	4500	3	900	13	300	4980	13	300	5280	13	300	760	1450	13	300	760	1120	1800	13	300	1830
1.52	1.82	200	200	200	200	15	4500	15	4500	4	1200	13	300	4980	13	300	5280	13	300	760	1450	13	300	760	1270	1960	13	300	2130
1.52	2.13	200	200	200	200	15	4500	15	4500	5	1500	13	300	4980	13	300	5280	13	300	760	1450	13	300	760	1420	2110	13	300	2440
1.82	1.21	200	200	200	200	18	5400	18	5400	2	600	13	300	5770	13	300	6200	--	--	--	--	16	300	820	970	1680	13	300	1520
1.82	1.52	200	200	200	200	18	5400	18	5400	3	900	13	300	5770	13	300	6200	--	--	--	--	16	300	820	1120	1830	13	300	1830
1.82	1.82	200	200	200	200	18	5400	18	5400	4	1200	13	300	5770	13	300	6200	--	--	--	--	16	300	820	1270	1980	13	300	2130
1.82	2.13	200	200	200	200	18	5400	18	5400	5	1500	13	300	5770	13	300	6200	--	--	--	--	16	300	820	1420	2130	13	300	2440
1.82	2.43	200	200	200	200	18	5400	18	5400	6	1800	13	275	5770	13	275	6200	13	275	820	1570	13	275	820	1570	2310	13	300	2740
2.13	1.21	200	200	200	200	21	6300	21	6300	2	600	13	225	6550	13	225	7110	13	225	880	1680	13	225	880	970	1780	13	300	1520
2.13	1.82	200	200	200	200	21	6300	21	6300	4	1200	13	225	6550	13	225	7110	13	225	880	1680	13	225	880	1270	2080	13	300	2130
2.13	2.43	200	200	200	200	21	6300	21	6300	6	1800	13	225	6550	13	225	7110	13	225	880	1680	13	225	880	1570	2390	13	300	2740
2.13	3.04	200	200	200	200	21	6300	21	6300	8	2400	13	225	6550	16	225	7110	13	225	880	1680	13	225	880	1880	2690	13	300	3350
2.43	1.21	200	200	200	200	24	7200	24	7200	2	600	16	275	7370	16	275	8030	--	--	--	--	19	275	950	970	1780	13	300	1520
2.43	1.82	200	200	200	200	24	7200	24	7200	4	1200	16	275	7370	16	275	8030	13	275	950	1800	16	275	950	1270	2110	13	300	2130
2.43	2.43	200	200	200	200	24	7200	24	7200	6	1800	16	275	7370	16	275	8030	13	275	950	1800	16	275	950	1570	2410	13	300	2740
2.43	3.04	200	200	200	200	24	7200	24	7200	8	2400	16	275	7370	16	275	8030	13	275	950	1800	19	275	950	1880	2690	13	300	3350
2.74	1.21	230	230	200	200	27	8100	27	8100	2	600	16	275	8150	16	275	8940	13	275	1010	1930	19	275	1010	1000	1880	13	300	1570
2.74	1.82	240	240	200	200	27	8100	27	8100	4	1200	16	250	8150	16	250	8940	13	250	1010	1930	16	250	1010	1310	2210	13	300	2210
2.74	2.43	240	240	200	200	27	8100	27	8100	6	1800	16	250	8150	16	250	8940	16	250	1010	1910	16	250	1010	1610	2510	13	300	2820
2.74	3.04	240	240	200	200	27	8100	27	8100	8	2400	16	225	8150	16	225	8940	16	225	1010	1910	16	225	1010	1920	2820	13	300	3430
2.74	3.65	245	245	200	200	27	8100	27	8100	10	3000	16	225	8150	16	225	8940	16	225	1010	1910	16	225	1010	2230	3120	13	290	4040
3.04	1.21	240	240	200	200	30	9000	30	9000	2	600	16	225	8940	16	225	9860	--	--	--	--	16	225	1070	1000	1980	13	300	1600
3.04	1.82	240	240	200	200	30	9000	30	9000	4	1200	16	250	8940	16	250	9860	13	250	1070	2060	16	250	1070	1310	2290	13	300	2210
3.04	2.43	240	240	200	200	30	9000	30	9000	6	1800	16	225	8940	16	225	9860	13	225	1070	2060	16	225	1070	1610	2590	13	300	2820
3.04	3.04	245	245	200	200	30	9000	30	9000	8	2400	16	225	8940	16	225	9860	13	225	1070	2060	16	225	1070	1920	2900	13	300	3430
3.04	3.65	245	245	200	200	30	9000	30	9000	10	3000	19	300	8940	19	300	9860	13	300	1070	2060	19	300	1070	2230	3170	13	300	4040
3.65	1.82	250	250	200	200	36	10800	36	10800	4	1200	16	225	10520	16	225	11680	--	--	--	--	19	225	1190	1320	2390	13	300	2240
3.65	2.43	250	250	200	200	36	10800	36	10800	6	1800	19	300	10520	19	300	11680	--	--	--	--	22	300	1190	1630	2670	13	300	2840
3.65	3.04	250	250	200	200	36	10800	36	10800	8	2400	16	200	10520	16	200	11680	13	200	1190	2290	16	200	1190	1930	3020	13	300	3450
3.65	3.65	260	260	200	200	36	10800	36	10800	10	3000	19	275	10520	19	275	11680	13	275	1190	2290	19	275	1190	2240	3300	13	300	4090

Sheet 1 of 3

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

TRIPLE BOX CULVERTS  
 0.6 TO 1.5 m FILLS  
 VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
 AND  
 BRIDGE  
 DIVISION

1004.07

REINFORCING STEEL																		
SPAN (m)	HIGHT (m)	BV2			BT1												NO. BL1 BARS	NO. BL2 BARS
		SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH				
0.91	0.91	13	300	1220	13	300	830	110	470	145	95	3450	450	3610	44	16		
0.91	1.21	13	300	1520	13	300	830	110	470	145	95	3450	450	3610	44	24		
1.21	0.91	13	300	1220	13	300	1080	110	600	145	95	4370	630	4520	56	16		
1.21	1.21	13	300	1520	13	300	1080	110	600	145	95	4370	630	4520	56	24		
1.21	1.52	13	300	1830	13	300	1080	110	600	145	95	4370	630	4520	56	32		
1.21	1.82	13	300	2130	13	300	1080	110	600	145	95	4370	630	4520	56	40		
1.52	0.91	13	300	1220	13	300	1320	110	720	145	95	5280	820	5440	68	16		
1.52	1.21	13	300	1520	13	300	1320	110	720	145	95	5280	820	5440	68	24		
1.52	1.52	13	300	1830	13	300	1320	110	720	145	95	5280	820	5440	68	32		
1.52	1.82	13	300	2130	13	300	1320	110	720	145	95	5280	820	5440	68	40		
1.52	2.13	13	300	2440	13	300	1320	110	720	145	95	5280	820	5440	68	48		
1.82	1.21	13	275	1520	13	300	1570	110	840	145	95	6200	1000	6350	80	24		
1.82	1.52	13	275	1830	13	300	1570	110	840	145	95	6200	1000	6350	80	32		
1.82	1.82	13	275	2130	13	300	1570	110	840	145	95	6200	1000	6350	80	40		
1.82	2.13	13	275	2440	13	300	1570	110	840	145	95	6200	1000	6350	80	48		
1.82	2.43	13	290	2740	13	275	1570	110	840	145	95	6200	1000	6350	80	56		
2.13	1.21	13	250	1520	13	225	1810	110	960	145	95	7120	1180	7260	92	24		
2.13	1.82	13	250	2130	13	225	1810	110	960	145	95	7120	1180	7260	92	40		
2.13	2.43	13	250	2740	13	225	1810	110	960	145	95	7120	1180	7260	92	56		
2.13	3.04	13	250	3350	13	225	1810	110	960	145	95	7120	1180	7260	92	72		
2.43	1.21	13	190	1520	16	275	2050	115	1080	150	95	8020	1370	8180	104	24		
2.43	1.82	13	190	2130	16	275	2050	115	1080	150	95	8020	1370	8180	104	40		
2.43	2.43	13	190	2740	16	275	2050	115	1080	150	95	8020	1370	8180	104	56		
2.43	3.04	13	200	3350	16	275	2050	115	1080	150	95	8020	1370	8180	104	72		
2.74	1.21	13	190	1570	16	275	2280	145	1170	195	125	8940	1520	9140	116	24		
2.74	1.82	13	190	2210	16	250	2280	155	1170	205	130	8940	1510	9170	116	40		
2.74	2.43	13	175	2820	16	250	2280	155	1170	205	130	8940	1510	9170	116	56		
2.74	3.04	13	175	3430	16	225	2280	155	1170	205	130	8940	1510	9170	116	72		
2.74	3.65	13	190	4040	16	225	2280	160	1160	210	135	8940	1500	9170	116	88		
3.04	1.21	16	265	1600	16	225	2520	155	1290	205	130	9860	1700	10080	128	24		
3.04	1.82	13	165	2210	16	250	2520	155	1290	205	130	9860	1700	10080	128	40		
3.04	2.43	13	175	2820	16	225	2520	155	1290	205	130	9860	1700	10080	128	56		
3.04	3.04	13	190	3430	16	225	2520	160	1280	210	135	9860	1690	10080	128	72		
3.04	3.65	13	200	4040	19	300	2520	165	1280	215	135	9860	1690	10080	128	88		
3.65	1.82	16	225	2240	16	225	3010	165	1520	220	145	11690	2050	11910	152	40		
3.65	2.43	13	150	2840	19	300	3010	170	1520	225	145	11690	2050	11910	152	56		
3.65	3.04	16	240	3450	16	200	3010	165	1520	220	145	11690	2050	11910	152	72		
3.65	3.65	13	165	4090	19	275	3000	175	1510	230	150	11690	2040	11940	152	88		



BTO1.5

SPAN (m)	HCHT (m)	REINFORCING STEEL (kg/LONG. JT)	QUAN./m			HEADWALLS										WINGWALL
			CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	G HEADWALL LENGTH	HW 1		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CL. A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)			
						SIZE	LENGTH									
0.91	0.91	19.23	2.422	172.51	4010	19	3910	2	8	1.470	46.66	1.456	34.96	A		
0.91	1.21	20.51	2.660	186.93	4010	19	3910	2	10	1.574	49.79	1.551	34.96	C		
1.21	0.91	23.77	2.778	202.46	4930	19	4830	2	8	1.691	54.89	1.684	43.18	A		
1.21	1.21	25.05	3.016	216.88	4930	19	4830	2	10	1.795	58.01	1.779	43.18	C		
1.21	1.52	26.33	3.262	231.70	4930	19	4830	2	12	1.901	61.15	1.876	43.18	E		
1.21	1.82	27.61	3.500	246.12	4930	19	4830	2	14	2.006	64.27	1.971	43.18	G		
1.52	0.91	28.31	3.144	252.03	5840	19	5740	2	8	1.919	63.02	1.920	51.32	A		
1.52	1.21	29.60	3.382	266.45	5840	19	5740	2	10	2.024	66.15	2.015	51.32	C		
1.52	1.52	30.88	3.628	281.13	5840	19	5740	2	12	2.130	69.29	2.112	51.32	E		
1.52	1.82	32.16	3.866	295.68	5840	19	5740	2	14	2.234	72.41	2.208	51.32	G		
1.52	2.13	33.44	4.112	310.37	5840	19	5740	2	16	2.340	75.55	2.304	51.32	I		
1.82	1.21	34.14	3.739	292.16	6760	19	6650	2	10	2.245	74.28	2.244	59.45	C		
1.82	1.52	35.42	3.984	308.52	6760	19	6650	2	12	2.351	77.42	2.341	59.45	E		
1.82	1.82	36.70	4.222	324.60	6760	19	6650	2	14	2.455	80.54	2.436	59.45	G		
1.82	2.13	37.98	4.468	340.96	6760	19	6650	2	16	2.561	83.68	2.533	59.45	I		
1.82	2.43	39.26	4.704	373.92	6760	19	6650	2	18	2.666	86.81	2.628	59.45	K		
2.13	1.21	38.68	4.097	397.20	7670	19	7570	2	10	2.474	82.51	2.480	67.68	C		
2.13	1.82	41.25	4.581	430.06	7670	19	7570	2	14	2.684	88.77	2.672	67.68	G		
2.13	2.43	43.81	5.065	463.09	7670	19	7570	2	18	2.894	95.03	2.864	67.68	K		
2.13	3.04	46.37	5.544	531.21	7670	19	7570	2	22	3.105	101.29	3.056	67.68	O		
2.43	1.21	43.23	4.444	498.62	8590	19	8480	2	10	2.695	90.64	2.708	75.81	C		
2.43	1.82	45.79	4.926	546.56	8590	19	8480	2	14	2.905	96.90	2.901	75.81	G		
2.43	2.43	48.35	5.409	585.48	8590	19	8480	2	18	3.116	103.17	3.093	75.81	K		
2.43	3.04	50.91	5.890	645.42	8590	19	8480	2	22	3.326	109.43	3.285	75.81	O		
2.74	1.21	47.77	5.348	573.52	9500	19	9400	2	10	2.889	98.87	2.911	84.04	D		
2.74	1.82	50.33	6.009	633.34	9500	19	9400	2	14	3.079	105.13	3.082	84.04	H		
2.74	2.43	52.90	6.489	697.26	9500	19	9400	2	18	3.290	111.39	3.274	84.04	L		
2.74	3.04	55.46	6.965	788.03	9500	19	9400	2	22	3.500	117.65	3.466	84.04	P		
2.74	3.65	58.02	7.539	820.15	9500	19	9400	2	26	3.701	123.92	3.648	84.04	T		
3.04	1.21	52.32	5.949	660.54	10410	19	10310	2	10	3.079	107.00	3.108	92.17	D		
3.04	1.82	54.88	6.433	692.36	10410	19	10310	2	14	3.290	113.26	3.300	92.17	H		
3.04	2.43	57.44	6.910	779.66	10410	19	10310	2	18	3.500	119.53	3.492	92.17	L		
3.04	3.04	60.00	7.493	812.78	10410	19	10310	2	22	3.699	125.79	3.672	92.17	P		
3.04	3.65	62.56	7.973	875.84	10410	19	10310	2	26	3.910	132.05	3.865	92.17	T		
3.65	1.82	63.97	7.527	846.57	12240	19	12140	2	14	3.689	129.62	3.714	108.53	H		
3.65	2.43	66.53	8.004	930.72	12240	19	12140	2	18	3.899	135.89	3.906	108.53	L		
3.65	3.04	69.09	8.481	1016.78	12240	19	12140	2	22	4.110	142.15	4.098	108.53	P		
3.65	3.65	71.65	9.197	1070.63	12240	19	12140	2	26	4.292	148.41	4.261	108.53	T		

Sheet 3 of 3

TRIPLE BOX CULVERTS  
0.6 TO 1.5 m FILLS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.09

BT03.0

DIMENSIONS						REINFORCING STEEL																							
SPAN	HGHT	T1	T2	T3	T4							BH1			BH2			BH3			BH4			BV1					
(m)	(m)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (mm)	INTERIOR WALL (mm)	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
0.91	0.91	200	200	200	200	9	2700	9	2700	1	300	13	300	3400	13	300	3450	--	--	--	--	13	300	640	810	1370	13	300	1220
0.91	1.21	200	200	200	200	9	2700	9	2700	2	600	13	300	3400	13	300	3450	--	--	--	--	13	300	640	970	1520	13	300	1520
1.21	0.91	200	200	200	200	12	3600	12	3600	1	300	13	300	4190	13	300	4370	--	--	--	--	13	300	700	810	1420	13	300	1220
1.21	1.21	200	200	200	200	12	3600	12	3600	2	600	13	300	4190	13	300	4370	--	--	--	--	13	300	700	970	1570	13	300	1520
1.21	1.52	200	200	200	200	12	3600	12	3600	3	900	13	300	4190	13	300	4370	--	--	--	--	13	300	700	1120	1730	13	300	1830
1.21	1.82	200	200	200	200	12	3600	12	3600	4	1200	13	300	4190	13	300	4370	--	--	--	--	13	300	700	1270	1880	13	300	2130
1.52	0.91	200	200	200	200	15	4500	15	4500	1	300	13	300	4980	13	300	5280	--	--	--	--	13	300	760	810	1500	13	300	1220
1.52	1.21	200	200	200	200	15	4500	15	4500	2	600	13	300	4980	13	300	5280	--	--	--	--	13	300	760	970	1650	13	300	1520
1.52	1.52	200	200	200	200	15	4500	15	4500	3	900	13	300	4980	13	300	5280	--	--	--	--	13	300	760	1120	1800	13	300	1830
1.52	1.82	200	200	200	200	15	4500	15	4500	4	1200	13	300	4980	13	300	5280	--	--	--	--	13	300	760	1270	1960	13	300	2130
1.52	2.13	200	200	200	200	15	4500	15	4500	5	1500	13	300	4980	13	300	5280	--	--	--	--	13	300	760	1420	2110	13	300	2440
1.82	1.21	200	200	200	200	18	5400	18	5400	2	600	13	300	5770	13	300	6200	10	300	820	1570	13	300	820	970	1700	13	300	1520
1.82	1.52	200	200	200	200	18	5400	18	5400	3	900	13	300	5770	13	300	6200	--	--	--	--	13	300	820	1120	1850	13	300	1830
1.82	1.82	200	200	200	200	18	5400	18	5400	4	1200	13	300	5770	13	300	6200	--	--	--	--	13	300	820	1270	2010	13	300	2130
1.82	2.13	200	200	200	200	18	5400	18	5400	5	1500	13	300	5770	13	300	6200	--	--	--	--	13	300	820	1420	2160	13	300	2440
1.82	2.43	200	200	200	200	18	5400	18	5400	6	1800	13	300	5770	13	300	6200	10	300	820	1570	13	300	820	1570	2310	13	300	2740
2.13	1.21	200	200	200	200	21	6300	21	6300	2	600	13	300	6550	13	300	7110	--	--	--	--	16	300	880	970	1750	13	290	1520
2.13	1.82	200	200	200	200	21	6300	21	6300	4	1200	13	300	6550	13	300	7110	13	300	880	1680	13	300	880	1270	2080	13	300	2130
2.13	2.43	200	200	200	200	21	6300	21	6300	6	1800	13	300	6550	13	300	7110	13	300	880	1680	13	300	880	1570	2390	13	300	2740
2.13	3.04	200	200	200	200	21	6300	21	6300	8	2400	13	275	6550	13	275	7110	--	--	--	--	16	275	880	1880	2670	13	300	3350
2.43	1.21	200	200	200	200	24	7200	24	7200	2	600	13	275	7370	13	275	8030	10	275	950	1830	16	275	950	970	1800	13	200	1520
2.43	1.82	207	207	200	200	24	7200	24	7200	4	1200	13	250	7370	13	250	8030	--	--	--	--	16	250	950	1280	2130	13	300	2130
2.43	2.43	215	215	200	200	24	7200	24	7200	6	1800	13	250	7370	13	250	8030	--	--	--	--	16	250	950	1590	2440	13	300	2770
2.43	3.04	220	220	200	200	24	7200	24	7200	8	2400	13	225	7370	13	225	8030	--	--	--	--	16	225	950	1900	2740	13	300	3400
2.74	1.21	220	220	200	200	27	8100	27	8100	2	600	13	225	8150	13	225	8940	10	225	1010	1960	16	225	1010	980	1880	13	190	1570
2.74	1.82	225	225	200	200	27	8100	27	8100	4	1200	13	225	8150	13	225	8940	--	--	--	--	16	225	1010	1300	2210	13	300	2180
2.74	2.43	230	230	200	200	27	8100	27	8100	6	1800	13	225	8150	16	225	8940	--	--	--	--	16	225	1010	1610	2510	13	300	2790
2.74	3.04	240	240	200	200	27	8100	27	8100	8	2400	13	225	8150	16	225	8940	--	--	--	--	16	225	1010	1920	2820	13	300	3430
2.74	3.65	240	240	200	200	27	8100	27	8100	10	3000	13	200	8150	13	200	8940	10	200	1010	1960	16	200	1010	2220	3120	13	215	4040
3.04	1.21	245	245	200	200	30	9000	30	9000	2	600	16	200	8940	13	200	9860	--	--	--	--	16	200	1070	1010	1980	13	175	1600
3.04	1.82	250	250	200	200	30	9000	30	9000	4	1200	16	225	8940	16	225	9860	--	--	--	--	16	225	1070	1320	2290	13	275	2240
3.04	2.43	250	250	200	200	30	9000	30	9000	6	1800	16	200	8940	16	200	9860	10	200	1070	2080	13	200	1070	1630	2620	13	300	2840
3.04	3.04	260	260	200	200	30	9000	30	9000	8	2400	16	200	8940	16	200	9860	13	200	1070	2060	13	200	1070	1940	2920	13	300	3480
3.04	3.65	265	265	200	200	30	9000	30	9000	10	3000	16	275	8940	16	275	9860	10	275	1070	2080	19	275	1070	2250	3200	13	225	4090
3.65	1.82	290	290	200	200	36	10800	36	10800	4	1200	16	225	10520	16	225	11680	10	225	1190	2310	16	225	1190	1360	2440	13	225	2310
3.65	2.43	295	295	200	200	36	10800	36	10800	6	1800	16	225	10520	16	225	11680	10	225	1190	2310	16	225	1190	1670	2770	13	300	2950
3.65	3.04	295	295	200	200	36	10800	36	10800	8	2400	19	225	10520	16	225	11680	10	225	1190	2310	16	225	1190	1970	3070	13	300	3560
3.65	3.65	300	300	200	200	36	10800	36	10800	10	3000	19	225	10520	16	225	11680	--	--	--	--	19	225	1190	2290	3350	13	290	4170

Sheet 1 of 3

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

TRIPLE BOX CULVERTS  
1.5 TO 3.0 m FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.10

REINFORCING STEEL																		
SPAN (m)	HIGHT (m)	BV2			BT1												NO. BL1 BARS	NO. BL2 BARS
		SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH				
0.91	0.91	13	300	1220	13	300	830	110	470	145	95	3450	450	3610	44	16		
0.91	1.21	13	300	1520	13	300	830	110	470	145	95	3450	450	3610	44	24		
1.21	0.91	13	300	1220	13	300	1080	110	600	145	95	4370	630	4520	56	16		
1.21	1.21	13	300	1520	13	300	1080	110	600	145	95	4370	630	4520	56	24		
1.21	1.52	13	300	1830	13	300	1080	110	600	145	95	4370	630	4520	56	32		
1.21	1.82	13	300	2130	13	300	1080	110	600	145	95	4370	630	4520	56	40		
1.52	0.91	13	300	1220	13	300	1320	110	720	145	95	5280	820	5440	68	16		
1.52	1.21	13	300	1520	13	300	1320	110	720	145	95	5280	820	5440	68	24		
1.52	1.52	13	300	1830	13	300	1320	110	720	145	95	5280	820	5440	68	32		
1.52	1.82	13	300	2130	13	300	1320	110	720	145	95	5280	820	5440	68	40		
1.52	2.13	13	300	2440	13	300	1320	110	720	145	95	5280	820	5440	68	48		
1.82	1.21	13	300	1520	13	300	1570	110	840	145	95	6200	1000	6350	80	24		
1.82	1.52	13	300	1830	13	300	1570	110	840	145	95	6200	1000	6350	80	32		
1.82	1.82	13	300	2130	13	300	1570	110	840	145	95	6200	1000	6350	80	40		
1.82	2.13	13	300	2440	13	300	1570	110	840	145	95	6200	1000	6350	80	48		
1.82	2.43	13	300	2740	13	300	1570	110	840	145	95	6200	1000	6350	80	56		
2.13	1.21	13	300	1520	13	300	1810	110	960	145	95	7120	1180	7260	92	24		
2.13	1.82	13	300	2130	13	300	1810	110	960	145	95	7120	1180	7260	92	40		
2.13	2.43	13	300	2740	13	300	1810	110	960	145	95	7120	1180	7260	92	56		
2.13	3.04	13	300	3350	13	275	1810	110	960	145	95	7120	1180	7260	92	72		
2.43	1.21	13	300	1520	13	275	2050	110	1080	145	95	8020	1370	8180	104	24		
2.43	1.82	13	300	2130	13	250	2050	120	1080	155	100	8020	1360	8200	104	40		
2.43	2.43	13	300	2770	13	250	2050	125	1070	165	105	8020	1360	8200	104	56		
2.43	3.04	13	300	3400	13	225	2040	130	1060	170	110	8020	1350	8200	104	72		
2.74	1.21	13	300	1570	13	225	2290	130	1190	170	110	8940	1530	9120	116	24		
2.74	1.82	13	300	2180	13	225	2290	135	1180	180	120	8940	1520	9140	116	40		
2.74	2.43	13	300	2790	13	225	2280	145	1170	190	125	8940	1520	9140	116	56		
2.74	3.04	13	300	3430	13	225	2280	150	1170	200	130	8940	1510	9170	116	72		
2.74	3.65	13	300	4040	13	200	2280	150	1170	200	130	8940	1510	9170	116	88		
3.04	1.21	13	300	1600	13	200	2520	155	1280	210	135	9860	1690	10080	128	24		
3.04	1.82	13	300	2240	13	225	2520	165	1280	215	145	9860	1680	10080	128	40		
3.04	2.43	13	300	2840	13	200	2520	165	1280	215	145	9860	1680	10080	128	56		
3.04	3.04	13	300	3480	13	200	2510	170	1270	225	150	9860	1680	10110	128	72		
3.04	3.65	13	300	4090	16	275	2510	180	1260	240	155	9860	1670	10110	128	88		
3.65	1.82	13	300	2310	16	225	2990	205	1480	275	180	11690	2010	11990	152	40		
3.65	2.43	13	300	2950	16	225	2980	210	1480	285	190	11690	2000	11990	152	56		
3.65	3.04	13	300	3560	16	225	2980	210	1480	285	190	11690	2000	11990	152	72		
3.65	3.65	13	300	4170	16	225	2980	215	1470	295	195	11690	2000	12010	152	88		

BT03.0

SPAN (m)	HCHT (m)	REINFORCING STEEL (kg/LONG. JT)	QUAN./m						HEADWALLS						WINGWALL
			CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	G HEADWALL LENGTH	HW 1		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CL. A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)		
						SIZE	LENGTH								
0.91	0.91	19.23	2.422	172.51	4010	19	3910	2	8	1.470	46.66	1.456	34.96	A	
0.91	1.21	20.51	2.660	186.93	4010	19	3910	2	10	1.574	49.79	1.551	34.96	C	
1.21	0.91	23.77	2.778	202.46	4930	19	4830	2	8	1.691	54.89	1.684	43.18	A	
1.21	1.21	25.05	3.016	216.88	4930	19	4830	2	10	1.795	58.01	1.779	43.18	C	
1.21	1.52	26.33	3.262	231.70	4930	19	4830	2	12	1.901	61.15	1.876	43.18	E	
1.21	1.82	27.61	3.500	246.12	4930	19	4830	2	14	2.006	64.27	1.971	43.18	G	
1.52	0.91	28.31	3.146	232.81	5840	19	5740	2	8	1.919	63.02	1.920	51.32	A	
1.52	1.21	29.60	3.384	247.23	5840	19	5740	2	10	2.024	66.15	2.015	51.32	C	
1.52	1.52	30.88	3.630	261.91	5840	19	5740	2	12	2.130	69.29	2.112	51.32	E	
1.52	1.82	32.16	3.869	276.47	5840	19	5740	2	14	2.234	72.41	2.208	51.32	G	
1.52	2.13	33.44	4.115	291.15	5840	19	5740	2	16	2.340	75.55	2.304	51.32	I	
1.82	1.21	34.14	3.739	288.90	6760	19	6650	2	10	2.245	74.28	2.244	59.45	C	
1.82	1.52	35.42	3.987	291.87	6760	19	6650	2	12	2.351	77.42	2.341	59.45	E	
1.82	1.82	36.70	4.225	306.42	6760	19	6650	2	14	2.455	80.54	2.436	59.45	G	
1.82	2.13	37.98	4.471	321.10	6760	19	6650	2	16	2.561	83.68	2.533	59.45	I	
1.82	2.43	39.26	4.708	347.25	6760	19	6650	2	18	2.666	86.81	2.628	59.45	K	
2.13	1.21	38.68	4.107	320.37	7670	19	7570	2	10	2.474	82.51	2.480	67.68	C	
2.13	1.82	41.25	4.590	358.77	7670	19	7570	2	14	2.684	88.77	2.672	67.68	G	
2.13	2.43	43.81	5.074	388.01	7670	19	7570	2	18	2.894	95.03	2.864	67.68	K	
2.13	3.04	46.37	5.557	432.07	7670	19	7570	2	22	3.105	101.29	3.056	67.68	O	
2.43	1.21	43.23	4.458	388.14	8590	19	8480	2	10	2.695	90.64	2.708	75.81	C	
2.43	1.82	45.79	5.055	422.79	8590	19	8480	2	14	2.893	96.90	2.888	75.81	G	
2.43	2.43	48.35	5.668	456.42	8590	19	8480	2	18	3.089	103.17	3.066	75.81	K	
2.43	3.04	50.91	6.229	517.94	8590	19	8480	2	22	3.291	109.43	3.249	75.81	O	
2.74	1.21	47.77	5.179	479.35	9500	19	9400	2	10	2.882	98.87	2.904	84.04	C	
2.74	1.82	50.33	5.757	488.22	9500	19	9400	2	14	3.083	105.13	3.085	84.04	G	
2.74	2.43	52.90	6.325	565.97	9500	19	9400	2	18	3.310	111.39	3.295	84.04	L	
2.74	3.04	55.46	6.989	600.71	9500	19	9400	2	22	3.500	117.65	3.466	84.04	P	
2.74	3.65	58.02	7.469	662.08	9500	19	9400	2	26	3.711	123.92	3.658	84.04	T	
3.04	1.21	52.32	6.058	589.07	10410	19	10310	2	10	3.068	107.00	3.096	92.17	D	
3.04	1.82	54.88	6.641	621.96	10410	19	10310	2	14	3.267	113.26	3.277	92.17	H	
3.04	2.43	57.44	7.118	701.22	10410	19	10310	2	18	3.477	119.53	3.469	92.17	L	
3.04	3.04	60.00	7.798	751.07	10410	19	10310	2	22	3.664	125.79	3.638	92.17	P	
3.04	3.65	62.56	8.387	741.25	10410	19	10310	2	26	3.863	132.05	3.818	92.17	T	
3.65	1.82	63.97	8.473	801.81	12240	19	12140	2	14	3.574	129.62	3.599	108.53	H	
3.65	2.43	66.53	9.074	831.74	12240	19	12140	2	18	3.771	135.89	3.777	108.53	L	
3.65	3.04	69.09	9.550	929.01	12240	19	12140	2	22	3.981	142.15	3.969	108.53	P	
3.65	3.65	71.65	10.149	980.77	12240	19	12140	2	26	4.177	148.41	4.147	108.53	T	

Sheet 3 of 3

TRIPLE BOX CULVERTS  
1.5 TO 3.0 m FILLS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.12

BT04.5

DIMENSIONS						REINFORCING STEEL																							
SPAN	HGHT	T1	T2	T3	T4							BH1			BH2			BH3			BH4			BV1					
(m)	(m)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (mm)	INTERIOR WALL (mm)	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
0.91	0.91	200	200	200	200	9	2700	9	2700	1	300	13	300	3400	13	300	3450	--	--	--	--	13	300	640	810	1370	13	300	1220
0.91	1.21	200	200	200	200	9	2700	9	2700	2	600	13	300	3400	13	300	3450	--	--	--	--	13	300	640	970	1520	13	300	1520
1.21	0.91	200	200	200	200	12	3600	12	3600	1	300	13	300	4190	13	300	4370	--	--	--	--	13	300	700	810	1420	13	300	1220
1.21	1.21	200	200	200	200	12	3600	12	3600	2	600	13	300	4190	13	300	4370	--	--	--	--	13	300	700	970	1570	13	300	1520
1.21	1.52	200	200	200	200	12	3600	12	3600	3	900	13	300	4190	13	300	4370	--	--	--	--	13	300	700	1120	1730	13	300	1830
1.21	1.82	200	200	200	200	12	3600	12	3600	4	1200	13	300	4190	13	300	4370	--	--	--	--	13	300	700	1270	1880	13	300	2130
1.52	0.91	200	200	200	200	15	4500	15	4500	1	300	13	300	4980	13	300	5280	--	--	--	--	13	300	760	810	1500	13	300	1220
1.52	1.21	200	200	200	200	15	4500	15	4500	2	600	13	300	4980	13	300	5280	--	--	--	--	13	300	760	970	1650	13	300	1520
1.52	1.52	200	200	200	200	15	4500	15	4500	3	900	13	300	4980	13	300	5280	--	--	--	--	13	300	760	1120	1800	13	300	1830
1.52	1.82	200	200	200	200	15	4500	15	4500	4	1200	13	300	4980	13	300	5280	--	--	--	--	13	300	760	1270	1960	13	300	2130
1.52	2.13	200	200	200	200	15	4500	15	4500	5	1500	13	300	4980	13	300	5280	--	--	--	--	13	300	760	1420	2110	13	300	2440
1.82	1.21	200	200	200	200	18	5400	18	5400	2	600	13	300	5770	13	300	6200	13	300	820	1570	13	300	820	970	1700	13	300	1520
1.82	1.52	200	200	200	200	18	5400	18	5400	3	900	13	300	5770	13	300	6200	13	300	820	1570	13	300	820	1120	1850	13	300	1830
1.82	1.82	200	200	200	200	18	5400	18	5400	4	1200	13	300	5770	13	300	6200	13	300	820	1570	13	300	820	1270	2010	13	300	2130
1.82	2.13	200	200	200	200	18	5400	18	5400	5	1500	13	300	5770	13	300	6200	13	300	820	1570	13	300	820	1420	2160	13	300	2440
1.82	2.43	207	207	200	200	18	5400	18	5400	6	1800	13	300	5770	13	300	6200	13	300	820	1570	13	300	820	1580	2310	13	300	2740
2.13	1.21	225	225	200	200	21	6300	21	6300	2	600	13	275	6550	13	275	7110	--	--	--	--	16	275	880	990	1780	13	265	1570
2.13	1.82	225	225	200	200	21	6300	21	6300	4	1200	13	250	6550	13	250	7110	--	--	--	--	16	250	880	1300	2080	13	300	2180
2.13	2.43	230	230	200	200	21	6300	21	6300	6	1800	13	250	6550	13	250	7110	10	250	880	1700	13	250	880	1610	2410	13	300	2790
2.13	3.04	240	240	200	200	21	6300	21	6300	8	2400	13	250	6550	13	250	7110	10	250	880	1700	16	250	880	1920	2690	13	240	3430
2.43	1.21	250	250	200	200	24	7200	24	7200	2	600	13	225	7370	13	225	8030	--	--	--	--	16	225	950	1020	1850	13	225	1630
2.43	1.82	260	260	200	200	24	7200	24	7200	4	1200	13	225	7370	13	225	8030	10	225	950	1830	13	225	950	1330	2180	13	300	2260
2.43	2.43	260	260	200	200	24	7200	24	7200	6	1800	13	225	7370	13	225	8030	10	225	950	1830	13	225	950	1630	2490	13	300	2870
2.43	3.04	265	265	200	200	24	7200	24	7200	8	2400	13	225	7370	16	225	8030	--	--	--	--	16	225	950	1940	2790	13	290	3480
2.74	1.21	275	275	200	200	27	8100	27	8100	2	600	16	225	8150	16	225	8940	--	--	--	--	16	225	1010	1040	1960	13	215	1680
2.74	1.82	280	280	200	200	27	8100	27	8100	4	1200	16	225	8150	16	225	8940	10	225	1010	1960	13	225	1010	1350	2290	13	300	2290
2.74	2.43	290	290	200	200	27	8100	27	8100	6	1800	16	225	8150	16	225	8940	--	--	--	--	13	225	1010	1660	2590	13	300	2920
2.74	3.04	290	290	200	200	27	8100	27	8100	8	2400	16	225	8150	16	225	8940	10	225	1010	1960	16	225	1010	1970	2870	13	300	3530
2.74	3.65	295	295	200	200	27	8100	27	8100	10	3000	16	225	8150	16	225	8940	13	225	1010	1930	16	225	1010	2280	3170	13	150	4170
3.04	1.21	300	300	200	200	30	9000	30	9000	2	600	16	200	8940	16	200	9860	13	200	1070	2060	13	200	1070	1070	2060	13	200	1730
3.04	1.82	305	305	200	200	30	9000	30	9000	4	1200	16	200	8940	16	200	9860	10	200	1070	2080	13	200	1070	1380	2360	13	300	2360
3.04	2.43	315	315	200	200	30	9000	30	9000	6	1800	16	200	8940	16	200	9860	10	200	1070	2080	13	200	1070	1690	2670	13	300	2970
3.04	3.04	315	315	200	200	30	9000	30	9000	8	2400	16	200	8940	16	200	9860	13	200	1070	2060	13	200	1070	1990	2970	13	300	3580
3.04	3.65	320	320	200	200	30	9000	30	9000	10	3000	16	200	8940	16	200	9860	13	200	1070	2060	16	200	1070	2310	3280	13	150	4190
3.65	1.82	355	355	200	200	36	10800	36	10800	4	1200	19	225	10520	16	225	11680	13	225	1190	2290	13	225	1190	1430	2540	13	300	2440
3.65	2.43	365	365	200	200	36	10800	36	10800	6	1800	19	225	10520	16	225	11680	13	225	1190	2290	13	225	1190	1740	2840	13	300	3070
3.65	3.04	365	365	200	200	36	10800	36	10800	8	2400	19	225	10520	16	225	11680	10	225	1190	2310	16	225	1190	2040	3120	13	300	3680
3.65	3.65	370	370	200	200	36	10800	36	10800	10	3000	19	225	10520	19	225	11680	13	225	1190	2290	16	225	1190	2360	3450	13	165	4290

Sheet 1 of 3

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

## TRIPLE BOX CULVERTS

### 3.0 TO 4.5 m FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.13

REINFORCING STEEL																		
SPAN (m)	HIGHT (m)	BV2			BT 1												NO. BL 1 BARS	NO. BL 2 BARS
		SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH				
0.91	0.91	13	300	1220	13	300	830	110	470	145	95	3450	450	3610	44	16		
0.91	1.21	13	300	1520	13	300	830	110	470	145	95	3450	450	3610	44	24		
1.21	0.91	13	300	1220	10	300	1080	110	590	145	95	4370	630	4520	56	16		
1.21	1.21	13	300	1520	10	300	1080	110	590	145	95	4370	630	4520	56	24		
1.21	1.52	13	300	1830	10	300	1080	110	590	145	95	4370	630	4520	56	32		
1.21	1.82	13	300	2130	13	300	1080	110	600	145	95	4370	630	4520	56	40		
1.52	0.91	13	300	1220	13	300	1320	110	720	145	95	5280	820	5440	68	16		
1.52	1.21	13	300	1520	13	300	1320	110	720	145	95	5280	820	5440	68	24		
1.52	1.52	13	300	1830	13	300	1320	110	720	145	95	5280	820	5440	68	32		
1.52	1.82	13	300	2130	13	300	1320	110	720	145	95	5280	820	5440	68	40		
1.52	2.13	13	300	2440	13	300	1320	110	720	145	95	5280	820	5440	68	48		
1.82	1.21	13	300	1520	13	300	1570	110	840	145	95	6200	1000	6350	80	24		
1.82	1.52	13	300	1830	13	300	1570	110	840	145	95	6200	1000	6350	80	32		
1.82	1.82	13	300	2130	13	300	1570	110	840	145	95	6200	1000	6350	80	40		
1.82	2.13	13	300	2440	13	300	1570	110	840	145	95	6200	1000	6350	80	48		
1.82	2.43	13	300	2740	13	300	1570	120	830	155	100	6200	1000	6380	80	56		
2.13	1.21	13	300	1570	13	275	1800	135	940	180	120	7120	1160	7320	92	24		
2.13	1.82	13	300	2180	13	250	1800	135	940	180	120	7120	1160	7320	92	40		
2.13	2.43	13	300	2790	13	250	1800	145	930	190	125	7120	1150	7320	92	56		
2.13	3.04	13	300	3430	13	250	1790	150	920	200	130	7120	1150	7340	92	72		
2.43	1.21	13	300	1630	13	225	2030	165	1030	215	145	8020	1320	8250	104	24		
2.43	1.82	13	300	2260	13	225	2030	170	1030	225	150	8020	1310	8280	104	40		
2.43	2.43	13	300	2870	13	225	2030	170	1030	225	150	8020	1310	8280	104	56		
2.43	3.04	13	300	3480	13	225	2020	175	1020	235	155	8020	1300	8280	104	72		
2.74	1.21	13	300	1680	13	225	2260	190	1130	255	170	8940	1470	9220	116	24		
2.74	1.82	13	300	2290	13	225	2260	195	1120	265	175	8940	1470	9250	116	40		
2.74	2.43	13	300	2920	13	225	2250	200	1120	270	180	8940	1460	9250	116	56		
2.74	3.04	13	300	3530	13	225	2250	200	1120	270	180	8940	1460	9250	116	72		
2.74	3.65	13	300	4170	13	225	2250	205	1110	280	190	8940	1450	9250	116	88		
3.04	1.21	13	300	1730	13	200	2490	215	1230	290	195	9860	1630	10190	128	24		
3.04	1.82	13	300	2360	13	200	2490	220	1220	300	200	9860	1630	10190	128	40		
3.04	2.43	13	300	2970	13	200	2490	225	1210	310	205	9860	1620	10210	128	56		
3.04	3.04	13	300	3580	13	200	2490	225	1210	310	205	9860	1620	10210	128	72		
3.04	3.65	13	300	4190	13	200	2480	230	1210	315	215	9860	1610	10210	128	88		
3.65	1.82	13	300	2440	16	225	2950	275	1410	370	250	11690	1940	12090	152	40		
3.65	2.43	13	300	3070	16	225	2950	280	1410	380	260	11690	1930	12120	152	56		
3.65	3.04	13	300	3680	16	225	2950	280	1410	380	260	11690	1930	12120	152	72		
3.65	3.65	13	300	4290	16	225	2950	285	1400	390	265	11690	1930	12120	152	88		

BT04.5

SPAN (m)	HCHT (m)	REINFORCING STEEL (kg/LONG. JT)	QUAN./m						HEADWALLS						WINGWALL
			CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	HEADWALL LENGTH	G		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CL. A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)		
						SIZE	LENGTH								
0.91	0.91	19.23	2.422	172.51	4010	19	3910	2	8	1.470	46.66	1.456	34.96	A	
0.91	1.21	20.51	2.660	186.93	4010	19	3910	2	10	1.574	49.79	1.551	34.96	C	
1.21	0.91	23.77	2.780	189.38	4930	19	4830	2	8	1.691	54.89	1.684	43.18	A	
1.21	1.21	25.05	3.018	203.80	4930	19	4830	2	10	1.795	58.01	1.779	43.18	C	
1.21	1.52	26.33	3.264	218.62	4930	19	4830	2	12	1.901	61.15	1.876	43.18	E	
1.21	1.82	27.61	3.500	246.12	4930	19	4830	2	14	2.006	64.27	1.971	43.18	G	
1.52	0.91	28.31	3.146	232.81	5840	19	5740	2	8	1.919	63.02	1.920	51.32	A	
1.52	1.21	29.60	3.384	247.23	5840	19	5740	2	10	2.024	66.15	2.015	51.32	C	
1.52	1.52	30.88	3.630	261.91	5840	19	5740	2	12	2.130	69.29	2.112	51.32	E	
1.52	1.82	32.16	3.869	276.47	5840	19	5740	2	14	2.234	72.41	2.208	51.32	G	
1.52	2.13	33.44	4.115	291.15	5840	19	5740	2	16	2.340	75.55	2.304	51.32	I	
1.82	1.21	34.14	3.738	297.99	6760	19	6650	2	10	2.245	74.28	2.244	59.45	C	
1.82	1.52	35.42	3.984	312.67	6760	19	6650	2	12	2.351	77.42	2.341	59.45	E	
1.82	1.82	36.70	4.222	327.23	6760	19	6650	2	14	2.455	80.54	2.436	59.45	G	
1.82	2.13	37.98	4.468	341.91	6760	19	6650	2	16	2.561	83.68	2.533	59.45	I	
1.82	2.43	39.26	4.794	356.53	6760	19	6650	2	18	2.657	86.81	2.620	59.45	K	
2.13	1.21	38.68	4.464	339.73	7670	19	7570	2	10	2.436	82.51	2.443	67.68	C	
2.13	1.82	41.25	4.946	390.12	7670	19	7570	2	14	2.647	88.77	2.635	67.68	G	
2.13	2.43	43.81	5.502	417.16	7670	19	7570	2	18	2.877	95.03	2.847	67.68	L	
2.13	3.04	46.37	6.126	477.39	7670	19	7570	2	22	3.072	101.29	3.024	67.68	P	
2.43	1.21	43.23	5.263	423.63	8590	19	8480	2	10	2.634	90.64	2.648	75.81	D	
2.43	1.82	45.79	5.909	451.65	8590	19	8480	2	14	2.827	96.90	2.822	75.81	H	
2.43	2.43	48.35	6.393	482.26	8590	19	8480	2	18	3.037	103.17	3.014	75.81	L	
2.43	3.04	50.91	6.952	562.77	8590	19	8480	2	22	3.239	109.43	3.197	75.81	P	
2.74	1.21	47.77	6.163	548.99	9500	19	9400	2	10	2.797	98.87	2.819	84.04	D	
2.74	1.82	50.33	6.738	575.88	9500	19	9400	2	14	2.998	105.13	3.000	84.04	H	
2.74	2.43	52.90	7.405	587.33	9500	19	9400	2	18	3.188	111.39	3.172	84.04	L	
2.74	3.04	55.46	7.883	665.39	9500	19	9400	2	22	3.398	117.65	3.364	84.04	P	
2.74	3.65	58.02	8.451	741.81	9500	19	9400	2	26	3.598	123.92	3.546	84.04	T	
3.04	1.21	52.32	7.139	667.23	10410	19	10310	2	10	2.940	107.00	2.969	92.17	D	
3.04	1.82	54.88	7.725	675.47	10410	19	10310	2	14	3.139	113.26	3.149	92.17	H	
3.04	2.43	57.44	8.407	706.96	10410	19	10310	2	18	3.327	119.53	3.318	92.17	L	
3.04	3.04	60.00	8.889	755.71	10410	19	10310	2	22	3.537	125.79	3.510	92.17	P	
3.04	3.65	62.56	9.464	851.37	10410	19	10310	2	26	3.736	132.05	3.691	92.17	T	
3.65	1.82	63.97	9.993	860.43	12240	19	12140	2	14	3.388	129.62	3.413	108.53	H	
3.65	2.43	66.53	10.712	891.81	12240	19	12140	2	18	3.570	135.89	3.576	108.53	L	
3.65	3.04	69.09	11.194	935.37	12240	19	12140	2	22	3.780	142.15	3.769	108.53	P	
3.65	3.65	71.65	11.781	1081.24	12240	19	12140	2	26	3.977	148.41	3.946	108.53	T	

Sheet 3 of 3

TRIPLE BOX CULVERTS  
3.0 TO 4.5 m FILLS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.15

BT06.0

DIMENSIONS						REINFORCING STEEL																							
SPAN	HGHT	T1	T2	T3	T4							BH1			BH2			BH3			BH4			BV1					
(m)	(m)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (mm)	INTERIOR WALL (mm)	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
0.91	0.91	200	200	200	200	9	2700	9	2700	1	300	13	300	3400	13	300	3450	--	--	--	--	13	300	640	810	1370	13	300	1220
0.91	1.21	200	200	200	200	9	2700	9	2700	2	600	13	300	3400	13	300	3450	--	--	--	--	13	300	640	970	1520	13	300	1520
1.21	0.91	200	200	200	200	12	3600	12	3600	1	300	13	300	4190	13	300	4370	--	--	--	--	13	300	700	810	1420	13	300	1220
1.21	1.21	200	200	200	200	12	3600	12	3600	2	600	13	300	4190	13	300	4370	--	--	--	--	13	300	700	970	1570	13	300	1520
1.21	1.52	200	200	200	200	12	3600	12	3600	3	900	13	300	4190	13	300	4370	--	--	--	--	13	300	700	1120	1730	13	300	1830
1.21	1.82	200	200	200	200	12	3600	12	3600	4	1200	13	300	4190	13	300	4370	--	--	--	--	13	300	700	1270	1880	13	300	2130
1.52	0.91	200	200	200	200	15	4500	15	4500	1	300	13	300	4980	13	300	5280	13	300	760	1450	13	300	760	810	1500	13	300	1220
1.52	1.21	200	200	200	200	15	4500	15	4500	2	600	13	300	4980	13	300	5280	13	300	760	1450	13	300	760	970	1650	13	300	1520
1.52	1.52	200	200	200	200	15	4500	15	4500	3	900	13	300	4980	13	300	5280	10	300	760	1470	13	300	760	1120	1800	13	300	1830
1.52	1.82	200	200	200	200	15	4500	15	4500	4	1200	13	300	4980	13	300	5280	10	300	760	1470	13	300	760	1270	1960	13	300	2130
1.52	2.13	200	200	200	200	15	4500	15	4500	5	1500	13	300	4980	13	300	5280	13	300	760	1450	13	300	760	1420	2110	13	300	2440
1.82	1.21	225	225	200	200	18	5400	18	5400	2	600	13	300	5770	13	300	6200	13	300	820	1570	13	300	820	990	1730	13	300	1570
1.82	1.52	225	225	200	200	18	5400	18	5400	3	900	13	275	5770	13	275	6200	13	275	820	1570	13	275	820	1140	1880	13	300	1880
1.82	1.82	230	230	200	200	18	5400	18	5400	4	1200	13	275	5770	13	275	6200	13	275	820	1570	13	275	820	1300	2030	13	300	2180
1.82	2.13	230	230	200	200	18	5400	18	5400	5	1500	13	275	5770	13	275	6200	13	275	820	1570	13	275	820	1450	2180	13	300	2490
1.82	2.43	230	230	200	200	18	5400	18	5400	6	1800	13	275	5770	13	275	6200	13	275	820	1570	13	275	820	1610	2340	13	300	2790
2.13	1.21	265	265	200	200	21	6300	21	6300	2	600	13	250	6550	13	250	7110	10	250	880	1700	13	250	880	1030	1830	13	300	1650
2.13	1.82	270	270	200	200	21	6300	21	6300	4	1200	13	250	6550	13	250	7110	10	250	880	1700	13	250	880	1340	2130	13	300	2260
2.13	2.43	275	275	200	200	21	6300	21	6300	6	1800	13	225	6550	13	225	7110	10	225	880	1700	13	225	880	1650	2460	13	300	2900
2.13	3.04	275	275	200	200	21	6300	21	6300	8	2400	13	225	6550	13	225	7110	--	--	--	--	16	225	880	1960	2740	13	175	3510
2.43	1.21	295	295	200	200	24	7200	24	7200	2	600	13	225	7370	16	225	8030	10	225	950	1830	13	225	950	1060	1930	13	275	1730
2.43	1.82	300	300	200	200	24	7200	24	7200	4	1200	13	225	7370	16	225	8030	10	225	950	1830	13	225	950	1370	2240	13	300	2340
2.43	2.43	305	305	200	200	24	7200	24	7200	6	1800	13	225	7370	16	225	8030	10	225	950	1830	13	225	950	1680	2540	13	300	2970
2.43	3.04	315	315	200	200	24	7200	24	7200	8	2400	13	225	7370	16	225	8030	10	225	950	1830	16	225	950	1990	2840	13	175	3580
2.74	1.21	325	325	200	200	27	8100	27	8100	2	600	16	225	8150	16	225	8940	10	225	1010	1960	13	225	1010	1090	2010	13	250	1780
2.74	1.82	325	325	200	200	27	8100	27	8100	4	1200	16	225	8150	16	225	8940	10	225	1010	1960	13	225	1010	1400	2310	13	300	2390
2.74	2.43	330	330	200	200	27	8100	27	8100	6	1800	16	225	8150	16	225	8940	10	225	1010	1960	13	225	1010	1710	2640	13	300	3000
2.74	3.04	330	330	200	200	27	8100	27	8100	8	2400	16	225	8150	16	225	8940	10	225	1010	1960	16	225	1010	2010	2920	13	215	3610
2.74	3.65	340	340	200	200	27	8100	27	8100	10	3000	16	200	8150	16	200	8940	13	200	1010	1930	16	200	1010	2320	3230	16	190	4240
3.04	1.21	355	355	200	200	30	9000	30	9000	2	600	16	225	8940	16	225	9860	--	--	--	--	16	225	1070	1120	2080	13	250	1830
3.04	1.82	365	365	200	200	30	9000	30	9000	4	1200	16	225	8940	16	225	9860	10	225	1070	2080	13	225	1070	1440	2410	13	300	2460
3.04	2.43	365	365	200	200	30	9000	30	9000	6	1800	16	225	8940	16	225	9860	--	--	--	--	16	225	1070	1740	2720	13	300	3070
3.04	3.04	365	365	200	200	30	9000	30	9000	8	2400	16	225	8940	16	225	9860	10	225	1070	2080	16	225	1070	2040	3020	13	225	3680
3.04	3.65	370	370	200	200	30	9000	30	9000	10	3000	16	225	8940	16	225	9860	10	225	1070	2080	19	225	1070	2360	3300	16	190	4290
3.65	1.82	425	425	200	200	36	10800	36	10800	4	1200	19	225	10520	19	225	11680	10	225	1190	2310	13	225	1190	1500	2620	13	300	2590
3.65	2.43	425	425	200	200	36	10800	36	10800	6	1800	19	225	10520	19	225	11680	10	225	1190	2310	13	225	1190	1800	2920	13	300	3200
3.65	3.04	430	430	200	200	36	10800	36	10800	8	2400	19	225	10520	19	225	11680	10	225	1190	2310	16	225	1190	2110	3200	13	225	3810
3.65	3.65	430	430	200	200	36	10800	36	10800	10	3000	19	225	10520	19	225	11680	10	225	1190	2310	19	225	1190	2420	3480	13	125	4420

Sheet 1 of 3

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

TRIPLE BOX CULVERTS  
4.5 TO 6.0 m FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.16



REINFORCING STEEL																		
SPAN (m)	HIGHT (m)	BV2			BT 1												NO. BL 1 BARS	NO. BL 2 BARS
		SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH				
0.91	0.91	13	300	1220	13	300	830	110	470	145	95	3450	450	3610	44	16		
0.91	1.21	13	300	1520	13	300	830	110	470	145	95	3450	450	3610	44	24		
1.21	0.91	13	300	1220	13	300	1080	110	600	145	95	4370	630	4520	56	16		
1.21	1.21	13	300	1520	13	300	1080	110	600	145	95	4370	630	4520	56	24		
1.21	1.52	13	300	1830	13	300	1080	110	600	145	95	4370	630	4520	56	32		
1.21	1.82	13	300	2130	13	300	1080	110	600	145	95	4370	630	4520	56	40		
1.52	0.91	13	300	1220	13	300	1320	110	720	145	95	5280	820	5440	68	16		
1.52	1.21	13	300	1520	13	300	1320	110	720	145	95	5280	820	5440	68	24		
1.52	1.52	13	300	1830	13	300	1320	110	720	145	95	5280	820	5440	68	32		
1.52	1.82	13	300	2130	13	300	1320	110	720	145	95	5280	820	5440	68	40		
1.52	2.13	13	300	2440	13	300	1320	110	720	145	95	5280	820	5440	68	48		
1.82	1.21	13	300	1570	13	300	1560	135	810	180	120	6200	980	6400	80	24		
1.82	1.52	13	300	1880	13	275	1560	135	810	180	120	6200	980	6400	80	32		
1.82	1.82	13	300	2180	13	275	1550	145	810	190	125	6200	970	6400	80	40		
1.82	2.13	13	300	2490	13	275	1550	145	810	190	125	6200	970	6400	80	48		
1.82	2.43	13	300	2790	13	275	1550	145	810	190	125	6200	970	6400	80	56		
2.13	1.21	13	300	1650	13	250	1780	175	900	235	155	7120	1120	7370	92	24		
2.13	1.82	13	300	2260	13	250	1780	180	890	245	165	7120	1110	7390	92	40		
2.13	2.43	13	300	2900	13	225	1770	190	890	255	170	7120	1110	7390	92	56		
2.13	3.04	13	300	3510	13	225	1770	190	890	255	170	7120	1110	7390	92	72		
2.43	1.21	13	300	1730	13	225	2010	205	990	280	190	8020	1270	8330	104	24		
2.43	1.82	13	300	2340	13	225	2000	215	980	290	195	8020	1270	8360	104	40		
2.43	2.43	13	300	2970	13	225	2000	220	970	300	200	8020	1260	8360	104	56		
2.43	3.04	13	300	3580	13	225	2000	225	970	310	205	8020	1250	8380	104	72		
2.74	1.21	13	300	1780	13	225	2240	240	1080	325	220	8940	1420	9300	116	24		
2.74	1.82	13	300	2390	13	225	2240	240	1080	325	220	8940	1420	9300	116	40		
2.74	2.43	13	300	3000	13	225	2230	245	1070	335	225	8940	1420	9320	116	56		
2.74	3.04	13	300	3610	13	225	2230	245	1070	335	225	8940	1420	9320	116	72		
2.74	3.65	13	300	4240	13	200	2230	250	1070	345	230	8940	1410	9320	116	88		
3.04	1.21	13	300	1830	16	225	2460	275	1170	370	250	9860	1570	10260	128	24		
3.04	1.82	13	300	2460	16	225	2460	280	1160	380	260	9860	1570	10290	128	40		
3.04	2.43	13	300	3070	16	225	2460	280	1160	380	260	9860	1570	10290	128	56		
3.04	3.04	13	300	3680	16	225	2460	280	1160	380	260	9860	1570	10290	128	72		
3.04	3.65	13	300	4290	16	225	2460	285	1160	390	265	9860	1560	10290	128	88		
3.65	1.82	13	300	2590	19	225	2920	345	1340	475	320	11690	1870	12220	152	40		
3.65	2.43	13	300	3200	19	225	2920	345	1340	475	320	11690	1870	12220	152	56		
3.65	3.04	13	300	3810	19	225	2910	355	1340	485	330	11690	1860	12220	152	72		
3.65	3.65	13	300	4420	19	225	2910	355	1340	485	330	11690	1860	12220	152	88		

BT06.0

SPAN (m)	HCHT (m)	REINFORCING STEEL (kg/LONG. JT)	QUAN./m			HEADWALLS										WINGWALL
			CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	C HEADWALL LENGTH	HW 1		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CL. A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)			
						SIZE	LENGTH									
0.91	0.91	19.23	2.422	172.51	4010	19	3910	2	8	1.470	46.66	1.456	34.96	A		
0.91	1.21	20.51	2.660	186.93	4010	19	3910	2	10	1.574	49.79	1.551	34.96	C		
1.21	0.91	23.77	2.778	202.46	4930	19	4830	2	8	1.691	54.89	1.684	43.18	A		
1.21	1.21	25.05	3.016	216.88	4930	19	4830	2	10	1.795	58.01	1.779	43.18	C		
1.21	1.52	26.33	3.262	231.70	4930	19	4830	2	12	1.901	61.15	1.876	43.18	E		
1.21	1.82	27.61	3.500	246.12	4930	19	4830	2	14	2.006	64.27	1.971	43.18	G		
1.52	0.91	28.31	3.144	252.03	5840	19	5740	2	8	1.919	63.02	1.920	51.32	A		
1.52	1.21	29.60	3.382	266.45	5840	19	5740	2	10	2.024	66.15	2.015	51.32	C		
1.52	1.52	30.88	3.629	272.89	5840	19	5740	2	12	2.130	69.29	2.112	51.32	E		
1.52	1.82	32.16	3.867	287.44	5840	19	5740	2	14	2.234	72.41	2.208	51.32	G		
1.52	2.13	33.44	4.112	310.37	5840	19	5740	2	16	2.340	75.55	2.304	51.32	I		
1.82	1.21	34.14	4.051	300.04	6760	19	6650	2	10	2.215	74.28	2.213	59.45	C		
1.82	1.52	35.42	4.295	329.95	6760	19	6650	2	12	2.321	77.42	2.310	59.45	E		
1.82	1.82	36.70	4.595	344.55	6760	19	6650	2	14	2.446	80.54	2.427	59.45	H		
1.82	2.13	37.98	4.842	359.42	6760	19	6650	2	16	2.552	83.68	2.524	59.45	J		
1.82	2.43	39.26	5.080	374.16	6760	19	6650	2	18	2.657	86.81	2.619	59.45	L		
2.13	1.21	38.68	5.037	360.19	7670	19	7570	2	10	2.404	82.51	2.410	67.68	D		
2.13	1.82	41.25	5.593	390.25	7670	19	7570	2	14	2.607	88.77	2.595	67.68	H		
2.13	2.43	43.81	6.145	446.06	7670	19	7570	2	18	2.810	95.03	2.779	67.68	L		
2.13	3.04	46.37	6.626	503.01	7670	19	7570	2	22	3.020	101.29	2.971	67.68	P		
2.43	1.21	43.23	5.986	465.54	8590	19	8480	2	10	2.554	90.64	2.568	75.81	D		
2.43	1.82	45.79	6.551	495.37	8590	19	8480	2	14	2.756	96.90	2.751	75.81	H		
2.43	2.43	48.35	7.116	526.33	8590	19	8480	2	18	2.958	103.17	2.935	75.81	L		
2.43	3.04	50.91	7.756	602.05	8590	19	8480	2	22	3.150	109.43	3.109	75.81	P		
2.74	1.21	47.77	7.065	551.25	9500	19	9400	2	10	2.695	98.87	2.716	84.04	D		
2.74	1.82	50.33	7.549	579.32	9500	19	9400	2	14	2.906	105.13	2.908	84.04	H		
2.74	2.43	52.90	8.123	610.46	9500	19	9400	2	18	3.106	111.39	3.090	84.04	L		
2.74	3.04	55.46	8.602	678.96	9500	19	9400	2	22	3.316	117.65	3.282	84.04	P		
2.74	3.65	58.02	9.254	814.65	9500	19	9400	2	26	3.506	123.92	3.454	84.04	T		
3.04	1.21	52.32	8.232	649.89	10410	19	10310	2	10	2.813	107.00	2.841	92.17	D		
3.04	1.82	54.88	8.915	679.45	10410	19	10310	2	14	3.000	113.26	3.010	92.17	H		
3.04	2.43	57.44	9.398	716.33	10410	19	10310	2	18	3.211	119.53	3.202	92.17	L		
3.04	3.04	60.00	9.878	778.57	10410	19	10310	2	22	3.421	125.79	3.395	92.17	P		
3.04	3.65	62.56	10.452	885.02	10410	19	10310	2	26	3.620	132.05	3.575	92.17	T		
3.65	1.82	63.97	11.620	995.25	12240	19	12140	2	14	3.215	129.62	3.240	108.53	I		
3.65	2.43	66.53	12.105	1025.68	12240	19	12140	2	18	3.426	135.89	3.432	108.53	M		
3.65	3.04	69.09	12.701	1095.91	12240	19	12140	2	22	3.622	142.15	3.610	108.53	Q		
3.65	3.65	71.65	13.175	1203.61	12240	19	12140	2	26	3.832	148.41	3.802	108.53	U		

Sheet 3 of 3

TRIPLE BOX CULVERTS  
4.5 TO 6.0 m FILLS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.18

BT07.5

DIMENSIONS						REINFORCING STEEL																							
SPAN	HGHT	T1	T2	T3	T4							BH1			BH2			BH3			BH4			BV1					
(m)	(m)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (mm)	INTERIOR WALL (mm)	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
0.91	0.91	200	200	200	200	9	2700	9	2700	1	300	13	300	3400	13	300	3450	--	--	--	--	13	300	640	810	1370	13	300	1220
0.91	1.21	200	200	200	200	9	2700	9	2700	2	600	13	300	3400	13	300	3450	--	--	--	--	13	300	640	970	1520	13	300	1520
1.21	0.91	200	200	200	200	12	3600	12	3600	1	300	13	300	4190	13	300	4370	--	--	--	--	13	300	700	810	1420	13	300	1220
1.21	1.21	200	200	200	200	12	3600	12	3600	2	600	13	300	4190	13	300	4370	--	--	--	--	13	300	700	970	1570	13	300	1520
1.21	1.52	200	200	200	200	12	3600	12	3600	3	900	13	300	4190	13	300	4370	--	--	--	--	13	300	700	1120	1730	13	300	1830
1.21	1.82	200	200	200	200	12	3600	12	3600	4	1200	13	300	4190	13	300	4370	--	--	--	--	13	300	700	1270	1880	13	300	2130
1.52	0.91	220	220	200	200	15	4500	15	4500	1	300	13	300	4980	13	300	5280	13	300	760	1450	13	300	760	830	1520	13	300	1270
1.52	1.21	225	225	200	200	15	4500	15	4500	2	600	13	300	4980	13	300	5280	13	300	760	1450	13	300	760	990	1680	13	300	1570
1.52	1.52	225	225	200	200	15	4500	15	4500	3	900	13	300	4980	13	300	5280	10	300	760	1470	13	300	760	1140	1830	13	300	1880
1.52	1.82	225	225	200	200	15	4500	15	4500	4	1200	13	300	4980	13	300	5280	13	300	760	1450	13	300	760	1300	1980	13	300	2180
1.52	2.13	230	230	200	200	15	4500	15	4500	5	1500	13	300	4980	13	300	5280	13	300	760	1450	13	300	760	1450	2130	13	300	2490
1.82	1.21	265	265	200	200	18	5400	18	5400	2	600	13	275	5770	13	275	6200	13	275	820	1570	13	275	820	1030	1780	13	300	1650
1.82	1.52	265	265	200	200	18	5400	18	5400	3	900	13	275	5770	13	275	6200	13	275	820	1570	13	275	820	1180	1930	13	300	1960
1.82	1.82	270	270	200	200	18	5400	18	5400	4	1200	13	275	5770	13	275	6200	13	275	820	1570	13	275	820	1340	2080	13	300	2260
1.82	2.13	270	270	200	200	18	5400	18	5400	5	1500	13	275	5770	13	275	6200	13	275	820	1570	13	275	820	1490	2240	13	300	2570
1.82	2.43	270	270	200	200	18	5400	18	5400	6	1800	13	250	5770	13	250	6200	--	--	--	--	16	250	820	1640	2360	13	290	2870
2.13	1.21	300	300	200	200	21	6300	21	6300	2	600	13	225	6550	13	225	7110	--	--	--	--	13	225	880	1070	1880	13	300	1730
2.13	1.82	305	305	200	200	21	6300	21	6300	4	1200	13	225	6550	13	225	7110	--	--	--	--	13	225	880	1380	2180	13	300	2360
2.13	2.43	315	315	200	200	21	6300	21	6300	6	1800	13	225	6550	13	225	7110	10	225	880	1700	13	225	880	1690	2490	13	300	2970
2.13	3.04	315	315	200	200	21	6300	21	6300	8	2400	13	275	6550	16	275	7110	10	275	880	1700	16	275	880	1990	2770	13	150	3580
2.43	1.21	330	330	200	200	24	7200	24	7200	2	600	16	225	7370	16	225	8030	10	225	950	1830	13	225	950	1100	1960	13	300	1780
2.43	1.82	330	330	200	200	24	7200	24	7200	4	1200	16	225	7370	16	225	8030	10	225	950	1830	13	225	950	1400	2260	13	300	2390
2.43	2.43	330	330	200	200	24	7200	24	7200	6	1800	16	225	7370	16	225	8030	10	225	950	1830	13	225	950	1710	2570	13	300	3000
2.43	3.04	340	340	200	200	24	7200	24	7200	8	2400	16	225	7370	16	225	8030	10	225	950	1830	16	225	950	2020	2870	13	150	3630
2.74	1.21	370	370	200	200	27	8100	27	8100	2	600	16	200	8150	16	200	8940	--	--	--	--	13	200	1010	1140	2060	13	300	1850
2.74	1.82	375	375	200	200	27	8100	27	8100	4	1200	16	200	8150	16	200	8940	--	--	--	--	13	200	1010	1450	2360	13	300	2490
2.74	2.43	375	375	200	200	27	8100	27	8100	6	1800	16	200	8150	16	200	8940	10	200	1010	1960	13	200	1010	1750	2670	13	300	3100
2.74	3.04	380	380	200	200	27	8100	27	8100	8	2400	16	200	8150	16	200	8940	13	200	1010	1930	13	200	1010	2060	3000	13	150	3730
2.74	3.65	380	380	200	200	27	8100	27	8100	10	3000	16	225	8150	16	225	8940	--	--	--	--	22	225	1010	2370	3230	16	150	4340
3.04	1.21	405	405	200	200	30	9000	30	9000	2	600	19	225	8940	16	225	9860	--	--	--	--	13	225	1070	1170	2160	13	300	1930
3.04	1.82	415	415	200	200	30	9000	30	9000	4	1200	19	225	8940	16	225	9860	10	225	1070	2080	13	225	1070	1490	2460	13	300	2570
3.04	2.43	415	415	200	200	30	9000	30	9000	6	1800	19	225	8940	16	225	9860	10	225	1070	2080	13	225	1070	1790	2770	13	300	3180
3.04	3.04	420	420	200	200	30	9000	30	9000	8	2400	19	225	8940	16	225	9860	10	225	1070	2080	16	225	1070	2100	3070	13	150	3810
3.04	3.65	420	420	200	200	30	9000	30	9000	10	3000	19	225	8940	16	225	9860	--	--	--	--	22	225	1070	2410	3330	16	150	4420
3.65	1.82	490	490	200	200	36	10800	36	10800	4	1200	19	225	10520	19	225	11680	10	225	1190	2310	13	225	1190	1560	2670	13	300	2720
3.65	2.43	490	490	200	200	36	10800	36	10800	6	1800	19	200	10520	19	200	11680	10	200	1190	2310	13	200	1190	1870	2970	13	300	3330
3.65	3.04	490	490	200	200	36	10800	36	10800	8	2400	19	200	10520	19	200	11680	--	--	--	--	16	200	1190	2170	3250	13	150	3940
3.65	3.65	495	495	200	200	36	10800	36	10800	10	3000	19	225	10520	19	225	11680	13	225	1190	2290	19	225	1190	2480	3560	16	150	4570

TRIPLE BOX CULVERTS  
6.0 TO 7.5 m FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

REINFORCING STEEL																		
SPAN (m)	HIGHT (m)	BV2			BT 1												NO. BL 1 BARS	NO. BL 2 BARS
		SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH				
0.91	0.91	13	300	1220	13	300	830	110	470	145	95	3450	450	3610	44	16		
0.91	1.21	13	300	1520	10	300	830	110	470	145	95	3450	450	3610	44	24		
1.21	0.91	13	300	1220	13	300	1080	110	600	145	95	4370	630	4520	56	16		
1.21	1.21	13	300	1520	13	300	1080	110	600	145	95	4370	630	4520	56	24		
1.21	1.52	13	300	1830	13	300	1080	110	600	145	95	4370	630	4520	56	32		
1.21	1.82	13	300	2130	13	300	1080	110	600	145	95	4370	630	4520	56	40		
1.52	0.91	13	300	1270	13	300	1310	130	700	170	110	5280	800	5460	68	16		
1.52	1.21	13	300	1570	13	300	1310	135	690	180	120	5280	790	5490	68	24		
1.52	1.52	13	300	1880	13	300	1310	135	690	180	120	5280	790	5490	68	32		
1.52	1.82	13	300	2180	13	300	1310	135	690	180	120	5280	790	5490	68	40		
1.52	2.13	13	300	2490	13	300	1310	145	690	190	125	5280	790	5490	68	48		
1.82	1.21	13	300	1650	13	275	1540	175	770	235	155	6200	940	6450	80	24		
1.82	1.52	13	300	1960	13	275	1540	175	770	235	155	6200	940	6450	80	32		
1.82	1.82	13	300	2260	13	275	1530	180	770	245	165	6200	930	6480	80	40		
1.82	2.13	13	300	2570	13	275	1530	180	770	245	165	6200	930	6480	80	48		
1.82	2.43	13	300	2870	13	250	1530	180	770	245	165	6200	930	6480	80	56		
2.13	1.21	13	300	1730	13	225	1760	215	860	290	195	7120	1080	7440	92	24		
2.13	1.82	13	300	2360	13	225	1760	220	850	300	200	7120	1080	7440	92	40		
2.13	2.43	13	300	2970	13	225	1760	225	850	310	205	7120	1070	7470	92	56		
2.13	3.04	13	300	3580	13	275	1760	225	850	310	205	7120	1070	7470	92	72		
2.43	1.21	13	300	1780	13	225	1990	245	950	335	225	8020	1240	8410	104	24		
2.43	1.82	13	300	2390	13	225	1990	245	950	335	225	8020	1240	8410	104	40		
2.43	2.43	13	300	3000	13	225	1990	245	950	335	225	8020	1240	8410	104	56		
2.43	3.04	13	300	3630	13	225	1980	250	940	345	230	8020	1230	8410	104	72		
2.74	1.21	13	300	1850	13	200	2210	285	1030	390	265	8940	1380	9370	116	24		
2.74	1.82	13	300	2490	13	200	2210	290	1030	400	270	8940	1370	9400	116	40		
2.74	2.43	13	300	3100	13	200	2210	290	1030	400	270	8940	1370	9400	116	56		
2.74	3.04	13	300	3730	13	200	2210	295	1020	405	275	8940	1370	9400	116	72		
2.74	3.65	13	300	4340	16	225	2210	300	1020	405	275	8940	1370	9400	116	88		
3.04	1.21	13	300	1930	16	225	2440	325	1120	445	300	9860	1520	10360	128	24		
3.04	1.82	13	300	2570	16	225	2440	330	1110	455	310	9860	1520	10360	128	40		
3.04	2.43	13	300	3180	16	225	2440	330	1110	455	310	9860	1520	10360	128	56		
3.04	3.04	13	300	3810	16	225	2430	335	1100	460	315	9860	1510	10360	128	72		
3.04	3.65	13	300	4420	16	225	2430	335	1100	460	315	9860	1510	10360	128	88		
3.65	1.82	13	275	2720	19	225	2890	410	1280	565	385	11690	1810	12320	152	40		
3.65	2.43	13	275	3330	16	200	2890	405	1280	565	385	11690	1810	12320	152	56		
3.65	3.04	13	275	3940	16	200	2890	405	1280	565	385	11690	1810	12320	152	72		
3.65	3.65	13	275	4570	19	225	2880	415	1270	570	390	11690	1800	12320	152	88		

BT07.5

SPAN (m)	HCHT (m)	REINFORCING STEEL (kg/LONG. JT)	QUAN./m			HEADWALLS										WINGWALL
			CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	G HEADWALL LENGTH	HW 1		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CL. A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)			
						SIZE	LENGTH									
0.91	0.91	19.23	2.422	172.51	4010	19	3910	2	8	1.470	46.66	1.456	34.96	A		
0.91	1.21	20.51	2.661	176.48	4010	19	3910	2	10	1.574	49.79	1.551	34.96	C		
1.21	0.91	23.77	2.778	202.46	4930	19	4830	2	8	1.691	54.89	1.684	43.18	A		
1.21	1.21	25.05	3.016	216.88	4930	19	4830	2	10	1.795	58.01	1.779	43.18	C		
1.21	1.52	26.33	3.262	231.70	4930	19	4830	2	12	1.901	61.15	1.876	43.18	E		
1.21	1.82	27.61	3.500	246.12	4930	19	4830	2	14	2.006	64.27	1.971	43.18	G		
1.52	0.91	28.31	3.358	253.75	5840	19	5740	2	8	1.900	63.02	1.901	51.32	A		
1.52	1.21	29.60	3.650	268.50	5840	19	5740	2	10	2.000	66.15	1.992	51.32	C		
1.52	1.52	30.88	3.897	274.94	5840	19	5740	2	12	2.106	69.29	2.088	51.32	E		
1.52	1.82	32.16	4.134	297.61	5840	19	5740	2	14	2.211	72.41	2.184	51.32	G		
1.52	2.13	33.44	4.434	312.29	5840	19	5740	2	16	2.339	75.55	2.303	51.32	J		
1.82	1.21	34.14	4.549	318.29	6760	19	6650	2	10	2.193	74.28	2.192	59.45	D		
1.82	1.52	35.42	4.795	333.16	6760	19	6650	2	12	2.299	77.42	2.289	59.45	F		
1.82	1.82	36.70	5.096	347.97	6760	19	6650	2	14	2.398	80.54	2.378	59.45	H		
1.82	2.13	37.98	5.342	362.98	6760	19	6650	2	16	2.504	83.68	2.475	59.45	J		
1.82	2.43	39.26	5.578	392.93	6760	19	6650	2	18	2.608	86.81	2.570	59.45	L		
2.13	1.21	38.68	5.539	370.40	7670	19	7570	2	10	2.351	82.51	2.358	67.68	D		
2.13	1.82	41.25	6.095	401.36	7670	19	7570	2	14	2.554	88.77	2.542	67.68	H		
2.13	2.43	43.81	6.720	449.15	7670	19	7570	2	18	2.750	95.03	2.719	67.68	L		
2.13	3.04	46.37	7.201	508.37	7670	19	7570	2	22	2.960	101.29	2.912	67.68	P		
2.43	1.21	43.23	6.547	503.61	8590	19	8480	2	10	2.493	90.64	2.506	75.81	D		
2.43	1.82	45.79	7.031	534.04	8590	19	8480	2	14	2.703	96.90	2.698	75.81	H		
2.43	2.43	48.35	7.515	564.65	8590	19	8480	2	18	2.913	103.17	2.890	75.81	L		
2.43	3.04	50.91	8.154	648.13	8590	19	8480	2	22	3.106	109.43	3.065	75.81	P		
2.74	1.21	47.77	7.873	577.11	9500	19	9400	2	10	2.603	98.87	2.624	84.04	D		
2.74	1.82	50.33	8.447	609.30	9500	19	9400	2	14	2.803	105.13	2.806	84.04	H		
2.74	2.43	52.90	8.928	662.54	9500	19	9400	2	18	3.014	111.39	2.998	84.04	L		
2.74	3.04	55.46	9.497	735.89	9500	19	9400	2	22	3.241	117.65	3.207	84.04	Q		
2.74	3.65	58.02	9.967	880.79	9500	19	9400	2	26	3.452	123.92	3.399	84.04	U		
3.04	1.21	52.32	9.219	686.55	10410	19	10310	2	10	2.725	107.00	2.753	92.17	E		
3.04	1.82	54.88	9.899	738.49	10410	19	10310	2	14	2.912	113.26	2.922	92.17	I		
3.04	2.43	57.44	10.383	769.09	10410	19	10310	2	18	3.122	119.53	3.114	92.17	M		
3.04	3.04	60.00	10.960	855.76	10410	19	10310	2	22	3.321	125.79	3.295	92.17	Q		
3.04	3.65	62.56	11.430	992.49	10410	19	10310	2	26	3.532	132.05	3.487	92.17	U		
3.65	1.82	63.97	13.147	1006.48	12240	19	12140	2	14	3.029	129.62	3.054	108.53	I		
3.65	2.43	66.53	13.629	1049.03	12240	19	12140	2	18	3.239	135.89	3.246	108.53	M		
3.65	3.04	69.09	14.108	1117.33	12240	19	12140	2	22	3.450	142.15	3.438	108.53	Q		
3.65	3.65	71.65	14.696	1261.76	12240	19	12140	2	26	3.646	148.41	3.616	108.53	U		

Sheet 3 of 3

TRIPLE BOX CULVERTS  
6.0 TO 7.5 m FILLS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.21

BT09.0

DIMENSIONS						REINFORCING STEEL																							
SPAN	HGHT	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4				BV1				
(m)	(m)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (mm)	INTERIOR WALL (mm)							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
0.91	0.91	200	200	200	200	9	2700	9	2700	1	300	13	300	3400	13	300	3450	--	--	--	13	300	640	810	1370	13	300	1220	
0.91	1.21	200	200	200	200	9	2700	9	2700	2	600	13	300	3400	13	300	3450	--	--	--	13	300	640	970	1520	13	300	1520	
1.21	0.91	215	215	200	200	12	3600	12	3600	1	300	13	300	4190	13	300	4370	--	--	--	13	300	700	830	1450	13	300	1240	
1.21	1.21	215	215	200	200	12	3600	12	3600	2	600	13	300	4190	13	300	4370	--	--	--	13	300	700	980	1600	13	300	1550	
1.21	1.52	215	215	200	200	12	3600	12	3600	3	900	13	300	4190	13	300	4370	--	--	--	13	300	700	1130	1750	13	300	1850	
1.21	1.82	215	215	200	200	12	3600	12	3600	4	1200	13	300	4190	13	300	4370	--	--	--	13	300	700	1280	1910	13	300	2160	
1.52	0.91	250	250	200	200	15	4500	15	4500	1	300	13	300	4980	13	300	5280	10	300	760	1470	13	300	760	860	1550	13	300	1320
1.52	1.21	250	250	200	200	15	4500	15	4500	2	600	13	300	4980	13	300	5280	10	300	760	1470	13	300	760	1020	1700	13	300	1630
1.52	1.52	260	260	200	200	15	4500	15	4500	3	900	13	300	4980	13	300	5280	10	300	760	1470	13	300	760	1170	1850	13	300	1960
1.52	1.82	250	250	200	200	15	4500	15	4500	4	1200	13	300	4980	13	300	5280	13	300	760	1450	13	300	760	1320	2010	13	300	2240
1.52	2.13	250	250	200	200	15	4500	15	4500	5	1500	13	300	4980	13	300	5280	13	300	760	1450	13	300	760	1470	2160	13	300	2540
1.82	1.21	300	300	200	200	18	5400	18	5400	2	600	13	250	5770	13	250	6200	--	--	--	13	250	820	1070	1800	13	300	1730	
1.82	1.52	305	305	200	200	18	5400	18	5400	3	900	13	250	5770	13	250	6200	--	--	--	13	250	820	1230	1960	13	300	2060	
1.82	1.82	305	305	200	200	18	5400	18	5400	4	1200	13	250	5770	13	250	6200	--	--	--	13	250	820	1380	2110	13	300	2360	
1.82	2.13	290	290	200	200	18	5400	18	5400	5	1500	13	250	5770	13	250	6200	10	250	820	1570	13	250	820	1510	2260	13	300	2620
1.82	2.43	295	295	200	200	18	5400	18	5400	6	1800	13	250	5770	13	250	6200	--	--	--	16	250	820	1670	2390	13	225	2950	
2.13	1.21	330	330	200	200	21	6300	21	6300	2	600	13	225	6550	16	225	7110	--	--	--	13	225	880	1100	1910	13	300	1780	
2.13	1.82	330	330	200	200	21	6300	21	6300	4	1200	13	225	6550	16	225	7110	--	--	--	13	225	880	1400	2210	13	300	2390	
2.13	2.43	330	330	200	200	21	6300	21	6300	6	1800	13	225	6550	16	225	7110	10	225	880	1700	13	225	880	1710	2510	13	225	3000
2.13	3.04	330	330	200	200	21	6300	21	6300	8	2400	13	225	6550	16	225	7110	10	225	880	1700	16	225	880	2010	2790	19	290	3610
2.43	1.21	375	375	200	200	24	7200	24	7200	2	600	16	225	7370	16	225	8030	--	--	--	13	225	950	1140	2010	13	300	1880	
2.43	1.82	375	375	200	200	24	7200	24	7200	4	1200	16	225	7370	16	225	8030	--	--	--	13	225	950	1450	2310	13	300	2490	
2.43	2.43	375	375	200	200	24	7200	24	7200	6	1800	16	225	7370	16	225	8030	10	225	950	1830	13	225	950	1750	2620	13	240	3100
2.43	3.04	375	375	200	200	24	7200	24	7200	8	2400	16	225	7370	16	225	8030	10	225	950	1830	16	225	950	2060	2900	19	290	3710
2.74	1.21	415	415	200	200	27	8100	27	8100	2	600	16	200	8150	16	200	8940	--	--	--	13	200	1010	1180	2110	13	300	1960	
2.74	1.82	415	415	200	200	27	8100	27	8100	4	1200	16	225	8150	16	225	8940	--	--	--	13	225	1010	1490	2410	13	300	2570	
2.74	2.43	415	415	200	200	27	8100	27	8100	6	1800	16	200	8150	16	200	8940	10	200	1010	1960	13	200	1010	1790	2720	13	240	3180
2.74	3.04	415	415	200	200	27	8100	27	8100	8	2400	16	200	8150	16	200	8940	10	200	1010	1960	16	200	1010	2100	3000	19	290	3780
2.74	3.65	420	420	207	200	27	8100	27	8100	10	3000	19	225	8150	19	225	8970	--	--	--	--	22	225	1010	2410	3280	19	190	4420
3.04	1.21	455	455	200	200	30	9000	30	9000	2	600	19	225	8940	19	225	9860	--	--	--	13	225	1070	1230	2210	13	300	2060	
3.04	1.82	455	455	200	200	30	9000	30	9000	4	1200	19	225	8940	19	225	9860	--	--	--	13	225	1070	1530	2510	13	300	2670	
3.04	2.43	455	455	200	200	30	9000	30	9000	6	1800	19	225	8940	19	225	9860	10	225	1070	2080	13	225	1070	1840	2820	13	240	3280
3.04	3.04	465	465	200	200	30	9000	30	9000	8	2400	19	225	8940	19	225	9860	10	225	1070	2080	16	225	1070	2150	3120	16	200	3890
3.04	3.65	465	465	215	200	30	9000	30	9000	10	3000	19	225	8940	19	225	9880	13	225	1080	2080	19	225	1080	2450	3400	16	140	4500
3.65	1.82	540	540	200	200	36	10800	36	10800	4	1200	19	200	10520	19	200	11680	--	--	--	--	13	200	1190	1610	2720	13	300	2820
3.65	2.43	540	540	200	200	36	10800	36	10800	6	1800	19	200	10520	19	200	11680	10	200	1190	2310	13	200	1190	1920	3020	13	225	3430
3.65	3.04	540	540	200	200	36	10800	36	10800	8	2400	19	200	10520	19	200	11680	10	200	1190	2310	16	200	1190	2220	3300	16	200	4040
3.65	3.65	545	545	215	200	36	10800	36	10800	10	3000	19	200	10520	19	200	11710	13	200	1200	2310	16	200	1200	2530	3630	16	140	4650

Sheet 1 of 3

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

# TRIPLE BOX CULVERTS

## 7.5 TO 9.0 m FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.22

REINFORCING STEEL																		
SPAN (m)	HIGHT (m)	BV2			BT 1												NO. BL 1 BARS	NO. BL 2 BARS
		SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH				
0.91	0.91	13	300	1220	13	300	830	110	470	145	95	3450	450	3610	44	16		
0.91	1.21	13	300	1520	13	300	830	110	470	145	95	3450	450	3610	44	24		
1.21	0.91	13	300	1240	13	300	1070	125	580	165	105	4370	620	4550	56	16		
1.21	1.21	13	300	1550	13	300	1070	125	580	165	105	4370	620	4550	56	24		
1.21	1.52	13	300	1850	13	300	1070	125	580	165	105	4370	620	4550	56	32		
1.21	1.82	13	300	2160	13	300	1070	125	580	165	105	4370	620	4550	56	40		
1.52	0.91	13	300	1320	13	300	1300	165	670	215	145	5280	770	5510	68	16		
1.52	1.21	13	300	1630	13	300	1300	165	670	215	145	5280	770	5510	68	24		
1.52	1.52	13	300	1960	13	300	1300	170	660	225	150	5280	760	5540	68	32		
1.52	1.82	13	300	2240	13	300	1300	165	670	215	145	5280	770	5510	68	40		
1.52	2.13	13	300	2540	13	300	1300	165	670	215	145	5280	770	5510	68	48		
1.82	1.21	13	300	1730	13	250	1520	215	740	290	195	6200	900	6530	80	24		
1.82	1.52	13	300	2060	13	250	1510	220	730	300	200	6200	900	6530	80	32		
1.82	1.82	13	300	2360	13	250	1510	220	730	300	200	6200	900	6530	80	40		
1.82	2.13	13	300	2620	13	250	1520	200	750	270	180	6200	910	6500	80	48		
1.82	2.43	13	300	2950	13	250	1520	205	740	280	190	6200	910	6500	80	56		
2.13	1.21	13	300	1780	13	225	1750	245	830	335	225	7120	1050	7490	92	24		
2.13	1.82	13	300	2390	13	225	1750	245	830	335	225	7120	1050	7490	92	40		
2.13	2.43	13	300	3000	13	225	1750	245	830	335	225	7120	1050	7490	92	56		
2.13	3.04	13	300	3610	13	225	1750	245	830	335	225	7120	1050	7490	92	72		
2.43	1.21	13	300	1880	13	225	1970	290	900	400	270	8020	1190	8480	104	24		
2.43	1.82	13	300	2490	13	225	1970	290	900	400	270	8020	1190	8480	104	40		
2.43	2.43	13	300	3100	13	225	1970	290	900	400	270	8020	1190	8480	104	56		
2.43	3.04	13	300	3710	13	225	1970	290	900	400	270	8020	1190	8480	104	72		
2.74	1.21	13	300	1960	13	200	2190	330	990	450	310	8940	1330	9450	116	24		
2.74	1.82	13	300	2570	16	225	2190	330	990	455	310	8940	1330	9450	116	40		
2.74	2.43	13	300	3180	13	200	2190	330	990	450	310	8940	1330	9450	116	56		
2.74	3.04	13	300	3780	13	200	2190	330	990	450	310	8940	1330	9450	116	72		
2.74	3.65	13	300	4420	13	225	2190	335	980	460	315	8950	1330	9470	116	88		
3.04	1.21	13	275	2060	16	225	2410	375	1070	515	355	9860	1470	10440	128	24		
3.04	1.82	13	275	2670	16	225	2410	375	1070	515	355	9860	1470	10440	128	40		
3.04	2.43	13	275	3280	16	225	2410	375	1070	515	355	9860	1470	10440	128	56		
3.04	3.04	13	275	3890	16	225	2410	380	1060	525	360	9860	1470	10440	128	72		
3.04	3.65	13	275	4500	16	225	2420	380	1060	525	360	9880	1470	10460	128	88		
3.65	1.82	13	250	2820	19	200	2860	460	1230	635	435	11690	1760	12400	152	40		
3.65	2.43	13	250	3430	19	200	2860	460	1230	635	435	11690	1760	12400	152	56		
3.65	3.04	13	250	4040	19	200	2860	460	1230	635	435	11690	1760	12400	152	72		
3.65	3.65	13	250	4650	19	200	2870	465	1220	645	440	11710	1750	12450	152	88		

BT09.0

SPAN (m)	HCHT (m)	REINFORCING STEEL (kg/LONG. JT)	QUAN./m						HEADWALLS						WINGWALL
			CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	G HEADWALL LENGTH	HW 1		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CL. A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)		
						SIZE	LENGTH								
0.91	0.91	19.23	2.422	172.51	4010	19	3910	2	8	1.470	46.66	1.456	34.96	A	
0.91	1.21	20.51	2.660	186.93	4010	19	3910	2	10	1.574	49.79	1.551	34.96	C	
1.21	0.91	23.77	2.911	203.59	4930	19	4830	2	8	1.681	54.89	1.674	43.18	A	
1.21	1.21	25.05	3.149	218.27	4930	19	4830	2	10	1.785	58.01	1.769	43.18	C	
1.21	1.52	26.33	3.395	232.69	4930	19	4830	2	12	1.891	61.15	1.866	43.18	E	
1.21	1.82	27.61	3.633	247.51	4930	19	4830	2	14	1.996	64.27	1.961	43.18	G	
1.52	0.91	28.31	3.680	247.56	5840	19	5740	2	8	1.899	63.02	1.900	51.32	B	
1.52	1.21	29.60	3.918	262.25	5840	19	5740	2	10	2.004	66.15	1.995	51.32	D	
1.52	1.52	30.88	4.272	277.66	5840	19	5740	2	12	2.100	69.29	2.083	51.32	F	
1.52	1.82	32.16	4.402	299.73	5840	19	5740	2	14	2.214	72.41	2.188	51.32	H	
1.52	2.13	33.44	4.648	314.15	5840	19	5740	2	16	2.320	75.55	2.284	51.32	J	
1.82	1.21	34.14	4.988	314.56	6760	19	6650	2	10	2.151	74.28	2.150	59.45	D	
1.82	1.52	35.42	5.296	330.33	6760	19	6650	2	12	2.251	77.42	2.240	59.45	F	
1.82	1.82	36.70	5.534	345.15	6760	19	6650	2	14	2.355	80.54	2.336	59.45	H	
1.82	2.13	37.98	5.591	372.73	6760	19	6650	2	16	2.479	83.68	2.451	59.45	J	
1.82	2.43	39.26	5.890	401.81	6760	19	6650	2	18	2.578	86.81	2.540	59.45	L	
2.13	1.21	38.68	5.965	407.96	7670	19	7570	2	10	2.306	82.51	2.313	67.68	D	
2.13	1.82	41.25	6.449	438.39	7670	19	7570	2	14	2.517	88.77	2.505	67.68	H	
2.13	2.43	43.81	6.930	492.37	7670	19	7570	2	18	2.727	95.03	2.697	67.68	L	
2.13	3.04	46.37	7.408	575.22	7670	19	7570	2	22	2.938	101.29	2.889	67.68	P	
2.43	1.21	43.23	7.277	489.54	8590	19	8480	2	10	2.413	90.64	2.427	75.81	D	
2.43	1.82	45.79	7.761	519.97	8590	19	8480	2	14	2.623	96.90	2.619	75.81	H	
2.43	2.43	48.35	8.242	573.94	8590	19	8480	2	18	2.834	103.17	2.811	75.81	L	
2.43	3.04	50.91	8.719	660.25	8590	19	8480	2	22	3.044	109.43	3.003	75.81	P	
2.74	1.21	47.77	8.684	581.81	9500	19	9400	2	10	2.538	98.87	2.560	84.04	E	
2.74	1.82	50.33	9.168	614.55	9500	19	9400	2	14	2.749	105.13	2.752	84.04	I	
2.74	2.43	52.90	9.649	671.42	9500	19	9400	2	18	2.959	111.39	2.944	84.04	M	
2.74	3.04	55.46	10.125	763.28	9500	19	9400	2	22	3.170	117.65	3.136	84.04	Q	
2.74	3.65	58.02	10.741	957.61	9500	19	9400	2	26	3.351	123.92	3.299	84.04	U	
3.04	1.21	52.32	10.203	755.57	10410	19	10310	2	10	2.609	107.00	2.637	92.17	E	
3.04	1.82	54.88	10.687	787.10	10410	19	10310	2	14	2.819	113.26	2.829	92.17	I	
3.04	2.43	57.44	11.167	844.95	10410	19	10310	2	18	3.030	119.53	3.021	92.17	M	
3.04	3.04	60.00	11.842	936.60	10410	19	10310	2	22	3.217	125.79	3.190	92.17	Q	
3.04	3.65	62.56	12.451	1063.92	10410	19	10310	2	26	3.387	132.05	3.341	92.17	U	
3.65	1.82	63.97	14.311	1086.83	12240	19	12140	2	14	2.913	129.62	2.938	108.53	J	
3.65	2.43	66.53	14.791	1153.80	12240	19	12140	2	18	3.124	135.89	3.130	108.53	N	
3.65	3.04	69.09	15.266	1252.10	12240	19	12140	2	22	3.334	142.15	3.322	108.53	R	
3.65	3.65	71.65	16.002	1348.09	12240	19	12140	2	26	3.488	148.41	3.457	108.53	V	

Sheet 3 of 3

TRIPLE BOX CULVERTS  
7.5 TO 9.0 m FILLS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.24



BT10.5

DIMENSIONS						REINFORCING STEEL																							
SPAN	HGHT	T1	T2	T3	T4							BH1			BH2			BH3				BH4				BV1			
(m)	(m)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (mm)	INTERIOR WALL (mm)	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
0.91	0.91	200	200	200	200	9	2700	9	2700	1	300	13	300	3400	13	300	3450	10	300	640	1220	13	300	640	810	1370	13	300	1220
0.91	1.21	200	200	200	200	9	2700	9	2700	2	600	13	300	3400	13	300	3450	--	--	--	--	13	300	640	970	1520	13	300	1520
1.21	0.91	230	230	200	200	12	3600	12	3600	1	300	13	300	4190	13	300	4370	--	--	--	--	13	300	700	840	1470	13	300	1270
1.21	1.21	230	230	200	200	12	3600	12	3600	2	600	13	300	4190	13	300	4370	--	--	--	--	13	300	700	1000	1630	13	300	1570
1.21	1.52	230	230	200	200	12	3600	12	3600	3	900	13	300	4190	13	300	4370	--	--	--	--	13	300	700	1150	1780	13	300	1880
1.21	1.82	230	230	200	200	12	3600	12	3600	4	1200	13	300	4190	13	300	4370	10	300	700	1350	13	300	700	1300	1930	13	300	2180
1.52	0.91	270	270	200	200	15	4500	15	4500	1	300	13	275	4980	13	275	5280	--	--	--	--	13	275	760	880	1570	13	300	1350
1.52	1.21	270	270	200	200	15	4500	15	4500	2	600	13	275	4980	13	275	5280	--	--	--	--	13	275	760	1040	1730	13	300	1650
1.52	1.52	275	275	200	200	15	4500	15	4500	3	900	13	275	4980	13	275	5280	--	--	--	--	13	275	760	1190	1880	13	300	1980
1.52	1.82	275	275	200	200	15	4500	15	4500	4	1200	13	275	4980	13	275	5280	10	275	760	1470	13	275	760	1350	2030	13	300	2290
1.52	2.13	275	275	200	200	15	4500	15	4500	5	1500	13	275	4980	13	275	5280	13	275	760	1450	13	275	760	1500	2180	13	265	2590
1.82	1.21	325	325	200	200	18	5400	18	5400	2	600	13	225	5770	13	225	6200	--	--	--	--	13	225	820	1090	1830	13	300	1780
1.82	1.52	325	325	200	200	18	5400	18	5400	3	900	13	225	5770	13	225	6200	--	--	--	--	13	225	820	1240	1980	13	300	2080
1.82	1.82	325	325	200	200	18	5400	18	5400	4	1200	13	225	5770	13	225	6200	--	--	--	--	13	225	820	1400	2130	13	300	2390
1.82	2.13	325	325	200	200	18	5400	18	5400	5	1500	13	225	5770	13	225	6200	10	225	820	1570	13	225	820	1550	2290	13	275	2690
1.82	2.43	325	325	200	200	18	5400	18	5400	6	1800	13	225	5770	13	225	6200	--	--	--	--	16	225	820	1700	2410	16	265	3000
2.13	1.21	365	365	200	200	21	6300	21	6300	2	600	13	225	6550	16	225	7110	--	--	--	--	13	225	880	1130	1930	13	300	1850
2.13	1.82	365	365	200	200	21	6300	21	6300	4	1200	13	225	6550	16	225	7110	--	--	--	--	13	225	880	1440	2240	13	300	2460
2.13	2.43	365	365	200	200	21	6300	21	6300	6	1800	13	225	6550	16	225	7110	10	225	880	1700	13	225	880	1740	2540	13	175	3070
2.13	3.04	365	365	200	200	21	6300	21	6300	8	2400	13	225	6550	16	225	7110	--	--	--	--	19	225	880	2040	2790	19	240	3680
2.43	1.21	405	405	200	200	24	7200	24	7200	2	600	16	225	7370	16	225	8030	--	--	--	--	13	225	950	1170	2030	13	300	1930
2.43	1.82	405	405	200	200	24	7200	24	7200	4	1200	16	200	7370	16	200	8030	--	--	--	--	13	200	950	1480	2340	13	300	2540
2.43	2.43	405	405	200	200	24	7200	24	7200	6	1800	16	200	7370	16	200	8030	10	200	950	1830	13	200	950	1780	2640	13	190	3150
2.43	3.04	405	405	200	200	24	7200	24	7200	8	2400	16	200	7370	16	200	8030	10	200	950	1830	16	200	950	2090	2950	19	240	3760
2.74	1.21	455	455	200	200	27	8100	27	8100	2	600	19	225	8150	16	225	8940	--	--	--	--	13	225	1010	1230	2160	13	300	2060
2.74	1.82	455	455	200	200	27	8100	27	8100	4	1200	19	225	8150	16	225	8940	--	--	--	--	13	225	1010	1530	2460	13	300	2670
2.74	2.43	455	455	200	200	27	8100	27	8100	6	1800	19	225	8150	16	225	8940	--	--	--	--	16	225	1010	1840	2740	16	265	3280
2.74	3.04	455	455	200	200	27	8100	27	8100	8	2400	19	225	8150	16	225	8940	--	--	--	--	19	225	1010	2140	3020	19	240	3890
2.74	3.65	465	465	230	200	27	8100	27	8100	10	3000	19	225	8150	16	225	8990	--	--	--	--	22	225	1040	2450	3350	16	140	4500
3.04	1.21	500	500	200	200	30	9000	30	9000	2	600	19	225	8940	19	225	9860	--	--	--	--	13	225	1070	1270	2260	13	300	2130
3.04	1.82	500	500	200	200	30	9000	30	9000	4	1200	19	225	8940	19	225	9860	--	--	--	--	13	225	1070	1570	2570	13	300	2740
3.04	2.43	500	500	200	200	30	9000	30	9000	6	1800	19	225	8940	19	225	9860	10	225	1070	2080	13	225	1070	1880	2870	16	265	3350
3.04	3.04	500	500	200	200	30	9000	30	9000	8	2400	19	225	8940	19	225	9860	10	225	1070	2080	16	225	1070	2180	3150	19	240	3960
3.04	3.65	507	507	230	200	30	9000	30	9000	10	3000	19	225	8940	19	225	9910	10	225	1100	2130	19	225	1100	2500	3480	16	140	4570
3.65	1.82	600	600	200	200	36	10800	36	10800	4	1200	19	200	10520	19	200	11680	--	--	--	--	13	200	1190	1680	2790	13	300	2950
3.65	2.43	600	600	200	200	36	10800	36	10800	6	1800	19	200	10520	19	200	11680	10	200	1190	2310	13	200	1190	1980	3100	16	240	3560
3.65	3.04	600	600	200	200	36	10800	36	10800	8	2400	19	200	10520	19	200	11680	10	200	1190	2310	16	200	1190	2290	3380	13	100	4170
3.65	3.65	600	600	230	200	36	10800	36	10800	10	3000	19	200	10520	19	200	11730	13	200	1220	2360	16	200	1220	2590	3710	19	190	4780

Sheet 1 of 3

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

TRIPLE BOX CULVERTS  
9.0 TO 10.5 m FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.25

REINFORCING STEEL																		
SPAN (m)	HGHT (m)	BV2			BT1												NO. BL1 BARS	NO. BL2 BARS
		SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH				
0.91	0.91	13	300	1220	13	300	830	110	470	145	95	3450	450	3610	44	16		
0.91	1.21	13	300	1520	13	300	830	110	470	145	95	3450	450	3610	44	24		
1.21	0.91	13	300	1270	13	300	1060	145	570	190	125	4370	600	4570	56	16		
1.21	1.21	13	300	1570	13	300	1060	145	570	190	125	4370	600	4570	56	24		
1.21	1.52	13	300	1880	13	300	1060	145	570	190	125	4370	600	4570	56	32		
1.21	1.82	13	300	2180	13	300	1060	145	570	190	125	4370	600	4570	56	40		
1.52	0.91	13	300	1350	13	275	1290	180	650	245	165	5280	750	5560	68	16		
1.52	1.21	13	300	1650	13	275	1290	180	650	245	165	5280	750	5560	68	24		
1.52	1.52	13	300	1980	13	275	1290	190	640	255	170	5280	740	5560	68	32		
1.52	1.82	13	300	2290	13	275	1290	190	640	255	170	5280	740	5560	68	40		
1.52	2.13	13	300	2590	13	275	1290	190	640	255	170	5280	740	5560	68	48		
1.82	1.21	13	300	1780	13	225	1500	240	710	325	220	6200	880	6550	80	24		
1.82	1.52	13	300	2080	13	225	1500	240	710	325	220	6200	880	6550	80	32		
1.82	1.82	13	300	2390	13	225	1500	240	710	325	220	6200	880	6550	80	40		
1.82	2.13	13	300	2690	13	225	1500	240	710	325	220	6200	880	6550	80	48		
1.82	2.43	13	300	3000	13	225	1500	240	710	325	220	6200	880	6550	80	56		
2.13	1.21	13	300	1850	13	225	1730	275	800	380	260	7120	1020	7540	92	24		
2.13	1.82	13	300	2460	13	225	1730	275	800	380	260	7120	1020	7540	92	40		
2.13	2.43	13	300	3070	13	225	1730	275	800	380	260	7120	1020	7540	92	56		
2.13	3.04	13	300	3680	13	225	1730	275	800	380	260	7120	1020	7540	92	72		
2.43	1.21	13	300	1930	16	225	1950	325	870	445	300	8020	1160	8530	104	24		
2.43	1.82	13	300	2540	13	200	1950	320	870	440	300	8020	1160	8530	104	40		
2.43	2.43	13	300	3150	13	200	1950	320	870	440	300	8020	1160	8530	104	56		
2.43	3.04	13	300	3760	13	200	1950	320	870	440	300	8020	1160	8530	104	72		
2.74	1.21	13	265	2060	16	225	2170	375	950	515	355	8940	1290	9530	116	24		
2.74	1.82	13	265	2670	16	225	2170	375	950	515	355	8940	1290	9530	116	40		
2.74	2.43	13	265	3280	16	225	2170	375	950	515	355	8940	1290	9530	116	56		
2.74	3.04	13	275	3890	16	225	2170	375	950	515	355	8940	1290	9530	116	72		
2.74	3.65	13	265	4500	16	225	2200	380	940	525	360	9000	1280	9600	116	88		
3.04	1.21	13	250	2130	19	225	2390	425	1020	580	400	9860	1430	10520	128	24		
3.04	1.82	13	250	2740	19	225	2390	425	1020	580	400	9860	1430	10520	128	40		
3.04	2.43	13	250	3350	19	225	2390	425	1020	580	400	9860	1430	10520	128	56		
3.04	3.04	13	250	3960	19	225	2390	425	1020	580	400	9860	1430	10520	128	72		
3.04	3.65	13	250	4570	16	225	2420	425	1020	590	405	9920	1420	10590	128	88		
3.65	1.82	13	250	2950	19	200	2830	525	1160	725	500	11690	1690	12500	152	40		
3.65	2.43	13	250	3560	19	200	2830	525	1160	725	500	11690	1690	12500	152	56		
3.65	3.04	13	250	4170	19	200	2830	525	1160	725	500	11690	1690	12500	152	72		
3.65	3.65	13	250	4780	19	200	2860	525	1160	725	500	11750	1690	12570	152	88		

BT10.5

SPAN (m)	HCHT (m)	REINFORCING STEEL (kg/LONG. JT)	QUAN./m			HEADWALLS										WINGWALL
			CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	C HEADWALL LENGTH	HW 1		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CL. A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)			
						SIZE	LENGTH									
0.91	0.91	19.23	2.421	181.62	4010	19	3910	2	8	1.470	46.66	1.456	34.96	A		
0.91	1.21	20.51	2.660	186.93	4010	19	3910	2	10	1.574	49.79	1.551	34.96	C		
1.21	0.91	23.77	3.043	204.78	4930	19	4830	2	8	1.698	54.89	1.691	43.18	B		
1.21	1.21	25.05	3.282	219.33	4930	19	4830	2	10	1.803	58.01	1.787	43.18	D		
1.21	1.52	26.33	3.528	234.02	4930	19	4830	2	12	1.909	61.15	1.883	43.18	F		
1.21	1.82	27.61	3.765	258.52	4930	19	4830	2	14	2.013	64.27	1.979	43.18	H		
1.52	0.91	28.31	3.894	249.40	5840	19	5740	2	8	1.880	63.02	1.881	51.32	B		
1.52	1.21	29.60	4.133	264.14	5840	19	5740	2	10	1.985	66.15	1.977	51.32	D		
1.52	1.52	30.88	4.432	279.54	5840	19	5740	2	12	2.086	69.29	2.068	51.32	F		
1.52	1.82	32.16	4.669	306.38	5840	19	5740	2	14	2.191	72.41	2.164	51.32	H		
1.52	2.13	33.44	4.913	332.24	5840	19	5740	2	16	2.297	75.55	2.261	51.32	J		
1.82	1.21	34.14	5.298	336.11	6760	19	6650	2	10	2.120	74.28	2.119	59.45	D		
1.82	1.52	35.42	5.544	351.20	6760	19	6650	2	12	2.226	77.42	2.216	59.45	F		
1.82	1.82	36.70	5.782	366.54	6760	19	6650	2	14	2.331	80.54	2.311	59.45	H		
1.82	2.13	37.98	6.026	399.06	6760	19	6650	2	16	2.437	83.68	2.408	59.45	J		
1.82	2.43	39.26	6.261	435.79	6760	19	6650	2	18	2.541	86.81	2.503	59.45	L		
2.13	1.21	38.68	6.468	410.61	7670	19	7570	2	10	2.254	82.51	2.260	67.68	D		
2.13	1.82	41.25	6.952	441.22	7670	19	7570	2	14	2.464	88.77	2.453	67.68	H		
2.13	2.43	43.81	7.432	503.10	7670	19	7570	2	18	2.675	95.03	2.645	67.68	L		
2.13	3.04	46.37	7.907	606.90	7670	19	7570	2	22	2.885	101.29	2.837	67.68	P		
2.43	1.21	43.23	7.757	533.97	8590	19	8480	2	10	2.387	90.64	2.401	75.81	E		
2.43	1.82	45.79	8.241	563.42	8590	19	8480	2	14	2.598	96.90	2.593	75.81	I		
2.43	2.43	48.35	8.721	627.09	8590	19	8480	2	18	2.808	103.17	2.785	75.81	M		
2.43	3.04	50.91	9.196	724.33	8590	19	8480	2	22	3.019	109.43	2.977	75.81	Q		
2.74	1.21	47.77	9.398	643.64	9500	19	9400	2	10	2.457	98.87	2.478	84.04	E		
2.74	1.82	50.33	9.882	675.68	9500	19	9400	2	14	2.667	105.13	2.670	84.04	I		
2.74	2.43	52.90	10.360	751.22	9500	19	9400	2	18	2.877	111.39	2.862	84.04	M		
2.74	3.04	55.46	10.836	849.15	9500	19	9400	2	22	3.088	117.65	3.054	84.04	Q		
2.74	3.65	58.02	11.764	965.17	9500	19	9400	2	26	3.196	123.92	3.143	84.04	U		
3.04	1.21	52.32	11.086	828.03	10410	19	10310	2	10	2.505	107.00	2.533	92.17	E		
3.04	1.82	54.88	11.570	861.06	10410	19	10310	2	14	2.715	113.26	2.725	92.17	I		
3.04	2.43	57.44	12.049	931.66	10410	19	10310	2	18	2.926	119.53	2.917	92.17	M		
3.04	3.04	60.00	12.525	1025.89	10410	19	10310	2	22	3.136	125.79	3.109	92.17	Q		
3.04	3.65	62.56	13.427	1066.92	10410	19	10310	2	26	3.247	132.05	3.201	92.17	U		
3.65	1.82	63.97	15.720	1094.42	12240	19	12140	2	14	2.741	129.62	2.766	108.53	J		
3.65	2.43	66.53	16.198	1176.46	12240	19	12140	2	18	2.952	135.89	2.958	108.53	N		
3.65	3.04	69.09	16.673	1280.12	12240	19	12140	2	22	3.162	142.15	3.150	108.53	R		
3.65	3.65	71.65	17.441	1367.16	12240	19	12140	2	26	3.286	148.41	3.255	108.53	V		

Sheet 3 of 3

TRIPLE BOX CULVERTS  
9.0 TO 10.5 m FILLS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.27

BT12.0

DIMENSIONS						REINFORCING STEEL																							
SPAN	HGHT	T1	T2	T3	T4							BH1			BH2			BH3			BH4			BV1					
(m)	(m)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (mm)	INTERIOR WALL (mm)	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
0.91	0.91	200	200	200	200	9	2700	9	2700	1	300	13	300	3400	13	300	3450	13	300	640	1190	13	300	640	810	1370	13	300	1220
0.91	1.21	200	200	200	200	9	2700	9	2700	2	600	13	300	3400	13	300	3450	10	300	640	1220	13	300	640	970	1520	13	300	1520
1.21	0.91	245	245	200	200	12	3600	12	3600	1	300	13	300	4190	13	300	4370	--	--	--	--	13	300	700	860	1470	13	300	1300
1.21	1.21	245	245	200	200	12	3600	12	3600	2	600	13	300	4190	13	300	4370	--	--	--	--	13	300	700	1010	1630	13	300	1600
1.21	1.52	245	245	200	200	12	3600	12	3600	3	900	13	300	4190	13	300	4370	--	--	--	--	13	300	700	1160	1780	13	300	1910
1.21	1.82	245	245	200	200	12	3600	12	3600	4	1200	13	300	4190	13	300	4370	13	300	700	1320	13	300	700	1310	1930	13	300	2210
1.52	0.91	300	300	200	200	15	4500	15	4500	1	300	13	275	4980	13	275	5280	--	--	--	--	13	275	760	910	1600	13	300	1420
1.52	1.21	300	300	200	200	15	4500	15	4500	2	600	13	275	4980	13	275	5280	--	--	--	--	13	275	760	1070	1750	13	300	1730
1.52	1.52	295	295	200	200	15	4500	15	4500	3	900	13	250	4980	13	250	5280	--	--	--	--	13	250	760	1210	1910	13	300	2030
1.52	1.82	295	295	200	200	15	4500	15	4500	4	1200	13	250	4980	13	250	5280	--	--	--	--	13	250	760	1370	2060	13	300	2340
1.52	2.13	295	295	200	200	15	4500	15	4500	5	1500	13	250	4980	13	250	5280	--	--	--	--	16	250	760	1520	2180	13	215	2640
1.82	1.21	345	345	200	200	18	5400	18	5400	2	600	13	225	5770	13	225	6200	--	--	--	--	13	225	820	1110	1850	13	300	1830
1.82	1.52	345	345	200	200	18	5400	18	5400	3	900	13	250	5770	16	250	6200	--	--	--	--	13	250	820	1260	2010	13	300	2130
1.82	1.82	345	345	200	200	18	5400	18	5400	4	1200	13	250	5770	16	250	6200	--	--	--	--	13	250	820	1420	2160	13	300	2440
1.82	2.13	345	345	200	200	18	5400	18	5400	5	1500	13	250	5770	16	250	6200	10	250	820	1570	13	250	820	1570	2310	13	225	2740
1.82	2.43	340	340	200	200	18	5400	18	5400	6	1800	13	225	5770	13	225	6200	--	--	--	--	16	225	820	1710	2440	16	240	3020
2.13	1.21	395	395	200	200	21	6300	21	6300	2	600	16	225	6550	16	225	7110	--	--	--	--	13	225	880	1160	1960	13	300	1910
2.13	1.82	395	395	200	200	21	6300	21	6300	4	1200	16	225	6550	16	225	7110	--	--	--	--	13	225	880	1470	2260	13	300	2510
2.13	2.43	395	395	200	200	21	6300	21	6300	6	1800	16	225	6550	16	225	7110	13	225	880	1680	13	225	880	1770	2570	13	150	3120
2.13	3.04	395	395	215	200	21	6300	21	6300	8	2400	16	225	6550	16	225	7140	10	225	900	1730	16	225	900	2080	2870	16	165	3730
2.43	1.21	445	445	200	200	24	7200	24	7200	2	600	16	200	7370	16	200	8030	--	--	--	--	13	200	950	1210	2080	13	300	2010
2.43	1.82	445	445	200	200	24	7200	24	7200	4	1200	16	200	7370	16	200	8030	--	--	--	--	13	200	950	1520	2390	13	300	2620
2.43	2.43	450	450	200	200	24	7200	24	7200	6	1800	16	200	7370	16	200	8030	10	200	950	1830	13	200	950	1830	2690	13	150	3250
2.43	3.04	450	450	215	200	24	7200	24	7200	8	2400	16	200	7370	16	200	8050	10	200	960	1850	16	200	960	2130	3000	19	225	3860
2.74	1.21	495	495	200	200	27	8100	27	8100	2	600	19	225	8150	19	225	8940	--	--	--	--	13	225	1010	1260	2180	13	300	2130
2.74	1.82	495	495	200	200	27	8100	27	8100	4	1200	19	225	8150	19	225	8940	--	--	--	--	13	225	1010	1570	2490	13	300	2740
2.74	2.43	495	495	200	200	27	8100	27	8100	6	1800	19	225	8150	19	225	8940	--	--	--	--	16	225	1010	1870	2770	13	150	3350
2.74	3.04	490	490	215	200	27	8100	27	8100	8	2400	19	225	8150	19	225	8970	--	--	--	--	19	225	1020	2170	3070	19	225	3940
2.74	3.65	495	495	250	200	27	8100	27	8100	10	3000	19	225	8150	19	225	9040	--	--	--	--	22	225	1060	2480	3400	16	140	4570
3.04	1.21	550	550	200	200	30	9000	30	9000	2	600	19	225	8940	19	225	9860	--	--	--	--	13	225	1070	1320	2310	13	300	2240
3.04	1.82	550	550	200	200	30	9000	30	9000	4	1200	19	225	8940	19	225	9860	--	--	--	--	13	225	1070	1630	2620	13	300	2840
3.04	2.43	550	550	200	200	30	9000	30	9000	6	1800	19	225	8940	19	225	9860	--	--	--	--	16	225	1070	1930	2900	13	150	3450
3.04	3.04	550	550	215	200	30	9000	30	9000	8	2400	22	225	8940	19	225	9880	--	--	--	--	19	225	1080	2240	3200	13	100	4060
3.04	3.65	560	560	250	200	30	9000	30	9000	10	3000	19	225	8940	19	225	9960	10	225	1120	2180	19	225	1120	2550	3530	19	190	4670
3.65	1.82	640	640	200	200	36	10800	36	10800	4	1200	19	200	10520	19	200	11680	--	--	--	--	13	200	1190	1710	2820	13	300	3020
3.65	2.43	640	640	200	200	36	10800	36	10800	6	1800	19	200	10520	19	200	11680	10	200	1190	2310	13	200	1190	2020	3120	16	225	3630
3.65	3.04	645	645	215	200	36	10800	36	10800	8	2400	19	200	10520	19	200	11710	10	200	1200	2340	16	200	1200	2330	3430	22	290	4240
3.65	3.65	645	645	250	200	36	10800	36	10800	10	3000	19	200	10520	19	200	11790	13	200	1240	2390	16	200	1240	2640	3780	22	250	4850

Sheet 1 of 3

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

TRIPLE BOX CULVERTS  
 10.5 TO 12.0 m FILLS  
 VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

1004.28

REINFORCING STEEL																		
SPAN (m)	HIGHT (m)	BV2			BT1												NO. BL1 BARS	NO. BL2 BARS
		SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH				
0.91	0.91	13	300	1220	13	300	830	110	470	145	95	3450	450	3610	44	16		
0.91	1.21	13	300	1520	13	300	830	110	470	145	95	3450	450	3610	44	24		
1.21	0.91	13	300	1300	13	300	1060	155	550	210	135	4370	590	4600	56	16		
1.21	1.21	13	300	1600	13	300	1060	155	550	210	135	4370	590	4600	56	24		
1.21	1.52	13	300	1910	13	300	1060	155	550	210	135	4370	590	4600	56	32		
1.21	1.82	13	300	2210	13	300	1060	155	550	210	135	4370	590	4600	56	40		
1.52	0.91	13	300	1420	13	275	1270	215	620	290	195	5280	720	5610	68	16		
1.52	1.21	13	300	1730	13	275	1270	215	620	290	195	5280	720	5610	68	24		
1.52	1.52	13	300	2030	13	250	1280	205	620	280	190	5280	720	5590	68	32		
1.52	1.82	13	300	2340	13	250	1280	205	620	280	190	5280	720	5590	68	40		
1.52	2.13	13	300	2640	13	250	1280	205	620	280	190	5280	720	5590	68	48		
1.82	1.21	13	300	1830	13	225	1500	260	690	355	240	6200	860	6600	80	24		
1.82	1.52	13	300	2130	13	250	1500	260	690	355	240	6200	860	6600	80	32		
1.82	1.82	13	300	2440	13	250	1500	260	690	355	240	6200	860	6600	80	40		
1.82	2.13	13	300	2740	13	250	1500	260	690	355	240	6200	860	6600	80	48		
1.82	2.43	13	300	3020	13	225	1500	250	700	345	230	6200	860	6580	80	56		
2.13	1.21	13	300	1910	13	225	1710	310	770	425	290	7120	990	7590	92	24		
2.13	1.82	13	300	2510	13	225	1710	310	770	425	290	7120	990	7590	92	40		
2.13	2.43	13	300	3120	13	225	1710	310	770	425	290	7120	990	7590	92	56		
2.13	3.04	13	300	3730	13	225	1730	310	770	425	290	7140	990	7620	92	72		
2.43	1.21	13	265	2010	13	200	1930	360	830	495	340	8020	1120	8590	104	24		
2.43	1.82	13	265	2620	13	200	1930	360	830	495	340	8020	1120	8590	104	40		
2.43	2.43	13	265	3250	13	200	1930	365	830	505	345	8020	1110	8610	104	56		
2.43	3.04	13	265	3860	13	200	1940	365	830	505	345	8050	1110	8640	104	72		
2.74	1.21	13	250	2130	16	225	2150	415	910	570	390	8940	1250	9580	116	24		
2.74	1.82	13	250	2740	16	225	2150	415	910	570	390	8940	1250	9580	116	40		
2.74	2.43	13	250	3350	16	225	2150	415	910	570	390	8940	1250	9580	116	56		
2.74	3.04	13	250	3940	16	225	2170	405	910	565	385	8970	1260	9600	116	72		
2.74	3.65	13	250	4570	16	225	2200	415	910	570	390	9040	1250	9680	116	88		
3.04	1.21	13	250	2240	19	225	2370	475	970	655	450	9860	1380	10590	128	24		
3.04	1.82	13	250	2840	19	225	2370	475	970	655	450	9860	1380	10590	128	40		
3.04	2.43	13	250	3450	19	225	2370	475	970	655	450	9860	1380	10590	128	56		
3.04	3.04	13	250	4060	19	225	2380	475	970	655	450	9880	1380	10620	128	72		
3.04	3.65	13	250	4670	19	225	2410	480	960	660	455	9960	1370	10690	128	88		
3.65	1.82	13	240	3020	19	200	2810	565	1130	780	535	11690	1650	12570	152	40		
3.65	2.43	13	240	3630	19	200	2810	565	1130	780	535	11690	1650	12570	152	56		
3.65	3.04	13	240	4240	19	200	2820	570	1120	790	545	11710	1650	12600	152	72		
3.65	3.65	13	225	4850	19	200	2860	570	1120	790	545	11790	1650	12670	152	88		

BT12.0

SPAN (m)	HCHT (m)	REINFORCING STEEL (kg/LONG. JT)	QUAN./m						HEADWALLS						WINGWALL
			CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	C HEADWALL LENGTH	HW 1		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CL. A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)		
						SIZE	LENGTH								
0.91	0.91	19.23	2.420	188.28	4010	19	3910	2	8	1.470	46.66	1.456	34.96	A	
0.91	1.21	20.51	2.659	196.04	4010	19	3910	2	10	1.574	49.79	1.551	34.96	C	
1.21	0.91	23.77	3.176	205.77	4930	19	4830	2	8	1.688	54.89	1.681	43.18	B	
1.21	1.21	25.05	3.414	220.32	4930	19	4830	2	10	1.792	58.01	1.777	43.18	D	
1.21	1.52	26.33	3.661	235.01	4930	19	4830	2	12	1.899	61.15	1.873	43.18	F	
1.21	1.82	27.61	3.896	266.92	4930	19	4830	2	14	2.003	64.27	1.969	43.18	H	
1.52	0.91	28.31	4.216	252.05	5840	19	5740	2	8	1.852	63.02	1.853	51.32	B	
1.52	1.21	29.60	4.454	266.92	5840	19	5740	2	10	1.956	66.15	1.948	51.32	D	
1.52	1.52	30.88	4.644	295.74	5840	19	5740	2	12	2.067	69.29	2.050	51.32	F	
1.52	1.82	32.16	4.883	310.82	5840	19	5740	2	14	2.172	72.41	2.145	51.32	H	
1.52	2.13	33.44	5.125	351.54	5840	19	5740	2	16	2.278	75.55	2.242	51.32	J	
1.82	1.21	34.14	5.548	338.24	6760	19	6650	2	10	2.096	74.28	2.095	59.45	D	
1.82	1.52	35.42	5.793	361.21	6760	19	6650	2	12	2.202	77.42	2.191	59.45	F	
1.82	1.82	36.70	6.031	376.29	6760	19	6650	2	14	2.306	80.54	2.287	59.45	H	
1.82	2.13	37.98	6.275	411.23	6760	19	6650	2	16	2.412	83.68	2.384	59.45	J	
1.82	2.43	39.26	6.448	441.20	6760	19	6650	2	18	2.523	86.81	2.485	59.45	L	
2.13	1.21	38.68	6.895	445.66	7670	19	7570	2	10	2.237	82.51	2.243	67.68	E	
2.13	1.82	41.25	7.379	475.83	7670	19	7570	2	14	2.447	88.77	2.435	67.68	I	
2.13	2.43	43.81	7.857	556.80	7670	19	7570	2	18	2.657	95.03	2.627	67.68	M	
2.13	3.04	46.37	8.451	628.69	7670	19	7570	2	22	2.834	101.29	2.785	67.68	Q	
2.43	1.21	43.23	8.403	541.11	8590	19	8480	2	10	2.317	90.64	2.330	75.81	E	
2.43	1.82	45.79	8.887	574.01	8590	19	8480	2	14	2.527	96.90	2.522	75.81	I	
2.43	2.43	48.35	9.446	649.52	8590	19	8480	2	18	2.729	103.17	2.706	75.81	M	
2.43	3.04	50.91	10.040	746.29	8590	19	8480	2	22	2.904	109.43	2.862	75.81	Q	
2.74	1.21	47.77	10.112	703.88	9500	19	9400	2	10	2.375	98.87	2.396	84.04	E	
2.74	1.82	50.33	10.596	736.91	9500	19	9400	2	14	2.585	105.13	2.588	84.04	I	
2.74	2.43	52.90	11.073	819.09	9500	19	9400	2	18	2.796	111.39	2.780	84.04	M	
2.74	3.04	55.46	11.578	922.43	9500	19	9400	2	22	2.980	117.65	2.946	84.04	Q	
2.74	3.65	58.02	12.486	1033.85	9500	19	9400	2	26	3.078	123.92	3.025	84.04	U	
3.04	1.21	52.32	12.078	833.65	10410	19	10310	2	10	2.416	107.00	2.445	92.17	F	
3.04	1.82	54.88	12.561	866.38	10410	19	10310	2	14	2.627	113.26	2.637	92.17	J	
3.04	2.43	57.44	13.039	950.51	10410	19	10310	2	18	2.837	119.53	2.829	92.17	N	
3.04	3.04	60.00	13.629	1121.27	10410	19	10310	2	22	3.011	125.79	2.984	92.17	R	
3.04	3.65	62.56	14.665	1147.60	10410	19	10310	2	26	3.093	132.05	3.047	92.17	V	
3.65	1.82	63.97	16.659	1101.72	12240	19	12140	2	14	2.627	129.62	2.651	108.53	J	
3.65	2.43	66.53	17.136	1187.74	12240	19	12140	2	18	2.837	135.89	2.843	108.53	N	
3.65	3.04	69.09	17.858	1296.85	12240	19	12140	2	22	2.994	142.15	2.982	108.53	R	
3.65	3.65	71.65	18.698	1393.60	12240	19	12140	2	26	3.096	148.41	3.065	108.53	V	

Sheet 3 of 3

TRIPLE BOX CULVERTS  
10.5 TO 12.0 m FILLS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.30

BT13.5

DIMENSIONS						REINFORCING STEEL																							
SPAN (m)	HIGHT (m)	T1 TOP SLAB	T2 BOTTOM SLAB	T3 EXTERIOR WALL (mm)	T4 INTERIOR WALL (mm)	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1					
												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
0.91	0.91	207	207	200	200	9	2700	9	2700	1	300	13	300	3400	13	300	3450	13	300	640	1190	13	300	640	820	1370	13	300	1220
0.91	1.21	207	207	200	200	9	2700	9	2700	2	600	13	300	3400	13	300	3450	13	300	640	1190	13	300	640	970	1520	13	300	1520
1.21	0.91	265	265	200	200	12	3600	12	3600	1	300	13	300	4190	13	300	4370	--	--	--	--	13	300	700	880	1500	13	300	1350
1.21	1.21	265	265	200	200	12	3600	12	3600	2	600	13	300	4190	13	300	4370	--	--	--	--	13	300	700	1030	1650	13	300	1650
1.21	1.52	270	270	200	200	12	3600	12	3600	3	900	13	300	4190	13	300	4370	--	--	--	--	13	300	700	1190	1800	13	300	1960
1.21	1.82	270	270	200	200	12	3600	12	3600	4	1200	13	300	4190	13	300	4370	13	300	700	1320	13	300	700	1340	1960	13	375	2260
1.52	0.91	315	315	200	200	15	4500	15	4500	1	300	13	250	4980	13	250	5280	--	--	--	--	13	250	760	930	1600	13	300	1450
1.52	1.21	315	315	200	200	15	4500	15	4500	2	600	13	250	4980	13	250	5280	--	--	--	--	13	250	760	1080	1750	13	300	1750
1.52	1.52	315	315	200	200	15	4500	15	4500	3	900	13	250	4980	13	250	5280	--	--	--	--	13	250	760	1230	1910	13	300	2060
1.52	1.82	315	315	200	200	15	4500	15	4500	4	1200	13	250	4980	13	250	5280	--	--	--	--	13	250	760	1380	2060	13	300	2360
1.52	2.13	315	315	200	200	15	4500	15	4500	5	1500	13	250	4980	13	250	5280	--	--	--	--	16	250	760	1540	2210	13	190	2670
1.82	1.21	370	370	200	200	18	5400	18	5400	2	600	13	225	5770	16	225	6200	--	--	--	--	13	225	820	1140	1880	13	300	1850
1.82	1.52	370	370	200	200	18	5400	18	5400	3	900	13	225	5770	16	225	6200	--	--	--	--	13	225	820	1290	2030	13	300	2160
1.82	1.82	370	370	200	200	18	5400	18	5400	4	1200	13	225	5770	16	225	6200	--	--	--	--	13	225	820	1440	2180	13	300	2460
1.82	2.13	370	370	200	200	18	5400	18	5400	5	1500	13	225	5770	16	225	6200	10	225	820	1570	13	225	820	1590	2340	13	190	2770
1.82	2.43	370	370	200	200	18	5400	18	5400	6	1800	13	225	5770	16	225	6200	--	--	--	--	16	225	820	1750	2460	13	140	3070
2.13	1.21	430	430	200	200	21	6300	21	6300	2	600	13	225	6550	16	225	7110	--	--	--	--	13	225	880	1200	2010	13	300	1980
2.13	1.82	430	430	200	200	21	6300	21	6300	4	1200	16	225	6550	16	225	7110	--	--	--	--	13	225	880	1500	2310	13	290	2590
2.13	2.43	430	430	200	200	21	6300	21	6300	6	1800	16	225	6550	16	225	7110	13	225	880	1680	13	225	880	1810	2620	13	140	3200
2.13	3.04	430	430	225	200	21	6300	21	6300	8	2400	16	225	6550	16	225	7160	10	225	910	1750	16	225	910	2110	2920	13	100	3810
2.43	1.21	480	480	200	200	24	7200	24	7200	2	600	16	200	7370	16	200	8030	--	--	--	--	13	200	950	1250	2110	13	300	2080
2.43	1.82	480	480	200	200	24	7200	24	7200	4	1200	13	200	7370	16	200	8030	--	--	--	--	13	200	950	1560	2410	13	275	2690
2.43	2.43	475	475	200	200	24	7200	24	7200	6	1800	13	200	7370	16	200	8030	10	200	950	1830	13	200	950	1850	2720	13	140	3300
2.43	3.04	480	480	225	200	24	7200	24	7200	8	2400	16	200	7370	16	200	8080	10	200	970	1880	16	200	970	2170	3050	13	100	3910
2.74	1.21	530	530	200	200	27	8100	27	8100	2	600	19	225	8150	19	225	8940	--	--	--	--	13	225	1010	1300	2240	13	300	2210
2.74	1.82	530	530	200	200	27	8100	27	8100	4	1200	19	225	8150	19	225	8940	--	--	--	--	13	225	1010	1610	2540	13	275	2820
2.74	2.43	530	530	200	200	27	8100	27	8100	6	1800	19	225	8150	19	225	8940	--	--	--	--	16	225	1010	1910	2820	19	290	3430
2.74	3.04	530	530	225	200	27	8100	27	8100	8	2400	19	225	8150	19	225	8990	--	--	--	--	19	225	1030	2220	3120	16	150	4040
2.74	3.65	540	540	265	200	27	8100	27	8100	10	3000	19	225	8150	19	225	9070	--	--	--	--	22	225	1070	2530	3450	22	250	4650
3.04	1.21	580	580	200	200	30	9000	30	9000	2	600	19	225	8940	19	225	9860	--	--	--	--	13	225	1070	1350	2340	13	300	2290
3.04	2.43	580	580	200	200	30	9000	30	9000	4	1200	19	225	8940	19	225	9860	--	--	--	--	13	225	1070	1660	2640	13	265	2900
3.04	2.43	580	580	200	200	30	9000	30	9000	6	1800	19	225	8940	19	225	9860	10	225	1070	2080	13	225	1070	1960	2950	19	290	3510
3.04	3.04	580	580	225	200	30	9000	30	9000	8	2400	19	225	8940	19	225	9910	10	225	1090	2130	16	225	1090	2270	3250	16	150	4110
3.04	3.65	590	590	265	200	30	9000	30	9000	10	3000	19	225	8940	19	225	9980	10	225	1130	2210	19	225	1130	2580	3580	16	125	4750
3.65	1.82	690	690	200	200	36	10800	36	10800	4	1200	22	200	10520	19	200	11680	--	--	--	--	13	200	1190	1770	2870	13	225	3120
3.65	2.43	690	690	200	200	36	10800	36	10800	6	1800	22	200	10520	19	200	11680	10	200	1190	2310	13	200	1190	2070	3170	16	190	3730
3.65	3.04	690	690	230	200	36	10800	36	10800	8	2400	19	200	10520	19	200	11730	10	200	1220	2390	16	200	1220	2370	3510	16	150	4340
3.65	3.65	690	690	265	200	36	10800	36	10800	10	3000	19	200	10520	19	200	11810	10	200	1250	2440	19	200	1250	2680	3810	19	175	4950

Sheet 1 of 3

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

TRIPLE BOX CULVERTS  
12.0 TO 13.5 m FILLS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.31

REINFORCING STEEL																	
SPAN (m)	HGHT (m)	BV2			BT1											NO. BL1 BARS	NO. BL2 BARS
		SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH			
0.91	0.91	13	300	1220	13	300	830	120	470	155	100	3450	450	3630	44	16	
0.91	1.21	13	300	1520	13	300	830	120	470	155	100	3450	450	3630	44	24	
1.21	0.91	13	300	1350	13	300	1050	175	530	235	155	4370	570	4620	56	16	
1.21	1.21	13	300	1650	13	300	1050	175	530	235	155	4370	570	4620	56	24	
1.21	1.52	13	300	1960	13	300	1040	180	530	245	165	4370	570	4650	56	32	
1.21	1.82	13	300	2260	13	300	1040	180	530	245	165	4370	570	4650	56	40	
1.52	0.91	13	300	1450	13	250	1270	225	600	310	205	5280	700	5640	68	16	
1.52	1.21	13	300	1750	13	250	1270	225	600	310	205	5280	700	5640	68	24	
1.52	1.52	13	300	2060	13	250	1270	225	600	310	205	5280	700	5640	68	32	
1.52	1.82	13	300	2360	13	250	1270	225	600	310	205	5280	700	5640	68	40	
1.52	2.13	13	300	2670	13	250	1270	225	600	310	205	5280	700	5640	68	48	
1.82	1.21	13	300	1850	13	225	1480	285	670	390	265	6200	830	6630	80	24	
1.82	1.52	13	300	2160	13	225	1480	285	670	390	265	6200	830	6630	80	32	
1.82	1.82	13	300	2460	13	225	1480	285	670	390	265	6200	830	6630	80	40	
1.82	2.13	13	300	2770	13	225	1480	285	670	390	265	6200	830	6630	80	48	
1.82	2.43	13	300	3070	13	225	1480	285	670	390	265	6200	830	6630	80	56	
2.13	1.21	13	265	1980	16	225	1700	350	730	480	330	7120	950	7650	92	24	
2.13	1.82	13	275	2590	13	225	1700	345	730	475	330	7120	950	7650	92	40	
2.13	2.43	13	275	3200	13	225	1700	345	730	475	330	7120	950	7650	92	56	
2.13	3.04	13	275	3810	13	225	1720	345	730	475	330	7170	950	7700	92	72	
2.43	1.21	13	250	2080	16	200	1910	400	800	555	380	8020	1080	8660	104	24	
2.43	1.82	13	250	2690	16	200	1910	400	800	555	380	8020	1080	8660	104	40	
2.43	2.43	13	250	3300	16	200	1910	395	800	545	370	8020	1090	8640	104	56	
2.43	3.04	13	250	3910	16	200	1940	400	800	555	380	8070	1080	8710	104	72	
2.74	1.21	13	250	2210	16	225	2130	450	870	625	430	8940	1210	9650	116	24	
2.74	1.82	13	250	2820	16	225	2130	450	870	625	430	8940	1210	9650	116	40	
2.74	2.43	13	250	3430	16	225	2130	450	870	625	430	8940	1210	9650	116	56	
2.74	3.04	13	250	4040	16	225	2160	450	870	625	430	8990	1210	9700	116	72	
2.74	3.65	13	250	4650	16	225	2190	460	860	630	435	9070	1210	9780	116	88	
3.04	1.21	13	250	2290	19	225	2350	505	940	700	480	9860	1350	10640	128	24	
3.04	2.43	13	250	2900	19	225	2350	505	940	700	480	9860	1350	10640	128	40	
3.04	2.43	13	250	3510	19	225	2350	505	940	700	480	9860	1350	10640	128	56	
3.04	3.04	13	250	4110	19	225	2370	505	940	700	480	9910	1350	10690	128	72	
3.04	3.65	13	250	4750	19	225	2410	510	930	710	485	9980	1340	10800	128	88	
3.65	1.82	13	215	3120	19	200	2780	615	1080	850	590	11690	1600	12650	152	40	
3.65	2.43	13	215	3730	19	200	2780	615	1080	850	590	11690	1600	12650	152	56	
3.65	3.04	13	215	4340	19	200	2820	615	1080	850	590	11750	1600	12730	152	72	
3.65	3.65	13	200	4950	19	200	2850	615	1080	850	590	11810	1600	12780	152	88	



BT13.5

SPAN (m)	HCHT (m)	REINFORCING STEEL (kg/LONG. JT)	QUAN./m			HEADWALLS										WINGWALL
			CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	C HEADWALL LENGTH	HW 1		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CL. A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)			
						SIZE	LENGTH									
0.91	0.91	19.23	2.469	188.41	4010	19	3910	2	8	1.467	46.66	1.453	34.96	A		
0.91	1.21	20.51	2.707	202.83	4010	19	3910	2	10	1.571	49.79	1.548	34.96	C		
1.21	0.91	23.77	3.353	207.63	4930	19	4830	2	8	1.675	54.89	1.668	43.18	B		
1.21	1.21	25.05	3.591	222.05	4930	19	4830	2	10	1.779	58.01	1.763	43.18	D		
1.21	1.52	26.33	3.882	236.93	4930	19	4830	2	12	1.882	61.15	1.857	43.18	F		
1.21	1.82	27.61	4.118	270.34	4930	19	4830	2	14	1.986	64.27	1.952	43.18	H		
1.52	0.91	28.31	4.375	266.87	5840	19	5740	2	8	1.838	63.02	1.838	51.32	B		
1.52	1.21	29.60	4.613	281.69	5840	19	5740	2	10	1.942	66.15	1.934	51.32	D		
1.52	1.52	30.88	4.859	296.93	5840	19	5740	2	12	2.048	69.29	2.031	51.32	F		
1.52	1.82	32.16	5.097	311.75	5840	19	5740	2	14	2.153	72.41	2.126	51.32	H		
1.52	2.13	33.44	5.339	356.80	5840	19	5740	2	16	2.259	75.55	2.223	51.32	J		
1.82	1.21	34.14	5.857	370.31	6760	19	6650	2	10	2.065	74.28	2.064	59.45	D		
1.82	1.52	35.42	6.103	385.66	6760	19	6650	2	12	2.171	77.42	2.161	59.45	F		
1.82	1.82	36.70	6.341	400.74	6760	19	6650	2	14	2.276	80.54	2.256	59.45	H		
1.82	2.13	37.98	6.584	442.52	6760	19	6650	2	16	2.382	83.68	2.353	59.45	J		
1.82	2.43	39.26	6.819	478.47	6760	19	6650	2	18	2.486	86.81	2.448	59.45	L		
2.13	1.21	38.68	7.397	459.58	7670	19	7570	2	10	2.184	82.51	2.191	67.68	E		
2.13	1.82	41.25	7.881	484.63	7670	19	7570	2	14	2.395	88.77	2.383	67.68	I		
2.13	2.43	43.81	8.359	569.67	7670	19	7570	2	18	2.605	95.03	2.575	67.68	M		
2.13	3.04	46.37	9.032	645.30	7670	19	7570	2	22	2.758	101.29	2.708	67.68	Q		
2.43	1.21	43.23	8.962	595.58	8590	19	8480	2	10	2.255	90.64	2.269	75.81	E		
2.43	1.82	45.79	9.451	589.59	8590	19	8480	2	14	2.465	96.90	2.461	75.81	I		
2.43	2.43	48.35	9.848	666.87	8590	19	8480	2	18	2.685	103.17	2.662	75.81	M		
2.43	3.04	50.91	10.600	805.39	8590	19	8480	2	22	2.827	109.43	2.785	75.81	Q		
2.74	1.21	47.77	10.743	708.34	9500	19	9400	2	10	2.331	98.87	2.352	84.04	F		
2.74	1.82	50.33	11.226	742.90	9500	19	9400	2	14	2.541	105.13	2.544	84.04	J		
2.74	2.43	52.90	11.703	831.81	9500	19	9400	2	18	2.751	111.39	2.736	84.04	N		
2.74	3.04	55.46	12.383	933.90	9500	19	9400	2	22	2.901	117.65	2.866	84.04	R		
2.74	3.65	58.02	13.446	1052.28	9500	19	9400	2	26	2.969	123.92	2.915	84.04	V		
3.04	1.21	52.32	12.672	836.70	10410	19	10310	2	10	2.347	107.00	2.375	92.17	F		
3.04	2.43	54.88	13.644	872.10	10410	19	10310	2	14	2.659	114.48	2.650	92.17	J		
3.04	2.43	57.44	13.633	954.14	10410	19	10310	2	18	2.768	119.53	2.759	92.17	N		
3.04	3.04	60.00	14.319	1048.39	10410	19	10310	2	22	2.916	125.79	2.888	92.17	R		
3.04	3.65	62.56	15.409	1162.46	10410	19	10310	2	26	2.979	132.05	2.932	92.17	V		
3.65	1.82	63.97	17.821	1208.45	12240	19	12140	2	14	2.511	129.62	2.536	108.53	K		
3.65	2.43	66.53	18.297	1299.54	12240	19	12140	2	18	2.721	135.89	2.728	108.53	O		
3.65	3.04	69.09	19.048	1319.13	12240	19	12140	2	22	2.853	142.15	2.840	108.53	S		
3.65	3.65	71.65	19.907	1456.76	12240	19	12140	2	26	2.947	148.41	2.916	108.53	W		

Sheet 3 of 3

TRIPLE BOX CULVERTS  
12.0 TO 13.5 m FILLS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.33

BT15.0

DIMENSIONS						REINFORCING STEEL																							
SPAN	HGHT	T1	T2	T3	T4							BH1			BH2			BH3			BH4			BV1					
(m)	(m)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (mm)	INTERIOR WALL (mm)	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
0.91	0.91	225	225	200	200	9	2700	9	2700	1	300	13	300	3400	13	300	3450	--	--	--	--	13	300	640	840	1400	13	300	1270
0.91	1.21	225	225	200	200	9	2700	9	2700	2	600	13	300	3400	13	300	3450	--	--	--	--	13	300	640	990	1550	13	300	1570
1.21	0.91	275	275	200	200	12	3600	12	3600	1	300	13	300	4190	13	300	4370	--	--	--	--	13	300	700	890	1500	13	300	1370
1.21	1.21	280	280	200	200	12	3600	12	3600	2	600	13	300	4190	13	300	4370	--	--	--	--	13	300	700	1050	1680	13	300	1680
1.21	1.52	275	275	200	200	12	3600	12	3600	3	900	13	300	4190	13	300	4370	--	--	--	--	13	300	700	1190	1800	13	300	1980
1.21	1.82	280	280	200	200	12	3600	12	3600	4	1200	13	300	4190	13	300	4370	13	300	700	1320	13	300	700	1350	1980	13	225	2290
1.52	0.91	330	330	200	200	15	4500	15	4500	1	300	13	225	4980	13	225	5280	--	--	--	--	13	225	760	950	1630	13	300	1470
1.52	1.21	330	330	200	200	15	4500	15	4500	2	600	13	225	4980	13	225	5280	--	--	--	--	13	225	760	1100	1780	13	300	1780
1.52	1.52	340	340	200	200	15	4500	15	4500	3	900	13	225	4980	13	225	5280	--	--	--	--	13	225	760	1260	1930	13	300	2110
1.52	1.82	340	340	200	200	15	4500	15	4500	4	1200	13	225	4980	13	225	5280	--	--	--	--	13	225	760	1410	2080	13	240	2410
1.52	2.13	340	340	200	200	15	4500	15	4500	5	1500	13	250	4980	13	250	5280	--	--	--	--	16	250	760	1560	2240	16	265	2720
1.82	1.21	400	400	200	200	18	5400	18	5400	2	600	13	225	5770	16	225	6200	--	--	--	--	13	225	820	1170	1910	13	300	1930
1.82	1.52	400	400	200	200	18	5400	18	5400	3	900	13	225	5770	16	225	6200	--	--	--	--	13	225	820	1320	2060	13	300	2240
1.82	1.82	390	390	200	200	18	5400	18	5400	4	1200	13	225	5770	16	225	6200	--	--	--	--	13	225	820	1460	2210	13	250	2510
1.82	2.13	390	390	200	200	18	5400	18	5400	5	1500	13	225	5770	16	225	6200	10	225	820	1570	13	225	820	1610	2360	16	265	2820
1.82	2.43	390	390	200	200	18	5400	18	5400	6	1800	13	225	5770	16	225	6200	--	--	--	--	16	225	820	1770	2490	13	125	3120
2.13	1.21	450	450	200	200	21	6300	21	6300	2	600	16	225	6550	16	225	7110	--	--	--	--	13	225	880	1220	2030	13	300	2030
2.13	1.82	450	450	200	200	21	6300	21	6300	4	1200	16	225	6550	16	225	7110	--	--	--	--	13	225	880	1520	2340	13	240	2640
2.13	2.43	450	450	200	200	21	6300	21	6300	6	1800	16	225	6550	16	225	7110	--	--	--	--	16	225	880	1830	2620	16	190	3250
2.13	3.04	450	450	245	200	21	6300	21	6300	8	2400	16	225	6550	16	225	7210	13	225	930	1780	16	225	930	2130	2970	19	225	3860
2.43	1.21	515	515	200	200	24	7200	24	7200	2	600	19	225	7370	19	225	8030	--	--	--	--	13	225	950	1280	2160	13	300	2160
2.43	1.82	515	515	200	200	24	7200	24	7200	4	1200	16	200	7370	16	200	8030	--	--	--	--	13	200	950	1590	2460	13	225	2770
2.43	2.43	515	515	200	200	24	7200	24	7200	6	1800	16	200	7370	16	200	8030	10	200	950	1830	13	200	950	1890	2770	16	190	3380
2.43	3.04	515	515	245	200	24	7200	24	7200	8	2400	16	200	7370	16	200	8130	10	200	990	1930	16	200	990	2200	3100	19	225	3990
2.74	1.21	565	565	200	200	27	8100	27	8100	2	600	19	225	8150	19	225	8940	--	--	--	--	13	225	1010	1330	2260	13	300	2260
2.74	1.82	565	565	200	200	27	8100	27	8100	4	1200	19	225	8150	19	225	8940	--	--	--	--	13	225	1010	1640	2570	13	215	2870
2.74	2.43	565	565	200	200	27	8100	27	8100	6	1800	19	225	8150	19	225	8940	--	--	--	--	16	225	1010	1940	2840	13	115	3480
2.74	3.04	565	565	245	200	27	8100	27	8100	8	2400	19	225	8150	19	225	9040	--	--	--	--	19	225	1050	2250	3170	13	100	4090
2.74	3.65	565	565	275	200	27	8100	27	8100	10	3000	19	225	8150	19	225	9090	10	225	1080	2110	22	225	1080	2550	3510	19	175	4700
3.04	1.21	625	625	200	200	30	9000	30	9000	2	600	19	225	8940	19	225	9860	--	--	--	--	13	225	1070	1400	2390	13	300	2390
3.04	1.82	625	625	200	200	30	9000	30	9000	4	1200	19	225	8940	19	225	9860	--	--	--	--	13	225	1070	1700	2690	13	200	3000
3.04	2.43	625	625	200	200	30	9000	30	9000	6	1800	19	225	8940	19	225	9860	10	225	1070	2080	13	225	1070	2010	3000	13	115	3610
3.04	3.04	625	625	245	200	30	9000	30	9000	8	2400	19	225	8940	19	225	9930	10	225	1110	2160	16	225	1110	2310	3330	16	150	4220
3.04	3.65	625	625	275	200	30	9000	30	9000	10	3000	19	225	8940	19	225	10010	10	225	1140	2240	19	225	1140	2620	3630	22	240	4830
3.65	1.82	730	730	200	200	36	10800	36	10800	4	1200	22	225	10520	22	225	11680	--	--	--	--	13	225	1190	1810	2920	13	190	3200
3.65	2.43	725	725	200	200	36	10800	36	10800	6	1800	22	225	10520	22	225	11680	10	225	1190	2310	13	225	1190	2110	3230	19	240	3810
3.65	3.04	730	730	245	200	36	10800	36	10800	8	2400	22	200	10520	22	200	11760	10	200	1230	2410	16	200	1230	2420	3560	19	200	4420
3.65	3.65	730	730	280	200	36	10800	36	10800	10	3000	22	200	10520	22	200	11840	10	200	1270	2490	19	200	1270	2720	3860	22	240	5030

Sheet 1 of 3

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

TRIPLE BOX CULVERTS  
13.5 TO 15.0 m FILLS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

1004.34

REINFORCING STEEL																		
SPAN (m)	HIGHT (m)	BV2			BT1												NO. BL1 BARS	NO. BL2 BARS
		SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH				
0.91	0.91	13	300	1270	13	300	820	135	450	180	120	3450	430	3660	44	16		
0.91	1.21	13	300	1570	13	300	820	135	450	180	120	3450	430	3660	44	24		
1.21	0.91	13	300	1370	13	300	1040	190	520	255	170	4370	560	4650	56	16		
1.21	1.21	13	300	1680	13	300	1040	195	510	265	175	4370	550	4670	56	24		
1.21	1.52	13	300	1980	13	300	1040	190	520	255	170	4370	560	4650	56	32		
1.21	1.82	13	300	2290	13	300	1040	195	510	265	175	4370	550	4670	56	40		
1.52	0.91	13	300	1470	13	225	1260	245	580	335	225	5280	690	5660	68	16		
1.52	1.21	13	300	1780	13	225	1260	245	580	335	225	5280	690	5660	68	24		
1.52	1.52	13	300	2110	13	225	1250	250	580	345	230	5280	680	5660	68	32		
1.52	1.82	13	300	2410	13	225	1250	250	580	345	230	5280	680	5660	68	40		
1.52	2.13	13	300	2720	13	250	1250	250	580	345	230	5280	680	5660	68	48		
1.82	1.21	13	275	1930	13	225	1470	315	630	430	295	6200	800	6680	80	24		
1.82	1.52	13	275	2240	13	225	1470	315	630	430	295	6200	800	6680	80	32		
1.82	1.82	13	290	2510	13	225	1470	300	650	415	285	6200	810	6680	80	40		
1.82	2.13	13	290	2820	13	225	1470	300	650	415	285	6200	810	6680	80	48		
1.82	2.43	13	290	3120	13	225	1470	300	650	415	285	6200	810	6680	80	56		
2.13	1.21	13	250	2030	16	225	1690	370	710	510	345	7120	930	7700	92	24		
2.13	1.82	13	250	2640	16	225	1690	370	710	510	345	7120	930	7700	92	40		
2.13	2.43	13	250	3250	16	225	1690	370	710	510	345	7120	930	7700	92	56		
2.13	3.04	13	250	3860	16	225	1730	370	710	510	345	7200	930	7770	92	72		
2.43	1.21	13	250	2160	16	225	1900	430	770	600	410	8020	1050	8710	104	24		
2.43	1.82	13	250	2770	16	200	1900	430	770	600	410	8020	1050	8710	104	40		
2.43	2.43	13	250	3380	16	200	1900	430	770	600	410	8020	1050	8710	104	56		
2.43	3.04	13	250	3990	16	200	1940	430	770	600	410	8110	1050	8790	104	72		
2.74	1.21	13	250	2260	19	225	2110	485	840	670	460	8940	1180	9700	116	24		
2.74	1.82	13	250	2870	19	225	2110	485	840	670	460	8940	1180	9700	116	40		
2.74	2.43	13	250	3480	19	225	2110	485	840	670	460	8940	1180	9700	116	56		
2.74	3.04	13	250	4090	19	225	2160	485	840	670	460	9030	1180	9780	116	72		
2.74	3.65	13	240	4700	19	225	2190	485	840	670	460	9090	1180	9860	116	88		
3.04	1.21	13	225	2390	19	225	2330	550	900	760	525	9860	1300	10720	128	24		
3.04	1.82	13	225	3000	19	225	2330	550	900	760	525	9860	1300	10720	128	40		
3.04	2.43	13	225	3610	19	225	2330	550	900	760	525	9860	1300	10720	128	56		
3.04	3.04	13	225	4220	19	225	2370	550	900	760	525	9940	1300	10800	128	72		
3.04	3.65	13	225	4830	19	225	2400	550	900	760	525	10010	1300	10870	128	88		
3.65	1.82	16	300	3200	22	225	2760	660	1030	915	630	11680	1560	12730	152	40		
3.65	2.43	16	300	3810	22	225	2770	655	1040	905	625	11680	1570	12730	152	56		
3.65	3.04	13	190	4420	19	200	2810	660	1030	915	630	11780	1560	12830	152	72		
3.65	3.65	13	190	5030	19	200	2840	660	1030	915	630	11850	1560	12900	152	88		

BT15.0

SPAN (m)	HCHT (m)	REINFORCING STEEL (kg/LONG. JT)	QUAN./m			HEADWALLS										WINGWALL
			CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	G HEADWALL LENGTH	HW 1		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CL. A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)			
						SIZE	LENGTH									
0.91	0.91	19.23	2.598	174.56	4010	19	3910	2	8	1.460	46.66	1.446	34.96	A		
0.91	1.21	20.51	2.836	188.98	4010	19	3910	2	10	1.564	49.79	1.541	34.96	C		
1.21	0.91	23.77	3.442	208.36	4930	19	4830	2	8	1.668	54.89	1.661	43.18	B		
1.21	1.21	25.05	3.724	223.57	4930	19	4830	2	10	1.769	58.01	1.753	43.18	D		
1.21	1.52	26.33	3.926	237.46	4930	19	4830	2	12	1.878	61.15	1.853	43.18	F		
1.21	1.82	27.61	4.205	275.23	4930	19	4830	2	14	1.980	64.27	1.945	43.18	H		
1.52	0.91	28.31	4.533	284.98	5840	19	5740	2	8	1.824	63.02	1.824	51.32	B		
1.52	1.21	29.60	4.771	300.33	5840	19	5740	2	10	1.928	66.15	1.920	51.32	D		
1.52	1.52	30.88	5.124	316.21	5840	19	5740	2	12	2.025	69.29	2.007	51.32	F		
1.52	1.82	32.16	5.362	335.28	5840	19	5740	2	14	2.129	72.41	2.102	51.32	H		
1.52	2.13	33.44	5.606	362.63	5840	19	5740	2	16	2.235	75.55	2.199	51.32	J		
1.82	1.21	34.14	6.232	376.89	6760	19	6650	2	10	2.056	74.28	2.055	59.45	E		
1.82	1.52	35.42	6.478	392.80	6760	19	6650	2	12	2.162	77.42	2.152	59.45	G		
1.82	1.82	36.70	6.591	408.09	6760	19	6650	2	14	2.279	80.54	2.259	59.45	I		
1.82	2.13	37.98	6.833	450.30	6760	19	6650	2	16	2.385	83.68	2.356	59.45	K		
1.82	2.43	39.26	7.068	488.90	6760	19	6650	2	18	2.489	86.81	2.451	59.45	M		
2.13	1.21	38.68	7.679	497.31	7670	19	7570	2	10	2.154	82.51	2.161	67.68	E		
2.13	1.82	41.25	8.163	534.72	7670	19	7570	2	14	2.365	88.77	2.353	67.68	I		
2.13	2.43	43.81	8.640	620.40	7670	19	7570	2	18	2.575	95.03	2.545	67.68	M		
2.13	3.04	46.37	9.471	710.96	7670	19	7570	2	22	2.680	101.29	2.630	67.68	Q		
2.43	1.21	43.23	9.522	646.93	8590	19	8480	2	10	2.193	90.64	2.207	75.81	E		
2.43	1.82	45.79	10.011	639.42	8590	19	8480	2	14	2.404	96.90	2.399	75.81	I		
2.43	2.43	48.35	10.489	720.34	8590	19	8480	2	18	2.614	103.17	2.591	75.81	M		
2.43	3.04	50.91	11.331	812.97	8590	19	8480	2	22	2.716	109.43	2.673	75.81	Q		
2.74	1.21	47.77	11.366	769.80	9500	19	9400	2	10	2.259	98.87	2.280	84.04	F		
2.74	1.82	50.33	11.849	810.35	9500	19	9400	2	14	2.469	105.13	2.472	84.04	J		
2.74	2.43	52.90	12.326	900.43	9500	19	9400	2	18	2.680	111.39	2.664	84.04	N		
2.74	3.04	55.46	13.177	996.26	9500	19	9400	2	22	2.779	117.65	2.744	84.04	R		
2.74	3.65	58.02	13.987	1150.64	9500	19	9400	2	26	2.887	123.92	2.833	84.04	V		
3.04	1.21	52.32	13.564	848.56	10410	19	10310	2	10	2.243	107.00	2.271	92.17	F		
3.04	1.82	54.88	14.046	892.97	10410	19	10310	2	14	2.453	113.26	2.463	92.17	J		
3.04	2.43	57.44	14.523	976.87	10410	19	10310	2	18	2.663	119.53	2.655	92.17	N		
3.04	3.04	60.00	15.386	1069.56	10410	19	10310	2	22	2.759	125.79	2.731	92.17	R		
3.04	3.65	62.56	16.208	1185.94	10410	19	10310	2	26	2.866	132.05	2.819	92.17	V		
3.65	1.82	63.97	18.749	1302.41	12240	19	12140	2	14	2.396	129.62	2.421	108.53	K		
3.65	2.43	66.53	19.107	1396.25	12240	19	12140	2	18	2.621	135.89	2.627	108.53	O		
3.65	3.04	69.09	20.101	1530.94	12240	19	12140	2	22	2.697	142.15	2.684	108.53	S		
3.65	3.65	71.65	20.986	1654.70	12240	19	12140	2	26	2.784	148.41	2.752	108.53	W		

Sheet 3 of 3

TRIPLE BOX CULVERTS  
13.5 TO 15.0 m FILLS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
AND  
BRIDGE  
DIVISION

1004.36