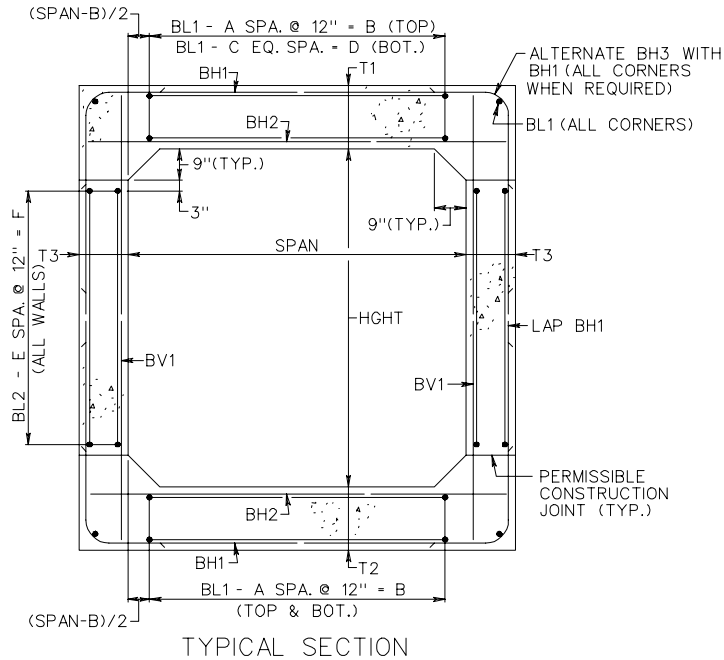


SECTION
1000

BOX
CULVERTS



GENERAL NOTE

CAPACITY: HS20-44 LOADING AND ALTERNATE MILITARY LOADING.

SPECIFICATIONS:

CONSTRUCTION - VA. DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS, 1991.
 DESIGN - AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 1983, INCLUDING INTERIM SPECIFICATIONS, 1984, 1985 AND VDOT MODIFICATIONS, USING LOAD FACTOR DESIGN.

ALL CONCRETE SHALL BE CLASS A4.

DEFORMED REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60. ALL REINFORCING BAR DIMENSIONS ON THE DETAILED DRAWINGS ARE TO CENTERS OF BARS EXCEPT WHERE OTHERWISE NOTED AND ARE SUBJECT TO FABRICATION AND CONSTRUCTION TOLERANCES.

CONSTRUCTION JOINTS SHALL BE CONSTRUCTED AND BONDED IN ACCORDANCE WITH THE CURRENT ROAD AND BRIDGE SPECIFICATIONS.

BARRELS MORE THAN 35' IN LENGTH SHALL BE POURED IN SECTIONS BY PROVIDING VERTICAL CONSTRUCTION JOINTS, NOT EXCEEDING 25' BETWEEN JOINTS NOR MORE THAN 30' FROM ENDS OF BARRELS.

** BARS BH1 & BH3 SHALL HAVE A PIN DIAMETER OF 24 BAR DIAMETERS.

DIMENSIONS ON BAR DIAGRAMS ARE OUT-TO-OUT OF BARS. BARS ARE STRAIGHT AND #4 IN SIZE UNLESS OTHERWISE SHOWN. BL2 SHALL BE #3 IN SIZE.

THE NUMBER OF BL1 & BL2 BARS SHOWN IN THE TABLE IS THE NUMBER OF LONGITUDINAL BARS SHOWN IN THE TYPICAL SECTION AND MAY NOT EQUAL THE TOTAL NUMBER OF BARS REQUIRED. BL1 & BL2 SHALL HAVE A LAP OF 30 BAR DIAMETERS AT SPLICES. AT CONSTRUCTION JOINTS, FIRST PLACED BARS SHALL PROJECT 30 BAR DIAMETERS BEYOND THE JOINT. ESTIMATED QUAN./LF SHOWN FOR REINFORCING STEEL DOES NOT INCLUDE QUANTITY FOR LAPS OF BL1 & BL2 BARS. THE ADDITIONAL WEIGHT PER LONGITUDINAL LAP IS SHOWN IN THE TABLE.

THE CENTERS OF MAIN REINFORCING BARS SHALL BE 2" FROM THE FACE OF THE CONCRETE.

WHEN CONCRETE PROTECTIVE COATING IS REQUIRED, ALL STEEL SHALL BE EPOXY-COATED. ALL REINFORCING STEEL FOR CULVERTS UNDER 0 TO 2 FOOT FILLS SHALL BE EPOXY-COATED.

AT THE CONTRACTOR'S OPTION, BV1 BARS MAY BE SPLICED AT THE PERMISSIBLE CONSTRUCTION JOINT IN ORDER TO FACILITATE CONSTRUCTION. NO ADDITIONAL COMPENSATION SHALL BE PROVIDED FOR THE INCREASE IN REINFORCING STEEL QUANTITY DUE TO THE SPLICES.

HEADWALL QUANTITIES SHOWN ASSUME WINGWALLS ARE TO BE BUILT AT A 45° ANGLE TO THE HEADWALL.

THE DESIGNS ARE APPLICABLE TO THE FILL HEIGHT AND OTHER CONDITIONS INDICATED. ANY CHANGE IN THE CONDITIONS INVALIDATES THESE DESIGNS.

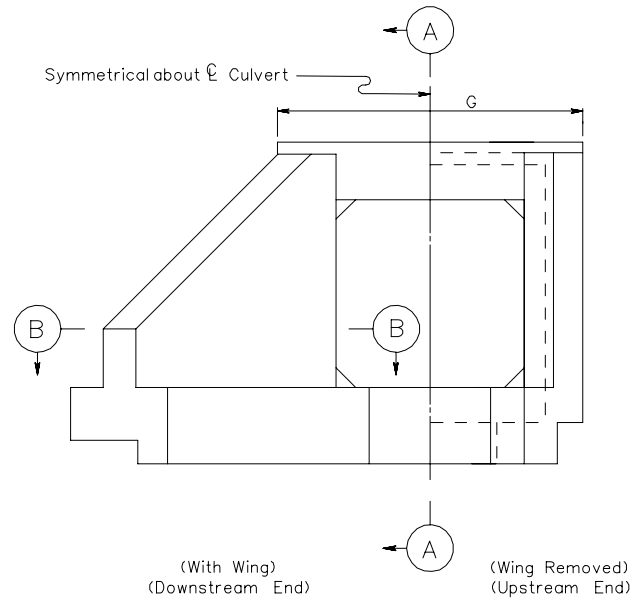
WINGWALLS REFERENCED BY LETTER APPLY WHEN THE ACCEPTABLE FOUNDATION LEVEL IS THE SAME FOR BOTH BOX AND WINGS. IF FOUNDATION LEVELS ARE DIFFERENT, THE HEIGHT OF THE WINGWALL SHALL BE ADJUSTED BY SELECTION OF ANOTHER LETTERED WINGWALL OF APPROPRIATE HEIGHT. FOR WINGWALL DETAILS, REFER TO STANDARD SERIES BCW FOR THE APPROPRIATE FILL SLOPE.

FOR DETAILS OF EXTENDING EXISTING BOXES, REFER TO STANDARD BCE-01.

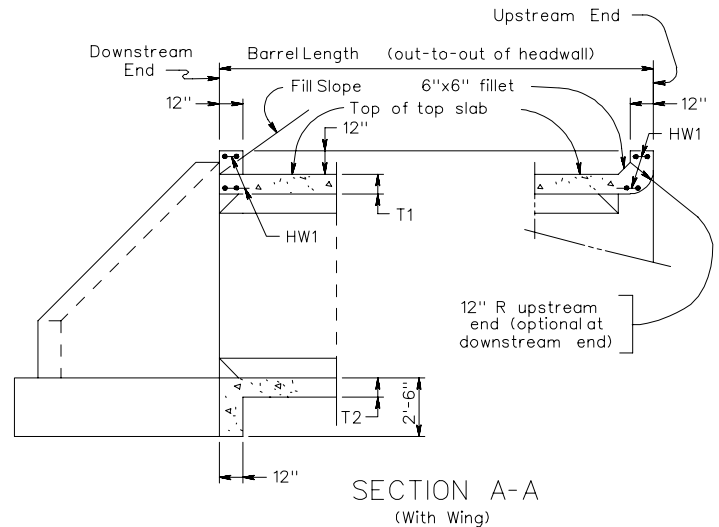
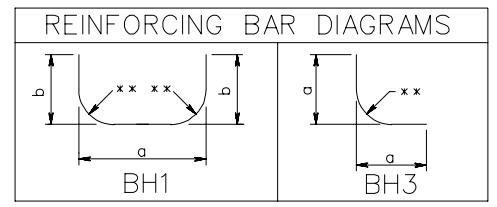
FOR MODIFICATION OF DETAILS FOR SKEWED CULVERTS, SEE THE SKEWED BOX DETAILS INCLUDED IN THE ROAD PLANS.

THIS STANDARD SHALL BE USED WITH THE BCB STANDARD SERIES.

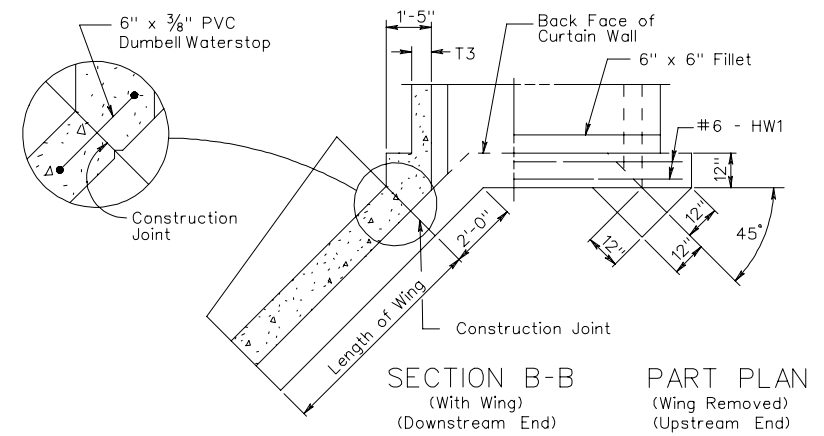
OVERSIZE BOX CULVERTS
 STANDARD DETAILS



END ELEVATION



SECTION A-A
(With Wing)



SECTION B-B (With Wing) (Downstream End)
PART PLAN (Wing Removed) (Upstream End)

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	A	B	C	D	E	F	BH1			BH2			BH3			BV1			NO. BL1 BARS	NO. BL2 BARS			
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)							SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH			SIZE	SPACING C-C	LENGTH
12	14	10 3/4"	10 3/4"	8"	11	11'- 0"	22	11'- 0"	12	12'- 0"	5	7"	13'- 0"	8'- 4 3/4"	29'- 2"	8	7"	13'- 0"	4	7"	3'-10 3/4"	7'- 6"	4	8 1/2"	15'- 5"	63	52
12	16	11 3/4"	11 3/4"	8 1/4"	11	11'- 0"	22	11'- 0"	14	14'- 0"	6	6"	13'- 1/2"	9'- 5 3/4"	31'- 2"	8	6"	13'- 0"	--	---	-----	-----	4	5 1/2"	17'- 8"	63	60
14	8	10 3/4"	10 3/4"	8"	13	13'- 0"	26	13'- 0"	6	6'- 0"	5	7"	15'- 0"	5'- 4 3/4"	25'- 2"	7	7"	15'- 0"	4	7"	4'- 3 5/8"	8'- 4"	4	12"	9'- 5"	73	28
14	10	11"	11"	8"	13	13'- 0"	26	13'- 0"	8	8'- 0"	5	8 1/2"	15'- 0"	6'- 5"	27'- 2"	8	8 1/2"	15'- 0"	4	8 1/2"	4'- 3 5/8"	8'- 4"	4	12"	11'- 6"	73	36
14	12	11"	11"	8"	13	13'- 0"	26	13'- 0"	10	10'- 0"	5	7 1/2"	15'- 0"	7'- 5"	29'- 2"	8	7 1/2"	15'- 0"	4	7 1/2"	4'- 3 5/8"	8'- 4"	4	12"	13'- 6"	73	44
14	14	11 1/2"	11 1/2"	8"	13	13'- 0"	26	13'- 0"	12	12'- 0"	6	6 1/2"	15'- 0"	8'- 5 1/2"	31'- 1"	8	6 1/2"	15'- 0"	--	---	-----	-----	4	10"	15'- 7"	73	52
14	16	12 1/2"	12 1/2"	8 1/4"	13	13'- 0"	26	13'- 0"	14	14'- 0"	6	5 1/2"	15'- 1/2"	9'- 6 1/2"	33'- 4"	8	5 1/2"	15'- 0"	--	---	-----	-----	5	9"	17'- 9"	73	60

SPAN	HGHT	REINFORCING STEEL (LBS/LONG. JT)	QUAN./LF		HEADWALLS																	
			CONCRETE CLASS #4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HW1		INLET CONCRETE CL. #4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. #4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL									
(FT.)	(FT.)				HEADWALL LENGTH	SIZE	LENGTH															
12	14	70.961	1.591	348.374	14'-10"	6	14'- 6"	2.927	87.116	2.961	87.116	X										
12	16	73.785	1.793	442.230	14'-10"	6	14'- 6"	3.064	87.116	3.097	87.116	BB										
14	8	70.839	1.431	305.160	16'-10"	6	16'- 6"	2.557	99.132	2.597	99.132	L										
14	10	73.663	1.554	302.186	16'-10"	6	16'- 6"	2.735	99.132	2.775	99.132	P										
14	12	76.487	1.649	344.477	16'-10"	6	16'- 6"	2.920	99.132	2.961	99.132	T										
14	14	79.311	1.790	413.560	16'-10"	6	16'- 6"	3.092	99.132	3.132	99.132	X										
14	16	82.135	2.004	513.929	16'-10"	6	16'- 6"	3.222	99.132	3.262	99.132	BB										

For Typical Section, notes and other details, refer to Standard BCB-DT.

OVERSIZE BOX CULVERTS

0 TO 2 FT. FILLS

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	BH1						BH2			BH3			BV1			NO. BL1 BARS	NO. BL2 BARS						
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE			SPACING C-C	a	LENGTH	SIZE	SPACING C-C	LENGTH
12	14	11"	11"	8"	11	11'- 0"	11	11'- 0"	12	12'- 0"	5	7"	13'- 0"	8'- 5"	29'- 2"	8	7"	13'- 0"	4	7"	3'-10 ³ / ₄ "	7'- 6"	4	8 ¹ / ₂ "	15'- 6"	52	52
12	16	12 ¹ / ₄ "	12 ¹ / ₄ "	8 ¹ / ₄ "	11	11'- 0"	11	11'- 0"	14	14'- 0"	6	6 ¹ / ₂ "	13'- 1/2"	9'- 6 ¹ / ₄ "	31'- 3"	8	6 ¹ / ₂ "	13'- 0"	4	6 ¹ / ₂ "	3'-11"	7'- 7"	5	7 ¹ / ₂ "	17'- 9"	52	60
14	8	10 ¹ / ₄ "	10 ¹ / ₄ "	8"	13	13'- 0"	13	13'- 0"	6	6'- 0"	5	6"	15'- 0"	5'- 4 ¹ / ₄ "	25'- 1"	7	6"	15'- 0"	--	---	-----	-----	4	7 ¹ / ₂ "	9'- 5"	60	28
14	10	10 ¹ / ₄ "	10 ¹ / ₄ "	8"	13	13'- 0"	13	13'- 0"	8	8'- 0"	6	7"	15'- 0"	6'- 4 ¹ / ₄ "	26'-11"	8	7"	15'- 0"	--	---	-----	-----	4	7 ¹ / ₂ "	11'- 5"	60	36
14	12	10 ¹ / ₂ "	10 ¹ / ₂ "	8"	13	13'- 0"	13	13'- 0"	10	10'- 0"	5	5 ¹ / ₂ "	15'- 0"	7'- 4 ¹ / ₂ "	29'- 1"	7	5 ¹ / ₂ "	15'- 0"	--	---	-----	-----	4	12"	13'- 5"	60	44
14	14	11 ¹ / ₂ "	11 ¹ / ₂ "	8"	13	13'- 0"	13	13'- 0"	12	12'- 0"	5	6 ¹ / ₂ "	15'- 0"	8'- 5 ¹ / ₂ "	31'- 3"	8	6 ¹ / ₂ "	15'- 0"	3	6 ¹ / ₂ "	4'- 3 ⁵ / ₈ "	8'- 5"	4	12"	15'- 7"	60	52
14	16	12 ¹ / ₂ "	12 ¹ / ₂ "	8 ¹ / ₂ "	13	13'- 0"	13	13'- 0"	14	14'- 0"	6	6"	15'- 1"	9'- 6 ¹ / ₂ "	33'- 4"	8	6"	15'- 1"	--	---	-----	-----	4	6"	17'- 9"	60	60

SPAN	HGHT	REINFORCING STEEL (LBS/LONG. JT)	QUAN./LF		HEADWALLS							
			CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HW1		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)
(FT.)	(FT.)			HEADWALL LENGTH	SIZE	LENGTH						
12	14	61.776	1.613	341.183	14'-10"	6	14'- 6"	2.922	87.116	2.956	87.116	X
12	16	64.600	1.833	455.414	14'-10"	6	14'- 6"	3.053	87.116	3.086	87.116	BB
14	8	59.984	1.384	298.025	16'-10"	6	16'- 6"	2.570	99.132	2.611	99.132	L
14	10	62.808	1.479	353.948	16'-10"	6	16'- 6"	2.756	99.132	2.796	99.132	P
14	12	65.632	1.602	340.704	16'-10"	6	16'- 6"	2.934	99.132	2.975	99.132	T
14	14	68.456	1.793	372.044	16'-10"	6	16'- 6"	3.092	99.132	3.132	99.132	X
14	16	71.280	2.035	471.425	16'-10"	6	16'- 6"	3.194	99.132	3.234	99.132	BB

For Typical Section, notes and other details, refer to Standard BCB-DT.

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	A	B	C	D	E	F	BH1				BH2			BH3				BV1			NO. BL1 BARS	NO. BL2 BARS	
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)							SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C			LENGTH
12	14	11 1/2"	11 1/2"	8"	11	11'-0"	11	11'-0"	12	12'-0"	5	6 1/2"	13'-0"	8'-5 1/2"	29'-3"	8	6 1/2"	13'-0"	4	6 1/2"	3'-10 3/4"	7'-6"	4	7 1/2"	15'-7"	52	52
12	16	12"	12"	8 3/4"	11	11'-0"	11	11'-0"	14	14'-0"	6	6"	13'-1/2"	9'-6"	31'-4"	8	6"	13'-1"	--	---	-----	-----	5	7 1/2"	17'-8"	52	60
14	8	11 3/4"	11 3/4"	8"	13	13'-0"	13	13'-0"	6	6'-0"	6	6 1/2"	15'-0"	5'-5 3/4"	25'-2"	8	6 1/2"	15'-0"	--	---	-----	-----	4	6"	9'-8"	60	28
14	10	11 3/4"	11 3/4"	8"	13	13'-0"	13	13'-0"	8	8'-0"	5	6"	15'-0"	6'-5 3/4"	27'-4"	8	6"	15'-0"	3	6"	4'-3 5/8"	8'-5"	4	6"	11'-8"	60	36
14	12	12"	12"	8"	13	13'-0"	13	13'-0"	10	10'-0"	5	6"	15'-0"	7'-6"	29'-4"	8	6"	15'-0"	3	6"	4'-3 5/8"	8'-5"	4	12"	13'-8"	60	44
14	14	12 1/2"	12 1/2"	8"	13	13'-0"	13	13'-0"	12	12'-0"	5	5 1/2"	15'-0"	8'-6 1/2"	31'-5"	8	5 1/2"	15'-0"	3	5 1/2"	4'-3 5/8"	8'-5"	4	11 1/2"	15'-9"	60	52
14	16	12 3/4"	12 3/4"	8 1/2"	13	13'-0"	13	13'-0"	14	14'-0"	6	5 1/2"	15'-1"	9'-6 3/4"	33'-5"	8	5 1/2"	15'-1"	--	---	-----	-----	4	5 1/2"	17'-9"	60	60

SPAN	HGHT	REINFORCING STEEL (LBS/LONG. J)	QUAN./LF		HEADWALLS																	
			CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HW1		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL									
(FT.)	(FT.)				HEADWALL LENGTH	SIZE	LENGTH															
12	14	61.776	1.652	365.400	14'-10"	6	14'-6"	2.911	87.116	2.945	87.116	X										
12	16	64.600	1.869	444.241	14'-10"	6	14'-6"	3.003	87.116	3.036	87.116	BB										
14	8	59.984	1.521	363.885	16'-10"	6	16'-6"	2.529	99.132	2.569	99.132	L										
14	10	62.808	1.619	384.341	16'-10"	6	16'-6"	2.714	99.132	2.754	99.132	P										
14	12	65.632	1.741	382.779	16'-10"	6	16'-6"	2.893	99.132	2.933	99.132	T										
14	14	68.456	1.884	426.957	16'-10"	6	16'-6"	3.064	99.132	3.105	99.132	X										
14	16	71.280	2.056	509.133	16'-10"	6	16'-6"	3.187	99.132	3.227	99.132	BB										

For Typical Section, notes and other details, refer to Standard BCB-DT.

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

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	BH1							BH2			BH3				BV1			NO. BL1 BARS	NO. BL2 BARS				
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH			SIZE	SPACING C-C	LENGTH	
12	14	12½"	12½"	8"	11	11'- 0"	11	11'- 0"	12	12'- 0"	5	6"	13'- 0"	8'- 6½"	29'- 5"	8	6"	13'- 0"	4	6"	3'-10¾"	7'- 6"	4	6"	15'- 9"	52	52
12	16	13"	13"	8¾"	11	11'- 0"	11	11'- 0"	14	14'- 0"	5	6"	13'- 1½"	9'- 7"	31'- 8"	8	6"	13'- 1"	4	6"	3'-11½"	7'- 8"	5	6"	17'-10"	52	60
14	8	13¾"	13¾"	8"	13	13'- 0"	13	13'- 0"	6	6'- 0"	5	6"	15'- 0"	5'- 7¾"	25'- 8"	8	6"	15'- 0"	3	6"	4'- 3⅝"	8'- 5"	4	6½"	10'- 0"	60	28
14	10	14"	14"	8"	13	13'- 0"	13	13'- 0"	8	8'- 0"	5	5½"	15'- 0"	6'- 8"	27'- 8"	8	5½"	15'- 0"	--	---	-----	-----	4	9"	12'- 0"	60	36
14	12	14"	14"	8"	13	13'- 0"	13	13'- 0"	10	10'- 0"	5	5½"	15'- 0"	7'- 8"	29'- 8"	8	5½"	15'- 0"	3	5½"	4'- 3⅝"	8'- 5"	4	12"	14'- 0"	60	44
14	14	14¼"	14¼"	8"	13	13'- 0"	13	13'- 0"	12	12'- 0"	5	5"	15'- 0"	8'- 8¼"	31'- 9"	8	5"	15'- 0"	3	5"	4'- 3⅝"	8'- 5"	5	10½"	16'- 0"	60	52
14	16	14¾"	14¾"	9"	13	13'- 0"	13	13'- 0"	14	14'- 0"	6	5"	15'- 2"	9'- 8¾"	33'-10"	8	5"	15'- 2"	--	---	-----	-----	5	7½"	18'- 1"	60	60

SPAN	HGHT	REINFORCING STEEL (LBS/LONG. JT)	QUAN./LF		HEADWALLS							
			CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HW1		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)
(FT.)	(FT.)	HEADWALL LENGTH	SIZE	LENGTH	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)				
12	14	61.776	1.732	398.018	14'-10"	6	14'- 6"	2.890	87.116	2.923	87.116	X
12	16	64.600	1.952	444.511	14'-10"	6	14'- 6"	2.981	87.116	3.014	87.116	BB
14	8	59.984	1.710	367.871	16'-10"	6	16'- 6"	2.473	99.132	2.513	99.132	L
14	10	62.808	1.832	375.674	16'-10"	6	16'- 6"	2.652	99.132	2.692	99.132	P
14	12	65.632	1.928	412.732	16'-10"	6	16'- 6"	2.837	99.132	2.877	99.132	T
14	14	68.456	2.046	479.350	16'-10"	6	16'- 6"	3.016	99.132	3.056	99.132	X
14	16	71.280	2.299	561.296	16'-10"	6	16'- 6"	3.074	99.132	3.114	99.132	BB

For Typical Section, notes and other details, refer to Standard BCB-DT.

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	BH1												BH2			BH3			BV1			NO. BL1 BARS	NO. BL2 BARS
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	LENGTH		
12	14	15"	15"	8 1/4"	11	11'- 0"	11	11'- 0"	12	12'- 0"	6	6"	13'- 1/2"	8'- 9"	29'- 9"	8	6"	13'- 0"	--	---	-----	-----	6	9 1/2"	16'- 2"	52	52
12	16	15 1/4"	15 1/4"	9 3/4"	11	11'- 0"	11	11'- 0"	14	14'- 0"	6	5 1/2"	13'- 3 1/2"	9'- 9 1/4"	32'- 0"	8	5 1/2"	13'- 3"	3	5 1/2"	4'- 0 1/2"	7'- 11"	7	11 1/2"	18'- 3"	52	60
14	8	16 3/4"	16 3/4"	8"	13	13'- 0"	13	13'- 0"	6	6'- 0"	4	5 1/2"	15'- 0"	5'- 10 3/4"	26'- 3"	8	5 1/2"	15'- 0"	4	5 1/2"	4'- 3 5/8"	8'- 4"	4	11"	10'- 6"	60	28
14	10	16 3/4"	16 3/4"	8"	13	13'- 0"	13	13'- 0"	8	8'- 0"	5	5"	15'- 0"	6'- 10 3/4"	28'- 2"	8	5"	15'- 0"	--	---	-----	-----	4	12"	12'- 6"	60	36
14	12	16 3/4"	16 3/4"	8"	13	13'- 0"	13	13'- 0"	10	10'- 0"	5	5"	15'- 0"	7'- 10 3/4"	30'- 2"	8	5"	15'- 0"	--	---	-----	-----	4	10"	14'- 6"	60	44
14	14	16 3/4"	16 3/4"	8 1/2"	13	13'- 0"	13	13'- 0"	12	12'- 0"	5	5"	15'- 1"	8'- 10 3/4"	32'- 3"	8	5"	15'- 1"	4	5"	4'- 4 1/8"	8'- 5"	6	11 1/2"	16'- 6"	60	52
14	16	17"	17"	9 1/2"	13	13'- 0"	13	13'- 0"	14	14'- 0"	6	5"	15'- 3"	9'- 11"	34'- 3"	8	5"	15'- 3"	--	---	-----	-----	6	9"	18'- 6"	60	60

SPAN	HGHT	REINFORCING STEEL (LBS/LONG. JT)	QUAN./LF	HEADWALLS									
				G		HWI		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL	
(FT.)	(FT.)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	HEADWALL LENGTH	SIZE	LENGTH	LENGTH						LENGTH
12	14	61.776	1.960	433.211	14'-10"	6	14'- 6"	2.810	87.116	2.844	87.116	X	
12	16	64.600	2.248	525.232	14'-10"	6	14'- 6"	2.835	87.116	2.868	87.116	CC	
14	8	59.984	1.994	365.773	16'-10"	6	16'- 6"	2.408	99.132	2.449	99.132	M	
14	10	62.808	2.090	403.570	16'-10"	6	16'- 6"	2.594	99.132	2.634	99.132	Q	
14	12	65.632	2.188	423.137	16'-10"	6	16'- 6"	2.779	99.132	2.820	99.132	U	
14	14	68.456	2.331	520.092	16'-10"	6	16'- 6"	2.913	99.132	2.953	99.132	Y	
14	16	71.280	2.571	579.111	16'-10"	6	16'- 6"	2.970	99.132	3.009	99.132	CC	

For Typical Section, notes and other details, refer to Standard BCB-DT.

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	BH1												BH2			BH3			BV1			NO. BL1 BARS	NO. BL2 BARS
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	LENGTH		
12	14	17"	17"	9 1/2"	11	11'- 0"	11	11'- 0"	12	12'- 0"	6	5/2"	13'- 3"	8'- 11"	30'- 3"	8	5/2"	13'- 3"	--	---	-----	-----	4	4 1/2"	16'- 6"	52	52
12	16	17 1/4"	17 1/4"	10 1/4"	11	11'- 0"	11	11'- 0"	14	14'- 0"	7	5/2"	13'- 4 1/2"	9'- 11 1/4"	32'- 4"	8	5/2"	13'- 4"	--	---	-----	-----	7	10"	18'- 6"	52	60
14	8	19 3/4"	19 3/4"	8"	13	13'- 0"	13	13'- 0"	6	6'- 0"	4	5"	15'- 0"	6'- 1 3/4"	26'- 9"	8	5"	15'- 0"	--	---	-----	-----	4	12"	11'- 0"	60	28
14	10	19 3/4"	19 3/4"	8"	13	13'- 0"	13	13'- 0"	8	8'- 0"	4	5"	15'- 0"	7'- 1 3/4"	28'- 9"	8	5"	15'- 0"	3	5"	4'- 3 5/8"	8'- 5"	4	12"	13'- 0"	60	36
14	12	20"	20"	8"	13	13'- 0"	13	13'- 0"	10	10'- 0"	5	5"	15'- 0"	8'- 2"	30'- 8"	8	5"	15'- 0"	--	---	-----	-----	6	11 1/2"	15'- 0"	60	44
14	14	19 3/4"	19 3/4"	9"	13	13'- 0"	13	13'- 0"	12	12'- 0"	5	5"	15'- 2"	9'- 1 3/4"	32'- 10"	8	5"	15'- 2"	3	5"	4'- 4 5/8"	8'- 7"	5	6 1/2"	17'- 0"	60	52
14	16	19 3/4"	19 3/4"	10 1/4"	13	13'- 0"	13	13'- 0"	14	14'- 0"	6	4 1/2"	15'- 4 1/2"	10'- 1 3/4"	34'- 10"	8	4 1/2"	15'- 4"	--	---	-----	-----	5	5 1/2"	19'- 0"	60	60

SPAN	HGHT	REINFORCING STEEL (LBS./LONG. JT)	QUAN./LF		HEADWALLS																				
			CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	G	HW1		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL													
(FT.)	(FT.)				HEADWALL LENGTH	SIZE	LENGTH																		
12	14	61.776	2.253	465.711	14'-10"	6	14'- 6"	2.656	87.116	2.689	87.116	Y													
12	16	64.600	2.469	591.785	14'-10"	6	14'- 6"	2.731	87.116	2.763	87.116	CC													
14	8	59.984	2.280	343.315	16'-10"	6	16'- 6"	2.325	99.132	2.365	99.132	M													
14	10	62.808	2.376	385.789	16'-10"	6	16'- 6"	2.511	99.132	2.551	99.132	Q													
14	12	65.632	2.493	449.413	16'-10"	6	16'- 6"	2.689	99.132	2.729	99.132	U													
14	14	68.456	2.670	514.836	16'-10"	6	16'- 6"	2.776	99.132	2.815	99.132	Y													
14	16	71.280	2.920	646.499	16'-10"	6	16'- 6"	2.801	99.132	2.839	99.132	CC													

For Typical Section, notes and other details, refer to Standard BCB-DT.

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	BH1												BH2			BH3			BV1			NO. BL1 BARS	NO. BL2 BARS
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	LENGTH		
12	14	19/2"	19/2"	9 3/4"	11	11'- 0"	11	11'- 0"	12	12'- 0"	5	5/2"	13'- 3 1/2"	9'- 1 1/2"	30'-11"	8	5/2"	13'- 3"	4	5/2"	4'- 1/2"	7'-10"	6	8"	16'-11"	52	52
12	16	19/2"	19/2"	11"	11	11'- 0"	11	11'- 0"	14	14'- 0"	6	5/2"	13'- 6"	10'- 1 1/2"	32'-11"	8	5/2"	13'- 6"	3	5/2"	4'- 1 3/4"	8'- 1"	8	12"	18'-11"	52	60
14	8	22 1/2"	22 1/2"	8"	13	13'- 0"	13	13'- 0"	6	6'- 0"	4	5"	15'- 0"	6'- 4 1/2"	27'- 3"	8	5"	15'- 0"	--	---	-----	-----	4	12"	11'- 5"	60	28
14	10	22 3/4"	22 3/4"	8"	13	13'- 0"	13	13'- 0"	8	8'- 0"	4	5"	15'- 0"	7'- 4 3/4"	29'- 3"	8	5"	15'- 0"	3	5"	4'- 3 5/8"	8'- 5"	4	6 1/2"	13'- 6"	60	36
14	12	22 3/4"	22 3/4"	8 1/4"	13	13'- 0"	13	13'- 0"	10	10'- 0"	5	4 1/2"	15'- 1/2"	8'- 4 3/4"	31'- 2"	8	4 1/2"	15'- 0"	--	---	-----	-----	6	9"	15'- 6"	60	44
14	14	22 3/4"	22 3/4"	9 1/2"	13	13'- 0"	13	13'- 0"	12	12'- 0"	5	5"	15'- 3"	9'- 4 3/4"	33'- 5"	8	5"	15'- 3"	3	5"	4'- 5 1/8"	8'- 8"	5	5 1/2"	17'- 6"	60	52
14	16	22 3/4"	22 3/4"	11"	13	13'- 0"	13	13'- 0"	14	14'- 0"	6	4 1/2"	15'- 6"	10'- 4 3/4"	35'- 6"	8	4 1/2"	15'- 6"	--	---	-----	-----	7	9 1/2"	19'- 6"	60	60

SPAN	HGHT	REINFORCING STEEL (LBS/LONG. JT)	QUAN./LF	HEADWALLS									
				CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G HEADWALL LENGTH	HW I SIZE	HW I LENGTH	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
12	14	61.776	2.189	471.266	14'-10"	6	14'- 6"	2.572	87.116	2.604	87.116	Y	
12	16	64.600	2.751	557.865	14'-10"	6	14'- 6"	2.588	87.116	2.620	87.116	CC	
14	8	59.984	2.540	345.475	16'-10"	6	16'- 6"	2.267	99.132	2.308	99.132	N	
14	10	62.808	2.658	403.321	16'-10"	6	16'- 6"	2.446	99.132	2.486	99.132	R	
14	12	65.632	2.744	505.676	16'-10"	6	16'- 6"	2.607	99.132	2.647	99.132	V	
14	14	68.456	3.011	533.304	16'-10"	6	16'- 6"	2.653	99.132	2.692	99.132	Z	
14	16	71.280	3.301	668.433	16'-10"	6	16'- 6"	2.638	99.132	2.676	99.132	DD	

For Typical Section, notes and other details, refer to Standard BCB-DT.

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	BH1												BH2			BH3			BV1			NO. BL1 BARS	NO. BL2 BARS
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	LENGTH		
12	14	21 3/4"	21 3/4"	10 1/2"	11	11'- 0"	11	11'- 0"	12	12'- 0"	5	5/2"	13'- 5"	9'- 3 3/4"	31'- 5"	8	5/2"	13'- 5"	4	5/2"	4'- 1/4"	7'-11"	7	10 1/2"	17'- 3"	52	52
12	16	21 3/4"	21 3/4"	12"	11	11'- 0"	11	11'- 0"	14	14'- 0"	6	5"	13'- 8"	10'- 3 3/4"	33'- 6"	8	5"	13'- 8"	3	5"	4'- 2 3/4"	8'- 3"	8	12"	19'- 3"	52	60
14	8	24 3/4"	24 3/4"	8 1/4"	13	13'- 0"	13	13'- 0"	6	6'- 0"	4	5"	15'- 1/2"	6'- 6 3/4"	27'- 8"	8	5"	15'- 0"	--	---	-----	-----	4	12"	11'- 9"	60	28
14	10	24 3/4"	24 3/4"	8"	13	13'- 0"	13	13'- 0"	8	8'- 0"	4	4 1/2"	15'- 0"	7'- 6 3/4"	29'- 7"	8	4 1/2"	15'- 0"	--	---	-----	-----	6	11 1/2"	13'- 9"	60	36
14	12	24 3/4"	24 3/4"	9 1/4"	13	13'- 0"	13	13'- 0"	10	10'- 0"	5	4 1/2"	15'- 2 1/2"	8'- 6 3/4"	31'- 8"	8	4 1/2"	15'- 3"	--	---	-----	-----	6	9 1/2"	15'- 9"	60	44
14	14	24 1/2"	24 1/2"	10 1/2"	13	13'- 0"	13	13'- 0"	12	12'- 0"	6	4 1/2"	15'- 5"	9'- 6 1/2"	33'- 8"	8	4 1/2"	15'- 5"	--	---	-----	-----	6	8"	17'- 9"	60	52
14	16	24 1/2"	24 1/2"	12"	13	13'- 0"	13	13'- 0"	14	14'- 0"	5	4 1/2"	15'- 8"	10'- 6 1/2"	36'- 1"	8	4 1/2"	15'- 8"	4	4 1/2"	4'- 7 5/8"	9'- 0"	6	7"	19'- 9"	60	60

SPAN	HGHT	REINFORCING STEEL (LBS/LONG. JT)	QUAN./LF		HEADWALLS							
			CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	HEADWALL LENGTH	SIZE	HW1 LENGTH	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
12	14	61.776	2.759	480.335	14'-10"	6	14'- 6"	2.457	87.116	2.489	87.116	Z
12	16	64.600	3.061	606.544	14'-10"	6	14'- 6"	2.431	87.116	2.462	87.116	DD
14	8	59.984	2.772	347.256	16'-10"	6	16'- 6"	2.186	99.132	2.227	99.132	N
14	10	62.808	2.847	415.712	16'-10"	6	16'- 6"	2.390	99.132	2.431	99.132	R
14	12	65.632	3.063	509.699	16'-10"	6	16'- 6"	2.452	99.132	2.492	99.132	V
14	14	68.456	3.283	628.839	16'-10"	6	16'- 6"	2.491	99.132	2.529	99.132	Z
14	16	71.280	3.597	652.288	16'-10"	6	16'- 6"	2.461	99.132	2.498	99.132	DD

For Typical Section, notes and other details, refer to Standard BCB-DT.

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	A	B	C	D	E	F	BH1			BH2			BH3			BV1			NO. BL1 BARS	NO. BL2 BARS			
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)							SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH			SIZE	SPACING C-C	LENGTH
12	14	22 3/4"	22 3/4"	11 1/4"	11	11'- 0"	11	11'- 0"	12	12'- 0"	5	5"	13'- 6 1/2"	9'- 4 3/4"	31'- 8"	8	5"	13'- 6"	4	5"	4'- 2"	8'- 1"	7	10 1/2"	17'- 6"	52	52
12	16	22 3/4"	22 3/4"	12 3/4"	11	11'- 0"	11	11'- 0"	14	14'- 0"	6	5"	13'- 9 1/2"	10'- 4 3/4"	33'- 9"	8	5"	13'- 9"	3	5"	4'- 3 1/2"	8'- 5"	6	6 1/2"	19'- 6"	52	60
14	8	27 3/4"	27 3/4"	9"	13	13'- 0"	13	13'- 0"	6	6'- 0"	4	4 1/2"	15'- 2"	6'- 9 3/4"	28'- 3"	8	4 1/2"	15'- 2"	--	---	-----	-----	4	12"	12'- 3"	60	28
14	10	27 3/4"	27 3/4"	8 1/2"	13	13'- 0"	13	13'- 0"	8	8'- 0"	4	4 1/2"	15'- 1"	7'- 9 3/4"	30'- 2"	8	4 1/2"	15'- 1"	--	---	-----	-----	6	9 1/2"	14'- 3"	60	36
14	12	27 1/2"	27 1/2"	10"	13	13'- 0"	13	13'- 0"	10	10'- 0"	5	4 1/2"	15'- 4"	8'- 9 1/2"	32'- 3"	9	4 1/2"	15'- 4"	--	---	-----	-----	4	4"	16'- 3"	60	44
14	14	27 1/2"	27 1/2"	11 1/4"	13	13'- 0"	13	13'- 0"	12	12'- 0"	6	4 1/2"	15'- 6 1/2"	9'- 9 1/2"	34'- 4"	8	4 1/2"	15'- 6"	--	---	-----	-----	5	5"	18'- 3"	60	52
14	16	27 3/4"	27 3/4"	12 3/4"	13	13'- 0"	13	13'- 0"	14	14'- 0"	5	4 1/2"	15'- 9 1/2"	10'- 9 3/4"	36'- 9"	8	4 1/2"	15'- 9"	4	4 1/2"	4'- 8 3/8"	9'- 2"	7	8 1/2"	20'- 3"	60	60

SPAN	HGHT	REINFORCING STEEL (LBS/LONG. JT)	QUAN./LF		HEADWALLS							
			CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G	HW1		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
(FT.)	(FT.)	HEADWALL LENGTH	SIZE	LENGTH	LENGTH							
	14	61.776	2.923	519.437	14'-10"	6	14'- 6"	2.351	87.116	2.382	87.116	Z
	16	64.600	3.238	615.365	14'-10"	6	14'- 6"	2.314	87.116	2.344	87.116	DD
	8	59.984	3.112	383.593	16'-10"	6	16'- 6"	2.063	99.132	2.103	99.132	O
	10	62.808	3.175	429.948	16'-10"	6	16'- 6"	2.281	99.132	2.321	99.132	S
	12	65.632	3.398	579.194	16'-10"	6	16'- 6"	2.315	99.132	2.354	99.132	W
	14	68.456	3.660	646.752	16'-10"	6	16'- 6"	2.333	99.132	2.371	99.132	AA
	16	71.280	4.012	673.532	16'-10"	6	16'- 6"	2.281	99.132	2.318	99.132	EE

For Typical Section, notes and other details, refer to Standard BCB-DT.

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	BH1												BH2			BH3			BV1			NO. BL1 BARS	NO. BL2 BARS
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	LENGTH		
12	14	25/4"	25/4"	12"	11	11'- 0"	11	11'- 0"	12	12'- 0"	5	5"	13'- 8"	9'- 7/4"	32'- 3"	8	5"	13'- 8"	4	5"	4'- 2 3/4"	8'- 2"	5	5"	17'-11"	52	52
12	16	25/4"	25/4"	13 3/4"	11	11'- 0"	11	11'- 0"	14	14'- 0"	6	4 1/2"	13'-11 1/2"	10'- 7/4"	34'- 4"	9	4 1/2"	14'- 0"	3	4 1/2"	4'- 4 1/2"	8'- 7"	7	8 1/2"	19'-11"	52	60
14	8	28 3/4"	28 3/4"	10 1/2"	13	13'- 0"	13	13'- 0"	6	6'- 0"	4	4 1/2"	15'- 5"	6'-10 3/4"	28'- 8"	8	4 1/2"	15'- 5"	--	---	-----	-----	4	12"	12'- 5"	60	28
14	10	28 1/2"	28 1/2"	9 3/4"	13	13'- 0"	13	13'- 0"	8	8'- 0"	4	4 1/2"	15'- 3 1/2"	7'-10 1/2"	30'- 6"	8	4 1/2"	15'- 5"	3	4 1/2"	4'- 5 3/8"	8'- 8"	6	11 1/2"	14'- 5"	60	36
14	12	28 1/2"	28 1/2"	10 1/2"	13	13'- 0"	13	13'- 0"	10	10'- 0"	4	4 1/2"	15'- 5"	8'-10 1/2"	32'- 8"	8	4 1/2"	15'- 5"	4	4 1/2"	4'- 6 1/8"	8'- 9"	5	6"	16'- 5"	60	44
14	14	28 1/2"	28 1/2"	12 1/4"	13	13'- 0"	13	13'- 0"	12	12'- 0"	5	4 1/2"	15'- 8 1/2"	9'-10 1/2"	34'-10"	9	4 1/2"	15'- 8"	3	4 1/2"	4'- 7 7/8"	9'- 1"	7	10 1/2"	18'- 5"	60	52
14	16	28 1/2"	28 1/2"	13 3/4"	13	13'- 0"	13	13'- 0"	14	14'- 0"	6	4 1/2"	15'-11 1/2"	10'-10 1/2"	36'-11"	9	4 1/2"	15'-11"	3	4 1/2"	4'- 9 3/8"	9'- 4"	6	6 1/2"	20'- 5"	60	60

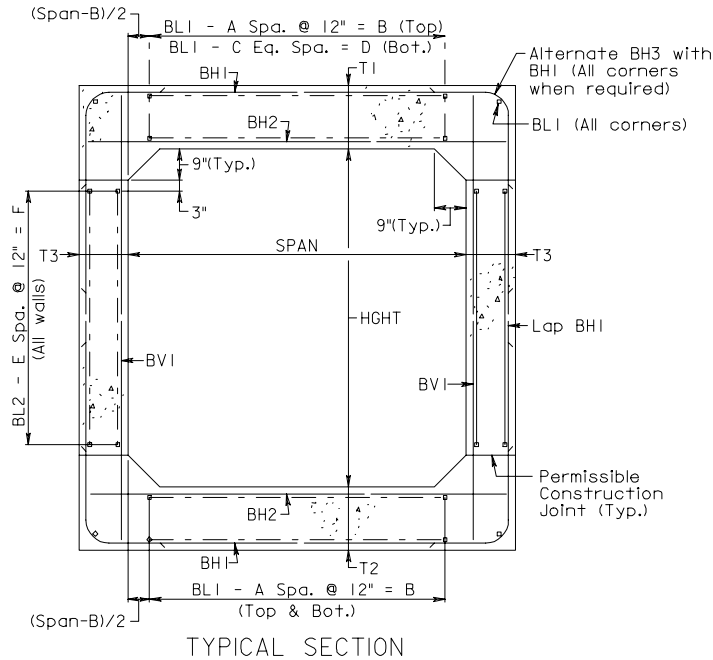
SPAN	HGHT	REINFORCING STEEL (LBS./LONG. JT)	QUAN./LF		HEADWALLS											
			CONCRETE CLASS 'A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	G		HW1		INLET CONCRETE CL. 'A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. 'A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL			
(FT.)	(FT.)				HEADWALL LENGTH	SIZE	LENGTH									
12	14	61.776	3.221	532.966	14'-10"	6	14'- 6"	2.205	87.116	2.236	87.116	Z				
12	16	64.600	3.572	735.565	14'-10"	6	14'- 6"	2.124	87.116	2.153	87.116	DD				
14	8	59.984	3.326	388.860	16'-10"	6	16'- 6"	1.917	99.132	1.955	99.132	O				
14	10	62.808	3.358	459.387	16'-10"	6	16'- 6"	2.147	99.132	2.186	99.132	S				
14	12	65.632	3.551	523.375	16'-10"	6	16'- 6"	2.234	99.132	2.272	99.132	W				
14	14	68.456	3.873	659.960	16'-10"	6	16'- 6"	2.187	99.132	2.224	99.132	AA				
14	16	71.280	4.206	797.650	16'-10"	6	16'- 6"	2.129	99.132	2.165	99.132	EE				

For Typical Section, notes and other details, refer to Standard BCB-DT.

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	BH1												BH2			BH3			BV1			NO. BL1 BARS	NO. BL2 BARS
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	LENGTH		
12	14	27 1/2"	27 1/2"	12 3/4"	11	11'-0"	11	11'-0"	12	12'-0"	5	5"	13'-9 1/2"	9'-9 1/2"	32'-9"	8	5"	13'-9"	4	5"	4'-3 1/2"	8'-4"	8	12"	18'-3"	52	52
12	16	27 3/4"	27 3/4"	14 1/2"	11	11'-0"	11	11'-0"	14	14'-0"	6	4 1/2"	14'-1"	10'-9 3/4"	34'-11"	9	4 1/2"	14'-1"	3	4 1/2"	4'-5 1/4"	8'-8"	7	8"	20'-3"	52	60
14	8	31 1/2"	31 1/2"	11 3/4"	13	13'-0"	13	13'-0"	6	6'-0"	4	4 1/2"	15'-7 1/2"	7'-1 1/2"	29'-4"	9	4 1/2"	15'-7"	--	---	-----	-----	4	12"	12'-11"	60	28
14	10	31 1/2"	31 1/2"	10 3/4"	13	13'-0"	13	13'-0"	8	8'-0"	4	4 1/2"	15'-5 1/2"	8'-1 1/2"	31'-2"	9	4 1/2"	15'-6"	--	---	-----	-----	5	7 1/2"	14'-11"	60	36
14	12	31 1/4"	31 1/4"	11 1/4"	13	13'-0"	13	13'-0"	10	10'-0"	4	4 1/2"	15'-6 1/2"	9'-1 1/4"	33'-3"	8	4 1/2"	15'-6"	4	4 1/2"	4'-6 3/8"	8'-11"	6	8"	16'-11"	60	44
14	14	31 1/4"	31 1/4"	13"	13	13'-0"	13	13'-0"	12	12'-0"	5	4 1/2"	15'-10"	10'-1 1/4"	35'-5"	9	4 1/2"	15'-10"	3	4 1/2"	4'-8 5/8"	9'-3"	6	7"	18'-11"	60	52
14	16	31 1/4"	31 1/4"	14 1/2"	13	13'-0"	13	13'-0"	14	14'-0"	6	4 1/2"	16'-1"	11'-1 1/4"	37'-6"	9	4 1/2"	16'-1"	3	4 1/2"	4'-10 1/8"	9'-6"	6	6"	20'-11"	60	60

SPAN	HGHT	REINFORCING STEEL (LBS/LONG, JT)	QUAN./LF		HEADWALLS																				
			CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HW1		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL												
(FT.)	(FT.)				HEADWALL LENGTH	SIZE	LENGTH																		
12	14	61.776	3.500	545.363	14'-10"	6	14'-6"	2.080	87.116	2.110	87.116	AA													
12	16	64.600	3.886	751.312	14'-10"	6	14'-6"	1.979	87.116	2.008	87.116	EE													
14	8	59.984	3.691	454.947	16'-10"	6	16'-6"	1.732	99.132	1.770	99.132	O													
14	10	62.808	3.738	495.505	16'-10"	6	16'-6"	1.965	99.132	2.003	99.132	S													
14	12	65.632	3.897	535.563	16'-10"	6	16'-6"	2.071	99.132	2.109	99.132	W													
14	14	68.456	4.232	678.268	16'-10"	6	16'-6"	2.010	99.132	2.047	99.132	AA													
14	16	71.280	4.579	818.453	16'-10"	6	16'-6"	1.939	99.132	1.974	99.132	EE													

For Typical Section, notes and other details, refer to Standard BCB-DT.



TYPICAL SECTION

GENERAL NOTE

Capacity: HS20-44 Loading and Alternate Military Loading.

Specifications:

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

All concrete shall be Class A4.

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

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

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

**Bars BH1 & BH3 shall have a pin diameter of 24 bar diameters.

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

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

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

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

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

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

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

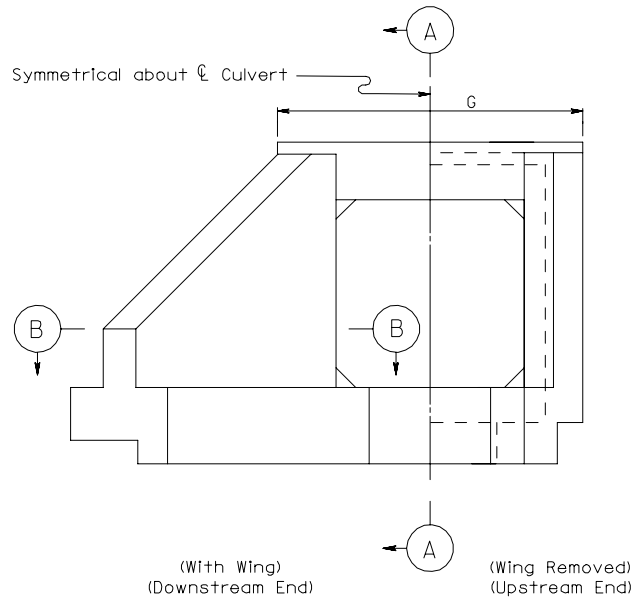
Wingwalls referenced by letter apply when the acceptable foundation level is the same for both box and wings. If foundation levels are different, the height of the wingwall shall be adjusted by selection of another lettered wingwall of appropriate height. For wingwall details, refer to standard series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

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

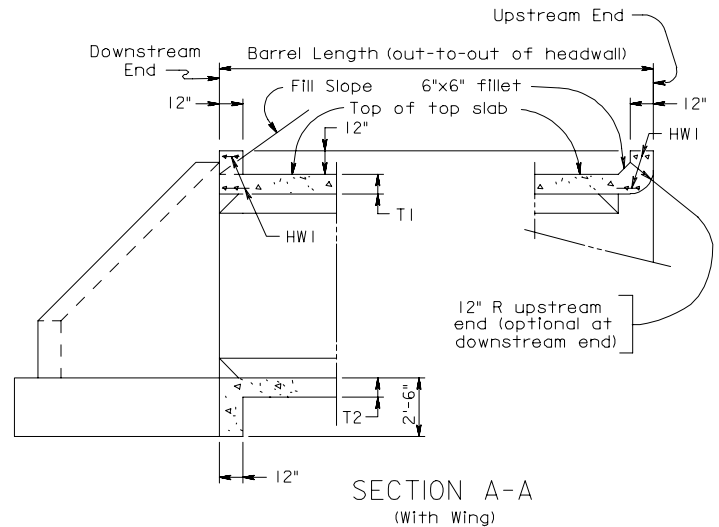
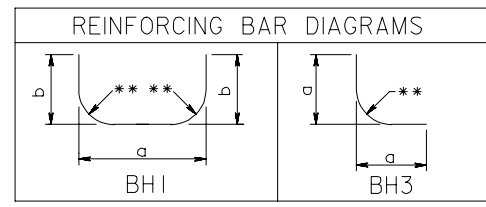
For modification of details for skewed culverts, see the Skewed Box Details included in the road plans.

This standard shall be used with the the BCS standard series.

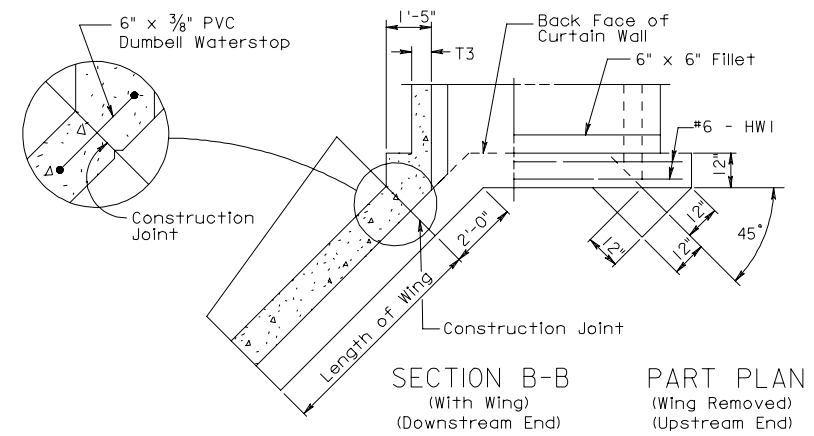
SINGLE BOX CULVERTS
STANDARD DETAILS



END ELEVATION



SECTION A-A
(With Wing)



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

PART PLAN
(Wing Removed)
(Upstream End)

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	A	B	C	D	E	F	BH1				BH2			BH3				BVI			NO. BL1 BARS	NO. BL2 BARS	
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)							SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C			LENGTH
3	3	8 1/2"	8 1/2"	8"	2	2'-0"	4	2'-0"	1	1'-0"	4	12"	4'-0"	2'-8 1/2"	8'-11"	5	12"	4'-0"	4	12"	2'-1 1/4"	3'-11"	4	12"	4'-1"	18	8
3	4	8 1/2"	8 1/2"	8"	2	2'-0"	4	2'-0"	2	2'-0"	4	12"	4'-0"	3'-2 1/2"	9'-11"	6	12"	4'-0"	--	--	----	----	4	12"	5'-1"	18	12
4	3	9"	9"	8"	3	3'-0"	6	3'-0"	1	1'-0"	4	12"	5'-0"	2'-9"	10'-0"	6	12"	5'-0"	--	--	----	----	4	10 1/2"	4'-2"	23	8
4	4	9"	9"	8"	3	3'-0"	6	3'-0"	2	2'-0"	4	12"	5'-0"	3'-3"	11'-0"	6	12"	5'-0"	--	--	----	----	4	12"	5'-2"	23	12
4	5	9"	9"	8"	3	3'-0"	6	3'-0"	3	3'-0"	4	12"	5'-0"	3'-9"	12'-0"	6	12"	5'-0"	--	--	----	----	4	12"	6'-2"	23	16
4	6	9"	9"	8"	3	3'-0"	6	3'-0"	4	4'-0"	4	11"	5'-0"	4'-3"	13'-0"	6	11"	5'-0"	--	--	----	----	4	12"	7'-2"	23	20
5	3	9 1/4"	9 1/4"	8"	4	4'-0"	8	4'-0"	1	1'-0"	4	11"	6'-0"	2'-9 1/4"	11'-0"	6	11"	6'-0"	--	--	----	----	4	12"	4'-2"	28	8
5	4	9 1/4"	9 1/4"	8"	4	4'-0"	8	4'-0"	2	2'-0"	4	11"	6'-0"	3'-3 1/4"	12'-0"	6	11"	6'-0"	--	--	----	----	4	12"	5'-2"	28	12
5	5	9 1/4"	9 1/4"	8"	4	4'-0"	8	4'-0"	3	3'-0"	4	10"	6'-0"	3'-9 1/4"	13'-0"	6	10"	6'-0"	--	--	----	----	4	12"	6'-2"	28	16
5	6	9"	9"	8"	4	4'-0"	8	4'-0"	4	4'-0"	4	10"	6'-0"	4'-3"	14'-0"	6	10"	6'-0"	--	--	----	----	4	12"	7'-2"	28	20
5	7	9"	9"	8"	4	4'-0"	8	4'-0"	5	5'-0"	4	9"	6'-0"	4'-9"	15'-0"	6	9"	6'-0"	--	--	----	----	4	12"	8'-2"	28	24
6	4	9 1/4"	9 1/4"	8"	5	5'-0"	10	5'-0"	2	2'-0"	4	9"	7'-0"	3'-3 1/4"	13'-0"	6	9"	7'-0"	--	--	----	----	4	12"	5'-2"	33	12
6	5	9 1/4"	9 1/4"	8"	5	5'-0"	10	5'-0"	3	3'-0"	4	9"	7'-0"	3'-9 1/4"	14'-0"	6	9"	7'-0"	--	--	----	----	4	12"	6'-2"	33	16
6	6	9 1/4"	9 1/4"	8"	5	5'-0"	10	5'-0"	4	4'-0"	4	9"	7'-0"	4'-3 1/4"	15'-0"	6	9"	7'-0"	--	--	----	----	4	12"	7'-2"	33	20
6	7	9 1/4"	9 1/4"	8"	5	5'-0"	10	5'-0"	5	5'-0"	4	8"	7'-0"	4'-9 1/4"	16'-0"	6	8"	7'-0"	--	--	----	----	4	12"	8'-2"	33	24
6	8	9 1/4"	9 1/4"	8"	5	5'-0"	10	5'-0"	6	6'-0"	4	12"	7'-0"	5'-3 1/4"	17'-0"	8	12"	7'-0"	4	12"	2'-8 3/8"	5'-2"	4	12"	9'-2"	33	28
7	4	9 1/2"	9 1/2"	8"	6	6'-0"	12	6'-0"	2	2'-0"	4	9"	8'-0"	3'-3 1/2"	14'-1"	6	9"	8'-0"	--	--	----	----	4	12"	5'-3"	38	12
7	6	9 1/2"	9 1/2"	8"	6	6'-0"	12	6'-0"	4	4'-0"	4	8"	8'-0"	4'-3 1/2"	16'-1"	6	8"	8'-0"	--	--	----	----	4	12"	7'-3"	38	20
7	8	9 1/2"	9 1/2"	8"	6	6'-0"	12	6'-0"	6	6'-0"	4	7"	8'-0"	5'-3 1/2"	18'-1"	6	7"	8'-0"	--	--	----	----	4	12"	9'-3"	38	28
7	10	9 1/2"	9 1/2"	8"	6	6'-0"	12	6'-0"	8	8'-0"	4	6"	8'-0"	6'-3 1/2"	20'-1"	6	6"	8'-0"	--	--	----	----	4	12"	11'-3"	38	36
8	4	9 3/4"	9 3/4"	8"	7	7'-0"	14	7'-0"	2	2'-0"	4	8"	9'-0"	3'-3 3/4"	15'-1"	6	8"	9'-0"	--	--	----	----	4	12"	5'-3"	43	12
8	6	9 3/4"	9 3/4"	8"	7	7'-0"	14	7'-0"	4	4'-0"	5	12"	9'-0"	4'-3 3/4"	17'-0"	8	12"	9'-0"	3	12"	3'-1 1/4"	6'-0"	4	12"	7'-3"	43	20
8	8	9 3/4"	9 3/4"	8"	7	7'-0"	14	7'-0"	6	6'-0"	5	7"	9'-0"	5'-3 3/4"	19'-0"	6	7"	9'-0"	--	--	----	----	4	12"	9'-3"	43	28
8	10	9 1/2"	9 1/2"	8"	7	7'-0"	14	7'-0"	8	8'-0"	4	9"	9'-0"	6'-3 1/2"	21'-1"	8	9"	9'-0"	4	9"	3'-1 1/4"	5'-11"	4	12"	11'-3"	43	36
9	4	9 3/4"	9 3/4"	8"	8	8'-0"	16	8'-0"	2	2'-0"	6	12"	10'-0"	3'-3 3/4"	15'-10"	8	12"	10'-0"	5	12"	3'-3 5/8"	6'-3"	4	12"	5'-3"	48	12
9	6	9 3/4"	9 3/4"	8"	8	8'-0"	16	8'-0"	4	4'-0"	5	7"	10'-0"	4'-3 3/4"	18'-0"	6	7"	10'-0"	--	--	----	----	4	12"	7'-3"	48	20
9	8	9 3/4"	9 3/4"	8"	8	8'-0"	16	8'-0"	6	6'-0"	4	6"	10'-0"	5'-3 3/4"	20'-1"	6	6"	10'-0"	--	--	----	----	4	12"	9'-3"	48	28
9	10	9 3/4"	9 3/4"	8"	8	8'-0"	16	8'-0"	8	8'-0"	5	10 1/2"	10'-0"	6'-3 3/4"	22'-0"	8	10 1/2"	10'-0"	3	10 1/2"	3'-3 5/8"	6'-5"	4	12"	11'-3"	48	36
9	12	9 3/4"	9 3/4"	8"	8	8'-0"	16	8'-0"	10	10'-0"	5	8"	10'-0"	7'-3 3/4"	24'-0"	8	8"	10'-0"	4	8"	3'-3 5/8"	6'-4"	4	11 1/2"	13'-3"	48	44
10	4	10"	10"	8"	9	9'-0"	18	9'-0"	2	2'-0"	4	7"	11'-0"	3'-4"	17'-2"	6	7"	11'-0"	4	7"	3'-6"	6'-9"	4	12"	5'-4"	53	12
10	6	10"	10"	8"	9	9'-0"	18	9'-0"	4	4'-0"	5	10"	11'-0"	4'-4"	19'-0"	7	10"	11'-0"	--	--	----	----	4	12"	7'-4"	53	20
10	8	10"	10"	8"	9	9'-0"	18	9'-0"	6	6'-0"	5	10"	11'-0"	5'-4"	21'-0"	8	10"	11'-0"	3	10"	3'-6"	6'-10"	4	12"	9'-4"	53	28
10	10	10"	10"	8"	9	9'-0"	18	9'-0"	8	8'-0"	4	8"	11'-0"	6'-4"	23'-2"	7	8"	11'-0"	4	8"	3'-6"	6'-9"	4	12"	11'-4"	53	36
10	12	10"	10"	8"	9	9'-0"	18	9'-0"	10	10'-0"	4	7"	11'-0"	7'-4"	25'-2"	8	7"	11'-0"	4	7"	3'-6"	6'-9"	4	12"	13'-4"	53	44
12	6	10 1/4"	10 1/4"	8"	11	11'-0"	22	11'-0"	4	4'-0"	6	9"	13'-0"	4'-4 1/4"	20'-11"	8	9"	13'-0"	4	9"	3'-10 3/4"	7'-6"	4	12"	7'-5"	63	20
12	8	10"	10"	8"	11	11'-0"	22	11'-0"	6	6'-0"	5	8"	13'-0"	5'-4"	23'-0"	8	8"	13'-0"	3	8"	3'-10 3/4"	7'-7"	4	12"	9'-4"	63	28
12	10	10"	10"	8"	11	11'-0"	22	11'-0"	8	8'-0"	5	7"	13'-0"	6'-4"	25'-0"	7	7"	13'-0"	--	--	----	----	4	12"	11'-4"	63	36
12	12	10 1/4"	10 1/4"	8"	11	11'-0"	22	11'-0"	10	10'-0"	5	8"	13'-0"	7'-4 1/4"	27'-1"	8	8"	13'-0"	4	8"	3'-10 3/4"	7'-6"	4	12"	13'-5"	63	44

SINGLE BOX CULVERTS
0 TO 2 FT. FILLS

SPAN (FT.)	HIGHT (FT.)	REINFORCING STEEL (LBS./LONG. JT)	QUAN./LF		HEADWALLS								
			CONCRETE CLASS. A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	G		HW I		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
					HEADWALL LENGTH	SIZE	LENGTH	LENGTH					
3	3	17.854	0.413	51.209	5'-10"	6	5'- 6"	1.041	33.044	1.045	33.044	A	
3	4	19.266	0.463	48.592	5'-10"	6	5'- 6"	1.134	33.044	1.137	33.044	C	
4	3	22.029	0.482	53.114	6'-10"	6	6'- 6"	1.142	39.052	1.149	39.052	A	
4	4	23.441	0.531	56.495	6'-10"	6	6'- 6"	1.235	39.052	1.242	39.052	C	
4	5	24.853	0.580	60.671	6'-10"	6	6'- 6"	1.328	39.052	1.335	39.052	E	
4	6	26.265	0.629	67.791	6'-10"	6	6'- 6"	1.420	39.052	1.427	39.052	G	
5	3	26.204	0.547	62.973	7'-10"	6	7'- 6"	1.259	45.060	1.269	45.060	B	
5	4	27.616	0.596	67.271	7'-10"	6	7'- 6"	1.351	45.060	1.362	45.060	D	
5	5	29.028	0.645	75.429	7'-10"	6	7'- 6"	1.444	45.060	1.455	45.060	F	
5	6	30.440	0.684	79.872	7'-10"	6	7'- 6"	1.518	45.060	1.529	45.060	G	
5	7	31.852	0.732	89.391	7'-10"	6	7'- 6"	1.611	45.060	1.621	45.060	I	
6	4	31.791	0.652	84.653	8'-10"	6	8'- 6"	1.449	51.068	1.463	51.068	D	
6	5	33.203	0.701	89.275	8'-10"	6	8'- 6"	1.542	51.068	1.555	51.068	F	
6	6	34.615	0.750	93.896	8'-10"	6	8'- 6"	1.634	51.068	1.648	51.068	H	
6	7	36.027	0.798	105.585	8'-10"	6	8'- 6"	1.727	51.068	1.741	51.068	J	
6	8	37.439	0.846	118.716	8'-10"	6	8'- 6"	1.820	51.068	1.833	51.068	L	
7	4	35.966	0.721	94.040	9'-10"	6	9'- 6"	1.545	57.076	1.562	57.076	D	
7	6	38.790	0.818	110.869	9'-10"	6	9'- 6"	1.730	57.076	1.747	57.076	H	
7	8	41.614	0.916	130.884	9'-10"	6	9'- 6"	1.915	57.076	1.933	57.076	L	
7	10	44.438	1.012	155.677	9'-10"	6	9'- 6"	2.101	57.076	2.118	57.076	P	
8	4	40.141	0.793	111.031	10'-10"	6	10'- 6"	1.639	63.084	1.659	63.084	D	
8	6	42.965	0.890	133.800	10'-10"	6	10'- 6"	1.824	63.084	1.845	63.084	H	
8	8	45.789	0.986	161.225	10'-10"	6	10'- 6"	2.010	63.084	2.030	63.084	L	
8	10	48.613	1.069	180.006	10'-10"	6	10'- 6"	2.197	63.084	2.218	63.084	P	
9	4	44.316	0.849	165.284	11'-10"	6	11'- 6"	1.735	69.092	1.758	69.092	D	
9	6	47.140	0.948	159.791	11'-10"	6	11'- 6"	1.920	69.092	1.944	69.092	H	
9	8	49.964	1.046	168.693	11'-10"	6	11'- 6"	2.105	69.092	2.129	69.092	L	
9	10	52.788	1.144	179.792	11'-10"	6	11'- 6"	2.291	69.092	2.315	69.092	P	
9	12	55.612	1.238	242.316	11'-10"	6	11'- 6"	2.476	69.092	2.500	69.092	T	
10	4	48.491	0.926	173.924	12'-10"	6	12'- 6"	1.826	75.100	1.853	75.100	D	
10	6	51.315	1.026	154.244	12'-10"	6	12'- 6"	2.012	75.100	2.039	75.100	H	
10	8	54.139	1.122	187.777	12'-10"	6	12'- 6"	2.197	75.100	2.224	75.100	L	
10	10	56.963	1.220	205.013	12'-10"	6	12'- 6"	2.383	75.100	2.410	75.100	P	
10	12	59.787	1.314	259.016	12'-10"	6	12'- 6"	2.568	75.100	2.595	75.100	T	
12	6	59.665	1.162	255.223	14'-10"	6	14'- 6"	2.197	87.116	2.230	87.116	H	
12	8	62.489	1.241	250.938	14'-10"	6	14'- 6"	2.387	87.116	2.421	87.116	L	
12	10	65.313	1.340	251.265	14'-10"	6	14'- 6"	2.573	87.116	2.606	87.116	P	
12	12	68.137	1.456	295.486	14'-10"	6	14'- 6"	2.753	87.116	2.786	87.116	T	

STRUCTURE AND BRIDGE DIVISION	<h1 style="margin: 0;">SINGLE BOX CULVERTS</h1> <h2 style="margin: 0;">0 TO 2 FT. FILLS</h2> <p style="margin: 0;">VIRGINIA DEPARTMENT OF TRANSPORTATION</p>	1002.04
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DIMENSIONS					REINFORCING STEEL																							
SPAN	HGHT	T1	T2	T3	BH1													BH2			BH3			BVI			NO. BL1 BARS	NO. BL2 BARS
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	LENGTH			
3	3	8"	8"	8"	2	2'-0"	2	2'-0"	1	1'-0"	4	12"	4'-0"	2'-8"	8'-10"	4	12"	4'-0"	--	---	-----	-----	4	12"	4'-0"	16	8	
3	4	8"	8"	8"	2	2'-0"	2	2'-0"	2	2'-0"	4	12"	4'-0"	3'-2"	9'-10"	4	12"	4'-0"	--	---	-----	-----	4	12"	5'-0"	16	12	
4	3	8"	8"	8"	3	3'-0"	3	3'-0"	1	1'-0"	4	12"	5'-0"	2'-8"	9'-10"	5	12"	5'-0"	--	---	-----	-----	4	12"	4'-0"	20	8	
4	4	8"	8"	8"	3	3'-0"	3	3'-0"	2	2'-0"	4	12"	5'-0"	3'-2"	10'-10"	5	12"	5'-0"	--	---	-----	-----	4	12"	5'-0"	20	12	
4	5	8"	8"	8"	3	3'-0"	3	3'-0"	3	3'-0"	4	12"	5'-0"	3'-8"	11'-10"	5	12"	5'-0"	--	---	-----	-----	4	12"	6'-0"	20	16	
4	6	8"	8"	8"	3	3'-0"	3	3'-0"	4	4'-0"	4	12"	5'-0"	4'-2"	12'-10"	5	12"	5'-0"	--	---	-----	-----	4	12"	7'-0"	20	20	
5	3	8"	8"	8"	4	4'-0"	4	4'-0"	1	1'-0"	4	12"	6'-0"	2'-8"	10'-10"	5	12"	6'-0"	4	12"	2'-6"	4'-9"	4	12"	4'-0"	24	8	
5	4	8"	8"	8"	4	4'-0"	4	4'-0"	2	2'-0"	4	12"	6'-0"	3'-2"	11'-10"	5	12"	6'-0"	--	---	-----	-----	4	12"	5'-0"	24	12	
5	5	8"	8"	8"	4	4'-0"	4	4'-0"	3	3'-0"	4	12"	6'-0"	3'-8"	12'-10"	5	12"	6'-0"	--	---	-----	-----	4	12"	6'-0"	24	16	
5	6	8"	8"	8"	4	4'-0"	4	4'-0"	4	4'-0"	4	12"	6'-0"	4'-2"	13'-10"	6	12"	6'-0"	--	---	-----	-----	4	12"	7'-0"	24	20	
5	7	8"	8"	8"	4	4'-0"	4	4'-0"	5	5'-0"	4	12"	6'-0"	4'-8"	14'-10"	6	12"	6'-0"	--	---	-----	-----	4	12"	8'-0"	24	24	
6	4	8"	8"	8"	5	5'-0"	5	5'-0"	2	2'-0"	5	12"	7'-0"	3'-2"	12'-8"	6	12"	7'-0"	--	---	-----	-----	4	12"	5'-0"	28	12	
6	5	8"	8"	8"	5	5'-0"	5	5'-0"	3	3'-0"	4	12"	7'-0"	3'-8"	13'-10"	6	12"	7'-0"	4	12"	2'-8 ³ / ₈ "	5'-2"	4	12"	6'-0"	28	16	
6	6	8"	8"	8"	5	5'-0"	5	5'-0"	4	4'-0"	4	12"	7'-0"	4'-2"	14'-10"	6	12"	7'-0"	4	12"	2'-8 ³ / ₈ "	5'-2"	4	12"	7'-0"	28	20	
6	7	8"	8"	8"	5	5'-0"	5	5'-0"	5	5'-0"	4	10"	7'-0"	4'-8"	15'-10"	6	10"	7'-0"	4	10"	2'-8 ³ / ₈ "	5'-2"	4	12"	8'-0"	28	24	
6	8	8"	8"	8"	5	5'-0"	5	5'-0"	6	6'-0"	4	9"	7'-0"	5'-2"	16'-10"	6	9"	7'-0"	4	9"	2'-8 ³ / ₈ "	5'-2"	4	12"	9'-0"	28	28	
7	4	8"	8"	8"	6	6'-0"	6	6'-0"	2	2'-0"	5	11"	8'-0"	3'-2"	13'-8"	6	11"	8'-0"	--	---	-----	-----	4	12"	5'-0"	32	12	
7	6	8"	8"	8"	6	6'-0"	6	6'-0"	4	4'-0"	4	9"	8'-0"	4'-2"	15'-10"	6	9"	8'-0"	4	9"	2'-10 ³ / ₄ "	5'-6"	4	12"	7'-0"	32	20	
7	8	8"	8"	8"	6	6'-0"	6	6'-0"	6	6'-0"	4	8"	8'-0"	5'-2"	17'-10"	6	8"	8'-0"	3	8"	2'-10 ³ / ₄ "	5'-7"	4	12"	9'-0"	32	28	
7	10	8"	8"	8"	6	6'-0"	6	6'-0"	8	8'-0"	5	6"	8'-0"	6'-2"	19'-8"	6	6"	8'-0"	--	---	-----	-----	4	12"	11'-0"	32	36	
8	4	8"	8"	8"	7	7'-0"	7	7'-0"	2	2'-0"	5	9"	9'-0"	3'-2"	14'-8"	6	9"	9'-0"	3	9"	3'-1 ¹ / ₄ "	6'-0"	4	11 ¹ / ₂ "	5'-0"	36	12	
8	6	8"	8"	8"	7	7'-0"	7	7'-0"	4	4'-0"	4	8"	9'-0"	4'-2"	16'-10"	6	8"	9'-0"	4	8"	3'-1 ¹ / ₄ "	5'-11"	4	12"	7'-0"	36	20	
8	8	8"	8"	8"	7	7'-0"	7	7'-0"	6	6'-0"	5	7"	9'-0"	5'-2"	18'-8"	6	7"	9'-0"	--	---	-----	-----	4	12"	9'-0"	36	28	
8	10	8"	8"	8"	7	7'-0"	7	7'-0"	8	8'-0"	5	11"	9'-0"	6'-2"	20'-8"	8	11"	9'-0"	4	11"	3'-1 ¹ / ₄ "	5'-11"	4	12"	11'-0"	36	36	
9	4	8"	8"	8"	8	8'-0"	8	8'-0"	2	2'-0"	5	8"	10'-0"	3'-2"	15'-8"	6	8"	10'-0"	3	8"	3'-3 ⁵ / ₈ "	6'-5"	4	8"	5'-0"	40	12	
9	6	8"	8"	8"	8	8'-0"	8	8'-0"	4	4'-0"	4	7"	10'-0"	4'-2"	17'-10"	6	7"	10'-0"	4	7"	3'-3 ⁵ / ₈ "	6'-4"	4	11"	7'-0"	40	20	
9	8	8 ¹ / ₄ "	8 ¹ / ₄ "	8"	8	8'-0"	8	8'-0"	6	6'-0"	5	10 ¹ / ₂ "	10'-0"	5'-2 ¹ / ₄ "	19'-9"	8	10 ¹ / ₂ "	10'-0"	3	10 ¹ / ₂ "	3'-3 ⁵ / ₈ "	6'-5"	4	12"	9'-0"	40	28	
9	10	8"	8"	8"	8	8'-0"	8	8'-0"	8	8'-0"	5	10"	10'-0"	6'-2"	21'-8"	8	10"	10'-0"	4	10"	3'-3 ⁵ / ₈ "	6'-4"	4	12"	11'-0"	40	36	
9	12	8 ¹ / ₄ "	8 ¹ / ₄ "	8"	8	8'-0"	8	8'-0"	10	10'-0"	5	9 ¹ / ₂ "	10'-0"	7'-2 ¹ / ₄ "	23'-9"	8	9 ¹ / ₂ "	10'-0"	3	9 ¹ / ₂ "	3'-3 ⁵ / ₈ "	6'-5"	4	11 ¹ / ₂ "	13'-0"	40	44	
10	4	8 ³ / ₄ "	8 ³ / ₄ "	8"	9	9'-0"	9	9'-0"	2	2'-0"	6	7"	11'-0"	3'-2 ³ / ₄ "	16'-8"	6	7"	11'-0"	--	---	-----	-----	5	9 ¹ / ₂ "	5'-2"	44	12	
10	6	8 ³ / ₄ "	8 ³ / ₄ "	8"	9	9'-0"	9	9'-0"	4	4'-0"	6	10"	11'-0"	4'-2 ³ / ₄ "	18'-8"	8	10"	11'-0"	--	---	-----	-----	4	9"	7'-2"	44	20	
10	8	8 ³ / ₄ "	8 ³ / ₄ "	8"	9	9'-0"	9	9'-0"	6	6'-0"	6	6"	11'-0"	5'-2 ³ / ₄ "	20'-8"	6	6"	11'-0"	--	---	-----	-----	4	10"	9'-2"	44	28	
10	10	8 ³ / ₄ "	8 ³ / ₄ "	8"	9	9'-0"	9	9'-0"	8	8'-0"	6	9 ¹ / ₂ "	11'-0"	6'-2 ³ / ₄ "	22'-8"	8	9 ¹ / ₂ "	11'-0"	3	9 ¹ / ₂ "	3'-6"	6'-10"	4	12"	11'-2"	44	36	
10	12	9 ¹ / ₄ "	9 ¹ / ₄ "	8"	9	9'-0"	9	9'-0"	10	10'-0"	5	8 ¹ / ₂ "	11'-0"	7'-3 ¹ / ₄ "	24'-11"	8	8 ¹ / ₂ "	11'-0"	4	8 ¹ / ₂ "	3'-6"	6'-9"	4	12"	13'-2"	44	44	
12	6	9 ¹ / ₂ "	9 ¹ / ₂ "	8"	11	11'-0"	11	11'-0"	4	4'-0"	6	8"	13'-0"	4'-3 ¹ / ₂ "	20'-9"	7	8"	13'-0"	4	8"	3'-10 ³ / ₄ "	7'-6"	4	6 ¹ / ₂ "	7'-3"	52	20	
12	8	9 ³ / ₄ "	9 ³ / ₄ "	8"	11	11'-0"	11	11'-0"	6	6'-0"	6	8"	13'-0"	5'-3 ³ / ₄ "	22'-10"	8	8"	13'-0"	3	8"	3'-10 ³ / ₄ "	7'-7"	4	8 ¹ / ₂ "	9'-3"	52	28	
12	10	9 ³ / ₄ "	9 ³ / ₄ "	8"	11	11'-0"	11	11'-0"	8	8'-0"	5	8"	13'-0"	6'-3 ³ / ₄ "	25'-0"	8	8"	13'-0"	4	8"	3'-10 ³ / ₄ "	7'-6"	4	12"	11'-3"	52	36	
12	12	10 ¹ / ₂ "	10 ¹ / ₂ "	8"	11	11'-0"	11	11'-0"	10	10'-0"	6	7"	13'-0"	7'-4 ¹ / ₂ "	26'-11"	8	7"	13'-0"	--	---	-----	-----	4	12"	13'-5"	52	44	

SINGLE BOX CULVERTS
2 TO 5 FT. FILLS

SPAN (FT.)	HIGHT (FT.)	REINFORCING STEEL (LBS/LONG. JT)	QUAN./LF		HEADWALLS								
			CONCRETE CLASS. A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HW I		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
					HEADWALL LENGTH	SIZE	LENGTH	LENGTH					
3	3	16.184	0.401	36.185	5'-10"	6	5'- 6"	1.038	33.044	1.042	33.044	A	
3	4	17.596	0.450	40.361	5'-10"	6	5'- 6"	1.131	33.044	1.134	33.044	C	
4	3	19.524	0.450	45.279	6'-10"	6	6'- 6"	1.139	39.052	1.146	39.052	A	
4	4	20.936	0.499	49.455	6'-10"	6	6'- 6"	1.232	39.052	1.239	39.052	C	
4	5	22.348	0.548	53.631	6'-10"	6	6'- 6"	1.324	39.052	1.332	39.052	E	
4	6	23.760	0.597	57.807	6'-10"	6	6'- 6"	1.417	39.052	1.424	39.052	G	
5	3	22.864	0.498	64.065	7'-10"	6	7'- 6"	1.240	45.060	1.251	45.060	A	
5	4	24.276	0.548	55.549	7'-10"	6	7'- 6"	1.333	45.060	1.343	45.060	C	
5	5	25.688	0.597	59.725	7'-10"	6	7'- 6"	1.426	45.060	1.436	45.060	E	
5	6	27.100	0.645	69.409	7'-10"	6	7'- 6"	1.518	45.060	1.529	45.060	G	
5	7	28.512	0.695	73.585	7'-10"	6	7'- 6"	1.611	45.060	1.621	45.060	I	
6	4	27.616	0.595	77.347	8'-10"	6	8'- 6"	1.434	51.068	1.448	51.068	C	
6	5	29.028	0.644	86.051	8'-10"	6	8'- 6"	1.527	51.068	1.541	51.068	E	
6	6	30.440	0.693	90.227	8'-10"	6	8'- 6"	1.620	51.068	1.633	51.068	G	
6	7	31.852	0.742	105.600	8'-10"	6	8'- 6"	1.712	51.068	1.726	51.068	I	
6	8	33.264	0.790	117.686	8'-10"	6	8'- 6"	1.805	51.068	1.819	51.068	K	
7	4	30.956	0.644	89.885	9'-10"	6	9'- 6"	1.535	57.076	1.552	57.076	C	
7	6	33.780	0.741	118.090	9'-10"	6	9'- 6"	1.721	57.076	1.738	57.076	G	
7	8	36.604	0.839	128.310	9'-10"	6	9'- 6"	1.906	57.076	1.923	57.076	K	
7	10	39.428	0.933	179.721	9'-10"	6	9'- 6"	2.092	57.076	2.109	57.076	O	
8	4	34.296	0.691	125.067	10'-10"	6	10'- 6"	1.636	63.084	1.657	63.084	C	
8	6	37.120	0.788	138.922	10'-10"	6	10'- 6"	1.822	63.084	1.842	63.084	G	
8	8	39.944	0.886	159.699	10'-10"	6	10'- 6"	2.007	63.084	2.028	63.084	K	
8	10	42.768	0.984	168.985	10'-10"	6	10'- 6"	2.193	63.084	2.213	63.084	O	
9	4	37.636	0.738	149.809	11'-10"	6	11'- 6"	1.738	69.092	1.761	69.092	C	
9	6	40.460	0.836	165.793	11'-10"	6	11'- 6"	1.923	69.092	1.947	69.092	G	
9	8	43.284	0.950	168.414	11'-10"	6	11'- 6"	2.105	69.092	2.129	69.092	K	
9	10	46.108	1.031	193.575	11'-10"	6	11'- 6"	2.294	69.092	2.318	69.092	O	
9	12	48.932	1.145	203.610	11'-10"	6	11'- 6"	2.476	69.092	2.500	69.092	S	
10	4	40.976	0.837	189.993	12'-10"	6	12'- 6"	1.827	75.100	1.854	75.100	C	
10	6	43.800	0.936	187.456	12'-10"	6	12'- 6"	2.013	75.100	2.040	75.100	G	
10	8	46.624	1.030	244.869	12'-10"	6	12'- 6"	2.198	75.100	2.225	75.100	K	
10	10	49.448	1.130	231.036	12'-10"	6	12'- 6"	2.383	75.100	2.411	75.100	O	
10	12	52.272	1.263	245.294	12'-10"	6	12'- 6"	2.580	75.100	2.607	75.100	T	
12	6	50.480	1.100	263.413	14'-10"	6	14'- 6"	2.213	87.116	2.246	87.116	H	
12	8	53.304	1.218	286.836	14'-10"	6	14'- 6"	2.393	87.116	2.426	87.116	L	
12	10	56.128	1.317	275.717	14'-10"	6	14'- 6"	2.578	87.116	2.612	87.116	P	
12	12	58.952	1.474	326.824	14'-10"	6	14'- 6"	2.747	87.116	2.781	87.116	T	

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	A	B	C	D	E	F	BH1				BH2			BH3				BVI			NO. BL1 BARS	NO. BL2 BARS	
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)							SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C			LENGTH
3	3	8"	8"	8"	2	2'-0"	2	2'-0"	1	1'-0"	4	12"	4'-0"	2'-8"	8'-10"	4	12"	4'-0"	--	---	-----	-----	4	12"	4'-0"	16	8
3	4	8"	8"	8"	2	2'-0"	2	2'-0"	2	2'-0"	4	12"	4'-0"	3'-2"	9'-10"	4	12"	4'-0"	--	---	-----	-----	4	12"	5'-0"	16	12
4	3	8"	8"	8"	3	3'-0"	3	3'-0"	1	1'-0"	4	11 1/2"	5'-0"	2'-8"	9'-10"	4	11 1/2"	5'-0"	--	---	-----	-----	4	12"	4'-0"	20	8
4	4	8"	8"	8"	3	3'-0"	3	3'-0"	2	2'-0"	4	11"	5'-0"	3'-2"	10'-10"	4	11"	5'-0"	--	---	-----	-----	4	12"	5'-0"	20	12
4	5	8"	8"	8"	3	3'-0"	3	3'-0"	3	3'-0"	4	12"	5'-0"	3'-8"	11'-10"	5	12"	5'-0"	3	12"	2'-3 5/8"	4'-5"	4	12"	6'-0"	20	16
4	6	8"	8"	8"	3	3'-0"	3	3'-0"	4	4'-0"	4	12"	5'-0"	4'-2"	12'-10"	5	12"	5'-0"	3	12"	2'-3 5/8"	4'-5"	4	12"	7'-0"	20	20
5	3	8"	8"	8"	4	4'-0"	4	4'-0"	1	1'-0"	4	12"	6'-0"	2'-8"	10'-10"	5	12"	6'-0"	--	---	-----	-----	4	12"	4'-0"	24	8
5	4	8"	8"	8"	4	4'-0"	4	4'-0"	2	2'-0"	4	11 1/2"	6'-0"	3'-2"	11'-10"	5	11 1/2"	6'-0"	--	---	-----	-----	4	12"	5'-0"	24	12
5	5	8"	8"	8"	4	4'-0"	4	4'-0"	3	3'-0"	4	11"	6'-0"	3'-8"	12'-10"	5	11"	6'-0"	--	---	-----	-----	4	12"	6'-0"	24	16
5	6	8"	8"	8"	4	4'-0"	4	4'-0"	4	4'-0"	4	10 1/2"	6'-0"	4'-2"	13'-10"	5	10 1/2"	6'-0"	--	---	-----	-----	4	12"	7'-0"	24	20
5	7	8"	8"	8"	4	4'-0"	4	4'-0"	5	5'-0"	4	10"	6'-0"	4'-8"	14'-10"	5	10"	6'-0"	--	---	-----	-----	4	12"	8'-0"	24	24
6	4	8"	8"	8"	5	5'-0"	5	5'-0"	2	2'-0"	4	9 1/2"	7'-0"	3'-2"	12'-10"	5	9 1/2"	7'-0"	--	---	-----	-----	4	12"	5'-0"	28	12
6	5	8"	8"	8"	5	5'-0"	5	5'-0"	3	3'-0"	4	11 1/2"	7'-0"	3'-8"	13'-10"	6	11 1/2"	7'-0"	4	11 1/2"	2'-8 3/8"	5'-2"	4	12"	6'-0"	28	16
6	6	8"	8"	8"	5	5'-0"	5	5'-0"	4	4'-0"	4	11"	7'-0"	4'-2"	14'-10"	6	11"	7'-0"	3	11"	2'-8 3/8"	5'-2"	4	12"	7'-0"	28	20
6	7	8"	8"	8"	5	5'-0"	5	5'-0"	5	5'-0"	4	10 1/2"	7'-0"	4'-8"	15'-10"	6	10 1/2"	7'-0"	3	10 1/2"	2'-8 3/8"	5'-2"	4	12"	8'-0"	28	24
6	8	8"	8"	8"	5	5'-0"	5	5'-0"	6	6'-0"	4	10"	7'-0"	5'-2"	16'-10"	6	10"	7'-0"	4	10"	2'-8 3/8"	5'-2"	4	12"	9'-0"	28	28
7	4	8"	8"	8"	6	6'-0"	6	6'-0"	2	2'-0"	5	10"	8'-0"	3'-2"	13'-8"	6	10"	8'-0"	3	10"	2'-10 3/4"	5'-7"	4	9"	5'-0"	32	12
7	6	8"	8"	8"	6	6'-0"	6	6'-0"	4	4'-0"	4	9"	8'-0"	4'-2"	15'-10"	6	9"	8'-0"	3	9"	2'-10 3/4"	5'-7"	4	12"	7'-0"	32	20
7	8	8"	8"	8"	6	6'-0"	6	6'-0"	6	6'-0"	4	8 1/2"	8'-0"	5'-2"	17'-10"	6	8 1/2"	8'-0"	3	8 1/2"	2'-10 3/4"	5'-7"	4	12"	9'-0"	32	28
7	10	8"	8"	8"	6	6'-0"	6	6'-0"	8	8'-0"	4	7 1/2"	8'-0"	6'-2"	19'-10"	6	7 1/2"	8'-0"	3	7 1/2"	2'-10 3/4"	5'-7"	4	12"	11'-0"	32	36
8	4	8"	8"	8"	7	7'-0"	7	7'-0"	2	2'-0"	5	8 1/2"	9'-0"	3'-2"	14'-8"	6	8 1/2"	9'-0"	3	8 1/2"	3'-1 1/4"	6'-0"	4	6"	5'-0"	36	12
8	6	8"	8"	8"	7	7'-0"	7	7'-0"	4	4'-0"	4	7 1/2"	9'-0"	4'-2"	16'-10"	6	7 1/2"	9'-0"	3	7 1/2"	3'-1 1/4"	6'-0"	4	9"	7'-0"	36	20
8	8	8"	8"	8"	7	7'-0"	7	7'-0"	6	6'-0"	4	7"	9'-0"	5'-2"	18'-10"	6	7"	9'-0"	3	7"	3'-1 1/4"	6'-0"	4	12"	9'-0"	36	28
8	10	8"	8"	8"	7	7'-0"	7	7'-0"	8	8'-0"	4	6 1/2"	9'-0"	6'-2"	20'-10"	6	6 1/2"	9'-0"	3	6 1/2"	3'-1 1/4"	6'-0"	4	12"	11'-0"	36	36
9	4	8"	8"	8"	8	8'-0"	8	8'-0"	2	2'-0"	5	7 1/2"	10'-0"	3'-2"	15'-8"	6	7 1/2"	10'-0"	3	7 1/2"	3'-3 5/8"	6'-5"	4	5 1/2"	5'-0"	40	12
9	6	8 1/4"	8 1/4"	8"	8	8'-0"	8	8'-0"	4	4'-0"	5	6 1/2"	10'-0"	4'-2 1/4"	17'-9"	6	6 1/2"	10'-0"	--	---	-----	-----	4	7 1/2"	7'-0"	40	20
9	8	8 1/4"	8 1/4"	8"	8	8'-0"	8	8'-0"	6	6'-0"	4	6"	10'-0"	5'-2 1/4"	19'-10"	6	6"	10'-0"	3	6"	3'-3 5/8"	6'-5"	4	10 1/2"	9'-0"	40	28
9	10	8 1/2"	8 1/2"	8"	8	8'-0"	8	8'-0"	8	8'-0"	5	7 1/2"	10'-0"	6'-2 1/2"	21'-9"	7	7 1/2"	10'-0"	3	7 1/2"	3'-3 5/8"	6'-5"	4	12"	11'-1"	40	36
9	12	9"	9"	8"	8	8'-0"	8	8'-0"	10	10'-0"	6	8 1/2"	10'-0"	7'-3"	23'-8"	8	8 1/2"	10'-0"	--	---	-----	-----	4	10"	13'-2"	40	44
10	4	8 1/4"	8 1/4"	8"	9	9'-0"	9	9'-0"	2	2'-0"	5	6 1/2"	11'-0"	3'-2 1/4"	16'-9"	6	6 1/2"	11'-0"	3	6 1/2"	3'-6"	6'-10"	5	6"	5'-0"	44	12
10	6	8 1/2"	8 1/2"	8"	9	9'-0"	9	9'-0"	4	4'-0"	6	7 1/2"	11'-0"	4'-2 1/2"	18'-7"	7	7 1/2"	11'-0"	--	---	-----	-----	4	6"	7'-1"	44	20
10	8	8 3/4"	8 3/4"	8"	9	9'-0"	9	9'-0"	6	6'-0"	4	5 1/2"	11'-0"	5'-2 3/4"	20'-11"	6	5 1/2"	11'-0"	3	5 1/2"	3'-6"	6'-10"	4	9"	9'-2"	44	28
10	10	9 1/4"	9 1/4"	8"	9	9'-0"	9	9'-0"	8	8'-0"	4	5"	11'-0"	6'-3 1/4"	23'-0"	6	5"	11'-0"	--	---	-----	-----	4	12"	11'-2"	44	36
10	12	9 1/4"	9 1/4"	8"	9	9'-0"	9	9'-0"	10	10'-0"	4	8"	11'-0"	7'-3 1/4"	25'-0"	8	8"	11'-0"	4	8"	3'-6"	6'-9"	4	12"	13'-2"	44	44
12	6	10 3/4"	10 3/4"	8"	11	11'-0"	11	11'-0"	4	4'-0"	6	7 1/2"	13'-0"	4'-4 3/4"	21'-0"	8	7 1/2"	13'-0"	3	7 1/2"	3'-10 3/4"	7'-7"	4	5 1/2"	7'-5"	52	20
12	8	10 3/4"	10 3/4"	8"	11	11'-0"	11	11'-0"	6	6'-0"	5	6"	13'-0"	5'-4 3/4"	23'-2"	7	6"	13'-0"	--	---	-----	-----	4	7 1/2"	9'-5"	52	28
12	10	11"	11"	8"	11	11'-0"	11	11'-0"	8	8'-0"	5	7"	13'-0"	6'-5"	25'-2"	8	7"	13'-0"	3	7"	3'-10 3/4"	7'-7"	4	10 1/2"	11'-6"	52	36
12	12	11 1/4"	11 1/4"	8"	11	11'-0"	11	11'-0"	10	10'-0"	5	6 1/2"	13'-0"	7'-5 1/4"	27'-3"	8	6 1/2"	13'-0"	3	6 1/2"	3'-10 3/4"	7'-7"	4	12"	13'-6"	52	44

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

STRUCTURE
AND
BRIDGE
DIVISION

SPAN (FT.)	HIGHT (FT.)	REINFORCING STEEL (LBS./LONG. JT)	QUAN./LF		HEADWALLS								
			CONCRETE CLASS. A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	G		HW I		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
					HEADWALL LENGTH	SIZE	LENGTH	LENGTH					
3	3	16.184	0.401	36.185	5'-10"	6	5'- 6"	1.038	33.044	1.042	33.044	A	
3	4	17.596	0.450	40.361	5'-10"	6	5'- 6"	1.131	33.044	1.134	33.044	C	
4	3	19.524	0.450	42.391	6'-10"	6	6'- 6"	1.139	39.052	1.146	39.052	A	
4	4	20.936	0.499	47.628	6'-10"	6	6'- 6"	1.232	39.052	1.239	39.052	C	
4	5	22.348	0.547	60.274	6'-10"	6	6'- 6"	1.324	39.052	1.332	39.052	E	
4	6	23.760	0.596	64.450	6'-10"	6	6'- 6"	1.417	39.052	1.424	39.052	G	
5	3	22.864	0.499	51.373	7'-10"	6	7'- 6"	1.240	45.060	1.251	45.060	A	
5	4	24.276	0.548	56.781	7'-10"	6	7'- 6"	1.333	45.060	1.343	45.060	C	
5	5	25.688	0.597	62.422	7'-10"	6	7'- 6"	1.426	45.060	1.436	45.060	E	
5	6	27.100	0.646	68.330	7'-10"	6	7'- 6"	1.518	45.060	1.529	45.060	G	
5	7	28.512	0.694	74.544	7'-10"	6	7'- 6"	1.611	45.060	1.621	45.060	I	
6	4	27.616	0.596	69.998	8'-10"	6	8'- 6"	1.434	51.068	1.448	51.068	C	
6	5	29.028	0.644	88.369	8'-10"	6	8'- 6"	1.527	51.068	1.541	51.068	E	
6	6	30.440	0.693	88.612	8'-10"	6	8'- 6"	1.620	51.068	1.633	51.068	G	
6	7	31.852	0.742	95.504	8'-10"	6	8'- 6"	1.712	51.068	1.726	51.068	I	
6	8	33.264	0.791	110.043	8'-10"	6	8'- 6"	1.805	51.068	1.819	51.068	K	
7	4	30.956	0.643	107.920	9'-10"	6	9'- 6"	1.535	57.076	1.552	57.076	C	
7	6	33.780	0.741	109.692	9'-10"	6	9'- 6"	1.721	57.076	1.738	57.076	G	
7	8	36.604	0.839	123.346	9'-10"	6	9'- 6"	1.906	57.076	1.923	57.076	K	
7	10	39.428	0.936	143.891	9'-10"	6	9'- 6"	2.092	57.076	2.109	57.076	O	
8	4	34.296	0.690	136.021	10'-10"	6	10'- 6"	1.636	63.084	1.657	63.084	C	
8	6	37.120	0.788	137.716	10'-10"	6	10'- 6"	1.822	63.084	1.842	63.084	G	
8	8	39.944	0.886	151.551	10'-10"	6	10'- 6"	2.007	63.084	2.028	63.084	K	
8	10	42.768	0.984	170.237	10'-10"	6	10'- 6"	2.193	63.084	2.213	63.084	O	
9	4	37.636	0.737	161.601	11'-10"	6	11'- 6"	1.738	69.092	1.761	69.092	C	
9	6	40.460	0.851	173.018	11'-10"	6	11'- 6"	1.920	69.092	1.944	69.092	G	
9	8	43.284	0.949	183.366	11'-10"	6	11'- 6"	2.105	69.092	2.129	69.092	K	
9	10	46.108	1.062	208.505	11'-10"	6	11'- 6"	2.288	69.092	2.311	69.092	O	
9	12	48.932	1.190	240.130	11'-10"	6	11'- 6"	2.467	69.092	2.491	69.092	S	
10	4	40.976	0.801	199.247	12'-10"	6	12'- 6"	1.835	75.100	1.862	75.100	C	
10	6	43.800	0.916	217.106	12'-10"	6	12'- 6"	2.016	75.100	2.043	75.100	G	
10	8	46.624	1.033	211.738	12'-10"	6	12'- 6"	2.198	75.100	2.225	75.100	K	
10	10	49.448	1.167	210.899	12'-10"	6	12'- 6"	2.394	75.100	2.421	75.100	P	
10	12	52.272	1.264	228.791	12'-10"	6	12'- 6"	2.580	75.100	2.607	75.100	T	
12	6	50.480	1.201	294.130	14'-10"	6	14'- 6"	2.186	87.116	2.219	87.116	H	
12	8	53.304	1.301	268.332	14'-10"	6	14'- 6"	2.371	87.116	2.405	87.116	L	
12	10	56.128	1.419	294.385	14'-10"	6	14'- 6"	2.551	87.116	2.585	87.116	P	
12	12	58.952	1.536	323.474	14'-10"	6	14'- 6"	2.731	87.116	2.765	87.116	T	

DIMENSIONS					REINFORCING STEEL																							
SPAN	HGHT	T1	T2	T3	BH1													BH2			BH3			BVI			NO. BL1 BARS	NO. BL2 BARS
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	LENGTH			
3	3	8"	8"	8"	2	2'-0"	2	2'-0"	1	1'-0"	4	12"	4'-0"	2'-8"	8'-10"	4	12"	4'-0"	--	---	----	----	4	12"	4'-0"	16	8	
3	4	8"	8"	8"	2	2'-0"	2	2'-0"	2	2'-0"	4	12"	4'-0"	3'-2"	9'-10"	4	12"	4'-0"	--	---	----	----	4	12"	5'-0"	16	12	
4	3	8"	8"	8"	3	3'-0"	3	3'-0"	1	1'-0"	4	12"	5'-0"	2'-8"	9'-10"	5	12"	5'-0"	--	---	----	----	4	12"	4'-0"	20	8	
4	4	8"	8"	8"	3	3'-0"	3	3'-0"	2	2'-0"	4	12"	5'-0"	3'-2"	10'-10"	5	12"	5'-0"	--	---	----	----	4	12"	5'-0"	20	12	
4	5	8"	8"	8"	3	3'-0"	3	3'-0"	3	3'-0"	4	11 1/2"	5'-0"	3'-8"	11'-10"	5	11 1/2"	5'-0"	--	---	----	----	4	12"	6'-0"	20	16	
4	6	8"	8"	8"	3	3'-0"	3	3'-0"	4	4'-0"	4	11"	5'-0"	4'-2"	12'-10"	5	11"	5'-0"	--	---	----	----	4	12"	7'-0"	20	20	
5	3	8"	8"	8"	4	4'-0"	4	4'-0"	1	1'-0"	4	9 1/2"	6'-0"	2'-8"	10'-10"	5	9 1/2"	6'-0"	--	---	----	----	4	11 1/2"	4'-0"	24	8	
5	4	8"	8"	8"	4	4'-0"	4	4'-0"	2	2'-0"	4	9"	6'-0"	3'-2"	11'-10"	5	9"	6'-0"	--	---	----	----	4	12"	5'-0"	24	12	
5	5	8"	8"	8"	4	4'-0"	4	4'-0"	3	3'-0"	4	11 1/2"	6'-0"	3'-8"	12'-10"	6	11 1/2"	6'-0"	3	11 1/2"	2'-6"	4'-10"	4	12"	6'-0"	24	16	
5	6	8"	8"	8"	4	4'-0"	4	4'-0"	4	4'-0"	4	11"	6'-0"	4'-2"	13'-10"	6	11"	6'-0"	--	---	----	----	4	12"	7'-0"	24	20	
5	7	8"	8"	8"	4	4'-0"	4	4'-0"	5	5'-0"	4	10 1/2"	6'-0"	4'-8"	14'-10"	6	10 1/2"	6'-0"	--	---	----	----	4	12"	8'-0"	24	24	
6	4	8"	8"	8"	5	5'-0"	5	5'-0"	2	2'-0"	5	9 1/2"	7'-0"	3'-2"	12'-8"	6	9 1/2"	7'-0"	--	---	----	----	4	9"	5'-0"	28	12	
6	5	8"	8"	8"	5	5'-0"	5	5'-0"	3	3'-0"	4	9"	7'-0"	3'-8"	13'-10"	6	9"	7'-0"	3	9"	2'-8 3/8"	5'-2"	4	12"	6'-0"	28	16	
6	6	8"	8"	8"	5	5'-0"	5	5'-0"	4	4'-0"	4	8 1/2"	7'-0"	4'-2"	14'-10"	6	8 1/2"	7'-0"	3	8 1/2"	2'-8 3/8"	5'-2"	4	12"	7'-0"	28	20	
6	7	8"	8"	8"	5	5'-0"	5	5'-0"	5	5'-0"	4	8 1/2"	7'-0"	4'-8"	15'-10"	6	8 1/2"	7'-0"	3	8 1/2"	2'-8 3/8"	5'-2"	4	12"	8'-0"	28	24	
6	8	8"	8"	8"	5	5'-0"	5	5'-0"	6	6'-0"	4	8"	7'-0"	5'-2"	16'-10"	6	8"	7'-0"	3	8"	2'-8 3/8"	5'-2"	4	12"	9'-0"	28	28	
7	4	8"	8"	8"	6	6'-0"	6	6'-0"	2	2'-0"	5	8"	8'-0"	3'-2"	13'-8"	6	8"	8'-0"	--	---	----	----	4	6"	5'-0"	32	12	
7	6	8 1/4"	8 1/4"	8"	6	6'-0"	6	6'-0"	4	4'-0"	4	7 1/2"	8'-0"	4'-2 1/4"	15'-10"	6	7 1/2"	8'-0"	3	7 1/2"	2'-10 3/4"	5'-7"	4	11"	7'-0"	32	20	
7	8	8 1/4"	8 1/4"	8"	6	6'-0"	6	6'-0"	6	6'-0"	4	7"	8'-0"	5'-2 1/4"	17'-10"	6	7"	8'-0"	3	7"	2'-10 3/4"	5'-7"	4	12"	9'-0"	32	28	
7	10	8 1/4"	8 1/4"	8"	6	6'-0"	6	6'-0"	8	8'-0"	4	6 1/2"	8'-0"	6'-2 1/4"	19'-10"	6	6 1/2"	8'-0"	3	6 1/2"	2'-10 3/4"	5'-7"	4	12"	11'-0"	32	36	
8	4	9"	9"	8"	7	7'-0"	7	7'-0"	2	2'-0"	5	7"	9'-0"	3'-3"	14'-10"	6	7"	9'-0"	--	---	----	----	4	6"	5'-2"	36	12	
8	6	9"	9"	8"	7	7'-0"	7	7'-0"	4	4'-0"	4	6 1/2"	9'-0"	4'-3"	17'-0"	6	6 1/2"	9'-0"	3	6 1/2"	3'-1 1/4"	6'-0"	4	8"	7'-2"	36	20	
8	8	9 1/4"	9 1/4"	8"	7	7'-0"	7	7'-0"	6	6'-0"	5	6"	9'-0"	5'-3 1/4"	18'-11"	6	6"	9'-0"	--	---	----	----	4	12"	9'-2"	36	28	
8	10	9 1/4"	9 1/4"	8"	7	7'-0"	7	7'-0"	8	8'-0"	5	9"	9'-0"	6'-3 1/4"	20'-11"	8	9"	9'-0"	3	9"	3'-1 1/4"	6'-0"	4	12"	11'-2"	36	36	
9	4	9 3/4"	9 3/4"	8"	8	8'-0"	8	8'-0"	2	2'-0"	5	6"	10'-0"	3'-3 3/4"	16'-0"	6	6"	10'-0"	--	---	----	----	6	9 1/2"	5'-3"	40	12	
9	6	10"	10"	8"	8	8'-0"	8	8'-0"	4	4'-0"	5	9"	10'-0"	4'-4"	18'-0"	8	9"	10'-0"	3	9"	3'-3 5/8"	6'-5"	4	7 1/2"	7'-4"	40	20	
9	8	10"	10"	8"	8	8'-0"	8	8'-0"	6	6'-0"	5	9"	10'-0"	5'-4"	20'-0"	8	9"	10'-0"	3	9"	3'-3 5/8"	6'-5"	4	9 1/2"	9'-4"	40	28	
9	10	10 1/4"	10 1/4"	8"	8	8'-0"	8	8'-0"	8	8'-0"	6	8"	10'-0"	6'-4 1/4"	21'-11"	8	8"	10'-0"	--	---	----	----	4	12"	11'-5"	40	36	
9	12	10 1/4"	10 1/4"	8"	8	8'-0"	8	8'-0"	10	10'-0"	5	7 1/2"	10'-0"	7'-4 1/4"	24'-1"	8	7 1/2"	10'-0"	4	7 1/2"	3'-3 5/8"	6'-4"	4	7 1/2"	13'-5"	40	44	
10	4	10 1/2"	10 1/2"	8"	9	9'-0"	9	9'-0"	2	2'-0"	5	5 1/2"	11'-0"	3'-4 1/2"	17'-1"	6	5 1/2"	11'-0"	--	---	----	----	6	8"	5'-5"	44	12	
10	6	10 3/4"	10 3/4"	8"	9	9'-0"	9	9'-0"	4	4'-0"	6	8"	11'-0"	4'-4 3/4"	19'-0"	8	8"	11'-0"	--	---	----	----	4	6 1/2"	7'-5"	44	20	
10	8	11"	11"	8"	9	9'-0"	9	9'-0"	6	6'-0"	6	6"	11'-0"	5'-5"	21'-0"	7	6"	11'-0"	--	---	----	----	4	11"	9'-6"	44	28	
10	10	11"	11"	8"	9	9'-0"	9	9'-0"	8	8'-0"	5	7 1/2"	11'-0"	6'-5"	23'-2"	8	7 1/2"	11'-0"	3	7 1/2"	3'-6"	6'-10"	4	12"	11'-6"	44	36	
10	12	11 1/4"	11 1/4"	8"	9	9'-0"	9	9'-0"	10	10'-0"	6	6"	11'-0"	7'-5 1/4"	25'-1"	7	6"	11'-0"	--	---	----	----	4	9"	13'-6"	44	44	
12	6	12 3/4"	12 3/4"	8"	11	11'-0"	11	11'-0"	4	4'-0"	5	5 1/2"	13'-0"	4'-6 3/4"	21'-6"	7	5 1/2"	13'-0"	--	---	----	----	5	8"	7'-9"	52	20	
12	8	12 3/4"	12 3/4"	8"	11	11'-0"	11	11'-0"	6	6'-0"	6	6 1/2"	13'-0"	5'-6 3/4"	23'-4"	8	6 1/2"	13'-0"	--	---	----	----	4	9"	9'-9"	52	28	
12	10	13"	13"	8"	11	11'-0"	11	11'-0"	8	8'-0"	5	6 1/2"	13'-0"	6'-7"	25'-6"	8	6 1/2"	13'-0"	3	6 1/2"	3'-10 3/4"	7'-7"	4	12"	11'-10"	52	36	
12	12	13"	13"	8"	11	11'-0"	11	11'-0"	10	10'-0"	6	5"	13'-0"	7'-7"	27'-4"	7	5"	13'-0"	--	---	----	----	4	12"	13'-10"	52	44	

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

STRUCTURE
AND
BRIDGE
DIVISION

SPAN (FT.)	HIGHT (FT.)	REINFORCING STEEL (LBS./LONG. JT)	QUAN./LF		HEADWALLS									
			CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	G		HW I		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL	
					HEADWALL LENGTH	SIZE	LENGTH	LENGTH						
3	3	16.184	0.401	36.185	5'-10"	6	5'- 6"	1.038	33.044	1.042	33.044	A		
3	4	17.596	0.450	40.361	5'-10"	6	5'- 6"	1.131	33.044	1.134	33.044	C		
4	3	19.524	0.450	45.279	6'-10"	6	6'- 6"	1.139	39.052	1.146	39.052	A		
4	4	20.936	0.499	49.455	6'-10"	6	6'- 6"	1.232	39.052	1.239	39.052	C		
4	5	22.348	0.548	54.772	6'-10"	6	6'- 6"	1.324	39.052	1.332	39.052	E		
4	6	23.760	0.597	60.314	6'-10"	6	6'- 6"	1.417	39.052	1.424	39.052	G		
5	3	22.864	0.498	58.708	7'-10"	6	7'- 6"	1.240	45.060	1.251	45.060	A		
5	4	24.276	0.547	64.991	7'-10"	6	7'- 6"	1.333	45.060	1.343	45.060	C		
5	5	25.688	0.596	74.348	7'-10"	6	7'- 6"	1.426	45.060	1.436	45.060	E		
5	6	27.100	0.645	72.728	7'-10"	6	7'- 6"	1.518	45.060	1.529	45.060	G		
5	7	28.512	0.694	78.991	7'-10"	6	7'- 6"	1.611	45.060	1.621	45.060	I		
6	4	27.616	0.594	92.060	8'-10"	6	8'- 6"	1.434	51.068	1.448	51.068	C		
6	5	29.028	0.643	95.776	8'-10"	6	8'- 6"	1.527	51.068	1.541	51.068	E		
6	6	30.440	0.692	104.210	8'-10"	6	8'- 6"	1.620	51.068	1.633	51.068	G		
6	7	31.852	0.741	108.936	8'-10"	6	8'- 6"	1.712	51.068	1.726	51.068	I		
6	8	33.264	0.790	118.188	8'-10"	6	8'- 6"	1.805	51.068	1.819	51.068	K		
7	4	30.956	0.642	118.059	9'-10"	6	9'- 6"	1.535	57.076	1.552	57.076	C		
7	6	33.780	0.753	124.830	9'-10"	6	9'- 6"	1.719	57.076	1.736	57.076	G		
7	8	36.604	0.851	140.365	9'-10"	6	9'- 6"	1.905	57.076	1.922	57.076	K		
7	10	39.428	0.948	158.396	9'-10"	6	9'- 6"	2.090	57.076	2.107	57.076	O		
8	4	34.296	0.747	141.757	10'-10"	6	10'- 6"	1.627	63.084	1.648	63.084	C		
8	6	37.120	0.845	154.432	10'-10"	6	10'- 6"	1.813	63.084	1.833	63.084	G		
8	8	39.944	0.956	179.815	10'-10"	6	10'- 6"	2.014	63.084	2.035	63.084	L		
8	10	42.768	1.054	186.791	10'-10"	6	10'- 6"	2.200	63.084	2.220	63.084	P		
9	4	37.636	0.848	177.985	11'-10"	6	11'- 6"	1.735	69.092	1.758	69.092	D		
9	6	40.460	0.962	184.047	11'-10"	6	11'- 6"	1.917	69.092	1.941	69.092	H		
9	8	43.284	1.060	192.693	11'-10"	6	11'- 6"	2.102	69.092	2.126	69.092	L		
9	10	46.108	1.172	234.365	11'-10"	6	11'- 6"	2.285	69.092	2.308	69.092	P		
9	12	48.932	1.268	264.840	11'-10"	6	11'- 6"	2.470	69.092	2.494	69.092	T		
10	4	40.976	0.958	208.158	12'-10"	6	12'- 6"	1.819	75.100	1.846	75.100	D		
10	6	43.800	1.073	228.929	12'-10"	6	12'- 6"	2.000	75.100	2.027	75.100	H		
10	8	46.624	1.186	269.870	12'-10"	6	12'- 6"	2.182	75.100	2.209	75.100	L		
10	10	49.448	1.286	246.041	12'-10"	6	12'- 6"	2.367	75.100	2.394	75.100	P		
10	12	52.272	1.398	310.621	12'-10"	6	12'- 6"	2.549	75.100	2.576	75.100	T		
12	6	50.480	1.366	280.309	14'-10"	6	14'- 6"	2.143	87.116	2.176	87.116	H		
12	8	53.304	1.462	320.195	14'-10"	6	14'- 6"	2.328	87.116	2.362	87.116	L		
12	10	56.128	1.582	311.500	14'-10"	6	14'- 6"	2.508	87.116	2.542	87.116	P		
12	12	58.952	1.674	394.369	14'-10"	6	14'- 6"	2.693	87.116	2.727	87.116	T		

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	BH1												BH2			BH3			BV1			NO. BL1 BARS	NO. BL2 BARS
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	LENGTH		
3	3	8"	8"	8"	2	2'-0"	2	2'-0"	1	1'-0"	4	12"	4'-0"	2'-8"	8'-10"	5	12"	4'-0"	3	12"	2'-1 1/4"	4'-0"	4	12"	4'-0"	16	8
3	4	8"	8"	8"	2	2'-0"	2	2'-0"	2	2'-0"	4	12"	4'-0"	3'-2"	9'-10"	5	12"	4'-0"	--	--	----	----	4	12"	5'-0"	16	12
4	3	8"	8"	8"	3	3'-0"	3	3'-0"	1	1'-0"	4	10 1/2"	5'-0"	2'-8"	9'-10"	5	10 1/2"	5'-0"	--	--	----	----	4	12"	4'-0"	20	8
4	4	8"	8"	8"	3	3'-0"	3	3'-0"	2	2'-0"	4	10"	5'-0"	3'-2"	10'-10"	5	10"	5'-0"	--	--	----	----	4	12"	5'-0"	20	12
4	5	8"	8"	8"	3	3'-0"	3	3'-0"	3	3'-0"	4	9 1/2"	5'-0"	3'-8"	11'-10"	5	9 1/2"	5'-0"	--	--	----	----	4	12"	6'-0"	20	16
4	6	8"	8"	8"	3	3'-0"	3	3'-0"	4	4'-0"	4	9 1/2"	5'-0"	4'-2"	12'-10"	5	9 1/2"	5'-0"	--	--	----	----	4	12"	7'-0"	20	20
5	3	8"	8"	8"	4	4'-0"	4	4'-0"	1	1'-0"	5	10 1/2"	6'-0"	2'-8"	10'-8"	6	10 1/2"	6'-0"	--	--	----	----	4	9"	4'-0"	24	8
5	4	8"	8"	8"	4	4'-0"	4	4'-0"	2	2'-0"	4	10"	6'-0"	3'-2"	11'-10"	6	10"	6'-0"	3	10"	2'-6"	4'-10"	4	12"	5'-0"	24	12
5	5	8"	8"	8"	4	4'-0"	4	4'-0"	3	3'-0"	4	9 1/2"	6'-0"	3'-8"	12'-10"	6	9 1/2"	6'-0"	3	9 1/2"	2'-6"	4'-10"	4	12"	6'-0"	24	16
5	6	8"	8"	8"	4	4'-0"	4	4'-0"	4	4'-0"	4	9"	6'-0"	4'-2"	13'-10"	6	9"	6'-0"	--	--	----	----	4	12"	7'-0"	24	20
5	7	8"	8"	8"	4	4'-0"	4	4'-0"	5	5'-0"	4	9"	6'-0"	4'-8"	14'-10"	6	9"	6'-0"	--	--	----	----	4	12"	8'-0"	24	24
6	4	8 3/4"	8 3/4"	8"	5	5'-0"	5	5'-0"	2	2'-0"	5	8"	7'-0"	3'-2 3/4"	12'-10"	6	8"	7'-0"	--	--	----	----	4	9"	5'-2"	28	12
6	5	8 3/4"	8 3/4"	8"	5	5'-0"	5	5'-0"	3	3'-0"	4	8"	7'-0"	3'-8 3/4"	13'-11"	6	8"	7'-0"	3	8"	2'-8 3/8"	5'-2"	4	12"	6'-2"	28	16
6	6	8 3/4"	8 3/4"	8"	5	5'-0"	5	5'-0"	4	4'-0"	4	7 1/2"	7'-0"	4'-2 3/4"	14'-11"	6	7 1/2"	7'-0"	3	7 1/2"	2'-8 3/8"	5'-2"	4	12"	7'-2"	28	20
6	7	8 3/4"	8 3/4"	8"	5	5'-0"	5	5'-0"	5	5'-0"	4	7 1/2"	7'-0"	4'-8 3/4"	15'-11"	6	7 1/2"	7'-0"	3	7 1/2"	2'-8 3/8"	5'-2"	4	12"	8'-2"	28	24
6	8	8 3/4"	8 3/4"	8"	5	5'-0"	5	5'-0"	6	6'-0"	5	7"	7'-0"	5'-2 3/4"	16'-10"	6	7"	7'-0"	--	--	----	----	4	12"	9'-2"	28	28
7	4	9 3/4"	9 3/4"	8"	6	6'-0"	6	6'-0"	2	2'-0"	4	7"	8'-0"	3'-3 3/4"	14'-1"	6	7"	8'-0"	3	7"	2'-10 3/4"	5'-7"	4	7 1/2"	5'-3"	32	12
7	6	10"	10"	8"	6	6'-0"	6	6'-0"	4	4'-0"	4	6 1/2"	8'-0"	4'-4"	16'-2"	6	6 1/2"	8'-0"	--	--	----	----	4	12"	7'-4"	32	20
7	8	10"	10"	8"	6	6'-0"	6	6'-0"	6	6'-0"	5	6 1/2"	8'-0"	5'-4"	18'-0"	6	6 1/2"	8'-0"	--	--	----	----	4	12"	9'-4"	32	28
7	10	10"	10"	8"	6	6'-0"	6	6'-0"	8	8'-0"	5	7 1/2"	8'-0"	6'-4"	20'-0"	7	7 1/2"	8'-0"	3	7 1/2"	2'-10 3/4"	5'-7"	4	9 1/2"	11'-4"	32	36
8	4	10 3/4"	10 3/4"	8"	7	7'-0"	7	7'-0"	2	2'-0"	4	6"	9'-0"	3'-4 3/4"	15'-3"	6	6"	9'-0"	3	6"	3'-1 1/4"	6'-0"	4	6 1/2"	5'-5"	36	12
8	6	11"	11"	8"	7	7'-0"	7	7'-0"	4	4'-0"	5	7"	9'-0"	4'-5"	17'-2"	7	7"	9'-0"	--	--	----	----	4	11"	7'-6"	36	20
8	8	11 1/4"	11 1/4"	8"	7	7'-0"	7	7'-0"	6	6'-0"	5	9"	9'-0"	5'-5 1/4"	19'-3"	8	9"	9'-0"	3	9"	3'-1 1/4"	6'-0"	4	12"	9'-6"	36	28
8	10	11 1/4"	11 1/4"	8"	7	7'-0"	7	7'-0"	8	8'-0"	5	5 1/2"	9'-0"	6'-5 1/4"	21'-3"	6	5 1/2"	9'-0"	--	--	----	----	4	10 1/2"	11'-6"	36	36
9	4	12"	12"	8"	8	8'-0"	8	8'-0"	2	2'-0"	4	5 1/2"	10'-0"	3'-6"	16'-6"	6	5 1/2"	10'-0"	3	5 1/2"	3'-3 5/8"	6'-5"	4	6"	5'-8"	40	12
9	6	12 1/4"	12 1/4"	8"	8	8'-0"	8	8'-0"	4	4'-0"	5	8"	10'-0"	4'-6 1/4"	18'-5"	8	8"	10'-0"	--	--	----	----	4	10"	7'-9"	40	20
9	8	12 1/4"	12 1/4"	8"	8	8'-0"	8	8'-0"	6	6'-0"	4	6 1/2"	10'-0"	5'-6 1/4"	20'-6"	7	6 1/2"	10'-0"	3	6 1/2"	3'-3 5/8"	6'-5"	4	12"	9'-9"	40	28
9	10	12 1/2"	12 1/2"	8"	8	8'-0"	8	8'-0"	8	8'-0"	5	6"	10'-0"	6'-6 1/2"	22'-5"	7	6"	10'-0"	--	--	----	----	4	12"	11'-9"	40	36
9	12	12 1/2"	12 1/2"	8"	8	8'-0"	8	8'-0"	10	10'-0"	6	7 1/2"	10'-0"	7'-6 1/2"	24'-3"	8	7 1/2"	10'-0"	3	7 1/2"	3'-3 5/8"	6'-5"	4	5 1/2"	13'-9"	40	44
10	4	13"	13"	8"	9	9'-0"	9	9'-0"	2	2'-0"	5	6"	11'-0"	3'-7"	17'-6"	7	6"	11'-0"	--	--	----	----	4	5"	5'-10"	44	12
10	6	13"	13"	8"	9	9'-0"	9	9'-0"	4	4'-0"	5	7 1/2"	11'-0"	4'-7"	19'-6"	8	7 1/2"	11'-0"	3	7 1/2"	3'-6"	6'-10"	4	8"	7'-10"	44	20
10	8	13"	13"	8"	9	9'-0"	9	9'-0"	6	6'-0"	5	7 1/2"	11'-0"	5'-7"	21'-6"	8	7 1/2"	11'-0"	3	7 1/2"	3'-6"	6'-10"	4	12"	9'-10"	44	28
10	10	13"	13"	8"	9	9'-0"	9	9'-0"	8	8'-0"	5	5 1/2"	11'-0"	6'-7"	23'-6"	7	5 1/2"	11'-0"	--	--	----	----	4	12"	11'-10"	44	36
10	12	13"	13"	8"	9	9'-0"	9	9'-0"	10	10'-0"	7	7"	11'-0"	7'-7"	25'-3"	8	7"	11'-0"	--	--	----	----	4	6"	13'-10"	44	44
12	6	15"	15"	8"	11	11'-0"	11	11'-0"	4	4'-0"	5	6 1/2"	13'-0"	4'-9"	21'-10"	8	6 1/2"	13'-0"	--	--	----	----	4	6"	8'-2"	52	20
12	8	15 1/4"	15 1/4"	8"	11	11'-0"	11	11'-0"	6	6'-0"	6	6"	13'-0"	5'-9 1/4"	23'-9"	8	6"	13'-0"	--	--	----	----	4	10"	10'-3"	52	28
12	10	15 1/4"	15 1/4"	8"	11	11'-0"	11	11'-0"	8	8'-0"	4	6"	13'-0"	6'-9 1/4"	26'-0"	8	6"	13'-0"	4	6"	3'-10 3/4"	7'-6"	4	12"	12'-3"	52	36
12	12	15 1/4"	15 1/4"	8"	11	11'-0"	11	11'-0"	10	10'-0"	6	6"	13'-0"	7'-9 1/4"	27'-9"	8	6"	13'-0"	--	--	----	----	4	6 1/2"	14'-3"	52	44

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

STRUCTURE
AND
BRIDGE
DIVISION

SPAN (FT.)	HIGHT (FT.)	REINFORCING STEEL (LBS./LONG. JT)	QUAN./LF		HEADWALLS								
			CONCRETE CLASS. A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	G		HW I		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
					HEADWALL LENGTH	SIZE	LENGTH	LENGTH					
3	3	16.184	0.400	45.201	5'-10"	6	5'- 6"	1.038	33.044	1.042	33.044	A	
3	4	17.596	0.450	43.361	5'-10"	6	5'- 6"	1.131	33.044	1.134	33.044	C	
4	3	19.524	0.450	48.646	6'-10"	6	6'- 6"	1.139	39.052	1.146	39.052	A	
4	4	20.936	0.498	54.436	6'-10"	6	6'- 6"	1.232	39.052	1.239	39.052	C	
4	5	22.348	0.547	60.536	6'-10"	6	6'- 6"	1.324	39.052	1.332	39.052	E	
4	6	23.760	0.596	65.064	6'-10"	6	6'- 6"	1.417	39.052	1.424	39.052	G	
5	3	22.864	0.497	72.194	7'-10"	6	7'- 6"	1.240	45.060	1.251	45.060	A	
5	4	24.276	0.546	76.547	7'-10"	6	7'- 6"	1.333	45.060	1.343	45.060	C	
5	5	25.688	0.595	83.671	7'-10"	6	7'- 6"	1.426	45.060	1.436	45.060	E	
5	6	27.100	0.645	81.578	7'-10"	6	7'- 6"	1.518	45.060	1.529	45.060	G	
5	7	28.512	0.694	86.199	7'-10"	6	7'- 6"	1.611	45.060	1.621	45.060	I	
6	4	27.616	0.627	104.117	8'-10"	6	8'- 6"	1.432	51.068	1.446	51.068	C	
6	5	29.028	0.677	104.046	8'-10"	6	8'- 6"	1.524	51.068	1.538	51.068	E	
6	6	30.440	0.725	113.762	8'-10"	6	8'- 6"	1.617	51.068	1.631	51.068	G	
6	7	31.852	0.774	118.740	8'-10"	6	8'- 6"	1.710	51.068	1.724	51.068	I	
6	8	33.264	0.822	137.723	8'-10"	6	8'- 6"	1.803	51.068	1.816	51.068	K	
7	4	30.956	0.731	124.958	9'-10"	6	9'- 6"	1.543	57.076	1.560	57.076	D	
7	6	33.780	0.843	122.935	9'-10"	6	9'- 6"	1.727	57.076	1.744	57.076	H	
7	8	36.604	0.939	158.059	9'-10"	6	9'- 6"	1.912	57.076	1.929	57.076	L	
7	10	39.428	1.036	186.552	9'-10"	6	9'- 6"	2.098	57.076	2.115	57.076	P	
8	4	34.296	0.847	154.788	10'-10"	6	10'- 6"	1.630	63.084	1.650	63.084	D	
8	6	37.120	0.959	166.959	10'-10"	6	10'- 6"	1.813	63.084	1.833	63.084	H	
8	8	39.944	1.072	176.921	10'-10"	6	10'- 6"	1.996	63.084	2.016	63.084	L	
8	10	42.768	1.168	210.845	10'-10"	6	10'- 6"	2.181	63.084	2.202	63.084	P	
9	4	37.636	0.991	181.067	11'-10"	6	11'- 6"	1.707	69.092	1.731	69.092	D	
9	6	40.460	1.105	184.391	11'-10"	6	11'- 6"	1.889	69.092	1.913	69.092	H	
9	8	43.284	1.203	194.124	11'-10"	6	11'- 6"	2.075	69.092	2.098	69.092	L	
9	10	46.108	1.315	231.236	11'-10"	6	11'- 6"	2.257	69.092	2.281	69.092	P	
9	12	48.932	1.409	300.780	11'-10"	6	11'- 6"	2.442	69.092	2.466	69.092	T	
10	4	40.976	1.132	215.554	12'-10"	6	12'- 6"	1.780	75.100	1.807	75.100	D	
10	6	43.800	1.230	228.121	12'-10"	6	12'- 6"	1.966	75.100	1.993	75.100	H	
10	8	46.624	1.328	235.243	12'-10"	6	12'- 6"	2.151	75.100	2.178	75.100	L	
10	10	49.448	1.425	263.804	12'-10"	6	12'- 6"	2.337	75.100	2.364	75.100	P	
10	12	52.272	1.516	360.548	12'-10"	6	12'- 6"	2.522	75.100	2.549	75.100	T	
12	6	50.480	1.552	276.319	14'-10"	6	14'- 6"	2.094	87.116	2.128	87.116	H	
12	8	53.304	1.666	343.227	14'-10"	6	14'- 6"	2.293	87.116	2.326	87.116	M	
12	10	56.128	1.767	313.030	14'-10"	6	14'- 6"	2.478	87.116	2.512	87.116	Q	
12	12	58.952	1.860	391.989	14'-10"	6	14'- 6"	2.663	87.116	2.697	87.116	U	

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	A	B	C	D	E	F	BH1				BH2			BH3				BV1			NO. BL1 BARS	NO. BL2 BARS	
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)							SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C			LENGTH
3	3	8"	8"	8"	2	2'- 0"	2	2'- 0"	1	1'- 0"	4	12"	4'- 0"	2'- 8"	8'- 10"	5	12"	4'- 0"	3	12"	2'- 1 1/4"	4'- 0"	4	12"	4'- 0"	16	8
3	4	8"	8"	8"	2	2'- 0"	2	2'- 0"	2	2'- 0"	4	12"	4'- 0"	3'- 2"	9'- 10"	5	12"	4'- 0"	3	12"	2'- 1 1/4"	4'- 0"	4	12"	5'- 0"	16	12
4	3	8"	8"	8"	3	3'- 0"	3	3'- 0"	1	1'- 0"	4	9"	5'- 0"	2'- 8"	9'- 10"	5	9"	5'- 0"	--	---	----	----	4	12"	4'- 0"	20	8
4	4	8"	8"	8"	3	3'- 0"	3	3'- 0"	2	2'- 0"	4	11"	5'- 0"	3'- 2"	10'- 10"	6	11"	5'- 0"	3	11"	2'- 3 5/8"	4'- 5"	4	12"	5'- 0"	20	12
4	5	8"	8"	8"	3	3'- 0"	3	3'- 0"	3	3'- 0"	4	11"	5'- 0"	3'- 8"	11'- 10"	6	11"	5'- 0"	3	11"	2'- 3 5/8"	4'- 5"	4	12"	6'- 0"	20	16
4	6	8"	8"	8"	3	3'- 0"	3	3'- 0"	4	4'- 0"	4	10 1/2"	5'- 0"	4'- 2"	12'- 10"	6	10 1/2"	5'- 0"	3	10 1/2"	2'- 3 5/8"	4'- 5"	4	12"	7'- 0"	20	20
5	3	8 1/2"	8 1/2"	8"	4	4'- 0"	4	4'- 0"	1	1'- 0"	5	9"	6'- 0"	2'- 8 1/2"	10'- 9"	6	9"	6'- 0"	--	---	----	----	4	9"	4'- 1"	24	8
5	4	8 1/2"	8 1/2"	8"	4	4'- 0"	4	4'- 0"	2	2'- 0"	5	8 1/2"	6'- 0"	3'- 2 1/2"	11'- 9"	6	8 1/2"	6'- 0"	--	---	----	----	4	11 1/2"	5'- 1"	24	12
5	5	8 1/2"	8 1/2"	8"	4	4'- 0"	4	4'- 0"	3	3'- 0"	4	8 1/2"	6'- 0"	3'- 8 1/2"	12'- 11"	6	8 1/2"	6'- 0"	3	8 1/2"	2'- 6"	4'- 10"	4	12"	6'- 1"	24	16
5	6	8 3/4"	8 3/4"	8"	4	4'- 0"	4	4'- 0"	4	4'- 0"	4	8 1/2"	6'- 0"	4'- 2 3/4"	13'- 11"	6	8 1/2"	6'- 0"	--	---	----	----	4	12"	7'- 2"	24	20
5	7	8 3/4"	8 3/4"	8"	4	4'- 0"	4	4'- 0"	5	5'- 0"	4	8"	6'- 0"	4'- 8 3/4"	14'- 11"	6	8"	6'- 0"	--	---	----	----	4	12"	8'- 2"	24	24
6	4	10"	10"	8"	5	5'- 0"	5	5'- 0"	2	2'- 0"	4	7 1/2"	7'- 0"	3'- 4"	13'- 2"	6	7 1/2"	7'- 0"	3	7 1/2"	2'- 8 3/8"	5'- 2"	4	9"	5'- 4"	28	12
6	5	10 1/4"	10 1/4"	8"	5	5'- 0"	5	5'- 0"	3	3'- 0"	4	7 1/2"	7'- 0"	3'- 10 1/4"	14'- 2"	6	7 1/2"	7'- 0"	--	---	----	----	4	12"	6'- 5"	28	16
6	6	10 1/4"	10 1/4"	8"	5	5'- 0"	5	5'- 0"	4	4'- 0"	4	7"	7'- 0"	4'- 4 1/4"	15'- 2"	6	7"	7'- 0"	--	---	----	----	4	12"	7'- 5"	28	20
6	7	10 1/4"	10 1/4"	8"	5	5'- 0"	5	5'- 0"	5	5'- 0"	4	7"	7'- 0"	4'- 10 1/4"	16'- 2"	6	7"	7'- 0"	--	---	----	----	4	12"	8'- 5"	28	24
6	8	10 1/4"	10 1/4"	8"	5	5'- 0"	5	5'- 0"	6	6'- 0"	5	7"	7'- 0"	5'- 4 1/4"	17'- 1"	6	7"	7'- 0"	--	---	----	----	4	12"	9'- 5"	28	28
7	4	11 1/2"	11 1/2"	8"	6	6'- 0"	6	6'- 0"	2	2'- 0"	4	6 1/2"	8'- 0"	3'- 5 1/2"	14'- 5"	6	6 1/2"	8'- 0"	--	---	----	----	4	8"	5'- 7"	32	12
7	6	11 3/4"	11 3/4"	8"	6	6'- 0"	6	6'- 0"	4	4'- 0"	4	6"	8'- 0"	4'- 5 3/4"	16'- 5"	6	6"	8'- 0"	--	---	----	----	4	12"	7'- 8"	32	20
7	8	11 3/4"	11 3/4"	8"	6	6'- 0"	6	6'- 0"	6	6'- 0"	4	6"	8'- 0"	5'- 5 3/4"	18'- 5"	6	6"	8'- 0"	--	---	----	----	4	12"	9'- 8"	32	28
7	10	11 3/4"	11 3/4"	8"	6	6'- 0"	6	6'- 0"	8	8'- 0"	5	7 1/2"	8'- 0"	6'- 5 3/4"	20'- 4"	7	7 1/2"	8'- 0"	3	7 1/2"	2'- 10 3/4"	5'- 7"	4	6 1/2"	11'- 8"	32	36
8	4	12 3/4"	12 3/4"	8"	7	7'- 0"	7	7'- 0"	2	2'- 0"	5	8 1/2"	9'- 0"	3'- 6 3/4"	15'- 6"	8	8 1/2"	9'- 0"	3	8 1/2"	3'- 1 1/4"	6'- 0"	4	7 1/2"	5'- 9"	36	12
8	6	13"	13"	8"	7	7'- 0"	7	7'- 0"	4	4'- 0"	5	8 1/2"	9'- 0"	4'- 7"	17'- 6"	8	8 1/2"	9'- 0"	--	---	----	----	4	12"	7'- 10"	36	20
8	8	13"	13"	8"	7	7'- 0"	7	7'- 0"	6	6'- 0"	5	8 1/2"	9'- 0"	5'- 7"	19'- 6"	8	8 1/2"	9'- 0"	3	8 1/2"	3'- 1 1/4"	6'- 0"	4	12"	9'- 10"	36	28
8	10	13"	13"	8"	7	7'- 0"	7	7'- 0"	8	8'- 0"	5	5"	9'- 0"	6'- 7"	21'- 6"	6	5"	9'- 0"	--	---	----	----	5	10 1/2"	11'- 10"	36	36
9	4	13 1/2"	13 1/2"	8"	8	8'- 0"	8	8'- 0"	2	2'- 0"	5	6"	10'- 0"	3'- 7 1/2"	16'- 7"	7	6"	10'- 0"	--	---	----	----	4	6 1/2"	5'- 11"	40	12
9	6	13 1/2"	13 1/2"	8"	8	8'- 0"	8	8'- 0"	4	4'- 0"	4	7 1/2"	10'- 0"	4'- 7 1/2"	18'- 9"	8	7 1/2"	10'- 0"	4	7 1/2"	3'- 3 5/8"	6'- 4"	4	11 1/2"	7'- 11"	40	20
9	8	13 1/2"	13 1/2"	8"	8	8'- 0"	8	8'- 0"	6	6'- 0"	5	7 1/2"	10'- 0"	5'- 7 1/2"	20'- 7"	8	7 1/2"	10'- 0"	3	7 1/2"	3'- 3 5/8"	6'- 5"	4	12"	9'- 11"	40	28
9	10	13 1/2"	13 1/2"	8"	8	8'- 0"	8	8'- 0"	8	8'- 0"	5	6"	10'- 0"	6'- 7 1/2"	22'- 7"	7	6"	10'- 0"	--	---	----	----	4	9"	11'- 11"	40	36
9	12	13 1/4"	13 1/4"	8"	8	8'- 0"	8	8'- 0"	10	10'- 0"	6	7"	10'- 0"	7'- 7 1/4"	24'- 5"	8	7"	10'- 0"	--	---	----	----	4	4 1/2"	13'- 10"	40	44
10	4	14 3/4"	14 3/4"	8"	9	9'- 0"	9	9'- 0"	2	2'- 0"	4	6"	11'- 0"	3'- 8 3/4"	17'- 11"	7	6"	11'- 0"	4	6"	3'- 6"	6'- 9"	4	6"	6'- 1"	44	12
10	6	15"	15"	8"	9	9'- 0"	9	9'- 0"	4	4'- 0"	5	5 1/2"	11'- 0"	4'- 9"	19'- 10"	7	5 1/2"	11'- 0"	--	---	----	----	4	11"	8'- 2"	44	20
10	8	15"	15"	8"	9	9'- 0"	9	9'- 0"	6	6'- 0"	4	7"	11'- 0"	5'- 9"	22'- 0"	8	7"	11'- 0"	4	7"	3'- 6"	6'- 9"	4	12"	10'- 2"	44	28
10	10	15"	15"	8"	9	9'- 0"	9	9'- 0"	8	8'- 0"	6	6 1/2"	11'- 0"	6'- 9"	23'- 8"	8	6 1/2"	11'- 0"	--	---	----	----	4	9"	12'- 2"	44	36
10	12	15"	15"	8"	9	9'- 0"	9	9'- 0"	10	10'- 0"	6	6 1/2"	11'- 0"	7'- 9"	25'- 8"	8	6 1/2"	11'- 0"	--	---	----	----	4	4 1/2"	14'- 2"	44	44
12	6	17 1/2"	17 1/2"	8"	11	11'- 0"	11	11'- 0"	4	4'- 0"	4	6"	13'- 0"	4'- 11 1/2"	22'- 5"	8	6"	13'- 0"	3	6"	3'- 10 3/4"	7'- 7"	4	10"	8'- 7"	52	20
12	8	17 3/4"	17 3/4"	8"	11	11'- 0"	11	11'- 0"	6	6'- 0"	5	4 1/2"	13'- 0"	5'- 11 3/4"	24'- 4"	7	4 1/2"	13'- 0"	--	---	----	----	4	12"	10'- 7"	52	28
12	10	17 3/4"	17 3/4"	8"	11	11'- 0"	11	11'- 0"	8	8'- 0"	6	6"	13'- 0"	6'- 11 3/4"	26'- 2"	8	6"	13'- 0"	--	---	----	----	4	10"	12'- 7"	52	36
12	12	17 3/4"	17 3/4"	8"	11	11'- 0"	11	11'- 0"	10	10'- 0"	6	6"	13'- 0"	7'- 11 3/4"	28'- 2"	8	6"	13'- 0"	--	---	----	----	5	7 1/2"	14'- 7"	52	44

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

STRUCTURE
AND
BRIDGE
DIVISION

SPAN (FT.)	HIGHT (FT.)	REINFORCING STEEL (LBS./LONG. JT)	QUAN./LF		HEADWALLS									
			CONCRETE CLASS. A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	G		HW I		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL	
					HEADWALL LENGTH	SIZE	LENGTH							
3	3	16.184	0.400	45.201	5'-10"	6	5'- 6"	1.038	33.044	1.042	33.044	A		
3	4	17.596	0.449	49.377	5'-10"	6	5'- 6"	1.131	33.044	1.134	33.044	C		
4	3	19.524	0.449	53.135	6'-10"	6	6'- 6"	1.139	39.052	1.146	39.052	A		
4	4	20.936	0.498	63.973	6'-10"	6	6'- 6"	1.232	39.052	1.239	39.052	C		
4	5	22.348	0.547	68.271	6'-10"	6	6'- 6"	1.324	39.052	1.332	39.052	E		
4	6	23.760	0.596	74.584	6'-10"	6	6'- 6"	1.417	39.052	1.424	39.052	G		
5	3	22.864	0.516	80.245	7'-10"	6	7'- 6"	1.240	45.060	1.251	45.060	A		
5	4	24.276	0.565	87.679	7'-10"	6	7'- 6"	1.333	45.060	1.343	45.060	C		
5	5	25.688	0.614	90.246	7'-10"	6	7'- 6"	1.426	45.060	1.436	45.060	E		
5	6	27.100	0.674	84.821	7'-10"	6	7'- 6"	1.518	45.060	1.529	45.060	G		
5	7	28.512	0.722	92.896	7'-10"	6	7'- 6"	1.611	45.060	1.621	45.060	I		
6	4	27.616	0.684	106.939	8'-10"	6	8'- 6"	1.446	51.068	1.460	51.068	D		
6	5	29.028	0.745	97.220	8'-10"	6	8'- 6"	1.538	51.068	1.552	51.068	F		
6	6	30.440	0.794	106.917	8'-10"	6	8'- 6"	1.631	51.068	1.645	51.068	H		
6	7	31.852	0.843	112.047	8'-10"	6	8'- 6"	1.724	51.068	1.738	51.068	J		
6	8	33.264	0.890	138.951	8'-10"	6	8'- 6"	1.817	51.068	1.830	51.068	L		
7	4	30.956	0.822	117.002	9'-10"	6	9'- 6"	1.532	57.076	1.549	57.076	D		
7	6	33.780	0.932	131.068	9'-10"	6	9'- 6"	1.716	57.076	1.733	57.076	H		
7	8	36.604	1.030	142.092	9'-10"	6	9'- 6"	1.902	57.076	1.919	57.076	L		
7	10	39.428	1.125	197.314	9'-10"	6	9'- 6"	2.087	57.076	2.104	57.076	P		
8	4	34.296	0.961	167.087	10'-10"	6	10'- 6"	1.611	63.084	1.631	63.084	D		
8	6	37.120	1.075	161.419	10'-10"	6	10'- 6"	1.794	63.084	1.815	63.084	H		
8	8	39.944	1.172	185.729	10'-10"	6	10'- 6"	1.980	63.084	2.000	63.084	L		
8	10	42.768	1.266	238.319	10'-10"	6	10'- 6"	2.165	63.084	2.185	63.084	P		
9	4	37.636	1.085	196.771	11'-10"	6	11'- 6"	1.688	69.092	1.712	69.092	D		
9	6	40.460	1.184	197.873	11'-10"	6	11'- 6"	1.874	69.092	1.897	69.092	H		
9	8	43.284	1.281	220.077	11'-10"	6	11'- 6"	2.059	69.092	2.083	69.092	L		
9	10	46.108	1.379	237.461	11'-10"	6	11'- 6"	2.245	69.092	2.268	69.092	P		
9	12	48.932	1.456	309.829	11'-10"	6	11'- 6"	2.433	69.092	2.457	69.092	T		
10	4	40.976	1.254	224.040	12'-10"	6	12'- 6"	1.753	75.100	1.780	75.100	D		
10	6	43.800	1.369	237.193	12'-10"	6	12'- 6"	1.935	75.100	1.962	75.100	H		
10	8	46.624	1.468	235.505	12'-10"	6	12'- 6"	2.120	75.100	2.147	75.100	L		
10	10	49.448	1.562	304.296	12'-10"	6	12'- 6"	2.306	75.100	2.333	75.100	P		
10	12	52.272	1.657	347.194	12'-10"	6	12'- 6"	2.491	75.100	2.518	75.100	T		
12	6	50.480	1.757	277.565	14'-10"	6	14'- 6"	2.059	87.116	2.092	87.116	I		
12	8	53.304	1.872	336.479	14'-10"	6	14'- 6"	2.239	87.116	2.272	87.116	M		
12	10	56.128	1.969	364.495	14'-10"	6	14'- 6"	2.424	87.116	2.458	87.116	Q		
12	12	58.952	2.064	408.019	14'-10"	6	14'- 6"	2.609	87.116	2.643	87.116	U		

DIMENSIONS					REINFORCING STEEL																						
SPAN (FT.)	HGHT (FT.)	T1 TOP SLAB (IN.)	T2 BOTTOM SLAB (IN.)	T3 WALL (IN.)	A	B	C	D	E	F	BH1				BH2			BH3				BV1			NO. BL1 BARS	NO. BL2 BARS	
											SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C			LENGTH
3	3	8"	8"	8"	2	2'- 0"	2	2'- 0"	1	1'- 0"	4	1 1/2"	4'- 0"	2'- 8"	8'- 10"	5	1 1/2"	4'- 0"	--	----	----	----	4	12"	4'- 0"	16	8
3	4	8"	8"	8"	2	2'- 0"	2	2'- 0"	2	2'- 0"	4	11"	4'- 0"	3'- 2"	9'- 10"	5	11"	4'- 0"	--	----	----	----	4	12"	5'- 0"	16	12
4	3	8"	8"	8"	3	3'- 0"	3	3'- 0"	1	1'- 0"	4	10 1/2"	5'- 0"	2'- 8"	9'- 10"	6	10 1/2"	5'- 0"	4	10 1/2"	2'- 3 5/8"	4'- 4"	4	11 1/2"	4'- 0"	20	8
4	4	8"	8"	8"	3	3'- 0"	3	3'- 0"	2	2'- 0"	4	10"	5'- 0"	3'- 2"	10'- 10"	6	10"	5'- 0"	3	10"	2'- 3 5/8"	4'- 5"	4	12"	5'- 0"	20	12
4	5	8"	8"	8"	3	3'- 0"	3	3'- 0"	3	3'- 0"	4	9 1/2"	5'- 0"	3'- 8"	11'- 10"	6	9 1/2"	5'- 0"	3	9 1/2"	2'- 3 5/8"	4'- 5"	4	12"	6'- 0"	20	16
4	6	8"	8"	8"	3	3'- 0"	3	3'- 0"	4	4'- 0"	4	9 1/2"	5'- 0"	4'- 2"	12'- 10"	6	9 1/2"	5'- 0"	3	9 1/2"	2'- 3 5/8"	4'- 5"	4	12"	7'- 0"	20	20
5	3	9 1/2"	9 1/2"	8"	4	4'- 0"	4	4'- 0"	1	1'- 0"	4	8 1/2"	6'- 0"	2'- 9 1/2"	11'- 1"	6	8 1/2"	6'- 0"	3	8 1/2"	2'- 6"	4'- 10"	4	9"	4'- 3"	24	8
5	4	9 3/4"	9 3/4"	8"	4	4'- 0"	4	4'- 0"	2	2'- 0"	4	8"	6'- 0"	3'- 3 3/4"	12'- 1"	6	8"	6'- 0"	--	----	----	----	4	12"	5'- 3"	24	12
5	5	9 3/4"	9 3/4"	8"	4	4'- 0"	4	4'- 0"	3	3'- 0"	4	8"	6'- 0"	3'- 9 3/4"	13'- 1"	6	8"	6'- 0"	--	----	----	----	4	12"	6'- 3"	24	16
5	6	9 3/4"	9 3/4"	8"	4	4'- 0"	4	4'- 0"	4	4'- 0"	4	8"	6'- 0"	4'- 3 3/4"	14'- 1"	6	8"	6'- 0"	--	----	----	----	4	12"	7'- 3"	24	20
5	7	9 3/4"	9 3/4"	8"	4	4'- 0"	4	4'- 0"	5	5'- 0"	4	8"	6'- 0"	4'- 9 3/4"	15'- 1"	6	8"	6'- 0"	--	----	----	----	4	12"	8'- 3"	24	24
6	4	11 1/2"	11 1/2"	8"	5	5'- 0"	5	5'- 0"	2	2'- 0"	4	7"	7'- 0"	3'- 5 1/2"	13'- 5"	6	7"	7'- 0"	--	----	----	----	4	12"	5'- 7"	28	12
6	5	11 1/2"	11 1/2"	8"	5	5'- 0"	5	5'- 0"	3	3'- 0"	4	6 1/2"	7'- 0"	3'- 11 1/2"	14'- 5"	6	6 1/2"	7'- 0"	--	----	----	----	4	12"	6'- 7"	28	16
6	6	11 1/2"	11 1/2"	8"	5	5'- 0"	5	5'- 0"	4	4'- 0"	4	6 1/2"	7'- 0"	4'- 5 1/2"	15'- 5"	6	6 1/2"	7'- 0"	--	----	----	----	4	12"	7'- 7"	28	20
6	7	11 1/2"	11 1/2"	8"	5	5'- 0"	5	5'- 0"	5	5'- 0"	4	6 1/2"	7'- 0"	4'- 11 1/2"	16'- 5"	6	6 1/2"	7'- 0"	--	----	----	----	4	12"	8'- 7"	28	24
6	8	11 1/2"	11 1/2"	8"	5	5'- 0"	5	5'- 0"	6	6'- 0"	4	6 1/2"	7'- 0"	5'- 5 1/2"	17'- 5"	6	6 1/2"	7'- 0"	--	----	----	----	4	10 1/2"	9'- 7"	28	28
7	4	13"	13"	8"	6	6'- 0"	6	6'- 0"	2	2'- 0"	4	6"	8'- 0"	3'- 7"	14'- 8"	6	6"	8'- 0"	--	----	----	----	4	10 1/2"	5'- 10"	32	12
7	6	13"	13"	8"	6	6'- 0"	6	6'- 0"	4	4'- 0"	5	7 1/2"	8'- 0"	4'- 7"	16'- 6"	8	7 1/2"	8'- 0"	--	----	----	----	4	12"	7'- 10"	32	20
7	8	13"	13"	8"	6	6'- 0"	6	6'- 0"	6	6'- 0"	5	7"	8'- 0"	5'- 7"	18'- 6"	7	7"	8'- 0"	--	----	----	----	4	12"	9'- 10"	32	28
7	10	13"	13"	8"	6	6'- 0"	6	6'- 0"	8	8'- 0"	5	5 1/2"	8'- 0"	6'- 7"	20'- 6"	6	5 1/2"	8'- 0"	--	----	----	----	4	5 1/2"	11'- 10"	32	36
8	4	13 3/4"	13 3/4"	8"	7	7'- 0"	7	7'- 0"	2	2'- 0"	5	8"	9'- 0"	3'- 7 3/4"	15'- 8"	8	8"	9'- 0"	3	8"	3'- 1 1/4"	6'- 0"	4	8"	6'- 0"	36	12
8	6	13 3/4"	13 3/4"	8"	7	7'- 0"	7	7'- 0"	4	4'- 0"	4	8"	9'- 0"	4'- 7 3/4"	17'- 9"	8	8"	9'- 0"	3	8"	3'- 1 1/4"	6'- 0"	4	12"	8'- 0"	36	20
8	8	13 3/4"	13 3/4"	8"	7	7'- 0"	7	7'- 0"	6	6'- 0"	5	6"	9'- 0"	5'- 7 3/4"	19'- 8"	7	6"	9'- 0"	--	----	----	----	4	12"	10'- 0"	36	28
8	10	13 1/2"	13 1/2"	8"	7	7'- 0"	7	7'- 0"	8	8'- 0"	5	6"	9'- 0"	6'- 7 1/2"	21'- 7"	7	6"	9'- 0"	--	----	----	----	4	6"	11'- 11"	36	36
9	4	15 1/4"	15 1/4"	8"	8	8'- 0"	8	8'- 0"	2	2'- 0"	4	7 1/2"	10'- 0"	3'- 9 1/4"	17'- 0"	8	7 1/2"	10'- 0"	4	7 1/2"	3'- 3 5/8"	6'- 4"	4	7 1/2"	6'- 3"	40	12
9	6	15 1/2"	15 1/2"	8"	8	8'- 0"	8	8'- 0"	4	4'- 0"	4	7 1/2"	10'- 0"	4'- 9 1/2"	19'- 1"	8	7 1/2"	10'- 0"	3	7 1/2"	3'- 3 5/8"	6'- 5"	4	12"	8'- 3"	40	20
9	8	15 1/2"	15 1/2"	8"	8	8'- 0"	8	8'- 0"	6	6'- 0"	4	7 1/2"	10'- 0"	5'- 9 1/2"	21'- 1"	8	7 1/2"	10'- 0"	4	7 1/2"	3'- 3 5/8"	6'- 4"	4	12"	10'- 3"	40	28
9	10	15 1/2"	15 1/2"	8"	8	8'- 0"	8	8'- 0"	8	8'- 0"	5	5 1/2"	10'- 0"	6'- 9 1/2"	22'- 11"	7	5 1/2"	10'- 0"	--	----	----	----	4	6"	12'- 3"	40	36
9	12	15 1/4"	15 1/4"	8 1/2"	8	8'- 0"	8	8'- 0"	10	10'- 0"	6	5 1/2"	10'- 1"	7'- 9 1/4"	24'- 10"	7	5 1/2"	10'- 1"	--	----	----	----	6	9"	14'- 3"	40	44
10	4	17"	17"	8"	9	9'- 0"	9	9'- 0"	2	2'- 0"	5	5 1/2"	11'- 0"	3'- 11"	18'- 2"	7	5 1/2"	11'- 0"	--	----	----	----	4	7 1/2"	6'- 6"	44	12
10	6	17 1/4"	17 1/4"	8"	9	9'- 0"	9	9'- 0"	4	4'- 0"	5	7"	11'- 0"	4'- 11 1/4"	20'- 3"	8	7"	11'- 0"	--	----	----	----	4	12"	8'- 6"	44	20
10	8	17 1/4"	17 1/4"	8"	9	9'- 0"	9	9'- 0"	6	6'- 0"	5	7"	11'- 0"	5'- 11 1/4"	22'- 3"	8	7"	11'- 0"	--	----	----	----	4	12"	10'- 6"	44	28
10	10	17 1/4"	17 1/4"	8"	9	9'- 0"	9	9'- 0"	8	8'- 0"	6	6 1/2"	11'- 0"	6'- 11 1/4"	24'- 1"	8	6 1/2"	11'- 0"	--	----	----	----	4	6"	12'- 6"	44	36
10	12	17"	17"	8 3/4"	9	9'- 0"	9	9'- 0"	10	10'- 0"	6	6"	11'- 1 1/2"	7'- 11"	26'- 2"	8	6"	11'- 1"	--	----	----	----	6	9 1/2"	14'- 6"	44	44
12	6	19 1/2"	19 1/2"	8"	11	11'- 0"	11	11'- 0"	4	4'- 0"	4	5 1/2"	13'- 0"	5'- 1 1/2"	22'- 9"	8	5 1/2"	13'- 0"	--	----	----	----	4	12"	8'- 11"	52	20
12	8	20"	20"	8"	11	11'- 0"	11	11'- 0"	6	6'- 0"	5	6"	13'- 0"	6'- 2"	24'- 8"	8	6"	13'- 0"	--	----	----	----	4	12"	11'- 0"	52	28
12	10	20 1/4"	20 1/4"	8"	11	11'- 0"	11	11'- 0"	8	8'- 0"	6	5 1/2"	13'- 0"	7'- 2 1/4"	26'- 7"	8	5 1/2"	13'- 0"	--	----	----	----	5	9 1/2"	13'- 0"	52	36
12	12	20 1/4"	20 1/4"	8 3/4"	11	11'- 0"	11	11'- 0"	10	10'- 0"	6	5 1/2"	13'- 1 1/2"	8'- 2 1/4"	28'- 8"	8	5 1/2"	13'- 1"	--	----	----	----	6	9 1/2"	15'- 0"	52	44

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

STRUCTURE
AND
BRIDGE
DIVISION

SPAN (FT.)	HIGHT (FT.)	REINFORCING STEEL (LBS./LONG. JT)	QUAN./LF		HEADWALLS								
			CONCRETE CLASS. A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	G		HW I		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
					HEADWALL LENGTH	SIZE	LENGTH	LENGTH					
3	3	16.184	0.401	40.061	5'-10"	6	5'- 6"	1.038	33.044	1.042	33.044	A	
3	4	17.596	0.450	45.314	5'-10"	6	5'- 6"	1.131	33.044	1.134	33.044	C	
4	3	19.524	0.448	67.357	6'-10"	6	6'- 6"	1.139	39.052	1.146	39.052	A	
4	4	20.936	0.497	67.915	6'-10"	6	6'- 6"	1.232	39.052	1.239	39.052	C	
4	5	22.348	0.546	74.725	6'-10"	6	6'- 6"	1.324	39.052	1.332	39.052	E	
4	6	23.760	0.595	79.253	6'-10"	6	6'- 6"	1.417	39.052	1.424	39.052	G	
5	3	22.864	0.555	83.223	7'-10"	6	7'- 6"	1.259	45.060	1.269	45.060	B	
5	4	24.276	0.614	78.809	7'-10"	6	7'- 6"	1.352	45.060	1.362	45.060	D	
5	5	25.688	0.663	83.653	7'-10"	6	7'- 6"	1.444	45.060	1.455	45.060	F	
5	6	27.100	0.712	88.497	7'-10"	6	7'- 6"	1.537	45.060	1.547	45.060	H	
5	7	28.512	0.761	93.341	7'-10"	6	7'- 6"	1.630	45.060	1.640	45.060	J	
6	4	27.616	0.752	97.451	8'-10"	6	8'- 6"	1.442	51.068	1.456	51.068	D	
6	5	29.028	0.801	107.894	8'-10"	6	8'- 6"	1.535	51.068	1.548	51.068	F	
6	6	30.440	0.850	113.201	8'-10"	6	8'- 6"	1.627	51.068	1.641	51.068	H	
6	7	31.852	0.899	118.507	8'-10"	6	8'- 6"	1.720	51.068	1.734	51.068	J	
6	8	33.264	0.948	125.643	8'-10"	6	8'- 6"	1.813	51.068	1.827	51.068	L	
7	4	30.956	0.899	122.048	9'-10"	6	9'- 6"	1.523	57.076	1.540	57.076	D	
7	6	33.780	0.994	162.784	9'-10"	6	9'- 6"	1.708	57.076	1.726	57.076	H	
7	8	36.604	1.093	167.261	9'-10"	6	9'- 6"	1.894	57.076	1.911	57.076	L	
7	10	39.428	1.188	215.140	9'-10"	6	9'- 6"	2.079	57.076	2.096	57.076	P	
8	4	34.296	1.018	175.231	10'-10"	6	10'- 6"	1.602	63.084	1.622	63.084	D	
8	6	37.120	1.118	163.453	10'-10"	6	10'- 6"	1.787	63.084	1.808	63.084	H	
8	8	39.944	1.214	203.569	10'-10"	6	10'- 6"	1.973	63.084	1.993	63.084	L	
8	10	42.768	1.296	233.055	10'-10"	6	10'- 6"	2.160	63.084	2.181	63.084	P	
9	4	37.636	1.197	193.447	11'-10"	6	11'- 6"	1.685	69.092	1.709	69.092	E	
9	6	40.460	1.313	186.936	11'-10"	6	11'- 6"	1.868	69.092	1.891	69.092	I	
9	8	43.284	1.410	208.526	11'-10"	6	11'- 6"	2.053	69.092	2.077	69.092	M	
9	10	46.108	1.504	266.481	11'-10"	6	11'- 6"	2.239	69.092	2.262	69.092	Q	
9	12	48.932	1.625	353.038	11'-10"	6	11'- 6"	2.383	69.092	2.406	69.092	U	
10	4	40.976	1.411	228.592	12'-10"	6	12'- 6"	1.737	75.100	1.764	75.100	E	
10	6	43.800	1.528	221.379	12'-10"	6	12'- 6"	1.919	75.100	1.946	75.100	I	
10	8	46.624	1.626	234.211	12'-10"	6	12'- 6"	2.104	75.100	2.131	75.100	M	
10	10	49.448	1.718	318.334	12'-10"	6	12'- 6"	2.290	75.100	2.317	75.100	Q	
10	12	52.272	1.864	376.536	12'-10"	6	12'- 6"	2.411	75.100	2.437	75.100	U	
12	6	50.480	1.922	271.945	14'-10"	6	14'- 6"	2.015	87.116	2.049	87.116	I	
12	8	53.304	2.060	301.709	14'-10"	6	14'- 6"	2.190	87.116	2.224	87.116	M	
12	10	56.128	2.171	408.220	14'-10"	6	14'- 6"	2.370	87.116	2.404	87.116	Q	
12	12	58.952	2.338	449.488	14'-10"	6	14'- 6"	2.485	87.116	2.518	87.116	U	

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	A	B	C	D	E	F	BH1				BH2			BH3				BVI			NO. BL1 BARS	NO. BL2 BARS	
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)							SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C			LENGTH
3	3	8"	8"	8"	2	2'- 0"	2	2'- 0"	1	1'- 0"	4	10"	4'- 0"	2'- 8"	8'- 10"	5	10"	4'- 0"	--	----	----	----	4	12"	4'- 0"	16	8
3	4	8"	8"	8"	2	2'- 0"	2	2'- 0"	2	2'- 0"	4	10"	4'- 0"	3'- 2"	9'- 10"	5	10"	4'- 0"	--	----	----	----	4	12"	5'- 0"	16	12
4	3	8 1/2"	8 1/2"	8 1/2"	3	3'- 0"	3	3'- 0"	1	1'- 0"	5	9 1/2"	5'- 1"	2'- 8 1/2"	9'- 10"	6	9 1/2"	5'- 1"	3	9 1/2"	2'- 4 1/8"	4'- 6"	4	11"	4'- 1"	20	8
4	4	8 1/2"	8 1/2"	8 1/2"	3	3'- 0"	3	3'- 0"	2	2'- 0"	4	9 1/2"	5'- 1"	3'- 2 1/2"	11'- 0"	6	9 1/2"	5'- 1"	3	9 1/2"	2'- 4 1/8"	4'- 6"	4	12"	5'- 1"	20	12
4	5	8 1/2"	8 1/2"	8 1/2"	3	3'- 0"	3	3'- 0"	3	3'- 0"	4	9"	5'- 1"	3'- 8 1/2"	12'- 0"	6	9"	5'- 1"	--	----	----	----	4	12"	6'- 1"	20	16
4	6	8 3/4"	8 3/4"	8"	3	3'- 0"	3	3'- 0"	4	4'- 0"	4	9"	5'- 0"	4'- 2 3/4"	12'- 11"	6	9"	5'- 0"	--	----	----	----	4	12"	7'- 2"	20	20
5	3	10 3/4"	10 3/4"	8"	4	4'- 0"	4	4'- 0"	1	1'- 0"	4	8"	6'- 0"	2'- 10 3/4"	11'- 3"	6	8"	6'- 0"	--	----	----	----	4	10 1/2"	4'- 5"	24	8
5	4	10 3/4"	10 3/4"	8"	4	4'- 0"	4	4'- 0"	2	2'- 0"	4	7 1/2"	6'- 0"	3'- 4 3/4"	12'- 3"	6	7 1/2"	6'- 0"	--	----	----	----	4	12"	5'- 5"	24	12
5	5	10 3/4"	10 3/4"	8"	4	4'- 0"	4	4'- 0"	3	3'- 0"	4	7 1/2"	6'- 0"	3'- 10 3/4"	13'- 3"	6	7 1/2"	6'- 0"	--	----	----	----	4	12"	6'- 5"	24	16
5	6	11"	11"	8"	4	4'- 0"	4	4'- 0"	4	4'- 0"	4	7 1/2"	6'- 0"	4'- 5"	14'- 4"	6	7 1/2"	6'- 0"	--	----	----	----	4	12"	7'- 6"	24	20
5	7	11"	11"	8"	4	4'- 0"	4	4'- 0"	5	5'- 0"	4	7 1/2"	6'- 0"	4'- 11"	15'- 4"	6	7 1/2"	6'- 0"	--	----	----	----	4	12"	8'- 6"	24	24
6	4	12 3/4"	12 3/4"	8"	5	5'- 0"	5	5'- 0"	2	2'- 0"	4	6 1/2"	7'- 0"	3'- 6 3/4"	13'- 7"	6	6 1/2"	7'- 0"	--	----	----	----	4	12"	5'- 9"	28	12
6	5	13"	13"	8"	5	5'- 0"	5	5'- 0"	3	3'- 0"	4	6 1/2"	7'- 0"	4'- 1"	14'- 8"	6	6 1/2"	7'- 0"	--	----	----	----	4	12"	6'- 10"	28	16
6	6	13"	13"	8"	5	5'- 0"	5	5'- 0"	4	4'- 0"	4	6 1/2"	7'- 0"	4'- 7"	15'- 8"	6	6 1/2"	7'- 0"	--	----	----	----	4	12"	7'- 10"	28	20
6	7	13"	13"	8"	5	5'- 0"	5	5'- 0"	5	5'- 0"	4	6 1/2"	7'- 0"	5'- 1"	16'- 8"	6	6 1/2"	7'- 0"	--	----	----	----	4	12"	8'- 10"	28	24
6	8	13"	13"	8"	5	5'- 0"	5	5'- 0"	6	6'- 0"	4	6 1/2"	7'- 0"	5'- 7"	17'- 8"	6	6 1/2"	7'- 0"	--	----	----	----	5	12"	9'- 10"	28	28
7	4	13 1/4"	13 1/4"	8"	6	6'- 0"	6	6'- 0"	2	2'- 0"	4	5 1/2"	8'- 0"	3'- 7 1/4"	14'- 8"	6	5 1/2"	8'- 0"	--	----	----	----	4	9"	5'- 10"	32	12
7	6	13 1/2"	13 1/2"	8"	6	6'- 0"	6	6'- 0"	4	4'- 0"	4	5"	8'- 0"	4'- 7 1/2"	16'- 9"	6	5"	8'- 0"	--	----	----	----	4	12"	7'- 11"	32	20
7	8	13 1/4"	13 1/4"	8"	6	6'- 0"	6	6'- 0"	6	6'- 0"	4	5"	8'- 0"	5'- 7 1/4"	18'- 8"	6	5"	8'- 0"	--	----	----	----	4	11"	9'- 10"	32	28
7	10	13"	13"	8"	6	6'- 0"	6	6'- 0"	8	8'- 0"	5	8"	8'- 0"	6'- 7"	20'- 6"	8	8"	8'- 0"	3	8"	2'- 10 3/4"	5'- 7"	4	5"	11'- 10"	32	36
8	4	15 1/2"	15 1/2"	8"	7	7'- 0"	7	7'- 0"	2	2'- 0"	5	6"	9'- 0"	3'- 9 1/2"	15'- 11"	7	6"	9'- 0"	--	----	----	----	4	10"	6'- 3"	36	12
8	6	15 1/2"	15 1/2"	8"	7	7'- 0"	7	7'- 0"	4	4'- 0"	4	6"	9'- 0"	4'- 9 1/2"	18'- 1"	7	6"	9'- 0"	--	----	----	----	4	12"	8'- 3"	36	20
8	8	15 1/2"	15 1/2"	8"	7	7'- 0"	7	7'- 0"	6	6'- 0"	5	6"	9'- 0"	5'- 9 1/2"	19'- 11"	7	6"	9'- 0"	--	----	----	----	4	10 1/2"	10'- 3"	36	28
8	10	15 1/4"	15 1/4"	8"	7	7'- 0"	7	7'- 0"	8	8'- 0"	6	6"	9'- 0"	6'- 9 1/4"	21'- 9"	7	6"	9'- 0"	--	----	----	----	4	5"	12'- 3"	36	36
9	4	17 1/4"	17 1/4"	8"	8	8'- 0"	8	8'- 0"	2	2'- 0"	5	6"	10'- 0"	3'- 11 1/4"	17'- 3"	7	6"	10'- 0"	--	----	----	----	4	10"	6'- 6"	40	12
9	6	17 1/2"	17 1/2"	8"	8	8'- 0"	8	8'- 0"	4	4'- 0"	5	6"	10'- 0"	4'- 11 1/2"	19'- 3"	7	6"	10'- 0"	--	----	----	----	4	12"	8'- 7"	40	20
9	8	17 1/2"	17 1/2"	8"	8	8'- 0"	8	8'- 0"	6	6'- 0"	4	7 1/2"	10'- 0"	5'- 11 1/2"	21'- 5"	8	7 1/2"	10'- 0"	4	7 1/2"	3'- 3 5/8"	6'- 4"	4	10"	10'- 7"	40	28
9	10	17 1/4"	17 1/4"	8"	8	8'- 0"	8	8'- 0"	8	8'- 0"	6	5 1/2"	10'- 0"	6'- 11 1/4"	23'- 1"	7	5 1/2"	10'- 0"	--	----	----	----	4	5"	12'- 6"	40	36
9	12	17"	17"	9 1/4"	8	8'- 0"	8	8'- 0"	10	10'- 0"	6	5 1/2"	10'- 2 1/2"	7'- 11"	25'- 3"	7	5 1/2"	10'- 3"	--	----	----	----	6	8 1/2"	14'- 6"	40	44
10	4	18 1/2"	18 1/2"	8"	9	9'- 0"	9	9'- 0"	2	2'- 0"	5	6 1/2"	11'- 0"	4'- 1/2"	18'- 5"	8	6 1/2"	11'- 0"	--	----	----	----	4	9"	6'- 9"	44	12
10	6	18 3/4"	18 3/4"	8"	9	9'- 0"	9	9'- 0"	4	4'- 0"	5	6 1/2"	11'- 0"	5'- 3/4"	20'- 6"	8	6 1/2"	11'- 0"	--	----	----	----	4	12"	8'- 9"	44	20
10	8	19 1/4"	19 1/4"	8"	9	9'- 0"	9	9'- 0"	6	6'- 0"	5	6 1/2"	11'- 0"	6'- 1 1/4"	22'- 7"	8	6 1/2"	11'- 0"	--	----	----	----	4	10 1/2"	10'- 10"	44	28
10	10	19 1/4"	19 1/4"	8"	9	9'- 0"	9	9'- 0"	8	8'- 0"	6	6 1/2"	11'- 0"	7'- 1 1/4"	24'- 5"	8	6 1/2"	11'- 0"	--	----	----	----	5	7 1/2"	12'- 10"	44	36
10	12	19"	19"	9 1/4"	9	9'- 0"	9	9'- 0"	10	10'- 0"	7	6"	11'- 2 1/2"	8'- 1"	26'- 5"	8	6"	11'- 3"	--	----	----	----	4	4"	14'- 10"	44	44
12	6	21 1/4"	21 1/4"	8 1/2"	11	11'- 0"	11	11'- 0"	4	4'- 0"	4	5 1/2"	13'- 1"	5'- 3 1/4"	23'- 1"	8	5 1/2"	13'- 1"	--	----	----	----	4	12"	9'- 3"	52	20
12	8	21 1/4"	21 1/4"	8"	11	11'- 0"	11	11'- 0"	6	6'- 0"	4	5 1/2"	13'- 0"	6'- 3 1/4"	25'- 0"	8	5 1/2"	13'- 0"	--	----	----	----	4	12"	11'- 3"	52	28
12	10	21 1/4"	21 1/4"	8"	11	11'- 0"	11	11'- 0"	8	8'- 0"	5	5"	13'- 0"	7'- 3 1/4"	26'- 11"	8	5"	13'- 0"	--	----	----	----	6	11 1/2"	13'- 3"	52	36
12	12	21 1/4"	21 1/4"	9 1/4"	11	11'- 0"	11	11'- 0"	10	10'- 0"	6	5 1/2"	13'- 2 1/2"	8'- 3 1/4"	28'- 11"	8	5 1/2"	13'- 3"	--	----	----	----	6	9 1/2"	15'- 3"	52	44

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

STRUCTURE
AND
BRIDGE
DIVISION

SPAN (FT.)	HGHT (FT.)	REINFORCING STEEL (LBS./LONG. JT)	QUAN./LF		HEADWALLS								
			CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	G		HW I		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
					HEADWALL LENGTH	SIZE	LENGTH	LENGTH					
3	3	16.184	0.401	43.214	5'-10"	6	5'- 6"	1.038	33.044	1.042	33.044	A	
3	4	17.596	0.450	47.658	5'-10"	6	5'- 6"	1.131	33.044	1.134	33.044	C	
4	3	19.524	0.478	76.067	6'-10"	6	6'- 6"	1.127	39.052	1.134	39.052	A	
4	4	20.936	0.530	71.065	6'-10"	6	6'- 6"	1.217	39.052	1.224	39.052	C	
4	5	22.348	0.583	69.240	6'-10"	6	6'- 6"	1.307	39.052	1.313	39.052	E	
4	6	23.760	0.620	73.490	6'-10"	6	6'- 6"	1.420	39.052	1.427	39.052	G	
5	3	22.864	0.604	75.365	7'-10"	6	7'- 6"	1.259	45.060	1.269	45.060	B	
5	4	24.276	0.653	82.805	7'-10"	6	7'- 6"	1.352	45.060	1.362	45.060	D	
5	5	25.688	0.702	87.782	7'-10"	6	7'- 6"	1.444	45.060	1.455	45.060	F	
5	6	27.100	0.761	93.049	7'-10"	6	7'- 6"	1.537	45.060	1.547	45.060	H	
5	7	28.512	0.810	98.027	7'-10"	6	7'- 6"	1.630	45.060	1.640	45.060	J	
6	4	27.616	0.809	103.222	8'-10"	6	8'- 6"	1.438	51.068	1.452	51.068	D	
6	5	29.028	0.869	108.845	8'-10"	6	8'- 6"	1.530	51.068	1.544	51.068	F	
6	6	30.440	0.918	114.151	8'-10"	6	8'- 6"	1.623	51.068	1.636	51.068	H	
6	7	31.852	0.967	119.458	8'-10"	6	8'- 6"	1.715	51.068	1.729	51.068	J	
6	8	33.264	1.015	132.139	8'-10"	6	8'- 6"	1.808	51.068	1.822	51.068	L	
7	4	30.956	0.911	131.465	9'-10"	6	9'- 6"	1.521	57.076	1.539	57.076	D	
7	6	33.780	1.021	150.857	9'-10"	6	9'- 6"	1.705	57.076	1.722	57.076	H	
7	8	36.604	1.106	163.765	9'-10"	6	9'- 6"	1.892	57.076	1.909	57.076	L	
7	10	39.428	1.188	213.675	9'-10"	6	9'- 6"	2.079	57.076	2.096	57.076	P	
8	4	34.296	1.119	178.568	10'-10"	6	10'- 6"	1.604	63.084	1.625	63.084	E	
8	6	37.120	1.219	164.493	10'-10"	6	10'- 6"	1.790	63.084	1.810	63.084	I	
8	8	39.944	1.314	206.903	10'-10"	6	10'- 6"	1.975	63.084	1.995	63.084	M	
8	10	42.768	1.393	281.120	10'-10"	6	10'- 6"	2.163	63.084	2.183	63.084	Q	
9	4	37.636	1.325	195.380	11'-10"	6	11'- 6"	1.661	69.092	1.684	69.092	E	
9	6	40.460	1.439	207.778	11'-10"	6	11'- 6"	1.843	69.092	1.867	69.092	I	
9	8	43.284	1.537	212.512	11'-10"	6	11'- 6"	2.028	69.092	2.052	69.092	M	
9	10	46.108	1.612	320.821	11'-10"	6	11'- 6"	2.217	69.092	2.241	69.092	Q	
9	12	48.932	1.806	360.930	11'-10"	6	11'- 6"	2.292	69.092	2.315	69.092	U	
10	4	40.976	1.516	225.295	12'-10"	6	12'- 6"	1.714	75.100	1.741	75.100	E	
10	6	43.800	1.632	235.992	12'-10"	6	12'- 6"	1.896	75.100	1.923	75.100	I	
10	8	46.624	1.764	251.874	12'-10"	6	12'- 6"	2.073	75.100	2.100	75.100	M	
10	10	49.448	1.857	329.615	12'-10"	6	12'- 6"	2.259	75.100	2.286	75.100	Q	
10	12	52.272	2.047	440.631	12'-10"	6	12'- 6"	2.332	75.100	2.358	75.100	U	
12	6	50.480	2.096	274.333	14'-10"	6	14'- 6"	1.967	87.116	2.000	87.116	J	
12	8	53.304	2.164	284.629	14'-10"	6	14'- 6"	2.182	87.116	2.215	87.116	N	
12	10	56.128	2.255	391.169	14'-10"	6	14'- 6"	2.367	87.116	2.401	87.116	R	
12	12	58.952	2.469	452.075	14'-10"	6	14'- 6"	2.434	87.116	2.466	87.116	V	

DIMENSIONS					REINFORCING STEEL																								
SPAN	HGHT	T1	T2	T3	BH1														BH2			BH3			BVI			NO. BL1 BARS	NO. BL2 BARS
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	LENGTH				
3	3	8"	8"	8"	2	2'- 0"	2	2'- 0"	1	1'- 0"	4	9"	4'- 0"	2'- 8"	8'- 10"	5	9"	4'- 0"	3	9"	2'- 1 1/4"	4'- 0"	4	12"	4'- 0"	16	8		
3	4	8"	8"	8"	2	2'- 0"	2	2'- 0"	2	2'- 0"	4	9"	4'- 0"	3'- 2"	9'- 10"	5	9"	4'- 0"	--	--	----	----	4	12"	5'- 0"	16	12		
4	3	9 1/4"	9 1/4"	8"	3	3'- 0"	3	3'- 0"	1	1'- 0"	4	9"	5'- 0"	2'- 9 1/4"	10'- 0"	6	9"	5'- 0"	--	--	----	----	4	12"	4'- 2"	20	8		
4	4	9"	9"	8"	3	3'- 0"	3	3'- 0"	2	2'- 0"	4	8 1/2"	5'- 0"	3'- 3"	11'- 0"	6	8 1/2"	5'- 0"	--	--	----	----	4	12"	5'- 2"	20	12		
4	5	9"	9"	8"	3	3'- 0"	3	3'- 0"	3	3'- 0"	4	8 1/2"	5'- 0"	3'- 9"	12'- 0"	6	8 1/2"	5'- 0"	--	--	----	----	4	12"	6'- 2"	20	16		
4	6	9 1/4"	9 1/4"	8"	3	3'- 0"	3	3'- 0"	4	4'- 0"	4	8 1/2"	5'- 0"	4'- 3 1/4"	13'- 0"	6	8 1/2"	5'- 0"	--	--	----	----	4	12"	7'- 2"	20	20		
5	3	11 3/4"	11 3/4"	8"	4	4'- 0"	4	4'- 0"	1	1'- 0"	4	7 1/2"	6'- 0"	2'- 11 3/4"	11'- 5"	6	7 1/2"	6'- 0"	--	--	----	----	4	11 1/2"	4'- 8"	24	8		
5	4	11 3/4"	11 3/4"	8"	4	4'- 0"	4	4'- 0"	2	2'- 0"	4	7"	6'- 0"	3'- 5 3/4"	12'- 5"	6	7"	6'- 0"	--	--	----	----	4	12"	5'- 8"	24	12		
5	5	12"	12"	8"	4	4'- 0"	4	4'- 0"	3	3'- 0"	4	7"	6'- 0"	4'- 0"	13'- 6"	6	7"	6'- 0"	--	--	----	----	4	12"	6'- 8"	24	16		
5	6	12"	12"	8"	4	4'- 0"	4	4'- 0"	4	4'- 0"	4	7"	6'- 0"	4'- 6"	14'- 6"	6	7"	6'- 0"	--	--	----	----	4	12"	7'- 8"	24	20		
5	7	11 1/4"	11 1/4"	8"	4	4'- 0"	4	4'- 0"	5	5'- 0"	4	7"	6'- 0"	4'- 11 1/4"	15'- 4"	6	7"	6'- 0"	--	--	----	----	4	10 1/2"	8'- 6"	24	24		
6	4	13"	13"	8"	5	5'- 0"	5	5'- 0"	2	2'- 0"	4	6"	7'- 0"	3'- 7"	13'- 8"	6	6"	7'- 0"	--	--	----	----	4	12"	5'- 10"	28	12		
6	5	13"	13"	8"	5	5'- 0"	5	5'- 0"	3	3'- 0"	4	6"	7'- 0"	4'- 1"	14'- 8"	6	6"	7'- 0"	--	--	----	----	4	12"	6'- 10"	28	16		
6	6	13"	13"	8"	5	5'- 0"	5	5'- 0"	4	4'- 0"	4	6"	7'- 0"	4'- 7"	15'- 8"	6	6"	7'- 0"	--	--	----	----	4	12"	7'- 10"	28	20		
6	7	13"	13"	8"	5	5'- 0"	5	5'- 0"	5	5'- 0"	4	6"	7'- 0"	5'- 1"	16'- 8"	6	6"	7'- 0"	--	--	----	----	4	12"	8'- 10"	28	24		
6	8	13"	13"	8"	5	5'- 0"	5	5'- 0"	6	6'- 0"	4	6"	7'- 0"	5'- 7"	17'- 8"	6	6"	7'- 0"	--	--	----	----	5	10 1/2"	9'- 10"	28	28		
7	4	14 3/4"	14 3/4"	8"	6	6'- 0"	6	6'- 0"	2	2'- 0"	4	5"	8'- 0"	3'- 8 3/4"	14'- 11"	6	5"	8'- 0"	--	--	----	----	4	12"	6'- 1"	32	12		
7	6	14 3/4"	14 3/4"	8"	6	6'- 0"	6	6'- 0"	4	4'- 0"	4	5"	8'- 0"	4'- 8 3/4"	16'- 11"	6	5"	8'- 0"	--	--	----	----	4	12"	8'- 1"	32	20		
7	8	14 3/4"	14 3/4"	8"	6	6'- 0"	6	6'- 0"	6	6'- 0"	4	5"	8'- 0"	5'- 8 3/4"	18'- 11"	6	5"	8'- 0"	--	--	----	----	4	7 1/2"	10'- 1"	32	28		
7	10	14 1/2"	14 1/2"	8 1/2"	6	6'- 0"	6	6'- 0"	8	8'- 0"	6	8"	8'- 1"	6'- 8 1/2"	20'- 8"	8	8"	8'- 1"	--	--	----	----	5	7"	12'- 1"	32	36		
8	4	17"	17"	8"	7	7'- 0"	7	7'- 0"	2	2'- 0"	4	6"	9'- 0"	3'- 11"	16'- 4"	7	6"	9'- 0"	--	--	----	----	4	12"	6'- 6"	36	12		
8	6	17 1/4"	17 1/4"	8"	7	7'- 0"	7	7'- 0"	4	4'- 0"	4	6"	9'- 0"	4'- 11 1/4"	18'- 4"	7	6"	9'- 0"	--	--	----	----	4	12"	8'- 6"	36	20		
8	8	17 1/4"	17 1/4"	8"	7	7'- 0"	7	7'- 0"	6	6'- 0"	5	6"	9'- 0"	5'- 11 1/4"	20'- 3"	7	6"	9'- 0"	--	--	----	----	4	7"	10'- 6"	36	28		
8	10	17"	17"	8 1/2"	7	7'- 0"	7	7'- 0"	8	8'- 0"	6	7 1/2"	9'- 1"	6'- 11"	22'- 1"	8	7 1/2"	9'- 1"	--	--	----	----	5	7"	12'- 6"	36	36		
9	4	18 3/4"	18 3/4"	8"	8	8'- 0"	8	8'- 0"	2	2'- 0"	4	5 1/2"	10'- 0"	4'- 3 1/4"	17'- 7"	7	5 1/2"	10'- 0"	--	--	----	----	4	12"	6'- 9"	40	12		
9	6	18 3/4"	18 3/4"	8"	8	8'- 0"	8	8'- 0"	4	4'- 0"	4	5 1/2"	10'- 0"	5'- 3 1/4"	19'- 7"	7	5 1/2"	10'- 0"	--	--	----	----	4	12"	8'- 9"	40	20		
9	8	18 3/4"	18 3/4"	8"	8	8'- 0"	8	8'- 0"	6	6'- 0"	4	5 1/2"	10'- 0"	6'- 3 1/4"	21'- 7"	7	5 1/2"	10'- 0"	--	--	----	----	4	7 1/2"	10'- 9"	40	28		
9	10	18 1/2"	18 1/2"	8 1/2"	8	8'- 0"	8	8'- 0"	8	8'- 0"	6	7"	10'- 1"	7'- 1 1/2"	23'- 4"	8	7"	10'- 1"	--	--	----	----	4	4 1/2"	12'- 9"	40	36		
9	12	18 1/2"	18 1/2"	10"	8	8'- 0"	8	8'- 0"	10	10'- 0"	7	7"	10'- 4"	8'- 1 1/2"	25'- 6"	8	7"	10'- 4"	--	--	----	----	5	6"	14'- 9"	40	44		
10	4	20"	20"	8"	9	9'- 0"	9	9'- 0"	2	2'- 0"	5	6 1/2"	11'- 0"	4'- 2"	18'- 8"	8	6 1/2"	11'- 0"	--	--	----	----	4	11"	7'- 0"	44	12		
10	6	20 1/4"	20 1/4"	8"	9	9'- 0"	9	9'- 0"	4	4'- 0"	5	6 1/2"	11'- 0"	5'- 2 1/4"	20'- 9"	8	6 1/2"	11'- 0"	--	--	----	----	4	12"	9'- 0"	44	20		
10	8	20 1/2"	20 1/2"	8"	9	9'- 0"	9	9'- 0"	6	6'- 0"	5	6"	11'- 0"	6'- 2 1/2"	22'- 9"	8	6"	11'- 0"	--	--	----	----	4	7 1/2"	11'- 1"	44	28		
10	10	20 3/4"	20 3/4"	8 1/2"	9	9'- 0"	9	9'- 0"	8	8'- 0"	6	6"	11'- 1"	7'- 2 3/4"	24'- 9"	8	6"	11'- 1"	--	--	----	----	4	4 1/2"	13'- 1"	44	36		
10	12	20 1/2"	20 1/2"	10"	9	9'- 0"	9	9'- 0"	10	10'- 0"	6	5 1/2"	11'- 4"	8'- 2 1/2"	26'- 11"	8	5 1/2"	11'- 4"	--	--	----	----	5	6"	15'- 1"	44	44		
12	6	23 1/4"	23 1/4"	8"	11	11'- 0"	11	11'- 0"	4	4'- 0"	5	5 1/2"	13'- 0"	5'- 5 1/4"	23'- 3"	8	5 1/2"	13'- 0"	--	--	----	----	4	9 1/2"	9'- 6"	52	20		
12	8	23 1/4"	23 1/4"	8"	11	11'- 0"	11	11'- 0"	6	6'- 0"	5	5 1/2"	13'- 0"	6'- 5 1/4"	25'- 3"	8	5 1/2"	13'- 0"	--	--	----	----	4	8"	11'- 6"	52	28		
12	10	23"	23"	8 1/2"	11	11'- 0"	11	11'- 0"	8	8'- 0"	5	5"	13'- 1"	7'- 5"	27'- 3"	8	5"	13'- 1"	--	--	----	----	4	5"	13'- 6"	52	36		
12	12	22 3/4"	22 3/4"	10"	11	11'- 0"	11	11'- 0"	10	10'- 0"	6	5"	13'- 4"	8'- 4 3/4"	29'- 4"	8	5"	13'- 4"	--	--	----	----	6	9 1/2"	15'- 6"	52	44		

SINGLE BOX CULVERTS
35 TO 40 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

SPAN (FT.)	HIGHT (FT.)	REINFORCING STEEL (LBS./LONG. JT)	QUAN./LF		HEADWALLS								
			CONCRETE CLASS. A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	G		HW I		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
					HEADWALL LENGTH	SIZE	LENGTH	LENGTH					
3	3	16.184	0.400	55.258	5'-10"	6	5'- 6"	1.038	33.044	1.042	33.044	A	
3	4	17.596	0.449	50.522	5'-10"	6	5'- 6"	1.131	33.044	1.134	33.044	C	
4	3	19.524	0.490	59.775	6'-10"	6	6'- 6"	1.161	39.052	1.169	39.052	B	
4	4	20.936	0.530	66.727	6'-10"	6	6'- 6"	1.235	39.052	1.242	39.052	C	
4	5	22.348	0.579	71.453	6'-10"	6	6'- 6"	1.328	39.052	1.335	39.052	E	
4	6	23.760	0.637	76.179	6'-10"	6	6'- 6"	1.440	39.052	1.447	39.052	H	
5	3	22.864	0.643	78.788	7'-10"	6	7'- 6"	1.259	45.060	1.269	45.060	B	
5	4	24.276	0.692	87.451	7'-10"	6	7'- 6"	1.352	45.060	1.362	45.060	D	
5	5	25.688	0.751	92.772	7'-10"	6	7'- 6"	1.444	45.060	1.455	45.060	F	
5	6	27.100	0.800	97.902	7'-10"	6	7'- 6"	1.537	45.060	1.547	45.060	H	
5	7	28.512	0.819	106.722	7'-10"	6	7'- 6"	1.630	45.060	1.640	45.060	J	
6	4	27.616	0.819	109.583	8'-10"	6	8'- 6"	1.437	51.068	1.451	51.068	D	
6	5	29.028	0.868	115.095	8'-10"	6	8'- 6"	1.530	51.068	1.544	51.068	F	
6	6	30.440	0.917	120.607	8'-10"	6	8'- 6"	1.623	51.068	1.636	51.068	H	
6	7	31.852	0.966	126.119	8'-10"	6	8'- 6"	1.715	51.068	1.729	51.068	J	
6	8	33.264	1.014	141.936	8'-10"	6	8'- 6"	1.808	51.068	1.822	51.068	L	
7	4	30.956	0.987	139.521	9'-10"	6	9'- 6"	1.512	57.076	1.529	57.076	D	
7	6	33.780	1.085	151.614	9'-10"	6	9'- 6"	1.698	57.076	1.715	57.076	H	
7	8	36.604	1.182	171.789	9'-10"	6	9'- 6"	1.883	57.076	1.900	57.076	L	
7	10	39.428	1.302	240.002	9'-10"	6	9'- 6"	2.032	57.076	2.049	57.076	P	
8	4	34.296	1.207	154.471	10'-10"	6	10'- 6"	1.590	63.084	1.611	63.084	E	
8	6	37.120	1.319	165.495	10'-10"	6	10'- 6"	1.773	63.084	1.794	63.084	I	
8	8	39.944	1.414	221.367	10'-10"	6	10'- 6"	1.959	63.084	1.979	63.084	M	
8	10	42.768	1.534	266.033	10'-10"	6	10'- 6"	2.107	63.084	2.127	63.084	Q	
9	4	37.636	1.422	180.697	11'-10"	6	11'- 6"	1.642	69.092	1.666	69.092	E	
9	6	40.460	1.519	192.206	11'-10"	6	11'- 6"	1.828	69.092	1.851	69.092	I	
9	8	43.284	1.617	212.333	11'-10"	6	11'- 6"	2.013	69.092	2.037	69.092	M	
9	10	46.108	1.733	298.146	11'-10"	6	11'- 6"	2.162	69.092	2.185	69.092	Q	
9	12	48.932	1.972	378.099	11'-10"	6	11'- 6"	2.202	69.092	2.224	69.092	U	
10	4	40.976	1.621	224.436	12'-10"	6	12'- 6"	1.691	75.100	1.718	75.100	E	
10	6	43.800	1.737	237.289	12'-10"	6	12'- 6"	1.872	75.100	1.899	75.100	I	
10	8	46.624	1.850	276.005	12'-10"	6	12'- 6"	2.054	75.100	2.081	75.100	M	
10	10	49.448	2.002	356.608	12'-10"	6	12'- 6"	2.194	75.100	2.221	75.100	Q	
10	12	52.272	2.227	417.324	12'-10"	6	12'- 6"	2.236	75.100	2.262	75.100	U	
12	6	50.480	2.228	315.567	14'-10"	6	14'- 6"	1.953	87.116	1.987	87.116	J	
12	8	53.304	2.325	334.691	14'-10"	6	14'- 6"	2.138	87.116	2.172	87.116	N	
12	10	56.128	2.441	395.659	14'-10"	6	14'- 6"	2.287	87.116	2.320	87.116	R	
12	12	58.952	2.664	492.457	14'-10"	6	14'- 6"	2.327	87.116	2.359	87.116	V	

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	BH1												BH2			BH3			BVI			NO. BL1 BARS	NO. BL2 BARS
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	LENGTH		
3	3	8"	8"	8"	2	2'-0"	2	2'-0"	1	1'-0"	4	11"	4'-0"	2'-8"	8'-10"	6	11"	4'-0"	4	11"	2'-1 1/4"	3'-11"	4	12"	4'-0"	16	8
3	4	8"	8"	8"	2	2'-0"	2	2'-0"	2	2'-0"	4	10 1/2"	4'-0"	3'-2"	9'-10"	6	10 1/2"	4'-0"	4	10 1/2"	2'-1 1/4"	3'-11"	4	12"	5'-0"	16	12
4	3	10"	10"	8"	3	3'-0"	3	3'-0"	1	1'-0"	4	8 1/2"	5'-0"	2'-10"	10'-2"	6	8 1/2"	5'-0"	--	--	----	----	4	12"	4'-4"	20	8
4	4	9 1/2"	9 1/2"	8"	3	3'-0"	3	3'-0"	2	2'-0"	4	8"	5'-0"	3'-3 1/2"	11'-1"	6	8"	5'-0"	--	--	----	----	4	12"	5'-3"	20	12
4	5	9 1/2"	9 1/2"	8"	3	3'-0"	3	3'-0"	3	3'-0"	4	8"	5'-0"	3'-9 1/2"	12'-1"	6	8"	5'-0"	--	--	----	----	4	12"	6'-3"	20	16
4	6	9 3/4"	9 3/4"	8"	3	3'-0"	3	3'-0"	4	4'-0"	4	8"	5'-0"	4'-3 3/4"	13'-1"	6	8"	5'-0"	--	--	----	----	4	12"	7'-3"	20	20
5	3	13"	13"	8"	4	4'-0"	4	4'-0"	1	1'-0"	4	7"	6'-0"	3'-1"	11'-8"	6	7"	6'-0"	--	--	----	----	4	12"	4'-10"	24	8
5	4	13"	13"	8"	4	4'-0"	4	4'-0"	2	2'-0"	4	7"	6'-0"	3'-7"	12'-8"	6	7"	6'-0"	--	--	----	----	4	12"	5'-10"	24	12
5	5	13"	13"	8"	4	4'-0"	4	4'-0"	3	3'-0"	4	7"	6'-0"	4'-1"	13'-8"	6	7"	6'-0"	--	--	----	----	4	12"	6'-10"	24	16
5	6	11 3/4"	11 3/4"	8"	4	4'-0"	4	4'-0"	4	4'-0"	4	6 1/2"	6'-0"	4'-5 3/4"	14'-5"	6	6 1/2"	6'-0"	--	--	----	----	4	12"	7'-8"	24	20
5	7	11 3/4"	11 3/4"	8"	4	4'-0"	4	4'-0"	5	5'-0"	4	6 1/2"	6'-0"	4'-11 3/4"	15'-5"	6	6 1/2"	6'-0"	--	--	----	----	4	8 1/2"	8'-8"	24	24
6	4	13 1/4"	13 1/4"	8"	5	5'-0"	5	5'-0"	2	2'-0"	4	9"	7'-0"	3'-7 1/4"	13'-8"	8	9"	7'-0"	3	9"	2'-8 3/8"	5'-2"	4	12"	5'-10"	28	12
6	5	13 1/2"	13 1/2"	8"	5	5'-0"	5	5'-0"	3	3'-0"	5	7"	7'-0"	4'-1 1/2"	14'-7"	7	7"	7'-0"	--	--	----	----	4	12"	6'-11"	28	16
6	6	13 1/2"	13 1/2"	8"	5	5'-0"	5	5'-0"	4	4'-0"	4	9"	7'-0"	4'-7 1/2"	15'-9"	8	9"	7'-0"	3	9"	2'-8 3/8"	5'-2"	4	12"	7'-11"	28	20
6	7	13 1/2"	13 1/2"	8"	5	5'-0"	5	5'-0"	5	5'-0"	5	8 1/2"	7'-0"	5'-1 1/2"	16'-7"	8	8 1/2"	7'-0"	3	8 1/2"	2'-8 3/8"	5'-2"	4	10 1/2"	8'-11"	28	24
6	8	13 1/2"	13 1/2"	8"	5	5'-0"	5	5'-0"	6	6'-0"	5	7"	7'-0"	5'-7 1/2"	17'-7"	7	7"	7'-0"	--	--	----	----	4	6"	9'-11"	28	28
7	4	16"	16"	8"	6	6'-0"	6	6'-0"	2	2'-0"	4	8"	8'-0"	3'-10"	15'-2"	8	8"	8'-0"	3	8"	2'-10 3/4"	5'-7"	4	12"	6'-4"	32	12
7	6	16 1/4"	16 1/4"	8"	6	6'-0"	6	6'-0"	4	4'-0"	4	8"	8'-0"	4'-10 1/4"	17'-2"	8	8"	8'-0"	4	8"	2'-10 3/4"	5'-6"	4	12"	8'-4"	32	20
7	8	16 1/4"	16 1/4"	8"	6	6'-0"	6	6'-0"	6	6'-0"	5	8"	8'-0"	5'-10 1/4"	19'-1"	8	8"	8'-0"	3	8"	2'-10 3/4"	5'-7"	4	6"	10'-4"	32	28
7	10	16"	16"	9"	6	6'-0"	6	6'-0"	8	8'-0"	5	8"	8'-2"	6'-10"	21'-2"	8	8"	8'-2"	4	8"	2'-11 3/4"	5'-8"	6	9 1/2"	12'-4"	32	36
8	4	18"	18"	8"	7	7'-0"	7	7'-0"	2	2'-0"	4	7 1/2"	9'-0"	4'-0"	16'-6"	8	7 1/2"	9'-0"	4	7 1/2"	3'-1 1/4"	5'-11"	4	12"	6'-8"	36	12
8	6	18 1/4"	18 1/4"	8"	7	7'-0"	7	7'-0"	4	4'-0"	4	7 1/2"	9'-0"	5'-1/4"	18'-6"	8	7 1/2"	9'-0"	4	7 1/2"	3'-1 1/4"	5'-11"	4	12"	8'-9"	36	20
8	8	18 1/2"	18 1/2"	8"	7	7'-0"	7	7'-0"	6	6'-0"	4	7 1/2"	9'-0"	6'-1/2"	20'-7"	8	7 1/2"	9'-0"	4	7 1/2"	3'-1 1/4"	5'-11"	4	6"	10'-9"	36	28
8	10	18 1/2"	18 1/2"	9"	7	7'-0"	7	7'-0"	8	8'-0"	5	7 1/2"	9'-2"	7'-1/2"	22'-7"	8	7 1/2"	9'-2"	3	7 1/2"	3'-2 1/4"	6'-2"	6	9 1/2"	12'-9"	36	36
9	4	20"	20"	8"	8	8'-0"	8	8'-0"	2	2'-0"	5	7"	10'-0"	4'-2"	17'-8"	8	7"	10'-0"	--	--	----	----	4	12"	7'-0"	40	12
9	6	20"	20"	8"	8	8'-0"	8	8'-0"	4	4'-0"	5	6 1/2"	10'-0"	5'-2"	19'-8"	8	6 1/2"	10'-0"	--	--	----	----	4	12"	9'-0"	40	20
9	8	20 1/4"	20 1/4"	8"	8	8'-0"	8	8'-0"	6	6'-0"	5	7"	10'-0"	6'-2 1/4"	21'-9"	8	7"	10'-0"	--	--	----	----	4	6"	11'-0"	40	28
9	10	20 1/4"	20 1/4"	9"	8	8'-0"	8	8'-0"	8	8'-0"	5	5"	10'-2"	7'-2 1/4"	23'-11"	7	5"	10'-2"	--	--	----	----	6	9 1/2"	13'-0"	40	36
9	12	20 1/4"	20 1/4"	10 1/2"	8	8'-0"	8	8'-0"	10	10'-0"	6	6"	10'-5"	8'-2 1/4"	26'-0"	8	6"	10'-5"	--	--	----	----	5	5 1/2"	15'-0"	40	44
10	4	21"	21"	8"	9	9'-0"	9	9'-0"	2	2'-0"	4	6"	11'-0"	4'-3"	19'-0"	8	6"	11'-0"	--	--	----	----	4	12"	7'-2"	44	12
10	6	21"	21"	8"	9	9'-0"	9	9'-0"	4	4'-0"	4	6"	11'-0"	5'-3"	21'-0"	8	6"	11'-0"	--	--	----	----	4	12"	9'-2"	44	20
10	8	21 1/4"	21 1/4"	8"	9	9'-0"	9	9'-0"	6	6'-0"	5	5 1/2"	11'-0"	6'-3 1/4"	22'-11"	8	5 1/2"	11'-0"	--	--	----	----	5	9 1/2"	11'-3"	44	28
10	10	21 1/4"	21 1/4"	9"	9	9'-0"	9	9'-0"	8	8'-0"	6	5 1/2"	11'-2"	7'-3 1/4"	24'-11"	8	5 1/2"	11'-2"	--	--	----	----	4	4 1/2"	13'-3"	44	36
10	12	21 1/2"	21 1/2"	10 1/2"	9	9'-0"	9	9'-0"	10	10'-0"	6	5 1/2"	11'-5"	8'-3 1/2"	27'-2"	8	5 1/2"	11'-5"	--	--	----	----	6	8"	15'-3"	44	44
12	6	25 1/2"	25 1/2"	8"	11	11'-0"	11	11'-0"	4	4'-0"	4	5"	13'-0"	5'-7 1/2"	23'-9"	8	5"	13'-0"	--	--	----	----	4	12"	9'-11"	52	20
12	8	25 1/2"	25 1/2"	8"	11	11'-0"	11	11'-0"	6	6'-0"	5	5"	13'-0"	6'-7 1/2"	25'-7"	8	5"	13'-0"	--	--	----	----	4	6"	11'-11"	52	28
12	10	25 1/4"	25 1/4"	9 1/4"	11	11'-0"	11	11'-0"	8	8'-0"	5	5"	13'-2 1/2"	7'-7 1/4"	27'-9"	8	5"	13'-3"	--	--	----	----	5	7 1/2"	13'-11"	52	36
12	12	25 1/4"	25 1/4"	10 1/2"	11	11'-0"	11	11'-0"	10	10'-0"	6	4 1/2"	13'-5"	8'-7 1/4"	29'-10"	8	4 1/2"	13'-5"	--	--	----	----	6	8"	15'-11"	52	44

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

STRUCTURE
AND
BRIDGE
DIVISION

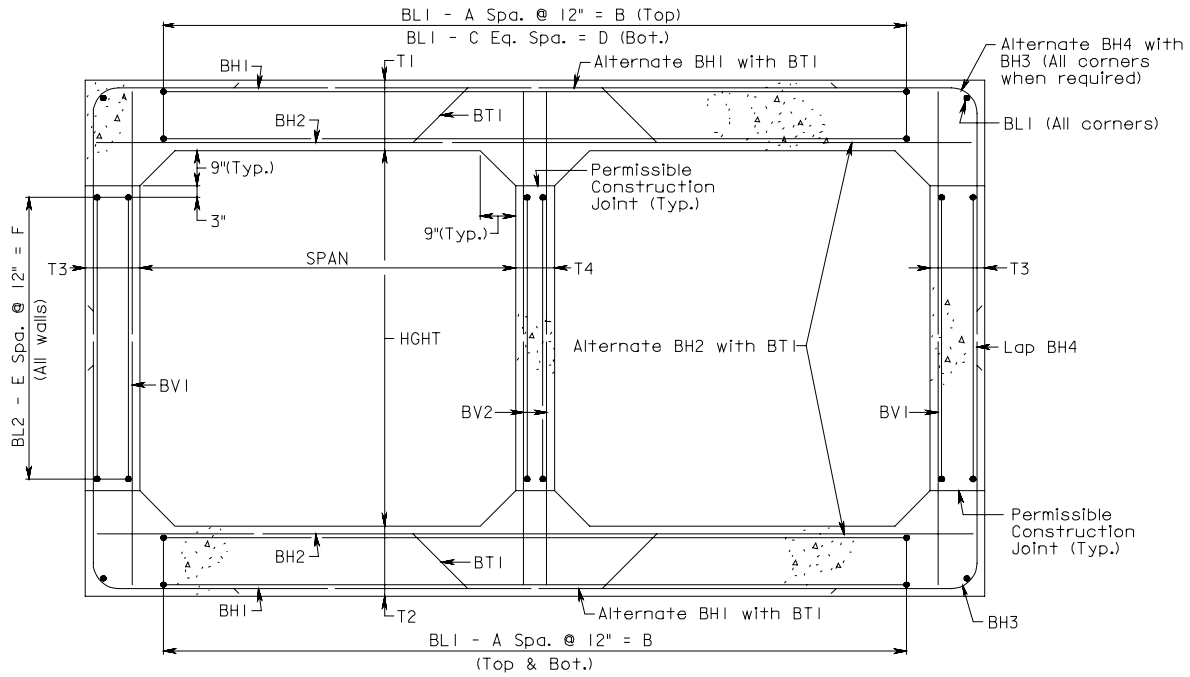
SPAN (FT.)	HIGHT (FT.)	REINFORCING STEEL (LBS./LONG. JT)	QUAN./LF		HEADWALLS								
			CONCRETE CLASS. A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	G		HW I		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
					HEADWALL LENGTH	SIZE	LENGTH	LENGTH					
3	3	16.184	0.400	56.439	5'-10"	6	5'- 6"	1.038	33.044	1.042	33.044	A	
3	4	17.596	0.448	62.587	5'-10"	6	5'- 6"	1.131	33.044	1.134	33.044	C	
4	3	19.524	0.514	62.538	6'-10"	6	6'- 6"	1.164	39.052	1.171	39.052	B	
4	4	20.936	0.547	69.627	6'-10"	6	6'- 6"	1.255	39.052	1.262	39.052	D	
4	5	22.348	0.596	74.471	6'-10"	6	6'- 6"	1.348	39.052	1.355	39.052	F	
4	6	23.760	0.653	79.315	6'-10"	6	6'- 6"	1.441	39.052	1.448	39.052	H	
5	3	22.864	0.692	83.116	7'-10"	6	7'- 6"	1.259	45.060	1.269	45.060	B	
5	4	24.276	0.741	88.246	7'-10"	6	7'- 6"	1.352	45.060	1.362	45.060	D	
5	5	25.688	0.790	93.376	7'-10"	6	7'- 6"	1.444	45.060	1.455	45.060	F	
5	6	27.100	0.790	102.628	7'-10"	6	7'- 6"	1.537	45.060	1.547	45.060	H	
5	7	28.512	0.838	112.702	7'-10"	6	7'- 6"	1.630	45.060	1.640	45.060	J	
6	4	27.616	0.830	115.555	8'-10"	6	8'- 6"	1.437	51.068	1.450	51.068	D	
6	5	29.028	0.889	135.167	8'-10"	6	8'- 6"	1.528	51.068	1.542	51.068	F	
6	6	30.440	0.940	125.058	8'-10"	6	8'- 6"	1.621	51.068	1.635	51.068	H	
6	7	31.852	0.987	153.922	8'-10"	6	8'- 6"	1.714	51.068	1.728	51.068	J	
6	8	33.264	1.035	167.663	8'-10"	6	8'- 6"	1.807	51.068	1.820	51.068	L	
7	4	30.956	1.052	141.419	9'-10"	6	9'- 6"	1.523	57.076	1.540	57.076	E	
7	6	33.780	1.162	160.555	9'-10"	6	9'- 6"	1.707	57.076	1.724	57.076	I	
7	8	36.604	1.258	195.902	9'-10"	6	9'- 6"	1.892	57.076	1.910	57.076	M	
7	10	39.428	1.419	236.069	9'-10"	6	9'- 6"	2.002	57.076	2.018	57.076	Q	
8	4	34.296	1.263	174.928	10'-10"	6	10'- 6"	1.581	63.084	1.601	63.084	E	
8	6	37.120	1.375	184.995	10'-10"	6	10'- 6"	1.764	63.084	1.785	63.084	I	
8	8	39.944	1.487	209.490	10'-10"	6	10'- 6"	1.947	63.084	1.968	63.084	M	
8	10	42.768	1.663	254.498	10'-10"	6	10'- 6"	2.053	63.084	2.072	63.084	Q	
9	4	37.636	1.500	195.303	11'-10"	6	11'- 6"	1.627	69.092	1.650	69.092	E	
9	6	40.460	1.597	220.586	11'-10"	6	11'- 6"	1.812	69.092	1.836	69.092	I	
9	8	43.284	1.711	235.961	11'-10"	6	11'- 6"	1.995	69.092	2.018	69.092	M	
9	10	46.108	1.886	309.068	11'-10"	6	11'- 6"	2.098	69.092	2.121	69.092	Q	
9	12	48.932	2.135	378.991	11'-10"	6	11'- 6"	2.130	69.092	2.152	69.092	U	
10	4	40.976	1.692	211.727	12'-10"	6	12'- 6"	1.675	75.100	1.702	75.100	E	
10	6	43.800	1.790	222.751	12'-10"	6	12'- 6"	1.861	75.100	1.888	75.100	I	
10	8	46.624	1.901	302.023	12'-10"	6	12'- 6"	2.061	75.100	2.088	75.100	N	
10	10	49.448	2.077	383.544	12'-10"	6	12'- 6"	2.164	75.100	2.190	75.100	R	
10	12	52.272	2.347	425.722	12'-10"	6	12'- 6"	2.190	75.100	2.215	75.100	V	
12	6	50.480	2.414	298.265	14'-10"	6	14'- 6"	1.904	87.116	1.938	87.116	J	
12	8	53.304	2.507	371.794	14'-10"	6	14'- 6"	2.090	87.116	2.123	87.116	N	
12	10	56.128	2.693	402.392	14'-10"	6	14'- 6"	2.172	87.116	2.205	87.116	R	
12	12	58.952	2.921	553.039	14'-10"	6	14'- 6"	2.218	87.116	2.250	87.116	V	

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	BH1												BH2			BH3			BV1			NO. BL1 BARS	NO. BL2 BARS
(FT.)	(FT.)	TOP SLAB (IN.)	BOTTOM SLAB (IN.)	WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	LENGTH		
3	3	8"	8"	8"	2	2'-0"	2	2'-0"	1	1'-0"	4	10"	4'-0"	2'-8"	8'-10"	6	10"	4'-0"	4	10"	2'-1 1/4"	3'-11"	4	12"	4'-0"	16	8
3	4	8"	8"	8"	2	2'-0"	2	2'-0"	2	2'-0"	4	10"	4'-0"	3'-2"	9'-10"	6	10"	4'-0"	4	10"	2'-1 1/4"	3'-11"	4	12"	5'-0"	16	12
4	3	10 1/4"	10 1/4"	8"	3	3'-0"	3	3'-0"	1	1'-0"	4	8"	5'-0"	2'-10 1/4"	10'-2"	6	8"	5'-0"	--	--	----	----	4	12"	4'-5"	20	8
4	4	10"	10"	8"	3	3'-0"	3	3'-0"	2	2'-0"	4	7 1/2"	5'-0"	3'-4"	11'-2"	6	7 1/2"	5'-0"	--	--	----	----	4	12"	5'-4"	20	12
4	5	10 1/4"	10 1/4"	8"	3	3'-0"	3	3'-0"	3	3'-0"	4	8"	5'-0"	3'-10 1/4"	12'-2"	6	8"	5'-0"	--	--	----	----	4	12"	6'-5"	20	16
4	6	10 1/4"	10 1/4"	8"	3	3'-0"	3	3'-0"	4	4'-0"	4	8"	5'-0"	4'-4 1/4"	13'-2"	6	8"	5'-0"	--	--	----	----	4	12"	7'-5"	20	20
5	3	13"	13"	8"	4	4'-0"	4	4'-0"	1	1'-0"	4	6 1/2"	6'-0"	3'-1"	11'-8"	6	6 1/2"	6'-0"	--	--	----	----	4	12"	4'-10"	24	8
5	4	13"	13"	8"	4	4'-0"	4	4'-0"	2	2'-0"	4	6 1/2"	6'-0"	3'-7"	12'-8"	6	6 1/2"	6'-0"	--	--	----	----	4	12"	5'-10"	24	12
5	5	13"	13"	8"	4	4'-0"	4	4'-0"	3	3'-0"	4	6 1/2"	6'-0"	4'-1"	13'-8"	6	6 1/2"	6'-0"	--	--	----	----	4	12"	6'-10"	24	16
5	6	12 1/4"	12 1/4"	8"	4	4'-0"	4	4'-0"	4	4'-0"	4	6"	6'-0"	4'-6 1/4"	14'-6"	6	6"	6'-0"	--	--	----	----	4	12"	7'-9"	24	20
5	7	12 1/4"	12 1/4"	8"	4	4'-0"	4	4'-0"	5	5'-0"	4	6 1/2"	6'-0"	5'-1/4"	15'-6"	6	6 1/2"	6'-0"	--	--	----	----	5	12"	8'-9"	24	24
6	4	14 1/2"	14 1/2"	8"	5	5'-0"	5	5'-0"	2	2'-0"	4	9"	7'-0"	3'-8 1/2"	13'-11"	8	9"	7'-0"	3	9"	2'-8 3/8"	5'-2"	4	12"	6'-1"	28	12
6	5	14 1/2"	14 1/2"	8"	5	5'-0"	5	5'-0"	3	3'-0"	4	5"	7'-0"	4'-2 1/2"	14'-11"	6	5"	7'-0"	--	--	----	----	4	12"	7'-1"	28	16
6	6	14 3/4"	14 3/4"	8"	5	5'-0"	5	5'-0"	4	4'-0"	4	9"	7'-0"	4'-8 3/4"	15'-11"	8	9"	7'-0"	3	9"	2'-8 3/8"	5'-2"	4	12"	8'-1"	28	20
6	7	14 3/4"	14 3/4"	8"	5	5'-0"	5	5'-0"	5	5'-0"	5	8 1/2"	7'-0"	5'-2 3/4"	16'-10"	8	8 1/2"	7'-0"	3	8 1/2"	2'-8 3/8"	5'-2"	5	12"	9'-1"	28	24
6	8	14 1/2"	14 1/2"	8"	5	5'-0"	5	5'-0"	6	6'-0"	5	8 1/2"	7'-0"	5'-8 1/2"	17'-9"	8	8 1/2"	7'-0"	3	8 1/2"	2'-8 3/8"	5'-2"	4	5 1/2"	10'-1"	28	28
7	4	17 1/2"	17 1/2"	8"	6	6'-0"	6	6'-0"	2	2'-0"	5	8"	8'-0"	3'-11 1/2"	15'-3"	8	8"	8'-0"	--	--	----	----	4	12"	6'-7"	32	12
7	6	17 3/4"	17 3/4"	8"	6	6'-0"	6	6'-0"	4	4'-0"	4	8"	8'-0"	4'-11 3/4"	17'-5"	8	8"	8'-0"	4	8"	2'-10 3/4"	5'-6"	4	12"	8'-7"	32	20
7	8	17 1/2"	17 1/2"	8"	6	6'-0"	6	6'-0"	6	6'-0"	5	8"	8'-0"	5'-11 1/2"	19'-3"	8	8"	8'-0"	3	8"	2'-10 3/4"	5'-7"	6	11 1/2"	10'-7"	32	28
7	10	17 1/2"	17 1/2"	8"	6	6'-0"	6	6'-0"	8	8'-0"	5	8"	8'-0"	6'-11 1/2"	21'-3"	8	8"	8'-0"	3	8"	2'-10 3/4"	5'-7"	7	9"	12'-7"	32	36
8	4	18 1/4"	18 1/4"	8"	7	7'-0"	7	7'-0"	2	2'-0"	4	5 1/2"	9'-0"	4'-1/4"	16'-6"	7	5 1/2"	9'-0"	--	--	----	----	4	12"	6'-9"	36	12
8	6	18 1/2"	18 1/2"	8"	7	7'-0"	7	7'-0"	4	4'-0"	4	5 1/2"	9'-0"	5'-1/2"	18'-7"	7	5 1/2"	9'-0"	--	--	----	----	4	12"	8'-9"	36	20
8	8	18 3/4"	18 3/4"	8"	7	7'-0"	7	7'-0"	6	6'-0"	5	5 1/2"	9'-0"	6'-3/4"	20'-6"	7	5 1/2"	9'-0"	--	--	----	----	4	5 1/2"	10'-9"	36	28
8	10	19"	19"	9 3/4"	7	7'-0"	7	7'-0"	8	8'-0"	5	5 1/2"	9'-3/2"	7'-1"	22'-10"	7	5 1/2"	9'-3"	--	--	----	----	4	4 1/2"	12'-10"	36	36
9	4	20"	20"	8"	8	8'-0"	8	8'-0"	2	2'-0"	5	6 1/2"	10'-0"	4'-2"	17'-8"	8	6 1/2"	10'-0"	--	--	----	----	4	12"	7'-0"	40	12
9	6	20 1/2"	20 1/2"	8"	8	8'-0"	8	8'-0"	4	4'-0"	5	6 1/2"	10'-0"	5'-2 1/2"	19'-9"	8	6 1/2"	10'-0"	--	--	----	----	4	12"	9'-1"	40	20
9	8	20 3/4"	20 3/4"	8"	8	8'-0"	8	8'-0"	6	6'-0"	5	6"	10'-0"	6'-2 3/4"	21'-10"	8	6"	10'-0"	--	--	----	----	5	8"	11'-1"	40	28
9	10	20 3/4"	20 3/4"	9 3/4"	8	8'-0"	8	8'-0"	8	8'-0"	6	6 1/2"	10'-3/2"	7'-2 3/4"	23'-11"	8	6 1/2"	10'-3"	--	--	----	----	4	4 1/2"	13'-1"	40	36
9	12	21"	21"	11 1/4"	8	8'-0"	8	8'-0"	10	10'-0"	6	5 1/2"	10'-6 1/2"	8'-3"	26'-3"	8	5 1/2"	10'-6"	--	--	----	----	6	8"	15'-2"	40	44
10	4	22 1/2"	22 1/2"	8"	9	9'-0"	9	9'-0"	2	2'-0"	4	6"	11'-0"	4'-4 1/2"	19'-3"	8	6"	11'-0"	--	--	----	----	4	12"	7'-5"	44	12
10	6	22 1/4"	22 1/4"	8"	9	9'-0"	9	9'-0"	4	4'-0"	4	6"	11'-0"	5'-4 1/4"	21'-2"	8	6"	11'-0"	--	--	----	----	4	12"	9'-4"	44	20
10	8	22 1/4"	22 1/4"	8"	9	9'-0"	9	9'-0"	6	6'-0"	5	6"	11'-0"	6'-4 1/4"	23'-1"	8	6"	11'-0"	--	--	----	----	4	5 1/2"	11'-4"	44	28
10	10	22"	22"	9 3/4"	9	9'-0"	9	9'-0"	8	8'-0"	5	5 1/2"	11'-3 1/2"	7'-4"	25'-4"	8	5 1/2"	11'-3"	--	--	----	----	4	5"	13'-4"	44	36
10	12	22"	22"	11 1/4"	9	9'-0"	9	9'-0"	10	10'-0"	7	5 1/2"	11'-6 1/2"	8'-4"	27'-3"	8	5 1/2"	11'-6"	--	--	----	----	5	6"	15'-4"	44	44
12	6	27 1/2"	27 1/2"	8 1/2"	11	11'-0"	11	11'-0"	4	4'-0"	4	5"	13'-1"	5'-9 1/2"	24'-2"	8	5"	13'-1"	--	--	----	----	4	12"	10'-3"	52	20
12	8	27 1/2"	27 1/2"	8"	11	11'-0"	11	11'-0"	6	6'-0"	5	5"	13'-0"	6'-9 1/2"	25'-11"	8	5"	13'-0"	--	--	----	----	5	7 1/2"	12'-3"	52	28
12	10	27 1/2"	27 1/2"	9 3/4"	11	11'-0"	11	11'-0"	8	8'-0"	5	4 1/2"	13'-3/2"	7'-9 1/2"	28'-3"	8	4 1/2"	13'-3"	--	--	----	----	6	9 1/2"	14'-3"	52	36
12	12	27 1/2"	27 1/2"	11 1/4"	11	11'-0"	11	11'-0"	10	10'-0"	6	4 1/2"	13'-6 1/2"	8'-9 1/2"	30'-4"	8	4 1/2"	13'-6"	--	--	----	----	6	8"	16'-3"	52	44

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

STRUCTURE
AND
BRIDGE
DIVISION

SPAN (FT.)	HIGHT (FT.)	REINFORCING STEEL (LBS./LONG. JT)	QUAN./LF		HEADWALLS								
			CONCRETE CLASS. A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	G		HW I		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
					HEADWALL LENGTH	SIZE	LENGTH	LENGTH					
3	3	16.184	0.399	60.179	5'-10"	6	5'- 6"	1.038	33.044	1.042	33.044	A	
3	4	17.596	0.448	64.622	5'-10"	6	5'- 6"	1.131	33.044	1.134	33.044	C	
4	3	19.524	0.522	65.173	6'-10"	6	6'- 6"	1.165	39.052	1.172	39.052	B	
4	4	20.936	0.563	72.899	6'-10"	6	6'- 6"	1.257	39.052	1.264	39.052	D	
4	5	22.348	0.620	74.861	6'-10"	6	6'- 6"	1.350	39.052	1.357	39.052	F	
4	6	23.760	0.669	79.705	6'-10"	6	6'- 6"	1.443	39.052	1.450	39.052	H	
5	3	22.864	0.691	87.548	7'-10"	6	7'- 6"	1.259	45.060	1.269	45.060	B	
5	4	24.276	0.740	92.854	7'-10"	6	7'- 6"	1.352	45.060	1.362	45.060	D	
5	5	25.688	0.789	98.161	7'-10"	6	7'- 6"	1.444	45.060	1.455	45.060	F	
5	6	27.100	0.809	108.698	7'-10"	6	7'- 6"	1.537	45.060	1.547	45.060	H	
5	7	28.512	0.858	114.814	7'-10"	6	7'- 6"	1.630	45.060	1.640	45.060	J	
6	4	27.616	0.887	116.334	8'-10"	6	8'- 6"	1.433	51.068	1.446	51.068	D	
6	5	29.028	0.935	132.479	8'-10"	6	8'- 6"	1.525	51.068	1.539	51.068	F	
6	6	30.440	0.996	125.577	8'-10"	6	8'- 6"	1.617	51.068	1.631	51.068	H	
6	7	31.852	1.043	159.991	8'-10"	6	8'- 6"	1.710	51.068	1.724	51.068	J	
6	8	33.264	1.080	174.639	8'-10"	6	8'- 6"	1.804	51.068	1.817	51.068	L	
7	4	30.956	1.128	146.481	9'-10"	6	9'- 6"	1.514	57.076	1.531	57.076	E	
7	6	33.780	1.239	161.390	9'-10"	6	9'- 6"	1.698	57.076	1.715	57.076	I	
7	8	36.604	1.322	201.988	9'-10"	6	9'- 6"	1.885	57.076	1.902	57.076	M	
7	10	39.428	1.417	246.667	9'-10"	6	9'- 6"	2.070	57.076	2.087	57.076	Q	
8	4	34.296	1.278	165.947	10'-10"	6	10'- 6"	1.579	63.084	1.599	63.084	E	
8	6	37.120	1.390	177.700	10'-10"	6	10'- 6"	1.762	63.084	1.782	63.084	I	
8	8	39.944	1.499	239.486	10'-10"	6	10'- 6"	1.945	63.084	1.965	63.084	M	
8	10	42.768	1.752	269.729	10'-10"	6	10'- 6"	1.987	63.084	2.006	63.084	Q	
9	4	37.636	1.499	207.204	11'-10"	6	11'- 6"	1.627	69.092	1.650	69.092	E	
9	6	40.460	1.629	221.019	11'-10"	6	11'- 6"	1.806	69.092	1.830	69.092	I	
9	8	43.284	1.740	269.816	11'-10"	6	11'- 6"	1.988	69.092	2.012	69.092	M	
9	10	46.108	1.980	320.555	11'-10"	6	11'- 6"	2.030	69.092	2.052	69.092	Q	
9	12	48.932	2.254	405.987	11'-10"	6	11'- 6"	2.048	69.092	2.069	69.092	U	
10	4	40.976	1.797	212.729	12'-10"	6	12'- 6"	1.671	75.100	1.698	75.100	F	
10	6	43.800	1.878	223.419	12'-10"	6	12'- 6"	1.860	75.100	1.887	75.100	J	
10	8	46.624	1.973	286.739	12'-10"	6	12'- 6"	2.046	75.100	2.073	75.100	N	
10	10	49.448	2.197	332.052	12'-10"	6	12'- 6"	2.089	75.100	2.114	75.100	R	
10	12	52.272	2.451	486.942	12'-10"	6	12'- 6"	2.109	75.100	2.133	75.100	V	
12	6	50.480	2.611	301.114	14'-10"	6	14'- 6"	1.847	87.116	1.881	87.116	K	
12	8	53.304	2.671	382.507	14'-10"	6	14'- 6"	2.065	87.116	2.099	87.116	O	
12	10	56.128	2.922	451.173	14'-10"	6	14'- 6"	2.094	87.116	2.127	87.116	S	
12	12	58.952	3.188	559.733	14'-10"	6	14'- 6"	2.106	87.116	2.137	87.116	W	



TYPICAL SECTION

GENERAL NOTE

Capacity: HS20-44 Loading and Alternate Military Loading.

Specifications:

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

All concrete shall be Class A4.

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

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

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

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

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

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

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

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

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

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

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

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

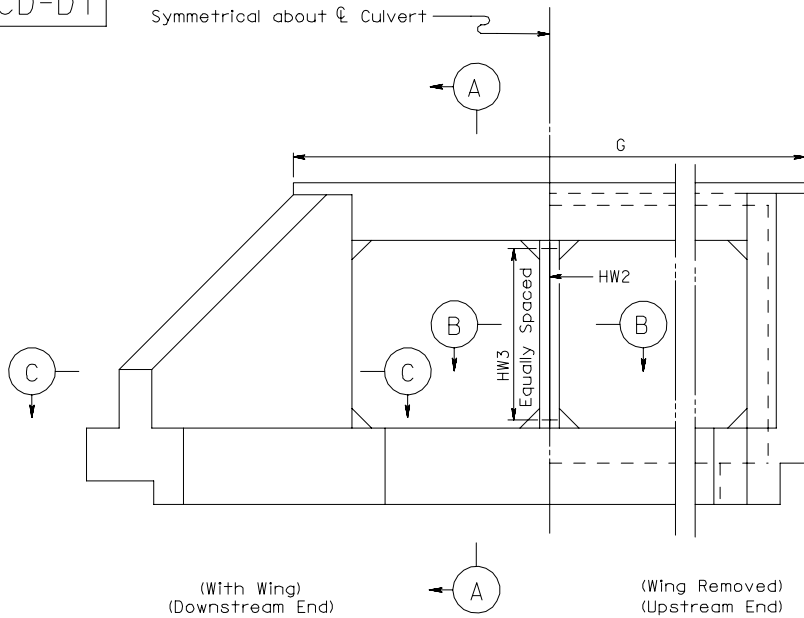
Wingwalls referenced by letter apply when the acceptable foundation level is the same for both box and wings. If foundation levels are different, the height of the wingwall shall be adjusted by selection of another lettered wingwall of appropriate height. For wingwall details, refer to standard series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

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

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

This standard shall be used with the BCD standard series.

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



END ELEVATION

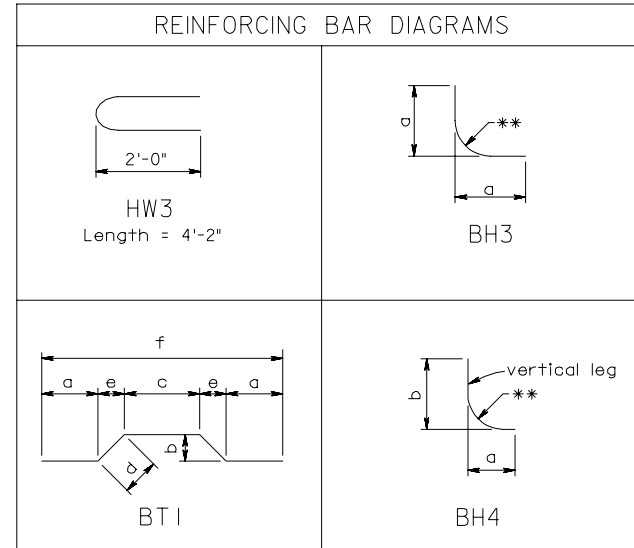
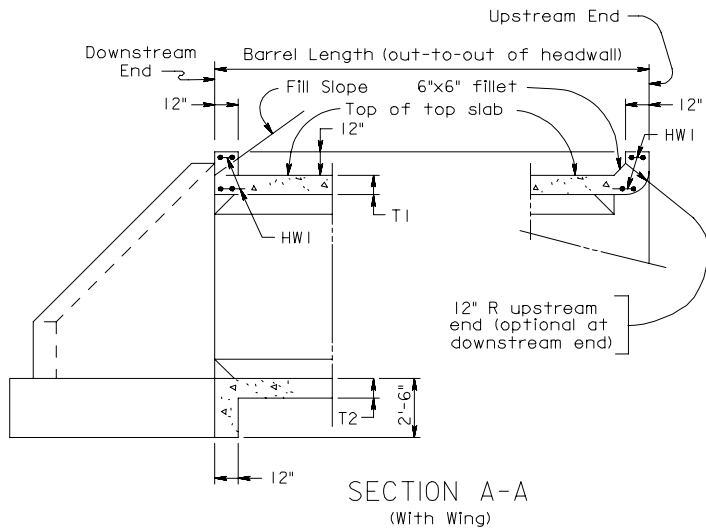
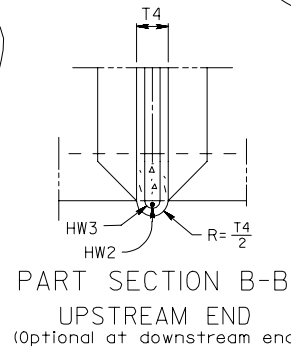


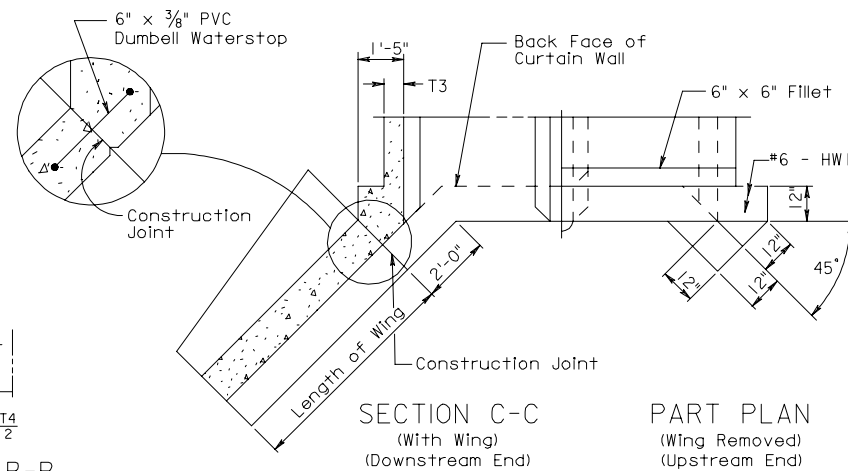
TABLE A	
Bar Size	Pin Dia.
#3	2 1/4"
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"
#9	9"



SECTION A-A
(With Wing)



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



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

PART PLAN
(Wing Removed)
(Upstream End)

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

DOUBLE BOX CULVERTS

0 TO 2 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

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

STRUCTURE AND BRIDGE DIVISION

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

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

DOUBLE BOX CULVERTS

2 TO 5 FT. FILLS

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

STRUCTURE AND BRIDGE DIVISION

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

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

DOUBLE BOX CULVERTS
5 TO 10 FT. FILLS

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

STRUCTURE AND BRIDGE DIVISION

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

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

DOUBLE BOX CULVERTS
10 TO 15 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

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

STRUCTURE AND BRIDGE DIVISION

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

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

DOUBLE BOX CULVERTS
15 TO 20 FT. FILLS

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

STRUCTURE AND BRIDGE DIVISION

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

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

DOUBLE BOX CULVERTS

20 TO 25 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS								WINGWALL	
(FT.)	(FT.)	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	HEADWALL LENGTH	SIZE	HW I LENGTH	NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)		OUTLET REINFORCING STEEL (LBS)
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'-11"	32	12	30.956	0.695	79.439	9'- 6"	6	9'- 2"	1	4	1.433	67.988	1.425	55.073	A
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'-11"	32	18	33.074	0.768	85.703	9'- 6"	6	9'- 2"	1	5	1.531	71.439	1.517	55.073	C
4	3	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'-11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'-11"	40	12	37.636	0.792	92.688	11'- 6"	6	11'- 2"	1	4	1.635	80.004	1.634	67.089	A
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'-11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'-11"	40	18	39.754	0.866	98.952	11'- 6"	6	11'- 2"	1	5	1.734	83.455	1.726	67.089	C
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'-11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'-11"	40	24	41.872	0.940	105.216	11'- 6"	6	11'- 2"	1	6	1.833	86.907	1.819	67.089	E
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'-11 1/2"	0'- 5 7/8"	0'- 3 3/4"	9'- 8"	-----	9'-11"	40	30	43.990	1.013	111.480	11'- 6"	6	11'- 2"	1	7	1.932	90.358	1.912	67.089	G
5	3	4	12"	4'- 3 3/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	11'- 8"	-----	12'- 0"	48	12	44.316	0.964	114.208	13'- 6"	6	13'- 2"	1	4	1.820	92.020	1.825	79.105	A
5	4	4	12"	4'- 3 3/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	11'- 8"	-----	12'- 0"	48	18	46.434	1.037	120.472	13'- 6"	6	13'- 2"	1	5	1.919	95.471	1.918	79.105	C
5	5	4	12"	4'- 3 1/2"	0'- 5 3/4"	2'- 3"	0'- 7 5/8"	0'- 5"	11'- 8"	-----	12'- 0"	48	24	48.552	1.130	119.467	13'- 6"	6	13'- 2"	1	6	2.032	98.923	2.025	79.105	F
5	6	4	12"	4'- 3 1/2"	0'- 5 3/4"	2'- 3"	0'- 7 5/8"	0'- 5"	11'- 8"	-----	12'- 0"	48	30	50.670	1.203	133.000	13'- 6"	6	13'- 2"	1	7	2.131	102.374	2.118	79.105	H
5	7	4	12"	4'- 3 1/2"	0'- 5 3/4"	2'- 3"	0'- 7 5/8"	0'- 5"	11'- 8"	-----	12'- 0"	48	36	52.788	1.276	144.687	13'- 6"	6	13'- 2"	1	8	2.230	105.825	2.210	79.105	J
6	4	4	12"	5'- 3/8"	0'- 7 1/4"	2'- 6 1/4"	0'- 9 3/4"	0'- 6 1/2"	13'- 8"	-----	14'- 1"	56	18	53.114	1.298	135.447	15'- 6"	6	15'- 2"	1	5	2.092	107.487	2.098	91.121	D
6	5	4	11"	5'- 3/8"	0'- 7 1/4"	2'- 6 1/4"	0'- 9 3/4"	0'- 6 1/2"	13'- 8"	-----	14'- 1"	56	24	55.232	1.372	140.337	15'- 6"	6	15'- 2"	1	6	2.191	110.939	2.191	91.121	F
6	6	4	11"	5'- 1/4"	0'- 7 1/2"	2'- 6"	0'-10 1/8"	0'- 6 3/4"	13'- 8"	-----	14'- 2"	56	30	57.350	1.467	147.066	15'- 6"	6	15'- 2"	1	7	2.284	114.390	2.277	91.121	H
6	7	4	11"	5'- 1/4"	0'- 7 1/2"	2'- 6"	0'-10 1/8"	0'- 6 3/4"	13'- 8"	-----	14'- 2"	56	36	59.468	1.540	168.512	15'- 6"	6	15'- 2"	1	8	2.383	117.841	2.370	91.121	J
6	8	4	11"	5'- 1/4"	0'- 7 1/2"	2'- 6"	0'-10 1/8"	0'- 6 3/4"	13'- 8"	-----	14'- 2"	56	42	61.586	1.613	176.711	15'- 6"	6	15'- 2"	1	9	2.482	121.293	2.463	91.121	L
7	4	4	9"	5'- 9/4"	0'- 8 3/4"	2'- 9 5/8"	0'-11 7/8"	0'- 8"	15'- 8 1/8"	-----	16'- 3"	64	18	59.794	1.577	168.350	17'- 6"	6	17'- 2"	1	5	2.233	119.503	2.245	103.137	D
7	6	4	9"	5'- 9"	0'- 9 1/4"	2'- 9 1/8"	1'- 1/2"	0'- 8 1/2"	15'- 8 1/8"	-----	16'- 3"	64	30	64.030	1.773	181.768	17'- 6"	6	17'- 2"	1	7	2.416	126.406	2.416	103.137	H
7	8	4	9"	5'- 9"	0'- 9 1/4"	2'- 9 1/8"	1'- 1/2"	0'- 8 1/2"	15'- 8 1/8"	-----	16'- 3"	64	42	68.266	1.919	207.568	17'- 6"	6	17'- 2"	1	9	2.613	133.309	2.601	103.137	L
7	10	4	9"	5'- 8 7/8"	0'- 9 1/2"	2'- 8 7/8"	1'- 7/8"	0'- 8 3/4"	15'- 8 1/8"	-----	16'- 3"	64	54	72.502	2.089	255.461	17'- 6"	6	17'- 2"	1	11	2.804	140.211	2.779	103.137	P
8	4	4	8"	6'- 6"	0'-10 1/4"	3'- 7/8"	1'- 2"	0'- 9 1/2"	17'- 7 7/8"	-----	18'- 4"	72	18	66.474	1.891	217.592	19'- 6"	6	19'- 2"	1	5	2.355	131.519	2.374	115.153	D
8	6	4	8"	6'- 6"	0'-10 1/4"	3'- 7/8"	1'- 2"	0'- 9 1/2"	17'- 7 7/8"	-----	18'- 4"	72	30	70.710	2.038	231.456	19'- 6"	6	19'- 2"	1	7	2.553	138.422	2.559	115.153	H
8	8	5	9"	6'- 5 7/8"	0'-10 5/8"	3'- 5/8"	1'- 2 3/8"	0'- 9 3/4"	17'- 7 7/8"	-----	18'- 4"	72	42	74.946	2.212	258.495	19'- 6"	6	19'- 2"	1	9	2.741	145.325	2.736	115.153	L
8	10	5	9"	6'- 5 7/8"	0'-10 5/8"	3'- 5/8"	1'- 2 3/8"	0'- 9 3/4"	17'- 7 7/8"	-----	18'- 4"	72	54	79.182	2.356	306.482	19'- 6"	6	19'- 2"	1	11	2.939	152.227	2.921	115.153	P
9	4	5	9"	7'- 2 7/8"	0'-11 7/8"	3'- 4 1/4"	1'- 4 1/8"	0'-11"	19'- 8"	-----	20'- 5"	80	18	73.154	2.241	281.162	21'- 6"	6	21'- 2"	1	5	2.477	143.535	2.503	127.169	E
9	6	5	9"	7'- 2 3/4"	1'- 1/8"	3'- 4"	1'- 4 1/2"	0'-11 1/4"	19'- 8"	-----	20'- 5"	80	30	77.390	2.419	294.581	21'- 6"	6	21'- 2"	1	7	2.664	150.438	2.678	127.169	I
9	8	5	9"	7'- 2 3/4"	1'- 1/8"	3'- 4"	1'- 4 1/2"	0'-11 1/4"	19'- 8"	-----	20'- 5"	80	42	81.626	2.565	320.867	21'- 6"	6	21'- 2"	1	9	2.862	157.341	2.863	127.169	M
9	10	5	9"	7'- 2 3/4"	1'- 1/8"	3'- 4"	1'- 4 1/2"	0'-11 1/4"	19'- 8"	-----	20'- 5"	80	54	85.862	2.710	369.855	21'- 6"	6	21'- 2"	1	11	3.060	164.243	3.048	127.169	Q
9	12	5	9"	7'- 2 3/4"	1'- 1/8"	3'- 4"	1'- 4 1/2"	0'-11 1/4"	19'- 8"	-----	20'- 5"	80	66	90.098	2.852	446.001	21'- 6"	6	21'- 2"	1	13	3.258	171.146	3.234	127.169	U
10	4	6	9"	7'-11 3/4"	1'- 1/2"	3'- 7 1/2"	1'- 6 3/8"	1'- 1/2"	21'- 8"	-----	22'- 6"	88	18	79.834	2.631	311.934	23'- 6"	6	23'- 2"	1	5	2.562	155.551	2.594	139.185	E
10	6	6	9"	7'-11 3/4"	1'- 1/2"	3'- 7 1/2"	1'- 6 3/8"	1'- 1/2"	21'- 8"	-----	22'- 6"	88	30	84.070	2.776	347.513	23'- 6"	6	23'- 2"	1	7	2.760	162.454	2.780	139.185	I
10	8	6	9"	7'-11 5/8"	1'- 1 3/4"	3'- 7 1/4"	1'- 6 3/4"	1'- 3/4"	21'- 8"	-----	22'- 6"	88	42	88.306	2.956	374.751	23'- 6"	6	23'- 2"	1	9	2.946	169.357	2.953	139.185	M
10	10	6	9"	7'-11 5/8"	1'- 1 3/4"	3'- 7 1/4"	1'- 6 3/4"	1'- 3/4"	21'- 8"	-----	22'- 6"	88	54	92.542	3.101	424.856	23'- 6"	6	23'- 2"	1	11	3.143	176.259	3.139	139.185	Q
10	12	6	9"	7'-11 1/2"	1'- 2"	3'- 7"	1'- 7 1/8"	1'- 1"	21'- 8"	-----	22'- 6"	88	66	96.778	3.277	503.315	23'- 6"	6	23'- 2"	1	13	3.329	183.162	3.312	139.185	U
12	6	6	9"	9'- 5 1/2"	1'- 4 1/2"	4'- 2 1/8"	1'-10 5/8"	1'- 3 1/2"	25'- 8 1/8"	-----	26'- 9"	104	30	97.430	3.662	467.331	27'- 6"	6	27'- 2"	1	7	2.874	186.486	2.908	163.217	I
12	8	6	9"	9'- 5 1/2"	1'- 4 1/2"	4'- 2 1/8"	1'-10 5/8"	1'- 3 1/2"	25'- 8 1/8"	-----	26'- 9"	104	42	101.666	3.808	496.491	27'- 6"	6	27'- 2"	1	9	3.072	193.389	3.093	163.217	M
12	10	6	9"	9'- 5 1/2"	1'- 4 1/2"	4'- 2 1/8"	1'-10 5/8"	1'- 3 1/2"	25'- 8 1/8"	-----	26'- 9"	104	54	105.902	3.952	549.312	27'- 6"	6	27'- 2"	1	11	3.270	200.291	3.279	163.217	Q
12	12	6	9"	9'- 5 1/2"	1'- 4 1/2"	4'- 2 1/8"	1'-10 5/8"	1'- 3 1/2"	25'- 8 1/8"	-----	26'- 9"	104	66	110.138	4.095	619.939	27'- 6"	6	27'- 2"	1	13	3.468	207.194	3.464	163.217	U

STRUCTURE AND BRIDGE DIVISION

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

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

DOUBLE BOX CULVERTS
25 TO 30 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS										WINGWALL
(FT.)	(FT.)	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	HEADWALL LENGTH	SIZE	HW I LENGTH	NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)		
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'-11"	32	12	30.956	0.695	79.439	9'- 6"	6	9'- 2"	1	4	1.433	67.988	1.425	55.073	A	
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	7'- 7 7/8"	-----	7'-11"	32	18	33.074	0.768	85.703	9'- 6"	6	9'- 2"	1	5	1.531	71.439	1.517	55.073	C	
4	3	4	12"	3'- 6 1/4"	0'- 5"	1'-11"	0'- 6 1/2"	0'- 4 1/4"	9'- 8"	-----	9'-11"	40	12	37.636	0.823	93.133	11'- 6"	6	11'- 2"	1	4	1.629	80.004	1.628	67.089	A	
4	4	4	12"	3'- 6 1/4"	0'- 5"	1'-11"	0'- 6 1/2"	0'- 4 1/4"	9'- 8"	-----	9'-11"	40	18	39.754	0.897	99.397	11'- 6"	6	11'- 2"	1	5	1.728	83.455	1.721	67.089	C	
4	5	4	12"	3'- 6 1/8"	0'- 5 1/4"	1'-10 3/4"	0'- 6 7/8"	0'- 4 1/2"	9'- 8"	-----	10'- 0"	40	24	41.872	0.986	105.995	11'- 6"	6	11'- 2"	1	6	1.824	86.907	1.811	67.089	E	
4	6	4	12"	3'- 6 1/8"	0'- 5 1/4"	1'-10 3/4"	0'- 6 7/8"	0'- 4 1/2"	9'- 8"	-----	10'- 0"	40	30	43.990	1.059	112.259	11'- 6"	6	11'- 2"	1	7	1.923	90.358	1.903	67.089	G	
5	3	4	12"	4'- 3"	0'- 6 3/4"	2'- 2"	0'- 9"	0'- 6"	11'- 8"	-----	12'- 1"	48	12	44.316	1.057	107.941	13'- 6"	6	13'- 2"	1	4	1.816	92.020	1.822	79.105	B	
5	4	4	12"	4'- 3"	0'- 6 3/4"	2'- 2"	0'- 9"	0'- 6"	11'- 8"	-----	12'- 1"	48	18	46.434	1.130	114.205	13'- 6"	6	13'- 2"	1	5	1.915	95.471	1.915	79.105	D	
5	5	4	12"	4'- 3"	0'- 6 3/4"	2'- 2"	0'- 9"	0'- 6"	11'- 8"	-----	12'- 1"	48	24	48.552	1.204	120.469	13'- 6"	6	13'- 2"	1	6	2.014	98.923	2.007	79.105	F	
5	6	4	12"	4'- 3"	0'- 6 3/4"	2'- 2"	0'- 9"	0'- 6"	11'- 8"	-----	12'- 1"	48	30	50.670	1.277	134.002	13'- 6"	6	13'- 2"	1	7	2.113	102.374	2.100	79.105	H	
5	7	4	12"	4'- 3"	0'- 6 3/4"	2'- 2"	0'- 9"	0'- 6"	11'- 8"	-----	12'- 1"	48	36	52.788	1.350	145.689	13'- 6"	6	13'- 2"	1	8	2.212	105.825	2.193	79.105	J	
6	4	4	11"	4'-11 5/8"	0'- 8 3/4"	2'- 4 3/4"	0'-11 1/8"	0'- 8"	13'- 8"	-----	14'- 3"	56	18	53.114	1.428	135.328	15'- 6"	6	15'- 2"	1	5	2.056	107.487	2.062	91.121	D	
6	5	4	11"	4'-11 5/8"	0'- 8 3/4"	2'- 4 3/4"	0'-11 1/8"	0'- 8"	13'- 8"	-----	14'- 3"	56	24	55.232	1.502	141.713	15'- 6"	6	15'- 2"	1	6	2.155	110.939	2.155	91.121	F	
6	6	4	11"	4'-11 3/4"	0'- 8 1/2"	2'- 5"	0'-11 1/2"	0'- 7 3/4"	13'- 8"	-----	14'- 2"	56	30	57.350	1.553	156.232	15'- 6"	6	15'- 2"	1	7	2.260	114.390	2.254	91.121	H	
6	7	4	10"	4'-11 3/4"	0'- 8 1/2"	2'- 5"	0'-11 1/2"	0'- 7 3/4"	13'- 8"	-----	14'- 2"	56	36	59.468	1.626	171.469	15'- 6"	6	15'- 2"	1	8	2.359	117.841	2.347	91.121	J	
6	8	4	10"	4'-11 3/4"	0'- 8 1/2"	2'- 5"	0'-11 1/2"	0'- 7 3/4"	13'- 8"	-----	14'- 2"	56	42	61.586	1.699	188.965	15'- 6"	6	15'- 2"	1	9	2.458	121.293	2.439	91.121	L	
7	4	4	9"	5'- 8 1/2"	0'-10 1/4"	2'- 8 1/8"	1'- 2"	0'- 9 1/2"	15'- 8 1/8"	-----	16'- 4"	64	18	59.794	1.724	183.296	17'- 6"	6	17'- 2"	1	5	2.188	119.503	2.200	103.137	D	
7	6	4	9"	5'- 8 1/2"	0'-10 1/4"	2'- 8 1/8"	1'- 2"	0'- 9 1/2"	15'- 8 1/8"	-----	16'- 4"	64	30	64.030	1.871	196.715	17'- 6"	6	17'- 2"	1	7	2.386	126.406	2.386	103.137	H	
7	8	4	9"	5'- 8 1/2"	0'-10 1/4"	2'- 8 1/8"	1'- 2"	0'- 9 1/2"	15'- 8 1/8"	-----	16'- 4"	64	42	68.266	2.017	226.831	17'- 6"	6	17'- 2"	1	9	2.584	133.309	2.571	103.137	L	
7	10	4	9"	5'- 8 1/2"	0'-10 1/4"	2'- 8 1/8"	1'- 2"	0'- 9 1/2"	15'- 8 1/8"	-----	16'- 4"	64	54	72.502	2.161	275.694	17'- 6"	6	17'- 2"	1	11	2.781	140.211	2.757	103.137	P	
8	4	4	8"	6'- 5 5/8"	1'- 0"	2'-11 1/8"	1'- 4 1/2"	0'-11 1/4"	17'- 7 7/8"	-----	18'- 5"	72	18	66.474	2.085	219.095	19'- 6"	6	19'- 2"	1	5	2.310	131.519	2.329	115.153	E	
8	6	4	8"	6'- 5 5/8"	1'- 0"	2'-11 1/8"	1'- 4 1/2"	0'-11 1/4"	17'- 7 7/8"	-----	18'- 5"	72	30	70.710	2.232	232.958	19'- 6"	6	19'- 2"	1	7	2.508	138.422	2.515	115.153	I	
8	8	4	8"	6'- 5 5/8"	1'- 0"	2'-11 1/8"	1'- 4 1/2"	0'-11 1/4"	17'- 7 7/8"	-----	18'- 5"	72	42	74.946	2.378	265.997	19'- 6"	6	19'- 2"	1	9	2.706	145.325	2.700	115.153	M	
8	10	4	8"	6'- 5 5/8"	1'- 0"	2'-11 1/8"	1'- 4 1/2"	0'-11 1/4"	17'- 7 7/8"	-----	18'- 5"	72	54	79.182	2.522	318.363	19'- 6"	6	19'- 2"	1	11	2.904	152.227	2.886	115.153	Q	
9	4	5	9"	7'- 1 7/8"	1'- 1 7/8"	3'- 2 1/4"	1'- 7"	1'- 1"	19'- 8"	-----	20'- 7"	80	18	73.154	2.488	283.677	21'- 6"	6	21'- 2"	1	5	2.393	143.535	2.418	127.169	E	
9	6	5	9"	7'- 1 7/8"	1'- 1 7/8"	3'- 2 1/4"	1'- 7"	1'- 1"	19'- 8"	-----	20'- 7"	80	30	77.390	2.635	297.339	21'- 6"	6	21'- 2"	1	7	2.590	150.438	2.604	127.169	I	
9	8	5	9"	7'- 1 3/4"	1'- 2 1/8"	3'- 2"	1'- 7 3/8"	1'- 1 1/4"	19'- 8"	-----	20'- 7"	80	42	81.626	2.811	331.170	21'- 6"	6	21'- 2"	1	9	2.778	157.341	2.779	127.169	M	
9	10	5	9"	7'- 1 3/4"	1'- 2 1/8"	3'- 2"	1'- 7 3/8"	1'- 1 1/4"	19'- 8"	-----	20'- 7"	80	54	85.862	2.956	372.645	21'- 6"	6	21'- 2"	1	11	2.976	164.243	2.964	127.169	Q	
9	12	5	9"	7'- 2 1/4"	1'- 2 1/8"	3'- 2"	1'- 7 3/8"	1'- 1 1/4"	19'- 9"	-----	20'- 8"	80	66	90.098	3.145	447.204	21'- 6"	6	21'- 2"	1	13	3.128	171.146	3.104	127.169	U	
10	4	5	8"	7'-10 7/8"	1'- 3 1/8"	3'- 5 3/4"	1'- 8 3/4"	1'- 2 1/4"	21'- 8"	-----	22'- 8"	88	18	79.834	2.868	312.906	23'- 6"	6	23'- 2"	1	5	2.477	155.551	2.510	139.185	E	
10	6	6	9"	7'-10 3/4"	1'- 3 1/2"	3'- 5 1/2"	1'- 9 1/4"	1'- 2 1/2"	21'- 8"	-----	22'- 8"	88	30	84.070	3.048	351.287	23'- 6"	6	23'- 2"	1	7	2.663	162.454	2.683	139.185	I	
10	8	6	9"	7'-10 3/4"	1'- 3 1/2"	3'- 5 1/2"	1'- 9 1/4"	1'- 2 1/2"	21'- 8"	-----	22'- 8"	88	42	88.306	3.193	384.857	23'- 6"	6	23'- 2"	1	9	2.861	169.357	2.869	139.185	M	
10	10	6	9"	7'-10 5/8"	1'- 3 3/4"	3'- 5 1/4"	1'- 9 5/8"	1'- 2 3/4"	21'- 8"	-----	22'- 8"	88	54	92.542	3.371	439.031	23'- 6"	6	23'- 2"	1	11	3.047	176.259	3.042	139.185	Q	
10	12	6	9"	7'-11"	1'- 4"	3'- 5"	1'- 9 7/8"	1'- 3"	21'- 9"	-----	22'- 8"	88	66	96.778	3.595	507.054	23'- 6"	6	23'- 2"	1	13	3.186	183.162	3.168	139.185	U	
12	6	7	9"	9'- 4 1/4"	1'- 7 1/8"	3'-11 3/4"	2'- 2 1/8"	1'- 5 7/8"	25'- 8"	-----	26'-11"	104	30	97.430	4.060	508.772	27'- 6"	6	27'- 2"	1	7	2.741	186.486	2.765	163.217	J	
12	8	7	9"	9'- 4 1/4"	1'- 7 1/8"	3'-11 3/4"	2'- 2 1/8"	1'- 5 7/8"	25'- 8"	-----	26'-11"	104	42	101.666	4.206	545.503	27'- 6"	6	27'- 2"	1	9	2.939	193.389	2.960	163.217	N	
12	10	7	9"	9'- 4 1/4"	1'- 7 1/8"	3'-11 3/4"	2'- 2 1/8"	1'- 5 7/8"	25'- 8"	-----	26'-11"	104	54	105.902	4.350	600.110	27'- 6"	6	27'- 2"	1	11	3.137	200.291	3.145	163.217	R	
12	12	7	9"	9'- 4 5/8"	1'- 7 3/8"	3'-11 1/2"	2'- 2 1/2"	1'- 6 1/8"	25'- 9"	-----	27'- 0"	104	66	110.138	4.581	673.249	27'- 6"	6	27'- 2"	1	13	3.271	207.194	3.267	163.217	V	

STRUCTURE AND BRIDGE DIVISION

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

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

DOUBLE BOX CULVERTS

30 TO 35 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

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

STRUCTURE AND BRIDGE DIVISION

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

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

Sheet 1 of 2

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

DOUBLE BOX CULVERTS

35 TO 40 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

1003.20

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

STRUCTURE AND BRIDGE DIVISION	<h2 style="margin: 0;">DOUBLE BOX CULVERTS</h2> <h3 style="margin: 0;">35 TO 40 FT. FILLS</h3> <p style="margin: 0;">VIRGINIA DEPARTMENT OF TRANSPORTATION</p>	1003.21
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DIMENSIONS										REINFORCING STEEL																						
SPAN (FT.)	HGHT (FT.)	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2					
		TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8 1/2"	8 1/2"	8"	8"	6	6'- 0"	6	6'- 0"	1	1'- 0"	4	12"	7'- 6"	4	12"	7'- 8"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 8 1/2"	4'- 7"	4	12"	4'- 1"	4	12"	4'- 1"
3	4	8 1/2"	8 1/2"	8"	8"	6	6'- 0"	6	6'- 0"	2	2'- 0"	4	12"	7'- 6"	4	12"	7'- 8"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 2 1/2"	5'- 1"	4	12"	5'- 1"	4	12"	5'- 1"
4	3	10 3/4"	10 3/4"	8"	8"	8	8'- 0"	8	8'- 0"	1	1'- 0"	4	12"	9'- 1"	4	12"	9'- 8"	--	---	----	----	4	12"	2'- 3 5/8"	2'- 10 3/4"	4'- 11"	4	12"	4'- 5"	4	12"	4'- 5"
4	4	10 3/4"	10 3/4"	8"	8"	8	8'- 0"	8	8'- 0"	2	2'- 0"	4	12"	9'- 1"	4	12"	9'- 8"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 4 3/4"	5'- 5"	4	12"	5'- 5"	4	12"	5'- 5"
4	5	10 3/4"	10 3/4"	8"	8"	8	8'- 0"	8	8'- 0"	3	3'- 0"	4	12"	9'- 1"	4	12"	9'- 8"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 10 3/4"	5'- 11"	4	12"	6'- 5"	4	12"	6'- 5"
4	6	10 3/4"	10 3/4"	8"	8"	8	8'- 0"	8	8'- 0"	4	4'- 0"	4	12"	9'- 1"	4	12"	9'- 8"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	4'- 4 3/4"	6'- 5"	4	10 1/2"	7'- 5"	4	12"	7'- 5"
5	3	13"	13"	8"	8"	10	10'- 0"	10	10'- 0"	1	1'- 0"	4	11"	10'- 8"	4	11"	11'- 8"	--	---	----	----	4	11"	2'- 6"	3'- 1"	5'- 4"	4	12"	4'- 10"	4	12"	4'- 10"
5	4	13"	13"	8"	8"	10	10'- 0"	10	10'- 0"	2	2'- 0"	4	11"	10'- 8"	4	11"	11'- 8"	--	---	----	----	4	11"	2'- 6"	3'- 7"	5'- 10"	4	12"	5'- 10"	4	12"	5'- 10"
5	5	13"	13"	8"	8"	10	10'- 0"	10	10'- 0"	3	3'- 0"	4	11"	10'- 8"	4	11"	11'- 8"	--	---	----	----	4	11"	2'- 6"	4'- 1"	6'- 4"	4	12"	6'- 10"	4	12"	6'- 10"
5	6	13"	13"	8"	8"	10	10'- 0"	10	10'- 0"	4	4'- 0"	4	11"	10'- 8"	4	11"	11'- 8"	3	11"	2'- 6"	4'- 10"	4	11"	2'- 6"	4'- 7"	6'- 10"	4	11"	7'- 10"	4	12"	7'- 10"
5	7	13"	13"	8"	8"	10	10'- 0"	10	10'- 0"	5	5'- 0"	4	11"	10'- 8"	4	11"	11'- 8"	--	---	----	----	5	11"	2'- 6"	5'- 1"	7'- 3"	4	7"	8'- 10"	4	12"	8'- 10"
6	4	15 1/2"	15 1/2"	8"	8"	12	12'- 0"	12	12'- 0"	2	2'- 0"	5	9"	12'- 3"	4	9"	13'- 8"	--	---	----	----	4	9"	2'- 8 3/8"	3'- 9 1/2"	6'- 3"	4	12"	6'- 3"	4	11"	6'- 3"
6	5	15 1/2"	15 1/2"	8"	8"	12	12'- 0"	12	12'- 0"	3	3'- 0"	5	9"	12'- 3"	4	9"	13'- 8"	--	---	----	----	4	9"	2'- 8 3/8"	4'- 3 1/2"	6'- 9"	4	12"	7'- 3"	4	11 1/2"	7'- 3"
6	6	15 1/2"	15 1/2"	8"	8"	12	12'- 0"	12	12'- 0"	4	4'- 0"	5	9"	12'- 3"	4	9"	13'- 8"	--	---	----	----	4	9"	2'- 8 3/8"	4'- 9 1/2"	7'- 3"	4	10 1/2"	8'- 3"	4	11 1/2"	8'- 3"
6	7	15 1/2"	15 1/2"	8"	8"	12	12'- 0"	12	12'- 0"	5	5'- 0"	5	9"	12'- 3"	4	9"	13'- 8"	3	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	5'- 3 1/2"	7'- 9"	4	7"	9'- 3"	4	11 1/2"	9'- 3"
6	8	15"	15"	8"	8"	12	12'- 0"	12	12'- 0"	6	6'- 0"	4	9"	12'- 3"	4	9"	13'- 8"	--	---	----	----	5	9"	2'- 8 3/8"	5'- 9"	8'- 1"	4	5 1/2"	10'- 2"	4	11 1/2"	10'- 2"
7	4	18"	18"	8"	8"	14	14'- 0"	14	14'- 0"	2	2'- 0"	5	8"	13'- 10"	4	8"	15'- 8"	--	---	----	----	4	8"	2'- 10 3/4"	4'- 0"	6'- 8"	4	12"	6'- 8"	4	10"	6'- 8"
7	6	17 3/4"	17 3/4"	8"	8"	14	14'- 0"	14	14'- 0"	4	4'- 0"	5	8"	13'- 10"	4	8"	15'- 8"	--	---	----	----	4	8"	2'- 10 3/4"	4'- 11 3/4"	7'- 7"	4	10 1/2"	8'- 7"	4	10"	8'- 7"
7	8	17 3/4"	17 3/4"	8"	8"	14	14'- 0"	14	14'- 0"	6	6'- 0"	5	8"	13'- 10"	4	8"	15'- 8"	3	8"	2'- 10 3/4"	5'- 7"	4	8"	2'- 10 3/4"	5'- 11 3/4"	8'- 7"	6	11 1/2"	10'- 7"	4	10"	10'- 7"
7	10	17 1/2"	17 1/2"	9"	8"	14	14'- 0"	14	14'- 0"	8	8'- 0"	5	9"	13'- 10"	5	9"	15'- 10"	3	9"	2'- 11 3/4"	5'- 9"	5	9"	2'- 11 3/4"	6'- 11 1/2"	9'- 7"	5	6"	12'- 7"	4	10"	12'- 7"
8	4	19 1/2"	19 1/2"	8"	8"	16	16'- 0"	16	16'- 0"	2	2'- 0"	6	9"	15'- 6"	5	9"	17'- 8"	--	---	----	----	4	9"	3'- 1 1/4"	4'- 1 1/2"	7'- 0"	4	12"	6'- 11"	4	10"	6'- 11"
8	6	19 3/4"	19 3/4"	8"	8"	16	16'- 0"	16	16'- 0"	4	4'- 0"	6	9"	15'- 6"	5	9"	17'- 8"	--	---	----	----	4	9"	3'- 1 1/4"	5'- 1 3/4"	8'- 0"	4	10"	9'- 0"	4	10"	9'- 0"
8	8	20"	20"	8"	8"	16	16'- 0"	16	16'- 0"	6	6'- 0"	6	9"	15'- 6"	5	9"	17'- 8"	--	---	----	----	5	9"	3'- 1 1/4"	6'- 2"	8'- 11"	6	11 1/2"	11'- 0"	4	10"	11'- 0"
8	10	19 3/4"	19 3/4"	9"	8"	16	16'- 0"	16	16'- 0"	8	8'- 0"	6	9"	15'- 6"	5	9"	17'- 10"	--	---	----	----	6	9"	3'- 2 1/4"	7'- 1 3/4"	9'- 11"	5	6"	13'- 0"	4	10"	13'- 0"
9	4	22 1/4"	22 1/4"	8"	8"	18	18'- 0"	18	18'- 0"	2	2'- 0"	6	9"	17'- 1"	5	9"	19'- 8"	--	---	----	----	4	9"	3'- 3 5/8"	4'- 4 1/4"	7'- 5"	4	12"	7'- 4"	4	10"	7'- 4"
9	6	22"	22"	8"	8"	18	18'- 0"	18	18'- 0"	4	4'- 0"	6	9"	17'- 1"	5	9"	19'- 8"	--	---	----	----	4	9"	3'- 3 5/8"	5'- 4"	8'- 4"	4	9 1/2"	9'- 4"	4	10"	9'- 4"
9	8	21 3/4"	21 3/4"	8"	8"	18	18'- 0"	18	18'- 0"	6	6'- 0"	6	9"	17'- 1"	5	9"	19'- 8"	3	9"	3'- 3 5/8"	6'- 5"	4	9"	3'- 3 5/8"	6'- 3 3/4"	9'- 4"	5	8"	11'- 3"	4	10"	11'- 3"
9	10	21 1/2"	21 1/2"	9"	8"	18	18'- 0"	18	18'- 0"	8	8'- 0"	6	9"	17'- 1"	5	9"	19'- 10"	3	9"	3'- 4 5/8"	6'- 7"	5	9"	3'- 4 5/8"	7'- 3 1/2"	10'- 4"	5	6"	13'- 3"	4	10"	13'- 3"
9	12	22 1/4"	22 1/4"	10 1/2"	8"	18	18'- 0"	18	18'- 0"	10	10'- 0"	6	9"	17'- 1"	5	9"	20'- 1"	3	9"	3'- 6 1/8"	6'- 10"	6	9"	3'- 6 1/8"	8'- 4 1/4"	11'- 6"	5	5"	15'- 4"	4	10"	15'- 4"
10	4	24 1/2"	24 1/2"	8"	8"	20	20'- 0"	20	20'- 0"	2	2'- 0"	6	8"	18'- 8"	5	8"	21'- 8"	--	---	----	----	4	8"	3'- 6"	4'- 6 1/2"	7'- 9"	4	12"	7'- 9"	4	9"	7'- 9"
10	6	24 1/4"	24 1/4"	8"	8"	20	20'- 0"	20	20'- 0"	4	4'- 0"	6	8"	18'- 8"	5	8"	21'- 8"	--	---	----	----	4	8"	3'- 6"	5'- 6 1/4"	8'- 9"	4	9"	9'- 8"	4	9"	9'- 8"
10	8	24 1/4"	24 1/4"	8"	8"	20	20'- 0"	20	20'- 0"	6	6'- 0"	6	8"	18'- 8"	5	8"	21'- 8"	3	8"	3'- 6"	6'- 10"	4	8"	3'- 6"	6'- 6 1/4"	9'- 9"	5	7 1/2"	11'- 8"	4	9"	11'- 8"
10	10	24 1/4"	24 1/4"	9"	8"	20	20'- 0"	20	20'- 0"	8	8'- 0"	7	9"	18'- 8"	6	9"	21'- 10"	3	9"	3'- 7"	7'- 0"	5	9"	3'- 7"	7'- 6 1/4"	10'- 9"	6	8"	13'- 8"	4	9"	13'- 8"
10	12	24 1/4"	24 1/4"	10 1/2"	8"	20	20'- 0"	20	20'- 0"	10	10'- 0"	7	9"	18'- 8"	6	9"	22'- 1"	3	9"	3'- 8 1/2"	7'- 3"	6	9"	3'- 8 1/2"	8'- 6 1/4"	11'- 10"	5	5"	15'- 8"	4	9"	15'- 8"
12	6	28 1/4"	28 1/4"	8"	8"	24	24'- 0"	24	24'- 0"	4	4'- 0"	8	9"	21'- 10"	6	9"	25'- 8"	--	---	----	----	4	9"	3'- 10 3/4"	5'- 10 1/4"	9'- 6"	4	8"	10'- 5"	4	7"	10'- 5"
12	8	28 1/4"	28 1/4"	8"	8"	24	24'- 0"	24	24'- 0"	6	6'- 0"	7	9"	21'- 10"	6	9"	25'- 8"	3	9"	3'- 10 3/4"	7'- 7"	4	9"	3'- 10 3/4"	6'- 10 1/4"	10'- 6"	4	4 1/2"	12'- 5"	4	7 1/2"	12'- 5"
12	10	28 1/4"	28 1/4"	9 1/4"	8"	24	24'- 0"	24	24'- 0"	8	8'- 0"	7	9"	21'- 10"	6	9"	25'- 10"	3	9"	4'- 0"	7'- 10"	5	9"	4'- 0"	7'- 10 1/4"	11'- 6"	6	8"	14'- 5"	4	7 1/2"	14'- 5"
12	12	28 1/2"	28 1/2"	10 1/2"	8"	24	24'- 0"	24	24'- 0"	10	10'- 0"	7	9"	21'- 10"	7	9"	26'- 1"	3	9"	4'- 1 1/4"	8'- 0"	6	9"	4'- 1 1/4"	8'- 10 1/2"	12'- 7"	8	12"	16'- 5"	5	12"	16'- 5"

DOUBLE BOX CULVERTS

40 TO 45 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS													
(FT.)	(FT.)	SIZE	SPACING C-C	BT I									LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	C			HW I		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
				a	b	c	d	e	f	g	HEADWALL LENGTH	SIZE							LENGTH											
3	3	4	12"	2'- 8 5/8"	0'- 5"	1'- 6 1/8"	0'- 6 1/2"	0'- 4 1/4"	7'- 7 7/8"	-----	7'- 11"	32	12	30.956	0.719	79.885	9'- 6"	6	9'- 2"	1	4	1.430	67.988	1.422	55.073	A				
3	4	4	12"	2'- 8 5/8"	0'- 5"	1'- 6 1/8"	0'- 6 1/2"	0'- 4 1/4"	7'- 7 7/8"	-----	7'- 11"	32	18	33.074	0.793	86.149	9'- 6"	6	9'- 2"	1	5	1.529	71.439	1.515	55.073	C				
4	3	4	12"	3'- 5 1/8"	0'- 7 1/4"	1'- 8 3/4"	0'- 9 3/4"	0'- 6 1/2"	9'- 8"	-----	10'- 1"	40	12	37.636	0.962	94.692	11'- 6"	6	11'- 2"	1	4	1.622	80.004	1.621	67.089	B				
4	4	4	12"	3'- 5 1/8"	0'- 7 1/4"	1'- 8 3/4"	0'- 9 3/4"	0'- 6 1/2"	9'- 8"	-----	10'- 1"	40	18	39.754	1.036	100.956	11'- 6"	6	11'- 2"	1	5	1.721	83.455	1.714	67.089	D				
4	5	4	12"	3'- 5 1/8"	0'- 7 1/4"	1'- 8 3/4"	0'- 9 3/4"	0'- 6 1/2"	9'- 8"	-----	10'- 1"	40	24	41.872	1.109	107.220	11'- 6"	6	11'- 2"	1	6	1.820	86.907	1.810	67.089	F				
4	6	4	12"	3'- 5 1/8"	0'- 7 1/4"	1'- 8 3/4"	0'- 9 3/4"	0'- 6 1/2"	9'- 8"	-----	10'- 1"	40	30	43.990	1.182	126.478	11'- 6"	6	11'- 2"	1	7	1.919	90.358	1.899	67.089	H				
5	3	4	11"	4'- 1 5/8"	0'- 9 1/2"	1'- 11 1/4"	1'- 7 7/8"	0'- 8 3/4"	11'- 8"	-----	12'- 3"	48	12	44.316	1.260	115.440	13'- 6"	6	13'- 2"	1	4	1.768	92.020	1.774	79.105	B				
5	4	4	11"	4'- 1 5/8"	0'- 9 1/2"	1'- 11 1/4"	1'- 7 7/8"	0'- 8 3/4"	11'- 8"	-----	12'- 3"	48	18	46.434	1.333	121.826	13'- 6"	6	13'- 2"	1	5	1.867	95.471	1.867	79.105	D				
5	5	4	11"	4'- 1 5/8"	0'- 9 1/2"	1'- 11 1/4"	1'- 7 7/8"	0'- 8 3/4"	11'- 8"	-----	12'- 3"	48	24	48.552	1.407	128.211	13'- 6"	6	13'- 2"	1	6	1.966	98.923	1.959	79.105	F				
5	6	4	11"	4'- 1 5/8"	0'- 9 1/2"	1'- 11 1/4"	1'- 7 7/8"	0'- 8 3/4"	11'- 8"	-----	12'- 3"	48	30	50.670	1.480	143.478	13'- 6"	6	13'- 2"	1	7	2.065	102.374	2.052	79.105	H				
5	7	4	11"	4'- 1 5/8"	0'- 9 1/2"	1'- 11 1/4"	1'- 7 7/8"	0'- 8 3/4"	11'- 8"	-----	12'- 3"	48	36	52.788	1.553	161.033	13'- 6"	6	13'- 2"	1	8	2.164	105.825	2.145	79.105	J				
6	4	4	9"	4'- 10"	1'- 0"	2'- 1 1/2"	1'- 4 1/2"	0'- 11 1/4"	13'- 8"	-----	14'- 5"	56	18	53.114	1.706	167.999	15'- 6"	6	15'- 2"	1	5	1.998	107.487	2.004	91.121	E				
6	5	4	9"	4'- 10"	1'- 0"	2'- 1 1/2"	1'- 4 1/2"	0'- 11 1/4"	13'- 8"	-----	14'- 5"	56	24	55.232	1.780	174.370	15'- 6"	6	15'- 2"	1	6	2.097	110.939	2.097	91.121	G				
6	6	4	9"	4'- 10"	1'- 0"	2'- 1 1/2"	1'- 4 1/2"	0'- 11 1/4"	13'- 8"	-----	14'- 5"	56	30	57.350	1.853	182.712	15'- 6"	6	15'- 2"	1	7	2.196	114.390	2.190	91.121	I				
6	7	4	9"	4'- 10"	1'- 0"	2'- 1 1/2"	1'- 4 1/2"	0'- 11 1/4"	13'- 8"	-----	14'- 5"	56	36	59.468	1.926	207.093	15'- 6"	6	15'- 2"	1	8	2.295	117.841	2.282	91.121	K				
6	8	4	9"	4'- 10 1/4"	0'- 11 1/2"	2'- 2"	1'- 3 3/4"	0'- 10 3/4"	13'- 8"	-----	14'- 5"	56	42	61.586	1.956	213.820	15'- 6"	6	15'- 2"	1	9	2.387	121.293	2.368	91.121	L				
7	4	5	8"	5'- 6 3/8"	1'- 2 5/8"	2'- 3 7/8"	1'- 8 1/8"	1'- 1 3/4"	15'- 8 1/8"	-----	16'- 7"	64	18	59.794	2.141	222.404	17'- 6"	6	17'- 2"	1	5	2.080	119.503	2.092	103.137	E				
7	6	4	8"	5'- 6 1/2"	1'- 2 1/4"	2'- 4 1/8"	1'- 7 5/8"	1'- 1 1/2"	15'- 8 1/8"	-----	16'- 7"	64	30	64.030	2.264	219.206	17'- 6"	6	17'- 2"	1	7	2.285	126.406	2.285	103.137	I				
7	8	4	8"	5'- 6 1/2"	1'- 2 1/4"	2'- 4 1/8"	1'- 7 5/8"	1'- 1 1/2"	15'- 8 1/8"	-----	16'- 7"	64	42	68.266	2.409	263.597	17'- 6"	6	17'- 2"	1	9	2.483	133.309	2.471	103.137	M				
7	10	5	9"	5'- 7 5/8"	1'- 2 7/8"	2'- 4 3/8"	1'- 7 3/8"	1'- 1 1/4"	15'- 10 1/8"	-----	16'- 9"	64	54	72.502	2.607	329.667	17'- 6"	6	17'- 2"	1	11	2.609	140.211	2.584	103.137	Q				
8	4	6	9"	6'- 3 3/8"	1'- 4 1/4"	2'- 7 1/8"	1'- 10 1/4"	1'- 3 1/4"	17'- 7 7/8"	-----	18'- 8"	72	18	66.474	2.525	286.118	19'- 6"	6	19'- 2"	1	5	2.166	131.519	2.185	115.153	E				
8	6	5	9"	6'- 3"	1'- 4 3/8"	2'- 6 7/8"	1'- 10 1/2"	1'- 3 1/2"	17'- 7 7/8"	-----	18'- 8"	72	30	70.710	2.701	279.873	19'- 6"	6	19'- 2"	1	7	2.355	138.422	2.362	115.153	I				
8	8	5	9"	6'- 2 7/8"	1'- 4 5/8"	2'- 6 5/8"	1'- 10 7/8"	1'- 3 3/4"	17'- 7 7/8"	-----	18'- 9"	72	42	74.946	2.873	328.974	19'- 6"	6	19'- 2"	1	9	2.544	145.325	2.538	115.153	M				
8	10	5	9"	6'- 4"	1'- 4 3/8"	2'- 6 7/8"	1'- 10 1/2"	1'- 3 1/2"	17'- 9 7/8"	-----	18'- 10"	72	54	79.182	3.071	386.982	19'- 6"	6	19'- 2"	1	11	2.670	152.227	2.651	115.153	Q				
9	4	6	9"	6'- 11 3/8"	1'- 7"	2'- 9 1/4"	2'- 2 1/8"	1'- 6"	19'- 8"	-----	20'- 11"	80	18	73.154	3.103	315.087	21'- 6"	6	21'- 2"	1	5	2.200	143.535	2.226	127.169	F				
9	6	6	9"	6'- 11 1/2"	1'- 6 3/4"	2'- 9 1/2"	2'- 1 7/8"	1'- 5 3/4"	19'- 8"	-----	20'- 11"	80	30	77.390	3.219	332.025	21'- 6"	6	21'- 2"	1	7	2.409	150.438	2.422	127.169	J				
9	8	6	9"	6'- 11 5/8"	1'- 6 1/2"	2'- 9 3/4"	2'- 1 1/2"	1'- 5 1/2"	19'- 8"	-----	20'- 10"	80	42	81.626	3.333	375.157	21'- 6"	6	21'- 2"	1	9	2.617	157.341	2.618	127.169	N				
9	10	6	9"	7'- 3 1/4"	1'- 6 1/4"	2'- 10"	2'- 1 1/8"	1'- 5 1/4"	19'- 10"	-----	21'- 0"	80	54	85.862	3.530	428.648	21'- 6"	6	21'- 2"	1	11	2.742	164.243	2.730	127.169	R				
9	12	6	9"	7'- 1 7/8"	1'- 7"	2'- 9 1/4"	2'- 2 1/8"	1'- 6"	20'- 1"	-----	21'- 4"	80	66	90.098	3.924	495.159	21'- 6"	6	21'- 2"	1	13	2.751	171.146	2.725	127.169	V				
10	4	6	8"	7'- 7 7/8"	1'- 9 1/4"	2'- 11 3/4"	2'- 5 3/8"	1'- 8 1/4"	21'- 8"	-----	23'- 1"	88	18	79.834	3.678	376.694	23'- 6"	6	23'- 2"	1	5	2.206	155.551	2.238	139.185	F				
10	6	6	8"	7'- 8"	1'- 9"	3'- 0"	2'- 5"	1'- 8"	21'- 8"	-----	23'- 0"	88	30	84.070	3.791	395.118	23'- 6"	6	23'- 2"	1	7	2.416	162.454	2.436	139.185	J				
10	8	6	8"	7'- 8"	1'- 9"	3'- 0"	2'- 5"	1'- 8"	21'- 8"	-----	23'- 0"	88	42	88.306	3.936	444.336	23'- 6"	6	23'- 2"	1	9	2.614	169.357	2.621	139.185	N				
10	10	6	9"	7'- 9"	1'- 9"	3'- 0"	2'- 5"	1'- 8"	21'- 10"	-----	23'- 2"	88	54	92.542	4.165	520.837	23'- 6"	6	23'- 2"	1	11	2.726	176.259	2.720	139.185	R				
10	12	6	9"	7'- 10 1/2"	1'- 9"	3'- 0"	2'- 5"	1'- 8"	22'- 1"	-----	23'- 5"	88	66	96.778	4.469	583.261	23'- 6"	6	23'- 2"	1	13	2.764	183.162	2.745	139.185	V				
12	6	7	9"	9'- 1 1/4"	2'- 1 1/8"	3'- 5 3/4"	2'- 10 5/8"	1'- 11 7/8"	25'- 8"	-----	27'- 4"	104	30	97.430	5.019	566.571	27'- 6"	6	27'- 2"	1	7	2.396	186.486	2.429	163.217	K				
12	8	6	9"	9'- 1 1/4"	2'- 1"	3'- 5 3/8"	2'- 10 3/8"	2'- 0"	25'- 8 1/8"	-----	27'- 4"	104	42	101.666	5.169	539.946	27'- 6"	6	27'- 2"	1	9	2.593	193.389	2.614	163.217	O				
12	10	7	9"	9'- 2 1/2"	2'- 1 1/8"	3'- 5 3/4"	2'- 10 5/8"	1'- 11 7/8"	25'- 10 1/2"	-----	27'- 6"	104	54	105.902	5.423	637.604	27'- 6"	6	27'- 2"	1	11	2.679	200.291	2.686	163.217	S				
12	12	7	9"	9'- 3 5/8"	2'- 1 3/8"	3'- 5 1/2"	2'- 11"	2'- 1 1/8"	26'- 1"	-----	27'- 9"	104	66	110.138	5.748	745.475	27'- 6"	6	27'- 2"	1	13	2.717	207.194	2.712	163.217	W				

STRUCTURE AND BRIDGE DIVISION

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

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

DOUBLE BOX CULVERTS

45 TO 50 FT. FILLS

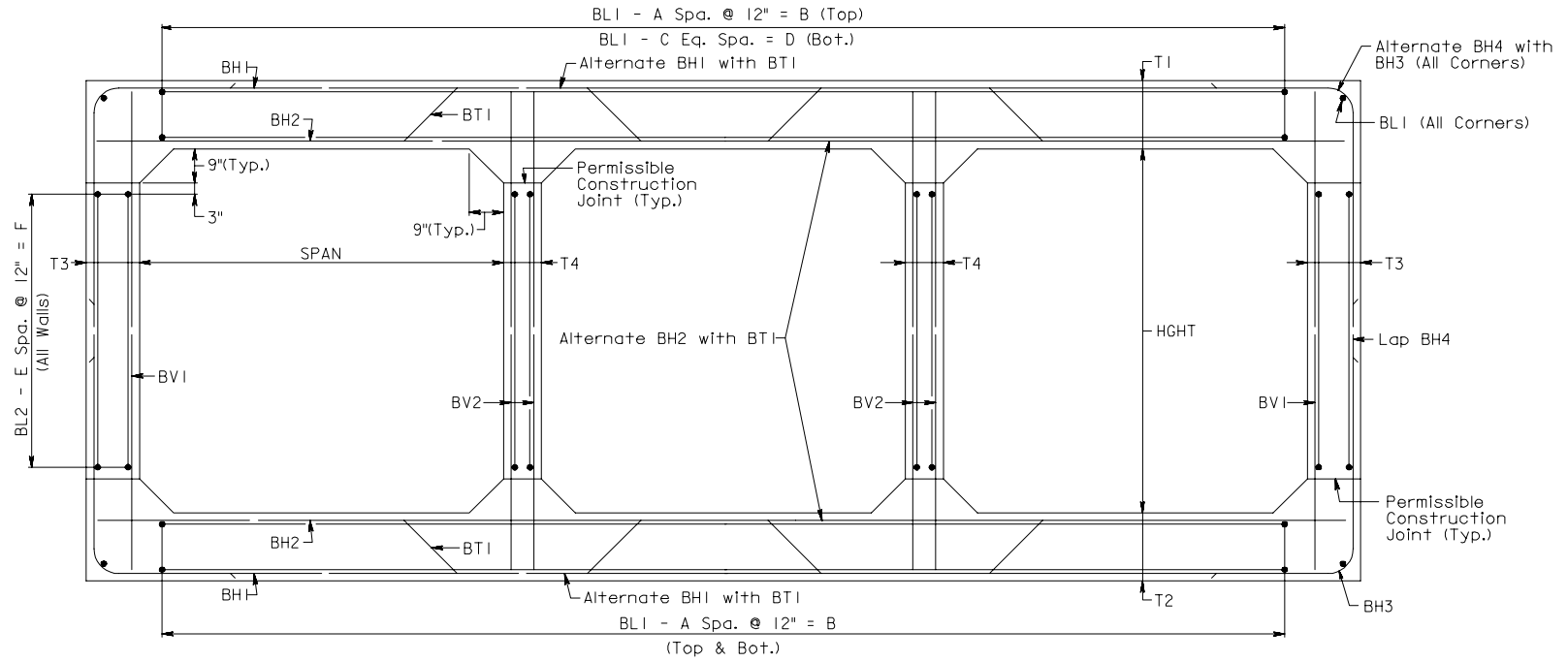
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS												
(FT.)	(FT.)	SIZE	SPACING C-C	BT I									LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	C		HW I		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
				a	b	c	d	e	f	g	HEADWALL LENGTH	SIZE							LENGTH										
3	3	4	12"	2'- 8 1/4"	0'- 5 3/4"	1'- 5 3/8"	0'- 7 5/8"	0'- 5"	7'- 7 7/8"	-----	8'- 0"	32	12	30.956	0.756	80.219	9'- 6"	6	9'- 2"	1	4	1.445	67.988	1.437	55.073	B			
3	4	4	12"	2'- 8 1/4"	0'- 5 3/4"	1'- 5 3/8"	0'- 7 5/8"	0'- 5"	7'- 7 7/8"	-----	8'- 0"	32	18	33.074	0.830	86.483	9'- 6"	6	9'- 2"	1	5	1.544	71.439	1.530	55.073	D			
4	3	4	12"	3'- 4 3/4"	0'- 8"	1'- 8"	0'- 10 3/4"	0'- 7 1/4"	9'- 8"	-----	10'- 2"	40	12	37.636	1.008	95.471	11'- 6"	6	11'- 2"	1	4	1.614	80.004	1.613	67.089	B			
4	4	4	12"	3'- 4 1/8"	0'- 7 3/4"	1'- 8 1/4"	0'- 10 1/2"	0'- 7"	9'- 8"	-----	10'- 2"	40	18	39.754	1.066	101.513	11'- 6"	6	11'- 2"	1	5	1.716	83.455	1.708	67.089	D			
4	5	4	12"	3'- 4 1/8"	0'- 7 3/4"	1'- 8 1/4"	0'- 10 1/2"	0'- 7"	9'- 8"	-----	10'- 2"	40	24	41.872	1.140	107.777	11'- 6"	6	11'- 2"	1	6	1.815	86.907	1.801	67.089	F			
4	6	4	12"	3'- 4 1/8"	0'- 7 3/4"	1'- 8 1/4"	0'- 10 1/2"	0'- 7"	9'- 8"	-----	10'- 2"	40	30	43.990	1.212	128.959	11'- 6"	6	11'- 2"	1	7	1.913	90.358	1.894	67.089	H			
5	3	4	10"	4'- 1 1/4"	0'- 10 1/4"	1'- 10 1/2"	1'- 2"	0'- 9 1/2"	11'- 8"	-----	12'- 4"	48	12	44.316	1.315	122.882	13'- 6"	6	13'- 2"	1	4	1.755	92.020	1.761	79.105	B			
5	4	4	10"	4'- 1 1/4"	0'- 10 1/4"	1'- 10 1/2"	1'- 2"	0'- 9 1/2"	11'- 8"	-----	12'- 4"	48	18	46.434	1.388	129.413	13'- 6"	6	13'- 2"	1	5	1.854	95.471	1.853	79.105	D			
5	5	4	10"	4'- 1 1/4"	0'- 10 1/4"	1'- 10 1/2"	1'- 2"	0'- 9 1/2"	11'- 8"	-----	12'- 4"	48	24	48.552	1.462	135.944	13'- 6"	6	13'- 2"	1	6	1.953	98.923	1.946	79.105	F			
5	6	4	10"	4'- 1 1/4"	0'- 10 1/4"	1'- 10 1/2"	1'- 2"	0'- 9 1/2"	11'- 8"	-----	12'- 4"	48	30	50.670	1.535	146.038	13'- 6"	6	13'- 2"	1	7	2.052	102.374	2.039	79.105	H			
5	7	4	10"	4'- 1 3/8"	0'- 10"	1'- 10 3/4"	1'- 1 5/8"	0'- 9 1/4"	11'- 8"	-----	12'- 4"	48	36	52.788	1.589	171.061	13'- 6"	6	13'- 2"	1	8	2.155	105.825	2.136	79.105	J			
6	4	4	9"	4'- 9 5/8"	1'- 3/4"	2'- 3/4"	1'- 5/2"	1'- 0"	13'- 8"	-----	14'- 6"	56	18	53.114	1.771	169.303	15'- 6"	6	15'- 2"	1	5	1.980	107.487	1.986	91.121	E			
6	5	4	9"	4'- 9 3/4"	1'- 1/2"	2'- 1"	1'- 5/8"	0'- 11 3/4"	13'- 8"	-----	14'- 6"	56	24	55.232	1.823	176.280	15'- 6"	6	15'- 2"	1	6	2.085	110.939	2.085	91.121	G			
6	6	4	9"	4'- 9 3/4"	1'- 1/2"	2'- 1"	1'- 5/8"	0'- 11 3/4"	13'- 8"	-----	14'- 6"	56	30	57.350	1.896	186.331	15'- 6"	6	15'- 2"	1	7	2.184	114.390	2.178	91.121	I			
6	7	4	9"	4'- 9 3/4"	1'- 1/2"	2'- 1"	1'- 5/8"	0'- 11 3/4"	13'- 8"	-----	14'- 6"	56	36	59.468	1.969	211.145	15'- 6"	6	15'- 2"	1	8	2.283	117.841	2.270	91.121	K			
6	8	4	9"	4'- 9 3/4"	1'- 1/4"	2'- 1 1/4"	1'- 4 3/4"	0'- 11 1/2"	13'- 8"	-----	14'- 5"	56	42	61.586	2.020	230.506	15'- 6"	6	15'- 2"	1	9	2.388	121.293	2.369	91.121	M			
7	4	5	9"	5'- 6 1/4"	1'- 2 7/8"	2'- 3 5/8"	1'- 8 3/8"	1'- 2"	15'- 8 1/8"	-----	16'- 7"	64	18	59.794	2.164	238.216	17'- 6"	6	17'- 2"	1	5	2.072	119.503	2.085	103.137	E			
7	6	5	8"	5'- 6"	1'- 3 3/8"	2'- 3 1/8"	1'- 9 1/8"	1'- 2 1/2"	15'- 8 1/8"	-----	16'- 8"	64	30	64.030	2.360	258.830	17'- 6"	6	17'- 2"	1	7	2.255	126.406	2.255	103.137	I			
7	8	4	8"	5'- 6"	1'- 3 1/4"	2'- 3 1/8"	1'- 9"	1'- 2 1/2"	15'- 8 1/8"	-----	16'- 8"	64	42	68.266	2.506	284.695	17'- 6"	6	17'- 2"	1	9	2.453	133.309	2.441	103.137	M			
7	10	4	8"	5'- 8"	1'- 2 3/4"	2'- 3 5/8"	1'- 8 3/8"	1'- 2"	15'- 11 5/8"	-----	16'- 11"	64	54	72.502	2.742	335.917	17'- 6"	6	17'- 2"	1	11	2.526	140.211	2.500	103.137	Q			
8	4	6	9"	6'- 2 1/2"	1'- 5 1/2"	2'- 5 1/8"	2'- 0"	1'- 4 1/2"	17'- 7 7/8"	-----	18'- 9"	72	18	66.474	2.663	287.238	19'- 6"	6	19'- 2"	1	5	2.121	131.519	2.141	115.153	E			
8	6	6	9"	6'- 2 5/8"	1'- 5 1/4"	2'- 6 1/8"	1'- 11 3/4"	1'- 4 1/4"	17'- 7 7/8"	-----	18'- 9"	72	30	70.710	2.782	306.188	19'- 6"	6	19'- 2"	1	7	2.328	138.422	2.335	115.153	I			
8	8	5	9"	6'- 2 5/8"	1'- 5 1/8"	2'- 6 1/8"	1'- 11 5/8"	1'- 4 1/4"	17'- 7 7/8"	-----	18'- 9"	72	42	74.946	2.929	332.082	19'- 6"	6	19'- 2"	1	9	2.526	145.325	2.520	115.153	M			
8	10	5	9"	6'- 4 3/8"	1'- 5 1/8"	2'- 6 1/8"	1'- 11 5/8"	1'- 4 1/4"	17'- 11 3/8"	-----	19'- 1"	72	54	79.182	3.217	387.579	19'- 6"	6	19'- 2"	1	11	2.580	152.227	2.561	115.153	Q			
9	4	6	9"	6'- 10 3/4"	1'- 8 1/4"	2'- 8"	2'- 4"	1'- 7 1/4"	19'- 8"	-----	21'- 0"	80	18	73.154	3.253	366.567	21'- 6"	6	21'- 2"	1	5	2.148	143.535	2.173	127.169	F			
9	6	6	9"	6'- 10 7/8"	1'- 8"	2'- 8 1/4"	2'- 3 5/8"	1'- 7"	19'- 8"	-----	21'- 0"	80	30	77.390	3.371	362.271	21'- 6"	6	21'- 2"	1	7	2.356	150.438	2.369	127.169	J			
9	8	6	9"	6'- 11"	1'- 7 3/4"	2'- 8 1/2"	2'- 3 1/4"	1'- 6 3/4"	19'- 8"	-----	20'- 11"	80	42	81.626	3.484	417.774	21'- 6"	6	21'- 2"	1	9	2.564	157.341	2.565	127.169	N			
9	10	6	9"	7'- 3/4"	1'- 7 3/4"	2'- 8 1/2"	2'- 3 1/4"	1'- 6 3/4"	19'- 11 1/2"	-----	21'- 3"	80	54	85.862	3.778	459.202	21'- 6"	6	21'- 2"	1	11	2.614	164.243	2.601	127.169	R			
9	12	6	9"	7'- 2"	1'- 7 3/4"	2'- 8 1/2"	2'- 3 1/4"	1'- 6 3/4"	20'- 2"	-----	21'- 5"	80	66	90.098	4.063	560.121	21'- 6"	6	21'- 2"	1	13	2.669	171.146	2.643	127.169	V			
10	4	6	8"	7'- 7 3/8"	1'- 10 1/4"	2'- 10 3/4"	2'- 6 3/4"	1'- 9 1/4"	21'- 8"	-----	23'- 1"	88	18	79.834	3.809	439.497	23'- 6"	6	23'- 2"	1	5	2.157	155.551	2.190	139.185	F			
10	6	6	8"	7'- 7 3/8"	1'- 10 1/4"	2'- 10 3/4"	2'- 6 3/4"	1'- 9 1/4"	21'- 8"	-----	23'- 1"	88	30	84.070	3.958	431.783	23'- 6"	6	23'- 2"	1	7	2.355	162.454	2.375	139.185	J			
10	8	6	8"	7'- 7 1/2"	1'- 10"	2'- 11"	2'- 6 3/8"	1'- 9"	21'- 8"	-----	23'- 1"	88	42	88.306	4.069	481.496	23'- 6"	6	23'- 2"	1	9	2.565	169.357	2.573	139.185	N			
10	10	6	8"	7'- 9 1/4"	1'- 10"	2'- 11"	2'- 6 3/8"	1'- 9"	21'- 11 1/2"	-----	23'- 5"	88	54	92.542	4.366	539.022	23'- 6"	6	23'- 2"	1	11	2.611	176.259	2.605	139.185	R			
10	12	7	9"	7'- 10 5/8"	1'- 10 1/8"	2'- 11 1/8"	2'- 6 3/8"	1'- 8 7/8"	22'- 2 1/8"	-----	23'- 7"	88	66	96.778	4.650	681.513	23'- 6"	6	23'- 2"	1	13	2.663	183.162	2.644	139.185	V			
12	6	7	9"	9'- 1/8"	2'- 3 3/8"	3'- 3 1/2"	3'- 1 1/8"	2'- 2 1/8"	25'- 8"	-----	27'- 6"	104	30	97.430	5.379	574.597	27'- 6"	6	27'- 2"	1	7	2.259	186.486	2.292	163.217	K			
12	8	7	9"	9'- 1/4"	2'- 3 1/8"	3'- 3 3/4"	3'- 1 1/2"	2'- 1 7/8"	25'- 8"	-----	27'- 5"	104	42	101.666	5.486	590.653	27'- 6"	6	27'- 2"	1	9	2.472	193.389	2.493	163.217	O			
12	10	7	9"	9'- 2"	2'- 3 1/8"	3'- 3 3/4"	3'- 1 1/2"	2'- 1 7/8"	25'- 11 1/2"	-----	27'- 9"	104	54	105.902	5.793	646.797	27'- 6"	6	27'- 2"	1	11	2.509	200.291	2.516	163.217	S			
12	12	7	9"	9'- 3 5/8"	2'- 2 7/8"	3'- 4"	3'- 1 1/8"	2'- 1 5/8"	26'- 2 1/2"	-----	28'- 0"	104	66	110.138	6.068	792.232	27'- 6"	6	27'- 2"	1	13	2.544	207.194	2.538	163.217	W			

STRUCTURE AND BRIDGE DIVISION

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



TYPICAL SECTION

GENERAL NOTE

Capacity: HS20-44 Loading and Alternate Military Loading.

Specifications:

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

All concrete shall be Class A4.

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

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

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

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

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

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

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

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

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

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

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

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

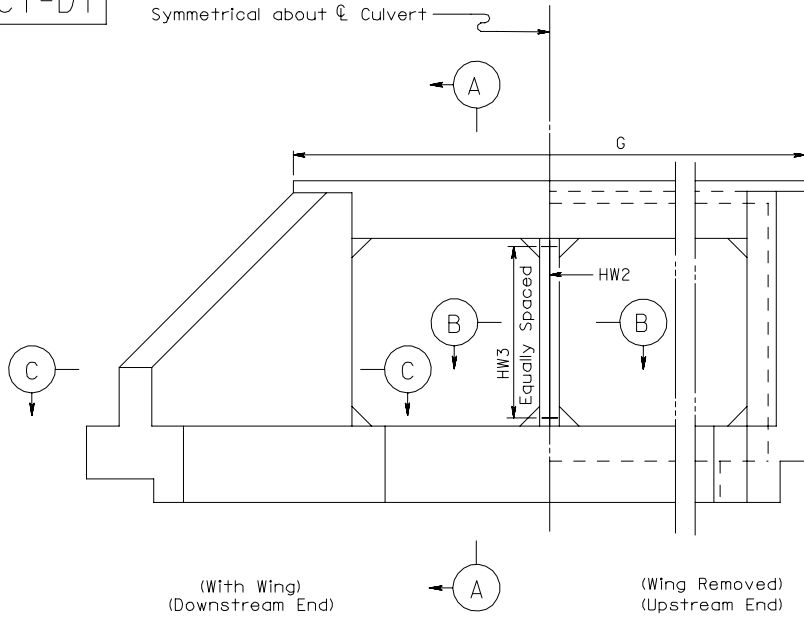
Wingwalls referenced by letter apply when the acceptable foundation level is the same for both box and wings. If foundation levels are different, the height of the wingwall shall be adjusted by selection of another lettered wingwall of appropriate height. For wingwall details, refer to standard series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

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

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

This standard shall be used with the BCT standard series.

Symmetrical about C Culvert



END ELEVATION

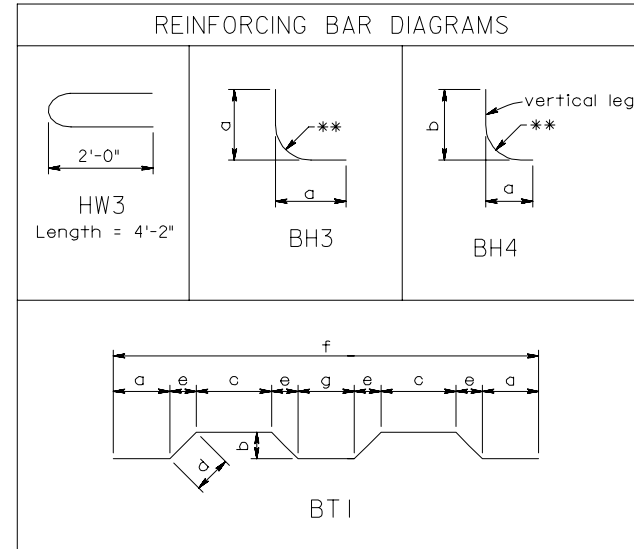
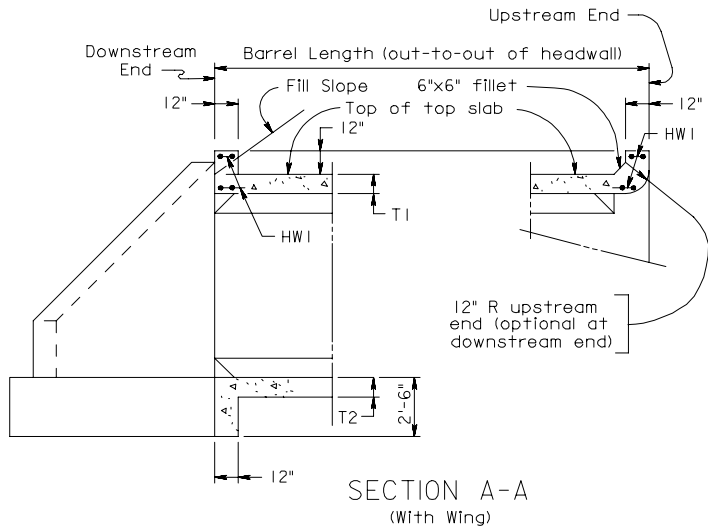
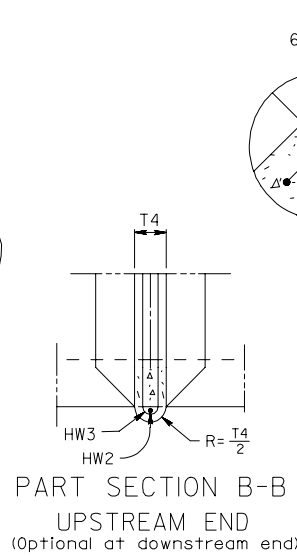


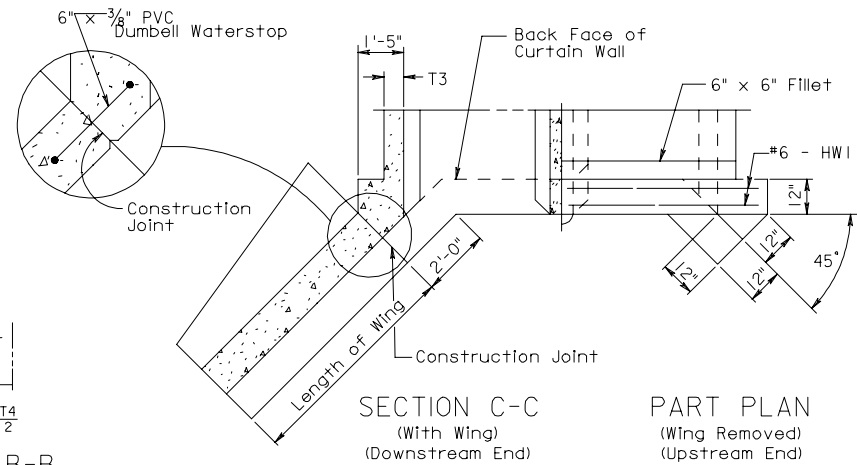
TABLE A	
Bar Size	Pin Dia.
#3	2 1/4"
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"
#9	9"



SECTION A-A
(With Wing)



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



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

PART PLAN
(Wing Removed)
(Upstream End)

DIMENSIONS								REINFORCING STEEL																											
SPAN (FT.)	HGHT (FT.)	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2								
		TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH			
3	3	8"	8"	8"	8"	9	9'- 0"	18	9'- 0"	1	1'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 8"	4'-6"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	9	9'- 0"	18	9'- 0"	2	2'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 2"	5'-0"	4	12"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8 1/4"	8 1/4"	8"	8"	12	12'- 0"	24	12'- 0"	1	1'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	2'- 8 1/4"	4'-9"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
4	4	8 1/4"	8 1/4"	8"	8"	12	12'- 0"	24	12'- 0"	2	2'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	3'- 2 1/4"	5'-3"	4	12"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	5	8 1/4"	8 1/4"	8"	8"	12	12'- 0"	24	12'- 0"	3	3'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	3'- 8 1/4"	5'-9"	4	12"	6'- 0"	4	12"	6'- 0"	4	12"	6'- 0"
4	6	8 1/4"	8 1/4"	8"	8"	12	12'- 0"	24	12'- 0"	4	4'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	4'- 2 1/4"	6'-3"	4	12"	7'- 0"	4	12"	7'- 0"	4	12"	7'- 0"
5	3	8 1/4"	8 1/4"	8"	8"	15	15'- 0"	30	15'- 0"	1	1'- 0"	4	11"	16'- 4"	5	11"	17'- 4"	4	11"	2'- 6"	4'- 9"	4	11"	2'- 6"	2'- 8 1/4"	4'-11"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
5	4	8 1/4"	8 1/4"	8"	8"	15	15'- 0"	30	15'- 0"	2	2'- 0"	4	10"	16'- 4"	4	10"	17'- 4"	4	10"	2'- 6"	4'- 9"	4	10"	2'- 6"	3'- 2 1/4"	5'-5"	4	12"	5'- 0"	4	10"	5'- 0"	4	10"	5'- 0"
5	5	8 1/4"	8 1/4"	8"	8"	15	15'- 0"	30	15'- 0"	3	3'- 0"	4	10"	16'- 4"	4	10"	17'- 4"	4	10"	2'- 6"	4'- 9"	4	10"	2'- 6"	3'- 8 1/4"	5'-11"	4	12"	6'- 0"	4	10"	6'- 0"	4	10"	6'- 0"
5	6	8 1/4"	8 1/4"	8"	8"	15	15'- 0"	30	15'- 0"	4	4'- 0"	4	10"	16'- 4"	4	10"	17'- 4"	4	10"	2'- 6"	4'- 9"	4	10"	2'- 6"	4'- 2 1/4"	6'-5"	4	12"	7'- 0"	4	10"	7'- 0"	4	10"	7'- 0"
5	7	8 1/4"	8 1/4"	8"	8"	15	15'- 0"	30	15'- 0"	5	5'- 0"	4	9"	16'- 4"	4	9"	17'- 4"	4	9"	2'- 6"	4'- 9"	4	9"	2'- 6"	4'- 8 1/4"	6'-11"	4	12"	8'- 0"	4	10"	8'- 0"	4	10"	8'- 0"
6	4	9 3/4"	9 3/4"	8"	8"	18	18'- 0"	36	18'- 0"	2	2'- 0"	4	11"	18'- 11"	4	11"	20'- 4"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	3'- 3 3/4"	5'-9"	4	12"	5'- 3"	4	10"	5'- 3"	4	10"	5'- 3"
6	5	9 3/4"	9 3/4"	8"	8"	18	18'- 0"	36	18'- 0"	3	3'- 0"	4	10"	18'- 11"	4	10"	20'- 4"	4	10"	2'- 8 3/8"	5'- 2"	4	10"	2'- 8 3/8"	3'- 9 3/4"	6'-3"	4	12"	6'- 3"	4	10"	6'- 3"	4	10"	6'- 3"
6	6	9 3/4"	9 3/4"	8"	8"	18	18'- 0"	36	18'- 0"	4	4'- 0"	4	10"	18'- 11"	4	10"	20'- 4"	4	10"	2'- 8 3/8"	5'- 2"	4	10"	2'- 8 3/8"	4'- 3 3/4"	6'-9"	4	12"	7'- 3"	4	10"	7'- 3"	4	10"	7'- 3"
6	7	9 3/4"	9 3/4"	8"	8"	18	18'- 0"	36	18'- 0"	5	5'- 0"	4	9"	18'- 11"	4	9"	20'- 4"	4	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	4'- 9 3/4"	7'-3"	4	12"	8'- 3"	4	10"	8'- 3"	4	10"	8'- 3"
6	8	9 3/4"	9 3/4"	8"	8"	18	18'- 0"	36	18'- 0"	6	6'- 0"	4	9"	18'- 11"	4	9"	20'- 4"	4	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	5'- 3 3/4"	7'-9"	4	12"	9'- 3"	4	10"	9'- 3"	4	10"	9'- 3"
7	4	9 1/2"	9 1/2"	8"	8"	21	21'- 0"	42	21'- 0"	2	2'- 0"	4	9"	21'- 6"	4	9"	23'- 4"	4	9"	2'- 10 3/4"	5'- 6"	4	9"	2'- 10 3/4"	3'- 3 1/2"	5'-11"	4	12"	5'- 3"	4	9 1/2"	5'- 3"	4	9 1/2"	5'- 3"
7	6	9 1/2"	9 1/2"	8"	8"	21	21'- 0"	42	21'- 0"	4	4'- 0"	4	9"	21'- 6"	5	9"	23'- 4"	4	9"	2'- 10 3/4"	5'- 6"	4	9"	2'- 10 3/4"	4'- 3 1/2"	6'-11"	4	12"	7'- 3"	4	8 1/2"	7'- 3"	4	8 1/2"	7'- 3"
7	8	9 3/4"	9 3/4"	8"	8"	21	21'- 0"	42	21'- 0"	6	6'- 0"	4	8"	21'- 6"	4	8"	23'- 4"	4	8"	2'- 10 3/4"	5'- 6"	4	8"	2'- 10 3/4"	5'- 3 3/4"	7'-11"	4	12"	9'- 3"	4	9"	9'- 3"	4	9"	9'- 3"
7	10	9 3/4"	9 3/4"	8"	8"	21	21'- 0"	42	21'- 0"	8	8'- 0"	4	8"	21'- 6"	4	8"	23'- 4"	4	8"	2'- 10 3/4"	5'- 6"	4	8"	2'- 10 3/4"	6'- 3 3/4"	8'-11"	4	12"	11'- 3"	4	9"	11'- 3"	4	9"	11'- 3"
8	4	9"	9"	8"	8"	24	24'- 0"	48	24'- 0"	2	2'- 0"	4	8"	24'- 2"	4	8"	26'- 4"	4	8"	3'- 1 1/4"	5'- 11"	4	8"	3'- 1 1/4"	3'- 3"	6'-1"	4	12"	5'- 2"	4	7 1/2"	5'- 2"	4	7 1/2"	5'- 2"
8	6	9"	9"	8"	8"	24	24'- 0"	48	24'- 0"	4	4'- 0"	5	12"	24'- 2"	5	12"	26'- 4"	5	12"	3'- 1 1/4"	5'- 11"	5	12"	3'- 1 1/4"	4'- 3"	7'-0"	4	12"	7'- 2"	4	7"	7'- 2"	4	7"	7'- 2"
8	8	9 1/4"	9 1/4"	8"	8"	24	24'- 0"	48	24'- 0"	6	6'- 0"	5	11"	24'- 2"	5	11"	26'- 4"	5	11"	3'- 1 1/4"	5'- 11"	5	11"	3'- 1 1/4"	5'- 3 1/4"	8'-1"	4	12"	9'- 2"	4	7"	9'- 2"	4	7"	9'- 2"
8	10	9 3/4"	9 3/4"	8"	8"	24	24'- 0"	48	24'- 0"	8	8'- 0"	5	10"	24'- 2"	5	10"	26'- 4"	5	10"	3'- 1 1/4"	5'- 11"	5	10"	3'- 1 1/4"	6'- 3 3/4"	9'-1"	4	12"	11'- 3"	4	7 1/2"	11'- 3"	4	7 1/2"	11'- 3"
9	4	9 1/4"	9 1/4"	8"	8"	27	27'- 0"	54	27'- 0"	2	2'- 0"	5	11"	26'- 9"	5	11"	29'- 4"	4	11"	3'- 3 5/8"	6'- 4"	6	11"	3'- 3 5/8"	3'- 3 1/4"	6'-2"	4	12"	5'- 2"	4	6 1/2"	5'- 2"	4	6 1/2"	5'- 2"
9	6	9 1/2"	9 1/2"	8"	8"	27	27'- 0"	54	27'- 0"	4	4'- 0"	5	10"	26'- 9"	5	10"	29'- 4"	4	10"	3'- 3 5/8"	6'- 4"	5	10"	3'- 3 5/8"	4'- 3 1/2"	7'-3"	4	12"	7'- 3"	4	6 1/2"	7'- 3"	4	6 1/2"	7'- 3"
9	8	9 1/2"	9 1/2"	8"	8"	27	27'- 0"	54	27'- 0"	6	6'- 0"	5	10"	26'- 9"	5	10"	29'- 4"	5	10"	3'- 3 5/8"	6'- 3"	5	10"	3'- 3 5/8"	5'- 3 1/2"	8'-3"	4	12"	9'- 3"	4	6 1/2"	9'- 3"	4	6 1/2"	9'- 3"
9	10	9 1/2"	9 1/2"	8"	8"	27	27'- 0"	54	27'- 0"	8	8'- 0"	5	9"	26'- 9"	5	9"	29'- 4"	5	9"	3'- 3 5/8"	6'- 3"	5	9"	3'- 3 5/8"	6'- 3 1/2"	9'-3"	4	12"	11'- 3"	4	6 1/2"	11'- 3"	4	6 1/2"	11'- 3"
9	12	9 3/4"	9 3/4"	8"	8"	27	27'- 0"	54	27'- 0"	10	10'- 0"	6	12"	26'- 9"	6	12"	29'- 4"	6	12"	3'- 3 5/8"	6'- 2"	6	12"	3'- 3 5/8"	7'- 3 3/4"	10'-3"	4	11 1/2"	13'- 3"	4	6 1/2"	13'- 3"	4	6 1/2"	13'- 3"
10	4	9 1/2"	9 1/2"	8"	8"	30	30'- 0"	60	30'- 0"	2	2'- 0"	5	9"	29'- 4"	5	9"	32'- 4"	--	---	----	----	5	9"	3'- 6"	3'- 3 1/2"	6'-6"	4	12"	5'- 3"	5	9 1/2"	5'- 3"	4	9 1/2"	5'- 3"
10	6	9 1/2"	9 1/2"	8"	8"	30	30'- 0"	60	30'- 0"	4	4'- 0"	5	10"	29'- 4"	5	10"	32'- 4"	4	10"	3'- 6"	6'- 9"	5	10"	3'- 6"	4'- 3 1/2"	7'-6"	4	12"	7'- 3"	5	9 1/2"	7'- 3"	4	9 1/2"	7'- 3"
10	8	9 1/2"	9 1/2"	8"	8"	30	30'- 0"	60	30'- 0"	6	6'- 0"	5	9"	29'- 4"	5	9"	32'- 4"	4	9"	3'- 6"	6'- 9"	5	9"	3'- 6"	5'- 3 1/2"	8'-6"	4	12"	9'- 3"	5	9 1/2"	9'- 3"	4	9 1/2"	9'- 3"
10	10	9 3/4"	9 3/4"	8"	8"	30	30'- 0"	60	30'- 0"	8	8'- 0"	5	9"	29'- 4"	5	9"	32'- 4"	4	9"	3'- 6"	6'- 9"	5	9"	3'- 6"	6'- 3 3/4"	9'-6"	4	12"	11'- 3"	4	6 1/2"	11'- 3"	4	6 1/2"	11'- 3"
10	12	9 3/4"	9 3/4"	8"	8"	30	30'- 0"	60	30'- 0"	10	10'- 0"	6	12"	29'- 4"	6	12"	32'- 4"	4	12"	3'- 6"	6'- 9"	6	12"	3'- 6"	7'- 3 3/4"	10'-5"	4	11 1/2"	13'- 3"	4	7"	13'- 3"	4	7"	13'- 3"
12	6	10"	10"	8"	8"	36	36'- 0"	72	36'- 0"	4	4'- 0"	5	9"	34'- 6"	5	9"	38'- 4"	--	---	----	----	6	9"	3'- 10 3/4"	4'- 4"	7'-10"	4	12"	7'- 4"	5	8"	7'- 4"	4	8"	7'- 4"
12	8	10"	10"	8"	8"	36	36'- 0"	72	36'- 0"	6	6'- 0"	6	12"	34'- 6"	6	12"	38'- 4"	--	---	----	----	7	12"	3'- 10 3/4"	5'- 4"	8'-9"	4	12"	9'- 4"	5	8"	9'- 4"	4	8"	9'- 4"
12	10	10"	10"	8"	8"	36	36'- 0"	72	36'- 0"	8	8'- 0"	5	8"	34'- 6"	5	8"	38'- 4"	4	8"	3'- 10 3/4"	7'- 6"	5	8"	3'- 10 3/4"	6'- 4"	9'-11"	4	12"	11'- 4"	4	5 1/2"	11'- 4"	4	5 1/2"	11'- 4"
12	12	10 1/4"	10 1/4"	8"	8"	36	36'- 0"	72	36'- 0"	10	10'- 0"	6	11"	34'- 6"	6	11"	38'- 4"	4	11"	3'- 10 3/4"	7'- 6"	6	11"	3'- 10 3/4"	7'- 4 1/4"	10'-10"	4	11 1/2"	13'- 5"	4	6"	13'- 5"	4	6"	13'- 5"

TRIPLE BOX CULVERTS

0 TO 2 FT. FILLS

SPAN		HGT		REINFORCING STEEL											QUAN./LF		HEADWALLS								WINGWALL			
(FT.)	(FT.)	SIZE	SPACING C-C	BT I									NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	C		HW I		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)		INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)
				a	b	c	d	e	f	g	LENGTH	LENGTH						SIZE	LENGTH									
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	11'- 3 7/8"	1'- 5 7/8"	11'- 10"	53	16	49.903	0.989	115.345	13'- 2"	6	12'- 10"	2	8	1.827	102.932	1.808	77.103	A		
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	11'- 3 7/8"	1'- 5 7/8"	11'- 10"	53	24	52.727	1.087	123.697	13'- 2"	6	12'- 10"	2	10	1.932	109.835	1.901	77.103	C		
4	3	4	12"	3'- 6 3/8"	0'- 4 3/4"	1'- 11 1/4"	0'- 6 1/4"	0'- 4"	14'- 4"	2'- 3/4"	14'- 11"	68	16	62.428	1.157	149.191	16'- 2"	6	15'- 10"	2	8	2.124	120.956	2.115	95.127	A		
4	4	4	12"	3'- 6 3/8"	0'- 4 3/4"	1'- 11 1/4"	0'- 6 1/4"	0'- 4"	14'- 4"	2'- 3/4"	14'- 11"	68	24	65.252	1.255	157.543	16'- 2"	6	15'- 10"	2	10	2.229	127.859	2.208	95.127	C		
4	5	4	12"	3'- 6 3/8"	0'- 4 3/4"	1'- 11 1/4"	0'- 6 1/4"	0'- 4"	14'- 4"	2'- 3/4"	14'- 11"	68	32	68.076	1.353	165.895	16'- 2"	6	15'- 10"	2	12	2.334	134.761	2.300	95.127	E		
4	6	4	12"	3'- 6 3/8"	0'- 4 3/4"	1'- 11 1/4"	0'- 6 1/4"	0'- 4"	14'- 4"	2'- 3/4"	14'- 11"	68	40	70.900	1.451	174.247	16'- 2"	6	15'- 10"	2	14	2.440	141.664	2.393	95.127	G		
5	3	4	11"	4'- 4"	0'- 4 3/4"	2'- 4"	0'- 6 1/4"	0'- 4"	17'- 4"	2'- 8"	17'- 11"	83	16	74.953	1.306	195.032	19'- 2"	6	18'- 10"	2	8	2.425	138.980	2.426	113.151	A		
5	4	4	10"	4'- 4"	0'- 4 3/4"	2'- 4"	0'- 6 1/4"	0'- 4"	17'- 4"	2'- 8"	17'- 11"	83	24	77.777	1.404	202.477	19'- 2"	6	18'- 10"	2	10	2.531	145.883	2.519	113.151	C		
5	5	4	10"	4'- 4"	0'- 4 3/4"	2'- 4"	0'- 6 1/4"	0'- 4"	17'- 4"	2'- 8"	17'- 11"	83	32	80.601	1.503	211.630	19'- 2"	6	18'- 10"	2	12	2.636	152.785	2.611	113.151	E		
5	6	4	10"	4'- 4"	0'- 4 3/4"	2'- 4"	0'- 6 1/4"	0'- 4"	17'- 4"	2'- 8"	17'- 11"	83	40	83.425	1.601	220.784	19'- 2"	6	18'- 10"	2	14	2.741	159.688	2.704	113.151	G		
5	7	4	9"	4'- 4"	0'- 4 3/4"	2'- 4"	0'- 6 1/4"	0'- 4"	17'- 4"	2'- 8"	17'- 11"	83	48	86.249	1.698	243.283	19'- 2"	6	18'- 10"	2	16	2.846	166.591	2.797	113.151	I		
6	4	4	11"	5'- 7/8"	0'- 6 1/4"	2'- 7 1/4"	0'- 8 3/8"	0'- 5 1/2"	20'- 4"	3'- 1 3/4"	21'- 1"	98	24	90.302	1.747	218.090	22'- 2"	6	21'- 10"	2	10	2.784	163.907	2.782	131.175	D		
6	5	4	10"	5'- 7/8"	0'- 6 1/4"	2'- 7 1/4"	0'- 8 3/8"	0'- 5 1/2"	20'- 4"	3'- 1 3/4"	21'- 1"	98	32	93.126	1.845	239.219	22'- 2"	6	21'- 10"	2	12	2.889	170.809	2.875	131.175	F		
6	6	4	10"	5'- 7/8"	0'- 6 1/4"	2'- 7 1/4"	0'- 8 3/8"	0'- 5 1/2"	20'- 4"	3'- 1 3/4"	21'- 1"	98	40	95.950	1.943	248.372	22'- 2"	6	21'- 10"	2	14	2.994	177.712	2.968	131.175	H		
6	7	4	9"	5'- 7/8"	0'- 6 1/4"	2'- 7 1/4"	0'- 8 3/8"	0'- 5 1/2"	20'- 4"	3'- 1 3/4"	21'- 1"	98	48	98.774	2.040	272.697	22'- 2"	6	21'- 10"	2	16	3.099	184.615	3.060	131.175	J		
6	8	4	9"	5'- 7/8"	0'- 6 1/4"	2'- 7 1/4"	0'- 8 3/8"	0'- 5 1/2"	20'- 4"	3'- 1 3/4"	21'- 1"	98	56	101.598	2.138	282.029	22'- 2"	6	21'- 10"	2	18	3.204	191.517	3.153	131.175	L		
7	4	4	9"	5'- 10 5/8"	0'- 6"	3'- 3/8"	0'- 8"	0'- 5 1/4"	23'- 4 1/8"	3'- 9 1/8"	24'- 1"	113	24	102.827	1.887	272.679	25'- 2"	6	24'- 10"	2	10	3.085	181.931	3.093	149.199	D		
7	6	4	9"	5'- 10 5/8"	0'- 6"	3'- 3/8"	0'- 8"	0'- 5 1/4"	23'- 4 1/8"	3'- 9 1/8"	24'- 1"	113	40	108.475	2.081	317.892	25'- 2"	6	24'- 10"	2	14	3.295	195.736	3.278	149.199	H		
7	8	4	8"	5'- 10 1/2"	0'- 6 1/4"	3'- 1/8"	0'- 8 3/8"	0'- 5 1/2"	23'- 4 1/8"	3'- 8 7/8"	24'- 1"	113	56	114.123	2.314	333.736	25'- 2"	6	24'- 10"	2	18	3.492	209.541	3.450	149.199	L		
7	10	4	8"	5'- 10 1/2"	0'- 6 1/4"	3'- 1/8"	0'- 8 3/8"	0'- 5 1/2"	23'- 4 1/8"	3'- 8 7/8"	24'- 1"	113	72	119.771	2.510	353.557	25'- 2"	6	24'- 10"	2	22	3.702	223.347	3.636	149.199	P		
8	4	4	8"	6'- 8 3/8"	0'- 5 1/2"	3'- 5 5/8"	0'- 7 1/4"	0'- 4 3/4"	26'- 3 7/8"	4'- 4 7/8"	27'- 0"	128	24	115.352	1.977	326.925	28'- 2"	6	27'- 10"	2	10	3.387	199.955	3.405	167.223	C		
8	6	5	12"	6'- 8 3/8"	0'- 5 5/8"	3'- 5 5/8"	0'- 7 3/8"	0'- 4 3/4"	26'- 3 7/8"	4'- 4 7/8"	27'- 0"	128	40	121.000	2.172	358.499	28'- 2"	6	27'- 10"	2	14	3.597	213.760	3.591	167.223	G		
8	8	5	11"	6'- 8 1/4"	0'- 5 7/8"	3'- 5 3/8"	0'- 7 3/4"	0'- 5"	26'- 3 7/8"	4'- 4 5/8"	27'- 0"	128	56	126.648	2.407	400.875	28'- 2"	6	27'- 10"	2	18	3.810	227.565	3.779	167.223	L		
8	10	5	10"	6'- 8"	0'- 6 3/8"	3'- 4 7/8"	0'- 8 3/8"	0'- 5 1/2"	26'- 3 7/8"	4'- 4 1/8"	27'- 1"	128	72	132.296	2.684	445.005	28'- 2"	6	27'- 10"	2	22	3.989	241.371	3.933	167.223	P		
9	4	5	11"	7'- 5 7/8"	0'- 5 7/8"	3'- 10 1/4"	0'- 7 3/4"	0'- 5"	29'- 4"	4'- 11 3/4"	30'- 0"	143	24	127.877	2.184	391.710	31'- 2"	6	30'- 10"	2	10	3.682	217.979	3.710	185.247	D		
9	6	5	10"	7'- 5 3/4"	0'- 6 1/8"	3'- 10"	0'- 8 1/8"	0'- 5 1/4"	29'- 4"	4'- 11 1/2"	30'- 1"	143	40	133.525	2.425	428.310	31'- 2"	6	30'- 10"	2	14	3.874	231.784	3.877	185.247	H		
9	8	5	10"	7'- 5 3/4"	0'- 6 1/8"	3'- 10"	0'- 8 1/8"	0'- 5 1/4"	29'- 4"	4'- 11 1/2"	30'- 1"	143	56	139.173	2.620	462.853	31'- 2"	6	30'- 10"	2	18	4.084	245.589	4.063	185.247	L		
9	10	5	9"	7'- 5 3/4"	0'- 6 1/8"	3'- 10"	0'- 8 1/8"	0'- 5 1/4"	29'- 4"	4'- 11 1/2"	30'- 1"	143	72	144.821	2.813	519.001	31'- 2"	6	30'- 10"	2	22	4.295	259.395	4.248	185.247	P		
9	12	6	12"	7'- 5 5/8"	0'- 6 1/2"	3'- 9 3/4"	0'- 8 1/2"	0'- 5 1/2"	29'- 4"	4'- 11 1/4"	30'- 1"	143	88	150.469	3.053	569.921	31'- 2"	6	30'- 10"	2	26	4.487	273.200	4.416	185.247	T		
10	4	5	9"	8'- 3 3/8"	0'- 6 1/8"	4'- 2 3/4"	0'- 8 1/8"	0'- 5 1/4"	32'- 4"	5'- 6 3/4"	33'- 1"	158	24	140.402	2.402	448.938	34'- 2"	6	33'- 10"	2	10	3.953	236.003	3.991	203.271	D		
10	6	5	10"	8'- 3 3/8"	0'- 6 1/8"	4'- 2 3/4"	0'- 8 1/8"	0'- 5 1/4"	32'- 4"	5'- 6 3/4"	33'- 1"	158	40	146.050	2.598	464.846	34'- 2"	6	33'- 10"	2	14	4.164	249.808	4.177	203.271	H		
10	8	5	9"	8'- 3 3/8"	0'- 6 1/8"	4'- 2 3/4"	0'- 8 1/8"	0'- 5 1/4"	32'- 4"	5'- 6 3/4"	33'- 1"	158	56	151.698	2.791	522.567	34'- 2"	6	33'- 10"	2	18	4.374	263.613	4.362	203.271	L		
10	10	5	9"	8'- 3 1/4"	0'- 6 3/8"	4'- 2 1/2"	0'- 8 3/8"	0'- 5 1/2"	32'- 4"	5'- 6 1/2"	33'- 1"	158	72	157.346	3.038	543.566	34'- 2"	6	33'- 10"	2	22	4.564	277.419	4.527	203.271	P		
10	12	6	12"	8'- 3 1/4"	0'- 6 1/2"	4'- 2 1/2"	0'- 8 1/2"	0'- 5 1/2"	32'- 4"	5'- 6 1/2"	33'- 1"	158	88	162.994	3.232	583.045	34'- 2"	6	33'- 10"	2	26	4.774	291.224	4.713	203.271	T		
12	6	5	9"	9'- 10 3/8"	0'- 6 5/8"	4'- 11 7/8"	0'- 8 3/4"	0'- 5 3/4"	38'- 4 1/8"	6'- 8 5/8"	39'- 1"	188	40	171.100	3.061	570.341	40'- 2"	6	39'- 10"	2	14	4.693	285.856	4.726	239.319	H		
12	8	6	12"	9'- 10 3/8"	0'- 6 3/4"	4'- 11 7/8"	0'- 8 3/4"	0'- 5 3/4"	38'- 4 1/8"	6'- 8 5/8"	39'- 1"	188	56	176.748	3.255	625.255	40'- 2"	6	39'- 10"	2	18	4.903	299.661	4.912	239.319	L		
12	10	5	8"	9'- 10 3/8"	0'- 6 5/8"	4'- 11 7/8"	0'- 8 3/4"	0'- 5 3/4"	38'- 4 1/8"	6'- 8 5/8"	39'- 1"	188	72	182.396	3.448	676.174	40'- 2"	6	39'- 10"	2	22	5.114	313.467	5.097	239.319	P		
12	12	6	11"	9'- 10 1/4"	0'- 7"	4'- 11 5/8"	0'- 9 1/4"	0'- 6"	38'- 4 1/8"	6'- 8 3/8"	39'- 2"	188	88	188.044	3.703	708.974	40'- 2"	6	39'- 10"	2	26	5.299	327.272	5.257	239.319	T		

STRUCTURE AND BRIDGE DIVISION

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

DIMENSIONS						REINFORCING STEEL																													
SPAN	HGHT	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2								
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH			
3	3	8"	8"	8"	8"	9	9'- 0"	9	9'- 0"	1	1'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	--	---	-----	-----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	9	9'- 0"	9	9'- 0"	2	2'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	--	---	-----	-----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	1	1'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	2'- 8"	4'- 8"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
4	4	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	2	2'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	3'- 2"	5'- 2"	4	12"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	5	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	3	3'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	3'- 8"	5'- 8"	4	12"	6'- 0"	4	12"	6'- 0"	4	12"	6'- 0"
4	6	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	4	4'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	4'- 2"	6'- 2"	4	12"	7'- 0"	4	12"	7'- 0"	4	12"	7'- 0"
5	3	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	1	1'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	2'- 8"	4'- 11"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
5	4	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	2	2'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	3'- 2"	5'- 5"	4	12"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
5	5	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	3	3'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	3'- 8"	5'- 11"	4	12"	6'- 0"	4	12"	6'- 0"	4	12"	6'- 0"
5	6	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	4	4'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 2"	6'- 5"	4	12"	7'- 0"	4	12"	7'- 0"	4	12"	7'- 0"
5	7	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	5	5'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 8"	6'- 11"	4	12"	8'- 0"	4	12"	8'- 0"	4	12"	8'- 0"
6	4	8"	8"	8"	8"	18	18'- 0"	18	18'- 0"	2	2'- 0"	4	12"	18'- 11"	4	12"	20'- 4"	--	---	-----	-----	5	12"	2'- 8 3/8"	3'- 2"	5'- 6"	4	12"	5'- 0"	4	11"	5'- 0"	4	11"	5'- 0"
6	5	8"	8"	8"	8"	18	18'- 0"	18	18'- 0"	3	3'- 0"	4	12"	18'- 11"	4	12"	20'- 4"	--	---	-----	-----	5	12"	2'- 8 3/8"	3'- 8"	6'- 0"	4	12"	6'- 0"	4	11"	6'- 0"	4	11"	6'- 0"
6	6	8"	8"	8"	8"	18	18'- 0"	18	18'- 0"	4	4'- 0"	4	12"	18'- 11"	4	12"	20'- 4"	--	---	-----	-----	5	12"	2'- 8 3/8"	4'- 2"	6'- 6"	4	12"	7'- 0"	4	11"	7'- 0"	4	11"	7'- 0"
6	7	8"	8"	8"	8"	18	18'- 0"	18	18'- 0"	5	5'- 0"	4	12"	18'- 11"	4	12"	20'- 4"	--	---	-----	-----	5	12"	2'- 8 3/8"	4'- 8"	7'- 0"	4	12"	8'- 0"	4	11"	8'- 0"	4	11"	8'- 0"
6	8	8"	8"	8"	8"	18	18'- 0"	18	18'- 0"	6	6'- 0"	4	11"	18'- 11"	4	11"	20'- 4"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	5'- 2"	7'- 7"	4	12"	9'- 0"	4	11 1/2"	9'- 0"	4	11 1/2"	9'- 0"
7	4	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	9"	21'- 6"	4	9"	23'- 4"	4	9"	2'- 10 3/4"	5'- 6"	4	9"	2'- 10 3/4"	3'- 2"	5'- 10"	4	12"	5'- 0"	4	10"	5'- 0"	4	10"	5'- 0"
7	6	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	9"	21'- 6"	4	9"	23'- 4"	4	9"	2'- 10 3/4"	5'- 6"	4	9"	2'- 10 3/4"	4'- 2"	6'- 10"	4	12"	7'- 0"	4	10"	7'- 0"	4	10"	7'- 0"
7	8	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	6	6'- 0"	4	9"	21'- 6"	4	9"	23'- 4"	4	9"	2'- 10 3/4"	5'- 6"	4	9"	2'- 10 3/4"	5'- 2"	7'- 10"	4	12"	9'- 0"	4	10"	9'- 0"	4	10"	9'- 0"
7	10	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	8	8'- 0"	4	9"	21'- 6"	5	9"	23'- 4"	4	9"	2'- 10 3/4"	5'- 6"	4	9"	2'- 10 3/4"	6'- 2"	8'- 10"	4	12"	11'- 0"	4	10"	11'- 0"	4	10"	11'- 0"
8	4	8"	8"	8"	8"	24	24'- 0"	24	24'- 0"	2	2'- 0"	5	11"	24'- 2"	5	11"	26'- 4"	--	---	-----	-----	6	11"	3'- 1 1/4"	3'- 2"	5'- 10"	4	12"	5'- 0"	4	7 1/2"	5'- 0"	4	7 1/2"	5'- 0"
8	6	8"	8"	8"	8"	24	24'- 0"	24	24'- 0"	4	4'- 0"	5	11"	24'- 2"	5	11"	26'- 4"	4	11"	3'- 1 1/4"	5'- 11"	5	11"	3'- 1 1/4"	4'- 2"	6'- 11"	4	12"	7'- 0"	4	7 1/2"	7'- 0"	4	7 1/2"	7'- 0"
8	8	8"	8"	8"	8"	24	24'- 0"	24	24'- 0"	6	6'- 0"	5	11"	24'- 2"	5	11"	26'- 4"	4	11"	3'- 1 1/4"	5'- 11"	5	11"	3'- 1 1/4"	5'- 2"	7'- 11"	4	12"	9'- 0"	4	7 1/2"	9'- 0"	4	7 1/2"	9'- 0"
8	10	8"	8"	8"	8"	24	24'- 0"	24	24'- 0"	8	8'- 0"	5	11"	24'- 2"	5	11"	26'- 4"	4	11"	3'- 1 1/4"	5'- 11"	6	11"	3'- 1 1/4"	6'- 2"	8'- 10"	4	12"	11'- 0"	4	8"	11'- 0"	4	8"	11'- 0"
9	4	9 1/4"	9 1/4"	8"	8"	27	27'- 0"	27	27'- 0"	2	2'- 0"	5	11"	26'- 9"	5	11"	29'- 4"	4	11"	3'- 3 5/8"	6'- 4"	6	11"	3'- 3 5/8"	3'- 3 1/4"	6'- 2"	4	12"	5'- 2"	4	7 1/2"	5'- 2"	4	7 1/2"	5'- 2"
9	6	9 1/2"	9 1/2"	8"	8"	27	27'- 0"	27	27'- 0"	4	4'- 0"	5	10"	26'- 9"	5	10"	29'- 4"	4	10"	3'- 3 5/8"	6'- 4"	5	10"	3'- 3 5/8"	4'- 3 1/2"	7'- 3"	4	12"	7'- 3"	4	7 1/2"	7'- 3"	4	7 1/2"	7'- 3"
9	8	9 1/2"	9 1/2"	8"	8"	27	27'- 0"	27	27'- 0"	6	6'- 0"	5	10"	26'- 9"	5	10"	29'- 4"	5	10"	3'- 3 5/8"	6'- 3"	5	10"	3'- 3 5/8"	5'- 3 1/2"	8'- 3"	4	12"	9'- 3"	4	7"	9'- 3"	4	7"	9'- 3"
9	10	9 1/2"	9 1/2"	8"	8"	27	27'- 0"	27	27'- 0"	8	8'- 0"	5	9"	26'- 9"	5	9"	29'- 4"	5	9"	3'- 3 5/8"	6'- 3"	5	9"	3'- 3 5/8"	6'- 3 1/2"	9'- 3"	4	12"	11'- 3"	4	7"	11'- 3"	4	7"	11'- 3"
9	12	9 3/4"	9 3/4"	8"	8"	27	27'- 0"	27	27'- 0"	10	10'- 0"	5	9"	26'- 9"	5	9"	29'- 4"	5	9"	3'- 3 5/8"	6'- 3"	5	9"	3'- 3 5/8"	7'- 3 3/4"	10'- 3"	4	11 1/2"	13'- 3"	4	7 1/2"	13'- 3"	4	7 1/2"	13'- 3"
10	4	9 1/2"	9 1/2"	8"	8"	30	30'- 0"	30	30'- 0"	2	2'- 0"	5	9"	29'- 4"	5	9"	32'- 4"	--	---	-----	-----	5	9"	3'- 6"	3'- 3 1/2"	6'- 6"	4	12"	5'- 3"	5	10 1/2"	5'- 3"	4	10 1/2"	5'- 3"
10	6	9 1/2"	9 1/2"	8"	8"	30	30'- 0"	30	30'- 0"	4	4'- 0"	5	10"	29'- 4"	5	10"	32'- 4"	4	10"	3'- 6"	6'- 9"	5	10"	3'- 6"	4'- 3 1/2"	7'- 6"	4	12"	7'- 3"	4	6 1/2"	7'- 3"	4	6 1/2"	7'- 3"
10	8	9 1/2"	9 1/2"	8"	8"	30	30'- 0"	30	30'- 0"	6	6'- 0"	5	9"	29'- 4"	5	9"	32'- 4"	4	9"	3'- 6"	6'- 9"	5	9"	3'- 6"	5'- 3 1/2"	8'- 6"	4	12"	9'- 3"	4	7"	9'- 3"	4	7"	9'- 3"
10	10	9 3/4"	9 3/4"	8"	8"	30	30'- 0"	30	30'- 0"	8	8'- 0"	5	9"	29'- 4"	5	9"	32'- 4"	4	9"	3'- 6"	6'- 9"	5	9"	3'- 6"	6'- 3 3/4"	9'- 6"	4	12"	11'- 3"	4	7 1/2"	11'- 3"	4	7 1/2"	11'- 3"
10	12	9 3/4"	9 3/4"	8"	8"	30	30'- 0"	30	30'- 0"	10	10'- 0"	6	12"	29'- 4"	6	12"	32'- 4"	4	12"	3'- 6"	6'- 9"	6	12"	3'- 6"	7'- 3 3/4"	10'- 5"	4	12"	13'- 3"	4	8"	13'- 3"	4	8"	13'- 3"
12	6	10"	10"	8"	8"	36	36'- 0"	36	36'- 0"	4	4'- 0"	5	9"	34'- 6"	5	9"	38'- 4"	--	---	-----	-----	6	9"	3'- 10 3/4"	4'- 4"	7'- 10"	4	12"	7'- 4"	5	9"	7'- 4"	4	6"	7'- 4"
12	8	10"	10"	8"	8"	36	36'- 0"	36	36'- 0"	6	6'- 0"	6	12"	34'- 6"	6	12"	38'- 4"	--	---	-----	-----	7	12"	3'- 10 3/4"	5'- 4"	8'- 9"	4	12"	9'- 4"	4	6"	9'- 4"	4	6"	9'- 4"
12	10	10"	10"	8"	8"	36	36'- 0"	36	36'- 0"	8	8'- 0"	5	8"	34'- 6"	5	8"	38'- 4"	4	8"	3'- 10 3/4"	7'- 6"	5	8"	3'- 10 3/4"	6'- 4"	9'- 11"	4	12"	11'- 4"	5	9 1/2"	11'- 4"	4	9 1/2"	11'- 4"
12	12	10 1/4"	10 1/4"	8"	8"	36	36'- 0"	36	36'- 0"	10	10'- 0"	6	11"	34'- 6"	6	11"	38'- 4"	4	11"	3'- 10 3/4"	7'- 6"	6	11"	3'- 10 3/4"	7'- 4 1/4"	10'- 10"	4	12"	13'- 5"	4	6 1/2"	13'- 5"	4	6 1/2"	13'- 5"

TRIPLE BOX CULVERTS

2 TO 5 FT. FILLS

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS								WINGWALL			
(FT.)	(FT.)	SIZE	SPACING C-C	BT I									LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	C		HW I		NO. HW2 BARS	NO. HW3 BARS		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)
				a	b	c	d	e	f	g	HEADWALL LENGTH	SIZE							LENGTH	NO. HW2 BARS	NO. HW3 BARS							
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	11'- 3 7/8"	1'- 5 7/8"	11'-10"	44	16	42.388	0.989	109.333	13'- 2"	6	12'-10"	2	8	1.827	102.932	1.808	77.103	A		
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	11'- 3 7/8"	1'- 5 7/8"	11'-10"	44	24	45.212	1.087	117.685	13'- 2"	6	12'-10"	2	10	1.932	109.835	1.901	77.103	C		
4	3	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'-11 1/2"	0'- 5 7/8"	0'- 3 3/4"	14'- 4"	2'- 1"	14'-10"	56	16	52.408	1.136	129.262	16'- 2"	6	15'-10"	2	8	2.131	120.956	2.121	95.127	A		
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'-11 1/2"	0'- 5 7/8"	0'- 3 3/4"	14'- 4"	2'- 1"	14'-10"	56	24	55.232	1.234	137.614	16'- 2"	6	15'-10"	2	10	2.236	127.859	2.214	95.127	C		
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'-11 1/2"	0'- 5 7/8"	0'- 3 3/4"	14'- 4"	2'- 1"	14'-10"	56	32	58.056	1.332	145.966	16'- 2"	6	15'-10"	2	12	2.341	134.761	2.307	95.127	E		
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'-11 1/2"	0'- 5 7/8"	0'- 3 3/4"	14'- 4"	2'- 1"	14'-10"	56	40	60.880	1.430	154.318	16'- 2"	6	15'-10"	2	14	2.446	141.664	2.399	95.127	G		
5	3	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'-10"	68	16	62.428	1.281	162.105	19'- 2"	6	18'-10"	2	8	2.434	138.980	2.435	113.151	A		
5	4	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'-10"	68	24	65.252	1.380	170.457	19'- 2"	6	18'-10"	2	10	2.539	145.883	2.527	113.151	C		
5	5	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'-10"	68	32	68.076	1.478	178.809	19'- 2"	6	18'-10"	2	12	2.644	152.785	2.620	113.151	E		
5	6	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'-10"	68	40	70.900	1.576	187.161	19'- 2"	6	18'-10"	2	14	2.750	159.688	2.713	113.151	G		
5	7	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'-10"	68	48	73.724	1.674	195.513	19'- 2"	6	18'-10"	2	16	2.855	166.591	2.806	113.151	I		
6	4	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	20'- 4"	3'- 3 1/2"	20'-10"	80	24	75.272	1.527	186.936	22'- 2"	6	21'-10"	2	10	2.843	163.907	2.841	131.175	C		
6	5	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	20'- 4"	3'- 3 1/2"	20'-10"	80	32	78.096	1.625	196.281	22'- 2"	6	21'-10"	2	12	2.948	170.809	2.934	131.175	E		
6	6	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	20'- 4"	3'- 3 1/2"	20'-10"	80	40	80.920	1.723	205.626	22'- 2"	6	21'-10"	2	14	3.053	177.712	3.026	131.175	G		
6	7	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	20'- 4"	3'- 3 1/2"	20'-10"	80	48	83.744	1.821	214.971	22'- 2"	6	21'-10"	2	16	3.158	184.615	3.119	131.175	I		
6	8	4	11"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	20'- 4"	3'- 3 1/2"	20'-10"	80	56	86.568	1.918	236.347	22'- 2"	6	21'-10"	2	18	3.263	191.517	3.212	131.175	K		
7	4	4	9"	5'-11 3/8"	0'- 4 1/2"	3'- 1 7/8"	0'- 5 7/8"	0'- 3 3/4"	23'- 4 1/8"	3'-10 5/8"	23'-10"	92	24	85.292	1.669	255.887	25'- 2"	6	24'-10"	2	10	3.146	181.931	3.154	149.199	C		
7	6	4	9"	5'-11 3/8"	0'- 4 1/2"	3'- 1 7/8"	0'- 5 7/8"	0'- 3 3/4"	23'- 4 1/8"	3'-10 5/8"	23'-10"	92	40	90.940	1.866	274.551	25'- 2"	6	24'-10"	2	14	3.357	195.736	3.340	149.199	G		
7	8	4	9"	5'-11 3/8"	0'- 4 1/2"	3'- 1 7/8"	0'- 5 7/8"	0'- 3 3/4"	23'- 4 1/8"	3'-10 5/8"	23'-10"	92	56	96.588	2.062	293.214	25'- 2"	6	24'-10"	2	18	3.567	209.541	3.525	149.199	K		
7	10	4	9"	5'-11 3/8"	0'- 4 1/2"	3'- 1 7/8"	0'- 5 7/8"	0'- 3 3/4"	23'- 4 1/8"	3'-10 5/8"	23'-10"	92	72	102.236	2.256	335.211	25'- 2"	6	24'-10"	2	22	3.777	223.347	3.711	149.199	O		
8	4	5	11"	6'- 8 7/8"	0'- 4 5/8"	3'- 6 5/8"	0'- 6"	0'- 3 3/4"	26'- 3 7/8"	4'- 5 7/8"	26'-10"	104	24	95.312	1.813	320.767	28'- 2"	6	27'-10"	2	10	3.450	199.955	3.468	167.223	C		
8	6	5	11"	6'- 8 7/8"	0'- 4 5/8"	3'- 6 5/8"	0'- 6"	0'- 3 3/4"	26'- 3 7/8"	4'- 5 7/8"	26'-10"	104	40	100.960	2.008	348.499	28'- 2"	6	27'-10"	2	14	3.660	213.760	3.653	167.223	G		
8	8	5	11"	6'- 8 7/8"	0'- 4 5/8"	3'- 6 5/8"	0'- 6"	0'- 3 3/4"	26'- 3 7/8"	4'- 5 7/8"	26'-10"	104	56	106.608	2.204	370.289	28'- 2"	6	27'-10"	2	18	3.870	227.565	3.839	167.223	K		
8	10	5	11"	6'- 8 7/8"	0'- 4 5/8"	3'- 6 5/8"	0'- 6"	0'- 3 3/4"	26'- 3 7/8"	4'- 5 7/8"	26'-10"	104	72	112.256	2.399	406.452	28'- 2"	6	27'-10"	2	22	4.081	241.371	4.024	167.223	O		
9	4	5	11"	7'- 5 7/8"	0'- 5 7/8"	3'-10 1/4"	0'- 7 3/4"	0'- 5"	29'- 4"	4'-11 3/4"	30'- 0"	116	24	105.332	2.186	369.608	31'- 2"	6	30'-10"	2	10	3.682	217.979	3.710	185.247	D		
9	6	5	10"	7'- 5 3/4"	0'- 6 1/8"	3'-10"	0'- 8 1/8"	0'- 5 1/4"	29'- 4"	4'-11 1/2"	30'- 1"	116	40	110.980	2.426	404.837	31'- 2"	6	30'-10"	2	14	3.874	231.784	3.877	185.247	H		
9	8	5	10"	7'- 5 3/4"	0'- 6 1/8"	3'-10"	0'- 8 1/8"	0'- 5 1/4"	29'- 4"	4'-11 1/2"	30'- 1"	116	56	116.628	2.621	440.889	31'- 2"	6	30'-10"	2	18	4.084	245.589	4.063	185.247	L		
9	10	5	9"	7'- 5 3/4"	0'- 6 1/8"	3'-10"	0'- 8 1/8"	0'- 5 1/4"	29'- 4"	4'-11 1/2"	30'- 1"	116	72	122.276	2.814	496.333	31'- 2"	6	30'-10"	2	22	4.295	259.395	4.248	185.247	P		
9	12	5	9"	7'- 5 3/4"	0'- 6 3/8"	3'- 9 3/4"	0'- 8 3/8"	0'- 5 1/2"	29'- 4"	4'-11 1/4"	30'- 1"	116	88	127.924	3.056	516.468	31'- 2"	6	30'-10"	2	26	4.487	273.200	4.416	185.247	T		
10	4	5	9"	8'- 3 3/8"	0'- 6 1/8"	4'- 2 3/4"	0'- 8 1/8"	0'- 5 1/4"	32'- 4"	5'- 6 3/4"	33'- 1"	128	24	115.352	2.403	426.263	34'- 2"	6	33'-10"	2	10	3.953	236.003	3.991	203.271	D		
10	6	5	10"	8'- 3 3/8"	0'- 6 1/8"	4'- 2 3/4"	0'- 8 1/8"	0'- 5 1/4"	32'- 4"	5'- 6 3/4"	33'- 1"	128	40	121.000	2.599	442.363	34'- 2"	6	33'-10"	2	14	4.164	249.808	4.177	203.271	H		
10	8	5	9"	8'- 3 3/8"	0'- 6 1/8"	4'- 2 3/4"	0'- 8 1/8"	0'- 5 1/4"	32'- 4"	5'- 6 3/4"	33'- 1"	128	56	126.648	2.793	496.153	34'- 2"	6	33'-10"	2	18	4.374	263.613	4.362	203.271	L		
10	10	5	9"	8'- 3 1/4"	0'- 6 3/8"	4'- 2 1/2"	0'- 8 3/8"	0'- 5 1/2"	32'- 4"	5'- 6 1/2"	33'- 1"	128	72	132.296	3.039	516.127	34'- 2"	6	33'-10"	2	22	4.564	277.419	4.527	203.271	P		
10	12	6	12"	8'- 3 1/4"	0'- 6 1/2"	4'- 2 1/2"	0'- 8 1/2"	0'- 5 1/2"	32'- 4"	5'- 6 1/2"	33'- 1"	128	88	137.944	3.234	554.648	34'- 2"	6	33'-10"	2	26	4.774	291.224	4.713	203.271	T		
12	6	5	9"	9'-10 3/8"	0'- 6 5/8"	4'-11 7/8"	0'- 8 3/4"	0'- 5 3/4"	38'- 4 1/8"	6'- 8 5/8"	39'- 1"	152	40	141.040	3.064	541.194	40'- 2"	6	39'-10"	2	14	4.693	285.856	4.726	239.319	H		
12	8	6	12"	9'-10 3/8"	0'- 6 3/4"	4'-11 7/8"	0'- 8 3/4"	0'- 5 3/4"	38'- 4 1/8"	6'- 8 5/8"	39'- 1"	152	56	146.688	3.257	592.676	40'- 2"	6	39'-10"	2	18	4.903	299.661	4.912	239.319	L		
12	10	5	8"	9'-10 3/8"	0'- 6 5/8"	4'-11 7/8"	0'- 8 3/4"	0'- 5 3/4"	38'- 4 1/8"	6'- 8 5/8"	39'- 1"	152	72	152.336	3.451	645.781	40'- 2"	6	39'-10"	2	22	5.114	313.467	5.097	239.319	P		
12	12	6	11"	9'-10 1/4"	0'- 7"	4'-11 5/8"	0'- 9 1/4"	0'- 6"	38'- 4 1/8"	6'- 8 3/8"	39'- 2"	152	88	157.984	3.706	677.964	40'- 2"	6	39'-10"	2	26	5.299	327.272	5.257	239.319	T		

STRUCTURE AND BRIDGE DIVISION

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

DIMENSIONS								REINFORCING STEEL																								
SPAN (FT.)	HGHT (FT.)	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2					
		TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	9	9'- 0"	9	9'- 0"	1	1'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	--	---	-----	-----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	9	9'- 0"	9	9'- 0"	2	2'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	--	---	-----	-----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	1	1'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	2'- 8"	4'- 8"	4	12"	4'- 0"	4	12"	4'- 0"
4	4	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	2	2'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	3'- 2"	5'- 2"	4	12"	5'- 0"	4	12"	5'- 0"
4	5	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	3	3'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	3'- 8"	5'- 8"	4	12"	6'- 0"	4	12"	6'- 0"
4	6	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	4	4'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	4'- 2"	6'- 2"	4	12"	7'- 0"	4	12"	7'- 0"
5	3	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	1	1'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	--	---	-----	-----	4	12"	2'- 6"	2'- 8"	4'- 11"	4	12"	4'- 0"	4	12"	4'- 0"
5	4	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	2	2'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	--	---	-----	-----	4	12"	2'- 6"	3'- 2"	5'- 5"	4	12"	5'- 0"	4	12"	5'- 0"
5	5	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	3	3'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	--	---	-----	-----	4	12"	2'- 6"	3'- 8"	5'- 11"	4	12"	6'- 0"	4	12"	6'- 0"
5	6	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	4	4'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	--	---	-----	-----	4	12"	2'- 6"	4'- 2"	6'- 5"	4	12"	7'- 0"	4	12"	7'- 0"
5	7	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	5	5'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	--	---	-----	-----	4	12"	2'- 6"	4'- 8"	6'- 11"	4	12"	8'- 0"	4	12"	8'- 0"
6	4	8"	8"	8"	8"	18	18'- 0"	18	18'- 0"	2	2'- 0"	4	12"	18'- 11"	4	12"	20'- 4"	3	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	3'- 2"	5'- 7"	4	12"	5'- 0"	4	12"	5'- 0"
6	5	8"	8"	8"	8"	18	18'- 0"	18	18'- 0"	3	3'- 0"	4	12"	18'- 11"	4	12"	20'- 4"	--	---	-----	-----	4	12"	2'- 8 3/8"	3'- 8"	6'- 1"	4	12"	6'- 0"	4	12"	6'- 0"
6	6	8"	8"	8"	8"	18	18'- 0"	18	18'- 0"	4	4'- 0"	4	12"	18'- 11"	4	12"	20'- 4"	--	---	-----	-----	4	12"	2'- 8 3/8"	4'- 2"	6'- 7"	4	12"	7'- 0"	4	12"	7'- 0"
6	7	8"	8"	8"	8"	18	18'- 0"	18	18'- 0"	5	5'- 0"	4	12"	18'- 11"	4	12"	20'- 4"	--	---	-----	-----	4	12"	2'- 8 3/8"	4'- 8"	7'- 1"	4	12"	8'- 0"	4	12"	8'- 0"
6	8	8"	8"	8"	8"	18	18'- 0"	18	18'- 0"	6	6'- 0"	4	12"	18'- 11"	4	12"	20'- 4"	3	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	5'- 2"	7'- 7"	4	12"	9'- 0"	4	12"	9'- 0"
7	4	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	12"	21'- 6"	4	12"	23'- 4"	--	---	-----	-----	5	12"	2'- 10 3/4"	3'- 2"	5'- 9"	4	11/2"	5'- 0"	4	12"	5'- 0"
7	6	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	12"	21'- 6"	4	12"	23'- 4"	4	12"	2'- 10 3/4"	5'- 6"	4	12"	2'- 10 3/4"	4'- 2"	6'- 10"	4	12"	7'- 0"	4	12"	7'- 0"
7	8	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	6	6'- 0"	4	12"	21'- 6"	4	12"	23'- 4"	4	12"	2'- 10 3/4"	5'- 6"	4	12"	2'- 10 3/4"	5'- 2"	7'- 10"	4	12"	9'- 0"	4	12"	9'- 0"
7	10	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	8	8'- 0"	4	11"	21'- 6"	4	11"	23'- 4"	--	---	-----	-----	5	11"	2'- 10 3/4"	6'- 2"	8'- 9"	4	12"	11'- 0"	4	12"	11'- 0"
8	4	8"	8"	8"	8"	24	24'- 0"	24	24'- 0"	2	2'- 0"	4	11"	24'- 2"	4	11"	26'- 4"	3	11"	3'- 1 1/4"	6'- 0"	5	11"	3'- 1 1/4"	3'- 2"	5'- 11"	4	8"	5'- 0"	4	12"	5'- 0"
8	6	8 1/4"	8 1/4"	8"	8"	24	24'- 0"	24	24'- 0"	4	4'- 0"	4	10"	24'- 2"	4	10"	26'- 4"	--	---	-----	-----	5	10"	3'- 1 1/4"	4'- 2 1/4"	7'- 0"	4	12"	7'- 0"	4	12"	7'- 0"
8	8	8 1/2"	8 1/2"	8"	8"	24	24'- 0"	24	24'- 0"	6	6'- 0"	4	10"	24'- 2"	4	10"	26'- 4"	--	---	-----	-----	5	10"	3'- 1 1/4"	5'- 2 1/2"	8'- 0"	4	12"	9'- 1"	4	12"	9'- 1"
8	10	8 3/4"	8 3/4"	8"	8"	24	24'- 0"	24	24'- 0"	8	8'- 0"	4	9"	24'- 2"	4	9"	26'- 4"	--	---	-----	-----	5	9"	3'- 1 1/4"	6'- 2 3/4"	9'- 0"	4	12"	11'- 2"	4	12"	11'- 2"
9	4	8 3/4"	8 3/4"	8"	8"	27	27'- 0"	27	27'- 0"	2	2'- 0"	4	9"	26'- 9"	4	9"	29'- 4"	3	9"	3'- 3 5/8"	6'- 5"	5	9"	3'- 3 5/8"	3'- 2 3/4"	6'- 2"	4	7 1/2"	5'- 2"	4	12"	5'- 2"
9	6	9"	9"	8"	8"	27	27'- 0"	27	27'- 0"	4	4'- 0"	4	9"	26'- 9"	4	9"	29'- 4"	--	---	-----	-----	5	9"	3'- 3 5/8"	4'- 3"	7'- 3"	4	12"	7'- 2"	4	12"	7'- 2"
9	8	9 1/4"	9 1/4"	8"	8"	27	27'- 0"	27	27'- 0"	6	6'- 0"	4	9"	26'- 9"	5	9"	29'- 4"	--	---	-----	-----	5	9"	3'- 3 5/8"	5'- 3/4"	8'- 3"	4	12"	9'- 2"	4	12"	9'- 2"
9	10	9 1/2"	9 1/2"	8"	8"	27	27'- 0"	27	27'- 0"	8	8'- 0"	4	9"	26'- 9"	5	9"	29'- 4"	--	---	-----	-----	5	9"	3'- 3 5/8"	6'- 3/2"	9'- 3"	4	12"	11'- 3"	4	12"	11'- 3"
9	12	9 1/2"	9 1/2"	8"	8"	27	27'- 0"	27	27'- 0"	10	10'- 0"	4	8"	26'- 9"	4	8"	29'- 4"	3	8"	3'- 3 5/8"	6'- 5"	5	8"	3'- 3 5/8"	7'- 3/2"	10'- 3"	4	8 1/2"	13'- 3"	4	12"	13'- 3"
10	4	9 3/4"	9 3/4"	8"	8"	30	30'- 0"	30	30'- 0"	2	2'- 0"	5	8"	29'- 4"	4	8"	32'- 4"	--	---	-----	-----	5	8"	3'- 6"	3'- 3 3/4"	6'- 6"	4	7"	5'- 3"	4	12"	5'- 3"
10	6	10"	10"	8"	8"	30	30'- 0"	30	30'- 0"	4	4'- 0"	5	9"	29'- 4"	5	9"	32'- 4"	--	---	-----	-----	5	9"	3'- 6"	4'- 4"	7'- 6"	4	11"	7'- 4"	4	12"	7'- 4"
10	8	10"	10"	8"	8"	30	30'- 0"	30	30'- 0"	6	6'- 0"	5	8"	29'- 4"	5	8"	32'- 4"	3	8"	3'- 6"	6'- 10"	4	8"	3'- 6"	5'- 4"	8'- 7"	4	12"	9'- 4"	4	12"	9'- 4"
10	10	10 1/4"	10 1/4"	8"	8"	30	30'- 0"	30	30'- 0"	8	8'- 0"	5	8"	29'- 4"	5	8"	32'- 4"	4	8"	3'- 6"	6'- 9"	4	8"	3'- 6"	6'- 4/4"	9'- 7"	4	12"	11'- 5"	4	12"	11'- 5"
10	12	10 1/2"	10 1/2"	8"	8"	30	30'- 0"	30	30'- 0"	10	10'- 0"	5	11"	29'- 4"	5	11"	32'- 4"	3	11"	3'- 6"	6'- 10"	6	11"	3'- 6"	7'- 4 1/2"	10'- 6"	4	9"	13'- 5"	4	12"	13'- 5"
12	6	11 1/2"	11 1/2"	8"	8"	36	36'- 0"	36	36'- 0"	4	4'- 0"	5	9"	34'- 6"	5	9"	38'- 4"	3	9"	3'- 10 3/4"	7'- 7"	5	9"	3'- 10 3/4"	4'- 5 1/2"	8'- 0"	4	9"	7'- 7"	4	12"	7'- 7"
12	8	11 3/4"	11 3/4"	8"	8"	36	36'- 0"	36	36'- 0"	6	6'- 0"	5	9"	34'- 6"	5	9"	38'- 4"	3	9"	3'- 10 3/4"	7'- 7"	5	9"	3'- 10 3/4"	5'- 5 3/4"	9'- 1"	4	12"	9'- 8"	4	12"	9'- 8"
12	10	11 3/4"	11 3/4"	8"	8"	36	36'- 0"	36	36'- 0"	8	8'- 0"	6	9"	34'- 6"	5	9"	38'- 4"	3	9"	3'- 10 3/4"	7'- 7"	5	9"	3'- 10 3/4"	6'- 5 3/4"	10'- 1"	4	12"	11'- 8"	4	12"	11'- 8"
12	12	12"	12"	8"	8"	36	36'- 0"	36	36'- 0"	10	10'- 0"	6	9"	34'- 6"	5	9"	38'- 4"	--	---	-----	-----	6	9"	3'- 10 3/4"	7'- 6"	11'- 0"	4		13'- 8"	4	12"	

TRIPLE BOX CULVERTS 5 TO 10 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS								WINGWALL	
(FT.)	(FT.)	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	HEADWALL LENGTH	SIZE	HW I LENGTH	NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)		OUTLET REINFORCING STEEL (LBS)
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	11'- 3 7/8"	1'- 5 7/8"	11'-10"	44	16	42.388	0.989	109.333	13'- 2"	6	12'-10"	2	8	1.827	102.932	1.808	77.103	A
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	11'- 3 7/8"	1'- 5 7/8"	11'-10"	44	24	45.212	1.087	117.685	13'- 2"	6	12'-10"	2	10	1.932	109.835	1.901	77.103	C
4	3	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'-11 1/2"	0'- 5 7/8"	0'- 3 3/4"	14'- 4"	2'- 1"	14'-10"	56	16	52.408	1.136	129.262	16'- 2"	6	15'-10"	2	8	2.131	120.956	2.121	95.127	A
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'-11 1/2"	0'- 5 7/8"	0'- 3 3/4"	14'- 4"	2'- 1"	14'-10"	56	24	55.232	1.234	137.614	16'- 2"	6	15'-10"	2	10	2.236	127.859	2.214	95.127	C
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'-11 1/2"	0'- 5 7/8"	0'- 3 3/4"	14'- 4"	2'- 1"	14'-10"	56	32	58.056	1.332	145.966	16'- 2"	6	15'-10"	2	12	2.341	134.761	2.307	95.127	E
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'-11 1/2"	0'- 5 7/8"	0'- 3 3/4"	14'- 4"	2'- 1"	14'-10"	56	40	60.880	1.430	154.318	16'- 2"	6	15'-10"	2	14	2.446	141.664	2.399	95.127	G
5	3	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'-10"	68	16	62.428	1.282	149.413	19'- 2"	6	18'-10"	2	8	2.434	138.980	2.435	113.151	A
5	4	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'-10"	68	24	65.252	1.381	157.765	19'- 2"	6	18'-10"	2	10	2.539	145.883	2.527	113.151	C
5	5	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'-10"	68	32	68.076	1.479	166.117	19'- 2"	6	18'-10"	2	12	2.644	152.785	2.620	113.151	E
5	6	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'-10"	68	40	70.900	1.577	174.469	19'- 2"	6	18'-10"	2	14	2.750	159.688	2.713	113.151	G
5	7	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'-10"	68	48	73.724	1.675	182.821	19'- 2"	6	18'-10"	2	16	2.855	166.591	2.806	113.151	I
6	4	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	20'- 4"	3'- 3 1/2"	20'-10"	80	24	75.272	1.527	185.465	22'- 2"	6	21'-10"	2	10	2.843	163.907	2.841	131.175	C
6	5	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	20'- 4"	3'- 3 1/2"	20'-10"	80	32	78.096	1.625	186.046	22'- 2"	6	21'-10"	2	12	2.948	170.809	2.934	131.175	E
6	6	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	20'- 4"	3'- 3 1/2"	20'-10"	80	40	80.920	1.723	194.398	22'- 2"	6	21'-10"	2	14	3.053	177.712	3.026	131.175	G
6	7	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	20'- 4"	3'- 3 1/2"	20'-10"	80	48	83.744	1.822	202.750	22'- 2"	6	21'-10"	2	16	3.158	184.615	3.119	131.175	I
6	8	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	20'- 4"	3'- 3 1/2"	20'-10"	80	56	86.568	1.919	218.873	22'- 2"	6	21'-10"	2	18	3.263	191.517	3.212	131.175	K
7	4	4	12"	5'-11 3/8"	0'- 4 1/2"	3'- 1 7/8"	0'- 5 7/8"	0'- 3 3/4"	23'- 4 1/8"	3'-10 5/8"	23'-10"	92	24	85.292	1.673	206.538	25'- 2"	6	24'-10"	2	10	3.146	181.931	3.154	149.199	C
7	6	4	12"	5'-11 3/8"	0'- 4 1/2"	3'- 1 7/8"	0'- 5 7/8"	0'- 3 3/4"	23'- 4 1/8"	3'-10 5/8"	23'-10"	92	40	90.940	1.869	229.245	25'- 2"	6	24'-10"	2	14	3.357	195.736	3.340	149.199	G
7	8	4	12"	5'-11 3/8"	0'- 4 1/2"	3'- 1 7/8"	0'- 5 7/8"	0'- 3 3/4"	23'- 4 1/8"	3'-10 5/8"	23'-10"	92	56	96.588	2.065	245.949	25'- 2"	6	24'-10"	2	18	3.567	209.541	3.525	149.199	K
7	10	4	11"	5'-11 3/8"	0'- 4 1/2"	3'- 1 7/8"	0'- 5 7/8"	0'- 3 3/4"	23'- 4 1/8"	3'-10 5/8"	23'-10"	92	72	102.236	2.261	272.518	25'- 2"	6	24'-10"	2	22	3.777	223.347	3.711	149.199	O
8	4	4	10"	6'- 8 7/8"	0'- 4 1/2"	3'- 6 3/8"	0'- 5 7/8"	0'- 3 3/4"	26'- 3 7/8"	4'- 5 7/8"	26'-10"	104	24	95.312	1.818	251.359	28'- 2"	6	27'-10"	2	10	3.450	199.955	3.468	167.223	C
8	6	4	10"	6'- 8 7/8"	0'- 4 1/2"	3'- 6 3/8"	0'- 5 7/8"	0'- 3 3/4"	26'- 3 7/8"	4'- 5 7/8"	26'-10"	104	40	100.960	2.055	271.727	28'- 2"	6	27'-10"	2	14	3.644	213.760	3.638	167.223	G
8	8	4	10"	6'- 8 7/8"	0'- 5"	3'- 6 1/8"	0'- 6 1/2"	0'- 4 1/4"	26'- 3 7/8"	4'- 5 3/8"	26'-11"	104	56	106.608	2.292	291.100	28'- 2"	6	27'-10"	2	18	3.839	227.565	3.807	167.223	K
8	10	4	9"	6'- 8 1/2"	0'- 5 1/4"	3'- 5 7/8"	0'- 6 7/8"	0'- 4 1/2"	26'- 3 7/8"	4'- 5 1/8"	26'-11"	104	72	112.256	2.528	329.269	28'- 2"	6	27'-10"	2	22	4.033	241.371	3.977	167.223	O
9	4	4	9"	7'- 6 1/8"	0'- 5 1/4"	3'-10 3/4"	0'- 6 7/8"	0'- 4 1/2"	29'- 4"	5'- 1/4"	29'-11"	116	24	105.332	2.099	311.727	31'- 2"	6	30'-10"	2	10	3.699	217.979	3.727	185.247	C
9	6	4	9"	7'- 6"	0'- 5 1/2"	3'-10 1/2"	0'- 7 1/4"	0'- 4 3/4"	29'- 4"	5'- 0"	30'- 0"	116	40	110.980	2.342	314.924	31'- 2"	6	30'-10"	2	14	3.892	231.784	3.895	185.247	G
9	8	4	9"	7'- 5 7/8"	0'- 5 3/4"	3'-10 1/4"	0'- 7 5/8"	0'- 5"	29'- 4"	4'-11 3/4"	30'- 0"	116	56	116.628	2.582	363.852	31'- 2"	6	30'-10"	2	18	4.102	245.589	4.081	185.247	L
9	10	4	9"	7'- 5 3/4"	0'- 6"	3'-10"	0'- 8"	0'- 5 1/4"	29'- 4"	4'-11 1/2"	30'- 1"	116	72	122.276	2.823	383.930	31'- 2"	6	30'-10"	2	22	4.295	259.395	4.248	185.247	P
9	12	4	8"	7'- 5 3/4"	0'- 6"	3'-10"	0'- 8"	0'- 5 1/4"	29'- 4"	4'-11 1/2"	30'- 1"	116	88	127.924	3.018	422.270	31'- 2"	6	30'-10"	2	26	4.505	273.200	4.434	185.247	T
10	4	4	8"	8'- 3 1/4"	0'- 6 1/4"	4'- 2 1/2"	0'- 8 3/8"	0'- 5 1/2"	32'- 4"	5'- 6 1/2"	33'- 1"	128	24	115.352	2.457	384.136	34'- 2"	6	33'-10"	2	10	3.933	236.003	3.971	203.271	D
10	6	4	9"	8'- 3 1/8"	0'- 6 1/2"	4'- 2 1/4"	0'- 8 5/8"	0'- 5 3/4"	32'- 4"	5'- 6 1/4"	33'- 1"	128	40	121.000	2.704	402.995	34'- 2"	6	33'-10"	2	14	4.123	249.808	4.136	203.271	H
10	8	4	8"	8'- 3 1/8"	0'- 6 1/2"	4'- 2 1/4"	0'- 8 5/8"	0'- 5 3/4"	32'- 4"	5'- 6 1/4"	33'- 1"	128	56	126.648	2.897	453.040	34'- 2"	6	33'-10"	2	18	4.333	263.613	4.322	203.271	L
10	10	4	8"	8'- 3"	0'- 6 3/4"	4'- 2"	0'- 9"	0'- 6"	32'- 4"	5'- 6"	33'- 2"	128	72	132.296	3.143	483.219	34'- 2"	6	33'-10"	2	22	4.523	277.419	4.487	203.271	P
10	12	5	11"	8'- 2 7/8"	0'- 7 1/8"	4'- 1 3/4"	0'- 9 1/2"	0'- 6 1/4"	32'- 4"	5'- 5 3/4"	33'- 2"	128	88	137.944	3.392	524.178	34'- 2"	6	33'-10"	2	26	4.713	291.224	4.652	203.271	T
12	6	5	9"	9'- 9 5/8"	0'- 8 7/8"	4'-10 3/8"	0'-10 7/8"	0'- 7 1/4"	38'- 4 1/8"	6'- 7 7/8"	39'- 4"	152	40	141.040	3.423	522.028	40'- 2"	6	39'-10"	2	14	4.543	285.856	4.576	239.319	H
12	8	5	9"	9'- 9 1/2"	0'- 8 3/8"	4'-10 1/8"	0'-11 1/4"	0'- 7 1/2"	38'- 4 1/8"	6'- 6 7/8"	39'- 4"	152	56	146.688	3.679	539.044	40'- 2"	6	39'-10"	2	18	4.729	299.661	4.737	239.319	L
12	10	5	9"	9'- 9 1/2"	0'- 8 3/8"	4'-10 1/8"	0'-11 1/4"	0'- 7 1/2"	38'- 4 1/8"	6'- 6 7/8"	39'- 4"	152	72	152.336	3.872	600.866	40'- 2"	6	39'-10"	2	22	4.939	313.467	4.922	239.319	P
12	12	5	9"	9'- 9 3/8"	0'- 8 5/8"	4'- 9 7/8"	0'-11 5/8"	0'- 7 3/4"	38'- 4 1/8"	6'- 6 5/8"	39'- 5"	152	88	157.984	4.127	632.744	40'- 2"	6	39'-10"	2	26	5.124	327.272	5.083	239.319	T

DIMENSIONS						REINFORCING STEEL																										
SPAN	HGHT	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2					
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	9	9'- 0"	9	9'- 0"	1	1'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	--	---	-----	-----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	9	9'- 0"	9	9'- 0"	2	2'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	--	---	-----	-----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	1	1'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	2'- 8"	4'- 8"	4	12"	4'- 0"	4	12"	4'- 0"
4	4	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	2	2'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	3'- 2"	5'- 2"	4	12"	5'- 0"	4	12"	5'- 0"
4	5	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	3	3'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	3'- 8"	5'- 8"	4	12"	6'- 0"	4	12"	6'- 0"
4	6	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	4	4'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	4'- 2"	6'- 2"	4	12"	7'- 0"	4	12"	7'- 0"
5	3	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	1	1'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	--	---	-----	-----	4	12"	2'- 6"	2'- 8"	4'- 11"	4	12"	4'- 0"	4	12"	4'- 0"
5	4	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	2	2'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	--	---	-----	-----	4	12"	2'- 6"	3'- 2"	5'- 5"	4	12"	5'- 0"	4	12"	5'- 0"
5	5	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	3	3'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	--	---	-----	-----	4	12"	2'- 6"	3'- 8"	5'- 11"	4	12"	6'- 0"	4	12"	6'- 0"
5	6	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	4	4'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	--	---	-----	-----	4	12"	2'- 6"	4'- 2"	6'- 5"	4	12"	7'- 0"	4	12"	7'- 0"
5	7	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	5	5'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	--	---	-----	-----	4	12"	2'- 6"	4'- 8"	6'- 11"	4	12"	8'- 0"	4	12"	8'- 0"
6	4	8"	8"	8"	8"	18	18'- 0"	18	18'- 0"	2	2'- 0"	4	12"	18'- 11"	4	12"	20'- 4"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	3'- 2"	5'- 7"	4	12"	5'- 0"	4	12"	5'- 0"
6	5	8"	8"	8"	8"	18	18'- 0"	18	18'- 0"	3	3'- 0"	4	12"	18'- 11"	4	12"	20'- 4"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	3'- 8"	6'- 1"	4	12"	6'- 0"	4	12"	6'- 0"
6	6	8"	8"	8"	8"	18	18'- 0"	18	18'- 0"	4	4'- 0"	4	12"	18'- 11"	4	12"	20'- 4"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	4'- 2"	6'- 7"	4	12"	7'- 0"	4	12"	7'- 0"
6	7	8"	8"	8"	8"	18	18'- 0"	18	18'- 0"	5	5'- 0"	4	12"	18'- 11"	4	12"	20'- 4"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	4'- 8"	7'- 1"	4	12"	8'- 0"	4	12"	8'- 0"
6	8	8 1/4"	8 1/4"	8"	8"	18	18'- 0"	18	18'- 0"	6	6'- 0"	4	12"	18'- 11"	4	12"	20'- 4"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	5'- 2 1/4"	7'- 7"	4	12"	9'- 0"	4	12"	9'- 0"
7	4	9"	9"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	11"	21'- 6"	4	11"	23'- 4"	--	---	-----	-----	5	11"	2'- 10 3/4"	3'- 3"	5'- 10"	4	10 1/2"	5'- 2"	4	12"	5'- 2"
7	6	9"	9"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	10"	21'- 6"	4	10"	23'- 4"	--	---	-----	-----	5	10"	2'- 10 3/4"	4'- 3"	6'- 10"	4	12"	7'- 2"	4	12"	7'- 2"
7	8	9 1/4"	9 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	6	6'- 0"	4	10"	21'- 6"	4	10"	23'- 4"	3	10"	2'- 10 3/4"	5'- 7"	4	10"	2'- 10 3/4"	5'- 3 1/4"	7'- 11"	4	12"	9'- 2"	4	12"	9'- 2"
7	10	9 1/2"	9 1/2"	8"	8"	21	21'- 0"	21	21'- 0"	8	8'- 0"	4	10"	21'- 6"	4	10"	23'- 4"	3	10"	2'- 10 3/4"	5'- 7"	5	10"	2'- 10 3/4"	6'- 3 1/2"	8'- 10"	4	9 1/2"	11'- 3"	4	12"	11'- 3"
8	4	10"	10"	8"	8"	24	24'- 0"	24	24'- 0"	2	2'- 0"	4	9"	24'- 2"	4	9"	26'- 4"	--	---	-----	-----	5	9"	3'- 1 1/4"	3'- 4"	6'- 1"	4	9"	5'- 4"	4	12"	5'- 4"
8	6	10 1/4"	10 1/4"	8"	8"	24	24'- 0"	24	24'- 0"	4	4'- 0"	4	9"	24'- 2"	4	9"	26'- 4"	3	9"	3'- 1 1/4"	6'- 0"	4	9"	3'- 1 1/4"	4'- 4 1/4"	7'- 2"	4	12"	7'- 5"	4	12"	7'- 5"
8	8	10 1/4"	10 1/4"	8"	8"	24	24'- 0"	24	24'- 0"	6	6'- 0"	4	9"	24'- 2"	4	9"	26'- 4"	3	9"	3'- 1 1/4"	6'- 0"	4	9"	3'- 1 1/4"	5'- 4 1/4"	8'- 2"	4	12"	9'- 5"	4	12"	9'- 5"
8	10	10 1/2"	10 1/2"	8"	8"	24	24'- 0"	24	24'- 0"	8	8'- 0"	4	9"	24'- 2"	5	9"	26'- 4"	--	---	-----	-----	5	9"	3'- 1 1/4"	6'- 4 1/2"	9'- 2"	4	11 1/2"	11'- 5"	4	12"	11'- 5"
9	4	11"	11"	8"	8"	27	27'- 0"	27	27'- 0"	2	2'- 0"	5	9"	26'- 9"	5	9"	29'- 4"	--	---	-----	-----	5	9"	3'- 3 5/8"	3'- 5"	6'- 5"	4	8 1/2"	5'- 6"	4	12"	5'- 6"
9	6	11 1/4"	11 1/4"	8"	8"	27	27'- 0"	27	27'- 0"	4	4'- 0"	5	9"	26'- 9"	5	9"	29'- 4"	3	9"	3'- 3 5/8"	6'- 5"	4	9"	3'- 3 5/8"	4'- 5 1/4"	7'- 6"	4	12"	7'- 6"	4	12"	7'- 6"
9	8	11 1/2"	11 1/2"	8"	8"	27	27'- 0"	27	27'- 0"	6	6'- 0"	5	9"	26'- 9"	5	9"	29'- 4"	--	---	-----	-----	4	9"	3'- 3 5/8"	5'- 5 1/2"	8'- 6"	4	12"	9'- 7"	4	12"	9'- 7"
9	10	11 1/2"	11 1/2"	8"	8"	27	27'- 0"	27	27'- 0"	8	8'- 0"	5	9"	26'- 9"	5	9"	29'- 4"	3	9"	3'- 3 5/8"	6'- 5"	5	9"	3'- 3 5/8"	6'- 5 1/2"	9'- 5"	4	12"	11'- 7"	4	12"	11'- 7"
9	12	11 3/4"	11 3/4"	8"	8"	27	27'- 0"	27	27'- 0"	10	10'- 0"	5	9"	26'- 9"	5	9"	29'- 4"	4	9"	3'- 3 5/8"	6'- 4"	5	9"	3'- 3 5/8"	7'- 5 3/4"	10'- 5"	4	6"	13'- 8"	4	12"	13'- 8"
10	4	12"	12"	8"	8"	30	30'- 0"	30	30'- 0"	2	2'- 0"	5	8"	29'- 4"	5	8"	32'- 4"	4	8"	3'- 6"	6'- 9"	4	8"	3'- 6"	3'- 6"	6'- 9"	4	8"	5'- 8"	4	12"	5'- 8"
10	6	12 1/4"	12 1/4"	8"	8"	30	30'- 0"	30	30'- 0"	4	4'- 0"	5	8"	29'- 4"	5	8"	32'- 4"	3	8"	3'- 6"	6'- 10"	4	8"	3'- 6"	4'- 6 1/4"	7'- 9"	4	12"	7'- 9"	4	12"	7'- 9"
10	8	12 1/2"	12 1/2"	8"	8"	30	30'- 0"	30	30'- 0"	6	6'- 0"	5	8"	29'- 4"	5	8"	32'- 4"	3	8"	3'- 6"	6'- 10"	4	8"	3'- 6"	5'- 6 1/2"	8'- 9"	4	12"	9'- 9"	4	12"	9'- 9"
10	10	12 1/2"	12 1/2"	8"	8"	30	30'- 0"	30	30'- 0"	8	8'- 0"	5	8"	29'- 4"	5	8"	32'- 4"	4	8"	3'- 6"	6'- 9"	4	8"	3'- 6"	6'- 6 1/2"	9'- 9"	4	12"	11'- 9"	4	12"	11'- 9"
10	12	12 3/4"	12 3/4"	8"	8"	30	30'- 0"	30	30'- 0"	10	10'- 0"	5	8"	29'- 4"	5	8"	32'- 4"	4	8"	3'- 6"	6'- 9"	5	8"	3'- 6"	7'- 6 3/4"	10'- 9"	4	6"	13'- 9"	4	12"	13'- 9"
12	6	14 1/4"	14 1/4"	8"	8"	36	36'- 0"	36	36'- 0"	4	4'- 0"	6	9"	34'- 6"	5	9"	38'- 4"	4	9"	3'- 10 3/4"	7'- 6"	4	9"	3'- 10 3/4"	4'- 8 1/4"	8'- 4"	4	12"	8'- 0"	4	12"	8'- 0"
12	8	14 1/2"	14 1/2"	8"	8"	36	36'- 0"	36	36'- 0"	6	6'- 0"	6	9"	34'- 6"	5	9"	38'- 4"	4	9"	3'- 10 3/4"	7'- 6"	4	9"	3'- 10 3/4"	5'- 8 1/2"	9'- 4"	4	12"	10'- 1"	4	12"	10'- 1"
12	10	14 1/2"	14 1/2"	8"	8"	36	36'- 0"	36	36'- 0"	8	8'- 0"	6	9"	34'- 6"	5	9"	38'- 4"	3	9"	3'- 10 3/4"	7'- 7"	5	9"	3'- 10 3/4"	6'- 8 1/2"	10'- 3"	4	12"	12'- 1"	4	12"	12'- 1"
12	12	14 3/4"	14 3/4"	8"	8"	36	36'- 0"	36	36'- 0"	10	10'- 0"	6	9"	34'- 6"	6	9"	38'- 4"	4	9"	3'- 10 3/4"	7'- 6"	5	9"	3'- 10 3/4"	7'- 8 3/4"	11'- 4"	4	6 1/2"	14'- 1"	4	12"	14'- 1"

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

STRUCTURE
AND
BRIDGE
DIVISION

SPAN		HC	REINFORCING STEEL											QUAN./LF		HEADWALLS								WINGWALL			
(FT.)	(FT.)	HT	BTI											REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	C			HW I		NO. HW2 BARS	NO. HW3 BARS		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)
			SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS				NO. BL2 BARS	HEADWALL LENGTH	SIZE	LENGTH							
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	11'- 3 7/8"	1'- 5 7/8"	11'- 10"	44	16	42.388	0.989	109.333	13'- 2"	6	12'- 10"	2	8	1.827	102.932	1.808	77.103	A	
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	11'- 3 7/8"	1'- 5 7/8"	11'- 10"	44	24	45.212	1.087	117.685	13'- 2"	6	12'- 10"	2	10	1.932	109.835	1.901	77.103	C	
4	3	3	12"	3'- 6 1/2"	0'- 4 3/8"	1'- 11 3/8"	0'- 5 7/8"	0'- 3 7/8"	14'- 4 1/8"	2'- 7/8"	14'- 10"	56	16	52.408	1.136	120.599	16'- 2"	6	15'- 10"	2	8	2.131	120.956	2.121	95.127	A	
4	4	3	12"	3'- 6 1/2"	0'- 4 3/8"	1'- 11 3/8"	0'- 5 7/8"	0'- 3 7/8"	14'- 4 1/8"	2'- 7/8"	14'- 10"	56	24	55.232	1.235	128.951	16'- 2"	6	15'- 10"	2	10	2.236	127.859	2.214	95.127	C	
4	5	3	12"	3'- 6 1/2"	0'- 4 3/8"	1'- 11 3/8"	0'- 5 7/8"	0'- 3 7/8"	14'- 4 1/8"	2'- 7/8"	14'- 10"	56	32	58.056	1.333	137.303	16'- 2"	6	15'- 10"	2	12	2.341	134.761	2.307	95.127	E	
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	14'- 4 1/8"	2'- 1"	14'- 10"	56	40	60.880	1.430	154.318	16'- 2"	6	15'- 10"	2	14	2.446	141.664	2.399	95.127	G	
5	3	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'- 10"	68	16	62.428	1.282	149.413	19'- 2"	6	18'- 10"	2	8	2.434	138.980	2.435	113.151	A	
5	4	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'- 10"	68	24	65.252	1.381	157.765	19'- 2"	6	18'- 10"	2	10	2.539	145.883	2.527	113.151	C	
5	5	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'- 10"	68	32	68.076	1.479	166.117	19'- 2"	6	18'- 10"	2	12	2.644	152.785	2.620	113.151	E	
5	6	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'- 10"	68	40	70.900	1.577	174.469	19'- 2"	6	18'- 10"	2	14	2.750	159.688	2.713	113.151	G	
5	7	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'- 10"	68	48	73.724	1.675	182.821	19'- 2"	6	18'- 10"	2	16	2.855	166.591	2.806	113.151	I	
6	4	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	20'- 4"	3'- 3 1/2"	20'- 10"	80	24	75.272	1.526	191.499	22'- 2"	6	21'- 10"	2	10	2.843	163.907	2.841	131.175	C	
6	5	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	20'- 4"	3'- 3 1/2"	20'- 10"	80	32	78.096	1.624	199.851	22'- 2"	6	21'- 10"	2	12	2.948	170.809	2.934	131.175	E	
6	6	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	20'- 4"	3'- 3 1/2"	20'- 10"	80	40	80.920	1.722	208.203	22'- 2"	6	21'- 10"	2	14	3.053	177.712	3.026	131.175	G	
6	7	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	20'- 4"	3'- 3 1/2"	20'- 10"	80	48	83.744	1.821	216.555	22'- 2"	6	21'- 10"	2	16	3.158	184.615	3.119	131.175	I	
6	8	4	12"	5'- 1 5/8"	0'- 4 3/4"	2'- 8 3/4"	0'- 6 1/4"	0'- 4"	20'- 4"	3'- 3 1/4"	20'- 11"	80	56	86.568	1.951	225.019	22'- 2"	6	21'- 10"	2	18	3.252	191.517	3.201	131.175	K	
7	4	4	11"	5'- 10 7/8"	0'- 5 1/2"	3'- 7/8"	0'- 7 1/4"	0'- 4 3/4"	23'- 4 1/8"	3'- 9 5/8"	24'- 0"	92	24	85.292	1.818	219.045	25'- 2"	6	24'- 10"	2	10	3.093	181.931	3.101	149.199	C	
7	6	4	10"	5'- 10 7/8"	0'- 5 1/2"	3'- 7/8"	0'- 7 1/4"	0'- 4 3/4"	23'- 4 1/8"	3'- 9 5/8"	24'- 0"	92	40	90.940	2.014	249.784	25'- 2"	6	24'- 10"	2	14	3.303	195.736	3.286	149.199	G	
7	8	4	10"	5'- 10 3/4"	0'- 5 3/4"	3'- 5/8"	0'- 7 5/8"	0'- 5"	23'- 4 1/8"	3'- 9 3/8"	24'- 0"	92	56	96.588	2.246	265.066	25'- 2"	6	24'- 10"	2	18	3.519	209.541	3.477	149.199	L	
7	10	4	10"	5'- 10 5/8"	0'- 6"	3'- 3/8"	0'- 8"	0'- 5 1/4"	23'- 4 1/8"	3'- 9 1/8"	24'- 1"	92	72	102.236	2.478	302.360	25'- 2"	6	24'- 10"	2	22	3.715	223.347	3.649	149.199	P	
8	4	4	9"	6'- 7 7/8"	0'- 6 1/2"	3'- 4 5/8"	0'- 8 5/8"	0'- 5 3/4"	26'- 3 3/8"	4'- 3 7/8"	27'- 1"	104	24	95.312	2.145	274.288	28'- 2"	6	27'- 10"	2	10	3.343	199.955	3.361	167.223	D	
8	6	4	9"	6'- 7 3/4"	0'- 6 3/4"	3'- 4 3/8"	0'- 9"	0'- 6"	26'- 3 3/8"	4'- 3 5/8"	27'- 2"	104	40	100.960	2.383	290.153	28'- 2"	6	27'- 10"	2	14	3.537	213.760	3.531	167.223	H	
8	8	4	9"	6'- 7 3/4"	0'- 6 3/4"	3'- 4 3/8"	0'- 9"	0'- 6"	26'- 3 3/8"	4'- 3 5/8"	27'- 2"	104	56	106.608	2.579	307.747	28'- 2"	6	27'- 10"	2	18	3.748	227.565	3.716	167.223	L	
8	10	4	9"	6'- 7 5/8"	0'- 7"	3'- 4 1/8"	0'- 9 3/8"	0'- 6 1/4"	26'- 3 3/8"	4'- 3 3/8"	27'- 2"	104	72	112.256	2.814	358.640	28'- 2"	6	27'- 10"	2	22	3.942	241.371	3.886	167.223	P	
9	4	4	9"	7'- 5"	0'- 7 1/2"	3'- 8 1/2"	0'- 10 1/8"	0'- 6 3/4"	29'- 4"	4'- 10"	30'- 3"	116	24	105.332	2.507	357.147	31'- 2"	6	30'- 10"	2	10	3.556	217.979	3.584	185.247	D	
9	6	4	9"	7'- 4 1/8"	0'- 7 3/4"	3'- 8 1/4"	0'- 10 1/2"	0'- 7"	29'- 4"	4'- 9 3/4"	30'- 4"	116	40	110.980	2.750	372.196	31'- 2"	6	30'- 10"	2	14	3.748	231.784	3.751	185.247	H	
9	8	4	9"	7'- 4 3/4"	0'- 8"	3'- 8"	0'- 10 3/4"	0'- 7 1/4"	29'- 4"	4'- 9 1/2"	30'- 4"	116	56	116.628	2.993	377.257	31'- 2"	6	30'- 10"	2	18	3.940	245.589	3.919	185.247	L	
9	10	4	9"	7'- 4 3/4"	0'- 8"	3'- 8"	0'- 10 3/4"	0'- 7 1/4"	29'- 4"	4'- 9 1/2"	30'- 4"	116	72	122.276	3.186	426.256	31'- 2"	6	30'- 10"	2	22	4.151	259.395	4.104	185.247	P	
9	12	4	9"	7'- 4 5/8"	0'- 8 1/4"	3'- 7 3/4"	0'- 11 1/8"	0'- 7 1/2"	29'- 4"	4'- 9 1/4"	30'- 4"	116	88	127.924	3.426	474.139	31'- 2"	6	30'- 10"	2	26	4.343	273.200	4.272	185.247	T	
10	4	4	8"	8'- 2 1/2"	0'- 8 1/2"	4'- 1 1/4"	0'- 11 1/2"	0'- 7 3/4"	32'- 4"	5'- 4 1/4"	33'- 5"	128	24	115.352	2.907	435.055	34'- 2"	6	33'- 10"	2	10	3.750	236.003	3.788	203.271	D	
10	6	4	8"	8'- 2"	0'- 8 3/4"	4'- 0"	0'- 11 7/8"	0'- 8"	32'- 4"	5'- 4"	33'- 5"	128	40	121.000	3.155	438.006	34'- 2"	6	33'- 10"	2	14	3.940	249.808	3.953	203.271	H	
10	8	4	8"	8'- 1 7/8"	0'- 9"	3'- 11 3/4"	1'- 1 1/4"	0'- 8 1/4"	32'- 4"	5'- 3 3/4"	33'- 6"	128	56	126.648	3.401	456.213	34'- 2"	6	33'- 10"	2	18	4.130	263.613	4.119	203.271	L	
10	10	4	8"	8'- 1 1/8"	0'- 9"	3'- 11 3/4"	1'- 1 1/4"	0'- 8 1/4"	32'- 4"	5'- 3 3/4"	33'- 6"	128	72	132.296	3.597	485.891	34'- 2"	6	33'- 10"	2	22	4.340	277.419	4.304	203.271	P	
10	12	4	8"	8'- 1 3/4"	0'- 9 1/4"	3'- 11 1/2"	1'- 1 1/2"	0'- 8 1/2"	32'- 4"	5'- 3 1/2"	33'- 6"	128	88	137.944	3.840	546.489	34'- 2"	6	33'- 10"	2	26	4.530	291.224	4.469	203.271	T	
12	6	5	9"	9'- 8 1/4"	0'- 10 5/8"	4'- 7 5/8"	1'- 2 3/4"	0'- 10"	38'- 4 1/8"	6'- 4 3/8"	39'- 8"	152	40	141.040	4.076	560.177	40'- 2"	6	39'- 10"	2	14	4.269	285.856	4.302	239.319	H	
12	8	5	9"	9'- 8 1/8"	0'- 11 1/8"	4'- 7 3/8"	1'- 3 3/8"	0'- 10 1/4"	38'- 4 1/8"	6'- 4 1/8"	39'- 8"	152	56	146.688	4.332	578.337	40'- 2"	6	39'- 10"	2	18	4.454	299.661	4.463	239.319	L	
12	10	5	9"	9'- 8 1/8"	0'- 11 1/8"	4'- 7 3/8"	1'- 3 3/8"	0'- 10 1/4"	38'- 4 1/8"	6'- 4 1/8"	39'- 9"	152	72	152.336	4.528	604.622	40'- 2"	6	39'- 10"	2	22	4.665	313.467	4.648	239.319	P	
12	12	5	9"	9'- 8"	0'- 11 3/8"	4'- 7 1/8"	1'- 3 1/2"	0'- 10 1/2"	38'- 4 1/8"	6'- 3 7/8"	39'- 9"	152	88	157.984	4.778	699.034	40'- 2"	6	39'- 10"	2	26	4.850	327.272	4.808	239.319	T	

STRUCTURE AND BRIDGE DIVISION

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

DIMENSIONS						REINFORCING STEEL																										
SPAN	HGHT	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2					
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	9	9'- 0"	9	9'- 0"	1	1'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	--	---	-----	-----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	9	9'- 0"	9	9'- 0"	2	2'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	--	---	-----	-----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	1	1'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	2'- 8"	4'- 8"	4	12"	4'- 0"	4	12"	4'- 0"
4	4	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	2	2'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	3'- 2"	5'- 2"	4	12"	5'- 0"	4	12"	5'- 0"
4	5	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	3	3'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	3'- 8"	5'- 8"	4	12"	6'- 0"	4	12"	6'- 0"
4	6	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	4	4'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	4'- 2"	6'- 2"	4	12"	7'- 0"	4	12"	7'- 0"
5	3	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	1	1'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	2'- 8"	4'- 11"	4	12"	4'- 0"	4	12"	4'- 0"
5	4	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	2	2'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	3'- 2"	5'- 5"	4	12"	5'- 0"	4	12"	5'- 0"
5	5	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	3	3'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	3	12"	2'- 6"	4'- 10"	4	12"	2'- 6"	3'- 8"	5'- 11"	4	12"	6'- 0"	4	12"	6'- 0"
5	6	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	4	4'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	3	12"	2'- 6"	4'- 10"	4	12"	2'- 6"	4'- 2"	6'- 5"	4	12"	7'- 0"	4	12"	7'- 0"
5	7	8"	8"	8"	8"	15	15'- 0"	15	15'- 0"	5	5'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 8"	6'- 11"	4	12"	8'- 0"	4	12"	8'- 0"
6	4	9"	9"	8"	8"	18	18'- 0"	18	18'- 0"	2	2'- 0"	4	12"	18'- 11"	4	12"	20'- 4"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	3'- 3"	5'- 8"	4	12"	5'- 2"	4	12"	5'- 2"
6	5	9"	9"	8"	8"	18	18'- 0"	18	18'- 0"	3	3'- 0"	4	11"	18'- 11"	4	11"	20'- 4"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	3'- 9"	6'- 2"	4	12"	6'- 2"	4	12"	6'- 2"
6	6	9 1/4"	9 1/4"	8"	8"	18	18'- 0"	18	18'- 0"	4	4'- 0"	4	11"	18'- 11"	4	11"	20'- 4"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	4'- 3 1/4"	6'- 8"	4	12"	7'- 2"	4	12"	7'- 2"
6	7	9 1/4"	9 1/4"	8"	8"	18	18'- 0"	18	18'- 0"	5	5'- 0"	4	11"	18'- 11"	4	11"	20'- 4"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	4'- 9 1/4"	7'- 2"	4	12"	8'- 2"	4	12"	8'- 2"
6	8	9 1/4"	9 1/4"	8"	8"	18	18'- 0"	18	18'- 0"	6	6'- 0"	4	11"	18'- 11"	4	11"	20'- 4"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	5'- 3 1/4"	7'- 8"	4	12"	9'- 2"	4	12"	9'- 2"
7	4	10 1/2"	10 1/2"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	10"	21'- 6"	4	10"	23'- 4"	3	10"	2'- 10 3/4"	5'- 7"	4	10"	2'- 10 3/4"	3'- 4 1/2"	6'- 0"	4	12"	5'- 5"	4	12"	5'- 5"
7	6	10 3/4"	10 3/4"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	10"	21'- 6"	4	10"	23'- 4"	3	10"	2'- 10 3/4"	5'- 7"	4	10"	2'- 10 3/4"	4'- 4 3/4"	7'- 0"	4	12"	7'- 5"	4	12"	7'- 5"
7	8	11"	11"	8"	8"	21	21'- 0"	21	21'- 0"	6	6'- 0"	4	9"	21'- 6"	4	9"	23'- 4"	3	9"	2'- 10 3/4"	5'- 7"	4	9"	2'- 10 3/4"	5'- 5"	8'- 1"	4	12"	9'- 6"	4	12"	9'- 6"
7	10	11"	11"	8"	8"	21	21'- 0"	21	21'- 0"	8	8'- 0"	4	9"	21'- 6"	4	9"	23'- 4"	--	---	-----	-----	5	9"	2'- 10 3/4"	6'- 5"	9'- 0"	4	7"	11'- 6"	4	12"	11'- 6"
8	4	11 3/4"	11 3/4"	8"	8"	24	24'- 0"	24	24'- 0"	2	2'- 0"	4	9"	24'- 2"	5	9"	26'- 4"	3	9"	3'- 1 1/4"	6'- 0"	4	9"	3'- 1 1/4"	3'- 5 3/4"	6'- 4"	4	11"	5'- 8"	4	12"	5'- 8"
8	6	12"	12"	8"	8"	24	24'- 0"	24	24'- 0"	4	4'- 0"	4	9"	24'- 2"	5	9"	26'- 4"	3	9"	3'- 1 1/4"	6'- 0"	4	9"	3'- 1 1/4"	4'- 6"	7'- 4"	4	12"	7'- 8"	4	12"	7'- 8"
8	8	12 1/4"	12 1/4"	8"	8"	24	24'- 0"	24	24'- 0"	6	6'- 0"	4	9"	24'- 2"	5	9"	26'- 4"	3	9"	3'- 1 1/4"	6'- 0"	4	9"	3'- 1 1/4"	5'- 6 1/4"	8'- 4"	4	12"	9'- 9"	4	12"	9'- 9"
8	10	12 1/2"	12 1/2"	8"	8"	24	24'- 0"	24	24'- 0"	8	8'- 0"	4	9"	24'- 2"	5	9"	26'- 4"	3	9"	3'- 1 1/4"	6'- 0"	5	9"	3'- 1 1/4"	6'- 6 1/2"	9'- 4"	4	7"	11'- 9"	4	12"	11'- 9"
9	4	13"	13"	8"	8"	27	27'- 0"	27	27'- 0"	2	2'- 0"	5	9"	26'- 9"	5	9"	29'- 4"	3	9"	3'- 3 5/8"	6'- 5"	4	9"	3'- 3 5/8"	3'- 7"	6'- 7"	4	10"	5'- 10"	4	12"	5'- 10"
9	6	13"	13"	8"	8"	27	27'- 0"	27	27'- 0"	4	4'- 0"	5	9"	26'- 9"	5	9"	29'- 4"	3	9"	3'- 3 5/8"	6'- 5"	4	9"	3'- 3 5/8"	4'- 7"	7'- 7"	4	12"	7'- 10"	4	12"	7'- 10"
9	8	13 1/4"	13 1/4"	8"	8"	27	27'- 0"	27	27'- 0"	6	6'- 0"	5	9"	26'- 9"	5	9"	29'- 4"	3	9"	3'- 3 5/8"	6'- 5"	4	9"	3'- 3 5/8"	5'- 7 1/4"	8'- 8"	4	12"	9'- 10"	4	12"	9'- 10"
9	10	13 1/4"	13 1/4"	8"	8"	27	27'- 0"	27	27'- 0"	8	8'- 0"	5	9"	26'- 9"	5	9"	29'- 4"	3	9"	3'- 3 5/8"	6'- 5"	5	9"	3'- 3 5/8"	6'- 7 1/4"	9'- 7"	4	8 1/2"	11'- 10"	4	12"	11'- 10"
9	12	13 1/2"	13 1/2"	8"	8"	27	27'- 0"	27	27'- 0"	10	10'- 0"	5	8"	26'- 9"	5	8"	29'- 4"	4	8"	3'- 3 5/8"	6'- 4"	5	8"	3'- 3 5/8"	7'- 7 1/2"	10'- 7"	5	7 1/2"	13'- 11"	4	12"	13'- 11"
10	4	14 1/4"	14 1/4"	8"	8"	30	30'- 0"	30	30'- 0"	2	2'- 0"	5	9"	29'- 4"	5	9"	32'- 4"	--	---	-----	-----	5	9"	3'- 6"	3'- 8 1/4"	6'- 10"	4	10"	6'- 0"	4	12"	6'- 0"
10	6	14 1/2"	14 1/2"	8"	8"	30	30'- 0"	30	30'- 0"	4	4'- 0"	5	9"	29'- 4"	5	9"	32'- 4"	3	9"	3'- 6"	6'- 10"	4	9"	3'- 6"	4'- 8 1/2"	7'- 11"	4	12"	8'- 1"	4	12"	8'- 1"
10	8	14 1/2"	14 1/2"	8"	8"	30	30'- 0"	30	30'- 0"	6	6'- 0"	5	9"	29'- 4"	5	9"	32'- 4"	--	---	-----	-----	5	9"	3'- 6"	5'- 8 1/2"	8'- 11"	4	12"	10'- 1"	4	12"	10'- 1"
10	10	14 1/2"	14 1/2"	8"	8"	30	30'- 0"	30	30'- 0"	8	8'- 0"	5	9"	29'- 4"	5	9"	32'- 4"	3	9"	3'- 6"	6'- 10"	5	9"	3'- 6"	6'- 8 1/2"	9'- 11"	4	9"	12'- 1"	4	12"	12'- 1"
10	12	14 3/4"	14 3/4"	8"	8"	30	30'- 0"	30	30'- 0"	10	10'- 0"	5	9"	29'- 4"	5	9"	32'- 4"	3	9"	3'- 6"	6'- 10"	6	9"	3'- 6"	7'- 8 3/4"	10'- 10"	5	7 1/2"	14'- 1"	4	12"	14'- 1"
12	6	17"	17"	8"	8"	36	36'- 0"	36	36'- 0"	4	4'- 0"	6	9"	34'- 6"	6	9"	38'- 4"	3	9"	3'- 10 3/4"	7'- 7"	4	9"	3'- 10 3/4"	4'- 11"	8'- 7"	4	12"	8'- 6"	4	12"	8'- 6"
12	8	17"	17"	8"	8"	36	36'- 0"	36	36'- 0"	6	6'- 0"	6	9"	34'- 6"	6	9"	38'- 4"	3	9"	3'- 10 3/4"	7'- 7"	4	9"	3'- 10 3/4"	5'- 11"	9'- 7"	4	12"	10'- 6"	4	12"	10'- 6"
12	10	17 1/4"	17 1/4"	8"	8"	36	36'- 0"	36	36'- 0"	8	8'- 0"	6	9"	34'- 6"	6	9"	38'- 4"	3	9"	3'- 10 3/4"	7'- 7"	5	9"	3'- 10 3/4"	6'- 11 1/4"	10'- 6"	4	9"	12'- 6"	4	12"	12'- 6"
12	12	17 1/4"	17 1/4"	8"	8"	36	36'- 0"	36	36'- 0"	10	10'- 0"	6	9"	34'- 6"	6	9"	38'- 4"	3	9"	3'- 10 3/4"	7'- 7"	6	9"	3'- 10 3/4"	7'- 11 1/4"	11'- 5"	4	5"	14'- 6"	4	12"	14'- 6"

Sheet 1 of 2

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

TRIPLE BOX CULVERTS

15 TO 20 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

1004.12

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS								WINGWALL			
(FT.)	(FT.)	SIZE	SPACING C-C	BT I											REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	C			HW I		NO. HW2 BARS	NO. HW3 BARS		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)
				a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS	HEADWALL LENGTH				SIZE	LENGTH									
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	11'- 3 7/8"	1'- 5 7/8"	11'- 10"	44	16	42.388	0.989	109.333	13'- 2"	6	12'- 10"	2	8	1.827	102.932	1.808	77.103	A		
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	11'- 3 7/8"	1'- 5 7/8"	11'- 10"	44	24	45.212	1.087	117.685	13'- 2"	6	12'- 10"	2	10	1.932	109.835	1.901	77.103	C		
4	3	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	14'- 4"	2'- 1"	14'- 10"	56	16	52.408	1.136	129.262	16'- 2"	6	15'- 10"	2	8	2.131	120.956	2.121	95.127	A		
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	14'- 4"	2'- 1"	14'- 10"	56	24	55.232	1.234	137.614	16'- 2"	6	15'- 10"	2	10	2.236	127.859	2.214	95.127	C		
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	14'- 4"	2'- 1"	14'- 10"	56	32	58.056	1.332	145.966	16'- 2"	6	15'- 10"	2	12	2.341	134.761	2.307	95.127	E		
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	14'- 4"	2'- 1"	14'- 10"	56	40	60.880	1.430	154.318	16'- 2"	6	15'- 10"	2	14	2.446	141.664	2.399	95.127	G		
5	3	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'- 10"	68	16	62.428	1.281	162.105	19'- 2"	6	18'- 10"	2	8	2.434	138.980	2.435	113.151	A		
5	4	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'- 10"	68	24	65.252	1.380	170.457	19'- 2"	6	18'- 10"	2	10	2.539	145.883	2.527	113.151	C		
5	5	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'- 10"	68	32	68.076	1.478	173.387	19'- 2"	6	18'- 10"	2	12	2.644	152.785	2.620	113.151	E		
5	6	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'- 10"	68	40	70.900	1.576	181.739	19'- 2"	6	18'- 10"	2	14	2.750	159.688	2.713	113.151	G		
5	7	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	17'- 4"	2'- 8 1/4"	17'- 10"	68	48	73.724	1.674	195.513	19'- 2"	6	18'- 10"	2	16	2.855	166.591	2.806	113.151	I		
6	4	4	12"	5'- 1 1/4"	0'- 5 1/2"	2'- 8"	0'- 7 1/4"	0'- 4 3/4"	20'- 4"	3'- 2 1/2"	21'- 0"	80	24	75.272	1.654	192.613	22'- 2"	6	21'- 10"	2	10	2.799	163.907	2.797	131.175	C		
6	5	4	11"	5'- 1 1/4"	0'- 5 1/2"	2'- 8"	0'- 7 1/4"	0'- 4 3/4"	20'- 4"	3'- 2 1/2"	21'- 0"	80	32	78.096	1.751	211.035	22'- 2"	6	21'- 10"	2	12	2.904	170.809	2.889	131.175	E		
6	6	4	11"	5'- 1 1/8"	0'- 5 3/4"	2'- 7 3/4"	0'- 7 5/8"	0'- 5"	20'- 4"	3'- 2 1/4"	21'- 0"	80	40	80.920	1.881	219.509	22'- 2"	6	21'- 10"	2	14	3.016	177.712	2.990	131.175	H		
6	7	4	11"	5'- 1 1/8"	0'- 5 3/4"	2'- 7 3/4"	0'- 7 5/8"	0'- 5"	20'- 4"	3'- 2 1/4"	21'- 0"	80	48	83.744	1.979	227.982	22'- 2"	6	21'- 10"	2	16	3.121	184.615	3.082	131.175	J		
6	8	4	11"	5'- 1 1/8"	0'- 5 3/4"	2'- 7 3/4"	0'- 7 5/8"	0'- 5"	20'- 4"	3'- 2 1/4"	21'- 0"	80	56	86.568	2.077	236.456	22'- 2"	6	21'- 10"	2	18	3.227	191.517	3.175	131.175	L		
7	4	4	10"	5'- 10 7/8"	0'- 7"	2'- 11 3/8"	0'- 9 3/8"	0'- 6 1/4"	23'- 4 1/8"	3'- 8 1/8"	24'- 2"	92	24	85.292	2.036	232.126	25'- 2"	6	24'- 10"	2	10	3.031	181.931	3.039	149.199	D		
7	6	4	10"	5'- 10"	0'- 7 1/4"	2'- 11 1/8"	0'- 9 3/4"	0'- 6 1/2"	23'- 4 1/8"	3'- 7 7/8"	24'- 3"	92	40	90.940	2.269	249.498	25'- 2"	6	24'- 10"	2	14	3.228	195.736	3.211	149.199	H		
7	8	4	9"	5'- 9 3/8"	0'- 7 1/2"	2'- 10 7/8"	0'- 10 1/8"	0'- 6 3/4"	23'- 4 1/8"	3'- 7 5/8"	24'- 3"	92	56	96.588	2.501	283.643	25'- 2"	6	24'- 10"	2	18	3.425	209.541	3.383	149.199	L		
7	10	4	9"	5'- 9 3/8"	0'- 7 1/2"	2'- 10 7/8"	0'- 10 1/8"	0'- 6 3/4"	23'- 4 1/8"	3'- 7 5/8"	24'- 3"	92	72	102.236	2.696	318.719	25'- 2"	6	24'- 10"	2	22	3.635	223.347	3.569	149.199	P		
8	4	4	9"	6'- 7"	0'- 8 1/4"	3'- 2 1/8"	0'- 11 1/8"	0'- 7 1/2"	26'- 3 3/8"	4'- 2 1/8"	27'- 4"	104	24	95.312	2.431	301.472	28'- 2"	6	27'- 10"	2	10	3.233	199.955	3.251	167.223	D		
8	6	4	9"	6'- 6 3/8"	0'- 8 1/2"	3'- 2 3/8"	0'- 11 1/2"	0'- 7 3/4"	26'- 3 3/8"	4'- 1 7/8"	27'- 5"	104	40	100.960	2.669	318.527	28'- 2"	6	27'- 10"	2	14	3.428	213.760	3.421	167.223	H		
8	8	4	9"	6'- 6 3/4"	0'- 8 3/4"	3'- 2 3/8"	0'- 11 7/8"	0'- 8"	26'- 3 3/8"	4'- 1 5/8"	27'- 5"	104	56	106.608	2.906	336.456	28'- 2"	6	27'- 10"	2	18	3.622	227.565	3.591	167.223	L		
8	10	4	9"	6'- 6 5/8"	0'- 9"	3'- 2 1/8"	1'- 1/4"	0'- 8 1/4"	26'- 3 3/8"	4'- 1 3/8"	27'- 6"	104	72	112.256	3.141	384.078	28'- 2"	6	27'- 10"	2	22	3.817	241.371	3.760	167.223	P		
9	4	4	9"	7'- 4"	0'- 9 1/2"	3'- 6 1/2"	1'- 7/8"	0'- 8 3/4"	29'- 4"	4'- 8"	30'- 6"	116	24	105.332	2.874	358.090	31'- 2"	6	30'- 10"	2	10	3.412	217.979	3.440	185.247	D		
9	6	4	9"	7'- 4"	0'- 9 1/2"	3'- 6 1/2"	1'- 7/8"	0'- 8 3/4"	29'- 4"	4'- 8"	30'- 6"	116	40	110.980	3.070	374.126	31'- 2"	6	30'- 10"	2	14	3.622	231.784	3.625	185.247	H		
9	8	4	9"	7'- 3 3/8"	0'- 9 3/4"	3'- 6 1/4"	1'- 1 1/4"	0'- 9"	29'- 4"	4'- 7 3/4"	30'- 7"	116	56	116.628	3.312	392.166	31'- 2"	6	30'- 10"	2	18	3.814	245.589	3.793	185.247	L		
9	10	4	9"	7'- 3 3/8"	0'- 9 3/4"	3'- 6 1/4"	1'- 1 1/4"	0'- 9"	29'- 4"	4'- 7 3/4"	30'- 7"	116	72	122.276	3.506	435.140	31'- 2"	6	30'- 10"	2	22	4.025	259.395	3.978	185.247	P		
9	12	4	8"	7'- 3 3/4"	0'- 10"	3'- 6"	1'- 1 5/8"	0'- 9 1/4"	29'- 4"	4'- 7 1/2"	30'- 7"	116	88	127.924	3.743	522.598	31'- 2"	6	30'- 10"	2	26	4.217	273.200	4.146	185.247	T		
10	4	5	9"	8'- 1"	0'- 10 7/8"	3'- 10"	1'- 2 3/4"	0'- 10"	32'- 4"	5'- 2"	33'- 8"	128	24	115.352	3.362	423.345	34'- 2"	6	33'- 10"	2	10	3.567	236.003	3.605	203.271	D		
10	6	5	9"	8'- 7/8"	0'- 11 1/8"	3'- 9 3/4"	1'- 3 1/8"	0'- 10 1/4"	32'- 4"	5'- 1 3/4"	33'- 9"	128	40	121.000	3.608	440.235	34'- 2"	6	33'- 10"	2	14	3.757	249.808	3.771	203.271	H		
10	8	5	9"	8'- 7/8"	0'- 11 1/8"	3'- 9 3/4"	1'- 3 1/8"	0'- 10 1/4"	32'- 4"	5'- 1 3/4"	33'- 9"	128	56	126.648	3.804	461.960	34'- 2"	6	33'- 10"	2	18	3.968	263.613	3.956	203.271	L		
10	10	5	9"	8'- 7/8"	0'- 11 1/8"	3'- 9 3/4"	1'- 3 1/8"	0'- 10 1/4"	32'- 4"	5'- 1 3/4"	33'- 9"	128	72	132.296	3.999	500.639	34'- 2"	6	33'- 10"	2	22	4.178	277.419	4.141	203.271	P		
10	12	5	9"	8'- 3/4"	0'- 11 3/8"	3'- 9 1/2"	1'- 3 1/2"	0'- 10 1/2"	32'- 4"	5'- 1 1/2"	33'- 9"	128	88	137.944	4.241	569.098	34'- 2"	6	33'- 10"	2	26	4.368	291.224	4.307	203.271	T		
12	6	6	9"	9'- 6 7/8"	1'- 1 3/4"	4'- 4 7/8"	1'- 6 3/4"	1'- 3 3/4"	38'- 4 1/8"	6'- 1 5/8"	40'- 1"	152	40	141.040	4.726	648.700	40'- 2"	6	39'- 10"	2	14	4.013	285.856	4.046	239.319	I		
12	8	6	9"	9'- 6 7/8"	1'- 1 3/4"	4'- 4 7/8"	1'- 6 3/4"	1'- 3 3/4"	38'- 4 1/8"	6'- 1 5/8"	40'- 1"	152	56	146.688	4.922	666.294	40'- 2"	6	39'- 10"	2	18	4.223	299.661	4.232	239.319	M		
12	10	6	9"	9'- 6 3/4"	1'- 2"	4'- 4 5/8"	1'- 7 1/8"	1'- 1"	38'- 4 1/8"	6'- 1 3/8"	40'- 1"	152	72	152.336	5.176	710.159	40'- 2"	6	39'- 10"	2	22	4.409	313.467	4.392	239.319	Q		
12	12	6	9"	9'- 6 3/4"	1'- 2"	4'- 4 5/8"	1'- 7 1/8"	1'- 1"	38'- 4 1/8"	6'- 1 3/8"	40'- 1"	152	88	157.984	5.369	778.792	40'- 2"	6	39'- 10"	2	26	4.619	327.272	4.578	239.319	U		

STRUCTURE AND BRIDGE DIVISION

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

DIMENSIONS						REINFORCING STEEL																										
SPAN	HGHT	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2					
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	9	9'- 0"	9	9'- 0"	1	1'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	--	---	-----	-----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	9	9'- 0"	9	9'- 0"	2	2'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	--	---	-----	-----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	1	1'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	2'- 8"	4'- 8"	4	12"	4'- 0"	4	12"	4'- 0"
4	4	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	2	2'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	3'- 2"	5'- 2"	4	12"	5'- 0"	4	12"	5'- 0"
4	5	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	3	3'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	3'- 8"	5'- 8"	4	12"	6'- 0"	4	12"	6'- 0"
4	6	8"	8"	8"	8"	12	12'- 0"	12	12'- 0"	4	4'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	-----	-----	4	12"	2'- 3 5/8"	4'- 2"	6'- 2"	4	12"	7'- 0"	4	12"	7'- 0"
5	3	8 3/4"	8 3/4"	8"	8"	15	15'- 0"	15	15'- 0"	1	1'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	2'- 8 3/4"	5'- 0"	4	12"	4'- 2"	4	12"	4'- 2"
5	4	9"	9"	8"	8"	15	15'- 0"	15	15'- 0"	2	2'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	3'- 3"	5'- 6"	4	12"	5'- 2"	4	12"	5'- 2"
5	5	9"	9"	8"	8"	15	15'- 0"	15	15'- 0"	3	3'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	3	12"	2'- 6"	4'- 10"	4	12"	2'- 6"	3'- 9"	6'- 0"	4	12"	6'- 2"	4	12"	6'- 2"
5	6	9"	9"	8"	8"	15	15'- 0"	15	15'- 0"	4	4'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 3"	6'- 6"	4	12"	7'- 2"	4	12"	7'- 2"
5	7	9 1/4"	9 1/4"	8"	8"	15	15'- 0"	15	15'- 0"	5	5'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 9 1/4"	7'- 0"	4	12"	8'- 2"	4	12"	8'- 2"
6	4	10 1/2"	10 1/2"	8"	8"	18	18'- 0"	18	18'- 0"	2	2'- 0"	4	11"	18'- 11"	4	11"	20'- 4"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	3'- 4 1/2"	5'- 10"	4	12"	5'- 5"	4	12"	5'- 5"
6	5	10 1/2"	10 1/2"	8"	8"	18	18'- 0"	18	18'- 0"	3	3'- 0"	4	11"	18'- 11"	4	11"	20'- 4"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	3'- 10 1/2"	6'- 4"	4	12"	6'- 5"	4	12"	6'- 5"
6	6	10 3/4"	10 3/4"	8"	8"	18	18'- 0"	18	18'- 0"	4	4'- 0"	4	11"	18'- 11"	4	11"	20'- 4"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	4'- 4 3/4"	6'- 10"	4	12"	7'- 5"	4	12"	7'- 5"
6	7	10 3/4"	10 3/4"	8"	8"	18	18'- 0"	18	18'- 0"	5	5'- 0"	4	11"	18'- 11"	4	11"	20'- 4"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	4'- 10 3/4"	7'- 4"	4	12"	8'- 5"	4	12"	8'- 5"
6	8	10 3/4"	10 3/4"	8"	8"	18	18'- 0"	18	18'- 0"	6	6'- 0"	4	10"	18'- 11"	4	10"	20'- 4"	--	---	-----	-----	5	10"	2'- 8 3/8"	5'- 4 3/4"	7'- 9"	4	11 1/2"	9'- 5"	4	12"	9'- 5"
7	4	12"	12"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	9"	21'- 6"	4	9"	23'- 4"	--	---	-----	-----	4	9"	2'- 10 3/4"	3'- 6"	6'- 2"	4	12"	5'- 8"	4	12"	5'- 8"
7	6	12 1/4"	12 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	9"	21'- 6"	4	9"	23'- 4"	--	---	-----	-----	4	9"	2'- 10 3/4"	4'- 6 1/4"	7'- 2"	4	12"	7'- 9"	4	12"	7'- 9"
7	8	12 1/2"	12 1/2"	8"	8"	21	21'- 0"	21	21'- 0"	6	6'- 0"	4	9"	21'- 6"	4	9"	23'- 4"	3	9"	2'- 10 3/4"	5'- 7"	4	9"	2'- 10 3/4"	5'- 6 1/2"	8'- 2"	4	12"	9'- 9"	4	12"	9'- 9"
7	10	12 1/2"	12 1/2"	8"	8"	21	21'- 0"	21	21'- 0"	8	8'- 0"	4	11"	21'- 6"	5	11"	23'- 4"	3	11"	2'- 10 3/4"	5'- 7"	5	11"	2'- 10 3/4"	6'- 6 1/2"	9'- 1"	4	6"	11'- 9"	4	12"	11'- 9"
8	4	13 1/4"	13 1/4"	8"	8"	24	24'- 0"	24	24'- 0"	2	2'- 0"	5	9"	24'- 2"	5	9"	26'- 4"	3	9"	3'- 1 1/4"	6'- 0"	4	9"	3'- 1 1/4"	3'- 7 1/4"	6'- 5"	4	12"	5'- 10"	4	12"	5'- 10"
8	6	13 1/4"	13 1/4"	8"	8"	24	24'- 0"	24	24'- 0"	4	4'- 0"	5	9"	24'- 2"	5	9"	26'- 4"	3	9"	3'- 1 1/4"	6'- 0"	4	9"	3'- 1 1/4"	4'- 7 1/4"	7'- 5"	4	12"	7'- 10"	4	12"	7'- 10"
8	8	13 1/4"	13 1/4"	8"	8"	24	24'- 0"	24	24'- 0"	6	6'- 0"	5	9"	24'- 2"	5	9"	26'- 4"	3	9"	3'- 1 1/4"	6'- 0"	4	9"	3'- 1 1/4"	5'- 7 1/4"	8'- 5"	4	12"	9'- 10"	4	12"	9'- 10"
8	10	13 1/2"	13 1/2"	8"	8"	24	24'- 0"	24	24'- 0"	8	8'- 0"	5	9"	24'- 2"	5	9"	26'- 4"	3	9"	3'- 1 1/4"	6'- 0"	5	9"	3'- 1 1/4"	6'- 7 1/2"	9'- 5"	4	6"	11'- 11"	4	12"	11'- 11"
9	4	14 3/4"	14 3/4"	8"	8"	27	27'- 0"	27	27'- 0"	2	2'- 0"	5	8"	26'- 9"	5	8"	29'- 4"	--	---	-----	-----	4	8"	3'- 3 5/8"	3'- 8 3/4"	6'- 9"	4	12"	6'- 1"	4	12"	6'- 1"
9	6	15"	15"	8"	8"	27	27'- 0"	27	27'- 0"	4	4'- 0"	5	8"	26'- 9"	5	8"	29'- 4"	--	---	-----	-----	4	8"	3'- 3 5/8"	4'- 9"	7'- 9"	4	12"	8'- 2"	4	12"	8'- 2"
9	8	15"	15"	8"	8"	27	27'- 0"	27	27'- 0"	6	6'- 0"	5	8"	26'- 9"	5	8"	29'- 4"	3	8"	3'- 3 5/8"	6'- 5"	4	8"	3'- 3 5/8"	5'- 9"	8'- 9"	4	12"	10'- 2"	4	12"	10'- 2"
9	10	15 1/4"	15 1/4"	8"	8"	27	27'- 0"	27	27'- 0"	8	8'- 0"	5	8"	26'- 9"	5	8"	29'- 4"	4	8"	3'- 3 5/8"	6'- 4"	4	8"	3'- 3 5/8"	6'- 9 1/4"	9'- 10"	4	6"	12'- 3"	4	12"	12'- 3"
9	12	15 1/4"	15 1/4"	8"	8"	27	27'- 0"	27	27'- 0"	10	10'- 0"	5	9"	26'- 9"	5	9"	29'- 4"	--	---	-----	-----	7	9"	3'- 3 5/8"	7'- 9 1/4"	10'- 7"	5	6"	14'- 3"	4	12"	14'- 3"
10	4	16 1/4"	16 1/4"	8"	8"	30	30'- 0"	30	30'- 0"	2	2'- 0"	6	9"	29'- 4"	5	9"	32'- 4"	--	---	-----	-----	4	9"	3'- 6"	3'- 10 1/4"	7'- 1"	4	12"	6'- 4"	4	12"	6'- 4"
10	6	16 1/2"	16 1/2"	8"	8"	30	30'- 0"	30	30'- 0"	4	4'- 0"	6	9"	29'- 4"	5	9"	32'- 4"	3	9"	3'- 6"	6'- 10"	4	9"	3'- 6"	4'- 10 1/2"	8'- 1"	4	12"	8'- 5"	4	12"	8'- 5"
10	8	16 1/2"	16 1/2"	8"	8"	30	30'- 0"	30	30'- 0"	6	6'- 0"	6	9"	29'- 4"	5	9"	32'- 4"	3	9"	3'- 6"	6'- 10"	4	9"	3'- 6"	5'- 10 1/2"	9'- 1"	4	12"	10'- 5"	4	12"	10'- 5"
10	10	16 3/4"	16 3/4"	8"	8"	30	30'- 0"	30	30'- 0"	8	8'- 0"	6	9"	29'- 4"	5	9"	32'- 4"	3	9"	3'- 6"	6'- 10"	5	9"	3'- 6"	6'- 10 3/4"	10'- 1"	4	6"	12'- 6"	4	12"	12'- 6"
10	12	16 3/4"	16 3/4"	8"	8"	30	30'- 0"	30	30'- 0"	10	10'- 0"	6	9"	29'- 4"	5	9"	32'- 4"	--	---	-----	-----	7	9"	3'- 6"	7'- 10 3/4"	10'- 11"	5	6"	14'- 6"	4	12"	14'- 6"
12	6	19 1/2"	19 1/2"	8"	8"	36	36'- 0"	36	36'- 0"	4	4'- 0"	6	9"	34'- 6"	6	9"	38'- 4"	3	9"	3'- 10 3/4"	7'- 7"	4	9"	3'- 10 3/4"	5'- 1 1/2"	8'- 9"	4	12"	8'- 11"	4	11"	8'- 11"
12	8	19 1/2"	19 1/2"	8"	8"	36	36'- 0"	36	36'- 0"	6	6'- 0"	6	8"	34'- 6"	6	8"	38'- 4"	3	8"	3'- 10 3/4"	7'- 7"	4	8"	3'- 10 3/4"	6'- 1 1/2"	9'- 9"	4	12"	10'- 11"	4	11"	10'- 11"
12	10	19 1/2"	19 1/2"	8"	8"	36	36'- 0"	36	36'- 0"	8	8'- 0"	6	8"	34'- 6"	6	8"	38'- 4"	--	---	-----	-----	5	8"	3'- 10 3/4"	7'- 1 1/2"	10'- 8"	4	6"	12'- 11"	4	11"	12'- 11"
12	12	19 3/4"	19 3/4"	8"	8"	36	36'- 0"	36	36'- 0"	10	10'- 0"	6	9"	34'- 6"	6	9"	38'- 4"	4	9"	3'- 10 3/4"	7'- 6"	6	9"	3'- 10 3/4"	8'- 1 3/4"	11'- 8"	5	6"	15'- 0"	4	11"	15'- 0"

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

STRUCTURE
AND
BRIDGE
DIVISION

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS											
(FT.)	(FT.)	SIZE	SPACING C-C	BT I									NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	C		HW I		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
				a	b	c	d	e	f	g	LENGTH	LENGTH						SIZE	LENGTH									
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	11'- 3 7/8"	1'- 5 7/8"	11'- 10"	44	16	42.388	0.989	109.333	13'- 2"	6	12'- 10"	2	8	1.827	102.932	1.808	77.103	A		
3	4	3	12"	2'- 8 7/8"	0'- 4 3/8"	1'- 6 1/2"	0'- 5 7/8"	0'- 3 7/8"	11'- 4"	1'- 5 3/4"	11'- 10"	44	24	45.212	1.088	110.775	13'- 2"	6	12'- 10"	2	10	1.932	109.835	1.901	77.103	C		
4	3	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	14'- 4"	2'- 1"	14'- 10"	56	16	52.408	1.136	129.262	16'- 2"	6	15'- 10"	2	8	2.131	120.956	2.121	95.127	A		
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	14'- 4"	2'- 1"	14'- 10"	56	24	55.232	1.234	137.614	16'- 2"	6	15'- 10"	2	10	2.236	127.859	2.214	95.127	C		
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	14'- 4"	2'- 1"	14'- 10"	56	32	58.056	1.332	145.966	16'- 2"	6	15'- 10"	2	12	2.341	134.761	2.307	95.127	E		
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	14'- 4"	2'- 1"	14'- 10"	56	40	60.880	1.430	154.318	16'- 2"	6	15'- 10"	2	14	2.446	141.664	2.399	95.127	G		
5	3	4	12"	4'- 3 3/4"	0'- 5 1/4"	2'- 3 1/2"	0'- 6 7/8"	0'- 4 1/2"	17'- 4"	2'- 7 1/2"	17'- 11"	68	16	62.428	1.363	163.107	19'- 2"	6	18'- 10"	2	8	2.408	138.980	2.409	113.151	A		
5	4	4	12"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	17'- 4"	2'- 7 1/4"	18'- 0"	68	24	65.252	1.489	171.571	19'- 2"	6	18'- 10"	2	10	2.504	145.883	2.493	113.151	C		
5	5	4	12"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	17'- 4"	2'- 7 1/4"	18'- 0"	68	32	68.076	1.587	174.500	19'- 2"	6	18'- 10"	2	12	2.609	152.785	2.585	113.151	E		
5	6	4	12"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	17'- 4"	2'- 7 1/4"	18'- 0"	68	40	70.900	1.685	188.275	19'- 2"	6	18'- 10"	2	14	2.715	159.688	2.678	113.151	G		
5	7	4	12"	4'- 3 1/2"	0'- 5 3/4"	2'- 3"	0'- 7 5/8"	0'- 5"	17'- 4"	2'- 7"	18'- 0"	68	48	73.724	1.810	196.627	19'- 2"	6	18'- 10"	2	16	2.830	166.591	2.781	113.151	J		
6	4	4	11"	5'- 1/2"	0'- 7"	2'- 6 1/2"	0'- 9 3/8"	0'- 6 1/4"	20'- 4"	3'- 1"	21'- 2"	80	24	75.272	1.844	204.293	22'- 2"	6	21'- 10"	2	10	2.751	163.907	2.749	131.175	D		
6	5	4	11"	5'- 1/2"	0'- 7"	2'- 6 1/2"	0'- 9 3/8"	0'- 6 1/4"	20'- 4"	3'- 1"	21'- 2"	80	32	78.096	1.942	212.766	22'- 2"	6	21'- 10"	2	12	2.856	170.809	2.842	131.175	F		
6	6	4	11"	5'- 3/8"	0'- 7 1/4"	2'- 6 1/4"	0'- 9 3/4"	0'- 6 1/2"	20'- 4"	3'- 3/4"	21'- 3"	80	40	80.920	2.072	221.361	22'- 2"	6	21'- 10"	2	14	2.950	177.712	2.923	131.175	H		
6	7	4	11"	5'- 3/8"	0'- 7 1/4"	2'- 6 1/4"	0'- 9 3/4"	0'- 6 1/2"	20'- 4"	3'- 3/4"	21'- 3"	80	48	83.744	2.170	229.834	22'- 2"	6	21'- 10"	2	16	3.055	184.615	3.016	131.175	J		
6	8	4	10"	5'- 3/8"	0'- 7 1/4"	2'- 6 1/4"	0'- 9 3/4"	0'- 6 1/2"	20'- 4"	3'- 3/4"	21'- 3"	80	56	86.568	2.268	248.578	22'- 2"	6	21'- 10"	2	18	3.160	191.517	3.109	131.175	L		
7	4	4	9"	5'- 9 3/8"	0'- 8 1/2"	2'- 9 7/8"	0'- 11 1/2"	0'- 7 3/4"	23'- 4 7/8"	3'- 6 5/8"	24'- 5"	92	24	85.292	2.255	238.519	25'- 2"	6	24'- 10"	2	10	2.951	181.931	2.959	149.199	D		
7	6	4	9"	5'- 9 1/4"	0'- 8 3/4"	2'- 9 5/8"	0'- 11 7/8"	0'- 8"	23'- 4 7/8"	3'- 6 3/8"	24'- 5"	92	40	90.940	2.488	256.448	25'- 2"	6	24'- 10"	2	14	3.148	195.736	3.131	149.199	H		
7	8	4	9"	5'- 9 1/8"	0'- 9"	2'- 9 3/8"	1'- 1/4"	0'- 8 1/4"	23'- 4 7/8"	3'- 6 1/8"	24'- 6"	92	56	96.588	2.720	285.387	25'- 2"	6	24'- 10"	2	18	3.345	209.541	3.303	149.199	L		
7	10	4	11"	5'- 9 1/8"	0'- 9"	2'- 9 3/8"	1'- 1/4"	0'- 8 1/4"	23'- 4 7/8"	3'- 6 1/8"	24'- 6"	92	72	102.236	2.914	321.963	25'- 2"	6	24'- 10"	2	22	3.555	223.347	3.489	149.199	P		
8	4	4	9"	6'- 6 1/4"	0'- 9 3/4"	3'- 1 3/8"	1'- 1 1/4"	0'- 9"	26'- 3 7/8"	4'- 5 7/8"	27'- 7"	104	24	95.312	2.676	326.361	28'- 2"	6	27'- 10"	2	10	3.139	199.955	3.157	167.223	D		
8	6	4	9"	6'- 6 1/4"	0'- 9 3/4"	3'- 1 3/8"	1'- 1 1/4"	0'- 9"	26'- 3 7/8"	4'- 5 7/8"	27'- 7"	104	40	100.960	2.873	343.956	28'- 2"	6	27'- 10"	2	14	3.349	213.760	3.342	167.223	H		
8	8	4	9"	6'- 6 1/4"	0'- 9 3/4"	3'- 1 3/8"	1'- 1 1/4"	0'- 9"	26'- 3 7/8"	4'- 5 7/8"	27'- 7"	104	56	106.608	3.069	361.550	28'- 2"	6	27'- 10"	2	18	3.559	227.565	3.528	167.223	L		
8	10	4	9"	6'- 6 1/8"	0'- 10"	3'- 1 1/8"	1'- 1 5/8"	0'- 9 1/4"	26'- 3 7/8"	4'- 5 7/8"	27'- 7"	104	72	112.256	3.304	414.233	28'- 2"	6	27'- 10"	2	22	3.754	241.371	3.698	167.223	P		
9	4	4	8"	7'- 3 7/8"	0'- 11 1/4"	3'- 4 3/4"	1'- 3 3/8"	0'- 10 1/2"	29'- 4"	4'- 6 1/4"	30'- 9"	116	24	105.332	3.193	375.056	31'- 2"	6	30'- 10"	2	10	3.286	217.979	3.314	185.247	D		
9	6	4	8"	7'- 3"	0'- 11 1/2"	3'- 4 1/2"	1'- 3 3/4"	0'- 10 3/4"	29'- 4"	4'- 6"	30'- 10"	116	40	110.980	3.435	393.597	31'- 2"	6	30'- 10"	2	14	3.478	231.784	3.481	185.247	H		
9	8	4	8"	7'- 3"	0'- 11 1/2"	3'- 4 1/2"	1'- 3 3/4"	0'- 10 3/4"	29'- 4"	4'- 6"	30'- 10"	116	56	116.628	3.630	426.113	31'- 2"	6	30'- 10"	2	18	3.688	245.589	3.667	185.247	L		
9	10	4	8"	7'- 2 7/8"	0'- 11 3/4"	3'- 4 1/4"	1'- 4 1/8"	0'- 11"	29'- 4"	4'- 5 3/4"	30'- 10"	116	72	122.276	3.870	472.095	31'- 2"	6	30'- 10"	2	22	3.899	259.395	3.853	185.247	Q		
9	12	5	9"	7'- 2 7/8"	0'- 11 7/8"	3'- 4 1/4"	1'- 4 1/8"	0'- 11"	29'- 4"	4'- 5 3/4"	30'- 10"	116	88	127.924	4.060	565.220	31'- 2"	6	30'- 10"	2	26	4.109	273.200	4.038	185.247	U		
10	4	5	9"	8'- 0"	1'- 7/8"	3'- 8"	1'- 5 5/8"	1'- 0"	32'- 4"	5'- 0"	34'- 0"	128	24	115.352	3.763	447.132	34'- 2"	6	33'- 10"	2	10	3.423	236.003	3.461	203.271	E		
10	6	5	9"	7'- 11 7/8"	1'- 1 1/8"	3'- 7 3/4"	1'- 6"	1'- 1/4"	32'- 4"	4'- 11 3/4"	34'- 0"	128	40	121.000	4.009	478.764	34'- 2"	6	33'- 10"	2	14	3.613	249.808	3.627	203.271	I		
10	8	5	9"	7'- 11 7/8"	1'- 1 1/8"	3'- 7 3/4"	1'- 6"	1'- 1/4"	32'- 4"	4'- 11 3/4"	34'- 0"	128	56	126.648	4.205	496.359	34'- 2"	6	33'- 10"	2	18	3.824	263.613	3.812	203.271	M		
10	10	5	9"	7'- 11 3/4"	1'- 1 3/8"	3'- 7 1/2"	1'- 6 1/4"	1'- 1/2"	32'- 4"	4'- 11 1/2"	34'- 0"	128	72	132.296	4.449	551.154	34'- 2"	6	33'- 10"	2	22	4.014	277.419	3.977	203.271	Q		
10	12	5	9"	7'- 11 3/4"	1'- 1 3/8"	3'- 7 1/2"	1'- 6 1/4"	1'- 1/2"	32'- 4"	4'- 11 1/2"	34'- 0"	128	88	137.944	4.639	638.821	34'- 2"	6	33'- 10"	2	26	4.224	291.224	4.163	203.271	U		
12	6	6	9"	9'- 5 5/8"	1'- 4 1/4"	4'- 2 3/8"	1'- 10 1/4"	1'- 3 1/4"	38'- 4 7/8"	5'- 11 1/8"	40'- 5"	152	40	141.040	5.322	654.464	40'- 2"	6	39'- 10"	2	14	3.764	285.856	3.797	239.319	I		
12	8	5	8"	9'- 5 5/8"	1'- 4 7/8"	4'- 2 3/8"	1'- 10 1/4"	1'- 3 1/4"	38'- 4 7/8"	5'- 11 1/8"	40'- 5"	152	56	146.688	5.518	679.835	40'- 2"	6	39'- 10"	2	18	3.974	299.661	3.982	239.319	M		
12	10	5	8"	9'- 5 5/8"	1'- 4 7/8"	4'- 2 3/8"	1'- 10 1/4"	1'- 3 1/4"	38'- 4 7/8"	5'- 11 1/8"	40'- 5"	152	72	152.336	5.712	722.175	40'- 2"	6	39'- 10"	2	22	4.184	313.467	4.168	239.319	Q		
12	12	6	9"	9'- 5 1/2"	1'- 4 1/2"	4'- 2 1/8"	1'- 10 5/8"	1'- 3 1/2"	38'- 4 7/8"	5'- 10 7/8"	40'- 5"	152	88	157.984	5.963	814.709	40'- 2"	6	39'- 10"	2	26	4.369	327.272	4.328	239.319	U		

STRUCTURE AND BRIDGE DIVISION

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

DIMENSIONS								REINFORCING STEEL																											
SPAN (FT.)	HGHT (FT.)	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2								
		TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	α	LENGTH	SIZE	SPACING C-C	α	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH			
3	3	8"	8"	8"	8"	9	9'- 0"	9	9'- 0"	1	1'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	9	9'- 0"	9	9'- 0"	2	2'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8 1/2"	8 1/2"	8"	8"	12	12'- 0"	12	12'- 0"	1	1'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	----	----	4	12"	2'- 3 5/8"	2'- 8 1/2"	4'- 9"	4	12"	4'- 1"	4	12"	4'- 1"	4	12"	4'- 1"
4	4	8 1/2"	8 1/2"	8"	8"	12	12'- 0"	12	12'- 0"	2	2'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 2 1/2"	5'- 3"	4	12"	5'- 1"	4	12"	5'- 1"	4	12"	5'- 1"
4	5	8 1/2"	8 1/2"	8"	8"	12	12'- 0"	12	12'- 0"	3	3'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 8 1/2"	5'- 9"	4	12"	6'- 1"	4	12"	6'- 1"	4	12"	6'- 1"
4	6	8 1/2"	8 1/2"	8"	8"	12	12'- 0"	12	12'- 0"	4	4'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	----	----	4	12"	2'- 3 5/8"	4'- 2 1/2"	6'- 3"	4	12"	7'- 1"	4	12"	7'- 1"	4	12"	7'- 1"
5	3	10"	10"	8"	8"	15	15'- 0"	15	15'- 0"	1	1'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	3	12"	2'- 6"	4'- 10"	4	12"	2'- 6"	2'- 10"	5'- 1"	4	12"	4'- 4"	4	12"	4'- 4"	4	12"	4'- 4"
5	4	10"	10"	8"	8"	15	15'- 0"	15	15'- 0"	2	2'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	3	12"	2'- 6"	4'- 10"	4	12"	2'- 6"	3'- 4"	5'- 7"	4	12"	5'- 4"	4	12"	5'- 4"	4	12"	5'- 4"
5	5	10 1/4"	10 1/4"	8"	8"	15	15'- 0"	15	15'- 0"	3	3'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	3	12"	2'- 6"	4'- 10"	4	12"	2'- 6"	3'- 10 1/4"	6'- 1"	4	12"	6'- 5"	4	12"	6'- 5"	4	12"	6'- 5"
5	6	10"	10"	8"	8"	15	15'- 0"	15	15'- 0"	4	4'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 4"	6'- 7"	4	12"	7'- 4"	4	12"	7'- 4"	4	12"	7'- 4"
5	7	10"	10"	8"	8"	15	15'- 0"	15	15'- 0"	5	5'- 0"	4	12"	16'- 4"	4	12"	17'- 4"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 10"	7'- 1"	4	12"	8'- 4"	4	12"	8'- 4"	4	12"	8'- 4"
6	4	12"	12"	8"	8"	18	18'- 0"	18	18'- 0"	2	2'- 0"	4	10"	18'- 11"	4	10"	20'- 4"	--	---	----	----	4	10"	2'- 8 3/8"	3'- 6"	5'- 11"	4	12"	5'- 8"	4	12"	5'- 8"	4	12"	5'- 8"
6	5	12 1/4"	12 1/4"	8"	8"	18	18'- 0"	18	18'- 0"	3	3'- 0"	4	10"	18'- 11"	4	10"	20'- 4"	--	---	----	----	4	10"	2'- 8 3/8"	4'- 1 1/4"	6'- 5"	4	12"	6'- 9"	4	12"	6'- 9"	4	12"	6'- 9"
6	6	12 1/4"	12 1/4"	8"	8"	18	18'- 0"	18	18'- 0"	4	4'- 0"	4	10"	18'- 11"	4	10"	20'- 4"	--	---	----	----	4	10"	2'- 8 3/8"	4'- 6 1/4"	6'- 11"	4	12"	7'- 9"	4	12"	7'- 9"	4	12"	7'- 9"
6	7	11 1/2"	11 1/2"	8"	8"	18	18'- 0"	18	18'- 0"	5	5'- 0"	4	10"	18'- 11"	4	10"	20'- 4"	3	10"	2'- 8 3/8"	5'- 2"	4	10"	2'- 8 3/8"	4'- 11 1/2"	7'- 5"	4	12"	8'- 7"	4	12"	8'- 7"	4	12"	8'- 7"
6	8	11 3/4"	11 3/4"	8"	8"	18	18'- 0"	18	18'- 0"	6	6'- 0"	4	10"	18'- 11"	4	10"	20'- 4"	--	---	----	----	5	10"	2'- 8 3/8"	5'- 5 3/4"	7'- 10"	4	9"	9'- 8"	4	12"	9'- 8"	4	12"	9'- 8"
7	4	13 1/4"	13 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	9"	21'- 6"	5	9"	23'- 4"	--	---	----	----	4	9"	2'- 10 3/4"	3'- 7 1/4"	6'- 3"	4	12"	5'- 10"	4	12"	5'- 10"	4	12"	5'- 10"
7	6	13 1/4"	13 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	9"	21'- 6"	5	9"	23'- 4"	--	---	----	----	4	9"	2'- 10 3/4"	4'- 7 1/4"	7'- 3"	4	12"	7'- 10"	4	12"	7'- 10"	4	12"	7'- 10"
7	8	13 1/4"	13 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	6	6'- 0"	4	9"	21'- 6"	5	9"	23'- 4"	3	9"	2'- 10 3/4"	5'- 7"	4	9"	2'- 10 3/4"	5'- 7 1/4"	8'- 3"	4	9"	9'- 10"	4	12"	9'- 10"	4	12"	9'- 10"
7	10	13 1/4"	13 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	8	8'- 0"	4	9"	21'- 6"	5	9"	23'- 4"	3	9"	2'- 10 3/4"	5'- 7"	5	9"	2'- 10 3/4"	6'- 7 1/4"	9'- 2"	6	11 1/2"	11'- 10"	4	12"	11'- 10"	4	12"	11'- 10"
8	4	15"	15"	8"	8"	24	24'- 0"	24	24'- 0"	2	2'- 0"	5	9"	24'- 2"	5	9"	26'- 4"	--	---	----	----	4	9"	3'- 1 1/4"	3'- 9"	6'- 7"	4	12"	6'- 2"	4	12"	6'- 2"	4	12"	6'- 2"
8	6	15"	15"	8"	8"	24	24'- 0"	24	24'- 0"	4	4'- 0"	5	9"	24'- 2"	5	9"	26'- 4"	--	---	----	----	4	9"	3'- 1 1/4"	4'- 9"	7'- 7"	4	12"	8'- 2"	4	12"	8'- 2"	4	12"	8'- 2"
8	8	15"	15"	8"	8"	24	24'- 0"	24	24'- 0"	6	6'- 0"	5	9"	24'- 2"	5	9"	26'- 4"	3	9"	3'- 1 1/4"	6'- 0"	4	9"	3'- 1 1/4"	5'- 9"	8'- 7"	4	9 1/2"	10'- 2"	4	12"	10'- 2"	4	12"	10'- 2"
8	10	15"	15"	8"	8"	24	24'- 0"	24	24'- 0"	8	8'- 0"	5	9"	24'- 2"	5	9"	26'- 4"	3	9"	3'- 1 1/4"	6'- 0"	5	9"	3'- 1 1/4"	6'- 9"	9'- 6"	6	11 1/2"	12'- 2"	4	12"	12'- 2"	4	12"	12'- 2"
9	4	16 1/2"	16 1/2"	8"	8"	27	27'- 0"	27	27'- 0"	2	2'- 0"	5	8"	26'- 9"	5	8"	29'- 4"	--	---	----	----	4	8"	3'- 3 5/8"	3'- 10 1/2"	6'- 11"	4	12"	6'- 5"	4	12"	6'- 5"	4	12"	6'- 5"
9	6	16 1/2"	16 1/2"	8"	8"	27	27'- 0"	27	27'- 0"	4	4'- 0"	5	9"	26'- 9"	5	9"	29'- 4"	--	---	----	----	4	9"	3'- 3 5/8"	4'- 10 1/2"	7'- 11"	4	12"	8'- 5"	4	12"	8'- 5"	4	12"	8'- 5"
9	8	16 1/2"	16 1/2"	8"	8"	27	27'- 0"	27	27'- 0"	6	6'- 0"	5	8"	26'- 9"	5	8"	29'- 4"	3	8"	3'- 3 5/8"	6'- 5"	4	8"	3'- 3 5/8"	5'- 10 1/2"	8'- 11"	4	9 1/2"	10'- 5"	4	12"	10'- 5"	4	12"	10'- 5"
9	10	16 1/2"	16 1/2"	8"	8"	27	27'- 0"	27	27'- 0"	8	8'- 0"	5	8"	26'- 9"	5	8"	29'- 4"	3	8"	3'- 3 5/8"	6'- 5"	5	8"	3'- 3 5/8"	6'- 10 1/2"	9'- 10"	6	11 1/2"	12'- 5"	4	12"	12'- 5"	4	12"	12'- 5"
9	12	16 3/4"	16 3/4"	8 1/4"	8"	27	27'- 0"	27	27'- 0"	10	10'- 0"	6	9"	26'- 9"	6	9"	29'- 5"	--	---	----	----	7	9"	3'- 3 3/8"	7'- 10 3/4"	10'- 9"	6	7 1/2"	14'- 6"	4	12"	14'- 6"	4	12"	14'- 6"
10	4	18 1/4"	18 1/4"	8"	8"	30	30'- 0"	30	30'- 0"	2	2'- 0"	6	9"	29'- 4"	6	9"	32'- 4"	--	---	----	----	4	9"	3'- 6"	4'- 1 1/4"	7'- 3"	4	12"	6'- 9"	4	11"	6'- 9"	4	11"	6'- 9"
10	6	18 1/4"	18 1/4"	8"	8"	30	30'- 0"	30	30'- 0"	4	4'- 0"	6	9"	29'- 4"	6	9"	32'- 4"	--	---	----	----	4	9"	3'- 6"	5'- 1 1/4"	8'- 3"	4	12"	8'- 9"	4	11"	8'- 9"	4	11"	8'- 9"
10	8	18 1/4"	18 1/4"	8"	8"	30	30'- 0"	30	30'- 0"	6	6'- 0"	6	9"	29'- 4"	6	9"	32'- 4"	3	9"	3'- 6"	6'- 10"	4	9"	3'- 6"	6'- 1 1/4"	9'- 3"	4	9 1/2"	10'- 9"	4	11"	10'- 9"	4	11"	10'- 9"
10	10	18 1/2"	18 1/2"	8"	8"	30	30'- 0"	30	30'- 0"	8	8'- 0"	6	9"	29'- 4"	6	9"	32'- 4"	3	9"	3'- 6"	6'- 10"	5	9"	3'- 6"	7'- 1 1/2"	10'- 3"	5	8"	12'- 9"	4	11"	12'- 9"	4	11"	12'- 9"
10	12	18 1/2"	18 1/2"	8 1/2"	8"	30	30'- 0"	30	30'- 0"	10	10'- 0"	6	9"	29'- 4"	6	9"	32'- 5"	4	9"	3'- 6 1/2"	6'- 10"	6	9"	3'- 6 1/2"	8'- 1 1/2"	11'- 2"	5	5 1/2"	14'- 9"	4	11"	14'- 9"	4	11"	14'- 9"
12	6	21 1/2"	21 1/2"	8"	8"	36	36'- 0"	36	36'- 0"	4	4'- 0"	6	8"	34'- 6"	6	8"	38'- 4"	--	---	----	----	4	8"	3'- 10 3/4"	5'- 3 1/2"	8'- 11"	4	12"	9'- 3"	4	10"	9'- 3"	4	10"	9'- 3"
12	8	21 1/2"	21 1/2"	8"	8"	36	36'- 0"	36	36'- 0"	6	6'- 0"	6	8"	34'- 6"	6	8"	38'- 4"	3	8"	3'- 10 3/4"	7'- 7"	4	8"	3'- 10 3/4"	6'- 3 1/2"	9'- 11"	4	9"	11'- 3"	4	10"	11'- 3"	4	10"	11'- 3"
12	10	21 1/2"	21 1/2"	8"	8"	36	36'- 0"	36	36'- 0"	8	8'- 0"	6	8"	34'- 6"	6	8"	38'- 4"	3	8"	3'- 10 3/4"	7'- 7"	5	8"	3'- 10 3/4"	7'- 3 1/2"	10'- 10"	5	8"	13'- 3"	4	10"	13'- 3"	4	10"	13'- 3"
12	12	21 3/4"	21 3/4"	8 1/2"	8"	36	36'- 0"	36	36'- 0"	10	10'- 0"	6	8"	34'- 6"	6	8"	38'- 5"	4	8"	3'- 11 1/4"	7'- 7"	5	8"	3'- 11 1/4"	8'- 3 3/4"	11'- 11"	5	5 1/2"	15'- 3"	4	10"	15'- 3"	4	10"	15'- 3"

TRIPLE BOX CULVERTS
25 TO 30 FT. FILLS

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS								WINGWALL	
(FT.)	(FT.)	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	HEADWALL LENGTH	SIZE	HW I LENGTH	NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)		OUTLET REINFORCING STEEL (LBS)
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	11'- 3 7/8"	1'- 5 7/8"	11'- 10"	44	16	42.388	0.989	109.333	13'- 2"	6	12'- 10"	2	8	1.827	102.932	1.808	77.103	A
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	11'- 3 7/8"	1'- 5 7/8"	11'- 10"	44	24	45.212	1.087	117.685	13'- 2"	6	12'- 10"	2	10	1.932	109.835	1.901	77.103	C
4	3	4	12"	3'- 6 1/4"	0'- 5"	1'- 11"	0'- 6 1/2"	0'- 4 1/4"	14'- 4"	2'- 1/2"	14'- 11"	56	16	52.408	1.181	129.930	16'- 2"	6	15'- 10"	2	8	2.118	120.956	2.108	95.127	A
4	4	4	12"	3'- 6 1/4"	0'- 5"	1'- 11"	0'- 6 1/2"	0'- 4 1/4"	14'- 4"	2'- 1/2"	14'- 11"	56	24	55.232	1.279	138.282	16'- 2"	6	15'- 10"	2	10	2.223	127.859	2.201	95.127	C
4	5	4	12"	3'- 6 1/4"	0'- 5"	1'- 11"	0'- 6 1/2"	0'- 4 1/4"	14'- 4"	2'- 1/2"	14'- 11"	56	32	58.056	1.377	146.634	16'- 2"	6	15'- 10"	2	12	2.328	134.761	2.294	95.127	E
4	6	4	12"	3'- 6 1/4"	0'- 5"	1'- 11"	0'- 6 1/2"	0'- 4 1/4"	14'- 4"	2'- 1/2"	14'- 11"	56	40	60.880	1.475	154.986	16'- 2"	6	15'- 10"	2	14	2.433	141.664	2.387	95.127	G
5	3	4	12"	4'- 3 3/8"	0'- 6 1/2"	2'- 2 1/4"	0'- 8 5/8"	0'- 5 3/4"	17'- 4"	2'- 6 1/4"	18'- 1"	68	16	62.428	1.500	158.798	19'- 2"	6	18'- 10"	2	8	2.383	138.980	2.383	113.151	B
5	4	4	12"	4'- 3 3/8"	0'- 6 1/2"	2'- 2 1/4"	0'- 8 5/8"	0'- 5 3/4"	17'- 4"	2'- 6 1/4"	18'- 1"	68	24	65.252	1.598	167.150	19'- 2"	6	18'- 10"	2	10	2.488	145.883	2.476	113.151	D
5	5	4	12"	4'- 3"	0'- 6 3/4"	2'- 2"	0'- 9"	0'- 6"	17'- 4"	2'- 6"	18'- 2"	68	32	68.076	1.723	175.947	19'- 2"	6	18'- 10"	2	12	2.584	152.785	2.560	113.151	F
5	6	4	12"	4'- 3 3/8"	0'- 6 1/2"	2'- 2 1/4"	0'- 8 5/8"	0'- 5 3/4"	17'- 4"	2'- 6 1/4"	18'- 1"	68	40	70.900	1.794	189.277	19'- 2"	6	18'- 10"	2	14	2.698	159.688	2.662	113.151	H
5	7	4	12"	4'- 3 3/8"	0'- 6 1/2"	2'- 2 1/4"	0'- 8 5/8"	0'- 5 3/4"	17'- 4"	2'- 6 1/4"	18'- 1"	68	48	73.724	1.892	197.629	19'- 2"	6	18'- 10"	2	16	2.803	166.591	2.754	113.151	J
6	4	4	10"	4'- 11 3/4"	0'- 8 1/2"	2'- 5"	0'- 11 1/2"	0'- 7 3/4"	20'- 4"	2'- 11 1/2"	21'- 5"	80	24	75.272	2.036	201.408	22'- 2"	6	21'- 10"	2	10	2.684	163.907	2.683	131.175	D
6	5	4	10"	4'- 11 5/8"	0'- 8 3/4"	2'- 4 3/4"	0'- 11 1/8"	0'- 8"	20'- 4"	2'- 11 1/4"	21'- 5"	80	32	78.096	2.166	210.361	22'- 2"	6	21'- 10"	2	12	2.779	170.809	2.764	131.175	F
6	6	4	10"	4'- 11 5/8"	0'- 8 3/4"	2'- 4 3/4"	0'- 11 1/8"	0'- 8"	20'- 4"	2'- 11 1/4"	21'- 5"	80	40	80.920	2.264	218.980	22'- 2"	6	21'- 10"	2	14	2.884	177.712	2.857	131.175	H
6	7	4	10"	5'- 0"	0'- 8"	2'- 5 1/2"	0'- 10 3/4"	0'- 7 1/4"	20'- 4"	3'- 0"	21'- 4"	80	48	83.744	2.266	236.123	22'- 2"	6	21'- 10"	2	16	3.022	184.615	2.983	131.175	J
6	8	4	10"	4'- 11 7/8"	0'- 8 1/4"	2'- 5 1/4"	0'- 11 1/8"	0'- 7 1/2"	20'- 4"	2'- 11 3/4"	21'- 4"	80	56	86.568	2.395	253.889	22'- 2"	6	21'- 10"	2	18	3.116	191.517	3.065	131.175	L
7	4	4	9"	5'- 8 3/4"	0'- 9 3/4"	2'- 8 5/8"	1'- 1 1/4"	0'- 9"	23'- 4 1/8"	3'- 5 3/8"	24'- 7"	92	24	85.292	2.436	263.114	25'- 2"	6	24'- 10"	2	10	2.884	181.931	2.892	149.199	D
7	6	4	9"	5'- 8 3/4"	0'- 9 3/4"	2'- 8 5/8"	1'- 1 1/4"	0'- 9"	23'- 4 1/8"	3'- 5 3/8"	24'- 7"	92	40	90.940	2.632	280.709	25'- 2"	6	24'- 10"	2	14	3.094	195.736	3.078	149.199	H
7	8	4	9"	5'- 8 3/4"	0'- 9 3/4"	2'- 8 5/8"	1'- 1 1/4"	0'- 9"	23'- 4 1/8"	3'- 5 3/8"	24'- 7"	92	56	96.588	2.827	313.879	25'- 2"	6	24'- 10"	2	18	3.305	209.541	3.263	149.199	L
7	10	4	9"	5'- 8 3/4"	0'- 9 3/4"	2'- 8 5/8"	1'- 1 1/4"	0'- 9"	23'- 4 1/8"	3'- 5 3/8"	24'- 7"	92	72	102.236	3.021	366.415	25'- 2"	6	24'- 10"	2	22	3.515	223.347	3.448	149.199	P
8	4	4	9"	6'- 5 3/8"	0'- 11 1/2"	2'- 11 5/8"	1'- 3 3/4"	0'- 10 3/4"	26'- 3 7/8"	3'- 10 7/8"	27'- 10"	104	24	95.312	2.965	316.704	28'- 2"	6	27'- 10"	2	10	3.029	199.955	3.047	167.223	D
8	6	4	9"	6'- 5 3/8"	0'- 11 1/2"	2'- 11 5/8"	1'- 3 3/4"	0'- 10 3/4"	26'- 3 7/8"	3'- 10 7/8"	27'- 10"	104	40	100.960	3.161	334.299	28'- 2"	6	27'- 10"	2	14	3.239	213.760	3.233	167.223	H
8	8	4	9"	6'- 5 3/8"	0'- 11 1/2"	2'- 11 5/8"	1'- 3 3/4"	0'- 10 3/4"	26'- 3 7/8"	3'- 10 7/8"	27'- 10"	104	56	106.608	3.356	367.500	28'- 2"	6	27'- 10"	2	18	3.450	227.565	3.418	167.223	L
8	10	4	9"	6'- 5 3/8"	0'- 11 1/2"	2'- 11 5/8"	1'- 3 3/4"	0'- 10 3/4"	26'- 3 7/8"	3'- 10 7/8"	27'- 10"	104	72	112.256	3.550	422.106	28'- 2"	6	27'- 10"	2	22	3.660	241.371	3.604	167.223	P
9	4	4	8"	7'- 2 1/4"	1'- 1"	3'- 3"	1'- 5 7/8"	1'- 1/4"	29'- 4"	4'- 4 1/2"	31'- 0"	116	24	105.332	3.513	377.561	31'- 2"	6	30'- 10"	2	10	3.178	217.979	3.206	185.247	E
9	6	5	9"	7'- 2 1/4"	1'- 1 1/8"	3'- 3"	1'- 6"	1'- 1/4"	29'- 4"	4'- 4 1/2"	31'- 0"	116	40	110.980	3.709	396.674	31'- 2"	6	30'- 10"	2	14	3.389	231.784	3.392	185.247	I
9	8	4	8"	7'- 2 1/4"	1'- 1"	3'- 3"	1'- 5 7/8"	1'- 1/4"	29'- 4"	4'- 4 1/2"	31'- 0"	116	56	116.628	3.904	431.779	31'- 2"	6	30'- 10"	2	18	3.599	245.589	3.577	185.247	M
9	10	4	8"	7'- 2 1/4"	1'- 1"	3'- 3"	1'- 5 7/8"	1'- 1/4"	29'- 4"	4'- 4 1/2"	31'- 0"	116	72	122.276	4.097	490.280	31'- 2"	6	30'- 10"	2	22	3.809	259.395	3.763	185.247	Q
9	12	4	9"	7'- 2 3/8"	1'- 1 1/4"	3'- 2 3/4"	1'- 6 1/4"	1'- 1/2"	29'- 4 1/2"	4'- 4 1/4"	31'- 1"	116	88	127.924	4.354	616.538	31'- 2"	6	30'- 10"	2	26	3.979	273.200	3.907	185.247	U
10	4	5	9"	7'- 11"	1'- 2 7/8"	3'- 6"	1'- 8 3/8"	1'- 2"	32'- 4"	4'- 10"	34'- 3"	128	24	115.352	4.163	491.307	34'- 2"	6	33'- 10"	2	10	3.261	236.003	3.299	203.271	E
10	6	5	9"	7'- 11"	1'- 2 7/8"	3'- 6"	1'- 8 3/8"	1'- 2"	32'- 4"	4'- 10"	34'- 3"	128	40	121.000	4.359	509.388	34'- 2"	6	33'- 10"	2	14	3.471	249.808	3.484	203.271	I
10	8	5	9"	7'- 11"	1'- 2 7/8"	3'- 6"	1'- 8 3/8"	1'- 2"	32'- 4"	4'- 10"	34'- 3"	128	56	126.648	4.554	544.951	34'- 2"	6	33'- 10"	2	18	3.681	263.613	3.670	203.271	M
10	10	5	9"	7'- 10 7/8"	1'- 3 1/8"	3'- 5 3/4"	1'- 8 3/4"	1'- 2 1/4"	32'- 4"	4'- 9 3/4"	34'- 3"	128	72	132.296	4.798	602.613	34'- 2"	6	33'- 10"	2	22	3.871	277.419	3.835	203.271	Q
10	12	5	9"	7'- 11 3/8"	1'- 3 1/8"	3'- 5 3/4"	1'- 8 3/4"	1'- 2 1/4"	32'- 5"	4'- 9 3/4"	34'- 4"	128	88	137.944	5.035	685.337	34'- 2"	6	33'- 10"	2	26	4.036	291.224	3.974	203.271	U
12	6	6	8"	9'- 4 5/8"	1'- 6 1/4"	4'- 3 7/8"	2'- 1 1/8"	1'- 5 1/4"	38'- 4 1/8"	5'- 9 1/8"	40'- 8"	152	40	141.040	5.796	705.762	40'- 2"	6	39'- 10"	2	14	3.583	285.856	3.616	239.319	J
12	8	6	8"	9'- 4 5/8"	1'- 6 1/4"	4'- 3 7/8"	2'- 1 1/8"	1'- 5 1/4"	38'- 4 1/8"	5'- 9 1/8"	40'- 8"	152	56	146.688	5.990	746.989	40'- 2"	6	39'- 10"	2	18	3.793	299.661	3.801	239.319	N
12	10	6	8"	9'- 4 5/8"	1'- 6 1/4"	4'- 3 7/8"	2'- 1 1/8"	1'- 5 1/4"	38'- 4 1/8"	5'- 9 1/8"	40'- 8"	152	72	152.336	6.183	808.886	40'- 2"	6	39'- 10"	2	22	4.003	313.467	3.987	239.319	R
12	12	6	8"	9'- 5"	1'- 6 1/2"	4'- 1 7/8"	2'- 1 1/2"	1'- 5 1/2"	38'- 5 1/8"	5'- 8 7/8"	40'- 10"	152	88	157.984	6.484	870.455	40'- 2"	6	39'- 10"	2	26	4.141	327.272	4.099	239.319	V

STRUCTURE AND BRIDGE DIVISION

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

DIMENSIONS								REINFORCING STEEL																											
SPAN (FT.)	HGHT (FT.)	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2								
		TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH			
3	3	8"	8"	8"	8"	9	9'- 0"	9	9'- 0"	1	1'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	3	12"	2'- 1 1/4"	4'- 0"	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	9	9'- 0"	9	9'- 0"	2	2'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	--	--	----	----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	9 1/4"	9 1/4"	8"	8"	12	12'- 0"	12	12'- 0"	1	1'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	--	----	----	4	12"	2'- 3 5/8"	2'- 9 1/4"	4'- 10"	4	12"	4'- 2"	4	12"	4'- 2"	4	12"	4'- 2"
4	4	9 1/4"	9 1/4"	8"	8"	12	12'- 0"	12	12'- 0"	2	2'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	--	----	----	4	12"	2'- 3 5/8"	3'- 3/4"	5'- 4"	4	12"	5'- 2"	4	12"	5'- 2"	4	12"	5'- 2"
4	5	9 1/4"	9 1/4"	8"	8"	12	12'- 0"	12	12'- 0"	3	3'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	--	----	----	4	12"	2'- 3 5/8"	3'- 9/4"	5'- 10"	4	12"	6'- 2"	4	12"	6'- 2"	4	12"	6'- 2"
4	6	9 1/4"	9 1/4"	8"	8"	12	12'- 0"	12	12'- 0"	4	4'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	3	12"	2'- 3 5/8"	4'- 5"	4	12"	2'- 3 5/8"	4'- 3/4"	6'- 4"	4	12"	7'- 2"	4	12"	7'- 2"	4	12"	7'- 2"
5	3	10 3/4"	10 3/4"	8"	8"	15	15'- 0"	15	15'- 0"	1	1'- 0"	4	11"	16'- 4"	4	11"	17'- 4"	--	--	----	----	4	11"	2'- 6"	2'- 10 3/4"	5'- 2"	4	12"	4'- 5"	4	12"	4'- 5"	4	12"	4'- 5"
5	4	10 3/4"	10 3/4"	8"	8"	15	15'- 0"	15	15'- 0"	2	2'- 0"	4	11"	16'- 4"	4	11"	17'- 4"	--	--	----	----	4	11"	2'- 6"	3'- 4 3/4"	5'- 8"	4	12"	5'- 5"	4	12"	5'- 5"	4	12"	5'- 5"
5	5	11"	11"	8"	8"	15	15'- 0"	15	15'- 0"	3	3'- 0"	4	11"	16'- 4"	4	11"	17'- 4"	--	--	----	----	4	11"	2'- 6"	3'- 11"	6'- 2"	4	12"	6'- 6"	4	12"	6'- 6"	4	12"	6'- 6"
5	6	11"	11"	8"	8"	15	15'- 0"	15	15'- 0"	4	4'- 0"	4	11"	16'- 4"	4	11"	17'- 4"	3	11"	2'- 6"	4'- 10"	4	11"	2'- 6"	4'- 5"	6'- 8"	4	12"	7'- 6"	4	12"	7'- 6"	4	12"	7'- 6"
5	7	11"	11"	8"	8"	15	15'- 0"	15	15'- 0"	5	5'- 0"	4	11"	16'- 4"	4	11"	17'- 4"	4	11"	2'- 6"	4'- 9"	4	11"	2'- 6"	4'- 11"	7'- 2"	4	10 1/2"	8'- 6"	4	12"	8'- 6"	4	12"	8'- 6"
6	4	13"	13"	8"	8"	18	18'- 0"	18	18'- 0"	2	2'- 0"	4	9"	18'- 11"	4	9"	20'- 4"	--	--	----	----	4	9"	2'- 8 3/8"	3'- 7"	6'- 0"	4	12"	5'- 10"	4	12"	5'- 10"	4	12"	5'- 10"
6	5	13"	13"	8"	8"	18	18'- 0"	18	18'- 0"	3	3'- 0"	4	9"	18'- 11"	4	9"	20'- 4"	--	--	----	----	4	9"	2'- 8 3/8"	4'- 1"	6'- 6"	4	12"	6'- 10"	4	12"	6'- 10"	4	12"	6'- 10"
6	6	13"	13"	8"	8"	18	18'- 0"	18	18'- 0"	4	4'- 0"	4	9"	18'- 11"	4	9"	20'- 4"	--	--	----	----	4	9"	2'- 8 3/8"	4'- 7"	7'- 0"	4	12"	7'- 10"	4	12"	7'- 10"	4	12"	7'- 10"
6	7	13"	13"	8"	8"	18	18'- 0"	18	18'- 0"	5	5'- 0"	4	9"	18'- 11"	4	9"	20'- 4"	3	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	5'- 1"	7'- 6"	4	11"	8'- 10"	4	12"	8'- 10"	4	12"	8'- 10"
6	8	13"	13"	8"	8"	18	18'- 0"	18	18'- 0"	6	6'- 0"	4	9"	18'- 11"	4	9"	20'- 4"	--	--	----	----	5	9"	2'- 8 3/8"	5'- 7"	7'- 11"	5	10 1/2"	9'- 10"	4	12"	9'- 10"	4	12"	9'- 10"
7	4	14 1/2"	14 1/2"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	9"	21'- 6"	5	9"	23'- 4"	--	--	----	----	4	9"	2'- 10 3/4"	3'- 8 1/2"	6'- 4"	4	12"	6'- 1"	4	12"	6'- 1"	4	12"	6'- 1"
7	6	14 1/2"	14 1/2"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	9"	21'- 6"	5	9"	23'- 4"	--	--	----	----	4	9"	2'- 10 3/4"	4'- 8 1/2"	7'- 4"	4	12"	8'- 1"	4	12"	8'- 1"	4	12"	8'- 1"
7	8	14 1/2"	14 1/2"	8"	8"	21	21'- 0"	21	21'- 0"	6	6'- 0"	4	9"	21'- 6"	5	9"	23'- 4"	3	9"	2'- 10 3/4"	5'- 7"	4	9"	2'- 10 3/4"	5'- 8 1/2"	8'- 4"	4	7"	10'- 1"	4	12"	10'- 1"	4	12"	10'- 1"
7	10	14 1/2"	14 1/2"	8"	8"	21	21'- 0"	21	21'- 0"	8	8'- 0"	4	9"	21'- 6"	5	9"	23'- 4"	--	--	----	----	6	9"	2'- 10 3/4"	6'- 8 1/2"	9'- 2"	6	9 1/2"	12'- 1"	4	12"	12'- 1"	4	12"	12'- 1"
8	4	16 1/4"	16 1/4"	8"	8"	24	24'- 0"	24	24'- 0"	2	2'- 0"	5	9"	24'- 2"	5	9"	26'- 4"	--	--	----	----	4	9"	3'- 1 1/4"	3'- 10 1/4"	6'- 8"	4	12"	6'- 4"	4	12"	6'- 4"	4	12"	6'- 4"
8	6	16 1/4"	16 1/4"	8"	8"	24	24'- 0"	24	24'- 0"	4	4'- 0"	5	8"	24'- 2"	5	8"	26'- 4"	--	--	----	----	4	8"	3'- 1 1/4"	4'- 10 1/4"	7'- 8"	4	12"	8'- 4"	4	12"	8'- 4"	4	12"	8'- 4"
8	8	16 1/4"	16 1/4"	8"	8"	24	24'- 0"	24	24'- 0"	6	6'- 0"	5	8"	24'- 2"	5	8"	26'- 4"	3	8"	3'- 1 1/4"	6'- 0"	4	8"	3'- 1 1/4"	5'- 10 1/4"	8'- 8"	4	7 1/2"	10'- 4"	4	12"	10'- 4"	4	12"	10'- 4"
8	10	16 1/4"	16 1/4"	8"	8"	24	24'- 0"	24	24'- 0"	8	8'- 0"	5	8"	24'- 2"	5	8"	26'- 4"	3	8"	3'- 1 1/4"	6'- 0"	5	8"	3'- 1 1/4"	6'- 10 1/4"	9'- 8"	6	9 1/2"	12'- 4"	4	12"	12'- 4"	4	12"	12'- 4"
9	4	18 1/4"	18 1/4"	8"	8"	27	27'- 0"	27	27'- 0"	2	2'- 0"	6	9"	26'- 9"	5	9"	29'- 4"	--	--	----	----	4	9"	3'- 3 5/8"	4'- 1 1/4"	7'- 1"	4	12"	6'- 9"	4	10 1/2"	6'- 9"	4	10 1/2"	6'- 9"
9	6	18 1/4"	18 1/4"	8"	8"	27	27'- 0"	27	27'- 0"	4	4'- 0"	6	9"	26'- 9"	5	9"	29'- 4"	--	--	----	----	4	9"	3'- 3 5/8"	5'- 1 1/4"	8'- 1"	4	12"	8'- 9"	4	10 1/2"	8'- 9"	4	10 1/2"	8'- 9"
9	8	18 1/4"	18 1/4"	8"	8"	27	27'- 0"	27	27'- 0"	6	6'- 0"	6	9"	26'- 9"	5	9"	29'- 4"	--	--	----	----	5	9"	3'- 3 5/8"	6'- 1 1/4"	9'- 0"	5	10 1/2"	10'- 9"	4	10 1/2"	10'- 9"	4	10 1/2"	10'- 9"
9	10	18 1/4"	18 1/4"	8"	8"	27	27'- 0"	27	27'- 0"	8	8'- 0"	6	9"	26'- 9"	5	9"	29'- 4"	--	--	----	----	6	9"	3'- 3 5/8"	7'- 1 1/4"	9'- 11"	6	9 1/2"	12'- 9"	4	11"	12'- 9"	4	11"	12'- 9"
9	12	18 1/2"	18 1/2"	9 1/4"	8"	27	27'- 0"	27	27'- 0"	10	10'- 0"	6	9"	26'- 9"	5	9"	29'- 6"	--	--	----	----	7	9"	3'- 4 7/8"	8'- 1 1/2"	11'- 0"	5	5 1/2"	14'- 9"	4	10 1/2"	14'- 9"	4	10 1/2"	14'- 9"
10	4	20"	20"	8"	8"	30	30'- 0"	30	30'- 0"	2	2'- 0"	6	9"	29'- 4"	6	9"	32'- 4"	--	--	----	----	4	9"	3'- 6"	4'- 2"	7'- 5"	4	12"	7'- 0"	4	10"	7'- 0"	4	10"	7'- 0"
10	6	20"	20"	8"	8"	30	30'- 0"	30	30'- 0"	4	4'- 0"	6	9"	29'- 4"	6	9"	32'- 4"	--	--	----	----	4	9"	3'- 6"	5'- 2"	8'- 5"	4	12"	9'- 0"	4	10"	9'- 0"	4	10"	9'- 0"
10	8	20"	20"	8"	8"	30	30'- 0"	30	30'- 0"	6	6'- 0"	6	9"	29'- 4"	6	9"	32'- 4"	3	9"	3'- 6"	6'- 10"	4	9"	3'- 6"	6'- 2"	9'- 5"	5	10 1/2"	11'- 0"	4	10"	11'- 0"	4	10"	11'- 0"
10	10	20"	20"	8"	8"	30	30'- 0"	30	30'- 0"	8	8'- 0"	6	9"	29'- 4"	6	9"	32'- 4"	3	9"	3'- 6"	6'- 10"	5	9"	3'- 6"	7'- 2"	10'- 4"	6	9 1/2"	13'- 0"	4	10"	13'- 0"	4	10"	13'- 0"
10	12	20 1/4"	20 1/4"	9 1/4"	8"	30	30'- 0"	30	30'- 0"	10	10'- 0"	6	9"	29'- 4"	6	9"	32'- 6"	3	9"	3'- 7 1/4"	7'- 0"	6	9"	3'- 7 1/4"	8'- 2 1/4"	11'- 5"	5	5 1/2"	15'- 0"	4	10"	15'- 0"	4	10"	15'- 0"
12	6	24"	24"	8"	8"	36	36'- 0"	36	36'- 0"	4	4'- 0"	6	8"	34'- 6"	6	8"	38'- 4"	--	--	----	----	4	8"	3'- 10 3/4"	5'- 6"	9'- 2"	4	12"	9'- 8"	4	10"	9'- 8"	4	10"	9'- 8"
12	8	24"	24"	8"	8"	36	36'- 0"	36	36'- 0"	6	6'- 0"	6	8"	34'- 6"	6	8"	38'- 4"	3	8"	3'- 10 3/4"	7'- 7"	4	8"	3'- 10 3/4"	6'- 6"	10'- 2"	5	9 1/2"	11'- 8"	4	10"	11'- 8"	4	10"	11'- 8"
12	10	24"	24"	8"	8"	36	36'- 0"	36	36'- 0"	8	8'- 0"	6	8"	34'- 6"	6	8"	38'- 4"	3	8"	3'- 10 3/4"	7'- 7"	5	8"	3'- 10 3/4"	7'- 6"	11'- 1"	4	4"	13'- 8"	4	10"	13'- 8"	4	10"	13'- 8"
12	12	24"	24"	9 1/4"	8"	36	36'- 0"	36	36'- 0"	10	10'- 0"	6	8"	34'- 6"	6	8"	38'- 6"	4	8"	4'- 0"	7'- 9"	5	8"	4'- 0"	8'- 6"	12'- 2"	6	7 1/2"	15'- 8"	4	10"	15'- 8"	4	10"	15'- 8"

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

STRUCTURE
AND
BRIDGE
DIVISION

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS								WINGWALL	
(FT.)	(FT.)	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	HEADWALL LENGTH	SIZE	HW I LENGTH	NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)		OUTLET REINFORCING STEEL (LBS)
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	11'- 3 3/8"	1'- 5 7/8"	11'-10"	44	16	42.388	0.989	115.349	13'- 2"	6	12'-10"	2	8	1.827	102.932	1.808	77.103	A
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	11'- 3 3/8"	1'- 5 7/8"	11'-10"	44	24	45.212	1.087	117.685	13'- 2"	6	12'-10"	2	10	1.932	109.835	1.901	77.103	C
4	3	4	12"	3'- 5 7/8"	0'- 5 3/4"	1'-10 1/4"	0'- 7 5/8"	0'- 5"	14'- 4"	1'-11 3/4"	15'- 0"	56	16	52.408	1.249	130.598	16'- 2"	6	15'-10"	2	8	2.117	120.956	2.108	95.127	B
4	4	4	12"	3'- 5 7/8"	0'- 5 3/4"	1'-10 1/4"	0'- 7 5/8"	0'- 5"	14'- 4"	1'-11 3/4"	15'- 0"	56	24	55.232	1.347	138.950	16'- 2"	6	15'-10"	2	10	2.222	127.859	2.200	95.127	D
4	5	4	12"	3'- 5 7/8"	0'- 5 3/4"	1'-10 1/4"	0'- 7 5/8"	0'- 5"	14'- 4"	1'-11 3/4"	15'- 0"	56	32	58.056	1.445	147.302	16'- 2"	6	15'-10"	2	12	2.327	134.761	2.293	95.127	F
4	6	4	12"	3'- 5 7/8"	0'- 5 3/4"	1'-10 1/4"	0'- 7 5/8"	0'- 5"	14'- 4"	1'-11 3/4"	15'- 0"	56	40	60.880	1.543	162.297	16'- 2"	6	15'-10"	2	14	2.432	141.664	2.386	95.127	H
5	3	4	11"	4'- 2 3/4"	0'- 7 1/4"	2'- 1 1/2"	0'- 9 3/4"	0'- 6 1/2"	17'- 4"	2'- 5 1/2"	18'- 3"	68	16	62.428	1.582	159.869	19'- 2"	6	18'-10"	2	8	2.357	138.980	2.357	113.151	B
5	4	4	11"	4'- 2 3/4"	0'- 7 1/4"	2'- 1 1/2"	0'- 9 3/4"	0'- 6 1/2"	17'- 4"	2'- 5 1/2"	18'- 3"	68	24	65.252	1.680	168.342	19'- 2"	6	18'-10"	2	10	2.462	145.883	2.450	113.151	D
5	5	4	11"	4'- 2 5/8"	0'- 7 1/2"	2'- 1 1/4"	0'-10 1/8"	0'- 6 3/4"	17'- 4"	2'- 5 1/4"	18'- 3"	68	32	68.076	1.805	177.149	19'- 2"	6	18'-10"	2	12	2.558	152.785	2.534	113.151	F
5	6	4	11"	4'- 2 5/8"	0'- 7 1/2"	2'- 1 1/4"	0'-10 1/8"	0'- 6 3/4"	17'- 4"	2'- 5 1/4"	18'- 3"	68	40	70.900	1.903	193.553	19'- 2"	6	18'-10"	2	14	2.663	159.688	2.627	113.151	H
5	7	4	11"	4'- 2 5/8"	0'- 7 1/2"	2'- 1 1/4"	0'-10 1/8"	0'- 6 3/4"	17'- 4"	2'- 5 1/4"	18'- 3"	68	48	73.724	2.000	209.564	19'- 2"	6	18'-10"	2	16	2.768	166.591	2.719	113.151	J
6	4	4	9"	4'-11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	20'- 4"	2'-10 1/2"	21'- 6"	80	24	75.272	2.162	215.436	22'- 2"	6	21'-10"	2	10	2.640	163.907	2.638	131.175	D
6	5	4	9"	4'-11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	20'- 4"	2'-10 1/2"	21'- 6"	80	32	78.096	2.260	224.233	22'- 2"	6	21'-10"	2	12	2.745	170.809	2.731	131.175	F
6	6	4	9"	4'-11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	20'- 4"	2'-10 1/2"	21'- 6"	80	40	80.920	2.358	233.031	22'- 2"	6	21'-10"	2	14	2.850	177.712	2.824	131.175	H
6	7	4	9"	4'-11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	20'- 4"	2'-10 1/2"	21'- 6"	80	48	83.744	2.456	253.262	22'- 2"	6	21'-10"	2	16	2.956	184.615	2.917	131.175	J
6	8	4	9"	4'-11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	20'- 4"	2'-10 1/2"	21'- 6"	80	56	86.568	2.553	276.467	22'- 2"	6	21'-10"	2	18	3.061	191.517	3.009	131.175	L
7	4	4	9"	5'- 8 1/8"	0'-11"	2'- 7 3/8"	1'- 3"	0'-10 1/4"	23'- 4 1/8"	3'- 4 1/8"	24'- 9"	92	24	85.292	2.618	264.710	25'- 2"	6	24'-10"	2	10	2.817	181.931	2.825	149.199	D
7	6	4	9"	5'- 8 1/8"	0'-11"	2'- 7 3/8"	1'- 3"	0'-10 1/4"	23'- 4 1/8"	3'- 4 1/8"	24'- 9"	92	40	90.940	2.815	282.305	25'- 2"	6	24'-10"	2	14	3.027	195.736	3.011	149.199	H
7	8	4	9"	5'- 8 1/8"	0'-11"	2'- 7 3/8"	1'- 3"	0'-10 1/4"	23'- 4 1/8"	3'- 4 1/8"	24'- 9"	92	56	96.588	3.009	320.718	25'- 2"	6	24'-10"	2	18	3.238	209.541	3.196	149.199	L
7	10	4	9"	5'- 8 1/8"	0'-11"	2'- 7 3/8"	1'- 3"	0'-10 1/4"	23'- 4 1/8"	3'- 4 1/8"	24'- 9"	92	72	102.236	3.202	387.381	25'- 2"	6	24'-10"	2	22	3.448	223.347	3.382	149.199	P
8	4	5	8"	6'- 4 3/4"	1'- 3/4"	2'-10 3/8"	1'- 5 1/2"	1'- 0"	26'- 3 3/8"	3'- 9 5/8"	28'- 0"	104	24	95.312	3.169	345.966	28'- 2"	6	27'-10"	2	10	2.969	199.955	2.987	167.223	E
8	6	4	8"	6'- 4 3/4"	1'- 3/4"	2'-10 3/8"	1'- 5 1/2"	1'- 0"	26'- 3 3/8"	3'- 9 5/8"	28'- 0"	104	40	100.960	3.365	362.767	28'- 2"	6	27'-10"	2	14	3.180	213.760	3.173	167.223	I
8	8	4	8"	6'- 4 3/4"	1'- 3/4"	2'-10 3/8"	1'- 5 1/2"	1'- 0"	26'- 3 3/8"	3'- 9 5/8"	28'- 0"	104	56	106.608	3.560	402.626	28'- 2"	6	27'-10"	2	18	3.390	227.565	3.358	167.223	M
8	10	4	8"	6'- 4 3/4"	1'- 3/4"	2'-10 3/8"	1'- 5 1/2"	1'- 0"	26'- 3 3/8"	3'- 9 5/8"	28'- 0"	104	72	112.256	3.752	464.454	28'- 2"	6	27'-10"	2	22	3.600	241.371	3.544	167.223	Q
9	4	5	9"	7'- 1 3/8"	1'- 2 7/8"	3'- 1 1/4"	1'- 8 3/8"	1'- 2"	29'- 4"	4'- 2 3/4"	31'- 3"	116	24	105.332	3.831	417.023	31'- 2"	6	30'-10"	2	10	3.052	217.979	3.080	185.247	E
9	6	5	9"	7'- 1 3/8"	1'- 2 7/8"	3'- 1 1/4"	1'- 8 3/8"	1'- 2"	29'- 4"	4'- 2 3/4"	31'- 3"	116	40	110.980	4.027	435.381	31'- 2"	6	30'-10"	2	14	3.263	231.784	3.266	185.247	I
9	8	5	9"	7'- 1 3/8"	1'- 2 7/8"	3'- 1 1/4"	1'- 8 3/8"	1'- 2"	29'- 4"	4'- 2 3/4"	31'- 3"	116	56	116.628	4.221	482.709	31'- 2"	6	30'-10"	2	18	3.473	245.589	3.451	185.247	M
9	10	5	9"	7'- 1 3/8"	1'- 2 7/8"	3'- 1 1/4"	1'- 8 3/8"	1'- 2"	29'- 4"	4'- 2 3/4"	31'- 3"	116	72	122.276	4.414	545.190	31'- 2"	6	30'-10"	2	22	3.683	259.395	3.637	185.247	Q
9	12	5	9"	7'- 2 1/2"	1'- 3 1/8"	3'- 1"	1'- 8 3/4"	1'- 2 1/4"	29'- 6 1/2"	4'- 2 1/2"	31'- 6"	116	88	127.924	4.768	619.468	31'- 2"	6	30'-10"	2	26	3.760	273.200	3.688	185.247	U
10	4	6	9"	7'-10 1/8"	1'- 4 3/4"	3'- 4 1/4"	1'-11"	1'- 3 3/4"	32'- 4"	4'- 8 1/4"	34'- 6"	128	24	115.352	4.512	537.927	34'- 2"	6	33'-10"	2	10	3.119	236.003	3.157	203.271	E
10	6	6	9"	7'-10 1/8"	1'- 4 3/4"	3'- 4 1/4"	1'-11"	1'- 3 3/4"	32'- 4"	4'- 8 1/4"	34'- 6"	128	40	121.000	4.708	556.591	34'- 2"	6	33'-10"	2	14	3.329	249.808	3.342	203.271	I
10	8	6	9"	7'-10 1/8"	1'- 4 3/4"	3'- 4 1/4"	1'-11"	1'- 3 3/4"	32'- 4"	4'- 8 1/4"	34'- 6"	128	56	126.648	4.903	600.486	34'- 2"	6	33'-10"	2	18	3.539	263.613	3.528	203.271	M
10	10	6	9"	7'-10 1/8"	1'- 4 3/4"	3'- 4 1/4"	1'-11"	1'- 3 3/4"	32'- 4"	4'- 8 1/4"	34'- 6"	128	72	132.296	5.096	659.952	34'- 2"	6	33'-10"	2	22	3.750	277.419	3.713	203.271	Q
10	12	5	9"	7'-11 1/4"	1'- 4 7/8"	3'- 4"	1'-11 1/4"	1'- 4"	32'- 6 1/2"	4'- 8"	34'- 9"	128	88	137.944	5.460	684.764	34'- 2"	6	33'-10"	2	26	3.822	291.224	3.760	203.271	U
12	6	6	8"	9'- 3 3/8"	1'- 8 3/4"	3'- 9 7/8"	2'- 4 5/8"	1'- 7 3/4"	38'- 4 1/8"	5'- 6 5/8"	41'- 0"	152	40	141.040	6.392	710.159	40'- 2"	6	39'-10"	2	14	3.333	285.856	3.366	239.319	J
12	8	6	8"	9'- 3 3/8"	1'- 8 3/4"	3'- 9 7/8"	2'- 4 5/8"	1'- 7 3/4"	38'- 4 1/8"	5'- 6 5/8"	41'- 0"	152	56	146.688	6.586	761.530	40'- 2"	6	39'-10"	2	18	3.543	299.661	3.552	239.319	N
12	10	6	8"	9'- 3 3/8"	1'- 8 3/4"	3'- 9 7/8"	2'- 4 5/8"	1'- 7 3/4"	38'- 4 1/8"	5'- 6 5/8"	41'- 0"	152	72	152.336	6.779	826.605	40'- 2"	6	39'-10"	2	22	3.754	313.467	3.737	239.319	R
12	12	6	8"	9'- 4 5/8"	1'- 8 3/4"	3'- 9 7/8"	2'- 4 5/8"	1'- 7 3/4"	38'- 6 5/8"	5'- 6 5/8"	41'- 3"	152	88	157.984	7.095	882.169	40'- 2"	6	39'-10"	2	26	3.842	327.272	3.799	239.319	V

STRUCTURE AND BRIDGE DIVISION

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

BCT-40		DIMENSIONS										REINFORCING STEEL																							
SPAN (FT.)	HGHT (FT.)	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3				BH4				BV1			BV2						
		TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH			
3	3	8"	8"	8"	8"	9	9'- 0"	9	9'- 0"	1	1'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	4	12"	2'- 1 1/4"	3'- 11"	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	9	9'- 0"	9	9'- 0"	2	2'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	3	12"	2'- 1 1/4"	4'- 0"	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	9 3/4"	9 3/4"	8"	8"	12	12'- 0"	12	12'- 0"	1	1'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	--	----	----	4	12"	2'- 3 5/8"	2'- 9 3/4"	4'- 10"	4	12"	4'- 3"	4	12"	4'- 3"	4	12"	4'- 3"
4	4	9 3/4"	9 3/4"	8"	8"	12	12'- 0"	12	12'- 0"	2	2'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	--	----	----	4	12"	2'- 3 5/8"	3'- 3 3/4"	5'- 4"	4	12"	5'- 3"	4	12"	5'- 3"	4	12"	5'- 3"
4	5	9 3/4"	9 3/4"	8"	8"	12	12'- 0"	12	12'- 0"	3	3'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	--	----	----	4	12"	2'- 3 5/8"	3'- 9 3/4"	5'- 10"	4	12"	6'- 3"	4	12"	6'- 3"	4	12"	6'- 3"
4	6	9 3/4"	9 3/4"	8"	8"	12	12'- 0"	12	12'- 0"	4	4'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	4'- 3 3/4"	6'- 4"	4	12"	7'- 3"	4	12"	7'- 3"	4	12"	7'- 3"
5	3	12"	12"	8"	8"	15	15'- 0"	15	15'- 0"	1	1'- 0"	4	11"	16'- 4"	4	11"	17'- 4"	--	--	----	----	4	11"	2'- 6"	3'- 0"	5'- 3"	4	12"	4'- 8"	4	12"	4'- 8"	4	12"	4'- 8"
5	4	12"	12"	8"	8"	15	15'- 0"	15	15'- 0"	2	2'- 0"	4	11"	16'- 4"	4	11"	17'- 4"	--	--	----	----	4	11"	2'- 6"	3'- 6"	5'- 9"	4	12"	5'- 8"	4	12"	5'- 8"	4	12"	5'- 8"
5	5	11 3/4"	11 3/4"	8"	8"	15	15'- 0"	15	15'- 0"	3	3'- 0"	4	10"	16'- 4"	4	10"	17'- 4"	--	--	----	----	4	10"	2'- 6"	3'- 11 3/4"	6'- 3"	4	12"	6'- 8"	4	12"	6'- 8"	4	12"	6'- 8"
5	6	11 3/4"	11 3/4"	8"	8"	15	15'- 0"	15	15'- 0"	4	4'- 0"	4	10"	16'- 4"	4	10"	17'- 4"	--	--	----	----	4	10"	2'- 6"	4'- 5 3/4"	6'- 9"	4	12"	7'- 8"	4	12"	7'- 8"	4	12"	7'- 8"
5	7	11 3/4"	11 3/4"	8"	8"	15	15'- 0"	15	15'- 0"	5	5'- 0"	4	10"	16'- 4"	4	10"	17'- 4"	--	--	----	----	5	10"	2'- 6"	4'- 11 3/4"	7'- 2"	4	8 1/2"	8'- 8"	4	12"	8'- 8"	4	12"	8'- 8"
6	4	13 3/4"	13 3/4"	8"	8"	18	18'- 0"	18	18'- 0"	2	2'- 0"	4	9"	18'- 11"	4	9"	20'- 4"	--	--	----	----	4	9"	2'- 8 3/8"	3'- 7 3/4"	6'- 1"	4	12"	6'- 0"	4	12"	6'- 0"	4	12"	6'- 0"
6	5	13 3/4"	13 3/4"	8"	8"	18	18'- 0"	18	18'- 0"	3	3'- 0"	4	10"	18'- 11"	5	10"	20'- 4"	--	--	----	----	4	10"	2'- 8 3/8"	4'- 1 3/4"	6'- 7"	4	12"	7'- 0"	4	12"	7'- 0"	4	12"	7'- 0"
6	6	13 3/4"	13 3/4"	8"	8"	18	18'- 0"	18	18'- 0"	4	4'- 0"	4	10"	18'- 11"	5	10"	20'- 4"	--	--	----	----	4	10"	2'- 8 3/8"	4'- 7 3/4"	7'- 1"	4	12"	8'- 0"	4	12"	8'- 0"	4	12"	8'- 0"
6	7	13 3/4"	13 3/4"	8"	8"	18	18'- 0"	18	18'- 0"	5	5'- 0"	4	10"	18'- 11"	5	10"	20'- 4"	3	10"	2'- 8 3/8"	5'- 2"	4	10"	2'- 8 3/8"	5'- 1 3/4"	7'- 7"	4	9"	9'- 0"	4	12"	9'- 0"	4	12"	9'- 0"
6	8	13 1/2"	13 1/2"	8"	8"	18	18'- 0"	18	18'- 0"	6	6'- 0"	4	9"	18'- 11"	4	9"	20'- 4"	--	--	----	----	5	9"	2'- 8 3/8"	5'- 7 1/2"	8'- 0"	5	9 1/2"	9'- 11"	4	12"	9'- 11"	4	12"	9'- 11"
7	4	15 3/4"	15 3/4"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	5	9"	21'- 6"	5	9"	23'- 4"	--	--	----	----	4	9"	2'- 10 3/4"	3'- 9 3/4"	6'- 5"	4	12"	6'- 3"	4	12"	6'- 3"	4	12"	6'- 3"
7	6	15 3/4"	15 3/4"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	5	9"	21'- 6"	5	9"	23'- 4"	--	--	----	----	4	9"	2'- 10 3/4"	4'- 9 3/4"	7'- 5"	4	12"	8'- 3"	4	12"	8'- 3"	4	12"	8'- 3"
7	8	15 3/4"	15 3/4"	8"	8"	21	21'- 0"	21	21'- 0"	6	6'- 0"	5	9"	21'- 6"	5	9"	23'- 4"	4	9"	2'- 10 3/4"	5'- 6"	4	9"	2'- 10 3/4"	5'- 9 3/4"	8'- 5"	4	6"	10'- 3"	4	12"	10'- 3"	4	12"	10'- 3"
7	10	15 3/4"	15 3/4"	8 1/2"	8"	21	21'- 0"	21	21'- 0"	8	8'- 0"	5	9"	21'- 6"	5	9"	23'- 5"	3	9"	2'- 11 1/4"	5'- 8"	5	9"	2'- 11 1/4"	6'- 9 3/4"	9'- 5"	5	6 1/2"	12'- 3"	4	12"	12'- 3"	4	12"	12'- 3"
8	4	17 3/4"	17 3/4"	8"	8"	24	24'- 0"	24	24'- 0"	2	2'- 0"	5	8"	24'- 2"	5	8"	26'- 4"	--	--	----	----	4	8"	3'- 1 1/4"	3'- 11 3/4"	6'- 10"	4	12"	6'- 7"	4	10 1/2"	6'- 7"	4	10 1/2"	6'- 7"
8	6	17 3/4"	17 3/4"	8"	8"	24	24'- 0"	24	24'- 0"	4	4'- 0"	5	8"	24'- 2"	5	8"	26'- 4"	--	--	----	----	4	8"	3'- 1 1/4"	4'- 11 3/4"	7'- 10"	4	12"	8'- 7"	4	10 1/2"	8'- 7"	4	10 1/2"	8'- 7"
8	8	18"	18"	8"	8"	24	24'- 0"	24	24'- 0"	6	6'- 0"	5	8"	24'- 2"	5	8"	26'- 4"	3	8"	3'- 1 1/4"	6'- 0"	4	8"	3'- 1 1/4"	6'- 0"	8'- 10"	4	6"	10'- 8"	4	10 1/2"	10'- 8"	4	10 1/2"	10'- 8"
8	10	18"	18"	8 1/2"	8"	24	24'- 0"	24	24'- 0"	8	8'- 0"	5	8"	24'- 2"	5	8"	26'- 5"	3	8"	3'- 1 3/4"	6'- 1"	5	8"	3'- 1 3/4"	7'- 0"	9'- 10"	6	9"	12'- 8"	4	10 1/2"	12'- 8"	4	10 1/2"	12'- 8"
9	4	19 3/4"	19 3/4"	8"	8"	27	27'- 0"	27	27'- 0"	2	2'- 0"	6	9"	26'- 9"	6	9"	29'- 4"	--	--	----	----	4	9"	3'- 3 5/8"	4'- 1 3/4"	7'- 2"	4	12"	7'- 0"	4	10"	7'- 0"	4	10"	7'- 0"
9	6	19 3/4"	19 3/4"	8"	8"	27	27'- 0"	27	27'- 0"	4	4'- 0"	6	9"	26'- 9"	6	9"	29'- 4"	--	--	----	----	4	9"	3'- 3 5/8"	5'- 1 3/4"	8'- 2"	4	12"	9'- 0"	4	10"	9'- 0"	4	10"	9'- 0"
9	8	19 3/4"	19 3/4"	8"	8"	27	27'- 0"	27	27'- 0"	6	6'- 0"	6	9"	26'- 9"	6	9"	29'- 4"	--	--	----	----	5	9"	3'- 3 5/8"	6'- 1 3/4"	9'- 1"	4	6"	11'- 0"	4	10"	11'- 0"	4	10"	11'- 0"
9	10	19 1/2"	19 1/2"	8 1/2"	8"	27	27'- 0"	27	27'- 0"	8	8'- 0"	6	9"	26'- 9"	6	9"	29'- 5"	--	--	----	----	6	9"	3'- 4 1/8"	7'- 1 1/2"	10'- 1"	6	9"	12'- 11"	4	10"	12'- 11"	4	10"	12'- 11"
9	12	19 3/4"	19 3/4"	10"	8"	27	27'- 0"	27	27'- 0"	10	10'- 0"	6	9"	26'- 9"	6	9"	29'- 8"	--	--	----	----	7	9"	3'- 5 5/8"	8'- 1 3/4"	11'- 2"	5	5 1/2"	15'- 0"	4	10"	15'- 0"	4	10"	15'- 0"
10	4	22"	22"	8"	8"	30	30'- 0"	30	30'- 0"	2	2'- 0"	6	9"	29'- 4"	6	9"	32'- 4"	--	--	----	----	4	9"	3'- 6"	4'- 4"	7'- 7"	4	12"	7'- 4"	4	10"	7'- 4"	4	10"	7'- 4"
10	6	22"	22"	8"	8"	30	30'- 0"	30	30'- 0"	4	4'- 0"	6	9"	29'- 4"	6	9"	32'- 4"	--	--	----	----	4	9"	3'- 6"	5'- 4"	8'- 7"	4	12"	9'- 4"	4	10"	9'- 4"	4	10"	9'- 4"
10	8	22"	22"	8"	8"	30	30'- 0"	30	30'- 0"	6	6'- 0"	6	9"	29'- 4"	6	9"	32'- 4"	--	--	----	----	5	9"	3'- 6"	6'- 4"	9'- 6"	4	6"	11'- 4"	4	10"	11'- 4"	4	10"	11'- 4"
10	10	22"	22"	8 1/2"	8"	30	30'- 0"	30	30'- 0"	8	8'- 0"	7	9"	29'- 4"	6	9"	32'- 5"	--	--	----	----	6	9"	3'- 6 1/2"	7'- 4"	10'- 6"	4	4"	13'- 4"	4	10"	13'- 4"	4	10"	13'- 4"
10	12	22 1/4"	22 1/4"	10"	8"	30	30'- 0"	30	30'- 0"	10	10'- 0"	6	9"	29'- 4"	6	9"	32'- 8"	3	9"	3'- 8"	7'- 2"	6	9"	3'- 8"	8'- 4 1/4"	11'- 7"	6	7 1/2"	15'- 4"	4	10"	15'- 4"	4	10"	15'- 4"
12	6	25 1/2"	25 1/2"	8"	8"	36	36'- 0"	36	36'- 0"	4	4'- 0"	6	8"	34'- 6"	6	8"	38'- 4"	--	--	----	----	4	8"	3'- 10 3/4"	5'- 7 1/2"	9'- 3"	4	12"	9'- 11"	4	9 1/2"	9'- 11"	4	9 1/2"	9'- 11"
12	8	25 1/2"	25 1/2"	8"	8"	36	36'- 0"	36	36'- 0"	6	6'- 0"	6	8"	34'- 6"	6	8"	38'- 4"	3	8"	3'- 10 3/4"	7'- 7"	4	8"	3'- 10 3/4"	6'- 7 1/2"	10'- 3"	5	9"	11'- 11"	4	9 1/2"	11'- 11"	4	9 1/2"	11'- 11"
12	10	25 3/4"	25 3/4"	8 1/2"	8"	36	36'- 0"	36	36'- 0"	8	8'- 0"	6	8"	34'- 6"	6	8"	38'- 5"	3	8"	3'- 11 1/4"	7'- 8"	5	8"	3'- 11 1/4"	7'- 7 3/4"	11'- 3"	7	11 1/2"	13'- 11"	4	9 1/2"	13'- 11"	4	9 1/2"	13'- 11"
12	12	25 3/4"	25 3/4"	10"	8"	36	36'- 0"	36	36'- 0"	10	10'- 0"	6	8"	34'- 6"	6	8"	38'- 8"	4	8"	4'- 3/4"	7'- 10"	5	8"	4'- 3/4"	8'- 7 3/4"	12'- 5"	7	10"	15'- 11"	4	9"	15'- 11"	4	9"	15'- 11"

Sheet 1 of 2

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

TRIPLE BOX CULVERTS

35 TO 40 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

1004.20

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS								WINGWALL	
(FT.)	(FT.)	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	HEADWALL LENGTH	SIZE	HW I LENGTH	NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)		OUTLET REINFORCING STEEL (LBS)
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	11'- 3 7/8"	1'- 5 7/8"	11'- 10"	44	16	42.388	0.988	119.799	13'- 2"	6	12'- 10"	2	8	1.827	102.932	1.808	77.103	A
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	11'- 3 7/8"	1'- 5 7/8"	11'- 10"	44	24	45.212	1.087	123.701	13'- 2"	6	12'- 10"	2	10	1.932	109.835	1.901	77.103	C
4	3	4	12"	3'- 5 5/8"	0'- 6 1/4"	1'- 9 3/4"	0'- 8 3/8"	0'- 5 1/2"	14'- 4"	1'- 11 1/4"	15'- 1"	56	16	52.408	1.294	131.043	16'- 2"	6	15'- 10"	2	8	2.104	120.956	2.095	95.127	B
4	4	4	12"	3'- 5 5/8"	0'- 6 1/4"	1'- 9 3/4"	0'- 8 3/8"	0'- 5 1/2"	14'- 4"	1'- 11 1/4"	15'- 1"	56	24	55.232	1.392	139.395	16'- 2"	6	15'- 10"	2	10	2.209	127.859	2.188	95.127	D
4	5	4	12"	3'- 5 5/8"	0'- 6 1/4"	1'- 9 3/4"	0'- 8 3/8"	0'- 5 1/2"	14'- 4"	1'- 11 1/4"	15'- 1"	56	32	58.056	1.490	147.747	16'- 2"	6	15'- 10"	2	12	2.315	134.761	2.280	95.127	F
4	6	4	12"	3'- 5 5/8"	0'- 6 1/4"	1'- 9 3/4"	0'- 8 3/8"	0'- 5 1/2"	14'- 4"	1'- 11 1/4"	15'- 1"	56	40	60.880	1.588	167.678	16'- 2"	6	15'- 10"	2	14	2.420	141.664	2.373	95.127	H
5	3	4	11"	4'- 2 1/8"	0'- 8 1/2"	2'- 1/4"	0'- 11 1/2"	0'- 7 3/4"	17'- 4"	2'- 4 1/4"	18'- 5"	68	16	62.428	1.718	161.356	19'- 2"	6	18'- 10"	2	8	2.313	138.980	2.313	113.151	B
5	4	4	11"	4'- 2 1/8"	0'- 8 1/2"	2'- 1/4"	0'- 11 1/2"	0'- 7 3/4"	17'- 4"	2'- 4 1/4"	18'- 5"	68	24	65.252	1.816	169.830	19'- 2"	6	18'- 10"	2	10	2.418	145.883	2.406	113.151	D
5	5	4	10"	4'- 2 1/4"	0'- 8 1/4"	2'- 1/2"	0'- 11 1/8"	0'- 7 1/2"	17'- 4"	2'- 4 1/2"	18'- 4"	68	32	68.076	1.886	187.582	19'- 2"	6	18'- 10"	2	12	2.532	152.785	2.508	113.151	F
5	6	4	10"	4'- 2 1/4"	0'- 8 1/4"	2'- 1/2"	0'- 11 1/8"	0'- 7 1/2"	17'- 4"	2'- 4 1/2"	18'- 4"	68	40	70.900	1.984	196.202	19'- 2"	6	18'- 10"	2	14	2.637	159.688	2.600	113.151	H
5	7	4	10"	4'- 2 1/4"	0'- 8 1/4"	2'- 1/2"	0'- 11 1/8"	0'- 7 1/2"	17'- 4"	2'- 4 1/2"	18'- 4"	68	48	73.724	2.081	222.221	19'- 2"	6	18'- 10"	2	16	2.742	166.591	2.693	113.151	J
6	4	4	9"	4'- 10 7/8"	0'- 10 1/4"	2'- 3 1/4"	1'- 2"	0'- 9 1/2"	20'- 4"	2'- 9 3/4"	21'- 8"	80	24	75.272	2.258	216.698	22'- 2"	6	21'- 10"	2	10	2.607	163.907	2.605	131.175	D
6	5	4	10"	4'- 10 7/8"	0'- 10 1/4"	2'- 3 1/4"	1'- 2"	0'- 9 1/2"	20'- 4"	2'- 9 3/4"	21'- 8"	80	32	78.096	2.356	230.598	22'- 2"	6	21'- 10"	2	12	2.712	170.809	2.698	131.175	F
6	6	4	10"	4'- 10 7/8"	0'- 10 1/4"	2'- 3 1/4"	1'- 2"	0'- 9 1/2"	20'- 4"	2'- 9 3/4"	21'- 8"	80	40	80.920	2.454	239.218	22'- 2"	6	21'- 10"	2	14	2.817	177.712	2.791	131.175	H
6	7	4	10"	4'- 10 7/8"	0'- 10 1/4"	2'- 3 1/4"	1'- 2"	0'- 9 1/2"	20'- 4"	2'- 9 3/4"	21'- 8"	80	48	83.744	2.551	261.170	22'- 2"	6	21'- 10"	2	16	2.922	184.615	2.883	131.175	J
6	8	4	9"	4'- 11"	0'- 10"	2'- 3 1/2"	1'- 1 5/8"	0'- 9 1/4"	20'- 4"	2'- 10"	21'- 7"	80	56	86.568	2.616	279.989	22'- 2"	6	21'- 10"	2	18	3.039	191.517	2.987	131.175	L
7	4	4	9"	5'- 7 1/2"	1'- 1/4"	2'- 6 1/8"	1'- 4 3/4"	0'- 11 1/2"	23'- 4 1/8"	3'- 2 7/8"	24'- 11"	92	24	85.292	2.799	287.472	25'- 2"	6	24'- 10"	2	10	2.769	181.931	2.777	149.199	E
7	6	4	9"	5'- 7 1/2"	1'- 1/4"	2'- 6 1/8"	1'- 4 3/4"	0'- 11 1/2"	23'- 4 1/8"	3'- 2 7/8"	24'- 11"	92	40	90.940	2.995	305.066	25'- 2"	6	24'- 10"	2	14	2.979	195.736	2.962	149.199	I
7	8	4	9"	5'- 7 1/2"	1'- 1/4"	2'- 6 1/8"	1'- 4 3/4"	0'- 11 1/2"	23'- 4 1/8"	3'- 2 7/8"	24'- 11"	92	56	96.588	3.189	355.950	25'- 2"	6	24'- 10"	2	18	3.189	209.541	3.148	149.199	M
7	10	4	9"	5'- 8"	1'- 1/4"	2'- 6 1/8"	1'- 4 3/4"	0'- 11 1/2"	23'- 5 1/8"	3'- 2 7/8"	25'- 0"	92	72	102.236	3.422	401.643	25'- 2"	6	24'- 10"	2	22	3.361	223.347	3.294	149.199	Q
8	4	4	8"	6'- 4"	1'- 2 1/4"	2'- 8 3/8"	1'- 7 5/8"	1'- 1 1/2"	26'- 3 3/8"	3'- 8 1/8"	28'- 2"	104	24	95.312	3.415	349.243	28'- 2"	6	27'- 10"	2	10	2.875	199.955	2.893	167.223	E
8	6	4	8"	6'- 4"	1'- 2 1/4"	2'- 8 3/8"	1'- 7 5/8"	1'- 1 1/2"	26'- 3 3/8"	3'- 8 1/8"	28'- 2"	104	40	100.960	3.612	368.047	28'- 2"	6	27'- 10"	2	14	3.085	213.760	3.079	167.223	I
8	8	4	8"	6'- 3 3/8"	1'- 2 1/2"	2'- 8 5/8"	1'- 8"	1'- 1 3/4"	26'- 3 7/8"	3'- 7 7/8"	28'- 3"	104	56	106.608	3.847	415.170	28'- 2"	6	27'- 10"	2	18	3.280	227.565	3.248	167.223	M
8	10	4	8"	6'- 4 3/8"	1'- 2 1/2"	2'- 8 5/8"	1'- 8"	1'- 1 3/4"	26'- 4 7/8"	3'- 7 7/8"	28'- 4"	104	72	112.256	4.080	476.275	28'- 2"	6	27'- 10"	2	22	3.451	241.371	3.394	167.223	Q
9	4	5	9"	7'- 5 7/8"	1'- 4 3/8"	2'- 11 3/4"	1'- 10 1/2"	1'- 3 1/2"	29'- 4"	4'- 1 1/4"	31'- 5"	116	24	105.332	4.102	455.854	31'- 2"	6	30'- 10"	2	10	2.944	217.979	2.972	185.247	E
9	6	5	9"	7'- 5 7/8"	1'- 4 3/8"	2'- 11 3/4"	1'- 10 1/2"	1'- 3 1/2"	29'- 4"	4'- 1 1/4"	31'- 5"	116	40	110.980	4.298	474.517	31'- 2"	6	30'- 10"	2	14	3.155	231.784	3.158	185.247	I
9	8	5	9"	7'- 5 7/8"	1'- 4 3/8"	2'- 11 3/4"	1'- 10 1/2"	1'- 3 1/2"	29'- 4"	4'- 1 1/4"	31'- 5"	116	56	116.628	4.492	525.747	31'- 2"	6	30'- 10"	2	18	3.365	245.589	3.343	185.247	M
9	10	5	9"	7'- 1 1/4"	1'- 4 1/8"	3'- 0"	1'- 10 1/4"	1'- 3 1/4"	29'- 5"	4'- 1 1/2"	31'- 6"	116	72	122.276	4.680	591.064	31'- 2"	6	30'- 10"	2	22	3.553	259.395	3.506	185.247	Q
9	12	5	9"	7'- 2 5/8"	1'- 4 3/8"	2'- 11 3/4"	1'- 10 1/2"	1'- 3 1/2"	29'- 8"	4'- 1 1/4"	31'- 9"	116	88	127.924	5.066	662.948	31'- 2"	6	30'- 10"	2	26	3.598	273.200	3.525	185.247	U
10	4	6	9"	7'- 9 1/8"	1'- 6 3/4"	3'- 2 1/4"	2'- 1 7/8"	1'- 5 3/4"	32'- 4"	4'- 6 1/4"	34'- 9"	128	24	115.352	4.915	541.037	34'- 2"	6	33'- 10"	2	10	2.975	236.003	3.013	203.271	F
10	6	6	9"	7'- 9 1/8"	1'- 6 3/4"	3'- 2 1/4"	2'- 1 7/8"	1'- 5 3/4"	32'- 4"	4'- 6 1/4"	34'- 9"	128	40	121.000	5.112	559.700	34'- 2"	6	33'- 10"	2	14	3.185	249.808	3.198	203.271	J
10	8	6	9"	7'- 9 1/8"	1'- 6 3/4"	3'- 2 1/4"	2'- 1 7/8"	1'- 5 3/4"	32'- 4"	4'- 6 1/4"	34'- 9"	128	56	126.648	5.305	612.208	34'- 2"	6	33'- 10"	2	18	3.395	263.613	3.384	203.271	N
10	10	6	9"	7'- 9 5/8"	1'- 6 3/4"	3'- 2 1/4"	2'- 1 7/8"	1'- 5 3/4"	32'- 5"	4'- 6 1/4"	34'- 10"	128	72	132.296	5.536	722.125	34'- 2"	6	33'- 10"	2	22	3.564	277.419	3.527	203.271	R
10	12	6	9"	7'- 11"	1'- 7"	3'- 2"	2'- 2 1/8"	1'- 6"	32'- 8"	4'- 6"	35'- 1"	128	88	137.944	5.935	737.468	34'- 2"	6	33'- 10"	2	26	3.603	291.224	3.540	203.271	V
12	6	6	8"	9'- 2 5/8"	1'- 10 1/4"	3'- 8 3/8"	2'- 6 3/4"	1'- 9 1/4"	38'- 4 1/8"	5'- 5 1/8"	41'- 3"	152	40	141.040	6.750	714.428	40'- 2"	6	39'- 10"	2	14	3.184	285.856	3.217	239.319	J
12	8	6	8"	9'- 2 5/8"	1'- 10 1/4"	3'- 8 3/8"	2'- 6 3/4"	1'- 9 1/4"	38'- 4 1/8"	5'- 5 1/8"	41'- 3"	152	56	146.688	6.943	768.206	40'- 2"	6	39'- 10"	2	18	3.394	299.661	3.402	239.319	N
12	10	6	8"	9'- 3"	1'- 10 1/2"	3'- 8 1/8"	2'- 7 1/8"	1'- 9 1/2"	38'- 5 1/8"	5'- 4 7/8"	41'- 4"	152	72	152.336	7.240	837.453	40'- 2"	6	39'- 10"	2	22	3.535	313.467	3.518	239.319	R
12	12	6	8"	9'- 4 1/2"	1'- 10 1/2"	3'- 8 1/8"	2'- 7 1/8"	1'- 9 1/2"	38'- 8 1/8"	5'- 4 7/8"	41'- 7"	152	88	157.984	7.590	895.574	40'- 2"	6	39'- 10"	2	26	3.590	327.272	3.547	239.319	V

STRUCTURE AND BRIDGE DIVISION

TRIPLE BOX CULVERTS
35 TO 40 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

DIMENSIONS										REINFORCING STEEL																						
SPAN (FT.)	HGHT (FT.)	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2					
		TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8/4"	8/4"	8"	8"	9	9'- 0"	9	9'- 0"	1	1'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	4	12"	2'- 1/4"	3'- 11"	4	12"	2'- 1/4"	2'- 8/4"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8/4"	8/4"	8"	8"	9	9'- 0"	9	9'- 0"	2	2'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	4	12"	2'- 1/4"	3'- 11"	4	12"	2'- 1/4"	3'- 2/4"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	10/2"	10/2"	8"	8"	12	12'- 0"	12	12'- 0"	1	1'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	--	----	----	4	12"	2'- 3/8"	2'- 10/2"	4'- 11"	4	12"	4'- 5"	4	12"	4'- 5"
4	4	10/2"	10/2"	8"	8"	12	12'- 0"	12	12'- 0"	2	2'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	--	----	----	4	12"	2'- 3/8"	3'- 4/2"	5'- 5"	4	12"	5'- 5"	4	12"	5'- 5"
4	5	10 3/4"	10 3/4"	8"	8"	12	12'- 0"	12	12'- 0"	3	3'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	--	----	----	4	12"	2'- 3/8"	3'- 10 3/4"	5'- 11"	4	12"	6'- 5"	4	12"	6'- 5"
4	6	10 3/4"	10 3/4"	8"	8"	12	12'- 0"	12	12'- 0"	4	4'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	4	12"	2'- 3/8"	4'- 4"	4	12"	2'- 3/8"	4'- 4 3/4"	6'- 5"	4	11"	7'- 5"	4	12"	7'- 5"
5	3	12/2"	12/2"	8"	8"	15	15'- 0"	15	15'- 0"	1	1'- 0"	4	10"	16'- 4"	4	10"	17'- 4"	--	--	----	----	4	10"	2'- 6"	3'- 1/2"	5'- 3"	4	12"	4'- 9"	4	12"	4'- 9"
5	4	12/2"	12/2"	8"	8"	15	15'- 0"	15	15'- 0"	2	2'- 0"	4	10"	16'- 4"	4	10"	17'- 4"	--	--	----	----	4	10"	2'- 6"	3'- 6/2"	5'- 9"	4	12"	5'- 9"	4	12"	5'- 9"
5	5	12/2"	12/2"	8"	8"	15	15'- 0"	15	15'- 0"	3	3'- 0"	4	10"	16'- 4"	4	10"	17'- 4"	--	--	----	----	4	10"	2'- 6"	4'- 1/2"	6'- 3"	4	12"	6'- 9"	4	12"	6'- 9"
5	6	12/2"	12/2"	8"	8"	15	15'- 0"	15	15'- 0"	4	4'- 0"	4	10"	16'- 4"	4	10"	17'- 4"	--	--	----	----	4	10"	2'- 6"	4'- 6/2"	6'- 9"	4	12"	7'- 9"	4	12"	7'- 9"
5	7	12/2"	12/2"	8"	8"	15	15'- 0"	15	15'- 0"	5	5'- 0"	4	10"	16'- 4"	4	10"	17'- 4"	--	--	----	----	5	10"	2'- 6"	5'- 1/2"	7'- 3"	4	7/2"	8'- 9"	4	12"	8'- 9"
6	4	14 3/4"	14 3/4"	8"	8"	18	18'- 0"	18	18'- 0"	2	2'- 0"	4	9"	18'- 11"	5	9"	20'- 4"	--	--	----	----	4	9"	2'- 8 3/8"	3'- 8 3/4"	6'- 2"	4	12"	6'- 1"	4	12"	6'- 1"
6	5	14 3/4"	14 3/4"	8"	8"	18	18'- 0"	18	18'- 0"	3	3'- 0"	4	9"	18'- 11"	5	9"	20'- 4"	--	--	----	----	4	9"	2'- 8 3/8"	4'- 2 3/4"	6'- 8"	4	12"	7'- 1"	4	12"	7'- 1"
6	6	14 3/4"	14 3/4"	8"	8"	18	18'- 0"	18	18'- 0"	4	4'- 0"	4	9"	18'- 11"	5	9"	20'- 4"	--	--	----	----	4	9"	2'- 8 3/8"	4'- 8 3/4"	7'- 2"	4	12"	8'- 1"	4	12"	8'- 1"
6	7	14 3/4"	14 3/4"	8"	8"	18	18'- 0"	18	18'- 0"	5	5'- 0"	4	9"	18'- 11"	5	9"	20'- 4"	3	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	5'- 2 3/4"	7'- 8"	4	7/2"	9'- 1"	4	12"	9'- 1"
6	8	14 3/4"	14 3/4"	8"	8"	18	18'- 0"	18	18'- 0"	6	6'- 0"	4	9"	18'- 11"	5	9"	20'- 4"	--	--	----	----	5	9"	2'- 8 3/8"	5'- 8 3/4"	8'- 1"	4	5/2"	10'- 1"	4	12"	10'- 1"
7	4	17/4"	17/4"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	9"	21'- 6"	5	9"	23'- 4"	--	--	----	----	4	9"	2'- 10 3/4"	3'- 11/4"	6'- 7"	4	12"	6'- 6"	4	10/2"	6'- 6"
7	6	17/4"	17/4"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	5	9"	21'- 6"	5	9"	23'- 4"	--	--	----	----	4	9"	2'- 10 3/4"	4'- 11/4"	7'- 7"	4	11/2"	8'- 6"	4	11"	8'- 6"
7	8	17/4"	17/4"	8"	8"	21	21'- 0"	21	21'- 0"	6	6'- 0"	5	9"	21'- 6"	5	9"	23'- 4"	4	9"	2'- 10 3/4"	5'- 6"	4	9"	2'- 10 3/4"	5'- 11/4"	8'- 7"	4	5/2"	10'- 6"	4	11"	10'- 6"
7	10	17/4"	17/4"	9"	8"	21	21'- 0"	21	21'- 0"	8	8'- 0"	5	9"	21'- 6"	5	9"	23'- 6"	3	9"	2'- 11 3/4"	5'- 9"	5	9"	2'- 11 3/4"	6'- 11/4"	9'- 7"	4	4"	12'- 6"	4	11"	12'- 6"
8	4	19/4"	19/4"	8"	8"	24	24'- 0"	24	24'- 0"	2	2'- 0"	5	8"	24'- 2"	5	8"	26'- 4"	--	--	----	----	4	8"	3'- 1/4"	4'- 1/4"	6'- 11"	4	12"	6'- 10"	4	10"	6'- 10"
8	6	19/4"	19/4"	8"	8"	24	24'- 0"	24	24'- 0"	4	4'- 0"	4	8"	24'- 2"	5	8"	26'- 4"	--	--	----	----	4	8"	3'- 1/4"	5'- 1/4"	7'- 11"	4	11"	8'- 10"	4	10"	8'- 10"
8	8	19"	19"	8"	8"	24	24'- 0"	24	24'- 0"	6	6'- 0"	4	8"	24'- 2"	5	8"	26'- 4"	3	8"	3'- 1/4"	6'- 0"	4	8"	3'- 1/4"	6'- 1"	8'- 11"	4	5/2"	10'- 10"	4	10"	10'- 10"
8	10	19/4"	19/4"	9"	8"	24	24'- 0"	24	24'- 0"	8	8'- 0"	5	8"	24'- 2"	5	8"	26'- 6"	3	8"	3'- 2/4"	6'- 2"	5	8"	3'- 2/4"	7'- 1/4"	10'- 0"	4	4"	12'- 10"	4	10"	12'- 10"
9	4	21/4"	21/4"	8"	8"	27	27'- 0"	27	27'- 0"	2	2'- 0"	6	9"	26'- 9"	6	9"	29'- 4"	--	--	----	----	4	9"	3'- 3/8"	4'- 3/4"	7'- 4"	4	12"	7'- 3"	4	10"	7'- 3"
9	6	21/4"	21/4"	8"	8"	27	27'- 0"	27	27'- 0"	4	4'- 0"	6	9"	26'- 9"	6	9"	29'- 4"	--	--	----	----	4	9"	3'- 3/8"	5'- 3/4"	8'- 4"	4	11"	9'- 3"	4	10"	9'- 3"
9	8	21/4"	21/4"	8"	8"	27	27'- 0"	27	27'- 0"	6	6'- 0"	6	9"	26'- 9"	6	9"	29'- 4"	--	--	----	----	5	9"	3'- 3/8"	6'- 3/4"	9'- 3"	6	11/2"	11'- 3"	4	10"	11'- 3"
9	10	21/4"	21/4"	9"	8"	27	27'- 0"	27	27'- 0"	8	8'- 0"	6	9"	26'- 9"	6	9"	29'- 6"	--	--	----	----	6	9"	3'- 4 5/8"	7'- 3/4"	10'- 3"	5	6"	13'- 3"	4	10"	13'- 3"
9	12	21 1/2"	21 1/2"	10/2"	8"	27	27'- 0"	27	27'- 0"	10	10'- 0"	6	9"	26'- 9"	6	9"	29'- 9"	--	--	----	----	7	9"	3'- 6 1/8"	8'- 3/2"	11'- 4"	7	10"	15'- 3"	4	10"	15'- 3"
10	4	23/4"	23/4"	8"	8"	30	30'- 0"	30	30'- 0"	2	2'- 0"	6	9"	29'- 4"	6	9"	32'- 4"	--	--	----	----	4	9"	3'- 6"	4'- 5/4"	7'- 8"	4	12"	7'- 6"	4	10"	7'- 6"
10	8	23/4"	23/4"	8"	8"	30	30'- 0"	30	30'- 0"	4	4'- 0"	6	9"	29'- 4"	6	9"	32'- 4"	--	--	----	----	4	9"	3'- 6"	5'- 5/4"	8'- 8"	4	10/2"	9'- 6"	4	10"	9'- 6"
10	8	23/4"	23/4"	8"	8"	30	30'- 0"	30	30'- 0"	6	6'- 0"	6	9"	29'- 4"	6	9"	32'- 4"	3	9"	3'- 6"	6'- 10"	4	9"	3'- 6"	6'- 5/4"	9'- 8"	6	11/2"	11'- 6"	4	10"	11'- 6"
10	10	23/4"	23/4"	9"	8"	30	30'- 0"	30	30'- 0"	8	8'- 0"	6	9"	29'- 4"	6	9"	32'- 6"	3	9"	3'- 7"	7'- 0"	5	9"	3'- 7"	7'- 5/4"	10'- 8"	5	6"	13'- 6"	4	10"	13'- 6"
10	12	23 1/2"	23 1/2"	10/2"	8"	30	30'- 0"	30	30'- 0"	10	10'- 0"	6	9"	29'- 4"	6	9"	32'- 9"	3	9"	3'- 8/2"	7'- 3"	6	9"	3'- 8/2"	8'- 5/2"	11'- 9"	5	5"	15'- 7"	4	10"	15'- 7"
12	6	27/2"	27/2"	8"	8"	36	36'- 0"	36	36'- 0"	4	4'- 0"	7	8"	34'- 6"	6	8"	38'- 4"	--	--	----	----	4	8"	3'- 10 3/4"	5'- 9/2"	9'- 5"	4	9"	10'- 3"	4	8/2"	10'- 3"
12	8	27/2"	27/2"	8"	8"	36	36'- 0"	36	36'- 0"	6	6'- 0"	7	8"	34'- 6"	6	8"	38'- 4"	3	8"	3'- 10 3/4"	7'- 7"	4	8"	3'- 10 3/4"	6'- 9/2"	10'- 5"	5	7/2"	12'- 3"	4	8/2"	12'- 3"
12	10	27/2"	27/2"	9/4"	8"	36	36'- 0"	36	36'- 0"	8	8'- 0"	6	8"	34'- 6"	6	8"	38'- 6"	3	8"	4'- 0"	7'- 10"	5	8"	4'- 0"	7'- 9/2"	11'- 6"	5	6"	14'- 3"	4	8/2"	14'- 3"
12	12	27/2"	27/2"	10/2"	8"	36	36'- 0"	36	36'- 0"	10	10'- 0"	6	8"	34'- 6"	6	8"	38'- 9"	3	8"	4'- 1/4"	8'- 0"	6	8"	4'- 1/4"	8'- 9/2"	12'- 6"	6	7"	16'- 3"	4	8"	16'- 3"

TRIPLE BOX CULVERTS

40 TO 45 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS								WINGWALL		
(FT.)	(FT.)	SIZE	SPACING C-C	BTI											REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	C		HW I		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)		INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)
				a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS	HEADWALL LENGTH				SIZE	LENGTH	NO. HW2 BARS	NO. HW3 BARS				INLET CONCRETE CL. A4 (CY)		
3	3	4	12"	2'- 8 3/4"	0'- 4 3/4"	1'- 6 3/8"	0'- 6 1/4"	0'- 4"	11'- 3 7/8"	1'- 5 5/8"	11'- 11"	44	16	42.388	1.006	119.910	13'- 2"	6	12'- 10"	2	8	1.823	102.932	1.804	77.103	A	
3	4	4	12"	2'- 8 3/4"	0'- 4 3/4"	1'- 6 3/8"	0'- 6 1/4"	0'- 4"	11'- 3 7/8"	1'- 5 5/8"	11'- 11"	44	24	45.212	1.105	128.262	13'- 2"	6	12'- 10"	2	10	1.928	109.835	1.896	77.103	C	
4	3	4	12"	3'- 5 1/4"	0'- 7"	1'- 9"	0'- 9 3/8"	0'- 6 1/4"	14'- 4"	1'- 10 1/2"	15'- 2"	56	16	52.408	1.362	132.045	16'- 2"	6	15'- 10"	2	8	2.085	120.956	2.076	95.127	B	
4	4	4	12"	3'- 5 1/4"	0'- 7"	1'- 9"	0'- 9 3/8"	0'- 6 1/4"	14'- 4"	1'- 10 1/2"	15'- 2"	56	24	55.232	1.460	140.397	16'- 2"	6	15'- 10"	2	10	2.190	127.859	2.168	95.127	D	
4	5	4	12"	3'- 5 1/8"	0'- 7 1/4"	1'- 8 3/4"	0'- 9 3/4"	0'- 6 1/2"	14'- 4"	1'- 10 1/4"	15'- 3"	56	32	58.056	1.581	148.861	16'- 2"	6	15'- 10"	2	12	2.289	134.761	2.255	95.127	F	
4	6	4	12"	3'- 5 1/8"	0'- 7 1/4"	1'- 8 3/4"	0'- 9 3/4"	0'- 6 1/2"	14'- 4"	1'- 10 1/4"	15'- 3"	56	40	60.880	1.678	169.692	16'- 2"	6	15'- 10"	2	14	2.394	141.664	2.347	95.127	H	
5	3	4	10"	4'- 1 7/8"	0'- 9"	1'- 11 3/4"	1'- 1/4"	0'- 8 1/4"	17'- 4"	2'- 3 3/4"	18'- 6"	68	16	62.428	1.772	170.945	19'- 2"	6	18'- 10"	2	8	2.295	138.980	2.296	113.151	B	
5	4	4	10"	4'- 1 7/8"	0'- 9"	1'- 11 3/4"	1'- 1/4"	0'- 8 1/4"	17'- 4"	2'- 3 3/4"	18'- 6"	68	24	65.252	1.870	179.564	19'- 2"	6	18'- 10"	2	10	2.401	145.883	2.389	113.151	D	
5	5	4	10"	4'- 1 7/8"	0'- 9"	1'- 11 3/4"	1'- 1/4"	0'- 8 1/4"	17'- 4"	2'- 3 3/4"	18'- 6"	68	32	68.076	1.968	188.184	19'- 2"	6	18'- 10"	2	12	2.506	152.785	2.481	113.151	F	
5	6	4	10"	4'- 1 7/8"	0'- 9"	1'- 11 3/4"	1'- 1/4"	0'- 8 1/4"	17'- 4"	2'- 3 3/4"	18'- 6"	68	40	70.900	2.066	196.803	19'- 2"	6	18'- 10"	2	14	2.611	159.688	2.574	113.151	H	
5	7	4	10"	4'- 1 7/8"	0'- 9"	1'- 11 3/4"	1'- 1/4"	0'- 8 1/4"	17'- 4"	2'- 3 3/4"	18'- 6"	68	48	73.724	2.162	225.486	19'- 2"	6	18'- 10"	2	16	2.716	166.591	2.667	113.151	J	
6	4	4	9"	4'- 10 3/8"	0'- 11 1/4"	2'- 2 1/4"	1'- 3 3/8"	0'- 10 1/2"	20'- 4"	2'- 8 3/4"	21'- 9"	80	24	75.272	2.384	237.810	22'- 2"	6	21'- 10"	2	10	2.563	163.907	2.561	131.175	D	
6	5	4	9"	4'- 10 3/8"	0'- 11 1/4"	2'- 2 1/4"	1'- 3 3/8"	0'- 10 1/2"	20'- 4"	2'- 8 3/4"	21'- 9"	80	32	78.096	2.482	246.608	22'- 2"	6	21'- 10"	2	12	2.668	170.809	2.654	131.175	F	
6	6	4	9"	4'- 10 3/8"	0'- 11 1/4"	2'- 2 1/4"	1'- 3 3/8"	0'- 10 1/2"	20'- 4"	2'- 8 3/4"	21'- 9"	80	40	80.920	2.580	255.405	22'- 2"	6	21'- 10"	2	14	2.773	177.712	2.746	131.175	H	
6	7	4	9"	4'- 10 3/8"	0'- 11 1/4"	2'- 2 1/4"	1'- 3 3/8"	0'- 10 1/2"	20'- 4"	2'- 8 3/4"	21'- 9"	80	48	83.744	2.677	281.845	22'- 2"	6	21'- 10"	2	16	2.878	184.615	2.839	131.175	J	
6	8	4	9"	4'- 10 3/8"	0'- 11 1/4"	2'- 2 1/4"	1'- 3 3/8"	0'- 10 1/2"	20'- 4"	2'- 8 3/4"	21'- 9"	80	56	86.568	2.774	304.790	22'- 2"	6	21'- 10"	2	18	2.983	191.517	2.932	131.175	L	
7	4	5	9"	5'- 6 3/4"	1'- 1 7/8"	2'- 4 5/8"	1'- 7"	1'- 1"	23'- 4 1/8"	3'- 1 3/8"	25'- 1"	92	24	85.292	3.018	295.429	25'- 2"	6	24'- 10"	2	10	2.689	181.931	2.697	149.199	E	
7	6	4	9"	5'- 6 3/4"	1'- 1 3/4"	2'- 4 5/8"	1'- 6 7/8"	1'- 1"	23'- 4 1/8"	3'- 1 3/8"	25'- 1"	92	40	90.940	3.214	309.518	25'- 2"	6	24'- 10"	2	14	2.899	195.736	2.882	149.199	I	
7	8	4	9"	5'- 6 3/4"	1'- 1 3/4"	2'- 4 5/8"	1'- 6 7/8"	1'- 1"	23'- 4 1/8"	3'- 1 3/8"	25'- 1"	92	56	96.588	3.408	363.278	25'- 2"	6	24'- 10"	2	18	3.109	209.541	3.068	149.199	M	
7	10	4	9"	5'- 7 3/4"	1'- 1 3/4"	2'- 4 5/8"	1'- 6 7/8"	1'- 1"	23'- 6 1/8"	3'- 1 3/8"	25'- 3"	92	72	102.236	3.681	410.043	25'- 2"	6	24'- 10"	2	22	3.241	223.347	3.174	149.199	Q	
8	4	5	8"	6'- 3 1/4"	1'- 3 3/8"	2'- 7 3/8"	1'- 9 1/2"	1'- 3"	26'- 3 3/8"	3'- 6 5/8"	28'- 5"	104	24	95.312	3.660	384.188	28'- 2"	6	27'- 10"	2	10	2.781	199.955	2.799	167.223	E	
8	6	5	8"	6'- 3 1/4"	1'- 3 3/8"	2'- 7 3/8"	1'- 9 1/2"	1'- 3"	26'- 3 3/8"	3'- 6 5/8"	28'- 5"	104	40	100.960	3.858	377.182	28'- 2"	6	27'- 10"	2	14	2.991	213.760	2.985	167.223	I	
8	8	5	8"	6'- 3 3/8"	1'- 3 5/8"	2'- 7 5/8"	1'- 9 1/2"	1'- 2 3/4"	26'- 3 3/8"	3'- 6 7/8"	28'- 4"	104	56	106.608	4.011	425.598	28'- 2"	6	27'- 10"	2	18	3.217	227.565	3.186	167.223	M	
8	10	5	8"	6'- 4 1/4"	1'- 3 7/8"	2'- 7 3/8"	1'- 9 3/8"	1'- 3"	26'- 5 7/8"	3'- 6 5/8"	28'- 7"	104	72	112.256	4.324	513.594	28'- 2"	6	27'- 10"	2	22	3.331	241.371	3.274	167.223	Q	
9	4	5	9"	6'- 11 7/8"	1'- 5 1/8"	2'- 10 1/4"	2'- 5 8"	1'- 5"	29'- 4"	3'- 11 3/4"	31'- 8"	116	24	105.332	4.377	458.279	31'- 2"	6	30'- 10"	2	10	2.855	217.979	2.883	185.247	F	
9	6	5	9"	6'- 11 7/8"	1'- 5 1/8"	2'- 10 1/4"	2'- 5 8"	1'- 5"	29'- 4"	3'- 11 3/4"	31'- 8"	116	40	110.980	4.573	478.066	31'- 2"	6	30'- 10"	2	14	3.065	231.784	3.068	185.247	J	
9	8	5	9"	6'- 11 7/8"	1'- 5 1/8"	2'- 10 1/4"	2'- 5 8"	1'- 5"	29'- 4"	3'- 11 3/4"	31'- 8"	116	56	116.628	4.766	534.043	31'- 2"	6	30'- 10"	2	18	3.275	245.589	3.254	185.247	N	
9	10	5	9"	7'- 7 8"	1'- 5 5/8"	2'- 10 1/4"	2'- 5 8"	1'- 5"	29'- 6"	3'- 11 3/4"	31'- 10"	116	72	122.276	5.042	598.272	31'- 2"	6	30'- 10"	2	22	3.403	259.395	3.356	185.247	R	
9	12	5	9"	7'- 2 1/4"	1'- 6 1/8"	2'- 10"	2'- 1"	1'- 5 1/4"	29'- 9"	3'- 11 1/2"	32'- 1"	116	88	127.924	5.437	673.368	31'- 2"	6	30'- 10"	2	26	3.439	273.200	3.366	185.247	V	
10	4	6	9"	7'- 8 1/2"	1'- 8"	3'- 1"	2'- 3 5/8"	1'- 7"	32'- 4"	4'- 5"	34'- 11"	128	24	115.352	5.167	542.758	34'- 2"	6	33'- 10"	2	10	2.873	236.003	2.911	203.271	F	
10	8	6	9"	7'- 8 1/2"	1'- 8"	3'- 1"	2'- 3 5/8"	1'- 7"	32'- 4"	4'- 5"	34'- 11"	128	40	121.000	5.363	563.235	34'- 2"	6	33'- 10"	2	14	3.083	249.808	3.097	203.271	J	
10	8	6	9"	7'- 8 1/2"	1'- 8"	3'- 1"	2'- 3 5/8"	1'- 7"	32'- 4"	4'- 5"	34'- 11"	128	56	126.648	5.557	614.472	34'- 2"	6	33'- 10"	2	18	3.294	263.613	3.282	203.271	N	
10	10	6	9"	7'- 9 1/2"	1'- 8"	3'- 1"	2'- 3 5/8"	1'- 7"	32'- 6"	4'- 5"	35'- 1"	128	72	132.296	5.836	673.740	34'- 2"	6	33'- 10"	2	22	3.419	277.419	3.382	203.271	R	
10	12	6	9"	7'- 10 3/8"	1'- 8 1/4"	3'- 3/4"	2'- 4"	1'- 7 1/4"	32'- 9"	4'- 4 3/4"	35'- 5"	128	88	137.944	6.238	745.759	34'- 2"	6	33'- 10"	2	26	3.450	291.224	3.387	203.271	V	
12	6	6	8"	9'- 1 5/8"	2'- 1/4"	3'- 6 3/8"	2'- 9 5/8"	1'- 11 1/4"	38'- 4 1/8"	5'- 3 3/8"	41'- 6"	152	40	141.040	7.222	782.525	40'- 2"	6	39'- 10"	2	14	3.003	285.856	3.036	239.319	K	
12	8	6	8"	9'- 1 5/8"	2'- 1/4"	3'- 6 3/8"	2'- 9 5/8"	1'- 11 1/4"	38'- 4 1/8"	5'- 3 3/8"	41'- 6"	152	56	146.688	7.415	839.828	40'- 2"	6	39'- 10"	2	18	3.213	299.661	3.221	239.319	O	
12	10	6	8"	9'- 2 7/8"	2'- 1/4"	3'- 6 3/8"	2'- 9 5/8"	1'- 11 1/4"	38'- 6 5/8"	5'- 3 3/8"	41'- 9"	152	72	152.336	7.725	848.516	40'- 2"	6	39'- 10"	2	22	3.312	313.467	3.294	239.319	S	
12	12	6	8"	9'- 4 1/8"	2'- 1/4"	3'- 6 3/8"	2'- 9 5/8"	1'- 11 1/4"	38'- 9 1/8"	5'- 3 3/8"	41'- 11"	152	88	157.984	8.059	933.076	40'- 2"	6	39'- 10"	2	26	3.379	327.272	3.336	239.319	W	

STRUCTURE AND BRIDGE DIVISION

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

DIMENSIONS										REINFORCING STEEL																						
SPAN (FT.)	HGHT (FT.)	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2					
		TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	α	LENGTH	SIZE	SPACING C-C	α	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	9"	9"	8"	8"	9	9'- 0"	9	9'- 0"	1	1'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 9"	4'- 7"	4	12"	4'- 2"	4	12"	4'- 2"
3	4	9"	9"	8"	8"	9	9'- 0"	9	9'- 0"	2	2'- 0"	4	12"	11'- 2"	4	12"	11'- 4"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 3"	5'- 1"	4	12"	5'- 2"	4	12"	5'- 2"
4	3	11"	11"	8"	8"	12	12'- 0"	12	12'- 0"	1	1'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	----	----	4	12"	2'- 3 5/8"	2'- 11"	4'- 11"	4	12"	4'- 6"	4	12"	4'- 6"
4	4	11 1/4"	11 1/4"	8"	8"	12	12'- 0"	12	12'- 0"	2	2'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 5 1/4"	5'- 6"	4	12"	5'- 6"	4	12"	5'- 6"
4	5	11"	11"	8"	8"	12	12'- 0"	12	12'- 0"	3	3'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 11"	5'- 11"	4	12"	6'- 6"	4	12"	6'- 6"
4	6	11 1/4"	11 1/4"	8"	8"	12	12'- 0"	12	12'- 0"	4	4'- 0"	4	12"	13'- 9"	4	12"	14'- 4"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	4'- 5 1/4"	6'- 6"	4	9"	7'- 6"	4	12"	7'- 6"
5	3	13 1/4"	13 1/4"	8"	8"	15	15'- 0"	15	15'- 0"	1	1'- 0"	4	9"	16'- 4"	4	9"	17'- 4"	--	---	----	----	4	9"	2'- 6"	3'- 1 1/4"	5'- 4"	4	12"	4'- 10"	4	12"	4'- 10"
5	4	13 1/4"	13 1/4"	8"	8"	15	15'- 0"	15	15'- 0"	2	2'- 0"	4	9"	16'- 4"	4	9"	17'- 4"	--	---	----	----	4	9"	2'- 6"	3'- 7 1/4"	5'- 10"	4	12"	5'- 10"	4	12"	5'- 10"
5	5	13 1/2"	13 1/2"	8"	8"	15	15'- 0"	15	15'- 0"	3	3'- 0"	4	9"	16'- 4"	4	9"	17'- 4"	--	---	----	----	4	9"	2'- 6"	4'- 1 1/2"	6'- 4"	4	12"	6'- 11"	4	12"	6'- 11"
5	6	13 1/2"	13 1/2"	8"	8"	15	15'- 0"	15	15'- 0"	4	4'- 0"	4	9"	16'- 4"	4	9"	17'- 4"	--	---	----	----	4	9"	2'- 6"	4'- 7 1/2"	6'- 10"	4	9 1/2"	7'- 11"	4	12"	7'- 11"
5	7	13 1/2"	13 1/2"	8"	8"	15	15'- 0"	15	15'- 0"	5	5'- 0"	4	10"	16'- 4"	4	10"	17'- 4"	--	---	----	----	5	10"	2'- 6"	5'- 1 1/2"	7'- 4"	5	10 1/2"	8'- 11"	4	12"	8'- 11"
6	4	16"	16"	8"	8"	18	18'- 0"	18	18'- 0"	2	2'- 0"	4	9"	18'- 11"	5	9"	20'- 4"	--	---	----	----	4	9"	2'- 8 3/8"	3'- 10"	6'- 3"	4	12"	6'- 4"	4	11"	6'- 4"
6	5	16"	16"	8"	8"	18	18'- 0"	18	18'- 0"	3	3'- 0"	4	9"	18'- 11"	5	9"	20'- 4"	--	---	----	----	4	9"	2'- 8 3/8"	4'- 4"	6'- 9"	4	12"	7'- 4"	4	11"	7'- 4"
6	6	15 1/2"	15 1/2"	8"	8"	18	18'- 0"	18	18'- 0"	4	4'- 0"	4	9"	18'- 11"	5	9"	20'- 4"	--	---	----	----	4	9"	2'- 8 3/8"	4'- 9 1/2"	7'- 3"	4	10"	8'- 3"	4	11 1/2"	8'- 3"
6	7	15 1/2"	15 1/2"	8"	8"	18	18'- 0"	18	18'- 0"	5	5'- 0"	4	9"	18'- 11"	5	9"	20'- 4"	3	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	5'- 3 1/2"	7'- 9"	5	10 1/2"	9'- 3"	4	11 1/2"	9'- 3"
6	8	15 1/2"	15 1/2"	8"	8"	18	18'- 0"	18	18'- 0"	6	6'- 0"	4	9"	18'- 11"	5	9"	20'- 4"	--	---	----	----	5	9"	2'- 8 3/8"	5'- 9 1/2"	8'- 2"	4	5"	10'- 3"	4	11 1/2"	10'- 3"
7	4	18"	18"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	5	9"	21'- 6"	5	9"	23'- 4"	--	---	----	----	4	9"	2'- 10 3/4"	4'- 0"	6'- 8"	4	12"	6'- 8"	4	10"	6'- 8"
7	6	18"	18"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	5	9"	21'- 6"	5	9"	23'- 4"	--	---	----	----	4	9"	2'- 10 3/4"	5'- 0"	7'- 8"	4	9 1/2"	8'- 8"	4	10"	8'- 8"
7	8	18"	18"	8"	8"	21	21'- 0"	21	21'- 0"	6	6'- 0"	5	9"	21'- 6"	5	9"	23'- 4"	--	---	----	----	5	9"	2'- 10 3/4"	6'- 0"	8'- 7"	5	7 1/2"	10'- 8"	4	10"	10'- 8"
7	10	18"	18"	9 3/4"	8"	21	21'- 0"	21	21'- 0"	8	8'- 0"	5	9"	21'- 6"	5	9"	23'- 8"	4	9"	3'- 1/2"	5'- 10"	5	9"	3'- 1/2"	7'- 0"	9'- 9"	6	9"	12'- 8"	4	10"	12'- 8"
8	4	20 1/2"	20 1/2"	8"	8"	24	24'- 0"	24	24'- 0"	2	2'- 0"	6	9"	24'- 2"	6	9"	26'- 4"	--	---	----	----	4	9"	3'- 1 1/4"	4'- 2 1/2"	7'- 1"	4	12"	7'- 1"	4	10"	7'- 1"
8	6	20 1/2"	20 1/2"	8"	8"	24	24'- 0"	24	24'- 0"	4	4'- 0"	5	8"	24'- 2"	5	8"	26'- 4"	--	---	----	----	4	8"	3'- 1 1/4"	5'- 2 1/2"	8'- 1"	4	9"	9'- 1"	4	10"	9'- 1"
8	8	20 1/2"	20 1/2"	8"	8"	24	24'- 0"	24	24'- 0"	6	6'- 0"	5	8"	24'- 2"	5	8"	26'- 4"	3	8"	3'- 1 1/4"	6'- 0"	4	8"	3'- 1 1/4"	6'- 2 1/2"	9'- 1"	5	7 1/2"	11'- 1"	4	10"	11'- 1"
8	10	20 1/2"	20 1/2"	9 3/4"	8"	24	24'- 0"	24	24'- 0"	8	8'- 0"	5	8"	24'- 2"	5	8"	26'- 8"	3	8"	3'- 3"	6'- 4"	5	8"	3'- 3"	7'- 2 1/2"	10'- 2"	6	9"	13'- 1"	4	10"	13'- 1"
9	4	22 1/2"	22 1/2"	8"	8"	27	27'- 0"	27	27'- 0"	2	2'- 0"	6	9"	26'- 9"	6	9"	29'- 4"	--	---	----	----	4	9"	3'- 3 5/8"	4'- 4 1/2"	7'- 5"	4	12"	7'- 5"	4	10"	7'- 5"
9	6	22 1/2"	22 1/2"	8"	8"	27	27'- 0"	27	27'- 0"	4	4'- 0"	6	9"	26'- 9"	6	9"	29'- 4"	--	---	----	----	4	9"	3'- 3 5/8"	5'- 4 1/2"	8'- 5"	4	8 1/2"	9'- 5"	4	10"	9'- 5"
9	8	22 1/2"	22 1/2"	8"	8"	27	27'- 0"	27	27'- 0"	6	6'- 0"	6	9"	26'- 9"	6	9"	29'- 4"	--	---	----	----	5	9"	3'- 3 5/8"	6'- 4 1/2"	9'- 4"	4	4 1/2"	11'- 5"	4	10"	11'- 5"
9	10	22 1/2"	22 1/2"	9 3/4"	8"	27	27'- 0"	27	27'- 0"	8	8'- 0"	6	9"	26'- 9"	6	9"	29'- 8"	--	---	----	----	6	9"	3'- 5 3/8"	7'- 4 1/2"	10'- 5"	4	4"	13'- 5"	4	10"	13'- 5"
9	12	22 1/2"	22 1/2"	11"	8"	27	27'- 0"	27	27'- 0"	10	10'- 0"	6	9"	26'- 9"	6	9"	29'- 10"	3	9"	3'- 6 5/8"	6'- 11"	7	9"	3'- 6 5/8"	8'- 4 1/2"	11'- 6"	6	7"	15'- 5"	4	9 1/2"	15'- 5"
10	4	25"	25"	8"	8"	30	30'- 0"	30	30'- 0"	2	2'- 0"	6	9"	29'- 4"	6	9"	32'- 4"	--	---	----	----	4	9"	3'- 6"	4'- 7"	7'- 10"	4	12"	7'- 10"	4	9"	7'- 10"
10	6	25"	25"	8"	8"	30	30'- 0"	30	30'- 0"	4	4'- 0"	6	9"	29'- 4"	6	9"	32'- 4"	--	---	----	----	4	9"	3'- 6"	5'- 7"	8'- 10"	4	8"	9'- 10"	4	9"	9'- 10"
10	8	25"	25"	8"	8"	30	30'- 0"	30	30'- 0"	6	6'- 0"	6	9"	29'- 4"	6	9"	32'- 4"	3	9"	3'- 6"	6'- 10"	4	9"	3'- 6"	6'- 7"	9'- 10"	4	4 1/2"	11'- 10"	4	9"	11'- 10"
10	10	25"	25"	9 3/4"	8"	30	30'- 0"	30	30'- 0"	8	8'- 0"	6	9"	29'- 4"	6	9"	32'- 7"	3	9"	3'- 7 3/4"	7'- 1"	5	9"	3'- 7 3/4"	7'- 7"	10'- 11"	5	6"	13'- 10"	4	9"	13'- 10"
10	12	25"	25"	11"	8"	30	30'- 0"	30	30'- 0"	10	10'- 0"	6	9"	29'- 4"	6	9"	32'- 10"	3	9"	3'- 9"	7'- 4"	6	9"	3'- 9"	8'- 7"	11'- 11"	7	9 1/2"	15'- 10"	4	9"	15'- 10"
12	6	29 1/4"	29 1/4"	8"	8"	36	36'- 0"	36	36'- 0"	4	4'- 0"	7	9"	34'- 6"	7	9"	38'- 4"	--	---	----	----	4	9"	3'- 10 3/4"	5'- 11 1/4"	9'- 7"	4	7 1/2"	10'- 6"	5	12"	10'- 6"
12	8	29"	29"	8"	8"	36	36'- 0"	36	36'- 0"	6	6'- 0"	7	9"	34'- 6"	7	9"	38'- 4"	3	9"	3'- 10 3/4"	7'- 7"	4	9"	3'- 10 3/4"	6'- 11"	10'- 7"	6	9 1/2"	12'- 6"	5	12"	12'- 6"
12	10	29 1/4"	29 1/4"	9 3/4"	8"	36	36'- 0"	36	36'- 0"	8	8'- 0"	7	8"	34'- 6"	7	8"	38'- 7"	3	8"	4'- 1/2"	7'- 11"	5	8"	4'- 1/2"	7'- 11 1/4"	11'- 8"	6	8"	14'- 6"	4	7 1/2"	14'- 6"
12	12	29 1/4"	29 1/4"	11 1/4"	8"	36	36'- 0"	36	36'- 0"	10	10'- 0"	7	8"	34'- 6"	7	8"	38'- 10"	3	8"	4'- 2"	8'- 2"	6	8"	4'- 2"	8'- 11 1/4"	12'- 8"	7	9 1/2"	16'- 6"	4	7 1/2"	16'- 6"

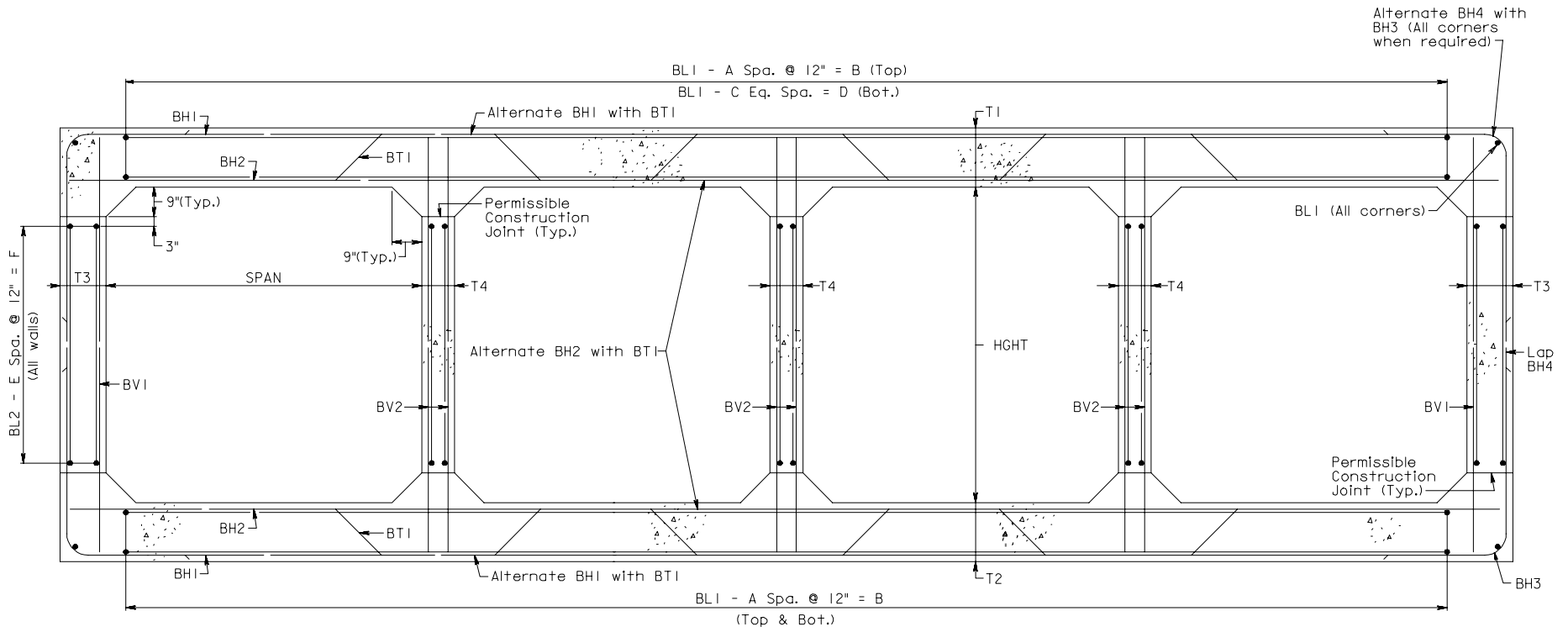
TRIPLE BOX CULVERTS
45 TO 50 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS								WINGWALL				
(FT.)	(FT.)	SIZE	SPACING C-C	BT I									NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	C			HW I		NO. HW2 BARS	NO. HW3 BARS		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)
				a	b	c	d	e	f	g	LENGTH	HEADWALL LENGTH						SIZE	LENGTH										
3	3	4	12"	2'- 8 3/8"	0'- 5 1/2"	1'- 5 5/8"	0'- 7 1/4"	0'- 4 3/4"	11'- 3 7/8"	1'- 4 7/8"	12'- 0"	44	16	42.388	1.061	110.447	13'- 2"	6	12'-10"	2	8	1.811	102.932	1.791	77.103	A			
3	4	4	12"	2'- 8 3/8"	0'- 5 1/2"	1'- 5 5/8"	0'- 7 1/4"	0'- 4 3/4"	11'- 3 7/8"	1'- 4 7/8"	12'- 0"	44	24	45.212	1.159	118.799	13'- 2"	6	12'-10"	2	10	1.916	109.835	1.884	77.103	C			
4	3	4	12"	3'- 5"	0'- 7 1/2"	1'- 8 1/2"	0'- 10 1/8"	0'- 6 3/4"	14'- 4"	1'- 10"	15'- 3"	56	16	52.408	1.407	132.491	16'- 2"	6	15'-10"	2	8	2.072	120.956	2.063	95.127	B			
4	4	4	12"	3'- 4 7/8"	0'- 7 3/4"	1'- 8 1/4"	0'- 10 1/2"	0'- 7"	14'- 4"	1'- 9 3/4"	15'- 4"	56	24	55.232	1.528	141.177	16'- 2"	6	15'-10"	2	10	2.171	127.859	2.149	95.127	D			
4	5	4	12"	3'- 5"	0'- 7 1/2"	1'- 8 1/2"	0'- 10 1/8"	0'- 6 3/4"	14'- 4"	1'- 10"	15'- 3"	56	32	58.056	1.603	149.195	16'- 2"	6	15'-10"	2	12	2.282	134.761	2.248	95.127	F			
4	6	4	12"	3'- 4 7/8"	0'- 7 3/4"	1'- 8 1/4"	0'- 10 1/2"	0'- 7"	14'- 4"	1'- 9 3/4"	15'- 4"	56	40	60.880	1.723	172.799	16'- 2"	6	15'-10"	2	14	2.381	141.664	2.334	95.127	H			
5	3	4	9"	4'- 1 1/2"	0'- 9 3/4"	1'- 11"	1'- 1 1/4"	0'- 9"	17'- 4"	2'- 3"	18'- 7"	68	16	62.428	1.852	182.888	19'- 2"	6	18'-10"	2	8	2.269	138.980	2.270	113.151	B			
5	4	4	9"	4'- 1 1/2"	0'- 9 3/4"	1'- 11"	1'- 1 1/4"	0'- 9"	17'- 4"	2'- 3"	18'- 7"	68	24	65.252	1.951	191.685	19'- 2"	6	18'-10"	2	10	2.374	145.883	2.362	113.151	D			
5	5	4	9"	4'- 1 3/8"	0'- 10"	1'- 10 3/4"	1'- 1 5/8"	0'- 9 1/4"	17'- 4"	2'- 2 3/4"	18'- 7"	68	32	68.076	2.076	200.816	19'- 2"	6	18'-10"	2	12	2.471	152.785	2.446	113.151	F			
5	6	4	9"	4'- 1 3/8"	0'- 10"	1'- 10 3/4"	1'- 1 5/8"	0'- 9 1/4"	17'- 4"	2'- 2 3/4"	18'- 7"	68	40	70.900	2.174	212.397	19'- 2"	6	18'-10"	2	14	2.576	159.688	2.539	113.151	H			
5	7	4	10"	4'- 1 3/8"	0'- 10"	1'- 10 3/4"	1'- 1 5/8"	0'- 9 1/4"	17'- 4"	2'- 2 3/4"	18'- 7"	68	48	73.724	2.271	229.035	19'- 2"	6	18'-10"	2	16	2.681	166.591	2.632	113.151	J			
6	4	4	9"	4'- 9 3/4"	1'- 1/2"	2'- 1"	1'- 5/8"	0'- 11 3/4"	20'- 4"	2'- 7 1/2"	21'- 11"	80	24	75.272	2.543	240.945	22'- 2"	6	21'-10"	2	10	2.526	163.907	2.524	131.175	E			
6	5	4	9"	4'- 9 3/4"	1'- 1/2"	2'- 1"	1'- 5/8"	0'- 11 3/4"	20'- 4"	2'- 7 1/2"	21'- 11"	80	32	78.096	2.641	249.985	22'- 2"	6	21'-10"	2	12	2.631	170.809	2.617	131.175	G			
6	6	4	9"	4'- 10"	1'- 0"	2'- 1 1/2"	1'- 4/2"	0'- 11 1/4"	20'- 4"	2'- 8"	21'- 11"	80	40	80.920	2.675	259.830	22'- 2"	6	21'-10"	2	14	2.758	177.712	2.732	131.175	I			
6	7	4	9"	4'- 10"	1'- 0"	2'- 1 1/2"	1'- 4/2"	0'- 11 1/4"	20'- 4"	2'- 8"	21'- 11"	80	48	83.744	2.772	286.594	22'- 2"	6	21'-10"	2	16	2.864	184.615	2.825	131.175	K			
6	8	4	9"	4'- 10"	1'- 0"	2'- 1 1/2"	1'- 4/2"	0'- 11 1/4"	20'- 4"	2'- 8"	21'- 11"	80	56	86.568	2.869	310.660	22'- 2"	6	21'-10"	2	18	2.969	191.517	2.917	131.175	M			
7	4	5	9"	5'- 6 3/8"	1'- 2 5/8"	2'- 3 7/8"	1'- 8 1/8"	1'- 1 3/4"	23'- 4 1/8"	3'- 5/8"	25'- 3"	92	24	85.292	3.126	319.439	25'- 2"	6	24'-10"	2	10	2.649	181.931	2.657	149.199	E			
7	6	5	9"	5'- 6 3/8"	1'- 2 5/8"	2'- 3 7/8"	1'- 8 1/8"	1'- 1 3/4"	23'- 4 1/8"	3'- 5/8"	25'- 3"	92	40	90.940	3.321	341.149	25'- 2"	6	24'-10"	2	14	2.859	195.736	2.842	149.199	I			
7	8	5	9"	5'- 6 3/8"	1'- 2 5/8"	2'- 3 7/8"	1'- 8 1/8"	1'- 1 3/4"	23'- 4 1/8"	3'- 5/8"	25'- 3"	92	56	96.588	3.515	394.986	25'- 2"	6	24'-10"	2	18	3.069	209.541	3.028	149.199	M			
7	10	5	9"	5'- 8 1/8"	1'- 2 5/8"	2'- 3 7/8"	1'- 8 1/8"	1'- 1 3/4"	23'- 4 1/8"	3'- 5/8"	25'- 6"	92	72	102.236	3.849	451.442	25'- 2"	6	24'-10"	2	22	3.140	223.347	3.073	149.199	Q			
8	4	5	9"	6'- 2 5/8"	1'- 5 1/8"	2'- 6 1/8"	1'- 11 5/8"	1'- 4 1/4"	26'- 3 7/8"	3'- 5 3/8"	28'- 7"	104	24	95.312	3.863	417.676	28'- 2"	6	27'-10"	2	10	2.703	199.955	2.721	167.223	E			
8	6	5	8"	6'- 2 5/8"	1'- 5 1/8"	2'- 6 1/8"	1'- 11 5/8"	1'- 4 1/4"	26'- 3 7/8"	3'- 5 3/8"	28'- 7"	104	40	100.960	4.061	409.667	28'- 2"	6	27'-10"	2	14	2.913	213.760	2.906	167.223	I			
8	8	5	8"	6'- 2 5/8"	1'- 5 1/8"	2'- 6 1/8"	1'- 11 5/8"	1'- 4 1/4"	26'- 3 7/8"	3'- 5 3/8"	28'- 7"	104	56	106.608	4.255	460.451	28'- 2"	6	27'-10"	2	18	3.123	227.565	3.092	167.223	M			
8	10	5	8"	6'- 4 3/8"	1'- 5 1/8"	2'- 6 1/8"	1'- 11 5/8"	1'- 4 1/4"	26'- 7 3/8"	3'- 5 3/8"	28'- 10"	104	72	112.256	4.593	518.086	28'- 2"	6	27'-10"	2	22	3.190	241.371	3.132	167.223	Q			
9	4	6	9"	6'- 11 1/4"	1'- 7 1/4"	2'- 9"	2'- 2 1/2"	1'- 6 1/4"	29'- 4"	3'- 10 1/2"	31'- 10"	116	24	105.332	4.603	498.760	31'- 2"	6	30'-10"	2	10	2.765	217.979	2.793	185.247	F			
9	6	6	9"	6'- 11 1/4"	1'- 7 1/4"	2'- 9"	2'- 2 1/2"	1'- 6 1/4"	29'- 4"	3'- 10 1/2"	31'- 10"	116	40	110.980	4.798	522.604	31'- 2"	6	30'-10"	2	14	2.975	231.784	2.978	185.247	J			
9	8	6	9"	6'- 11 1/4"	1'- 7 1/4"	2'- 9"	2'- 2 1/2"	1'- 6 1/4"	29'- 4"	3'- 10 1/2"	31'- 10"	116	56	116.628	4.992	579.878	31'- 2"	6	30'-10"	2	18	3.185	245.589	3.164	185.247	N			
9	10	6	9"	7'- 1"	1'- 7 1/4"	2'- 9"	2'- 2 1/2"	1'- 6 1/4"	29'- 7 1/2"	3'- 10 1/2"	32'- 1"	116	72	122.276	5.333	639.270	31'- 2"	6	30'-10"	2	22	3.249	259.395	3.201	185.247	R			
9	12	6	9"	7'- 2 1/4"	1'- 7 1/4"	2'- 9"	2'- 2 1/2"	1'- 6 1/4"	29'- 10"	3'- 10 1/2"	32'- 4"	116	88	127.924	5.666	737.378	31'- 2"	6	30'-10"	2	26	3.317	273.200	3.243	185.247	V			
10	4	6	9"	7'- 7 5/8"	1'- 9 3/4"	2'- 11 1/4"	2'- 6"	1'- 8 3/4"	32'- 4"	4'- 3 1/4"	35'- 2"	128	24	115.352	5.520	548.658	34'- 2"	6	33'-10"	2	10	2.731	236.003	2.769	203.271	F			
10	6	6	9"	7'- 7 5/8"	1'- 9 3/4"	2'- 11 1/4"	2'- 6"	1'- 8 3/4"	32'- 4"	4'- 3 1/4"	35'- 2"	128	40	121.000	5.715	574.603	34'- 2"	6	33'-10"	2	14	2.941	249.808	2.954	203.271	J			
10	8	6	9"	7'- 7 5/8"	1'- 9 3/4"	2'- 11 1/4"	2'- 6"	1'- 8 3/4"	32'- 4"	4'- 3 1/4"	35'- 2"	128	56	126.648	5.909	627.462	34'- 2"	6	33'-10"	2	18	3.152	263.613	3.140	203.271	N			
10	10	6	9"	7'- 9 3/8"	1'- 9 3/4"	2'- 11 1/4"	2'- 6"	1'- 8 3/4"	32'- 7 1/2"	4'- 3 1/4"	35'- 5"	128	72	132.296	6.255	684.355	34'- 2"	6	33'-10"	2	22	3.210	277.419	3.172	203.271	R			
10	12	6	9"	7'- 10 5/8"	1'- 9 3/4"	2'- 11 1/4"	2'- 6"	1'- 8 3/4"	32'- 10"	4'- 3 1/4"	35'- 8"	128	88	137.944	6.593	758.782	34'- 2"	6	33'-10"	2	26	3.275	291.224	3.121	203.271	V			
12	6	7	9"	9'- 3/4"	2'- 2 1/8"	3'- 4 3/4"	3'- 1/8"	2'- 7/8"	38'- 4"	5'- 1 1/2"	41'- 9"	152	40	141.040	7.635	841.525	40'- 2"	6	39'-10"	2	14	2.828	285.856	2.861	239.319	K			
12	8	7	9"	9'- 7/8"	2'- 1 7/8"	3'- 5"	2'- 11 3/4"	2'- 5/8"	38'- 4"	5'- 1 3/4"	41'- 9"	152	56	146.688	7.769	899.641	40'- 2"	6	39'-10"	2	18	3.063	299.661	3.071	239.319	O			
12	10	6	8"	9'- 2 1/2"	2'- 2"	3'- 4 5/8"	3'- 1/8"	2'- 1"	38'- 7 5/8"	5'- 1 3/8"	42'- 1"	152	72	152.336	8.180	984.580	40'- 2"	6	39'-10"	2	22	3.089	313.467	3.071	239.319	S			
12	12	6	8"	9'- 4"	2'- 2"	3'- 4 5/8"	3'- 1/8"	2'- 1"	38'- 10 5/8"	5'- 1 3/8"	42'- 4"	152	88	157.984	8.550	1,063.377	40'- 2"	6	39'-10"	2	26	3.123	327.272	3.079	239.319	W			

STRUCTURE AND BRIDGE DIVISION	<h1 style="margin: 0;">TRIPLE BOX CULVERTS</h1> <h2 style="margin: 0;">45 TO 50 FT. FILLS</h2> <p style="margin: 0;">VIRGINIA DEPARTMENT OF TRANSPORTATION</p>	1004.25
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TYPICAL SECTION

QUADRUPLE BOX CULVERTS
STANDARD DETAILS

GENERAL NOTE

Capacity: HS20-44 Loading and Alternate Military Loading.

Specifications:

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

All concrete shall be Class A4.

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

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

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

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

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

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

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

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

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

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

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

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

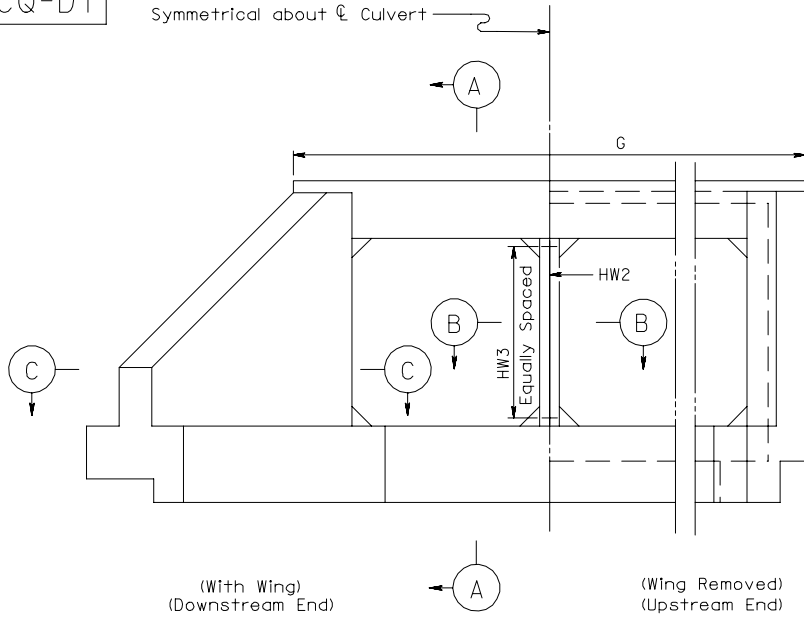
Wingwalls referenced by letter apply when the acceptable foundation level is the same for both box and wings. If foundation levels are different, the height of the wingwall shall be adjusted by selection of another lettered wingwall of appropriate height. For wingwall details, refer to standard series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

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

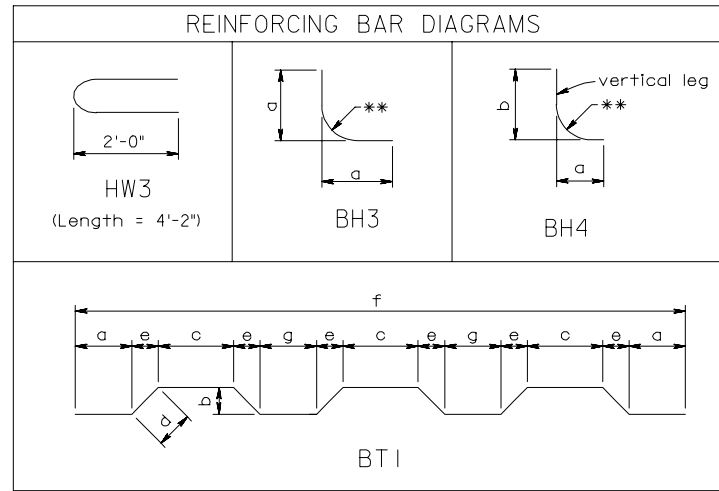
For modification of details for skewed culverts, see the Skewed Box Details included in the road plans.

This standard shall be used with the BCQ standard series.

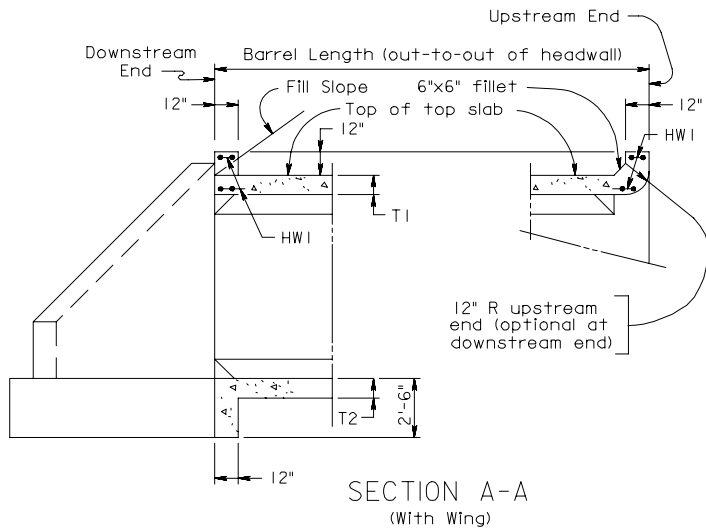
Symmetrical about C Culvert



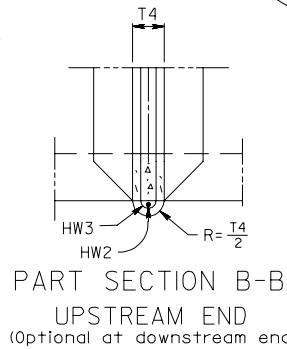
END ELEVATION



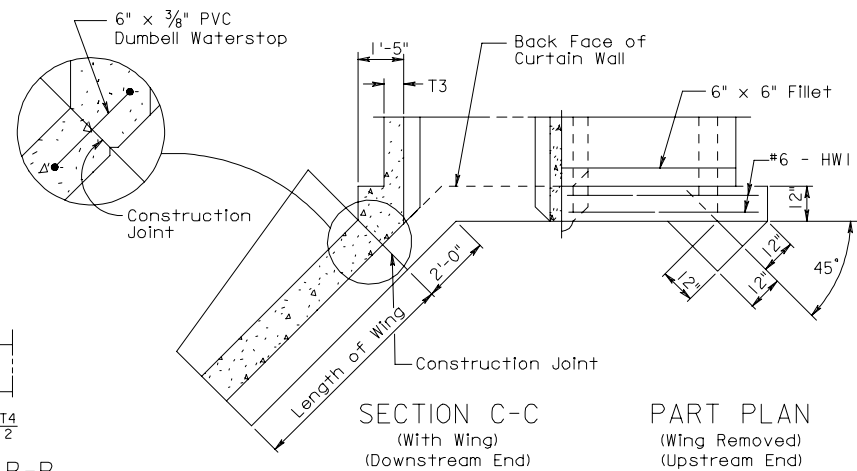
Bar Size	Pin Dia.
#3	2/4"
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"
#9	9"



SECTION A-A
(With Wing)



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



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

PART PLAN
(Wing Removed)
(Upstream End)

QUADRUPLE BOX CULVERTS

STANDARD DETAILS

DIMENSIONS								REINFORCING STEEL																											
SPAN (FT.)	HGHT (FT.)	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2								
		TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH			
3	3	8"	8"	8"	8"	13	13'- 0"	26	13'- 0"	1	1'- 0"	4	12"	14'-10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	13	13'- 0"	26	13'- 0"	2	2'- 0"	4	12"	14'-10"	4	12"	15'- 0"	4	12"	2'- 1 1/4"	3'-11"	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	10"	5'- 0"			
4	3	9/4"	9/4"	8"	8"	17	17'- 0"	34	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	2'- 9/4"	4'-10"	4	12"	4'- 2"	4	12"	4'- 2"			
4	4	9/4"	9/4"	8"	8"	17	17'- 0"	34	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	3'- 3/4"	5'- 4"	4	12"	5'- 2"	4	9/2"	5'- 2"			
4	5	9/2"	9/2"	8"	8"	17	17'- 0"	34	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	3'- 9/2"	5'-10"	4	12"	6'- 3"	4	9"	6'- 3"			
4	6	9/2"	9/2"	8"	8"	17	17'- 0"	34	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	4'- 3/2"	6'- 4"	4	12"	7'- 3"	4	9"	7'- 3"			
5	3	9"	9"	8"	8"	21	21'- 0"	42	21'- 0"	1	1'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	4	11"	2'- 6"	4'- 9"	4	11"	2'- 6"	2'- 9"	5'- 0"	4	12"	4'- 2"	4	10"	4'- 2"			
5	4	9"	9"	8"	8"	21	21'- 0"	42	21'- 0"	2	2'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	4	11"	2'- 6"	4'- 9"	4	11"	2'- 6"	3'- 3"	5'- 6"	4	12"	5'- 2"	4	7 1/2"	5'- 2"			
5	5	9"	9"	8"	8"	21	21'- 0"	42	21'- 0"	3	3'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	4	11"	2'- 6"	4'- 9"	4	11"	2'- 6"	3'- 9"	6'- 0"	4	12"	6'- 2"	4	7"	6'- 2"			
5	6	9"	9"	8"	8"	21	21'- 0"	42	21'- 0"	4	4'- 0"	4	11"	22'- 0"	5	11"	23'- 0"	4	11"	2'- 6"	4'- 9"	4	11"	2'- 6"	4'- 3"	6'- 6"	4	12"	7'- 2"	4	7"	7'- 2"			
5	7	9"	9"	8"	8"	21	21'- 0"	42	21'- 0"	5	5'- 0"	4	10"	22'- 0"	4	10"	23'- 0"	4	10"	2'- 6"	4'- 9"	4	10"	2'- 6"	4'- 9"	7'- 0"	4	12"	8'- 2"	4	6 1/2"	8'- 2"			
6	4	8 3/4"	8 3/4"	8"	8"	25	25'- 0"	50	25'- 0"	2	2'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	4	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	3'- 2 3/4"	5'- 8"	4	12"	5'- 2"	5	9 1/2"	5'- 2"			
6	5	8 3/4"	8 3/4"	8"	8"	25	25'- 0"	50	25'- 0"	3	3'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	4	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	3'- 8 3/4"	6'- 2"	4	12"	6'- 2"	5	9"	6'- 2"			
6	6	8 3/4"	8 3/4"	8"	8"	25	25'- 0"	50	25'- 0"	4	4'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	4	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	4'- 2 3/4"	6'- 8"	4	12"	7'- 2"	4	5 1/2"	7'- 2"			
6	7	8 3/4"	8 3/4"	8"	8"	25	25'- 0"	50	25'- 0"	5	5'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	4	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	4'- 8 3/4"	7'- 2"	4	12"	8'- 2"	4	5 1/2"	8'- 2"			
6	8	8 3/4"	8 3/4"	8"	8"	25	25'- 0"	50	25'- 0"	6	6'- 0"	4	8"	25'- 7"	4	8"	27'- 0"	4	8"	2'- 8 3/8"	5'- 2"	4	8"	2'- 8 3/8"	5'- 2 3/4"	7'- 8"	4	12"	9'- 2"	4	5 1/2"	9'- 2"			
7	4	8 3/4"	8 3/4"	8"	8"	29	29'- 0"	58	29'- 0"	2	2'- 0"	4	8"	29'- 2"	4	8"	31'- 0"	4	8"	2'-10 3/4"	5'- 6"	4	8"	2'-10 3/4"	3'- 2 3/4"	5'-10"	4	12"	5'- 2"	4	7"	5'- 2"			
7	6	8 3/4"	8 3/4"	8"	8"	29	29'- 0"	58	29'- 0"	4	4'- 0"	4	8"	29'- 2"	4	8"	31'- 0"	4	8"	2'-10 3/4"	5'- 6"	4	8"	2'-10 3/4"	4'- 2 3/4"	6'-10"	4	12"	7'- 2"	4	7"	7'- 2"			
7	8	8 3/4"	8 3/4"	8"	8"	29	29'- 0"	58	29'- 0"	6	6'- 0"	5	11"	29'- 2"	5	11"	31'- 0"	4	11"	2'-10 3/4"	5'- 6"	5	11"	2'-10 3/4"	5'- 2 3/4"	7'-10"	4	12"	9'- 2"	4	7"	9'- 2"			
7	10	9"	9"	8"	8"	29	29'- 0"	58	29'- 0"	8	8'- 0"	5	11"	29'- 2"	5	11"	31'- 0"	4	11"	2'-10 3/4"	5'- 6"	5	11"	2'-10 3/4"	6'- 3"	8'-10"	4	12"	11'- 2"	4	7 1/2"	11'- 2"			
8	4	9"	9"	8"	8"	33	33'- 0"	66	33'- 0"	2	2'- 0"	5	12"	32'-10"	5	12"	35'- 0"	--	---	----	----	6	12"	3'- 1 1/4"	3'- 3"	5'-11"	4	12"	5'- 2"	5	9 1/2"	5'- 2"			
8	6	9"	9"	8"	8"	33	33'- 0"	66	33'- 0"	4	4'- 0"	5	11"	32'-10"	5	11"	35'- 0"	4	11"	3'- 1 1/4"	5'-11"	5	11"	3'- 1 1/4"	4'- 3"	7'- 0"	4	12"	7'- 2"	4	6"	7'- 2"			
8	8	9/4"	9/4"	8"	8"	33	33'- 0"	66	33'- 0"	6	6'- 0"	5	11"	32'-10"	5	11"	35'- 0"	4	11"	3'- 1 1/4"	5'-11"	5	11"	3'- 1 1/4"	5'- 3/4"	8'- 1"	4	12"	9'- 2"	5	9 1/2"	9'- 2"			
8	10	9/4"	9/4"	8"	8"	33	33'- 0"	66	33'- 0"	8	8'- 0"	5	10"	32'-10"	5	10"	35'- 0"	4	10"	3'- 1 1/4"	5'-11"	5	10"	3'- 1 1/4"	6'- 3/4"	9'- 1"	4	12"	11'- 2"	4	6 1/2"	11'- 2"			
9	4	9 1/2"	9 1/2"	8"	8"	37	37'- 0"	74	37'- 0"	2	2'- 0"	5	11"	36'- 5"	5	11"	39'- 0"	--	---	----	----	6	11"	3'- 3 5/8"	3'- 3 1/2"	6'- 2"	4	12"	5'- 3"	4	5 1/2"	5'- 3"			
9	6	9 1/2"	9 1/2"	8"	8"	37	37'- 0"	74	37'- 0"	4	4'- 0"	5	10"	36'- 5"	5	10"	39'- 0"	4	10"	3'- 3 5/8"	6'- 4"	5	10"	3'- 3 5/8"	4'- 3 1/2"	7'- 3"	4	12"	7'- 3"	4	5 1/2"	7'- 3"			
9	8	9 1/2"	9 1/2"	8"	8"	37	37'- 0"	74	37'- 0"	6	6'- 0"	5	10"	36'- 5"	5	10"	39'- 0"	4	10"	3'- 3 5/8"	6'- 4"	5	10"	3'- 3 5/8"	5'- 3 1/2"	8'- 3"	4	12"	9'- 3"	4	5 1/2"	9'- 3"			
9	10	9"	9"	8"	8"	37	37'- 0"	74	37'- 0"	8	8'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	4	9"	3'- 3 5/8"	6'- 4"	5	9"	3'- 3 5/8"	6'- 3"	9'- 3"	4	12"	11'- 2"	5	8"	11'- 2"			
9	12	9"	9"	8"	8"	37	37'- 0"	74	37'- 0"	10	10'- 0"	6	12"	36'- 5"	6	12"	39'- 0"	5	12"	3'- 3 5/8"	6'- 3"	6	12"	3'- 3 5/8"	7'- 3"	10'- 2"	4	10 1/2"	13'- 2"	4	5 1/2"	13'- 2"			
10	4	9 3/4"	9 3/4"	8"	8"	41	41'- 0"	82	41'- 0"	2	2'- 0"	5	10"	40'- 0"	5	10"	43'- 0"	--	---	----	----	6	10"	3'- 6"	3'- 3 3/4"	6'- 5"	4	12"	5'- 3"	5	8"	5'- 3"			
10	6	9 3/4"	9 3/4"	8"	8"	41	41'- 0"	82	41'- 0"	4	4'- 0"	5	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	5	9"	3'- 6"	4'- 3 3/4"	7'- 6"	4	12"	7'- 3"	4	5"	7'- 3"			
10	8	9 3/4"	9 3/4"	8"	8"	41	41'- 0"	82	41'- 0"	6	6'- 0"	6	12"	40'- 0"	6	12"	43'- 0"	4	12"	3'- 6"	6'- 9"	6	12"	3'- 6"	5'- 3 3/4"	8'- 5"	4	12"	9'- 3"	4	5"	9'- 3"			
10	10	9 3/4"	9 3/4"	8"	8"	41	41'- 0"	82	41'- 0"	8	8'- 0"	5	8"	40'- 0"	5	8"	43'- 0"	4	8"	3'- 6"	6'- 9"	5	8"	3'- 6"	6'- 3 3/4"	9'- 6"	4	12"	11'- 3"	5	8"	11'- 3"			
10	12	9 3/4"	9 3/4"	8"	8"	41	41'- 0"	82	41'- 0"	10	10'- 0"	5	8"	40'- 0"	5	8"	43'- 0"	4	8"	3'- 6"	6'- 9"	5	8"	3'- 6"	7'- 3 3/4"	10'- 6"	4	10 1/2"	13'- 3"	5	8"	13'- 3"			
12	6	10 1/4"	10 1/4"	8"	8"	49	49'- 0"	98	49'- 0"	4	4'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	4	8"	3'-10 3/4"	7'- 6"	5	8"	3'-10 3/4"	4'- 4 1/4"	7'-11"	4	12"	7'- 5"	5	6 1/2"	7'- 5"			
12	8	10 1/4"	10 1/4"	8"	8"	49	49'- 0"	98	49'- 0"	6	6'- 0"	5	8"	47'- 2"	5	8"	51'- 0"	4	8"	3'-10 3/4"	7'- 6"	5	8"	3'-10 3/4"	5'- 4 1/4"	8'-11"	4	10 1/2"	9'- 5"	5	6 1/2"	9'- 5"			
12	10	10 1/4"	10 1/4"	8"	8"	49	49'- 0"	98	49'- 0"	8	8'- 0"	6	11"	47'- 2"	6	11"	51'- 0"	--	---	----	----	7	11"	3'-10 3/4"	6'- 4 1/4"	9'- 9"	4	12"	11'- 5"	6	9 1/2"	11'- 5"			
12	12	10 1/4"	10 1/4"	8"	8"	49	49'- 0"	98	49'- 0"	10	10'- 0"	6	10"	47'- 2"	6	10"	51'- 0"	4	10"	3'-10 3/4"	7'- 6"	6	10"	3'-10 3/4"	7'- 4 1/4"	10'-10"	4	10"	13'- 5"	6	9 1/2"	13'- 5"			

QUADRUPLE BOX CULVERTS

0 TO 2 FT. FILLS

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS												
(FT.)	(FT.)	SIZE	SPACING C-C	BT I									LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	C		HW I		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
				a	b	c	d	e	f	g	HEADWALL LENGTH	SIZE							LENGTH										
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	73	20	68.015	1.283	150.583	16'- 10"	6	16'- 6"	3	12	2.222	137.876	2.191	99.132	A			
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	73	30	71.545	1.404	175.497	16'- 10"	6	16'- 6"	3	15	2.333	148.230	2.284	99.132	C			
4	3	4	12"	3'- 5 7/8"	0'- 5 3/4"	1'- 10 1/4"	0'- 7 5/8"	0'- 5"	19'- 0"	1'- 11 3/4"	20'- 0"	93	20	84.715	1.626	193.113	20'- 10"	6	20'- 6"	3	12	2.595	161.908	2.577	123.164	B			
4	4	4	12"	3'- 5 7/8"	0'- 5 3/4"	1'- 10 1/4"	0'- 7 5/8"	0'- 5"	19'- 0"	1'- 11 3/4"	20'- 0"	93	30	88.245	1.749	209.002	20'- 10"	6	20'- 6"	3	15	2.706	172.262	2.670	123.164	D			
4	5	4	12"	3'- 5 3/4"	0'- 6"	1'- 10"	0'- 8"	0'- 5 1/4"	19'- 0"	1'- 11 1/2"	20'- 1"	93	40	91.775	1.901	222.899	20'- 10"	6	20'- 6"	3	18	2.808	182.616	2.753	123.164	F			
4	6	4	12"	3'- 5 3/4"	0'- 6"	1'- 10"	0'- 8"	0'- 5 1/4"	19'- 0"	1'- 11 1/2"	20'- 1"	93	50	95.305	2.023	234.675	20'- 10"	6	20'- 6"	3	21	2.919	192.970	2.845	123.164	H			
5	3	4	11"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	23'- 0"	2'- 7 1/4"	24'- 0"	113	20	101.415	1.815	237.595	24'- 10"	6	24'- 6"	3	12	2.979	185.940	2.974	147.196	A			
5	4	4	11"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	23'- 0"	2'- 7 1/4"	24'- 0"	113	30	104.945	1.937	257.242	24'- 10"	6	24'- 6"	3	15	3.090	196.294	3.067	147.196	C			
5	5	4	11"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	23'- 0"	2'- 7 1/4"	24'- 0"	113	40	108.475	2.060	273.033	24'- 10"	6	24'- 6"	3	18	3.201	206.648	3.160	147.196	E			
5	6	4	11"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	23'- 0"	2'- 7 1/4"	24'- 0"	113	50	112.005	2.181	305.275	24'- 10"	6	24'- 6"	3	21	3.313	217.002	3.253	147.196	G			
5	7	4	10"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	23'- 0"	2'- 7 1/4"	24'- 0"	113	60	115.535	2.303	317.679	24'- 10"	6	24'- 6"	3	24	3.424	227.356	3.345	147.196	I			
6	4	4	9"	5'- 1 3/8"	0'- 5 1/4"	2'- 8 1/4"	0'- 6 7/8"	0'- 4 1/2"	27'- 0"	3'- 2 3/4"	27'- 11"	133	30	121.645	2.112	329.861	28'- 10"	6	28'- 6"	3	15	3.499	220.326	3.489	171.228	C			
6	5	4	9"	5'- 1 3/8"	0'- 5 1/4"	2'- 8 1/4"	0'- 6 7/8"	0'- 4 1/2"	27'- 0"	3'- 2 3/4"	27'- 11"	133	40	125.175	2.234	347.352	28'- 10"	6	28'- 6"	3	18	3.610	230.680	3.582	171.228	E			
6	6	4	9"	5'- 1 3/8"	0'- 5 1/4"	2'- 8 1/4"	0'- 6 7/8"	0'- 4 1/2"	27'- 0"	3'- 2 3/4"	27'- 11"	133	50	128.705	2.356	365.445	28'- 10"	6	28'- 6"	3	21	3.721	241.034	3.674	171.228	G			
6	7	4	9"	5'- 1 3/8"	0'- 5 1/4"	2'- 8 1/4"	0'- 6 7/8"	0'- 4 1/2"	27'- 0"	3'- 2 3/4"	27'- 11"	133	60	132.235	2.478	381.067	28'- 10"	6	28'- 6"	3	24	3.833	251.388	3.767	171.228	I			
6	8	4	8"	5'- 1 3/8"	0'- 5 1/4"	2'- 8 1/4"	0'- 6 7/8"	0'- 4 1/2"	27'- 0"	3'- 2 3/4"	27'- 11"	133	70	135.765	2.599	420.329	28'- 10"	6	28'- 6"	3	27	3.944	261.742	3.860	171.228	K			
7	4	4	8"	5'- 11"	0'- 5 1/4"	3'- 1 1/8"	0'- 6 7/8"	0'- 4 1/2"	31'- 1 1/8"	3'- 9 7/8"	31'- 11"	153	30	138.345	2.324	385.845	32'- 10"	6	32'- 6"	3	15	3.894	244.358	3.898	195.260	C			
7	6	4	8"	5'- 11"	0'- 5 1/4"	3'- 1 1/8"	0'- 6 7/8"	0'- 4 1/2"	31'- 1 1/8"	3'- 9 7/8"	31'- 11"	153	50	145.405	2.569	413.787	32'- 10"	6	32'- 6"	3	21	4.117	265.066	4.083	195.260	G			
7	8	5	11"	5'- 11"	0'- 5 3/8"	3'- 1 1/8"	0'- 7"	0'- 4 1/2"	31'- 1 1/8"	3'- 9 7/8"	31'- 11"	153	70	152.465	2.812	464.985	32'- 10"	6	32'- 6"	3	27	4.339	285.774	4.268	195.260	K			
7	10	5	11"	5'- 10 7/8"	0'- 5 5/8"	3'- 7/8"	0'- 7 3/8"	0'- 4 3/4"	31'- 1 1/8"	3'- 9 5/8"	32'- 0"	153	90	159.525	3.105	488.545	32'- 10"	6	32'- 6"	3	33	4.543	306.482	4.435	195.260	O			
8	4	5	12"	6'- 8 3/8"	0'- 5 5/8"	3'- 5 5/8"	0'- 7 3/8"	0'- 4 3/4"	34'- 11 7/8"	4'- 4 7/8"	35'- 11"	173	30	155.045	2.591	426.558	36'- 10"	6	36'- 6"	3	15	4.267	268.390	4.284	219.292	C			
8	6	5	11"	6'- 8 3/8"	0'- 5 5/8"	3'- 5 5/8"	0'- 7 3/8"	0'- 4 3/4"	34'- 11 7/8"	4'- 4 7/8"	35'- 11"	173	50	162.105	2.834	486.589	36'- 10"	6	36'- 6"	3	21	4.490	289.098	4.469	219.292	G			
8	8	5	11"	6'- 8 1/4"	0'- 5 7/8"	3'- 5 3/8"	0'- 7 3/4"	0'- 5"	34'- 11 7/8"	4'- 4 5/8"	36'- 0"	173	70	169.165	3.133	516.915	36'- 10"	6	36'- 6"	3	27	4.708	309.806	4.651	219.292	L			
8	10	5	10"	6'- 8 1/4"	0'- 5 7/8"	3'- 5 3/8"	0'- 7 3/4"	0'- 5"	34'- 11 7/8"	4'- 4 5/8"	36'- 0"	173	90	176.225	3.376	571.311	36'- 10"	6	36'- 6"	3	33	4.931	330.514	4.836	219.292	P			
9	4	5	11"	7'- 5 3/4"	0'- 6 1/8"	3'- 10"	0'- 8 1/8"	0'- 5 1/4"	39'- 0"	4'- 11 1/2"	40'- 1"	193	30	171.745	2.930	496.381	40'- 10"	6	40'- 6"	3	15	4.627	292.422	4.657	243.324	D			
9	6	5	10"	7'- 5 3/4"	0'- 6 1/8"	3'- 10"	0'- 8 1/8"	0'- 5 1/4"	39'- 0"	4'- 11 1/2"	40'- 1"	193	50	178.805	3.171	566.532	40'- 10"	6	40'- 6"	3	21	4.850	313.130	4.843	243.324	H			
9	8	5	10"	7'- 5 3/4"	0'- 6 1/8"	3'- 10"	0'- 8 1/8"	0'- 5 1/4"	39'- 0"	4'- 11 1/2"	40'- 1"	193	70	185.865	3.416	599.220	40'- 10"	6	40'- 6"	3	27	5.072	333.838	5.028	243.324	L			
9	10	5	9"	7'- 6"	0'- 5 5/8"	3'- 10 1/2"	0'- 7 3/8"	0'- 4 3/4"	39'- 0"	5'- 0"	40'- 0"	193	90	192.925	3.535	677.535	40'- 10"	6	40'- 6"	3	33	5.327	354.546	5.246	243.324	O			
9	12	6	12"	7'- 6"	0'- 5 3/4"	3'- 10 1/2"	0'- 7 1/2"	0'- 4 3/4"	39'- 0"	5'- 0"	39'- 11"	193	110	199.985	3.777	739.144	40'- 10"	6	40'- 6"	3	39	5.550	375.254	5.431	243.324	S			
10	4	5	10"	8'- 3 1/4"	0'- 6 3/8"	4'- 2 1/2"	0'- 8 3/8"	0'- 5 1/2"	43'- 0"	5'- 6 1/2"	44'- 1"	213	30	188.445	3.225	574.236	44'- 10"	6	44'- 6"	3	15	4.985	316.454	5.028	267.356	D			
10	6	5	9"	8'- 3 1/4"	0'- 6 3/8"	4'- 2 1/2"	0'- 8 3/8"	0'- 5 1/2"	43'- 0"	5'- 6 1/2"	44'- 1"	213	50	195.505	3.467	635.690	44'- 10"	6	44'- 6"	3	21	5.207	337.162	5.213	267.356	H			
10	8	6	12"	8'- 3 1/4"	0'- 6 1/2"	4'- 2 1/2"	0'- 8 1/2"	0'- 5 1/2"	43'- 0"	5'- 6 1/2"	44'- 1"	213	70	202.565	3.708	720.301	44'- 10"	6	44'- 6"	3	27	5.430	357.870	5.399	267.356	L			
10	10	5	8"	8'- 3 1/4"	0'- 6 3/8"	4'- 2 1/2"	0'- 8 3/8"	0'- 5 1/2"	43'- 0"	5'- 6 1/2"	44'- 1"	213	90	209.625	3.950	780.907	44'- 10"	6	44'- 6"	3	33	5.653	378.578	5.584	267.356	P			
10	12	5	8"	8'- 3 1/4"	0'- 6 3/8"	4'- 2 1/2"	0'- 8 3/8"	0'- 5 1/2"	43'- 0"	5'- 6 1/2"	44'- 1"	213	110	216.685	4.194	818.659	44'- 10"	6	44'- 6"	3	39	5.875	399.286	5.770	267.356	T			
12	6	5	8"	9'- 10 1/4"	0'- 6 7/8"	4'- 11 5/8"	0'- 9 1/8"	0'- 6"	51'- 1 1/8"	6'- 8 3/8"	52'- 3"	253	50	228.905	4.087	898.604	52'- 10"	6	52'- 6"	3	21	5.904	385.226	5.937	315.420	H			
12	8	5	8"	9'- 10 1/4"	0'- 6 7/8"	4'- 11 5/8"	0'- 9 1/8"	0'- 6"	51'- 1 1/8"	6'- 8 3/8"	52'- 3"	253	70	235.965	4.336	875.009	52'- 10"	6	52'- 6"	3	27	6.127	405.934	6.122	315.420	L			
12	10	6	11"	9'- 10 1/4"	0'- 7"	4'- 11 5/8"	0'- 9 1/4"	0'- 6"	51'- 1 1/8"	6'- 8 3/8"	52'- 3"	253	90	243.025	4.579	927.951	52'- 10"	6	52'- 6"	3	33	6.349	426.642	6.308	315.420	P			
12	12	6	10"	9'- 10 1/4"	0'- 7"	4'- 11 5/8"	0'- 9 1/4"	0'- 6"	51'- 1 1/8"	6'- 8 3/8"	52'- 3"	253	110	250.085	4.818	1,028.977	52'- 10"	6	52'- 6"	3	39	6.572	447.350	6.493	315.420	T			

STRUCTURE AND BRIDGE DIVISION

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

DIMENSIONS								REINFORCING STEEL																											
SPAN (FT.)	HGHT (FT.)	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2								
		TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH			
3	3	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	2'- 8"	4'- 8"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
4	4	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	3'- 2"	5'- 2"	4	12"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	5	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	3'- 8"	5'- 8"	4	12"	6'- 0"	4	11 1/2"	6'- 0"	4	11 1/2"	6'- 0"
4	6	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	4'- 2"	6'- 2"	4	12"	7'- 0"	4	11"	7'- 0"	4	11"	7'- 0"
5	3	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	2'- 8"	4'- 11"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
5	4	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	3'- 2"	5'- 5"	4	12"	5'- 0"	4	10"	5'- 0"	4	10"	5'- 0"
5	5	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	3'- 8"	5'- 11"	4	12"	6'- 0"	4	10"	6'- 0"	4	10"	6'- 0"
5	6	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 2"	6'- 5"	4	12"	7'- 0"	4	10"	7'- 0"	4	10"	7'- 0"
5	7	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 8"	6'- 11"	4	12"	8'- 0"	4	9 1/2"	8'- 0"	4	9 1/2"	8'- 0"
6	4	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	--	---	----	----	5	12"	2'- 8 3/8"	3'- 2"	5'- 6"	4	12"	5'- 0"	4	9"	5'- 0"	4	9"	5'- 0"
6	5	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	--	---	----	----	5	12"	2'- 8 3/8"	3'- 8"	6'- 0"	4	12"	6'- 0"	4	8"	6'- 0"	4	8"	6'- 0"
6	6	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	--	---	----	----	5	12"	2'- 8 3/8"	4'- 2"	6'- 6"	4	12"	7'- 0"	4	7 1/2"	7'- 0"	4	7 1/2"	7'- 0"
6	7	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	--	---	----	----	5	11"	2'- 8 3/8"	4'- 8"	7'- 0"	4	12"	8'- 0"	4	7 1/2"	8'- 0"	4	7 1/2"	8'- 0"
6	8	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	4	11"	2'- 8 3/8"	5'- 2"	5	11"	2'- 8 3/8"	5'- 2"	7'- 6"	4	12"	9'- 0"	4	7 1/2"	9'- 0"	4	7 1/2"	9'- 0"
7	4	8"	8"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	4	8"	29'- 2"	4	8"	31'- 0"	4	8"	2'- 10 3/4"	5'- 6"	4	8"	2'- 10 3/4"	3'- 2"	5'- 10"	4	12"	5'- 0"	4	7"	5'- 0"	4	7"	5'- 0"
7	6	8"	8"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	4	8"	29'- 2"	4	8"	31'- 0"	4	8"	2'- 10 3/4"	5'- 6"	4	8"	2'- 10 3/4"	4'- 2"	6'- 10"	4	12"	7'- 0"	5	9 1/2"	7'- 0"	4	9 1/2"	7'- 0"
7	8	8"	8"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	4	8"	29'- 2"	4	8"	31'- 0"	4	8"	2'- 10 3/4"	5'- 6"	4	8"	2'- 10 3/4"	5'- 2"	7'- 10"	4	12"	9'- 0"	4	6"	9'- 0"	4	6"	9'- 0"
7	10	8"	8"	8"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	4	8"	29'- 2"	4	8"	31'- 0"	4	8"	2'- 10 3/4"	5'- 6"	4	8"	2'- 10 3/4"	6'- 2"	8'- 10"	4	12"	11'- 0"	5	9"	11'- 0"	4	9"	11'- 0"
8	4	8"	8"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	5	10"	32'- 10"	5	10"	35'- 0"	4	10"	3'- 1 1/4"	5'- 11"	5	10"	3'- 1 1/4"	3'- 2"	5'- 11"	4	12"	5'- 0"	4	6"	5'- 0"	4	6"	5'- 0"
8	6	8 1/4"	8 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	5	11"	32'- 10"	5	11"	35'- 0"	--	---	----	----	6	11"	3'- 1 1/4"	4'- 2 1/4"	6'- 11"	4	12"	7'- 0"	4	5 1/2"	7'- 0"	4	5 1/2"	7'- 0"
8	8	8 1/4"	8 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	6	11"	32'- 10"	5	11"	35'- 0"	4	11"	3'- 1 1/4"	5'- 11"	6	11"	3'- 1 1/4"	5'- 2 1/4"	7'- 11"	4	12"	9'- 0"	5	8"	9'- 0"	4	8"	9'- 0"
8	10	8 1/2"	8 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	5	10"	32'- 10"	5	10"	35'- 0"	4	10"	3'- 1 1/4"	5'- 11"	5	10"	3'- 1 1/4"	6'- 2 1/2"	9'- 0"	4	12"	11'- 1"	5	8"	11'- 1"	4	8"	11'- 1"
9	4	8 1/2"	8 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	4	9"	3'- 3 5/8"	6'- 4"	5	9"	3'- 3 5/8"	3'- 2 1/2"	6'- 2"	4	12"	5'- 1"	4	5 1/2"	5'- 1"	4	5 1/2"	5'- 1"
9	6	8 1/2"	8 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	4	9"	3'- 3 5/8"	6'- 4"	5	9"	3'- 3 5/8"	4'- 2 1/2"	7'- 2"	4	12"	7'- 1"	5	8"	7'- 1"	4	8"	7'- 1"
9	8	8 1/2"	8 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	4	9"	3'- 3 5/8"	6'- 4"	5	9"	3'- 3 5/8"	5'- 2 1/2"	8'- 2"	4	12"	9'- 1"	5	8"	9'- 1"	4	8"	9'- 1"
9	10	9"	9"	8"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	4	9"	3'- 3 5/8"	6'- 4"	5	9"	3'- 3 5/8"	6'- 3"	9'- 3"	4	12"	11'- 2"	4	5 1/2"	11'- 2"	4	5 1/2"	11'- 2"
9	12	9"	9"	8"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	6	12"	36'- 5"	6	12"	39'- 0"	4	12"	3'- 3 5/8"	6'- 4"	6	12"	3'- 3 5/8"	7'- 3"	10'- 2"	4	10"	13'- 2"	5	9"	13'- 2"	4	9"	13'- 2"
10	4	9"	9"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	6	12"	40'- 0"	6	12"	43'- 0"	--	---	----	----	7	12"	3'- 6"	3'- 3"	6'- 3"	4	12"	5'- 2"	4	5"	5'- 2"	4	5"	5'- 2"
10	6	9"	9"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	6	12"	40'- 0"	6	12"	43'- 0"	--	---	----	----	7	12"	3'- 6"	4'- 3"	7'- 3"	4	12"	7'- 2"	5	7 1/2"	7'- 2"	4	7 1/2"	7'- 2"
10	8	9 1/4"	9 1/4"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	5	8"	40'- 0"	5	8"	43'- 0"	4	8"	3'- 6"	6'- 9"	5	8"	3'- 6"	5'- 3 1/4"	8'- 5"	4	12"	9'- 2"	4	5"	9'- 2"	4	5"	9'- 2"
10	10	9 1/2"	9 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	6	11"	40'- 0"	6	11"	43'- 0"	4	11"	3'- 6"	6'- 9"	6	11"	3'- 6"	6'- 3 1/2"	9'- 5"	4	12"	11'- 3"	5	8"	11'- 3"	4	8"	11'- 3"
10	12	9 3/4"	9 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	6	11"	40'- 0"	6	11"	43'- 0"	--	---	----	----	7	11"	3'- 6"	7'- 3 3/4"	10'- 4"	4	10"	13'- 3"	4	5 1/2"	13'- 3"	4	5 1/2"	13'- 3"
12	6	10 1/2"	10 1/2"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	6	12"	47'- 2"	6	12"	51'- 0"	--	---	----	----	7	12"	3'- 10 3/4"	4'- 4 1/2"	7'- 10"	4	12"	7'- 5"	5	7 1/2"	7'- 5"	4	7 1/2"	7'- 5"
12	8	10 1/4"	10 1/4"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	4	8"	3'- 10 3/4"	7'- 6"	5	8"	3'- 10 3/4"	5'- 4 1/4"	8'- 11"	4	12"	9'- 5"	4	4 1/2"	9'- 5"	4	4 1/2"	9'- 5"
12	10	10 1/4"	10 1/4"	8"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	6	10"	47'- 2"	6	10"	51'- 0"	4	10"	3'- 10 3/4"	7'- 6"	6	10"	3'- 10 3/4"	6'- 4 1/4"	9'- 10"	4	12"	11'- 5"	5	7 1/2"	11'- 5"	4	7 1/2"	11'- 5"
12	12	10"	10"	8"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	6	9"	47'- 2"	6	9"	51'- 0"	4	9"	3'- 10 3/4"	7'- 6"	6	9"	3'- 10 3/4"	7'- 4"	10'- 10"	4	10"	13'- 4"	6	9 1/2"	13'- 4"	4	9 1/2"	13'- 4"

QUADRUPLE BOX CULVERTS

2 TO 5 FT. FILLS

SPAN		HGT		REINFORCING STEEL											QUAN./LF		HEADWALLS											
(FT.)	(FT.)	SIZE	SPACING C-C	BT I									NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	C		HW I		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
				a	b	c	d	e	f	g	LENGTH	LENGTH						SIZE	LENGTH									
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	20	57.160	1.284	141.899	16'- 10"	6	16'- 6"	3	12	2.222	137.876	2.191	99.132	A		
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	30	60.690	1.406	152.339	16'- 10"	6	16'- 6"	3	15	2.333	148.230	2.284	99.132	C		
4	3	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	20	70.520	1.479	168.508	20'- 10"	6	20'- 6"	3	12	2.626	161.908	2.609	123.164	A		
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	30	74.050	1.601	190.527	20'- 10"	6	20'- 6"	3	15	2.738	172.262	2.702	123.164	C		
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	40	77.580	1.723	202.012	20'- 10"	6	20'- 6"	3	18	2.849	182.616	2.794	123.164	E		
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	50	81.110	1.846	213.957	20'- 10"	6	20'- 6"	3	21	2.960	192.970	2.887	123.164	G		
5	3	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	20	83.880	1.674	208.031	24'- 10"	6	24'- 6"	3	12	3.031	185.940	3.027	147.196	A		
5	4	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	30	87.410	1.796	222.479	24'- 10"	6	24'- 6"	3	15	3.142	196.294	3.120	147.196	C		
5	5	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	40	90.940	1.919	233.721	24'- 10"	6	24'- 6"	3	18	3.254	206.648	3.212	147.196	E		
5	6	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	50	94.470	2.041	244.963	24'- 10"	6	24'- 6"	3	21	3.365	217.002	3.305	147.196	G		
5	7	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	60	98.000	2.164	258.229	24'- 10"	6	24'- 6"	3	24	3.476	227.356	3.398	147.196	I		
6	4	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	30	100.770	1.992	247.095	28'- 10"	6	28'- 6"	3	15	3.547	220.326	3.537	171.228	C		
6	5	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	40	104.300	2.114	263.629	28'- 10"	6	28'- 6"	3	18	3.658	230.680	3.630	171.228	E		
6	6	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	50	107.830	2.236	279.629	28'- 10"	6	28'- 6"	3	21	3.770	241.034	3.723	171.228	G		
6	7	4	11"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	60	111.360	2.358	305.635	28'- 10"	6	28'- 6"	3	24	3.881	251.388	3.816	171.228	I		
6	8	4	11"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	70	114.890	2.479	334.480	28'- 10"	6	28'- 6"	3	27	3.992	261.742	3.908	171.228	K		
7	4	4	8"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 7/8"	0'- 5 7/8"	0'- 3 3/4"	31'- 1 7/8"	3'- 10 5/8"	31'- 10"	124	30	114.130	2.180	364.938	32'- 10"	6	32'- 6"	3	15	3.952	244.358	3.955	195.260	C		
7	6	4	8"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 7/8"	0'- 5 7/8"	0'- 3 3/4"	31'- 1 7/8"	3'- 10 5/8"	31'- 10"	124	50	121.190	2.424	400.118	32'- 10"	6	32'- 6"	3	21	4.174	265.066	4.141	195.260	G		
7	8	4	8"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 7/8"	0'- 5 7/8"	0'- 3 3/4"	31'- 1 7/8"	3'- 10 5/8"	31'- 10"	124	70	128.250	2.669	431.128	32'- 10"	6	32'- 6"	3	27	4.397	285.774	4.326	195.260	K		
7	10	4	8"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 7/8"	0'- 5 7/8"	0'- 3 3/4"	31'- 1 7/8"	3'- 10 5/8"	31'- 10"	124	90	135.310	2.913	464.968	32'- 10"	6	32'- 6"	3	33	4.620	306.482	4.512	195.260	O		
8	4	5	10"	6'- 8 3/8"	0'- 4 5/8"	3'- 6 3/8"	0'- 6"	0'- 3 3/4"	34'- 11 7/8"	4'- 5 7/8"	35'- 9"	140	30	127.490	2.371	459.442	36'- 10"	6	36'- 6"	3	15	4.356	268.390	4.373	219.292	C		
8	6	5	11"	6'- 8 3/4"	0'- 4 7/8"	3'- 6 3/8"	0'- 6 1/4"	0'- 4"	34'- 11 7/8"	4'- 5 7/8"	35'- 9"	140	50	134.550	2.672	463.936	36'- 10"	6	36'- 6"	3	21	4.557	289.098	4.536	219.292	G		
8	8	5	11"	6'- 8 3/4"	0'- 4 7/8"	3'- 6 3/8"	0'- 6 1/4"	0'- 4"	34'- 11 7/8"	4'- 5 7/8"	35'- 9"	140	70	141.610	2.912	554.080	36'- 10"	6	36'- 6"	3	27	4.779	309.806	4.722	219.292	K		
8	10	5	10"	6'- 8 5/8"	0'- 5 1/8"	3'- 6 1/8"	0'- 6 5/8"	0'- 4 1/4"	34'- 11 7/8"	4'- 5 3/8"	35'- 10"	140	90	148.670	3.212	569.734	36'- 10"	6	36'- 6"	3	33	4.980	330.514	4.885	219.292	O		
9	4	5	9"	7'- 6 1/4"	0'- 5 1/8"	3'- 11"	0'- 6 5/8"	0'- 4 1/4"	39'- 0"	5'- 1/2"	39'- 10"	156	30	140.850	2.683	544.147	40'- 10"	6	40'- 6"	3	15	4.710	292.422	4.740	243.324	C		
9	6	5	9"	7'- 6 1/4"	0'- 5 1/8"	3'- 11"	0'- 6 5/8"	0'- 4 1/4"	39'- 0"	5'- 1/2"	39'- 10"	156	50	147.910	2.927	581.941	40'- 10"	6	40'- 6"	3	21	4.933	313.130	4.926	243.324	G		
9	8	5	9"	7'- 6 1/4"	0'- 5 1/8"	3'- 11"	0'- 6 5/8"	0'- 4 1/4"	39'- 0"	5'- 1/2"	39'- 10"	156	70	154.970	3.172	616.469	40'- 10"	6	40'- 6"	3	27	5.156	333.838	5.111	243.324	K		
9	10	5	9"	7'- 6"	0'- 5 5/8"	3'- 10 1/2"	0'- 7 3/8"	0'- 4 3/4"	39'- 0"	5'- 0"	40'- 0"	156	90	162.030	3.538	645.647	40'- 10"	6	40'- 6"	3	33	5.327	354.546	5.246	243.324	O		
9	12	6	12"	7'- 6"	0'- 5 3/4"	3'- 10 1/2"	0'- 7 1/2"	0'- 4 3/4"	39'- 0"	5'- 0"	39'- 11"	156	110	169.090	3.780	701.005	40'- 10"	6	40'- 6"	3	39	5.550	375.254	5.431	243.324	S		
10	4	6	12"	8'- 3 5/8"	0'- 5 3/4"	4'- 3 1/4"	0'- 7 1/2"	0'- 4 3/4"	43'- 0"	5'- 7 1/4"	43'- 11"	172	30	154.210	3.021	615.136	44'- 10"	6	44'- 6"	3	15	5.052	316.454	5.095	267.356	C		
10	6	6	12"	8'- 3 5/8"	0'- 5 3/4"	4'- 3 1/4"	0'- 7 1/2"	0'- 4 3/4"	43'- 0"	5'- 7 1/4"	43'- 11"	172	50	161.270	3.265	655.563	44'- 10"	6	44'- 6"	3	21	5.274	337.162	5.280	267.356	G		
10	8	5	8"	8'- 3 1/2"	0'- 5 1/8"	4'- 3"	0'- 7 3/4"	0'- 5"	43'- 0"	5'- 7"	44'- 0"	172	70	168.330	3.574	718.747	44'- 10"	6	44'- 6"	3	27	5.487	357.870	5.456	267.356	L		
10	10	6	11"	8'- 3 3/8"	0'- 6 1/4"	4'- 2 3/4"	0'- 8 1/8"	0'- 5 1/4"	43'- 0"	5'- 6 3/4"	44'- 0"	172	90	175.390	3.884	766.954	44'- 10"	6	44'- 6"	3	33	5.681	378.578	5.613	267.356	P		
10	12	6	11"	8'- 3 1/4"	0'- 6 1/2"	4'- 2 1/2"	0'- 8 1/2"	0'- 5 1/2"	43'- 0"	5'- 6 1/2"	44'- 1"	172	110	182.450	4.196	801.995	44'- 10"	6	44'- 6"	3	39	5.875	399.286	5.770	267.356	T		
12	6	6	12"	9'- 10 5/8"	0'- 7 1/4"	4'- 11 3/8"	0'- 9 5/8"	0'- 6 1/4"	51'- 1 7/8"	6'- 8 1/8"	52'- 3"	204	50	187.990	4.175	755.139	52'- 10"	6	52'- 6"	3	21	5.869	385.226	5.902	315.420	H		
12	8	5	8"	9'- 10 1/4"	0'- 6 7/8"	4'- 11 3/8"	0'- 9 1/8"	0'- 6"	51'- 1 7/8"	6'- 8 3/8"	52'- 3"	204	70	195.050	4.332	897.281	52'- 10"	6	52'- 6"	3	27	6.127	405.934	6.122	315.420	L		
12	10	6	10"	9'- 10 1/4"	0'- 7"	4'- 11 5/8"	0'- 9 1/4"	0'- 6"	51'- 1 7/8"	6'- 8 3/8"	52'- 3"	204	90	202.110	4.576	936.842	52'- 10"	6	52'- 6"	3	33	6.349	426.642	6.308	315.420	P		
12	12	6	9"	9'- 10 3/8"	0'- 6 3/4"	4'- 11 7/8"	0'- 8 7/8"	0'- 5 3/4"	51'- 1 7/8"	6'- 8 5/8"	52'- 2"	204	110	209.170	4.736	1066.426	52'- 10"	6	52'- 6"	3	39	6.607	447.350	6.528	315.420	T		

STRUCTURE AND BRIDGE DIVISION

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

DIMENSIONS								REINFORCING STEEL																								
SPAN	HGHT	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2					
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	2'- 8"	4'- 8"	4	12"	4'- 0"	4	12"	4'- 0"
4	4	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 2"	5'- 2"	4	12"	5'- 0"	4	12"	5'- 0"
4	5	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 8"	5'- 8"	4	12"	6'- 0"	4	12"	6'- 0"
4	6	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	4'- 2"	6'- 2"	4	12"	7'- 0"	4	12"	7'- 0"
5	3	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	2'- 8"	4'- 11"	4	12"	4'- 0"	4	12"	4'- 0"
5	4	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	3'- 2"	5'- 5"	4	12"	5'- 0"	4	12"	5'- 0"
5	5	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	3'- 8"	5'- 11"	4	12"	6'- 0"	4	12"	6'- 0"
5	6	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	4'- 2"	6'- 5"	4	12"	7'- 0"	4	12"	7'- 0"
5	7	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	4'- 8"	6'- 11"	4	12"	8'- 0"	4	12"	8'- 0"
6	4	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	3'- 2"	5'- 7"	4	12"	5'- 0"	4	12"	5'- 0"
6	5	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	3'- 8"	6'- 1"	4	12"	6'- 0"	4	12"	6'- 0"
6	6	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	4'- 2"	6'- 7"	4	12"	7'- 0"	4	12"	7'- 0"
6	7	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	4'- 8"	7'- 1"	4	12"	8'- 0"	4	12"	8'- 0"
6	8	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	5'- 2"	7'- 7"	4	12"	9'- 0"	4	12"	9'- 0"
7	4	8"	8"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	4	12"	29'- 2"	4	12"	31'- 0"	--	---	----	----	5	12"	2'- 10 3/4"	3'- 2"	5'- 9"	4	12"	5'- 0"	4	12"	5'- 0"
7	6	8"	8"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	4	12"	29'- 2"	4	12"	31'- 0"	--	---	----	----	5	12"	2'- 10 3/4"	4'- 2"	6'- 9"	4	12"	7'- 0"	4	12"	7'- 0"
7	8	8"	8"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	4	12"	29'- 2"	4	12"	31'- 0"	--	---	----	----	5	12"	2'- 10 3/4"	5'- 2"	7'- 9"	4	12"	9'- 0"	4	11 1/2"	9'- 0"
7	10	8"	8"	8"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	4	11"	29'- 2"	4	11"	31'- 0"	--	---	----	----	5	11"	2'- 10 3/4"	6'- 2"	8'- 9"	4	12"	11'- 0"	4	12"	11'- 0"
8	4	8 1/4"	8 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	4	11"	32'- 10"	4	11"	35'- 0"	3	11"	3'- 1 1/4"	6'- 0"	5	11"	3'- 1 1/4"	3'- 2 1/4"	6'- 0"	4	9"	5'- 0"	4	12"	5'- 0"
8	6	8 1/2"	8 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	4	11"	32'- 10"	4	11"	35'- 0"	--	---	----	----	5	11"	3'- 1 1/4"	4'- 2 1/2"	7'- 0"	4	12"	7'- 1"	4	12"	7'- 1"
8	8	8 1/2"	8 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	4	10"	32'- 10"	4	10"	35'- 0"	--	---	----	----	5	10"	3'- 1 1/4"	5'- 2 1/2"	8'- 0"	4	12"	9'- 1"	4	12"	9'- 1"
8	10	8 3/4"	8 3/4"	8"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	4	9"	32'- 10"	4	9"	35'- 0"	--	---	----	----	5	9"	3'- 1 1/4"	6'- 2 3/4"	9'- 0"	4	12"	11'- 2"	4	12"	11'- 2"
9	4	9"	9"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	5	9"	36'- 5"	4	9"	39'- 0"	3	9"	3'- 3 5/8"	6'- 5"	5	9"	3'- 3 5/8"	3'- 3"	6'- 3"	4	8"	5'- 2"	4	12"	5'- 2"
9	6	9 1/4"	9 1/4"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	5	9"	36'- 5"	4	9"	39'- 0"	--	---	----	----	5	9"	3'- 3 5/8"	4'- 3 1/4"	7'- 3"	4	12"	7'- 2"	4	12"	7'- 2"
9	8	9 1/2"	9 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	5	9"	36'- 5"	4	9"	39'- 0"	4	9"	3'- 3 5/8"	6'- 4"	4	9"	3'- 3 5/8"	5'- 3 1/2"	8'- 4"	4	12"	9'- 3"	4	12"	9'- 3"
9	10	9 1/2"	9 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	5	9"	3'- 3 5/8"	6'- 3 1/2"	9'- 3"	4	12"	11'- 3"	4	12"	11'- 3"
9	12	9 3/4"	9 3/4"	8"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	4	8"	36'- 5"	4	8"	39'- 0"	4	8"	3'- 3 5/8"	6'- 4"	5	8"	3'- 3 5/8"	7'- 3 3/4"	10'- 3"	4	8"	13'- 3"	4	12"	13'- 3"
10	4	9 3/4"	9 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	5	8"	40'- 0"	4	8"	43'- 0"	--	---	----	----	5	8"	3'- 6"	3'- 3 3/4"	6'- 6"	4	7"	5'- 3"	4	12"	5'- 3"
10	6	10"	10"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	5	8"	40'- 0"	4	8"	43'- 0"	--	---	----	----	5	8"	3'- 6"	4'- 4"	7'- 6"	4	11 1/2"	7'- 4"	4	12"	7'- 4"
10	8	10 1/4"	10 1/4"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	5	8"	40'- 0"	4	8"	43'- 0"	4	8"	3'- 6"	6'- 9"	4	8"	3'- 6"	5'- 4 1/4"	8'- 7"	4	12"	9'- 5"	4	12"	9'- 5"
10	10	10 1/4"	10 1/4"	8"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	5	8"	40'- 0"	5	8"	43'- 0"	--	---	----	----	5	8"	3'- 6"	6'- 4 1/4"	9'- 6"	4	12"	11'- 5"	4	12"	11'- 5"
10	12	10 1/2"	10 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	5	10"	40'- 0"	5	10"	43'- 0"	3	10"	3'- 6"	6'- 10"	6	10"	3'- 6"	7'- 4 1/2"	10'- 6"	4	9"	13'- 5"	4	12"	13'- 5"
12	6	11 3/4"	11 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	6	12"	47'- 2"	6	12"	51'- 0"	3	12"	3'- 10 3/4"	7'- 7"	6	12"	3'- 10 3/4"	4'- 5 3/4"	8'- 0"	4	10"	7'- 8"	4	10"	7'- 8"
12	8	11 3/4"	11 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	6	11"	47'- 2"	6	11"	51'- 0"	--	---	----	----	6	11"	3'- 10 3/4"	5'- 5 3/4"	9'- 0"	4	12"	9'- 8"	4	12"	9'- 8"
12	10	12"	12"	8"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	6	9"	47'- 2"	5	9"	51'- 0"	3	9"	3'- 10 3/4"	7'- 7"	5	9"	3'- 10 3/4"	6'- 6"	10'- 1"	4	12"	11'- 8"	4	12"	11'- 8"
12	12	12 1/4"	12 1/4"	8"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	6	9"	47'- 2"	5	9"	51'- 0"	--	---	----	----	6	9"	3'- 10 3/4"	7'- 6 1/4"	11'- 0"	4	10 1/2"	13'- 9"	4	12"	13'- 9"

QUADRUPLE BOX CULVERTS

5 TO 10 FT. FILLS

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS											
(FT.)	(FT.)	SIZE	SPACING C-C	BT I									NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	C		HW I		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
				a	b	c	d	e	f	g	LENGTH	LENGTH						SIZE	LENGTH									
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	20	57.160	1.284	141.899	16'- 10"	6	16'- 6"	3	12	2.222	137.876	2.191	99.132	A		
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	30	60.690	1.406	152.339	16'- 10"	6	16'- 6"	3	15	2.333	148.230	2.284	99.132	C		
4	3	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	20	70.520	1.479	168.508	20'- 10"	6	20'- 6"	3	12	2.626	161.908	2.609	123.164	A		
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	30	74.050	1.602	178.948	20'- 10"	6	20'- 6"	3	15	2.738	172.262	2.702	123.164	C		
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	40	77.580	1.724	189.388	20'- 10"	6	20'- 6"	3	18	2.849	182.616	2.794	123.164	E		
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	50	81.110	1.847	199.828	20'- 10"	6	20'- 6"	3	21	2.960	192.970	2.887	123.164	G		
5	3	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	20	83.880	1.675	195.339	24'- 10"	6	24'- 6"	3	12	3.031	185.940	3.027	147.196	A		
5	4	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	30	87.410	1.797	205.779	24'- 10"	6	24'- 6"	3	15	3.142	196.294	3.120	147.196	C		
5	5	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	40	90.940	1.920	216.219	24'- 10"	6	24'- 6"	3	18	3.254	206.648	3.212	147.196	E		
5	6	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	50	94.470	2.043	226.659	24'- 10"	6	24'- 6"	3	21	3.365	217.002	3.305	147.196	G		
5	7	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	60	98.000	2.165	237.099	24'- 10"	6	24'- 6"	3	24	3.476	227.356	3.398	147.196	I		
6	4	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	30	100.770	1.992	246.193	28'- 10"	6	28'- 6"	3	15	3.547	220.326	3.537	171.228	C		
6	5	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	40	104.300	2.114	256.633	28'- 10"	6	28'- 6"	3	18	3.658	230.680	3.630	171.228	E		
6	6	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	50	107.830	2.237	267.073	28'- 10"	6	28'- 6"	3	21	3.770	241.034	3.723	171.228	G		
6	7	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	60	111.360	2.360	277.513	28'- 10"	6	28'- 6"	3	24	3.881	251.388	3.816	171.228	I		
6	8	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	70	114.890	2.482	287.953	28'- 10"	6	28'- 6"	3	27	3.992	261.742	3.908	171.228	K		
7	4	4	12"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 7/8"	0'- 5 7/8"	0'- 3 3/4"	31'- 1 1/8"	3'- 10 5/8"	31'- 10"	124	30	114.130	2.188	267.733	32'- 10"	6	32'- 6"	3	15	3.952	244.358	3.955	195.260	C		
7	6	4	12"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 7/8"	0'- 5 7/8"	0'- 3 3/4"	31'- 1 1/8"	3'- 10 5/8"	31'- 10"	124	50	121.190	2.433	290.113	32'- 10"	6	32'- 6"	3	21	4.174	265.066	4.141	195.260	G		
7	8	4	12"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 7/8"	0'- 5 7/8"	0'- 3 3/4"	31'- 1 1/8"	3'- 10 5/8"	31'- 10"	124	70	128.250	2.678	314.061	32'- 10"	6	32'- 6"	3	27	4.397	285.774	4.326	195.260	K		
7	10	4	11"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 7/8"	0'- 5 7/8"	0'- 3 3/4"	31'- 1 1/8"	3'- 10 5/8"	31'- 10"	124	90	135.310	2.922	349.365	32'- 10"	6	32'- 6"	3	33	4.620	306.482	4.512	195.260	O		
8	4	4	11"	6'- 8 3/4"	0'- 4 3/4"	3'- 6 3/8"	0'- 6 1/4"	0'- 4"	34'- 11 7/8"	4'- 5 5/8"	35'- 10"	140	30	127.490	2.436	321.988	36'- 10"	6	36'- 6"	3	15	4.334	268.390	4.351	219.292	C		
8	6	4	11"	6'- 8 3/8"	0'- 5"	3'- 6 1/8"	0'- 6 1/2"	0'- 4 1/4"	34'- 11 7/8"	4'- 5 5/8"	35'- 10"	140	50	134.550	2.736	333.122	36'- 10"	6	36'- 6"	3	21	4.534	289.098	4.514	219.292	G		
8	8	4	10"	6'- 8 5/8"	0'- 5"	3'- 6 1/8"	0'- 6 1/2"	0'- 4 1/4"	34'- 11 7/8"	4'- 5 5/8"	35'- 10"	140	70	141.610	2.980	374.631	36'- 10"	6	36'- 6"	3	27	4.757	309.806	4.700	219.292	K		
8	10	4	9"	6'- 8 1/2"	0'- 5 1/4"	3'- 5 7/8"	0'- 6 7/8"	0'- 4 1/2"	34'- 11 7/8"	4'- 5 5/8"	35'- 11"	140	90	148.670	3.278	421.912	36'- 10"	6	36'- 6"	3	33	4.957	330.514	4.863	219.292	O		
9	4	4	9"	7'- 6"	0'- 5 1/2"	3'- 10 1/2"	0'- 7 1/4"	0'- 4 3/4"	39'- 0"	5'- 0"	40'- 0"	156	30	140.850	2.813	436.196	40'- 10"	6	40'- 6"	3	15	4.659	292.422	4.689	243.324	C		
9	6	4	9"	7'- 5 3/8"	0'- 5 3/4"	3'- 10 1/4"	0'- 7 5/8"	0'- 5"	39'- 0"	4'- 11 3/4"	40'- 0"	156	50	147.910	3.120	443.648	40'- 10"	6	40'- 6"	3	21	4.875	313.130	4.868	243.324	H		
9	8	4	9"	7'- 5 3/4"	0'- 6"	3'- 10"	0'- 8"	0'- 5 1/4"	39'- 0"	4'- 11 1/2"	40'- 1"	156	70	154.970	3.425	474.373	40'- 10"	6	40'- 6"	3	27	5.072	333.838	5.028	243.324	L		
9	10	4	9"	7'- 5 3/4"	0'- 6"	3'- 10"	0'- 8"	0'- 5 1/4"	39'- 0"	4'- 11 1/2"	40'- 1"	156	90	162.030	3.668	530.783	40'- 10"	6	40'- 6"	3	33	5.295	354.546	5.213	243.324	P		
9	12	4	8"	7'- 5 5/8"	0'- 6 1/4"	3'- 9 3/4"	0'- 8 3/8"	0'- 5 1/2"	39'- 0"	4'- 11 1/4"	40'- 2"	156	110	169.090	3.974	546.385	40'- 10"	6	40'- 6"	3	39	5.492	375.254	5.373	243.324	T		
10	4	4	8"	8'- 3 1/4"	0'- 6 1/4"	4'- 2 1/2"	0'- 8 3/8"	0'- 5 1/2"	43'- 0"	5'- 6 1/2"	44'- 2"	172	30	154.210	3.231	499.761	44'- 10"	6	44'- 6"	3	15	4.985	316.454	5.028	267.356	D		
10	6	4	8"	8'- 3 1/8"	0'- 6 1/2"	4'- 2 1/4"	0'- 8 5/8"	0'- 5 3/4"	43'- 0"	5'- 6 1/4"	44'- 2"	172	50	161.270	3.543	520.088	44'- 10"	6	44'- 6"	3	21	5.179	337.162	5.185	267.356	H		
10	8	4	8"	8'- 3"	0'- 6 3/4"	4'- 2"	0'- 9"	0'- 6"	43'- 0"	5'- 6"	44'- 3"	172	70	168.330	3.854	553.004	44'- 10"	6	44'- 6"	3	27	5.373	357.870	5.342	267.356	L		
10	10	4	8"	8'- 3"	0'- 6 3/4"	4'- 2"	0'- 9"	0'- 6"	43'- 0"	5'- 6"	44'- 3"	172	90	175.390	4.096	617.582	44'- 10"	6	44'- 6"	3	33	5.595	378.578	5.527	267.356	P		
10	12	5	10"	8'- 2 7/8"	0'- 7 1/8"	4'- 1 3/4"	0'- 9 1/2"	0'- 6 1/4"	43'- 0"	5'- 5 3/4"	44'- 3"	172	110	182.450	4.408	640.495	44'- 10"	6	44'- 6"	3	39	5.790	399.286	5.684	267.356	T		
12	6	6	12"	9'- 9 1/2"	0'- 8 1/2"	4'- 10 1/8"	0'- 11 3/8"	0'- 7 1/2"	51'- 1 1/8"	6'- 6 7/8"	52'- 6"	204	50	187.990	4.577	716.309	52'- 10"	6	52'- 6"	3	21	5.696	385.226	5.728	315.420	H		
12	8	6	11"	9'- 9 1/2"	0'- 8 1/2"	4'- 10 1/8"	0'- 11 3/8"	0'- 7 1/2"	51'- 1 1/8"	6'- 6 7/8"	52'- 6"	204	70	195.050	4.820	766.987	52'- 10"	6	52'- 6"	3	27	5.918	405.934	5.914	315.420	L		
12	10	5	9"	9'- 9 3/8"	0'- 8 5/8"	4'- 9 7/8"	0'- 11 5/8"	0'- 7 3/4"	51'- 1 1/8"	6'- 6 5/8"	52'- 7"	204	90	202.110	5.145	780.774	52'- 10"	6	52'- 6"	3	33	6.106	426.642	6.065	315.420	P		
12	12	5	9"	9'- 9 1/4"	0'- 8 7/8"	4'- 9 5/8"	1'- 0"	0'- 8"	51'- 1 1/8"	6'- 6 3/8"	52'- 8"	204	110	209.170	5.468	819.103	52'- 10"	6	52'- 6"	3	39	6.294	447.350	6.215	315.420	T		

STRUCTURE AND BRIDGE DIVISION

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

DIMENSIONS								REINFORCING STEEL																								
SPAN	HGHT	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2					
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	2'- 8"	4'- 8"	4	12"	4'- 0"	4	12"	4'- 0"
4	4	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 2"	5'- 2"	4	12"	5'- 0"	4	12"	5'- 0"
4	5	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 8"	5'- 8"	4	12"	6'- 0"	4	12"	6'- 0"
4	6	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	4'- 2"	6'- 2"	4	12"	7'- 0"	4	12"	7'- 0"
5	3	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	2'- 8"	4'- 11"	4	12"	4'- 0"	4	12"	4'- 0"
5	4	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	3'- 2"	5'- 5"	4	12"	5'- 0"	4	12"	5'- 0"
5	5	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	3'- 8"	5'- 11"	4	12"	6'- 0"	4	12"	6'- 0"
5	6	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	4'- 2"	6'- 5"	4	12"	7'- 0"	4	12"	7'- 0"
5	7	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	4'- 8"	6'- 11"	4	12"	8'- 0"	4	12"	8'- 0"
6	4	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	--	---	----	----	5	12"	2'- 8 3/8"	3'- 2"	5'- 6"	4	12"	5'- 0"	4	12"	5'- 0"
6	5	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	3'- 8"	6'- 1"	4	12"	6'- 0"	4	12"	6'- 0"
6	6	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	4'- 2"	6'- 7"	4	12"	7'- 0"	4	12"	7'- 0"
6	7	8 1/4"	8 1/4"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	4'- 8 1/4"	7'- 1"	4	12"	8'- 0"	4	12"	8'- 0"
6	8	8 1/4"	8 1/4"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	5'- 2 1/4"	7'- 7"	4	12"	9'- 0"	4	12"	9'- 0"
7	4	9"	9"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	4	11"	29'- 2"	4	11"	31'- 0"	--	---	----	----	5	11"	2'- 10 3/4"	3'- 3"	5'- 10"	4	11"	5'- 2"	4	12"	5'- 2"
7	6	9 1/4"	9 1/4"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	4	11"	29'- 2"	4	11"	31'- 0"	--	---	----	----	5	11"	2'- 10 3/4"	4'- 3 1/4"	6'- 10"	4	12"	7'- 2"	4	12"	7'- 2"
7	8	9 1/4"	9 1/4"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	4	10"	29'- 2"	4	10"	31'- 0"	3	10"	2'- 10 3/4"	5'- 7"	4	10"	2'- 10 3/4"	5'- 3 1/4"	7'- 11"	4	12"	9'- 2"	4	12"	9'- 2"
7	10	9 1/2"	9 1/2"	8"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	4	10"	29'- 2"	4	10"	31'- 0"	3	10"	2'- 10 3/4"	5'- 7"	5	10"	2'- 10 3/4"	6'- 3 1/2"	8'- 10"	4	9 1/2"	11'- 3"	4	12"	11'- 3"
8	4	10"	10"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	4	9"	32'- 10"	4	9"	35'- 0"	--	---	----	----	5	9"	3'- 1 1/4"	3'- 4"	6'- 1"	4	9"	5'- 4"	4	12"	5'- 4"
8	6	10 1/4"	10 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	4	9"	32'- 10"	4	9"	35'- 0"	--	---	----	----	5	9"	3'- 1 1/4"	4'- 4 1/4"	7'- 2"	4	12"	7'- 5"	4	12"	7'- 5"
8	8	10 1/2"	10 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	4	9"	32'- 10"	5	9"	35'- 0"	--	---	----	----	5	9"	3'- 1 1/4"	5'- 4 1/2"	8'- 2"	4	12"	9'- 5"	4	12"	9'- 5"
8	10	10 1/2"	10 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	4	9"	32'- 10"	4	9"	35'- 0"	--	---	----	----	5	9"	3'- 1 1/4"	6'- 4 1/2"	9'- 2"	4	11"	11'- 5"	4	12"	11'- 5"
9	4	11"	11"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	5	9"	3'- 3 5/8"	3'- 5"	6'- 5"	4	9"	5'- 6"	4	12"	5'- 6"
9	6	11 1/4"	11 1/4"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	3	9"	3'- 3 5/8"	6'- 5"	4	9"	3'- 3 5/8"	4'- 5 1/4"	7'- 6"	4	12"	7'- 6"	4	12"	7'- 6"
9	8	11 1/2"	11 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	4	9"	3'- 3 5/8"	5'- 5 1/2"	8'- 6"	4	12"	9'- 7"	4	12"	9'- 7"
9	10	11 1/2"	11 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	3	9"	3'- 3 5/8"	6'- 5"	5	9"	3'- 3 5/8"	6'- 5 1/2"	9'- 5"	4	11 1/2"	11'- 7"	4	12"	11'- 7"
9	12	11 3/4"	11 3/4"	8"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	5	8"	36'- 5"	5	8"	39'- 0"	4	8"	3'- 3 5/8"	6'- 4"	5	8"	3'- 3 5/8"	7'- 5 3/4"	10'- 5"	4	6"	13'- 8"	4	12"	13'- 8"
10	4	12"	12"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	5	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	5	9"	3'- 6"	3'- 6"	6'- 8"	4	8"	5'- 8"	4	12"	5'- 8"
10	6	12 1/4"	12 1/4"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	5	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	5	9"	3'- 6"	4'- 6 1/4"	7'- 8"	4	12"	7'- 9"	4	12"	7'- 9"
10	8	12 1/2"	12 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	5	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	5	9"	3'- 6"	5'- 6 1/2"	8'- 9"	4	12"	9'- 9"	4	12"	9'- 9"
10	10	12 1/2"	12 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	5	9"	40'- 0"	5	9"	43'- 0"	3	9"	3'- 6"	6'- 10"	5	9"	3'- 6"	6'- 6 1/2"	9'- 9"	4	12"	11'- 9"	4	12"	11'- 9"
10	12	12 3/4"	12 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	5	10"	40'- 0"	5	10"	43'- 0"	4	10"	3'- 6"	6'- 9"	6	10"	3'- 6"	7'- 6 3/4"	10'- 8"	4	6"	13'- 9"	4	12"	13'- 9"
12	6	14 1/2"	14 1/2"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	6	9"	47'- 2"	5	9"	51'- 0"	--	---	----	----	5	9"	3'- 10 3/4"	4'- 8 1/2"	8'- 3"	4	12"	8'- 1"	4	12"	8'- 1"
12	8	14 1/2"	14 1/2"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	6	9"	47'- 2"	5	9"	51'- 0"	--	---	----	----	5	9"	3'- 10 3/4"	5'- 8 1/2"	9'- 3"	4	12"	10'- 1"	4	12"	10'- 1"
12	10	14 3/4"	14 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	6	9"	47'- 2"	5	9"	51'- 0"	3	9"	3'- 10 3/4"	7'- 7"	5	9"	3'- 10 3/4"	6'- 8 3/4"	10'- 4"	4	12"	12'- 1"	4	12"	12'- 1"
12	12	14 3/4"	14 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	6	9"	47'- 2"	5	9"	51'- 0"	3	9"	3'- 10 3/4"	7'- 7"	6	9"	3'- 10 3/4"	7'- 8 3/4"	11'- 3"	4	6 1/2"	14'- 1"	4	12"	14'- 1"

QUADRUPLE BOX CULVERTS

10 TO 15 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS											
(FT.)	(FT.)	SIZE	SPACING C-C	BT I									NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	C		HW I		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
				a	b	c	d	e	f	g	LENGTH	LENGTH						SIZE	LENGTH									
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	20	57.160	1.284	141.899	16'- 10"	6	16'- 6"	3	12	2.222	137.876	2.191	99.132	A		
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	30	60.690	1.406	152.339	16'- 10"	6	16'- 6"	3	15	2.333	148.230	2.284	99.132	C		
4	3	3	12"	3'- 6 1/2"	0'- 4 3/8"	1'- 11 3/8"	0'- 5 7/8"	0'- 3 7/8"	19'- 1/8"	2'- 7/8"	19'- 10"	76	20	70.520	1.480	157.037	20'- 10"	6	20'- 6"	3	12	2.626	161.908	2.609	123.164	A		
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	30	74.050	1.602	178.948	20'- 10"	6	20'- 6"	3	15	2.738	172.262	2.702	123.164	C		
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	40	77.580	1.724	189.388	20'- 10"	6	20'- 6"	3	18	2.849	182.616	2.794	123.164	E		
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	50	81.110	1.847	199.828	20'- 10"	6	20'- 6"	3	21	2.960	192.970	2.887	123.164	G		
5	3	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	20	83.880	1.675	195.339	24'- 10"	6	24'- 6"	3	12	3.031	185.940	3.027	147.196	A		
5	4	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	30	87.410	1.797	205.779	24'- 10"	6	24'- 6"	3	15	3.142	196.294	3.120	147.196	C		
5	5	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	40	90.940	1.920	216.219	24'- 10"	6	24'- 6"	3	18	3.254	206.648	3.212	147.196	E		
5	6	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	50	94.470	2.043	226.659	24'- 10"	6	24'- 6"	3	21	3.365	217.002	3.305	147.196	G		
5	7	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	60	98.000	2.165	237.099	24'- 10"	6	24'- 6"	3	24	3.476	227.356	3.398	147.196	I		
6	4	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	30	100.770	1.992	240.415	28'- 10"	6	28'- 6"	3	15	3.547	220.326	3.537	171.228	C		
6	5	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	40	104.300	2.114	256.633	28'- 10"	6	28'- 6"	3	18	3.658	230.680	3.630	171.228	E		
6	6	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	50	107.830	2.237	267.073	28'- 10"	6	28'- 6"	3	21	3.770	241.034	3.723	171.228	G		
6	7	4	12"	5'- 1 5/8"	0'- 4 3/4"	2'- 8 3/4"	0'- 6 1/4"	0'- 4"	27'- 0"	3'- 3 1/4"	27'- 10"	108	60	111.360	2.402	277.625	28'- 10"	6	28'- 6"	3	24	3.865	251.388	3.799	171.228	I		
6	8	4	12"	5'- 1 5/8"	0'- 4 3/4"	2'- 8 3/4"	0'- 6 1/4"	0'- 4"	27'- 0"	3'- 3 1/4"	27'- 10"	108	70	114.890	2.525	288.065	28'- 10"	6	28'- 6"	3	27	3.976	261.742	3.892	171.228	K		
7	4	4	11"	5'- 10 7/8"	0'- 5 1/2"	3'- 7/8"	0'- 7 1/4"	0'- 4 3/4"	31'- 1/8"	3'- 9 5/8"	32'- 0"	124	30	114.130	2.380	283.228	32'- 10"	6	32'- 6"	3	15	3.875	244.358	3.878	195.260	C		
7	6	4	11"	5'- 10 3/4"	0'- 5 3/4"	3'- 5/8"	0'- 7 5/8"	0'- 5"	31'- 1/8"	3'- 9 3/8"	32'- 1"	124	50	121.190	2.673	305.481	32'- 10"	6	32'- 6"	3	21	4.097	265.066	4.063	195.260	H		
7	8	4	10"	5'- 10 3/4"	0'- 5 3/4"	3'- 5/8"	0'- 7 5/8"	0'- 5"	31'- 1/8"	3'- 9 3/8"	32'- 1"	124	70	128.250	2.918	341.495	32'- 10"	6	32'- 6"	3	27	4.319	285.174	4.248	195.260	L		
7	10	4	10"	5'- 10 5/8"	0'- 6"	3'- 3/8"	0'- 8"	0'- 5 1/4"	31'- 1/8"	3'- 9 1/8"	32'- 1"	124	90	135.310	3.210	382.942	32'- 10"	6	32'- 6"	3	33	4.523	306.482	4.415	195.260	P		
8	4	4	9"	6'- 7 7/8"	0'- 6 1/2"	3'- 4 5/8"	0'- 8 5/8"	0'- 5 1/4"	34'- 11 7/8"	4'- 3 7/8"	36'- 2"	140	30	127.490	2.815	354.775	36'- 10"	6	36'- 6"	3	15	4.196	268.390	4.213	219.292	D		
8	6	4	9"	6'- 7 3/4"	0'- 6 3/4"	3'- 4 3/8"	0'- 9"	0'- 6"	34'- 11 7/8"	4'- 3 5/8"	36'- 3"	140	50	134.550	3.114	377.228	36'- 10"	6	36'- 6"	3	21	4.396	289.098	4.376	219.292	H		
8	8	4	9"	6'- 7 5/8"	0'- 7"	3'- 4 1/8"	0'- 9 3/8"	0'- 6 1/4"	34'- 11 7/8"	4'- 3 3/8"	36'- 3"	140	70	141.610	3.411	435.998	36'- 10"	6	36'- 6"	3	27	4.597	309.806	4.539	219.292	L		
8	10	4	9"	6'- 7 5/8"	0'- 7"	3'- 4 1/8"	0'- 9 3/8"	0'- 6 1/4"	34'- 11 7/8"	4'- 3 3/8"	36'- 3"	140	90	148.670	3.659	426.155	36'- 10"	6	36'- 6"	3	33	4.819	330.514	4.725	219.292	P		
9	4	4	9"	7'- 5"	0'- 7 1/2"	3'- 8 1/2"	0'- 10 1/8"	0'- 6 3/4"	39'- 0"	4'- 10"	40'- 5"	156	30	140.850	3.296	464.778	40'- 10"	6	40'- 6"	3	15	4.474	292.422	4.504	243.324	D		
9	6	4	9"	7'- 4 7/8"	0'- 7 3/4"	3'- 8 1/4"	0'- 10 1/2"	0'- 7"	39'- 0"	4'- 9 3/4"	40'- 6"	156	50	147.910	3.602	484.578	40'- 10"	6	40'- 6"	3	21	4.671	313.130	4.664	243.324	H		
9	8	4	9"	7'- 4 3/4"	0'- 8"	3'- 8"	0'- 10 3/4"	0'- 7 1/4"	39'- 0"	4'- 9 1/2"	40'- 6"	156	70	154.970	3.909	493.927	40'- 10"	6	40'- 6"	3	27	4.869	333.838	4.824	243.324	L		
9	10	4	9"	7'- 4 3/4"	0'- 8"	3'- 8"	0'- 10 3/4"	0'- 7 1/4"	39'- 0"	4'- 9 1/2"	40'- 6"	156	90	162.030	4.152	547.774	40'- 10"	6	40'- 6"	3	33	5.091	354.546	5.010	243.324	P		
9	12	4	8"	7'- 4 5/8"	0'- 8 1/4"	3'- 7 3/4"	0'- 11 1/8"	0'- 7 1/2"	39'- 0"	4'- 9 1/4"	40'- 6"	156	110	169.090	4.452	644.574	40'- 10"	6	40'- 6"	3	39	5.288	375.254	5.170	243.324	T		
10	4	5	9"	8'- 2 1/8"	0'- 8 5/8"	4'- 1/4"	0'- 11 5/8"	0'- 7 3/4"	43'- 0"	5'- 4 1/4"	44'- 7"	172	30	154.210	3.829	552.180	44'- 10"	6	44'- 6"	3	15	4.728	316.454	4.771	267.356	D		
10	6	5	9"	8'- 2"	0'- 8 7/8"	4'- 0"	1'- 0"	0'- 8"	43'- 0"	5'- 4"	44'- 8"	172	50	161.270	4.141	572.843	44'- 10"	6	44'- 6"	3	21	4.922	337.162	4.928	267.356	H		
10	8	5	9"	8'- 1 7/8"	0'- 9 1/8"	3'- 11 3/4"	1'- 1/4"	0'- 8 1/4"	43'- 0"	5'- 3 3/4"	44'- 8"	172	70	168.330	4.453	597.077	44'- 10"	6	44'- 6"	3	27	5.116	357.870	5.085	267.356	L		
10	10	5	9"	8'- 1 7/8"	0'- 9 1/8"	3'- 11 3/4"	1'- 1/4"	0'- 8 1/4"	43'- 0"	5'- 3 3/4"	44'- 8"	172	90	175.390	4.697	634.551	44'- 10"	6	44'- 6"	3	33	5.339	378.578	5.270	267.356	P		
10	12	5	10"	8'- 1 3/4"	0'- 9 3/8"	3'- 11 1/2"	1'- 5/8"	0'- 8 1/2"	43'- 0"	5'- 3 1/2"	44'- 9"	172	110	182.450	5.008	666.435	44'- 10"	6	44'- 6"	3	39	5.533	399.286	5.420	267.356	T		
12	6	5	9"	9'- 8 1/8"	0'- 11 1/8"	4'- 7 3/8"	1'- 3/8"	0'- 10 1/4"	51'- 1/8"	6'- 4 1/8"	53'- 1"	204	50	187.990	5.447	722.570	52'- 10"	6	52'- 6"	3	21	5.314	385.226	5.346	315.420	H		
12	8	5	9"	9'- 8 1/8"	0'- 11 1/8"	4'- 7 3/8"	1'- 3/8"	0'- 10 1/4"	51'- 1/8"	6'- 4 1/8"	53'- 1"	204	70	195.050	5.693	746.341	52'- 10"	6	52'- 6"	3	27	5.536	405.934	5.532	315.420	L		
12	10	5	9"	9'- 8"	0'- 11 3/8"	4'- 7 1/8"	1'- 3/2"	0'- 10 1/2"	51'- 1/8"	6'- 3 7/8"	53'- 2"	204	90	202.110	6.016	786.014	52'- 10"	6	52'- 6"	3	33	5.724	426.642	5.683	315.420	P		
12	12	5	9"	9'- 8"	0'- 11 3/8"	4'- 7 1/8"	1'- 3/2"	0'- 10 1/2"	51'- 1/8"	6'- 3 7/8"	53'- 2"	204	110	209.170	6.258	852.782	52'- 10"	6	52'- 6"	3	39	5.947	447.350	5.868	315.420	T		

STRUCTURE AND BRIDGE DIVISION	<h1 style="margin: 0;">QUADRUPLE BOX CULVERTS</h1> <h2 style="margin: 0;">10 TO 15 FT. FILLS</h2> <p style="margin: 0;">VIRGINIA DEPARTMENT OF TRANSPORTATION</p>	1005.11
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DIMENSIONS								REINFORCING STEEL																											
SPAN (FT.)	HGHT (FT.)	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2								
		TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH			
3	3	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'-10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'-10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	2'- 8"	4'- 8"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
4	4	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 2"	5'- 2"	4	12"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	5	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 8"	5'- 8"	4	12"	6'- 0"	4	12"	6'- 0"	4	12"	6'- 0"
4	6	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	4'- 2"	6'- 2"	4	12"	7'- 0"	4	12"	7'- 0"	4	12"	7'- 0"
5	3	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	2'- 8"	4'- 11"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
5	4	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	3'- 2"	5'- 5"	4	12"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
5	5	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	3	12"	2'- 6"	4'-10"	4	12"	2'- 6"	3'- 8"	5'-11"	4	12"	6'- 0"	4	12"	6'- 0"	4	12"	6'- 0"
5	6	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	3	12"	2'- 6"	4'-10"	4	12"	2'- 6"	4'- 2"	6'- 5"	4	12"	7'- 0"	4	12"	7'- 0"	4	12"	7'- 0"
5	7	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 8"	6'-11"	4	12"	8'- 0"	4	12"	8'- 0"	4	12"	8'- 0"
6	4	9 1/4"	9 1/4"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	3'- 3/4"	5'- 8"	4	12"	5'- 2"	4	12"	5'- 2"	4	12"	5'- 2"
6	5	9 1/4"	9 1/4"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	3'- 9/4"	6'- 2"	4	12"	6'- 2"	4	12"	6'- 2"	4	12"	6'- 2"
6	6	9 1/2"	9 1/2"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	4'- 3/2"	6'- 9"	4	12"	7'- 3"	4	12"	7'- 3"	4	12"	7'- 3"
6	7	9 1/2"	9 1/2"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	4'- 9/2"	7'- 3"	4	12"	8'- 3"	4	12"	8'- 3"	4	12"	8'- 3"
6	8	9 1/2"	9 1/2"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	--	---	----	----	5	11"	2'- 8 3/8"	5'- 3/2"	7'- 8"	4	12"	9'- 3"	4	12"	9'- 3"	4	12"	9'- 3"
7	4	10 1/2"	10 1/2"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	4	10"	29'- 2"	4	10"	31'- 0"	3	10"	2'-10 3/4"	5'- 7"	4	10"	2'-10 3/4"	3'- 4/2"	6'- 0"	4	12"	5'- 5"	4	12"	5'- 5"	4	12"	5'- 5"
7	6	10 3/4"	10 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	4	10"	29'- 2"	4	10"	31'- 0"	3	10"	2'-10 3/4"	5'- 7"	4	10"	2'-10 3/4"	4'- 4 3/4"	7'- 0"	4	12"	7'- 5"	4	12"	7'- 5"	4	12"	7'- 5"
7	8	11"	11"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	4	10"	29'- 2"	4	10"	31'- 0"	3	10"	2'-10 3/4"	5'- 7"	4	10"	2'-10 3/4"	5'- 5"	8'- 1"	4	12"	9'- 6"	4	12"	9'- 6"	4	12"	9'- 6"
7	10	11 1/4"	11 1/4"	8"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	4	10"	29'- 2"	4	10"	31'- 0"	3	10"	2'-10 3/4"	5'- 7"	5	10"	2'-10 3/4"	6'- 5/4"	9'- 0"	5	10 1/2"	11'- 6"	4	12"	11'- 6"	4	12"	11'- 6"
8	4	12"	12"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	4	9"	32'-10"	4	9"	35'- 0"	3	9"	3'- 1 1/4"	6'- 0"	4	9"	3'- 1 1/4"	3'- 6"	6'- 4"	4	12"	5'- 8"	4	12"	5'- 8"	4	12"	5'- 8"
8	6	12 1/4"	12 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	4	9"	32'-10"	4	9"	35'- 0"	--	---	----	----	4	9"	3'- 1 1/4"	4'- 6 1/4"	7'- 4"	4	12"	7'- 9"	4	12"	7'- 9"	4	12"	7'- 9"
8	8	12 1/4"	12 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	5	9"	32'-10"	5	9"	35'- 0"	3	9"	3'- 1 1/4"	6'- 0"	4	9"	3'- 1 1/4"	5'- 6 1/4"	8'- 4"	4	12"	9'- 9"	4	12"	9'- 9"	4	12"	9'- 9"
8	10	12 1/2"	12 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	5	9"	32'-10"	5	9"	35'- 0"	3	9"	3'- 1 1/4"	6'- 0"	5	9"	3'- 1 1/4"	6'- 6 1/2"	9'- 4"	4	7"	11'- 9"	4	12"	11'- 9"	4	12"	11'- 9"
9	4	13"	13"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	5	8"	36'- 5"	5	8"	39'- 0"	3	8"	3'- 3 5/8"	6'- 5"	4	8"	3'- 3 5/8"	3'- 7"	6'- 7"	4	10 1/2"	5'-10"	4	12"	5'-10"	4	12"	5'-10"
9	6	13 1/4"	13 1/4"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	5	8"	36'- 5"	5	8"	39'- 0"	--	---	----	----	4	8"	3'- 3 5/8"	4'- 7 1/4"	7'- 8"	4	12"	7'-10"	4	12"	7'-10"	4	12"	7'-10"
9	8	13 1/4"	13 1/4"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	5	8"	36'- 5"	5	8"	39'- 0"	3	8"	3'- 3 5/8"	6'- 5"	4	8"	3'- 3 5/8"	5'- 7 1/4"	8'- 8"	4	12"	9'-10"	4	12"	9'-10"	4	12"	9'-10"
9	10	13 1/2"	13 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	5	8"	36'- 5"	5	8"	39'- 0"	4	8"	3'- 3 5/8"	6'- 4"	4	8"	3'- 3 5/8"	6'- 7 1/2"	9'- 8"	4	8"	11'-11"	4	12"	11'-11"	4	12"	11'-11"
9	12	13 1/2"	13 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	7	9"	3'- 3 5/8"	7'- 7 1/2"	10'- 6"	5	7 1/2"	13'-11"	4	12"	13'-11"	4	12"	13'-11"
10	4	14 1/4"	14 1/4"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	5	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	5	9"	3'- 6"	3'- 8 1/4"	6'-10"	4	10"	6'- 0"	4	12"	6'- 0"	4	12"	6'- 0"
10	6	14 1/2"	14 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	5	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	5	9"	3'- 6"	4'- 8 1/2"	7'-11"	4	12"	8'- 1"	4	12"	8'- 1"	4	12"	8'- 1"
10	8	14 1/2"	14 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	5	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	5	9"	3'- 6"	5'- 8 1/2"	8'-11"	4	12"	10'- 1"	4	12"	10'- 1"	4	12"	10'- 1"
10	10	14 3/4"	14 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	5	9"	40'- 0"	5	9"	43'- 0"	3	9"	3'- 6"	6'-10"	5	9"	3'- 6"	6'- 8 3/4"	9'-11"	4	8"	12'- 1"	4	12"	12'- 1"	4	12"	12'- 1"
10	12	14 3/4"	14 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	6	9"	40'- 0"	5	9"	43'- 0"	3	9"	3'- 6"	6'-10"	6	9"	3'- 6"	7'- 8 3/4"	10'-10"	5	7 1/2"	14'- 1"	4	12"	14'- 1"	4	12"	14'- 1"
12	6	17"	17"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	--	---	----	----	4	8"	3'-10 3/4"	4'-11"	8'- 7"	4	12"	8'- 6"	4	12"	8'- 6"	4	12"	8'- 6"
12	8	17 1/4"	17 1/4"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	3	8"	3'-10 3/4"	7'- 7"	4	8"	3'-10 3/4"	5'-11 1/4"	9'- 7"	4	12"	10'- 6"	4	12"	10'- 6"	4	12"	10'- 6"
12	10	17 1/2"	17 1/2"	8"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	--	---	----	----	4	8"	3'-10 3/4"	6'-11 1/2"	10'- 7"	4	7 1/2"	12'- 7"	4	12"	12'- 7"	4	12"	12'- 7"
12	12	17 1/2"	17 1/2"	8"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	4	8"	3'-10 3/4"	7'- 6"	5	8"	3'-10 3/4"	7'-11 1/2"	11'- 6"	5	7 1/2"	14'- 7"	4	12"	14'- 7"	4	12"	14'- 7"

QUADRUPLE BOX CULVERTS

15 TO 20 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS													
(FT.)	(FT.)	SIZE	SPACING C-C	BT I									NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	C			HW I			NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
				a	b	c	d	e	f	g	LENGTH	HEADWALL LENGTH						SIZE	LENGTH	NO. HW2 BARS	NO. HW3 BARS									
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	20	57.160	1.284	141.899	16'- 10"	6	16'- 6"	3	12	2.222	137.876	2.191	99.132	A				
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	30	60.690	1.406	152.339	16'- 10"	6	16'- 6"	3	15	2.333	148.230	2.284	99.132	C				
4	3	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	20	70.520	1.479	168.508	20'- 10"	6	20'- 6"	3	12	2.626	161.908	2.609	123.164	A				
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	30	74.050	1.602	178.948	20'- 10"	6	20'- 6"	3	15	2.738	172.262	2.702	123.164	C				
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	40	77.580	1.724	189.388	20'- 10"	6	20'- 6"	3	18	2.849	182.616	2.794	123.164	E				
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	50	81.110	1.847	199.828	20'- 10"	6	20'- 6"	3	21	2.960	192.970	2.887	123.164	G				
5	3	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	20	83.880	1.674	208.031	24'- 10"	6	24'- 6"	3	12	3.031	185.940	3.027	147.196	A				
5	4	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	30	87.410	1.796	218.471	24'- 10"	6	24'- 6"	3	15	3.142	196.294	3.120	147.196	C				
5	5	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	40	90.940	1.919	223.489	24'- 10"	6	24'- 6"	3	18	3.254	206.648	3.212	147.196	E				
5	6	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	50	94.470	2.042	233.929	24'- 10"	6	24'- 6"	3	21	3.365	217.002	3.305	147.196	G				
5	7	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	60	98.000	2.164	249.791	24'- 10"	6	24'- 6"	3	24	3.476	227.356	3.398	147.196	I				
6	4	4	12"	5'- 1 1/8"	0'- 5 3/4"	2'- 7 3/4"	0'- 7 5/8"	0'- 5"	27'- 0"	3'- 2 1/4"	28'- 0"	108	30	100.770	2.202	247.641	28'- 10"	6	28'- 6"	3	15	3.485	220.326	3.475	171.228	D				
6	5	4	11"	5'- 1 1/8"	0'- 5 3/4"	2'- 7 3/4"	0'- 7 5/8"	0'- 5"	27'- 0"	3'- 2 1/4"	28'- 0"	108	40	104.300	2.324	270.621	28'- 10"	6	28'- 6"	3	18	3.596	230.680	3.568	171.228	F				
6	6	4	12"	5'- 1"	0'- 6"	2'- 7 1/2"	0'- 8"	0'- 5 1/4"	27'- 0"	3'- 2"	28'- 1"	108	50	107.830	2.490	269.300	28'- 10"	6	28'- 6"	3	21	3.691	241.034	3.644	171.228	H				
6	7	4	11"	5'- 1"	0'- 6"	2'- 7 1/2"	0'- 8"	0'- 5 1/4"	27'- 0"	3'- 2"	28'- 1"	108	60	111.360	2.612	292.553	28'- 10"	6	28'- 6"	3	24	3.803	251.388	3.737	171.228	J				
6	8	4	11"	5'- 1"	0'- 6"	2'- 7 1/2"	0'- 8"	0'- 5 1/4"	27'- 0"	3'- 2"	28'- 1"	108	70	114.890	2.734	300.357	28'- 10"	6	28'- 6"	3	27	3.914	261.742	3.830	171.228	L				
7	4	4	10"	5'- 10 1/8"	0'- 7"	2'- 11 3/8"	0'- 9 3/8"	0'- 6 1/4"	31'- 1 1/8"	3'- 8 1/8"	32'- 4"	124	30	114.130	2.669	300.670	32'- 10"	6	32'- 6"	3	15	3.778	244.358	3.781	195.260	D				
7	6	4	10"	5'- 10"	0'- 7 1/4"	2'- 11 1/8"	0'- 9 3/4"	0'- 6 1/2"	31'- 1 1/8"	3'- 7 7/8"	32'- 4"	124	50	121.190	2.962	322.084	32'- 10"	6	32'- 6"	3	21	3.981	265.066	3.947	195.260	H				
7	8	4	10"	5'- 9 3/8"	0'- 7 1/2"	2'- 10 3/8"	0'- 10 1/8"	0'- 6 3/4"	31'- 1 1/8"	3'- 7 5/8"	32'- 5"	124	70	128.250	3.256	344.345	32'- 10"	6	32'- 6"	3	27	4.184	285.774	4.113	195.260	L				
7	10	4	10"	5'- 9 3/4"	0'- 7 3/4"	2'- 10 5/8"	0'- 10 1/2"	0'- 7"	31'- 1 1/8"	3'- 7 3/8"	32'- 6"	124	90	135.310	3.547	393.878	32'- 10"	6	32'- 6"	3	33	4.388	306.482	4.280	195.260	P				
8	4	4	9"	6'- 6 3/8"	0'- 8 1/2"	3'- 2 5/8"	0'- 11 1/2"	0'- 7 3/4"	34'- 11 1/8"	4'- 1 1/8"	36'- 7"	140	30	127.490	3.251	355.679	36'- 10"	6	36'- 6"	3	15	4.017	268.390	4.034	219.292	D				
8	6	4	9"	6'- 6 3/4"	0'- 8 3/4"	3'- 2 3/8"	0'- 11 7/8"	0'- 8"	34'- 11 1/8"	4'- 1 5/8"	36'- 8"	140	50	134.550	3.552	366.012	36'- 10"	6	36'- 6"	3	21	4.217	289.098	4.197	219.292	H				
8	8	4	9"	6'- 6 3/4"	0'- 8 3/4"	3'- 2 3/8"	0'- 11 7/8"	0'- 8"	34'- 11 1/8"	4'- 1 5/8"	36'- 8"	140	70	141.610	3.791	467.648	36'- 10"	6	36'- 6"	3	27	4.440	309.806	4.382	219.292	L				
8	10	4	9"	6'- 6 5/8"	0'- 9"	3'- 2 1/8"	1'- 1/4"	0'- 8 1/4"	34'- 11 7/8"	4'- 1 3/8"	36'- 9"	140	90	148.670	4.088	519.446	36'- 10"	6	36'- 6"	3	33	4.640	330.514	4.546	219.292	P				
9	4	4	8"	7'- 4"	0'- 9 1/2"	3'- 6 1/2"	1'- 3/8"	0'- 8 3/4"	39'- 0"	4'- 8"	40'- 9"	156	30	140.850	3.779	506.278	40'- 10"	6	40'- 6"	3	15	4.270	292.422	4.301	243.324	D				
9	6	4	8"	7'- 3 3/8"	0'- 9 3/4"	3'- 6 1/4"	1'- 1/4"	0'- 9"	39'- 0"	4'- 7 3/4"	40'- 10"	156	50	147.910	4.086	513.406	40'- 10"	6	40'- 6"	3	21	4.468	313.130	4.461	243.324	H				
9	8	4	8"	7'- 3 3/8"	0'- 9 3/4"	3'- 6 1/4"	1'- 1/4"	0'- 9"	39'- 0"	4'- 7 3/4"	40'- 10"	156	70	154.970	4.330	550.098	40'- 10"	6	40'- 6"	3	27	4.690	333.838	4.646	243.324	L				
9	10	4	8"	7'- 3 3/4"	0'- 10"	3'- 6"	1'- 1 5/8"	0'- 9 1/4"	39'- 0"	4'- 7 1/2"	40'- 11"	156	90	162.030	4.634	591.795	40'- 10"	6	40'- 6"	3	33	4.888	354.546	4.806	243.324	P				
9	12	4	9"	7'- 3 3/4"	0'- 10"	3'- 6"	1'- 1 5/8"	0'- 9 1/4"	39'- 0"	4'- 7 1/2"	40'- 11"	156	110	169.090	4.877	644.903	40'- 10"	6	40'- 6"	3	39	5.110	375.254	4.992	243.324	T				
10	4	5	9"	8'- 1"	0'- 10 7/8"	3'- 10"	1'- 2 3/4"	0'- 10"	43'- 0"	5'- 2"	45'- 0"	172	30	154.210	4.430	553.865	44'- 10"	6	44'- 6"	3	15	4.471	316.454	4.514	267.356	D				
10	6	5	9"	8'- 7/8"	0'- 11 1/8"	3'- 9 3/4"	1'- 3 1/8"	0'- 10 1/4"	43'- 0"	5'- 1 3/4"	45'- 1"	172	50	161.270	4.742	577.174	44'- 10"	6	44'- 6"	3	21	4.665	337.162	4.671	267.356	H				
10	8	5	9"	8'- 7/8"	0'- 11 1/8"	3'- 9 3/4"	1'- 3 1/8"	0'- 10 1/4"	43'- 0"	5'- 1 3/4"	45'- 1"	172	70	168.330	4.987	600.944	44'- 10"	6	44'- 6"	3	27	4.887	357.870	4.856	267.356	L				
10	10	5	9"	8'- 3/4"	0'- 11 3/8"	3'- 9 1/2"	1'- 3 1/2"	0'- 10 1/2"	43'- 0"	5'- 1 1/2"	45'- 2"	172	90	175.390	5.298	646.721	44'- 10"	6	44'- 6"	3	33	5.082	378.578	5.013	267.356	P				
10	12	5	9"	8'- 3/4"	0'- 11 3/8"	3'- 9 1/2"	1'- 3 1/2"	0'- 10 1/2"	43'- 0"	5'- 1 1/2"	45'- 2"	172	110	182.450	5.536	765.626	44'- 10"	6	44'- 6"	3	39	5.304	399.286	5.199	267.356	T				
12	6	5	8"	9'- 6 3/8"	1'- 1 5/8"	4'- 4 7/8"	1'- 6 5/8"	1'- 3 3/4"	51'- 1 1/8"	6'- 1 5/8"	53'- 7"	204	50	187.990	6.236	774.672	52'- 10"	6	52'- 6"	3	21	4.985	385.226	5.018	315.420	I				
12	8	5	8"	9'- 6 3/4"	1'- 1 7/8"	4'- 4 5/8"	1'- 7"	1'- 1"	51'- 1 1/8"	6'- 1 3/8"	53'- 8"	204	70	195.050	6.559	814.257	52'- 10"	6	52'- 6"	3	27	5.173	405.934	5.169	315.420	M				
12	10	5	8"	9'- 6 5/8"	1'- 2 1/8"	4'- 4 3/8"	1'- 7 3/8"	1'- 1 1/4"	51'- 1 1/8"	6'- 1 1/8"	53'- 9"	204	90	202.110	6.884	828.477	52'- 10"	6	52'- 6"	3	33	5.361	426.642	5.319	315.420	Q				
12	12	5	8"	9'- 6 5/8"	1'- 2 1/8"	4'- 4 3/8"	1'- 7 3/8"	1'- 1 1/4"	51'- 1 1/8"	6'- 1 1/8"	53'- 9"	204	110	209.170	7.123	927.078	52'- 10"	6	52'- 6"	3	39	5.584	447.350	5.505	315.420	U				

STRUCTURE AND BRIDGE DIVISION

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

DIMENSIONS								REINFORCING STEEL																											
SPAN	HGHT	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2								
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH			
3	3	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'-10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'-10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	2'- 8"	4'- 8"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
4	4	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 2"	5'- 2"	4	12"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	5	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 8"	5'- 8"	4	12"	6'- 0"	4	12"	6'- 0"	4	12"	6'- 0"
4	6	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	4'- 2"	6'- 2"	4	12"	7'- 0"	4	12"	7'- 0"	4	12"	7'- 0"
5	3	8 3/4"	8 3/4"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	2'- 8 3/4"	5'- 0"	4	12"	4'- 2"	4	12"	4'- 2"	4	12"	4'- 2"
5	4	9"	9"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	3	12"	2'- 6"	4'-10"	4	12"	2'- 6"	3'- 3"	5'- 6"	4	12"	5'- 2"	4	12"	5'- 2"	4	12"	5'- 2"
5	5	9"	9"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	3	12"	2'- 6"	4'-10"	4	12"	2'- 6"	3'- 9"	6'- 0"	4	12"	6'- 2"	4	12"	6'- 2"	4	12"	6'- 2"
5	6	9"	9"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 3"	6'- 6"	4	12"	7'- 2"	4	12"	7'- 2"	4	12"	7'- 2"
5	7	9 1/4"	9 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 9 1/4"	7'- 0"	4	12"	8'- 2"	4	12"	8'- 2"	4	12"	8'- 2"
6	4	10 1/2"	10 1/2"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	3'- 4 1/2"	5'-10"	4	12"	5'- 5"	4	12"	5'- 5"	4	12"	5'- 5"
6	5	10 1/2"	10 1/2"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	3	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	3'-10 1/2"	6'- 4"	4	12"	6'- 5"	4	12"	6'- 5"	4	12"	6'- 5"
6	6	10 3/4"	10 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	3	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	4'- 4 3/4"	6'-10"	4	12"	7'- 5"	4	12"	7'- 5"	4	12"	7'- 5"
6	7	10 3/4"	10 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	4'-10 3/4"	7'- 4"	4	12"	8'- 5"	4	12"	8'- 5"	4	12"	8'- 5"
6	8	10 3/4"	10 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	--	---	----	----	5	11"	2'- 8 3/8"	5'- 4 3/4"	7'- 9"	4	11 1/2"	9'- 5"	4	12"	9'- 5"	4	12"	9'- 5"
7	4	12 1/4"	12 1/4"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	4	9"	29'- 2"	4	9"	31'- 0"	--	---	----	----	4	9"	2'-10 3/4"	3'- 6 1/4"	6'- 2"	4	12"	5'- 9"	4	12"	5'- 9"	4	12"	5'- 9"
7	6	12 1/2"	12 1/2"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	4	9"	29'- 2"	4	9"	31'- 0"	--	---	----	----	4	9"	2'-10 3/4"	4'- 6 1/2"	7'- 2"	4	12"	7'- 9"	4	12"	7'- 9"	4	12"	7'- 9"
7	8	12 3/4"	12 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	4	9"	29'- 2"	4	9"	31'- 0"	3	9"	2'-10 3/4"	5'- 7"	4	9"	2'-10 3/4"	5'- 6 3/4"	8'- 2"	4	11 1/2"	9'- 9"	4	12"	9'- 9"	4	12"	9'- 9"
7	10	12 3/4"	12 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	4	9"	29'- 2"	4	9"	31'- 0"	3	9"	2'-10 3/4"	5'- 7"	5	9"	2'-10 3/4"	6'- 6 3/4"	9'- 2"	4	6"	11'- 9"	4	12"	11'- 9"	4	12"	11'- 9"
8	4	13 1/2"	13 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	5	9"	32'-10"	5	9"	35'- 0"	--	---	----	----	4	9"	3'- 1 1/4"	3'- 7 1/2"	6'- 6"	4	12"	5'-11"	4	12"	5'-11"	4	12"	5'-11"
8	6	13 1/2"	13 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	5	9"	32'-10"	5	9"	35'- 0"	--	---	----	----	4	9"	3'- 1 1/4"	4'- 7 1/2"	7'- 6"	4	12"	7'-11"	4	12"	7'-11"	4	12"	7'-11"
8	8	13 3/4"	13 3/4"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	5	9"	32'-10"	5	9"	35'- 0"	3	9"	3'- 1 1/4"	6'- 0"	4	9"	3'- 1 1/4"	5'- 7 3/4"	8'- 6"	4	12"	10'- 0"	4	12"	10'- 0"	4	12"	10'- 0"
8	10	13 3/4"	13 3/4"	8"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	5	9"	32'-10"	5	9"	35'- 0"	3	9"	3'- 1 1/4"	6'- 0"	5	9"	3'- 1 1/4"	6'- 7 3/4"	9'- 5"	4	6"	12'- 0"	4	12"	12'- 0"	4	12"	12'- 0"
9	4	15"	15"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	5	8"	36'- 5"	5	8"	39'- 0"	--	---	----	----	4	8"	3'- 3 5/8"	3'- 9"	6'- 9"	4	12"	6'- 2"	4	12"	6'- 2"	4	12"	6'- 2"
9	6	15"	15"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	5	8"	36'- 5"	5	8"	39'- 0"	--	---	----	----	4	8"	3'- 3 5/8"	4'- 9"	7'- 9"	4	12"	8'- 2"	4	12"	8'- 2"	4	12"	8'- 2"
9	8	15 1/4"	15 1/4"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	5	8"	36'- 5"	5	8"	39'- 0"	3	8"	3'- 3 5/8"	6'- 5"	4	8"	3'- 3 5/8"	5'- 9 1/4"	8'-10"	4	12"	10'- 3"	4	12"	10'- 3"	4	12"	10'- 3"
9	10	15 1/4"	15 1/4"	8"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	5	8"	36'- 5"	5	8"	39'- 0"	--	---	----	----	5	8"	3'- 3 5/8"	6'- 9 1/4"	9'- 9"	4	6"	12'- 3"	4	12"	12'- 3"	4	12"	12'- 3"
9	12	15 1/4"	15 1/4"	8"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	7	9"	3'- 3 5/8"	7'- 9 1/4"	10'- 7"	5	6"	14'- 3"	4	12"	14'- 3"	4	12"	14'- 3"
10	4	16 1/2"	16 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	6	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	4	9"	3'- 6"	3'-10 1/2"	7'- 1"	4	12"	6'- 5"	4	12"	6'- 5"	4	12"	6'- 5"
10	6	16 1/2"	16 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	6	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	4	9"	3'- 6"	4'-10 1/2"	8'- 1"	4	12"	8'- 5"	4	12"	8'- 5"	4	12"	8'- 5"
10	8	16 3/4"	16 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	6	9"	40'- 0"	5	9"	43'- 0"	3	9"	3'- 6"	6'-10"	4	9"	3'- 6"	5'-10 3/4"	9'- 2"	4	12"	10'- 6"	4	12"	10'- 6"	4	12"	10'- 6"
10	10	16 3/4"	16 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	6	9"	40'- 0"	5	9"	43'- 0"	3	9"	3'- 6"	6'-10"	5	9"	3'- 6"	6'-10 3/4"	10'- 1"	4	6"	12'- 6"	4	12"	12'- 6"	4	12"	12'- 6"
10	12	17"	17"	8"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	6	9"	40'- 0"	5	9"	43'- 0"	4	9"	3'- 6"	6'- 9"	6	9"	3'- 6"	7'-11"	11'- 0"	5	6"	14'- 6"	4	12"	14'- 6"	4	12"	14'- 6"
12	6	19 3/4"	19 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	--	---	----	----	4	8"	3'-10 3/4"	5'- 1 3/4"	8'- 9"	4	12"	9'- 0"	4	10 1/2"	9'- 0"	4	10 1/2"	9'- 0"
12	8	19 3/4"	19 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	3	8"	3'-10 3/4"	7'- 7"	4	8"	3'-10 3/4"	6'- 1 3/4"	9'- 9"	4	12"	11'- 0"	4	10 1/2"	11'- 0"	4	10 1/2"	11'- 0"
12	10	19 3/4"	19 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	--	---	----	----	5	8"	3'-10 3/4"	7'- 1 3/4"	10'- 9"	4	6"	13'- 0"	4	10 1/2"	13'- 0"	4	10 1/2"	13'- 0"
12	12	20"	20"	8"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	4	8"	3'-10 3/4"	7'- 6"	5	8"	3'-10 3/4"	8'- 2"	11'- 9"	7	11 1/2"	15'- 0"	4	10 1/2"	15'- 0"	4	10 1/2"	15'- 0"

QUADRUPLE BOX CULVERTS
20 TO 25 FT. FILLS

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS							WINGWALL			
(FT.)	(FT.)	SIZE	SPACING C-C	BT I											REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	C		HW I		NO. HW2 BARS	NO. HW3 BARS		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)
				a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS	HEADWALL LENGTH				SIZE	LENGTH	NO. HW2 BARS	NO. HW3 BARS			INLET CONCRETE CL. A4 (CY)			
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	20	57.160	1.284	141.899	16'- 10"	6	16'- 6"	3	12	2.222	137.876	2.191	99.132	A	
3	4	3	12"	2'- 8 7/8"	0'- 4 3/8"	1'- 6 1/2"	0'- 5 7/8"	0'- 3 7/8"	15'- 0"	1'- 5 3/4"	15'- 9"	60	30	60.690	1.407	143.141	16'- 10"	6	16'- 6"	3	15	2.333	148.230	2.284	99.132	C	
4	3	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	20	70.520	1.479	168.508	20'- 10"	6	20'- 6"	3	12	2.626	161.908	2.609	123.164	A	
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	30	74.050	1.602	178.948	20'- 10"	6	20'- 6"	3	15	2.738	172.262	2.702	123.164	C	
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	40	77.580	1.724	189.388	20'- 10"	6	20'- 6"	3	18	2.849	182.616	2.794	123.164	E	
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	50	81.110	1.847	199.828	20'- 10"	6	20'- 6"	3	21	2.960	192.970	2.887	123.164	G	
5	3	4	12"	4'- 3 3/4"	0'- 5 1/4"	2'- 3 1/2"	0'- 6 7/8"	0'- 4 1/2"	23'- 0"	2'- 7 1/2"	23'- 11"	92	20	83.880	1.781	209.367	24'- 10"	6	24'- 6"	3	12	2.992	185.940	2.987	147.196	A	
5	4	4	12"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	23'- 0"	2'- 7 1/4"	24'- 0"	92	30	87.410	1.941	214.496	24'- 10"	6	24'- 6"	3	15	3.090	196.294	3.067	147.196	C	
5	5	4	12"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	23'- 0"	2'- 7 1/4"	24'- 0"	92	40	90.940	2.063	224.936	24'- 10"	6	24'- 6"	3	18	3.201	206.648	3.160	147.196	E	
5	6	4	12"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	23'- 0"	2'- 7 1/4"	24'- 0"	92	50	94.470	2.186	240.799	24'- 10"	6	24'- 6"	3	21	3.313	217.002	3.253	147.196	G	
5	7	4	12"	4'- 3 1/2"	0'- 5 3/4"	2'- 3"	0'- 7 5/8"	0'- 5"	23'- 0"	2'- 7"	24'- 0"	92	60	98.000	2.344	251.239	24'- 10"	6	24'- 6"	3	24	3.429	227.356	3.351	147.196	J	
6	4	4	11"	5'- 1/2"	0'- 7"	2'- 6 1/2"	0'- 9 3/8"	0'- 6 1/4"	27'- 0"	3'- 1"	28'- 3"	108	30	100.770	2.412	262.246	28'- 10"	6	28'- 6"	3	15	3.404	220.326	3.394	171.228	D	
6	5	4	11"	5'- 1/2"	0'- 7"	2'- 6 1/2"	0'- 9 3/8"	0'- 6 1/4"	27'- 0"	3'- 1"	28'- 3"	108	40	104.300	2.535	266.224	28'- 10"	6	28'- 6"	3	18	3.515	230.680	3.487	171.228	F	
6	6	4	11"	5'- 3/8"	0'- 7 1/4"	2'- 6 1/4"	0'- 9 3/4"	0'- 6 1/2"	27'- 0"	3'- 3/4"	28'- 4"	108	50	107.830	2.700	276.907	28'- 10"	6	28'- 6"	3	21	3.610	241.034	3.563	171.228	H	
6	7	4	11"	5'- 3/8"	0'- 7 1/4"	2'- 6 1/4"	0'- 9 3/4"	0'- 6 1/2"	27'- 0"	3'- 3/4"	28'- 4"	108	60	111.360	2.822	294.051	28'- 10"	6	28'- 6"	3	24	3.722	251.388	3.656	171.228	J	
6	8	4	11"	5'- 3/8"	0'- 7 1/4"	2'- 6 1/4"	0'- 9 3/4"	0'- 6 1/2"	27'- 0"	3'- 3/4"	28'- 4"	108	70	114.890	2.945	302.538	28'- 10"	6	28'- 6"	3	27	3.833	261.742	3.749	171.228	L	
7	4	4	9"	5'- 9/4"	0'- 8 3/4"	2'- 9 5/8"	0'- 11 7/8"	0'- 8"	31'- 1/8"	3'- 6 3/8"	32'- 8"	124	30	114.130	3.006	312.177	32'- 10"	6	32'- 6"	3	15	3.642	244.358	3.646	195.260	D	
7	6	4	9"	5'- 9/8"	0'- 9"	2'- 9 3/8"	1'- 1/4"	0'- 8 1/4"	31'- 1/8"	3'- 6 1/8"	32'- 9"	124	50	121.190	3.300	334.096	32'- 10"	6	32'- 6"	3	21	3.846	265.066	3.812	195.260	H	
7	8	4	9"	5'- 9"	0'- 9 1/4"	2'- 9 1/8"	1'- 1/2"	0'- 8 1/2"	31'- 1/8"	3'- 5 7/8"	32'- 9"	124	70	128.250	3.593	367.629	32'- 10"	6	32'- 6"	3	27	4.049	285.174	3.978	195.260	L	
7	10	4	9"	5'- 9"	0'- 9 1/4"	2'- 9 1/8"	1'- 1/2"	0'- 8 1/2"	31'- 1/8"	3'- 5 7/8"	32'- 9"	124	90	135.310	3.835	422.865	32'- 10"	6	32'- 6"	3	33	4.272	306.482	4.164	195.260	P	
8	4	4	9"	6'- 6 1/8"	0'- 10"	3'- 1 1/8"	1'- 1 5/8"	0'- 9 1/4"	34'- 11 7/8"	4'- 3/8"	36'- 11"	140	30	127.490	3.574	414.004	36'- 10"	6	36'- 6"	3	15	3.883	268.390	3.900	219.292	D	
8	6	4	9"	6'- 6 1/8"	0'- 10"	3'- 1 1/8"	1'- 1 5/8"	0'- 9 1/4"	34'- 11 7/8"	4'- 3/8"	36'- 11"	140	50	134.550	3.819	435.775	36'- 10"	6	36'- 6"	3	21	4.105	289.098	4.085	219.292	H	
8	8	4	9"	6'- 6"	0'- 10 1/4"	3'- 7/8"	1'- 2"	0'- 9 1/2"	34'- 11 7/8"	4'- 1/8"	37'- 0"	140	70	141.610	4.118	470.171	36'- 10"	6	36'- 6"	3	27	4.306	309.806	4.248	219.292	L	
8	10	4	9"	6'- 6"	0'- 10 1/4"	3'- 7/8"	1'- 2"	0'- 9 1/2"	34'- 11 7/8"	4'- 1/8"	37'- 0"	140	90	148.670	4.360	526.510	36'- 10"	6	36'- 6"	3	33	4.528	330.514	4.434	219.292	P	
9	4	4	8"	7'- 3"	0'- 11 1/2"	3'- 4 1/2"	1'- 3 3/4"	0'- 10 3/4"	39'- 0"	4'- 6"	41'- 3"	156	30	140.850	4.265	494.140	40'- 10"	6	40'- 6"	3	15	4.067	292.422	4.097	243.324	D	
9	6	4	8"	7'- 3"	0'- 11 1/2"	3'- 4 1/2"	1'- 3 3/4"	0'- 10 3/4"	39'- 0"	4'- 6"	41'- 3"	156	50	147.910	4.510	516.356	40'- 10"	6	40'- 6"	3	21	4.289	313.130	4.282	243.324	H	
9	8	4	8"	7'- 2 7/8"	0'- 11 3/4"	3'- 4 1/4"	1'- 4 1/8"	0'- 11"	39'- 0"	4'- 5 3/4"	41'- 3"	156	70	154.970	4.815	553.828	40'- 10"	6	40'- 6"	3	27	4.505	333.838	4.461	243.324	M	
9	10	4	8"	7'- 2 7/8"	0'- 11 3/4"	3'- 4 1/4"	1'- 4 1/8"	0'- 11"	39'- 0"	4'- 5 3/4"	41'- 3"	156	90	162.030	5.059	599.537	40'- 10"	6	40'- 6"	3	33	4.728	354.546	4.646	243.324	Q	
9	12	5	9"	7'- 2 7/8"	0'- 11 7/8"	3'- 4 1/4"	1'- 4 1/8"	0'- 11"	39'- 0"	4'- 5 3/4"	41'- 3"	156	110	169.090	5.298	701.994	40'- 10"	6	40'- 6"	3	39	4.951	375.254	4.832	243.324	U	
10	4	5	9"	7'- 11 7/8"	1'- 1 1/8"	3'- 7 3/4"	1'- 6"	1'- 1/4"	43'- 0"	4'- 11 3/4"	45'- 6"	172	30	154.210	5.029	592.064	44'- 10"	6	44'- 6"	3	15	4.232	316.454	4.276	267.356	E	
10	6	5	9"	7'- 11 7/8"	1'- 1 1/8"	3'- 7 3/4"	1'- 6"	1'- 1/4"	43'- 0"	4'- 11 3/4"	45'- 6"	172	50	161.270	5.275	613.834	44'- 10"	6	44'- 6"	3	21	4.455	337.162	4.461	267.356	I	
10	8	5	9"	7'- 11 3/4"	1'- 1 3/8"	3'- 7 1/2"	1'- 6 1/4"	1'- 1/2"	43'- 0"	4'- 11 1/2"	45'- 6"	172	70	168.330	5.586	650.050	44'- 10"	6	44'- 6"	3	27	4.649	357.870	4.618	267.356	M	
10	10	5	9"	7'- 11 3/4"	1'- 1 3/8"	3'- 7 1/2"	1'- 6 1/4"	1'- 1/2"	43'- 0"	4'- 11 1/2"	45'- 6"	172	90	175.390	5.828	708.391	44'- 10"	6	44'- 6"	3	33	4.872	378.578	4.804	267.356	Q	
10	12	5	9"	7'- 11 5/8"	1'- 1 5/8"	3'- 7 1/4"	1'- 6 5/8"	1'- 3/4"	43'- 0"	4'- 11 1/4"	45'- 7"	172	110	182.450	6.135	793.624	44'- 10"	6	44'- 6"	3	39	5.066	399.286	4.960	267.356	U	
12	6	6	8"	9'- 5 1/2"	1'- 4 1/2"	4'- 2 1/8"	1'- 10 5/8"	1'- 3 1/2"	51'- 1/8"	5'- 10 7/8"	54'- 2"	204	50	187.990	7.101	859.578	52'- 10"	6	52'- 6"	3	21	4.603	385.226	4.636	315.420	I	
12	8	6	8"	9'- 5 1/2"	1'- 4 1/2"	4'- 2 1/8"	1'- 10 5/8"	1'- 3 1/2"	51'- 1/8"	5'- 10 7/8"	54'- 2"	204	70	195.050	7.345	900.047	52'- 10"	6	52'- 6"	3	27	4.826	405.934	4.821	315.420	M	
12	10	6	8"	9'- 5 1/2"	1'- 4 1/2"	4'- 2 1/8"	1'- 10 5/8"	1'- 3 1/2"	51'- 1/8"	5'- 10 7/8"	54'- 2"	204	90	202.110	7.588	947.856	52'- 10"	6	52'- 6"	3	33	5.048	426.642	5.007	315.420	Q	
12	12	6	8"	9'- 5 3/8"	1'- 4 3/4"	4'- 1 7/8"	1'- 11"	1'- 3 3/4"	51'- 1/8"	5'- 10 5/8"	54'- 3"	204	110	209.170	7.908	1,030.481	52'- 10"	6	52'- 6"	3	39	5.236	447.350	5.158	315.420	U	

STRUCTURE AND BRIDGE DIVISION

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

DIMENSIONS										REINFORCING STEEL																									
SPAN (FT.)	HGHT (FT.)	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3				BH4					BV1			BV2					
		TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH			
3	3	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'-10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'-10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8 1/2"	8 1/2"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	2'- 8 1/2"	4'- 9"	4	12"	4'- 1"	4	12"	4'- 1"	4	12"	4'- 1"
4	4	8 1/2"	8 1/2"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 2 1/2"	5'- 3"	4	12"	5'- 1"	4	12"	5'- 1"	4	12"	5'- 1"
4	5	8 1/2"	8 1/2"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 8 1/2"	5'- 9"	4	12"	6'- 1"	4	12"	6'- 1"	4	12"	6'- 1"
4	6	8 1/2"	8 1/2"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	4'- 2 1/2"	6'- 3"	4	12"	7'- 1"	4	12"	7'- 1"	4	12"	7'- 1"
5	3	10 1/4"	10 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	3	12"	2'- 6"	4'-10"	4	12"	2'- 6"	2'-10 1/4"	5'- 1"	4	12"	4'- 5"	4	12"	4'- 5"	4	12"	4'- 5"
5	4	10"	10"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	3	12"	2'- 6"	4'-10"	4	12"	2'- 6"	3'- 4"	5'- 7"	4	12"	5'- 4"	4	12"	5'- 4"	4	12"	5'- 4"
5	5	10 1/4"	10 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	3	12"	2'- 6"	4'-10"	4	12"	2'- 6"	3'-10 1/4"	6'- 1"	4	12"	6'- 5"	4	12"	6'- 5"	4	12"	6'- 5"
5	6	10"	10"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 4"	6'- 7"	4	12"	7'- 4"	4	12"	7'- 4"	4	12"	7'- 4"
5	7	10"	10"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'-10"	7'- 1"	4	12"	8'- 4"	4	12"	8'- 4"	4	12"	8'- 4"
6	4	12"	12"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	10"	25'- 7"	4	10"	27'- 0"	--	---	----	----	4	10"	2'- 8 3/8"	3'- 6"	5'-11"	4	12"	5'- 8"	4	12"	5'- 8"	4	12"	5'- 8"
6	5	12 1/4"	12 1/4"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	10"	25'- 7"	4	10"	27'- 0"	--	---	----	----	4	10"	2'- 8 3/8"	4'- 1/4"	6'- 5"	4	12"	6'- 9"	4	12"	6'- 9"	4	12"	6'- 9"
6	6	11 1/2"	11 1/2"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	10"	25'- 7"	4	10"	27'- 0"	--	---	----	----	4	10"	2'- 8 3/8"	4'- 5 1/2"	6'-11"	4	12"	7'- 7"	4	12"	7'- 7"	4	12"	7'- 7"
6	7	11 1/2"	11 1/2"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	10"	25'- 7"	4	10"	27'- 0"	3	10"	2'- 8 3/8"	5'- 2"	4	10"	2'- 8 3/8"	4'-11 1/2"	7'- 5"	4	12"	8'- 7"	4	12"	8'- 7"	4	12"	8'- 7"
6	8	11 3/4"	11 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	10"	25'- 7"	4	10"	27'- 0"	--	---	----	----	5	10"	2'- 8 3/8"	5'- 5 3/4"	7'-10"	4	8 1/2"	9'- 8"	4	12"	9'- 8"	4	12"	9'- 8"
7	4	13 1/4"	13 1/4"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	4	9"	29'- 2"	4	9"	31'- 0"	--	---	----	----	4	9"	2'-10 3/4"	3'- 7 1/4"	6'- 3"	4	12"	5'-10"	4	12"	5'-10"	4	12"	5'-10"
7	6	13 1/4"	13 1/4"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	4	9"	29'- 2"	5	9"	31'- 0"	--	---	----	----	4	9"	2'-10 3/4"	4'- 7 1/4"	7'- 3"	4	12"	7'-10"	4	12"	7'-10"	4	12"	7'-10"
7	8	13 1/4"	13 1/4"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	4	9"	29'- 2"	5	9"	31'- 0"	3	9"	2'-10 3/4"	5'- 7"	4	9"	2'-10 3/4"	5'- 7 1/4"	8'- 3"	4	9"	9'-10"	4	12"	9'-10"	4	12"	9'-10"
7	10	13 1/4"	13 1/4"	8"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	4	9"	29'- 2"	5	9"	31'- 0"	3	9"	2'-10 3/4"	5'- 7"	5	9"	2'-10 3/4"	6'- 7 1/4"	9'- 2"	5	8"	11'-10"	4	12"	11'-10"	4	12"	11'-10"
8	4	15"	15"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	5	9"	32'-10"	5	9"	35'- 0"	--	---	----	----	4	9"	3'- 1 1/4"	3'- 9"	6'- 7"	4	12"	6'- 2"	4	12"	6'- 2"	4	12"	6'- 2"
8	6	15"	15"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	5	9"	32'-10"	5	9"	35'- 0"	--	---	----	----	4	9"	3'- 1 1/4"	4'- 9"	7'- 7"	4	12"	8'- 2"	4	12"	8'- 2"	4	12"	8'- 2"
8	8	15 1/4"	15 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	5	9"	32'-10"	5	9"	35'- 0"	3	9"	3'- 1 1/4"	6'- 0"	4	9"	3'- 1 1/4"	5'- 9 1/4"	8'- 7"	4	9"	10'- 3"	4	12"	10'- 3"	4	12"	10'- 3"
8	10	15"	15"	8"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	5	9"	32'-10"	5	9"	35'- 0"	3	9"	3'- 1 1/4"	6'- 0"	5	9"	3'- 1 1/4"	6'- 9"	9'- 6"	6	11 1/2"	12'- 2"	4	12"	12'- 2"	4	12"	12'- 2"
9	4	17"	17"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	6	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	4	9"	3'- 3 5/8"	3'-11"	6'-11"	4	12"	6'- 6"	4	12"	6'- 6"	4	12"	6'- 6"
9	6	17"	17"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	6	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	4	9"	3'- 3 5/8"	4'-11"	7'-11"	4	12"	8'- 6"	4	12"	8'- 6"	4	12"	8'- 6"
9	8	17"	17"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	6	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	5	9"	3'- 3 5/8"	5'-11"	8'-11"	4	9"	10'- 6"	4	12"	10'- 6"	4	12"	10'- 6"
9	10	17"	17"	8"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	6	9"	3'- 3 5/8"	6'-11"	9'-10"	5	8"	12'- 6"	4	12"	12'- 6"	4	12"	12'- 6"
9	12	17"	17"	8 1/2"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	5	9"	36'- 5"	5	9"	39'- 1"	--	---	----	----	7	9"	3'- 4 1/8"	7'-11"	10'-10"	5	5 1/2"	14'- 6"	4	12"	14'- 6"	4	12"	14'- 6"
10	4	18 1/2"	18 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	6	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	4	9"	3'- 6"	4'- 1/2"	7'- 3"	4	12"	6'- 9"	4	10 1/2"	6'- 9"	4	10 1/2"	6'- 9"
10	6	18 1/2"	18 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	--	---	----	----	4	9"	3'- 6"	5'- 1/2"	8'- 3"	4	12"	8'- 9"	4	10 1/2"	8'- 9"	4	10 1/2"	8'- 9"
10	8	18 3/4"	18 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	6	9"	40'- 0"	5	9"	43'- 0"	3	9"	3'- 6"	6'-10"	4	9"	3'- 6"	6'- 3/4"	9'- 4"	4	9"	10'- 9"	4	11"	10'- 9"	4	11"	10'- 9"
10	10	18 3/4"	18 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	6	9"	40'- 0"	5	9"	43'- 0"	3	9"	3'- 6"	6'-10"	5	9"	3'- 6"	7'- 3/4"	10'- 3"	4	5"	12'- 9"	4	11"	12'- 9"	4	11"	12'- 9"
10	12	18 3/4"	18 3/4"	8 1/2"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	6	9"	40'- 0"	6	9"	43'- 1"	4	9"	3'- 6 1/2"	6'-10"	6	9"	3'- 6 1/2"	8'- 3/4"	11'- 2"	5	5 1/2"	14'- 9"	4	11"	14'- 9"	4	11"	14'- 9"
12	6	21 3/4"	21 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	6	8"	47'- 2"	6	8"	51'- 0"	--	---	----	----	4	8"	3'-10 3/4"	5'- 3 3/4"	8'-11"	4	12"	9'- 3"	4	10"	9'- 3"	4	10"	9'- 3"
12	8	21 3/4"	21 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	6	8"	47'- 2"	6	8"	51'- 0"	3	8"	3'-10 3/4"	7'- 7"	4	8"	3'-10 3/4"	6'- 3 3/4"	9'-11"	4	8 1/2"	11'- 3"	4	10"	11'- 3"	4	10"	11'- 3"
12	10	21 3/4"	21 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	6	8"	47'- 2"	6	8"	51'- 0"	3	8"	3'-10 3/4"	7'- 7"	5	8"	3'-10 3/4"	7'- 3 3/4"	10'-11"	4	5"	13'- 3"	4	10"	13'- 3"	4	10"	13'- 3"
12	12	21 3/4"	21 3/4"	8 1/2"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	6	8"	47'- 2"	6	8"	51'- 1"	4	8"	3'-11 1/4"	7'- 7"	5	8"	3'-11 1/4"	8'- 3 3/4"	11'-11"	5	5 1/2"	15'- 3"	4	10"	15'- 3"	4	10"	15'- 3"

QUADRUPLE BOX CULVERTS

25 TO 30 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS								WINGWALL	
(FT.)	(FT.)	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	HEADWALL LENGTH	SIZE	HW I LENGTH	NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)		OUTLET REINFORCING STEEL (LBS)
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	20	57.160	4.413	141.899	16'- 10"	6	16'- 6"	3	12	2.222	137.876	2.191	99.132	A
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	30	60.690	4.617	152.339	16'- 10"	6	16'- 6"	3	15	2.333	148.230	2.284	99.132	C
4	3	4	12"	3'- 6 1/4"	0'- 5"	1'- 11"	0'- 6 1/2"	0'- 4 1/4"	19'- 0"	2'- 1/2"	19'- 10"	76	20	70.520	5.195	169.287	20'- 10"	6	20'- 6"	3	12	2.606	161.908	2.589	123.164	A
4	4	4	12"	3'- 6 1/4"	0'- 5"	1'- 11"	0'- 6 1/2"	0'- 4 1/4"	19'- 0"	2'- 1/2"	19'- 10"	76	30	74.050	5.399	179.727	20'- 10"	6	20'- 6"	3	15	2.718	172.262	2.682	123.164	C
4	5	4	12"	3'- 6 1/4"	0'- 5"	1'- 11"	0'- 6 1/2"	0'- 4 1/4"	19'- 0"	2'- 1/2"	19'- 10"	76	40	77.580	5.603	190.167	20'- 10"	6	20'- 6"	3	18	2.829	182.616	2.774	123.164	E
4	6	4	12"	3'- 6 1/4"	0'- 5"	1'- 11"	0'- 6 1/2"	0'- 4 1/4"	19'- 0"	2'- 1/2"	19'- 10"	76	50	81.110	5.807	200.607	20'- 10"	6	20'- 6"	3	21	2.940	192.970	2.867	123.164	G
5	3	4	12"	4'- 3"	0'- 6 3/4"	2'- 2"	0'- 9"	0'- 6"	23'- 0"	2'- 6"	24'- 3"	92	20	83.880	6.859	205.949	24'- 10"	6	24'- 6"	3	12	2.932	185.940	2.927	147.196	B
5	4	4	12"	4'- 3"	0'- 6 1/2"	2'- 2 1/4"	0'- 8 5/8"	0'- 5 3/4"	23'- 0"	2'- 6 1/4"	24'- 2"	92	30	87.410	6.089	215.832	24'- 10"	6	24'- 6"	3	15	3.056	196.294	3.033	147.196	D
5	5	4	12"	4'- 3"	0'- 6 3/4"	2'- 2"	0'- 9"	0'- 6"	23'- 0"	2'- 6"	24'- 3"	92	40	90.940	6.267	226.829	24'- 10"	6	24'- 6"	3	18	3.154	206.648	3.113	147.196	F
5	6	4	12"	4'- 3 1/8"	0'- 6 1/2"	2'- 2 1/4"	0'- 8 5/8"	0'- 5 3/4"	23'- 0"	2'- 6 1/4"	24'- 2"	92	50	94.470	6.497	242.135	24'- 10"	6	24'- 6"	3	21	3.279	217.002	3.219	147.196	H
5	7	4	12"	4'- 3 1/8"	0'- 6 1/2"	2'- 2 1/4"	0'- 8 5/8"	0'- 5 3/4"	23'- 0"	2'- 6 1/4"	24'- 2"	92	60	98.000	6.702	252.575	24'- 10"	6	24'- 6"	3	24	3.390	227.356	3.311	147.196	J
6	4	4	10"	4'- 11 3/4"	0'- 8 1/2"	2'- 5"	0'- 11 1/2"	0'- 7 3/4"	27'- 0"	2'- 11 1/2"	28'- 7"	108	30	100.770	6.603	262.804	28'- 10"	6	28'- 6"	3	15	3.307	220.326	3.297	171.228	D
6	5	4	10"	4'- 11 5/8"	0'- 8 3/4"	2'- 4 3/4"	0'- 11 1/8"	0'- 8"	27'- 0"	2'- 11 1/4"	28'- 8"	108	40	104.300	6.775	274.090	28'- 10"	6	28'- 6"	3	18	3.402	230.680	3.373	171.228	F
6	6	4	10"	5'- 0"	0'- 8"	2'- 5 1/2"	0'- 10 3/4"	0'- 7 1/4"	27'- 0"	3'- 0"	28'- 6"	108	50	107.830	7.076	283.640	28'- 10"	6	28'- 6"	3	21	3.562	241.034	3.515	171.228	H
6	7	4	10"	5'- 0"	0'- 8"	2'- 5 1/2"	0'- 10 3/4"	0'- 7 1/4"	27'- 0"	3'- 0"	28'- 6"	108	60	111.360	7.280	303.672	28'- 10"	6	28'- 6"	3	24	3.673	251.388	3.607	171.228	J
6	8	4	10"	4'- 11 7/8"	0'- 8 1/4"	2'- 5 1/4"	0'- 11 1/8"	0'- 7 1/2"	27'- 0"	2'- 11 3/4"	28'- 6"	108	70	114.890	7.452	324.650	28'- 10"	6	28'- 6"	3	27	3.768	261.742	3.684	171.228	L
7	4	4	9"	5'- 8 3/4"	0'- 9 3/4"	2'- 8 5/8"	1'- 1 1/4"	0'- 9"	31'- 1/8"	3'- 5 3/8"	32'- 10"	124	30	114.130	7.134	313.216	32'- 10"	6	32'- 6"	3	15	3.565	244.358	3.569	195.260	D
7	6	4	9"	5'- 8 3/4"	0'- 9 3/4"	2'- 8 5/8"	1'- 1 1/4"	0'- 9"	31'- 1/8"	3'- 5 3/8"	32'- 10"	124	50	121.190	7.542	365.987	32'- 10"	6	32'- 6"	3	21	3.788	265.066	3.754	195.260	H
7	8	4	9"	5'- 8 3/4"	0'- 9 3/4"	2'- 8 5/8"	1'- 1 1/4"	0'- 9"	31'- 1/8"	3'- 5 3/8"	32'- 10"	124	70	128.250	7.951	403.333	32'- 10"	6	32'- 6"	3	27	4.011	285.174	3.940	195.260	L
7	10	4	9"	5'- 8 3/4"	0'- 9 3/4"	2'- 8 5/8"	1'- 1 1/4"	0'- 9"	31'- 1/8"	3'- 5 3/8"	32'- 10"	124	90	135.310	8.359	459.978	32'- 10"	6	32'- 6"	3	33	4.233	306.482	4.125	195.260	P
8	4	4	9"	6'- 5 3/8"	0'- 11 1/2"	2'- 11 5/8"	1'- 3 3/4"	0'- 10 3/4"	34'- 11 7/8"	3'- 10 7/8"	37'- 3"	140	30	127.490	7.514	416.231	36'- 10"	6	36'- 6"	3	15	3.749	268.390	3.765	219.292	D
8	6	4	9"	6'- 5 3/8"	0'- 11 1/2"	2'- 11 5/8"	1'- 3 3/4"	0'- 10 3/4"	34'- 11 7/8"	3'- 10 7/8"	37'- 3"	140	50	134.550	7.922	438.001	36'- 10"	6	36'- 6"	3	21	3.971	289.098	3.951	219.292	H
8	8	4	9"	6'- 5 1/4"	0'- 11 3/4"	2'- 11 3/8"	1'- 4 1/8"	0'- 11"	34'- 11 7/8"	3'- 10 5/8"	37'- 3"	140	70	141.610	8.323	476.814	36'- 10"	6	36'- 6"	3	27	4.190	309.806	4.133	219.292	M
8	10	4	9"	6'- 5 3/8"	0'- 11 1/2"	2'- 11 5/8"	1'- 3 3/4"	0'- 10 3/4"	34'- 11 7/8"	3'- 10 7/8"	37'- 3"	140	90	148.670	8.738	534.161	36'- 10"	6	36'- 6"	3	33	4.417	330.514	4.322	219.292	P
9	4	5	9"	7'- 2"	1'- 1 5/8"	3'- 2 1/2"	1'- 6 5/8"	1'- 3/4"	39'- 0"	4'- 4"	41'- 7"	156	30	140.850	7.794	544.856	40'- 10"	6	40'- 6"	3	15	3.882	292.422	3.912	243.324	E
9	6	5	9"	7'- 2"	1'- 1 5/8"	3'- 2 1/2"	1'- 6 5/8"	1'- 3/4"	39'- 0"	4'- 4"	41'- 7"	156	50	147.910	8.202	566.626	40'- 10"	6	40'- 6"	3	21	4.104	313.130	4.097	243.324	I
9	8	5	9"	7'- 2"	1'- 1 5/8"	3'- 2 1/2"	1'- 6 5/8"	1'- 3/4"	39'- 0"	4'- 4"	41'- 7"	156	70	154.970	8.610	610.906	40'- 10"	6	40'- 6"	3	27	4.327	333.838	4.283	243.324	M
9	10	5	9"	7'- 2"	1'- 1 5/8"	3'- 2 1/2"	1'- 6 5/8"	1'- 3/4"	39'- 0"	4'- 4"	41'- 7"	156	90	162.030	9.018	631.448	40'- 10"	6	40'- 6"	3	33	4.550	354.546	4.468	243.324	Q
9	12	5	9"	7'- 2 1/2"	1'- 1 5/8"	3'- 2 1/2"	1'- 6 5/8"	1'- 3/4"	39'- 1"	4'- 4"	41'- 8"	156	110	169.090	9.335	713.655	40'- 10"	6	40'- 6"	3	39	4.727	375.254	4.608	243.324	U
10	4	6	9"	7'- 10 7/8"	1'- 3 1/4"	3'- 5 3/4"	1'- 8 3/8"	1'- 2 1/4"	43'- 0"	4'- 9 3/4"	45'- 11"	172	30	154.210	8.051	655.664	44'- 10"	6	44'- 6"	3	15	4.004	316.454	4.047	267.356	E
10	6	5	9"	7'- 10 7/8"	1'- 3 1/8"	3'- 5 3/4"	1'- 8 3/4"	1'- 2 1/4"	43'- 0"	4'- 9 3/4"	45'- 11"	172	50	161.270	8.460	675.010	44'- 10"	6	44'- 6"	3	21	4.227	337.162	4.233	267.356	I
10	8	6	9"	7'- 10 3/4"	1'- 3 1/2"	3'- 5 1/2"	1'- 9 1/4"	1'- 2 1/2"	43'- 0"	4'- 9 1/2"	45'- 11"	172	70	168.330	8.811	718.045	44'- 10"	6	44'- 6"	3	27	4.421	357.870	4.390	267.356	M
10	10	6	9"	7'- 10 3/4"	1'- 3 1/2"	3'- 5 1/2"	1'- 9 1/4"	1'- 2 1/2"	43'- 0"	4'- 9 1/2"	45'- 11"	172	90	175.390	9.219	779.808	44'- 10"	6	44'- 6"	3	33	4.643	378.578	4.575	267.356	Q
10	12	5	9"	7'- 11 1/4"	1'- 3 3/8"	3'- 5 1/2"	1'- 9 1/8"	1'- 2 1/2"	43'- 1"	4'- 9 1/2"	46'- 1"	172	110	182.450	9.534	862.627	44'- 10"	6	44'- 6"	3	39	4.820	399.286	4.714	267.356	U
12	6	6	8"	9'- 4 1/2"	1'- 6 1/2"	4'- 1/8"	2'- 1 1/2"	1'- 5 1/2"	51'- 1/8"	5'- 8 7/8"	54'- 7"	204	50	187.990	8.721	935.948	52'- 10"	6	52'- 6"	3	21	4.344	385.226	4.377	315.420	J
12	8	6	8"	9'- 4 1/2"	1'- 6 1/2"	4'- 1/8"	2'- 1 1/2"	1'- 5 1/2"	51'- 1/8"	5'- 8 7/8"	54'- 7"	204	70	195.050	9.129	983.064	52'- 10"	6	52'- 6"	3	27	4.567	405.934	4.562	315.420	N
12	10	6	8"	9'- 4 1/2"	1'- 6 1/2"	4'- 1/8"	2'- 1 1/2"	1'- 5 1/2"	51'- 1/8"	5'- 8 7/8"	54'- 7"	204	90	202.110	9.537	1,050.040	52'- 10"	6	52'- 6"	3	33	4.789	426.642	4.748	315.420	R
12	12	6	8"	9'- 5"	1'- 6 1/2"	4'- 1/8"	2'- 1 1/2"	1'- 5 1/2"	51'- 1/8"	5'- 8 7/8"	54'- 8"	204	110	209.170	9.849	1,114.396	52'- 10"	6	52'- 6"	3	39	4.964	447.350	4.885	315.420	V

STRUCTURE AND BRIDGE DIVISION

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

DIMENSIONS								REINFORCING STEEL																											
SPAN (FT.)	HGHT (FT.)	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2								
		TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH			
3	3	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'-10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'-10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	9 1/4"	9 1/4"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	2'- 9 1/4"	4'-10"	4	12"	4'- 2"	4	12"	4'- 2"	4	12"	4'- 2"
4	4	9 1/4"	9 1/4"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 3/4"	5'- 4"	4	12"	5'- 2"	4	12"	5'- 2"	4	12"	5'- 2"
4	5	9 1/4"	9 1/4"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 9/4"	5'-10"	4	12"	6'- 2"	4	12"	6'- 2"	4	12"	6'- 2"
4	6	9 1/4"	9 1/4"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	3	12"	2'- 3 5/8"	4'- 5"	4	12"	2'- 3 5/8"	4'- 3/4"	6'- 4"	4	12"	7'- 2"	4	12"	7'- 2"	4	12"	7'- 2"
5	3	10 3/4"	10 3/4"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	--	---	----	----	4	11"	2'- 6"	2'-10 3/4"	5'- 2"	4	12"	4'- 5"	4	12"	4'- 5"	4	12"	4'- 5"
5	4	10 3/4"	10 3/4"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	--	---	----	----	4	11"	2'- 6"	3'- 4 3/4"	5'- 8"	4	12"	5'- 5"	4	12"	5'- 5"	4	12"	5'- 5"
5	5	11"	11"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	--	---	----	----	4	11"	2'- 6"	3'-11"	6'- 2"	4	12"	6'- 6"	4	12"	6'- 6"	4	12"	6'- 6"
5	6	11"	11"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	3	11"	2'- 6"	4'-10"	4	11"	2'- 6"	4'- 5"	6'- 8"	4	12"	7'- 6"	4	12"	7'- 6"	4	12"	7'- 6"
5	7	11"	11"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	4	11"	2'- 6"	4'- 9"	4	11"	2'- 6"	4'-11"	7'- 2"	4	10 1/2"	8'- 6"	4	12"	8'- 6"	4	12"	8'- 6"
6	4	13"	13"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	--	---	----	----	4	9"	2'- 8 3/8"	3'- 7"	6'- 0"	4	12"	5'-10"	4	12"	5'-10"	4	12"	5'-10"
6	5	13"	13"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	--	---	----	----	4	9"	2'- 8 3/8"	4'- 1"	6'- 6"	4	12"	6'-10"	4	12"	6'-10"	4	12"	6'-10"
6	6	13"	13"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	--	---	----	----	4	9"	2'- 8 3/8"	4'- 7"	7'- 0"	4	12"	7'-10"	4	12"	7'-10"	4	12"	7'-10"
6	7	13"	13"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	3	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	5'- 1"	7'- 6"	4	10 1/2"	8'-10"	4	12"	8'-10"	4	12"	8'-10"
6	8	13"	13"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	--	---	----	----	5	9"	2'- 8 3/8"	5'- 7"	7'-11"	5	10 1/2"	9'-10"	4	12"	9'-10"	4	12"	9'-10"
7	4	14 1/2"	14 1/2"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	5	9"	29'- 2"	5	9"	31'- 0"	--	---	----	----	4	9"	2'-10 3/4"	3'- 8 1/2"	6'- 4"	4	12"	6'- 1"	4	12"	6'- 1"	4	12"	6'- 1"
7	6	14 1/2"	14 1/2"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	5	9"	29'- 2"	5	9"	31'- 0"	--	---	----	----	4	9"	2'-10 3/4"	4'- 8 1/2"	7'- 4"	4	12"	8'- 1"	4	12"	8'- 1"	4	12"	8'- 1"
7	8	14 1/2"	14 1/2"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	5	9"	29'- 2"	5	9"	31'- 0"	3	9"	2'-10 3/4"	5'- 7"	4	9"	2'-10 3/4"	5'- 8 1/2"	8'- 4"	4	7"	10'- 1"	4	12"	10'- 1"	4	12"	10'- 1"
7	10	14 3/4"	14 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	4	9"	29'- 2"	5	9"	31'- 0"	3	9"	2'-10 3/4"	5'- 7"	5	9"	2'-10 3/4"	6'- 8 3/4"	9'- 4"	6	9 1/2"	12'- 1"	4	12"	12'- 1"	4	12"	12'- 1"
8	4	16 1/2"	16 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	5	8"	32'-10"	5	8"	35'- 0"	--	---	----	----	4	8"	3'- 1 1/4"	3'-10 1/2"	6'- 9"	4	12"	6'- 5"	4	11 1/2"	6'- 5"	4	11 1/2"	6'- 5"
8	6	16 1/2"	16 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	5	8"	32'-10"	5	8"	35'- 0"	--	---	----	----	4	8"	3'- 1 1/4"	4'-10 1/2"	7'- 9"	4	12"	8'- 5"	4	11 1/2"	8'- 5"	4	11 1/2"	8'- 5"
8	8	16 1/2"	16 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	5	8"	32'-10"	5	8"	35'- 0"	3	8"	3'- 1 1/4"	6'- 0"	4	8"	3'- 1 1/4"	5'-10 1/2"	8'- 9"	5	10 1/2"	10'- 5"	4	11 1/2"	10'- 5"	4	11 1/2"	10'- 5"
8	10	16 1/2"	16 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	5	8"	32'-10"	5	8"	35'- 0"	3	8"	3'- 1 1/4"	6'- 0"	5	8"	3'- 1 1/4"	6'-10 1/2"	9'- 8"	6	9 1/2"	12'- 5"	4	11 1/2"	12'- 5"	4	11 1/2"	12'- 5"
9	4	18 1/2"	18 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	6	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	4	9"	3'- 3 5/8"	4'- 1/2"	7'- 1"	4	12"	6'- 9"	4	10 1/2"	6'- 9"	4	10 1/2"	6'- 9"
9	6	18 1/2"	18 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	6	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	4	9"	3'- 3 5/8"	5'- 1/2"	8'- 1"	4	12"	8'- 9"	4	10 1/2"	8'- 9"	4	10 1/2"	8'- 9"
9	8	18 1/2"	18 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	6	9"	36'- 5"	5	9"	39'- 0"	3	9"	3'- 3 5/8"	6'- 5"	4	9"	3'- 3 5/8"	6'- 1/2"	9'- 1"	5	10 1/2"	10'- 9"	4	10 1/2"	10'- 9"	4	10 1/2"	10'- 9"
9	10	18 1/2"	18 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	6	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	6	9"	3'- 3 5/8"	7'- 1/2"	9'-11"	6	9 1/2"	12'- 9"	4	10 1/2"	12'- 9"	4	10 1/2"	12'- 9"
9	12	18 3/4"	18 3/4"	9 1/4"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	6	9"	36'- 5"	5	9"	39'- 3"	--	---	----	----	7	9"	3'- 4 7/8"	8'- 3/4"	11'- 0"	5	5 1/2"	14'- 9"	4	10 1/2"	14'- 9"	4	10 1/2"	14'- 9"
10	4	20 1/2"	20 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	--	---	----	----	4	9"	3'- 6"	4'- 2 1/2"	7'- 5"	4	12"	7'- 1"	4	10"	7'- 1"	4	10"	7'- 1"
10	6	20 1/2"	20 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	--	---	----	----	4	9"	3'- 6"	5'- 2 1/2"	8'- 5"	4	12"	9'- 1"	4	10"	9'- 1"	4	10"	9'- 1"
10	8	20 1/2"	20 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	3	9"	3'- 6"	6'-10"	4	9"	3'- 6"	6'- 2 1/2"	9'- 5"	4	6 1/2"	11'- 1"	4	10"	11'- 1"	4	10"	11'- 1"
10	10	20 1/2"	20 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	3	9"	3'- 6"	6'-10"	5	9"	3'- 6"	7'- 2 1/2"	10'- 5"	6	9"	13'- 1"	4	10"	13'- 1"	4	10"	13'- 1"
10	12	20 1/2"	20 1/2"	9 1/4"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	6	9"	40'- 0"	6	9"	43'- 3"	3	9"	3'- 7 1/4"	7'- 0"	6	9"	3'- 7 1/4"	8'- 2 1/2"	11'- 5"	7	10 1/2"	15'- 1"	4	10"	15'- 1"	4	10"	15'- 1"
12	6	24 1/4"	24 1/4"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	6	8"	47'- 2"	6	8"	51'- 0"	--	---	----	----	4	8"	3'-10 3/4"	5'- 6 1/4"	9'- 2"	4	12"	9'- 8"	4	10"	9'- 8"	4	10"	9'- 8"
12	8	24 1/4"	24 1/4"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	6	8"	47'- 2"	6	8"	51'- 0"	3	8"	3'-10 3/4"	7'- 7"	4	8"	3'-10 3/4"	6'- 6 1/4"	10'- 2"	5	9 1/2"	11'- 8"	4	10"	11'- 8"	4	10"	11'- 8"
12	10	24 1/4"	24 1/4"	8"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	6	8"	47'- 2"	6	8"	51'- 0"	3	8"	3'-10 3/4"	7'- 7"	5	8"	3'-10 3/4"	7'- 6 1/4"	11'- 1"	4	4"	13'- 8"	4	10"	13'- 8"	4	10"	13'- 8"
12	12	24 1/4"	24 1/4"	9 1/4"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	6	8"	47'- 2"	6	8"	51'- 3"	4	8"	4'- 0"	7'- 9"	5	8"	4'- 0"	8'- 6 1/4"	12'- 2"	7	10"	15'- 8"	4	10"	15'- 8"	4	10"	15'- 8"

QUADRUPLE BOX CULVERTS

30 TO 35 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS								WINGWALL			
(FT.)	(FT.)	SIZE	SPACING C-C	BT I									NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	C		HW I		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)		INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)
				a	b	c	d	e	f	g	LENGTH	HEADWALL LENGTH						SIZE	LENGTH									
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	20	57.160	1.284	141.899	16'- 10"	6	16'- 6"	3	12	2.222	137.876	2.191	99.132	A		
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	30	60.690	1.406	152.339	16'- 10"	6	16'- 6"	3	15	2.333	148.230	2.284	99.132	C		
4	3	4	12"	3'- 5 7/8"	0'- 5 3/4"	1'- 10 1/4"	0'- 7 5/8"	0'- 5"	19'- 0"	1'- 11 3/4"	20'- 0"	76	20	70.520	1.628	170.178	20'- 10"	6	20'- 6"	3	12	2.595	161.908	2.577	123.164	B		
4	4	4	12"	3'- 5 7/8"	0'- 5 3/4"	1'- 10 1/4"	0'- 7 5/8"	0'- 5"	19'- 0"	1'- 11 3/4"	20'- 0"	76	30	74.050	1.751	180.618	20'- 10"	6	20'- 6"	3	15	2.706	172.262	2.670	123.164	D		
4	5	4	12"	3'- 5 7/8"	0'- 5 3/4"	1'- 10 1/4"	0'- 7 5/8"	0'- 5"	19'- 0"	1'- 11 3/4"	20'- 0"	76	40	77.580	1.873	191.058	20'- 10"	6	20'- 6"	3	18	2.818	182.616	2.763	123.164	F		
4	6	4	12"	3'- 5 7/8"	0'- 5 3/4"	1'- 10 1/4"	0'- 7 5/8"	0'- 5"	19'- 0"	1'- 11 3/4"	20'- 0"	76	50	81.110	1.996	208.141	20'- 10"	6	20'- 6"	3	21	2.929	192.970	2.856	123.164	H		
5	3	4	11"	4'- 2 3/4"	0'- 7 1/4"	2'- 1 1/2"	0'- 9 3/4"	0'- 6 1/2"	23'- 0"	2'- 5 1/2"	24'- 4"	92	20	83.880	2.070	208.689	24'- 10"	6	24'- 6"	3	12	2.905	185.940	2.901	147.196	B		
5	4	4	11"	4'- 2 3/4"	0'- 7 1/4"	2'- 1 1/2"	0'- 9 3/4"	0'- 6 1/2"	23'- 0"	2'- 5 1/2"	24'- 4"	92	30	87.410	2.192	219.251	24'- 10"	6	24'- 6"	3	15	3.017	196.294	2.994	147.196	D		
5	5	4	11"	4'- 2 5/8"	0'- 7 1/2"	2'- 1 1/4"	0'- 10 1/8"	0'- 6 3/4"	23'- 0"	2'- 5 1/4"	24'- 5"	92	40	90.940	2.351	230.379	24'- 10"	6	24'- 6"	3	18	3.115	206.648	3.073	147.196	F		
5	6	4	11"	4'- 2 5/8"	0'- 7 1/2"	2'- 1 1/4"	0'- 10 1/8"	0'- 6 3/4"	23'- 0"	2'- 5 1/4"	24'- 5"	92	50	94.470	2.473	248.871	24'- 10"	6	24'- 6"	3	21	3.226	217.002	3.166	147.196	H		
5	7	4	11"	4'- 2 5/8"	0'- 7 1/2"	2'- 1 1/4"	0'- 10 1/8"	0'- 6 3/4"	23'- 0"	2'- 5 1/4"	24'- 5"	92	60	98.000	2.595	266.970	24'- 10"	6	24'- 6"	3	24	3.338	227.356	3.259	147.196	J		
6	4	4	9"	4'- 11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	27'- 0"	2'- 10 1/2"	28'- 9"	108	30	100.770	2.833	280.855	28'- 10"	6	28'- 6"	3	15	3.242	220.326	3.232	171.228	D		
6	5	4	9"	4'- 11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	27'- 0"	2'- 10 1/2"	28'- 9"	108	40	104.300	2.955	291.740	28'- 10"	6	28'- 6"	3	18	3.353	230.680	3.325	171.228	F		
6	6	4	9"	4'- 11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	27'- 0"	2'- 10 1/2"	28'- 9"	108	50	107.830	3.078	302.626	28'- 10"	6	28'- 6"	3	21	3.464	241.034	3.417	171.228	H		
6	7	4	9"	4'- 11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	27'- 0"	2'- 10 1/2"	28'- 9"	108	60	111.360	3.200	325.558	28'- 10"	6	28'- 6"	3	24	3.576	251.388	3.510	171.228	J		
6	8	4	9"	4'- 11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	27'- 0"	2'- 10 1/2"	28'- 9"	108	70	114.890	3.321	350.238	28'- 10"	6	28'- 6"	3	27	3.687	261.742	3.603	171.228	L		
7	4	4	9"	5'- 8 1/8"	0'- 11"	2'- 7 3/8"	1'- 3"	0'- 10 1/4"	31'- 1/8"	3'- 4 1/8"	33'- 1"	124	30	114.130	3.437	375.461	32'- 10"	6	32'- 6"	3	15	3.469	244.358	3.473	195.260	D		
7	6	4	9"	5'- 8 1/8"	0'- 11"	2'- 7 3/8"	1'- 3"	0'- 10 1/4"	31'- 1/8"	3'- 4 1/8"	33'- 1"	124	50	121.190	3.682	397.232	32'- 10"	6	32'- 6"	3	21	3.692	265.066	3.658	195.260	H		
7	8	4	9"	5'- 8 1/8"	0'- 11"	2'- 7 3/8"	1'- 3"	0'- 10 1/4"	31'- 1/8"	3'- 4 1/8"	33'- 1"	124	70	128.250	3.926	439.821	32'- 10"	6	32'- 6"	3	27	3.914	285.774	3.843	195.260	L		
7	10	4	9"	5'- 8"	0'- 11 1/4"	2'- 7 1/8"	1'- 3 3/8"	0'- 10 1/2"	31'- 1/8"	3'- 3 7/8"	33'- 2"	124	90	135.310	4.218	471.325	32'- 10"	6	32'- 6"	3	33	4.118	306.482	4.010	195.260	P		
8	4	4	8"	6'- 4 5/8"	1'- 1"	2'- 10 1/8"	1'- 5 5/8"	1'- 1/4"	34'- 11 7/8"	3'- 9 3/8"	37'- 6"	140	30	127.490	4.225	454.663	36'- 10"	6	36'- 6"	3	15	3.633	268.390	3.650	219.292	E		
8	6	4	8"	6'- 4 5/8"	1'- 1"	2'- 10 1/8"	1'- 5 5/8"	1'- 1/4"	34'- 11 7/8"	3'- 9 3/8"	37'- 6"	140	50	134.550	4.470	477.228	36'- 10"	6	36'- 6"	3	21	3.856	289.098	3.835	219.292	I		
8	8	4	8"	6'- 4 5/8"	1'- 1"	2'- 10 1/8"	1'- 5 5/8"	1'- 1/4"	34'- 11 7/8"	3'- 9 3/8"	37'- 6"	140	70	141.610	4.713	524.245	36'- 10"	6	36'- 6"	3	27	4.078	309.806	4.021	219.292	M		
8	10	4	8"	6'- 4 5/8"	1'- 1"	2'- 10 1/8"	1'- 5 5/8"	1'- 1/4"	34'- 11 7/8"	3'- 9 3/8"	37'- 6"	140	90	148.670	4.956	587.836	36'- 10"	6	36'- 6"	3	33	4.301	330.514	4.206	219.292	Q		
9	4	5	9"	7'- 1 1/4"	1'- 3 1/8"	3'- 1"	1'- 8 3/4"	1'- 2 1/4"	39'- 0"	4'- 2 1/2"	41'- 11"	156	30	140.850	5.111	551.578	40'- 10"	6	40'- 6"	3	15	3.729	292.422	3.759	243.324	E		
9	6	5	9"	7'- 1 1/4"	1'- 3 1/8"	3'- 1"	1'- 8 3/4"	1'- 2 1/4"	39'- 0"	4'- 2 1/2"	41'- 11"	156	50	147.910	5.356	574.493	40'- 10"	6	40'- 6"	3	21	3.952	313.130	3.945	243.324	I		
9	8	5	9"	7'- 1 1/4"	1'- 3 1/8"	3'- 1"	1'- 8 3/4"	1'- 2 1/4"	39'- 0"	4'- 2 1/2"	41'- 11"	156	70	154.970	5.599	621.543	40'- 10"	6	40'- 6"	3	27	4.174	333.838	4.130	243.324	M		
9	10	5	9"	7'- 1 1/4"	1'- 3 1/8"	3'- 1"	1'- 8 3/4"	1'- 2 1/4"	39'- 0"	4'- 2 1/2"	41'- 11"	156	90	162.030	5.840	695.187	40'- 10"	6	40'- 6"	3	33	4.397	354.546	4.315	243.324	Q		
9	12	5	9"	7'- 2 3/8"	1'- 3 3/8"	3'- 3/4"	1'- 9 1/8"	1'- 2 1/2"	39'- 2 1/2"	4'- 2 1/4"	42'- 2"	156	110	169.090	6.259	772.485	40'- 10"	6	40'- 6"	3	39	4.478	375.254	4.359	243.324	U		
10	4	6	9"	7'- 9 3/8"	1'- 5 1/4"	3'- 3 3/4"	1'- 11 3/4"	1'- 4 1/4"	43'- 0"	4'- 7 3/4"	46'- 4"	172	30	154.210	6.090	714.154	44'- 10"	6	44'- 6"	3	15	3.776	316.454	3.819	267.356	E		
10	6	6	9"	7'- 9 3/8"	1'- 5 1/4"	3'- 3 3/4"	1'- 11 3/4"	1'- 4 1/4"	43'- 0"	4'- 7 3/4"	46'- 4"	172	50	161.270	6.335	737.527	44'- 10"	6	44'- 6"	3	21	3.998	337.162	4.005	267.356	I		
10	8	6	9"	7'- 9 3/8"	1'- 5 1/4"	3'- 3 3/4"	1'- 11 3/4"	1'- 4 1/4"	43'- 0"	4'- 7 3/4"	46'- 4"	172	70	168.330	6.578	787.134	44'- 10"	6	44'- 6"	3	27	4.221	357.870	4.190	267.356	M		
10	10	6	9"	7'- 9 3/8"	1'- 5 1/4"	3'- 3 3/4"	1'- 11 3/4"	1'- 4 1/4"	43'- 0"	4'- 7 3/4"	46'- 4"	172	90	175.390	6.820	853.735	44'- 10"	6	44'- 6"	3	33	4.444	378.578	4.375	267.356	Q		
10	12	6	9"	7'- 11 1/8"	1'- 5 1/4"	3'- 3 3/4"	1'- 11 3/4"	1'- 4 1/4"	43'- 2 1/2"	4'- 7 3/4"	46'- 6"	172	110	182.450	7.181	924.455	44'- 10"	6	44'- 6"	3	39	4.548	399.286	4.442	267.356	U		
12	6	6	8"	9'- 3 1/4"	1'- 9"	3'- 9 5/8"	2'- 5"	1'- 8"	51'- 1/8"	5'- 6 3/8"	55'- 1"	204	50	187.990	8.520	941.764	52'- 10"	6	52'- 6"	3	21	3.997	385.226	4.030	315.420	J		
12	8	6	8"	9'- 3 1/4"	1'- 9"	3'- 9 5/8"	2'- 5"	1'- 8"	51'- 1/8"	5'- 6 3/8"	55'- 1"	204	70	195.050	8.763	997.846	52'- 10"	6	52'- 6"	3	27	4.219	405.934	4.215	315.420	N		
12	10	6	8"	9'- 3 1/4"	1'- 9"	3'- 9 5/8"	2'- 5"	1'- 8"	51'- 1/8"	5'- 6 3/8"	55'- 1"	204	90	202.110	9.005	1,067.631	52'- 10"	6	52'- 6"	3	33	4.442	426.642	4.400	315.420	R		
12	12	6	8"	9'- 4 1/2"	1'- 9"	3'- 9 5/8"	2'- 5"	1'- 8"	51'- 2 5/8"	5'- 6 3/8"	55'- 4"	204	110	209.170	9.371	1,129.835	52'- 10"	6	52'- 6"	3	39	4.542	447.350	4.462	315.420	V		

STRUCTURE AND BRIDGE DIVISION

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

DIMENSIONS				REINFORCING STEEL																												
SPAN	HGHT	T1	T2	T3	T4	BH1		BH2			BH3				BH4				BV1			BV2										
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'-10"	4	12"	15'- 0"	4	12"	2'- 1/4"	3'-11"	4	12"	2'- 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'-10"	4	12"	15'- 0"	3	12"	2'- 1/4"	4'- 0"	4	12"	2'- 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	10"	10"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	--	----	----	4	12"	2'- 3/8"	2'-10"	4'-10"	4	12"	4'- 4"	4	12"	4'- 4"
4	4	9 3/4"	9 3/4"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	--	----	----	4	12"	2'- 3/8"	3'- 3 3/4"	5'- 4"	4	12"	5'- 3"	4	12"	5'- 3"
4	5	9 3/4"	9 3/4"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	--	----	----	4	12"	2'- 3/8"	3'- 9 3/4"	5'-10"	4	12"	6'- 3"	4	12"	6'- 3"
4	6	9 3/4"	9 3/4"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3/8"	4'- 4"	4	12"	2'- 3/8"	4'- 3 3/4"	6'- 4"	4	12"	7'- 3"	4	12"	7'- 3"
5	3	12"	12"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	--	--	----	----	4	11"	2'- 6"	3'- 0"	5'- 3"	4	12"	4'- 8"	4	12"	4'- 8"
5	4	12"	12"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	--	--	----	----	4	11"	2'- 6"	3'- 6"	5'- 9"	4	12"	5'- 8"	4	12"	5'- 8"
5	5	11 3/4"	11 3/4"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	--	--	----	----	4	11"	2'- 6"	3'-11 3/4"	6'- 3"	4	12"	6'- 8"	4	12"	6'- 8"
5	6	11 3/4"	11 3/4"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	3	11"	2'- 6"	4'-10"	4	11"	2'- 6"	4'- 5 3/4"	6'- 9"	4	12"	7'- 8"	4	12"	7'- 8"
5	7	11 3/4"	11 3/4"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	4	11"	2'- 6"	4'- 9"	4	11"	2'- 6"	4'-11 3/4"	7'- 3"	4	8 1/2"	8'- 8"	4	12"	8'- 8"
6	4	13 3/4"	13 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	--	--	----	----	4	9"	2'- 8 3/8"	3'- 7 3/4"	6'- 1"	4	12"	6'- 0"	4	12"	6'- 0"
6	5	13 3/4"	13 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	--	--	----	----	4	9"	2'- 8 3/8"	4'- 1 3/4"	6'- 7"	4	12"	7'- 0"	4	12"	7'- 0"
6	6	13 3/4"	13 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	--	--	----	----	4	9"	2'- 8 3/8"	4'- 7 3/4"	7'- 1"	4	12"	8'- 0"	4	12"	8'- 0"
6	7	14"	14"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	3	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	5'- 2"	7'- 7"	4	8 1/2"	9'- 0"	4	12"	9'- 0"
6	8	14"	14"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	--	--	----	----	5	9"	2'- 8 3/8"	5'- 8"	8'- 0"	4	6"	10'- 0"	4	12"	10'- 0"
7	4	15 3/4"	15 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	5	9"	29'- 2"	5	9"	31'- 0"	--	--	----	----	4	9"	2'-10 3/4"	3'- 9 3/4"	6'- 5"	4	12"	6'- 3"	4	11 1/2"	6'- 3"
7	6	15 3/4"	15 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	5	9"	29'- 2"	5	9"	31'- 0"	--	--	----	----	4	9"	2'-10 3/4"	4'- 9 3/4"	7'- 5"	4	12"	8'- 3"	4	11 1/2"	8'- 3"
7	8	15 3/4"	15 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	5	9"	29'- 2"	5	9"	31'- 0"	3	9"	2'-10 3/4"	5'- 7"	4	9"	2'-10 3/4"	5'- 9 3/4"	8'- 5"	4	6"	10'- 3"	4	11 1/2"	10'- 3"
7	10	15 3/4"	15 3/4"	8 1/2"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	5	9"	29'- 2"	5	9"	31'- 1"	3	9"	2'-11 1/4"	5'- 8"	5	9"	2'-11 1/4"	6'- 9 3/4"	9'- 5"	5	6 1/2"	12'- 3"	4	12"	12'- 3"
8	4	17 3/4"	17 3/4"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	5	9"	32'-10"	5	9"	35'- 0"	--	--	----	----	4	9"	3'- 1 1/4"	3'-11 3/4"	6'-10"	4	12"	6'- 7"	4	10 1/2"	6'- 7"
8	6	17 3/4"	17 3/4"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	5	8"	32'-10"	5	8"	35'- 0"	--	--	----	----	4	8"	3'- 1 1/4"	4'-11 3/4"	7'-10"	4	12"	8'- 7"	4	10 1/2"	8'- 7"
8	8	17 3/4"	17 3/4"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	5	8"	32'-10"	5	8"	35'- 0"	3	8"	3'- 1 1/4"	6'- 0"	4	8"	3'- 1 1/4"	5'-11 3/4"	8'-10"	4	6"	10'- 7"	4	10 1/2"	10'- 7"
8	10	17 3/4"	17 3/4"	8 1/2"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	5	8"	32'-10"	5	8"	35'- 1"	3	8"	3'- 1 3/4"	6'- 1"	5	8"	3'- 1 3/4"	6'-11 3/4"	9'-10"	6	9"	12'- 7"	4	10 1/2"	12'- 7"
9	4	20"	20"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	6	9"	36'- 5"	6	9"	39'- 0"	--	--	----	----	4	9"	3'- 3 5/8"	4'- 2"	7'- 2"	4	12"	7'- 0"	4	10"	7'- 0"
9	6	20"	20"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	6	9"	36'- 5"	6	9"	39'- 0"	--	--	----	----	4	9"	3'- 3 5/8"	5'- 2"	8'- 2"	4	12"	9'- 0"	4	10"	9'- 0"
9	8	20"	20"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	6	9"	36'- 5"	6	9"	39'- 0"	--	--	----	----	5	9"	3'- 3 5/8"	6'- 2"	9'- 2"	4	6"	11'- 0"	4	10"	11'- 0"
9	10	20"	20"	8 1/2"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	6	9"	36'- 5"	6	9"	39'- 1"	--	--	----	----	6	9"	3'- 4 1/8"	7'- 2"	10'- 1"	6	9"	13'- 0"	4	10"	13'- 0"
9	12	20"	20"	10"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	6	9"	36'- 5"	6	9"	39'- 4"	3	9"	3'- 5 5/8"	6'- 9"	6	9"	3'- 5 5/8"	8'- 2"	11'- 3"	7	10 1/2"	15'- 0"	4	10"	15'- 0"
10	4	22 1/2"	22 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	--	--	----	----	4	9"	3'- 6"	4'- 4 1/2"	7'- 7"	4	12"	7'- 5"	4	10"	7'- 5"
10	6	22 1/2"	22 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	--	--	----	----	4	9"	3'- 6"	5'- 4 1/2"	8'- 7"	4	12"	9'- 5"	4	10"	9'- 5"
10	8	22 1/2"	22 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	3	9"	3'- 6"	6'-10"	4	9"	3'- 6"	6'- 4 1/2"	9'- 7"	5	9"	11'- 5"	4	10"	11'- 5"
10	10	22 1/2"	22 1/2"	8 1/2"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	7	9"	40'- 0"	6	9"	43'- 1"	--	--	----	----	6	9"	3'- 6 1/2"	7'- 4 1/2"	10'- 6"	5	6"	13'- 5"	4	10"	13'- 5"
10	12	22 1/2"	22 1/2"	10"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	6	9"	40'- 0"	6	9"	43'- 4"	3	9"	3'- 8"	7'- 2"	6	9"	3'- 8"	8'- 4 1/2"	11'- 8"	6	7 1/2"	15'- 5"	4	10"	15'- 5"
12	6	26 1/2"	26 1/2"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	6	8"	47'- 2"	6	8"	51'- 0"	--	--	----	----	4	8"	3'-10 3/4"	5'- 8 1/2"	9'- 4"	4	11"	10'- 1"	4	9"	10'- 1"
12	8	26 1/2"	26 1/2"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	6	8"	47'- 2"	6	8"	51'- 0"	--	--	----	----	4	8"	3'-10 3/4"	6'- 8 1/2"	10'- 4"	4	5 1/2"	12'- 1"	4	9"	12'- 1"
12	10	26 1/4"	26 1/4"	8 1/2"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	6	8"	47'- 2"	6	8"	51'- 1"	3	8"	3'-11 1/4"	7'- 8"	5	8"	3'-11 1/4"	7'- 8 1/4"	11'- 4"	6	8"	14'- 0"	4	9"	14'- 0"
12	12	26 1/2"	26 1/2"	10"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	6	8"	47'- 2"	6	8"	51'- 4"	4	8"	4'- 3/4"	7'-10"	5	8"	4'- 3/4"	8'- 8 1/2"	12'- 5"	5	5"	16'- 1"	4	9"	16'- 1"

Sheet 1 of 2

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

QUADRUPLE BOX CULVERTS

35 TO 40 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

1005.20

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS								WINGWALL	
(FT.)	(FT.)	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. FT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	HEADWALL LENGTH	SIZE	HW I LENGTH	NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)		OUTLET REINFORCING STEEL (LBS)
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	20	57.160	1.283	152.365	16'- 10"	6	16'- 6"	3	12	2.222	137.876	2.191	99.132	A
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	30	60.690	1.406	158.355	16'- 10"	6	16'- 6"	3	15	2.333	148.230	2.284	99.132	C
4	3	4	12"	3'- 5 1/2"	0'- 6 1/2"	1'- 9 1/2"	0'- 8 5/8"	0'- 5 3/4"	19'- 0"	1'- 11"	20'- 2"	76	20	70.520	1.718	171.291	20'- 10"	6	20'- 6"	3	12	2.565	161.908	2.547	123.164	B
4	4	4	12"	3'- 5 5/8"	0'- 6 1/4"	1'- 9 3/4"	0'- 8 3/8"	0'- 5 1/2"	19'- 0"	1'- 11 1/4"	20'- 2"	76	30	74.050	1.810	181.286	20'- 10"	6	20'- 6"	3	15	2.686	172.262	2.650	123.164	D
4	5	4	12"	3'- 5 5/8"	0'- 6 1/4"	1'- 9 3/4"	0'- 8 3/8"	0'- 5 1/2"	19'- 0"	1'- 11 1/4"	20'- 2"	76	40	77.580	1.933	191.726	20'- 10"	6	20'- 6"	3	18	2.798	182.616	2.743	123.164	F
4	6	4	12"	3'- 5 5/8"	0'- 6 1/4"	1'- 9 3/4"	0'- 8 3/8"	0'- 5 1/2"	19'- 0"	1'- 11 1/4"	20'- 2"	76	50	81.110	2.055	213.745	20'- 10"	6	20'- 6"	3	21	2.909	192.970	2.835	123.164	H
5	3	4	11"	4'- 2 1/8"	0'- 8 1/2"	2'- 1/4"	0'- 11 1/2"	0'- 7 3/4"	23'- 0"	2'- 4 1/4"	24'- 7"	92	20	83.880	2.250	210.632	24'- 10"	6	24'- 6"	3	12	2.840	185.940	2.836	147.196	B
5	4	4	11"	4'- 2 1/8"	0'- 8 1/2"	2'- 1/4"	0'- 11 1/2"	0'- 7 3/4"	23'- 0"	2'- 4 1/4"	24'- 7"	92	30	87.410	2.372	221.194	24'- 10"	6	24'- 6"	3	15	2.951	196.294	2.928	147.196	D
5	5	4	11"	4'- 2 1/4"	0'- 8 1/4"	2'- 1/2"	0'- 11 1/8"	0'- 7 1/2"	23'- 0"	2'- 4 1/2"	24'- 6"	92	40	90.940	2.459	231.634	24'- 10"	6	24'- 6"	3	18	3.076	206.648	3.034	147.196	F
5	6	4	11"	4'- 2 1/4"	0'- 8 1/4"	2'- 1/2"	0'- 11 1/8"	0'- 7 1/2"	23'- 0"	2'- 4 1/2"	24'- 6"	92	50	94.470	2.581	250.126	24'- 10"	6	24'- 6"	3	21	3.187	217.002	3.127	147.196	H
5	7	4	11"	4'- 2 1/4"	0'- 8 1/4"	2'- 1/2"	0'- 11 1/8"	0'- 7 1/2"	23'- 0"	2'- 4 1/2"	24'- 6"	92	60	98.000	2.703	271.370	24'- 10"	6	24'- 6"	3	24	3.298	227.356	3.220	147.196	J
6	4	4	9"	4'- 10 7/8"	0'- 10 1/4"	2'- 3 1/4"	1'- 2"	0'- 9 1/2"	27'- 0"	2'- 9 3/4"	29'- 0"	108	30	100.770	2.959	282.488	28'- 10"	6	28'- 6"	3	15	3.193	220.326	3.183	171.228	D
6	5	4	9"	4'- 10 7/8"	0'- 10 1/4"	2'- 3 1/4"	1'- 2"	0'- 9 1/2"	27'- 0"	2'- 9 3/4"	29'- 0"	108	40	104.300	3.082	293.373	28'- 10"	6	28'- 6"	3	18	3.304	230.680	3.276	171.228	F
6	6	4	9"	4'- 10 7/8"	0'- 10 1/4"	2'- 3 1/4"	1'- 2"	0'- 9 1/2"	27'- 0"	2'- 9 3/4"	29'- 0"	108	50	107.830	3.204	304.259	28'- 10"	6	28'- 6"	3	21	3.416	241.034	3.369	171.228	H
6	7	4	9"	4'- 10 3/4"	0'- 10 1/2"	2'- 3"	1'- 2 3/8"	0'- 9 3/4"	27'- 0"	2'- 9 1/2"	29'- 0"	108	60	111.360	3.368	330.456	28'- 10"	6	28'- 6"	3	24	3.511	251.388	3.445	171.228	J
6	8	4	9"	4'- 10 3/4"	0'- 10 1/2"	2'- 3"	1'- 2 3/8"	0'- 9 3/4"	27'- 0"	2'- 9 1/2"	29'- 0"	108	70	114.890	3.490	355.092	28'- 10"	6	28'- 6"	3	27	3.622	261.742	3.538	171.228	L
7	4	4	9"	5'- 7 1/2"	1'- 1/4"	2'- 6 1/8"	1'- 4 3/4"	0'- 11 1/2"	31'- 1/8"	3'- 2 7/8"	33'- 4"	124	30	114.130	3.678	378.183	32'- 10"	6	32'- 6"	3	15	3.391	244.358	3.395	195.260	E
7	6	4	9"	5'- 7 1/2"	1'- 1/4"	2'- 6 1/8"	1'- 4 3/4"	0'- 11 1/2"	31'- 1/8"	3'- 2 7/8"	33'- 4"	124	50	121.190	3.923	400.302	32'- 10"	6	32'- 6"	3	21	3.614	265.066	3.580	195.260	I
7	8	4	9"	5'- 7 1/2"	1'- 1/4"	2'- 6 1/8"	1'- 4 3/4"	0'- 11 1/2"	31'- 1/8"	3'- 2 7/8"	33'- 4"	124	70	128.250	4.167	447.312	32'- 10"	6	32'- 6"	3	27	3.836	285.774	3.766	195.260	M
7	10	4	9"	5'- 8"	1'- 1/4"	2'- 6 1/8"	1'- 4 3/4"	0'- 11 1/2"	31'- 1/8"	3'- 2 7/8"	33'- 5"	124	90	135.310	4.448	503.793	32'- 10"	6	32'- 6"	3	33	4.020	306.482	3.912	195.260	Q
8	4	5	9"	6'- 4"	1'- 2 3/8"	2'- 8 7/8"	1'- 7 3/4"	1'- 1 1/2"	34'- 11 7/8"	3'- 8 1/8"	37'- 9"	140	30	127.490	4.497	461.758	36'- 10"	6	36'- 6"	3	15	3.521	268.390	3.538	219.292	E
8	6	5	8"	6'- 4"	1'- 2 3/8"	2'- 8 7/8"	1'- 7 3/4"	1'- 1 1/2"	34'- 11 7/8"	3'- 8 1/8"	37'- 9"	140	50	134.550	4.739	524.870	36'- 10"	6	36'- 6"	3	21	3.744	289.098	3.723	219.292	I
8	8	5	8"	6'- 4"	1'- 2 3/8"	2'- 8 7/8"	1'- 7 3/4"	1'- 1 1/2"	34'- 11 7/8"	3'- 8 1/8"	37'- 9"	140	70	141.610	4.982	575.907	36'- 10"	6	36'- 6"	3	27	3.966	309.806	3.909	219.292	M
8	10	4	8"	6'- 4 1/2"	1'- 2 1/4"	2'- 8 7/8"	1'- 7 5/8"	1'- 1 1/2"	35'- 3/8"	3'- 8 1/8"	37'- 10"	140	90	148.670	5.267	598.990	36'- 10"	6	36'- 6"	3	33	4.149	330.514	4.054	219.292	Q
9	4	5	9"	7'- 1/2"	1'- 4 5/8"	2'- 11 1/2"	1'- 10 7/8"	1'- 3 3/4"	39'- 0"	4'- 1"	42'- 3"	156	30	140.850	5.471	603.620	40'- 10"	6	40'- 6"	3	15	3.576	292.422	3.606	243.324	E
9	6	5	9"	7'- 1/2"	1'- 4 5/8"	2'- 11 1/2"	1'- 10 7/8"	1'- 3 3/4"	39'- 0"	4'- 1"	42'- 3"	156	50	147.910	5.716	626.994	40'- 10"	6	40'- 6"	3	21	3.799	313.130	3.792	243.324	I
9	8	5	9"	7'- 1/2"	1'- 4 5/8"	2'- 11 1/2"	1'- 10 7/8"	1'- 3 3/4"	39'- 0"	4'- 1"	42'- 3"	156	70	154.970	5.959	683.397	40'- 10"	6	40'- 6"	3	27	4.022	333.838	3.977	243.324	M
9	10	5	9"	7'- 1"	1'- 4 5/8"	2'- 11 1/2"	1'- 10 7/8"	1'- 3 3/4"	39'- 1"	4'- 1"	42'- 4"	156	90	162.030	6.241	753.562	40'- 10"	6	40'- 6"	3	33	4.203	354.546	4.122	243.324	Q
9	12	5	9"	7'- 2 1/2"	1'- 4 5/8"	2'- 11 1/2"	1'- 10 7/8"	1'- 3 3/4"	39'- 4"	4'- 1"	42'- 7"	156	110	169.090	6.632	813.290	40'- 10"	6	40'- 6"	3	39	4.279	375.254	4.159	243.324	U
10	4	6	9"	7'- 8 7/8"	1'- 7 1/4"	3'- 1 3/4"	2'- 2 1/2"	1'- 6 1/4"	43'- 0"	4'- 5 3/4"	46'- 8"	172	30	154.210	6.625	718.131	44'- 10"	6	44'- 6"	3	15	3.566	316.454	3.609	267.356	F
10	6	6	9"	7'- 8 7/8"	1'- 7 1/4"	3'- 1 3/4"	2'- 2 1/2"	1'- 6 1/4"	43'- 0"	4'- 5 3/4"	46'- 8"	172	50	161.270	6.870	741.505	44'- 10"	6	44'- 6"	3	21	3.788	337.162	3.795	267.356	J
10	8	6	9"	7'- 8 7/8"	1'- 7 1/4"	3'- 1 3/4"	2'- 2 1/2"	1'- 6 1/4"	43'- 0"	4'- 5 3/4"	46'- 8"	172	70	168.330	7.113	795.083	44'- 10"	6	44'- 6"	3	27	4.011	357.870	3.980	267.356	N
10	10	6	9"	7'- 9 3/8"	1'- 7 1/4"	3'- 1 3/4"	2'- 2 1/2"	1'- 6 1/4"	43'- 1"	4'- 5 3/4"	46'- 9"	172	90	175.390	7.392	931.190	44'- 10"	6	44'- 6"	3	33	4.192	378.578	4.123	267.356	R
10	12	6	9"	7'- 10 7/8"	1'- 7 1/4"	3'- 1 3/4"	2'- 2 1/2"	1'- 6 1/4"	43'- 4"	4'- 5 3/4"	47'- 0"	172	110	182.450	7.790	934.360	44'- 10"	6	44'- 6"	3	39	4.264	399.286	4.157	267.356	V
12	6	6	8"	9'- 2 1/8"	1'- 11 1/4"	3'- 7 3/8"	2'- 8 1/8"	1'- 10 1/4"	51'- 1/8"	5'- 4 1/8"	55'- 6"	204	50	187.990	9.232	953.483	52'- 10"	6	52'- 6"	3	21	3.684	385.226	3.717	315.420	J
12	8	6	8"	9'- 2 1/8"	1'- 11 1/4"	3'- 7 3/8"	2'- 8 1/8"	1'- 10 1/4"	51'- 1/8"	5'- 4 1/8"	55'- 6"	204	70	195.050	9.476	996.225	52'- 10"	6	52'- 6"	3	27	3.907	405.934	3.902	315.420	N
12	10	6	8"	9'- 2 3/4"	1'- 11"	3'- 7 5/8"	2'- 7 7/8"	1'- 10"	51'- 1 1/8"	5'- 4 3/8"	55'- 7"	204	90	202.110	9.681	1,089.405	52'- 10"	6	52'- 6"	3	33	4.085	426.642	4.043	315.420	R
12	12	6	8"	9'- 4 1/8"	1'- 11 1/4"	3'- 7 3/8"	2'- 8 1/8"	1'- 10 1/4"	51'- 4 1/8"	5'- 4 1/8"	55'- 10"	204	110	209.170	10.161	1,148.626	52'- 10"	6	52'- 6"	3	39	4.151	447.350	4.071	315.420	V

STRUCTURE AND BRIDGE DIVISION

QUADRUPLE BOX CULVERTS
35 TO 40 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

DIMENSIONS							REINFORCING STEEL																									
SPAN	HGHT	T1	T2	T3	T4	A	B	C	D	E	F	BH1			BH2			BH3				BH4				BV1			BV2			
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)							SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8 1/4"	8 1/4"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'-10"	4	12"	15'- 0"	4	12"	2'- 1 1/4"	3'-11"	4	12"	2'- 1 1/4"	2'- 8 1/4"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8 1/4"	8 1/4"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'-10"	4	12"	15'- 0"	4	12"	2'- 1 1/4"	3'-11"	4	12"	2'- 1 1/4"	3'- 2 1/4"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	10 1/2"	10 1/2"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	--	----	----	4	12"	2'- 3 5/8"	2'-10 1/2"	4'-11"	4	12"	4'- 5"	4	12"	4'- 5"
4	4	10 1/2"	10 1/2"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	--	----	----	4	12"	2'- 3 5/8"	3'- 4 1/2"	5'- 5"	4	12"	5'- 5"	4	12"	5'- 5"
4	5	10 3/4"	10 3/4"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	--	----	----	4	12"	2'- 3 5/8"	3'-10 3/4"	5'-11"	4	12"	6'- 5"	4	12"	6'- 5"
4	6	10 3/4"	10 3/4"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	4'- 4 3/4"	6'- 5"	4	11"	7'- 5"	4	12"	7'- 5"
5	3	12 1/2"	12 1/2"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	10"	22'- 0"	4	10"	23'- 0"	--	--	----	----	4	10"	2'- 6"	3'- 1/2"	5'- 3"	4	12"	4'- 9"	4	12"	4'- 9"
5	4	12 1/2"	12 1/2"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	10"	22'- 0"	4	10"	23'- 0"	--	--	----	----	4	10"	2'- 6"	3'- 6 1/2"	5'- 9"	4	12"	5'- 9"	4	12"	5'- 9"
5	5	12 1/2"	12 1/2"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	10"	22'- 0"	4	10"	23'- 0"	--	--	----	----	4	10"	2'- 6"	4'- 1/2"	6'- 3"	4	12"	6'- 9"	4	12"	6'- 9"
5	6	12 1/2"	12 1/2"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	10"	22'- 0"	4	10"	23'- 0"	--	--	----	----	4	10"	2'- 6"	4'- 6 1/2"	6'- 9"	4	12"	7'- 9"	4	12"	7'- 9"
5	7	12 1/2"	12 1/2"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	10"	22'- 0"	4	10"	23'- 0"	--	--	----	----	5	10"	2'- 6"	5'- 1/2"	7'- 3"	4	7"	8'- 9"	4	12"	8'- 9"
6	4	15 1/4"	15 1/4"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	--	--	----	----	4	9"	2'- 8 3/8"	3'- 9 1/4"	6'- 2"	4	12"	6'- 3"	4	12"	6'- 3"
6	5	15 1/4"	15 1/4"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	--	--	----	----	4	9"	2'- 8 3/8"	4'- 3 1/4"	6'- 8"	4	12"	7'- 3"	4	12"	7'- 3"
6	6	14 3/4"	14 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	--	--	----	----	4	9"	2'- 8 3/8"	4'- 8 3/4"	7'- 2"	4	12"	8'- 1"	4	12"	8'- 1"
6	7	14 3/4"	14 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	3	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	5'- 2 3/4"	7'- 8"	4	7"	9'- 1"	4	12"	9'- 1"
6	8	14 3/4"	14 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	--	--	----	----	5	9"	2'- 8 3/8"	5'- 8 3/4"	8'- 1"	4	5 1/2"	10'- 1"	4	12"	10'- 1"
7	4	16 3/4"	16 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	4	9"	29'- 2"	5	9"	31'- 0"	--	--	----	----	4	9"	2'-10 3/4"	3'-10 3/4"	6'- 6"	4	12"	6'- 6"	4	10 1/2"	6'- 6"
7	6	17"	17"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	5	9"	29'- 2"	5	9"	31'- 0"	--	--	----	----	4	9"	2'-10 3/4"	4'-11"	7'- 7"	4	11 1/2"	8'- 6"	4	10 1/2"	8'- 6"
7	8	17"	17"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	5	9"	29'- 2"	5	9"	31'- 0"	4	9"	2'-10 3/4"	5'- 6"	4	9"	2'-10 3/4"	5'-11"	8'- 7"	4	5 1/2"	10'- 6"	4	10 1/2"	10'- 6"
7	10	17 1/4"	17 1/4"	9"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	5	9"	29'- 2"	5	9"	31'- 2"	3	9"	2'-11 3/4"	5'- 9"	5	9"	2'-11 3/4"	6'-11 1/4"	9'- 7"	4	4"	12'- 6"	4	10 1/2"	12'- 6"
8	4	19 1/4"	19 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	6	9"	32'-10"	5	9"	35'- 0"	--	--	----	----	4	9"	3'- 1 1/4"	4'- 1 1/4"	6'-11"	4	12"	6'-10"	4	10"	6'-10"
8	6	19 1/4"	19 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	6	9"	32'-10"	5	9"	35'- 0"	--	--	----	----	4	9"	3'- 1 1/4"	5'- 1 1/4"	7'-11"	4	11"	8'-10"	4	10"	8'-10"
8	8	19 1/4"	19 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	5	8"	32'-10"	5	8"	35'- 0"	3	8"	3'- 1 1/4"	6'- 0"	4	8"	3'- 1 1/4"	6'- 1 1/4"	8'-11"	4	5 1/2"	10'-10"	4	10"	10'-10"
8	10	19 1/4"	19 1/4"	9"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	5	8"	32'-10"	5	8"	35'- 2"	3	8"	3'- 2 1/4"	6'- 2"	5	8"	3'- 2 1/4"	7'- 1 1/4"	10'- 0"	4	4"	12'-10"	4	10"	12'-10"
9	4	21 1/2"	21 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	6	9"	36'- 5"	6	9"	39'- 0"	--	--	----	----	4	9"	3'- 3 5/8"	4'- 3 1/2"	7'- 4"	4	12"	7'- 3"	4	10"	7'- 3"
9	6	21 1/2"	21 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	6	9"	36'- 5"	6	9"	39'- 0"	--	--	----	----	4	9"	3'- 3 5/8"	5'- 3 1/2"	8'- 4"	4	10 1/2"	9'- 3"	4	10"	9'- 3"
9	8	21 1/2"	21 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	6	9"	36'- 5"	6	9"	39'- 0"	--	--	----	----	5	9"	3'- 3 5/8"	6'- 3 1/2"	9'- 3"	6	11 1/2"	11'- 3"	4	10"	11'- 3"
9	10	21 1/2"	21 1/2"	9"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	6	9"	36'- 5"	6	9"	39'- 2"	--	--	----	----	6	9"	3'- 4 5/8"	7'- 3 1/2"	10'- 3"	5	6"	13'- 3"	4	10"	13'- 3"
9	12	21 1/2"	21 1/2"	10 1/2"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	6	9"	36'- 5"	6	9"	39'- 5"	3	9"	3'- 6 1/8"	6'-10"	6	9"	3'- 6 1/8"	8'- 3 1/2"	11'- 5"	7	10"	15'- 3"	4	10"	15'- 3"
10	4	23 1/2"	23 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	--	--	----	----	4	9"	3'- 6"	4'- 5 1/2"	7'- 8"	4	12"	7'- 7"	4	9 1/2"	7'- 7"
10	6	23 1/2"	23 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	--	--	----	----	4	9"	3'- 6"	5'- 5 1/2"	8'- 8"	4	10"	9'- 7"	4	10"	9'- 7"
10	8	23 1/2"	23 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	3	9"	3'- 6"	6'-10"	4	9"	3'- 6"	6'- 5 1/2"	9'- 8"	5	8"	11'- 7"	4	10"	11'- 7"
10	10	23 1/2"	23 1/2"	9"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	6	9"	40'- 0"	6	9"	43'- 2"	3	9"	3'- 7"	7'- 0"	5	9"	3'- 7"	7'- 5 1/2"	10'- 9"	7	11 1/2"	13'- 7"	4	10"	13'- 7"
10	12	23 1/2"	23 1/2"	10 1/2"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	6	9"	40'- 0"	6	9"	43'- 5"	3	9"	3'- 8 1/2"	7'- 3"	6	9"	3'- 8 1/2"	8'- 5 1/2"	11'- 9"	5	5"	15'- 7"	4	10"	15'- 7"
12	6	28 1/4"	28 1/4"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	7	8"	47'- 2"	6	8"	51'- 0"	--	--	----	----	4	8"	3'-10 3/4"	5'-10 1/4"	9'- 6"	4	8"	10'- 5"	4	8"	10'- 5"
12	8	28 1/4"	28 1/4"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	7	8"	47'- 2"	6	8"	51'- 0"	--	--	----	----	4	8"	3'-10 3/4"	6'-10 1/4"	10'- 6"	4	4 1/2"	12'- 5"	4	8"	12'- 5"
12	10	28 1/4"	28 1/4"	9 1/4"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	7	8"	47'- 2"	6	8"	51'- 3"	3	8"	4'- 0"	7'-10"	5	8"	4'- 0"	7'-10 1/4"	11'- 6"	6	8"	14'- 5"	4	8"	14'- 5"
12	12	28 1/4"	28 1/4"	10 1/2"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	6	8"	47'- 2"	6	8"	51'- 5"	4	8"	4'- 1 1/4"	7'-11"	5	8"	4'- 1 1/4"	8'-10 1/4"	12'- 8"	8	12"	16'- 5"	4	8"	16'- 5"

QUADRUPLE BOX CULVERTS

40 TO 45 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS							WINGWALL			
(FT.)	(FT.)	SIZE	SPACING C-C	BT I									NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	C		HW I		NO. HW2 BARS	NO. HW3 BARS		INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)
(FT.)	(FT.)	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	HEADWALL LENGTH	SIZE	LENGTH	NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)		
3	3	4	12"	2'- 8 3/4"	0'- 4 3/4"	1'- 6 3/8"	0'- 6 1/4"	0'- 4"	14'- 11 7/8"	1'- 5 5/8"	15'- 10"	60	20	57.160	1.306	152.476	16'- 10"	6	16'- 6"	3	12	2.215	137.876	2.184	99.132	A	
3	4	4	12"	2'- 8 3/4"	0'- 4 3/4"	1'- 6 3/8"	0'- 6 1/4"	0'- 4"	14'- 11 7/8"	1'- 5 5/8"	15'- 10"	60	30	60.690	1.429	162.916	16'- 10"	6	16'- 6"	3	15	2.326	148.230	2.277	99.132	C	
4	3	4	12"	3'- 5 1/4"	0'- 7"	1'- 9"	0'- 9 3/8"	0'- 6 1/4"	19'- 0"	1'- 10 1/2"	20'- 3"	76	20	70.520	1.777	172.071	20'- 10"	6	20'- 6"	3	12	2.545	161.908	2.527	123.164	B	
4	4	4	12"	3'- 5 1/4"	0'- 7"	1'- 9"	0'- 9 3/8"	0'- 6 1/4"	19'- 0"	1'- 10 1/2"	20'- 3"	76	30	74.050	1.900	182.511	20'- 10"	6	20'- 6"	3	15	2.656	172.262	2.620	123.164	D	
4	5	4	12"	3'- 5 1/8"	0'- 7 1/4"	1'- 8 3/4"	0'- 9 3/4"	0'- 6 1/2"	19'- 0"	1'- 10 1/4"	20'- 4"	76	40	77.580	2.052	193.062	20'- 10"	6	20'- 6"	3	18	2.757	182.616	2.703	123.164	F	
4	6	4	12"	3'- 5 1/8"	0'- 7 1/4"	1'- 8 3/4"	0'- 9 3/4"	0'- 6 1/2"	19'- 0"	1'- 10 1/4"	20'- 4"	76	50	81.110	2.174	215.981	20'- 10"	6	20'- 6"	3	21	2.869	192.970	2.795	123.164	H	
5	3	4	10"	4'- 1 7/8"	0'- 9"	1'- 11 3/4"	1'- 1/4"	0'- 8 1/4"	23'- 0"	2'- 3 3/4"	24'- 9"	92	20	83.880	2.321	223.017	24'- 10"	6	24'- 6"	3	12	2.814	185.940	2.809	147.196	B	
5	4	4	10"	4'- 1 7/8"	0'- 9"	1'- 11 3/4"	1'- 1/4"	0'- 8 1/4"	23'- 0"	2'- 3 3/4"	24'- 9"	92	30	87.410	2.443	233.724	24'- 10"	6	24'- 6"	3	15	2.925	196.294	2.902	147.196	D	
5	5	4	10"	4'- 1 7/8"	0'- 9"	1'- 11 3/4"	1'- 1/4"	0'- 8 1/4"	23'- 0"	2'- 3 3/4"	24'- 9"	92	40	90.940	2.566	244.431	24'- 10"	6	24'- 6"	3	18	3.036	206.648	2.995	147.196	F	
5	6	4	10"	4'- 1 7/8"	0'- 9"	1'- 11 3/4"	1'- 1/4"	0'- 8 1/4"	23'- 0"	2'- 3 3/4"	24'- 9"	92	50	94.470	2.689	255.138	24'- 10"	6	24'- 6"	3	21	3.148	217.002	3.088	147.196	H	
5	7	4	10"	4'- 1 7/8"	0'- 9"	1'- 11 3/4"	1'- 1/4"	0'- 8 1/4"	23'- 0"	2'- 3 3/4"	24'- 9"	92	60	98.000	2.810	287.246	24'- 10"	6	24'- 6"	3	24	3.259	227.356	3.180	147.196	J	
6	4	4	9"	4'- 10 1/8"	0'- 11 3/4"	2'- 1 3/4"	1'- 4 1/8"	0'- 11"	27'- 0"	2'- 8 1/4"	29'- 3"	108	30	100.770	3.210	311.566	28'- 10"	6	28'- 6"	3	15	3.114	220.326	3.105	171.228	E	
6	5	4	9"	4'- 10 1/8"	0'- 11 3/4"	2'- 1 3/4"	1'- 4 1/8"	0'- 11"	27'- 0"	2'- 8 1/4"	29'- 3"	108	40	104.300	3.333	322.452	28'- 10"	6	28'- 6"	3	18	3.226	230.680	3.198	171.228	G	
6	6	4	9"	4'- 10 3/8"	0'- 11 1/4"	2'- 2 1/4"	1'- 3 3/8"	0'- 10 1/2"	27'- 0"	2'- 8 3/4"	29'- 2"	108	50	107.830	3.371	332.298	28'- 10"	6	28'- 6"	3	21	3.351	241.034	3.304	171.228	H	
6	7	4	9"	4'- 10 3/8"	0'- 11 1/4"	2'- 2 1/4"	1'- 3 3/8"	0'- 10 1/2"	27'- 0"	2'- 8 3/4"	29'- 2"	108	60	111.360	3.492	362.212	28'- 10"	6	28'- 6"	3	24	3.462	251.388	3.397	171.228	J	
6	8	4	9"	4'- 10 3/8"	0'- 11 1/4"	2'- 2 1/4"	1'- 3 3/8"	0'- 10 1/2"	27'- 0"	2'- 8 3/4"	29'- 2"	108	70	114.890	3.614	385.859	28'- 10"	6	28'- 6"	3	27	3.574	261.742	3.490	171.228	L	
7	4	5	9"	5'- 7"	1'- 1 3/8"	2'- 5 1/8"	1'- 6 1/4"	1'- 1/2"	31'- 1 1/8"	3'- 1 1/8"	33'- 6"	124	30	114.130	3.871	387.079	32'- 10"	6	32'- 6"	3	15	3.314	244.358	3.318	195.260	E	
7	6	5	9"	5'- 6 7/8"	1'- 1 5/8"	2'- 4 7/8"	1'- 6 5/8"	1'- 3/4"	31'- 1 1/8"	3'- 1 5/8"	33'- 7"	124	50	121.190	4.162	440.183	32'- 10"	6	32'- 6"	3	21	3.517	265.066	3.484	195.260	I	
7	8	4	9"	5'- 6 7/8"	1'- 1 1/2"	2'- 4 7/8"	1'- 6 5/8"	1'- 3/4"	31'- 1 1/8"	3'- 1 5/8"	33'- 8"	124	70	128.250	4.407	465.344	32'- 10"	6	32'- 6"	3	27	3.740	285.774	3.669	195.260	M	
7	10	4	9"	5'- 7 3/4"	1'- 1 3/4"	2'- 4 5/8"	1'- 6 7/8"	1'- 1"	31'- 2 1/8"	3'- 1 3/8"	33'- 10"	124	90	135.310	4.778	516.944	32'- 10"	6	32'- 6"	3	33	3.865	306.482	3.756	195.260	Q	
8	4	5	9"	6'- 3 1/4"	1'- 3 3/8"	2'- 7 3/8"	1'- 9 3/8"	1'- 3"	34'- 11 7/8"	3'- 6 5/8"	38'- 1"	140	30	127.490	4.821	506.214	36'- 10"	6	36'- 6"	3	15	3.387	268.390	3.404	219.292	E	
8	6	5	9"	6'- 3 1/4"	1'- 3 3/8"	2'- 7 3/8"	1'- 9 3/8"	1'- 3"	34'- 11 7/8"	3'- 6 5/8"	38'- 1"	140	50	134.550	5.066	530.661	36'- 10"	6	36'- 6"	3	21	3.609	289.098	3.589	219.292	I	
8	8	5	8"	6'- 3 1/4"	1'- 3 7/8"	2'- 7 3/8"	1'- 9 3/8"	1'- 3"	34'- 11 7/8"	3'- 6 5/8"	38'- 1"	140	70	141.610	5.309	584.209	36'- 10"	6	36'- 6"	3	27	3.832	309.806	3.775	219.292	M	
8	10	5	8"	6'- 4 1/4"	1'- 3 7/8"	2'- 7 3/8"	1'- 9 3/8"	1'- 3"	35'- 1 7/8"	3'- 6 5/8"	38'- 3"	140	90	148.670	5.632	649.467	36'- 10"	6	36'- 6"	3	33	3.974	330.514	3.878	219.292	Q	
9	4	6	9"	6'- 11 3/4"	1'- 6 1/4"	2'- 10"	2'- 1 1/8"	1'- 5 1/4"	39'- 0"	3'- 11 1/2"	42'- 6"	156	30	140.850	5.831	658.465	40'- 10"	6	40'- 6"	3	15	3.442	292.422	3.472	243.324	F	
9	6	5	9"	6'- 11 3/4"	1'- 6 1/8"	2'- 10"	2'- 1"	1'- 5 1/4"	39'- 0"	3'- 11 1/2"	42'- 6"	156	50	147.910	6.080	631.585	40'- 10"	6	40'- 6"	3	21	3.665	313.130	3.658	243.324	J	
9	8	5	9"	6'- 11 3/4"	1'- 6 1/8"	2'- 10"	2'- 1"	1'- 5 1/4"	39'- 0"	3'- 11 1/2"	42'- 6"	156	70	154.970	6.322	691.631	40'- 10"	6	40'- 6"	3	27	3.887	333.838	3.843	243.324	N	
9	10	5	9"	7'- 3/4"	1'- 6 1/8"	2'- 10"	2'- 1"	1'- 5 1/4"	39'- 2"	3'- 11 1/2"	42'- 8"	156	90	162.030	6.648	760.570	40'- 10"	6	40'- 6"	3	33	4.027	354.546	3.945	243.324	R	
9	12	5	9"	7'- 2 1/4"	1'- 6 1/8"	2'- 10"	2'- 1"	1'- 5 1/4"	39'- 5"	3'- 11 1/2"	42'- 11"	156	110	169.090	7.047	821.986	40'- 10"	6	40'- 6"	3	39	4.094	375.254	3.973	243.324	V	
10	4	6	9"	7'- 8 3/8"	1'- 8 1/4"	3'- 3/4"	2'- 4"	1'- 7 1/4"	43'- 0"	4'- 4 3/4"	46'- 11"	172	30	154.210	6.892	722.373	44'- 10"	6	44'- 6"	3	15	3.452	316.454	3.495	267.356	F	
10	6	6	9"	7'- 8 3/8"	1'- 8 1/4"	3'- 3/4"	2'- 4"	1'- 7 1/4"	43'- 0"	4'- 4 3/4"	46'- 11"	172	50	161.270	7.137	746.388	44'- 10"	6	44'- 6"	3	21	3.674	337.162	3.681	267.356	J	
10	8	6	9"	7'- 8 3/8"	1'- 8 1/4"	3'- 3/4"	2'- 4"	1'- 7 1/4"	43'- 0"	4'- 4 3/4"	46'- 11"	172	70	168.330	7.380	801.673	44'- 10"	6	44'- 6"	3	27	3.897	357.870	3.866	267.356	N	
10	10	6	9"	7'- 9 3/8"	1'- 8 1/4"	3'- 3/4"	2'- 4"	1'- 7 1/4"	43'- 2"	4'- 4 3/4"	47'- 1"	172	90	175.390	7.708	867.540	44'- 10"	6	44'- 6"	3	33	4.034	378.578	3.966	267.356	R	
10	12	6	9"	7'- 10 7/8"	1'- 8 1/4"	3'- 3/4"	2'- 4"	1'- 7 1/4"	43'- 5"	4'- 4 3/4"	47'- 4"	172	110	182.450	8.109	941.583	44'- 10"	6	44'- 6"	3	39	4.099	399.286	3.991	267.356	V	
12	6	6	8"	9'- 1 1/4"	2'- 1"	3'- 5 5/8"	2'- 10 5/8"	2'- 0"	51'- 1/8"	5'- 2 3/8"	55'- 11"	204	50	187.990	9.780	1,047.641	52'- 10"	6	52'- 6"	3	21	3.460	385.226	3.493	315.420	K	
12	8	6	8"	9'- 1 1/4"	2'- 1"	3'- 5 5/8"	2'- 10 5/8"	2'- 0"	51'- 1/8"	5'- 2 3/8"	55'- 11"	204	70	195.050	10.023	1,094.554	52'- 10"	6	52'- 6"	3	27	3.682	405.934	3.678	315.420	O	
12	10	6	8"	9'- 2 1/2"	2'- 1"	3'- 5 5/8"	2'- 10 5/8"	2'- 0"	51'- 2 5/8"	5'- 2 3/8"	56'- 1"	204	90	202.110	10.377	1,184.256	52'- 10"	6	52'- 6"	3	33	3.793	426.642	3.750	315.420	S	
12	12	6	8"	9'- 3 3/4"	2'- 1"	3'- 5 5/8"	2'- 10 5/8"	2'- 0"	51'- 5/8"	5'- 2 3/8"	56'- 4"	204	110	209.170	10.769	1,173.047	52'- 10"	6	52'- 6"	3	39	3.872	447.350	3.791	315.420	W	

STRUCTURE AND BRIDGE DIVISION

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

DIMENSIONS				REINFORCING STEEL																												
SPAN (FT.)	HGHT (FT.)	T1 TOP SLAB	T2 BOTTOM SLAB	T3 EXTERIOR WALL (IN.)	T4 INTERIOR WALL (IN.)	A	B	C	D	E	F	BH1			BH2			BH3			BH4			BV1			BV2					
												SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	9"	9"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'-10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 9"	4'- 7"	4	12"	4'- 2"	4	12"	4'- 2"
3	4	9"	9"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'-10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 3"	5'- 1"	4	12"	5'- 2"	4	12"	5'- 2"
4	3	11"	11"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	2'-11"	4'-11"	4	12"	4'- 6"	4	12"	4'- 6"
4	4	11 1/4"	11 1/4"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 5 1/4"	5'- 6"	4	12"	5'- 6"	4	12"	5'- 6"
4	5	11"	11"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'-11"	5'-11"	4	12"	6'- 6"	4	12"	6'- 6"
4	6	11 1/4"	11 1/4"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	4'- 5 1/4"	6'- 6"	4	9"	7'- 6"	4	12"	7'- 6"
5	3	13 1/4"	13 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	10"	22'- 0"	4	10"	23'- 0"	--	---	----	----	4	10"	2'- 6"	3'- 1 1/4"	5'- 4"	4	12"	4'-10"	4	12"	4'-10"
5	4	13 1/4"	13 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	9"	22'- 0"	4	9"	23'- 0"	--	---	----	----	4	9"	2'- 6"	3'- 7 1/4"	5'-10"	4	12"	5'-10"	4	12"	5'-10"
5	5	13 1/4"	13 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	9"	22'- 0"	4	9"	23'- 0"	--	---	----	----	4	9"	2'- 6"	4'- 1 1/4"	6'- 4"	4	12"	6'-10"	4	12"	6'-10"
5	6	13 1/4"	13 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	10"	22'- 0"	4	10"	23'- 0"	3	10"	2'- 6"	4'-10"	4	10"	2'- 6"	4'- 7 1/4"	6'-10"	4	10"	7'-10"	4	12"	7'-10"
5	7	13 1/4"	13 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	10"	22'- 0"	4	10"	23'- 0"	--	---	----	----	5	10"	2'- 6"	5'- 1 1/4"	7'- 3"	5	10 1/2"	8'-10"	4	12"	8'-10"
6	4	15 3/4"	15 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	--	---	----	----	4	9"	2'- 8 3/8"	3'- 9 3/4"	6'- 3"	4	12"	6'- 3"	4	11"	6'- 3"
6	5	15 3/4"	15 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	--	---	----	----	4	9"	2'- 8 3/8"	4'- 3 3/4"	6'- 9"	4	12"	7'- 3"	4	11"	7'- 3"
6	6	15 3/4"	15 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	--	---	----	----	4	9"	2'- 8 3/8"	4'- 9 3/4"	7'- 3"	4	9 1/2"	8'- 3"	4	11"	8'- 3"
6	7	16"	16"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	3	9"	2'- 8 3/8"	5'- 4"	4	9"	2'- 8 3/8"	5'- 4"	7'- 9"	4	6 1/2"	9'- 4"	4	11"	9'- 4"
6	8	15 1/2"	15 1/2"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	--	---	----	----	5	9"	2'- 8 3/8"	5'- 9 1/2"	8'- 2"	4	5"	10'- 3"	4	11"	10'- 3"
7	4	18"	18"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	5	8"	29'- 2"	5	8"	31'- 0"	--	---	----	----	4	8"	2'-10 3/4"	4'- 0"	6'- 8"	4	12"	6'- 8"	4	10"	6'- 8"
7	6	17 3/4"	17 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	5	8"	29'- 2"	5	8"	31'- 0"	--	---	----	----	4	8"	2'-10 3/4"	4'-11 3/4"	7'- 7"	4	9 1/2"	8'- 7"	4	10"	8'- 7"
7	8	17 3/4"	17 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	5	9"	29'- 2"	5	9"	31'- 0"	--	---	----	----	5	9"	2'-10 3/4"	5'-11 3/4"	8'- 7"	5	7 1/2"	10'- 7"	4	10"	10'- 7"
7	10	18"	18"	9 3/4"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	5	9"	29'- 2"	5	9"	31'- 3"	4	9"	3'- 1/2"	5'-10"	5	9"	3'- 1/2"	7'- 0"	9'- 9"	6	9"	12'- 8"	4	10"	12'- 8"
8	4	20 1/2"	20 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	6	9"	32'-10"	5	9"	35'- 0"	--	---	----	----	4	9"	3'- 1 1/4"	4'- 2 1/2"	7'- 1"	4	12"	7'- 1"	4	10"	7'- 1"
8	6	20 1/2"	20 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	6	9"	32'-10"	5	9"	35'- 0"	--	---	----	----	4	9"	3'- 1 1/4"	5'- 2 1/2"	8'- 1"	4	9"	9'- 1"	4	10"	9'- 1"
8	8	20 1/4"	20 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	6	9"	32'-10"	5	9"	35'- 0"	--	---	----	----	5	9"	3'- 1 1/4"	6'- 2 1/4"	9'- 0"	4	4 1/2"	11'- 0"	4	10"	11'- 0"
8	10	20 1/4"	20 1/4"	9 3/4"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	6	9"	32'-10"	5	9"	35'- 3"	--	---	----	----	6	9"	3'- 3"	7'- 2 1/4"	10'- 0"	6	9"	13'- 0"	4	10"	13'- 0"
9	4	23"	23"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	6	9"	36'- 5"	6	9"	39'- 0"	--	---	----	----	4	9"	3'- 3 5/8"	4'- 5"	7'- 5"	4	12"	7'- 6"	4	10"	7'- 6"
9	6	23"	23"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	6	9"	36'- 5"	6	9"	39'- 0"	--	---	----	----	4	9"	3'- 3 5/8"	5'- 5"	8'- 5"	4	8"	9'- 6"	4	10"	9'- 6"
9	8	22 3/4"	22 3/4"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	6	9"	36'- 5"	6	9"	39'- 0"	--	---	----	----	5	9"	3'- 3 5/8"	6'- 4 3/4"	9'- 4"	5	7 1/2"	11'- 6"	4	10"	11'- 6"
9	10	22 3/4"	22 3/4"	9 3/4"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	6	9"	36'- 5"	6	9"	39'- 3"	--	---	----	----	6	9"	3'- 5 3/8"	7'- 4 3/4"	10'- 5"	5	6"	13'- 6"	4	10"	13'- 6"
9	12	22 1/2"	22 1/2"	11"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	6	9"	36'- 5"	6	9"	39'- 6"	3	9"	3'- 6 5/8"	6'-11"	7	9"	3'- 6 5/8"	8'- 4 1/2"	11'- 6"	6	7"	15'- 5"	4	10"	15'- 5"
10	4	25"	25"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	7	9"	40'- 0"	6	9"	43'- 0"	--	---	----	----	4	9"	3'- 6"	4'- 7"	7'-10"	4	12"	7'-10"	4	9"	7'-10"
10	6	24 3/4"	24 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	--	---	----	----	4	9"	3'- 6"	5'- 6 3/4"	8'-10"	4	8"	9'- 9"	4	9"	9'- 9"
10	8	24 3/4"	24 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	3	9"	3'- 6"	6'-10"	4	9"	3'- 6"	6'- 6 3/4"	9'-10"	4	4 1/2"	11'- 9"	4	9"	11'- 9"
10	10	24 3/4"	24 3/4"	9 3/4"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	6	9"	40'- 0"	6	9"	43'- 3"	3	9"	3'- 7 3/4"	7'- 1"	5	9"	3'- 7 3/4"	7'- 6 3/4"	10'-11"	5	6"	13'- 9"	4	9"	13'- 9"
10	12	24 3/4"	24 3/4"	11"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	6	9"	40'- 0"	6	9"	43'- 6"	3	9"	3'- 9"	7'- 4"	6	9"	3'- 9"	8'- 6 3/4"	11'-11"	7	9 1/2"	15'- 9"	4	9"	15'- 9"
12	6	29 1/2"	29 1/2"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	7	9"	47'- 2"	7	9"	51'- 0"	--	---	----	----	4	9"	3'-10 3/4"	5'-11 1/2"	9'- 7"	4	7"	10'- 7"	4	7 1/2"	10'- 7"
12	8	29 1/2"	29 1/2"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	7	9"	47'- 2"	7	9"	51'- 0"	3	9"	3'-10 3/4"	7'- 7"	4	9"	3'-10 3/4"	6'-11 1/2"	10'- 7"	5	6 1/2"	12'- 7"	4	7 1/2"	12'- 7"
12	10	29 1/2"	29 1/2"	9 3/4"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	7	9"	47'- 2"	7	9"	51'- 3"	--	---	----	----	6	9"	4'- 1/2"	7'-11 1/2"	11'- 7"	6	8"	14'- 7"	4	7 1/2"	14'- 7"
12	12	29 3/4"	29 3/4"	11 1/4"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	7	8"	47'- 2"	7	8"	51'- 6"	3	8"	4'- 2"	8'- 2"	6	8"	4'- 2"	8'-11 3/4"	12'- 9"	8	12"	16'- 8"	4	7 1/2"	16'- 8"

Sheet 1 of 2

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

QUADRUPLE BOX CULVERTS

45 TO 50 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

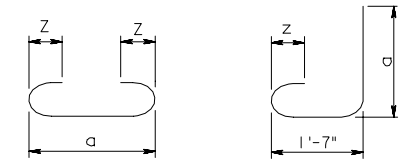
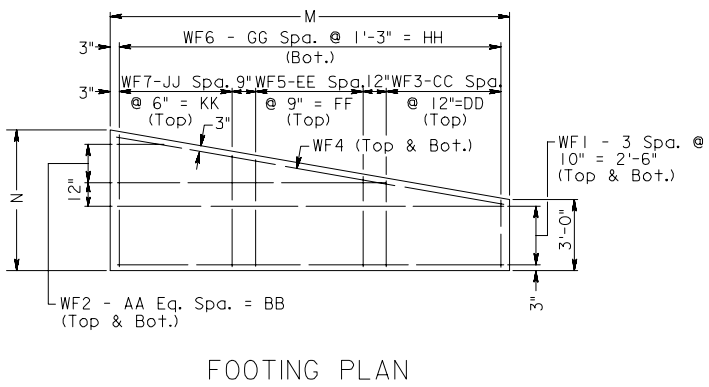
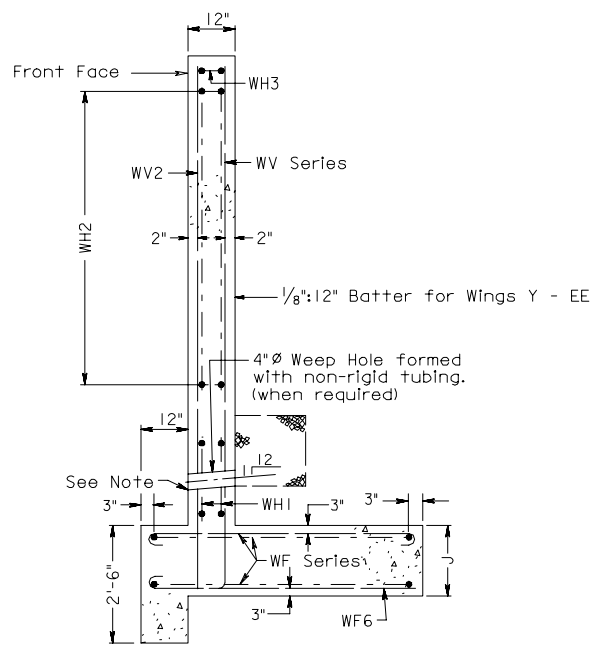
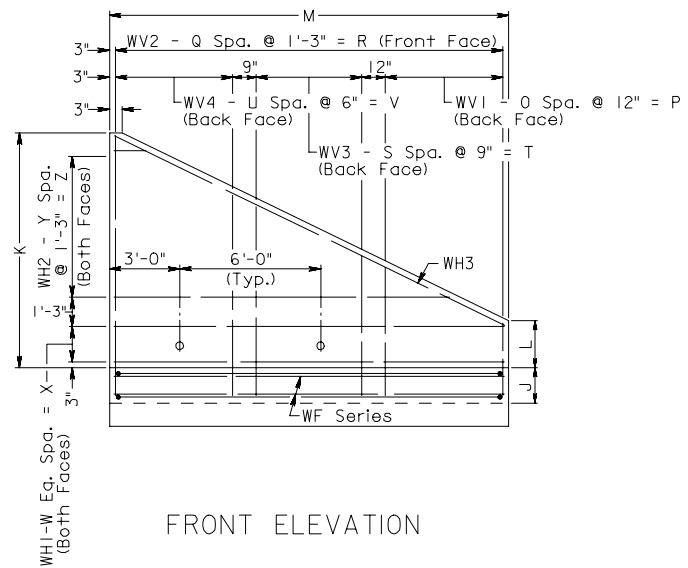
STRUCTURE
AND
BRIDGE
DIVISION

I005.24

SPAN		HIGHT		REINFORCING STEEL											QUAN./LF		HEADWALLS								WINGWALL	
(FT.)	(FT.)	SIZE	SPACING C-C	a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS./LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS./LF)	HEADWALL LENGTH	SIZE	HW I LENGTH	NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)		OUTLET REINFORCING STEEL (LBS)
3	3	4	12"	2'- 8 3/8"	0'- 5 1/2"	1'- 5 5/8"	0'- 7 1/4"	0'- 4 3/4"	14'- 11 7/8"	1'- 4 7/8"	16'- 0"	60	20	57.160	1.378	143.347	16'- 10"	6	16'- 6"	3	12	2.194	137.876	2.163	99.132	A
3	4	4	12"	2'- 8 3/8"	0'- 5 1/2"	1'- 5 5/8"	0'- 7 1/4"	0'- 4 3/4"	14'- 11 7/8"	1'- 4 7/8"	16'- 0"	60	30	60.690	1.501	153.787	16'- 10"	6	16'- 6"	3	15	2.305	148.230	2.256	99.132	C
4	3	4	12"	3'- 5"	0'- 7 1/2"	1'- 8 1/2"	0'- 10 1/8"	0'- 6 3/4"	19'- 0"	1'- 10"	20'- 5"	76	20	70.520	1.837	172.739	20'- 10"	6	20'- 6"	3	12	2.525	161.908	2.507	123.164	B
4	4	4	12"	3'- 4 7/8"	0'- 7 3/4"	1'- 8 1/4"	0'- 10 1/2"	0'- 7"	19'- 0"	1'- 9 3/4"	20'- 6"	76	30	74.050	1.989	183.513	20'- 10"	6	20'- 6"	3	15	2.626	172.262	2.590	123.164	D
4	5	4	12"	3'- 5"	0'- 7 1/2"	1'- 8 1/2"	0'- 10 1/8"	0'- 6 3/4"	19'- 0"	1'- 10"	20'- 5"	76	40	77.580	2.082	193.619	20'- 10"	6	20'- 6"	3	18	2.747	182.616	2.693	123.164	F
4	6	4	12"	3'- 4 7/8"	0'- 7 3/4"	1'- 8 1/4"	0'- 10 1/2"	0'- 7"	19'- 0"	1'- 9 3/4"	20'- 6"	76	50	81.110	2.233	219.311	20'- 10"	6	20'- 6"	3	21	2.849	192.970	2.775	123.164	H
5	3	4	10"	4'- 1 1/2"	0'- 9 3/4"	1'- 11"	1'- 1 1/4"	0'- 9"	23'- 0"	2'- 3"	24'- 10"	92	20	83.880	2.429	223.863	24'- 10"	6	24'- 6"	3	12	2.774	185.940	2.770	147.196	B
5	4	4	9"	4'- 1 1/2"	0'- 9 3/4"	1'- 11"	1'- 1 1/4"	0'- 9"	23'- 0"	2'- 3"	24'- 10"	92	30	87.410	2.550	249.088	24'- 10"	6	24'- 6"	3	15	2.886	196.294	2.863	147.196	D
5	5	4	9"	4'- 1 1/2"	0'- 9 3/4"	1'- 11"	1'- 1 1/4"	0'- 9"	23'- 0"	2'- 3"	24'- 10"	92	40	90.940	2.673	259.973	24'- 10"	6	24'- 6"	3	18	2.997	206.648	2.955	147.196	F
5	6	4	10"	4'- 1 1/2"	0'- 9 3/4"	1'- 11"	1'- 1 1/4"	0'- 9"	23'- 0"	2'- 3"	24'- 10"	92	50	94.470	2.796	266.801	24'- 10"	6	24'- 6"	3	21	3.108	217.002	3.048	147.196	H
5	7	4	10"	4'- 1 1/2"	0'- 9 3/4"	1'- 11"	1'- 1 1/4"	0'- 9"	23'- 0"	2'- 3"	24'- 10"	92	60	98.000	2.917	288.732	24'- 10"	6	24'- 6"	3	24	3.220	227.356	3.141	147.196	J
6	4	4	9"	4'- 9 7/8"	1'- 1/4"	2'- 1 1/4"	1'- 4 3/4"	0'- 11 1/2"	27'- 0"	2'- 7 3/4"	29'- 4"	108	30	100.770	3.294	314.289	28'- 10"	6	28'- 6"	3	15	3.082	220.326	3.072	171.228	E
6	5	4	9"	4'- 9 7/8"	1'- 1/4"	2'- 1 1/4"	1'- 4 3/4"	0'- 11 1/2"	27'- 0"	2'- 7 3/4"	29'- 4"	108	40	104.300	3.417	325.539	28'- 10"	6	28'- 6"	3	18	3.193	230.680	3.165	171.228	G
6	6	4	9"	4'- 9 7/8"	1'- 1/4"	2'- 1 1/4"	1'- 4 3/4"	0'- 11 1/2"	27'- 0"	2'- 7 3/4"	29'- 4"	108	50	107.830	3.539	339.689	28'- 10"	6	28'- 6"	3	21	3.305	241.034	3.258	171.228	I
6	7	4	9"	4'- 9 3/4"	1'- 1/2"	2'- 1"	1'- 5 1/8"	0'- 11 3/4"	27'- 0"	2'- 7 1/2"	29'- 5"	108	60	111.360	3.703	369.574	28'- 10"	6	28'- 6"	3	24	3.400	251.388	3.334	171.228	K
6	8	4	9"	4'- 10"	1'- 0"	2'- 1 1/2"	1'- 4 1/2"	0'- 11 1/4"	27'- 0"	2'- 8"	29'- 4"	108	70	114.890	3.740	394.496	28'- 10"	6	28'- 6"	3	27	3.544	261.742	3.460	171.228	M
7	4	4	8"	5'- 6 3/8"	1'- 2 1/2"	2'- 3 7/8"	1'- 8"	1'- 1 3/4"	31'- 1 1/8"	3'- 5 1/8"	33'- 10"	124	30	114.130	4.110	417.866	32'- 10"	6	32'- 6"	3	15	3.217	244.358	3.221	195.260	E
7	6	4	8"	5'- 6 1/2"	1'- 2 1/4"	2'- 4 1/8"	1'- 7 5/8"	1'- 1 1/2"	31'- 1 1/8"	3'- 7/8"	33'- 10"	124	50	121.190	4.307	443.857	32'- 10"	6	32'- 6"	3	21	3.459	265.066	3.426	195.260	I
7	8	5	9"	5'- 6 1/2"	1'- 2 3/8"	2'- 4 1/8"	1'- 7 3/4"	1'- 1 1/2"	31'- 1 1/8"	3'- 7/8"	33'- 9"	124	70	128.250	4.549	504.336	32'- 10"	6	32'- 6"	3	27	3.682	285.774	3.611	195.260	M
7	10	5	9"	5'- 8 1/8"	1'- 2 5/8"	2'- 3 7/8"	1'- 8 1/8"	1'- 1 3/4"	31'- 3 5/8"	3'- 5 1/8"	34'- 2"	124	90	135.310	4.980	566.414	32'- 10"	6	32'- 6"	3	33	3.746	306.482	3.637	195.260	Q
8	4	5	9"	6'- 2 5/8"	1'- 5 1/8"	2'- 6 1/8"	1'- 11 5/8"	1'- 4 1/4"	34'- 11 1/8"	3'- 5 3/8"	38'- 4"	140	30	127.490	5.093	509.040	36'- 10"	6	36'- 6"	3	15	3.275	268.390	3.292	219.292	E
8	6	5	9"	6'- 2 5/8"	1'- 5 1/8"	2'- 6 1/8"	1'- 11 5/8"	1'- 4 1/4"	34'- 11 1/8"	3'- 5 3/8"	38'- 4"	140	50	134.550	5.338	536.459	36'- 10"	6	36'- 6"	3	21	3.498	289.098	3.477	219.292	I
8	8	5	9"	6'- 2 3/4"	1'- 4 7/8"	2'- 6 3/8"	1'- 11 1/4"	1'- 4"	34'- 11 7/8"	3'- 5 5/8"	38'- 3"	140	70	141.610	5.526	597.240	36'- 10"	6	36'- 6"	3	27	3.743	309.806	3.685	219.292	M
8	10	5	9"	6'- 4 1/2"	1'- 4 7/8"	2'- 6 3/8"	1'- 11 1/4"	1'- 4"	35'- 3 3/8"	3'- 5 5/8"	38'- 7"	140	90	148.670	5.913	658.924	36'- 10"	6	36'- 6"	3	33	3.822	330.514	3.726	219.292	Q
9	4	6	9"	6'- 11"	1'- 7 3/4"	2'- 8 1/2"	2'- 3 1/4"	1'- 6 3/4"	39'- 0"	3'- 10"	42'- 10"	156	30	140.850	6.195	661.634	40'- 10"	6	40'- 6"	3	15	3.289	292.422	3.319	243.324	F
9	6	6	9"	6'- 11"	1'- 7 3/4"	2'- 8 1/2"	2'- 3 1/4"	1'- 6 3/4"	39'- 0"	3'- 10"	42'- 10"	156	50	147.910	6.440	691.354	40'- 10"	6	40'- 6"	3	21	3.512	313.130	3.505	243.324	J
9	8	6	9"	6'- 11 1/8"	1'- 7 1/2"	2'- 8 3/4"	2'- 2 7/8"	1'- 6 1/2"	39'- 0"	3'- 10 1/4"	42'- 9"	156	70	154.970	6.621	749.436	40'- 10"	6	40'- 6"	3	27	3.760	333.838	3.716	243.324	N
9	10	6	9"	7'- 7/8"	1'- 7 1/2"	2'- 8 3/4"	2'- 2 7/8"	1'- 6 1/2"	39'- 3/2"	3'- 10 1/4"	43'- 1"	156	90	162.030	7.012	818.377	40'- 10"	6	40'- 6"	3	33	3.835	354.546	3.752	243.324	R
9	12	6	9"	7'- 2 1/4"	1'- 7 1/4"	2'- 9"	2'- 2 1/2"	1'- 6 1/4"	39'- 6"	3'- 10 1/2"	43'- 2"	156	110	169.090	7.334	915.311	40'- 10"	6	40'- 6"	3	39	3.941	375.254	3.820	243.324	V
10	4	6	9"	7'- 7 5/8"	1'- 9 3/4"	2'- 11 1/4"	2'- 6"	1'- 8 3/4"	43'- 0"	4'- 3 1/4"	47'- 2"	172	30	154.210	7.288	785.584	44'- 10"	6	44'- 6"	3	15	3.280	316.454	3.324	267.356	F
10	6	6	9"	7'- 7 3/4"	1'- 9 1/2"	2'- 11 1/2"	2'- 5 3/4"	1'- 8 1/2"	43'- 0"	4'- 3 1/2"	47'- 2"	172	50	161.270	7.470	758.170	44'- 10"	6	44'- 6"	3	21	3.532	337.162	3.538	267.356	J
10	8	6	9"	7'- 7 3/4"	1'- 9 1/2"	2'- 11 1/2"	2'- 5 3/4"	1'- 8 1/2"	43'- 0"	4'- 3 1/2"	47'- 2"	172	70	168.330	7.713	815.966	44'- 10"	6	44'- 6"	3	27	3.754	357.870	3.723	267.356	N
10	10	6	9"	7'- 9 1/2"	1'- 9 1/2"	2'- 11 1/2"	2'- 5 3/4"	1'- 8 1/2"	43'- 3/2"	4'- 3 1/2"	47'- 6"	172	90	175.390	8.108	878.209	44'- 10"	6	44'- 6"	3	33	3.826	378.578	3.756	267.356	R
10	12	6	9"	7'- 10 3/4"	1'- 9 1/2"	2'- 11 1/2"	2'- 5 3/4"	1'- 8 1/2"	43'- 6"	4'- 3 1/2"	47'- 8"	172	110	182.450	8.495	957.286	44'- 10"	6	44'- 6"	3	39	3.903	399.286	3.796	267.356	V
12	6	7	9"	9'- 5 5/8"	2'- 2 3/8"	3'- 4 1/2"	3'- 3 5/8"	2'- 1 1/8"	51'- 0"	5'- 1 1/4"	56'- 2"	204	50	187.990	10.170	1,122.541	52'- 10"	6	52'- 6"	3	21	3.286	385.226	3.319	315.420	K
12	8	7	9"	9'- 5 5/8"	2'- 2 3/8"	3'- 4 1/2"	3'- 3 5/8"	2'- 1 1/8"	51'- 0"	5'- 1 1/4"	56'- 2"	204	70	195.050	10.412	1,185.877	52'- 10"	6	52'- 6"	3	27	3.509	405.934	3.504	315.420	O
12	10	7	9"	9'- 2 3/8"	2'- 2 3/8"	3'- 4 1/2"	3'- 3 5/8"	2'- 1 1/8"	51'- 3 1/2"	5'- 1 1/4"	56'- 5"	204	90	202.110	10.814	1,266.080	52'- 10"	6	52'- 6"	3	33	3.572	426.642	3.529	315.420	S
12	12	6	8"	9'- 3 3/4"	2'- 2 1/2"	3'- 4 1/8"	3'- 3 1/4"	2'- 1 1/2"	51'- 6 5/8"	5'- 7/8"	56'- 9"	204	110	209.170	11.312	1,367.579	52'- 10"	6	52'- 6"	3	39	3.582	447.350	3.500	315.420	W

STRUCTURE AND BRIDGE DIVISION

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



WF3, WF5, WF7 WV1, WV3, WV4

TABLE B		
Bar Size	Pin Dia.	Z
#3	2 1/4"	4"
#4	3"	4 1/2"
#5	3 3/4"	5"
#6	4 1/2"	6"
#7	5 1/4"	7"
#8	6"	8"
#9	9"	10 1/8"

TABLE C	
Bar Size	Splice Length
#4	1'-4"
#5	1'-8"
#6	1'-11"
#7	2'-4"
#8	3'-1"
#9	3'-11"

GENERAL NOTE

Specifications:

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

All concrete shall be Class A4.

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

Dimensions on bar diagrams are out-to-out of bars. Bars are straight unless otherwise shown.

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

At the Contractor's option, WV Series bars may be spliced at the top of footing in order to facilitate construction. Splice lengths shall be in accordance with TABLE C. No additional compensation shall be provided for the increase in reinforcing steel quantity due to the splices.

When concrete protective coating is required, all steel shall be epoxy-coated.

Bearing capacity of foundations shall be 1.5 Tons/Sq. Ft. minimum for wings A - X and 2 Tons/Sq. Ft. minimum for wings Y - EE.

Weepholes shall be placed at lowest point feasible for free drainage away from wing.

Four Type I Wings are to be used for straight crossings and skews up to 20°. Two Type I & two Type II Wings are to be used for skews from 25° to 45°. For skews above 45°, special design wings are required. The wingwall to be used for each culvert is shown on the BC series sheets.

The designs shown are applicable for a 45° skew with the roadway and other conditions indicated. Any change in these conditions invalidates these designs.

Quantities shown are for one wing.

WING	Quantity (One Wing)	
	Concrete Cu. Yd.	Reinforcing Steel Lbs.
A	1.692	102.747
B	2.086	134.045
C	2.498	158.678
D	2.627	171.704
E	3.187	202.147
F	3.669	225.269
G	4.084	256.122
H	4.630	287.351
I	5.395	345.119
J	6.163	386.348
K	7.093	447.595
L	7.394	485.032
M	8.090	549.490
N	8.735	601.075
O	9.496	662.513
P	10.480	972.915
Q	10.995	1009.521
R	12.071	1141.937
S	12.962	1028.293
T	16.931	1149.082
U	17.605	1533.982
V	19.070	1841.681
W	20.946	2596.967
X	22.546	2009.473
Y	24.453	1968.517
Z	26.215	2385.838
AA	27.508	3913.960
BB	28.542	2710.731
CC	29.932	3799.925
DD	36.104	4040.276
EE	37.813	4568.249

WING	DIMENSIONS					BAR SPACINGS																				NO. WEEP HOLES		
	J	K	L	M	N	WV1		WV2		WV3		WV4		WH1		WH2		WF2		WF3		WF5		WF6			WF7	
						O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	GG	HH		JJ	KK
A	1'- 6"	4'- 0"	1'- 9"	5'- 0"	4'- 0"	4	4'- 0"	3	3'- 9"	--	----	--	----	1	1'- 3"	--	----	--	----	4	4'- 0"	--	----	3	3'- 9"	--	----	--
B	1'- 6"	4'- 6"	1'- 9"	6'- 0"	4'- 0"	5	5'- 0"	4	5'- 0"	--	----	--	----	1	0'- 6"	1	1'- 3"	--	----	5	5'- 0"	--	----	4	5'- 0"	--	----	--
C	1'- 6"	5'- 0"	1'- 9"	7'- 0"	4'- 0"	6	6'- 0"	5	6'- 3"	--	----	--	----	1	1'- 0"	1	1'- 3"	--	----	6	6'- 0"	--	----	5	6'- 3"	--	----	--
D	1'- 6"	5'- 6"	2'- 3"	7'- 0"	4'- 0"	6	6'- 0"	5	6'- 3"	--	----	--	----	2	1'- 6"	1	1'- 3"	--	----	6	6'- 0"	--	----	5	6'- 3"	--	----	--
E	1'- 6"	6'- 0"	2'- 3"	8'- 0"	4'- 6"	7	7'- 0"	6	7'- 6"	--	----	--	----	1	0'- 9"	2	2'- 6"	--	----	7	7'- 0"	--	----	6	7'- 6"	--	----	--
F	1'- 6"	6'- 6"	2'- 3"	9'- 0"	4'- 6"	8	8'- 0"	6	7'- 6"	--	----	--	----	1	1'- 3"	2	2'- 6"	--	----	8	8'- 0"	--	----	6	7'- 6"	--	----	--
G	1'- 6"	7'- 0"	2'- 9"	9'- 0"	5'- 6"	8	8'- 0"	6	7'- 6"	--	----	--	----	2	1'- 9"	2	2'- 6"	1	0'- 9"	8	8'- 0"	--	----	6	7'- 6"	--	----	--
H	1'- 6"	7'- 6"	2'- 9"	10'- 0"	5'- 6"	9	9'- 0"	7	8'- 9"	--	----	--	----	2	2'- 3"	2	2'- 6"	1	0'- 9"	9	9'- 0"	--	----	7	8'- 9"	--	----	--
I	1'- 6"	8'- 0"	3'- 0"	11'- 0"	6'- 0"	10	10'- 0"	8	10'- 0"	--	----	--	----	2	1'- 6"	3	3'- 9"	2	1'- 3"	10	10'- 0"	--	----	8	10'- 0"	--	----	--
J	1'- 6"	8'- 6"	3'- 0"	12'- 0"	6'- 6"	11	11'- 0"	9	11'- 3"	--	----	--	----	2	2'- 0"	3	3'- 9"	2	1'- 9"	7	7'- 0"	4	3'- 0"	9	11'- 3"	--	----	--
K	1'- 6"	9'- 0"	3'- 6"	13'- 0"	7'- 0"	8	8'- 0"	10	12'- 6"	4	3'- 0"	--	----	2	2'- 6"	3	3'- 9"	3	2'- 3"	8	8'- 0"	4	3'- 0"	10	12'- 6"	--	----	--
L	1'- 6"	9'- 6"	3'- 6"	13'- 0"	7'- 6"	8	8'- 0"	10	12'- 6"	4	3'- 0"	--	----	3	3'- 0"	3	3'- 9"	3	2'- 9"	8	8'- 0"	4	3'- 0"	10	12'- 6"	--	----	--
M	1'- 6"	10'- 0"	3'- 6"	14'- 0"	7'- 6"	9	9'- 0"	10	12'- 6"	4	3'- 0"	--	----	2	2'- 3"	4	5'- 0"	3	2'- 9"	8	8'- 0"	6	4'- 6"	10	12'- 6"	--	----	--
N	1'- 6"	10'- 6"	4'- 0"	14'- 0"	8'- 6"	9	9'- 0"	10	12'- 6"	4	3'- 0"	--	----	3	2'- 9"	4	5'- 0"	4	3'- 9"	7	7'- 0"	7	5'- 3"	10	12'- 6"	--	----	--
O	1'- 6"	11'- 0"	4'- 0"	15'- 0"	8'- 6"	9	9'- 0"	11	13'- 9"	6	4'- 6"	--	----	3	3'- 3"	4	5'- 0"	4	3'- 9"	7	7'- 0"	8	6'- 0"	11	13'- 9"	--	----	--
P	1'- 6"	11'- 6"	4'- 0"	16'- 0"	9'- 0"	9	9'- 0"	12	15'- 0"	7	5'- 3"	--	----	2	2'- 6"	5	6'- 3"	5	4'- 3"	7	7'- 0"	10	7'- 6"	12	15'- 0"	--	----	--
Q	1'- 6"	12'- 0"	4'- 6"	16'- 0"	9'- 6"	8	8'- 0"	12	15'- 0"	8	6'- 0"	--	----	3	3'- 0"	5	6'- 3"	5	4'- 9"	6	6'- 0"	6	4'- 6"	12	15'- 0"	6	3'- 0"	--
R	1'- 6"	12'- 6"	4'- 6"	17'- 0"	10'- 0"	6	6'- 0"	13	16'- 3"	6	4'- 6"	8	4'- 0"	3	3'- 6"	5	6'- 3"	6	5'- 3"	6	6'- 0"	6	4'- 6"	13	16'- 3"	8	4'- 0"	--
S	1'- 6"	13'- 0"	4'- 6"	18'- 0"	10'- 0"	7	7'- 0"	14	17'- 6"	6	4'- 6"	8	4'- 0"	4	4'- 0"	5	6'- 3"	6	5'- 3"	6	6'- 0"	7	5'- 3"	14	17'- 6"	8	4'- 0"	--
T	2'- 0"	13'- 6"	4'- 9"	19'- 0"	11'- 6"	8	8'- 0"	14	17'- 6"	6	4'- 6"	8	4'- 0"	3	3'- 3"	6	7'- 6"	7	6'- 9"	7	7'- 0"	6	4'- 6"	14	17'- 6"	10	5'- 0"	--
U	2'- 0"	14'- 0"	5'- 3"	19'- 0"	12'- 0"	6	6'- 0"	14	17'- 6"	7	5'- 3"	10	5'- 0"	3	3'- 9"	6	7'- 6"	8	7'- 3"	6	6'- 0"	6	4'- 6"	14	17'- 6"	12	6'- 0"	--
V	2'- 0"	14'- 6"	5'- 3"	20'- 0"	12'- 6"	6	6'- 0"	15	18'- 9"	7	5'- 3"	12	6'- 0"	4	4'- 3"	6	7'- 6"	8	7'- 9"	7	7'- 0"	6	4'- 6"	15	18'- 9"	12	6'- 0"	1
W	2'- 0"	15'- 0"	5'- 3"	21'- 0"	13'- 6"	7	7'- 0"	16	20'- 0"	7	5'- 3"	12	6'- 0"	4	4'- 9"	6	7'- 6"	9	8'- 9"	8	8'- 0"	6	4'- 6"	16	20'- 0"	12	6'- 0"	1
X	2'- 0"	15'- 6"	5'- 9"	21'- 0"	15'- 0"	7	7'- 0"	16	20'- 0"	7	5'- 3"	12	6'- 0"	5	5'- 3"	6	7'- 6"	11	10'- 3"	8	8'- 0"	6	4'- 6"	16	20'- 0"	12	6'- 0"	1
Y	2'- 0"	16'- 0"	5'- 9"	22'- 0"	15'- 0"	8	8'- 0"	17	21'- 3"	7	5'- 3"	12	6'- 0"	4	4'- 6"	7	8'- 9"	11	10'- 3"	8	8'- 0"	7	5'- 3"	17	21'- 3"	12	6'- 0"	1
Z	2'- 0"	16'- 6"	5'- 9"	23'- 0"	15'- 6"	9	9'- 0"	18	22'- 6"	7	5'- 3"	12	6'- 0"	4	5'- 0"	7	8'- 9"	11	10'- 9"	8	8'- 0"	9	6'- 9"	18	22'- 6"	12	6'- 0"	1
AA	2'- 0"	17'- 0"	5'- 9"	24'- 0"	15'- 6"	8	8'- 0"	18	22'- 6"	10	7'- 6"	12	6'- 0"	4	4'- 3"	8	10'- 0"	11	10'- 9"	9	9'- 0"	9	6'- 9"	18	22'- 6"	12	6'- 0"	1
BB	2'- 0"	17'- 6"	6'- 3"	24'- 0"	16'- 0"	8	8'- 0"	18	22'- 6"	10	7'- 6"	12	6'- 0"	4	4'- 9"	8	10'- 0"	12	11'- 3"	8	8'- 0"	10	7'- 6"	18	22'- 6"	12	6'- 0"	1
CC	2'- 0"	18'- 0"	6'- 3"	25'- 0"	16'- 0"	8	8'- 0"	19	23'- 9"	11	8'- 3"	12	6'- 0"	5	5'- 3"	8	10'- 0"	12	11'- 3"	8	8'- 0"	10	7'- 6"	19	23'- 9"	14	7'- 0"	2
DD	2'- 6"	18'- 6"	6'- 3"	26'- 0"	16'- 6"	8	8'- 0"	20	25'- 0"	11	8'- 3"	14	7'- 0"	5	5'- 9"	8	10'- 0"	12	11'- 9"	9	9'- 0"	10	7'- 6"	20	25'- 0"	14	7'- 0"	2
EE	2'- 6"	19'- 0"	6'- 9"	26'- 0"	17'- 6"	7	7'- 0"	20	25'- 0"	11	8'- 3"	16	8'- 0"	5	6'- 3"	8	10'- 0"	13	12'- 9"	8	8'- 0"	10	7'- 6"	20	25'- 0"	16	8'- 0"	2

WING DETAILS
 1 1/2:1 FILL SLOPE - TYPE I
 VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
 AND
 BRIDGE
 DIVISION

WING	WF1		WF2				WF3						WF4			
	SIZE	LENGTH	SIZE	LENGTH			SIZE	a			LENGTH			SIZE	LENGTH	
				From	To	Vary By		#	Ea	From	To	Vary By	From			To
A	4	4'- 6"	--	-----	-----	-----	--	4	3'- 5"	2'- 8"	0'- 2 1/4"	4'- 5"	3'- 8"	0'- 2 1/4"	4	4'- 7"
B	4	5'- 6"	--	-----	-----	-----	--	4	3'- 5"	2'- 7 5/8"	0'- 1 7/8"	4'- 5"	3'- 7 5/8"	0'- 1 7/8"	4	5'- 7"
C	4	6'- 6"	--	-----	-----	-----	--	4	3'- 6"	2'- 7 1/2"	0'- 1 3/4"	4'- 6"	3'- 7 1/2"	0'- 1 3/4"	4	6'- 7"
D	4	6'- 6"	--	-----	-----	-----	--	4	3'- 6"	2'- 7 1/2"	0'- 1 3/4"	4'- 6"	3'- 7 1/2"	0'- 1 3/4"	4	6'- 7"
E	4	7'- 6"	4	2'- 5"	-----	-----	2	4	3'-11"	2'- 7 1/4"	0'- 2 1/4"	4'-11"	3'- 7 1/4"	0'- 2 1/4"	4	7'- 8"
F	4	8'- 6"	4	2'- 9"	-----	-----	2	4	3'-11"	2'- 8"	0'- 1 7/8"	4'-11"	3'- 8"	0'- 1 7/8"	4	8'- 7"
G	4	8'- 6"	4	5'- 1"	2'- 5"	2'- 8"	2	4	4'-11"	2'- 8"	0'- 3 3/8"	5'-11"	3'- 8"	0'- 3 3/8"	4	8'-10"
H	4	9'- 6"	4	5'- 9"	2'- 8 5/8"	3'- 3/8"	2	4	4'-11"	2'- 8"	0'- 3"	5'-11"	3'- 8"	0'- 3"	4	9'-10"
I	4	10'- 6"	4	7'- 1"	2'- 5 1/2"	2'- 3 3/4"	2	4	5'- 5"	2'- 8 1/2"	0'- 3 1/4"	6'- 5"	3'- 8 1/2"	0'- 3 1/4"	4	10'-11"
J	4	11'- 6"	4	8'- 3"	2'- 3 1/4"	2'-11 7/8"	2	4	4'- 9"	2'- 8 1/2"	0'- 3 1/2"	5'- 9"	3'- 8 1/2"	0'- 3 1/2"	4	12'- 0"
K	4	12'- 6"	4	9'- 6"	2'- 1 7/8"	2'- 5 3/8"	2	4	5'- 2"	2'- 9"	0'- 3 5/8"	6'- 2"	3'- 9"	0'- 3 5/8"	4	13'- 1"
L	4	12'- 6"	4	9'-10"	1'-10 3/8"	2'- 7 7/8"	2	4	5'- 6"	2'- 9"	0'- 4 1/8"	6'- 6"	3'- 9"	0'- 4 1/8"	4	13'- 3"
M	4	13'- 6"	4	10'- 7"	2'- 5 5/8"	2'-10 1/8"	2	4	5'- 2"	2'- 7"	0'- 3 7/8"	6'- 2"	3'- 7"	0'- 3 7/8"	4	14'- 2"
N	4	13'- 6"	4	11'- 2"	1'- 7 1/2"	2'- 4 5/8"	2	4	5'- 5"	2'- 7 3/4"	0'- 4 3/4"	6'- 5"	3'- 7 3/4"	0'- 4 3/4"	4	14'- 6"
O	4	14'- 6"	4	12'- 0"	1'- 9"	2'- 6 3/4"	2	4	5'- 4"	2'- 9 3/8"	0'- 4 3/8"	6'- 4"	3'- 9 3/8"	0'- 4 3/8"	4	15'- 5"
P	4	15'- 6"	4	13'- 0"	1'- 8 3/8"	2'- 3 1/8"	2	4	5'- 2"	2'- 6 1/2"	0'- 4 1/2"	6'- 2"	3'- 6 1/2"	0'- 4 1/2"	4	16'- 7"
Q	4	15'- 6"	4	13'- 3"	1'- 6 3/8"	2'- 4 1/8"	2	4	5'- 1"	2'- 8 1/2"	0'- 4 3/4"	6'- 1"	3'- 8 1/2"	0'- 4 3/4"	4	16'- 9"
R	4	16'- 6"	4	14'- 3"	1'- 6"	2'- 1 1/2"	2	4	5'- 2"	2'- 8"	0'- 5"	6'- 2"	3'- 8"	0'- 5"	4	17'-10"
S	4	17'- 6"	4	15'- 2"	1'- 7 1/4"	2'- 3 1/8"	2	4	5'- 1"	2'- 9 1/4"	0'- 4 5/8"	6'- 1"	3'- 9 1/4"	0'- 4 5/8"	4	18'- 9"
T	4	18'- 6"	4	16'- 6"	1'- 4 7/8"	2'- 1 7/8"	2	4	5'-10"	2'- 8 3/8"	0'- 5 3/8"	6'-10"	3'- 8 3/8"	0'- 5 3/8"	4	20'- 3"
U	4	18'- 6"	4	16'- 7"	1'- 3"	1'-11"	2	4	5'- 7"	2'- 8 1/2"	0'- 5 3/4"	6'- 7"	3'- 8 1/2"	0'- 5 3/4"	4	20'- 6"
V	4	19'- 6"	4	17'- 7"	1'- 3"	2'- 1/2"	2	5	6'- 1/4"	2'- 8 7/8"	0'- 5 5/8"	7'- 2"	3'-10 5/8"	0'- 5 5/8"	4	21'- 7"
W	4	20'- 6"	4	18'- 8"	1'- 2 3/4"	1'-11 1/4"	2	5	6'- 8 1/4"	2'- 8 1/4"	0'- 6"	7'-10"	3'-10"	0'- 6"	4	22'-11"
X	4	20'- 6"	4	18'-11"	1'- 1/2"	1'- 7 1/2"	2	5	7'- 4 1/4"	2'- 9 1/4"	0'- 6 7/8"	8'- 6"	3'-11"	0'- 6 7/8"	4	23'- 7"
Y	4	21'- 6"	4	19'-10"	1'- 1/2"	1'- 8 1/2"	2	5	7'- 3 1/4"	2'-10 1/4"	0'- 6 5/8"	8'- 5"	4'- 0"	0'- 6 5/8"	4	24'- 6"
Z	4	22'- 6"	4	20'-10"	1'- 1/8"	1'- 9 5/8"	2	5	6'-11 1/4"	2'- 7 1/4"	0'- 6 1/2"	8'- 1"	3'- 9"	0'- 6 1/2"	4	25'- 7"
AA	4	23'- 6"	4	21'- 9"	1'- 1 1/2"	1'-10 1/2"	2	5	7'- 3 1/4"	2'- 7"	0'- 6 1/4"	8'- 5"	3'- 8 3/4"	0'- 6 1/4"	4	26'- 6"
BB	4	23'- 6"	4	21'-10"	1'- 1"	1'- 8 3/4"	2	5	7'- 1 1/4"	2'- 9 1/4"	0'- 6 1/2"	8'- 3"	3'-11"	0'- 6 1/2"	4	26'- 9"
CC	4	24'- 6"	4	22'- 9"	1'- 1 1/2"	1'- 9 5/8"	2	5	6'-10 1/4"	2'- 8 1/4"	0'- 6 1/4"	8'- 0"	3'-10"	0'- 6 1/4"	4	27'- 7"
DD	4	25'- 6"	4	23'- 9"	1'- 1 1/2"	1'-10 5/8"	2	5	7'- 5 1/4"	2'- 9"	0'- 6 1/4"	8'- 7"	3'-10 3/4"	0'- 6 1/4"	4	28'- 9"
EE	4	25'- 6"	4	23'-11"	1'- 3/8"	1'- 9 1/8"	2	5	7'- 2 1/4"	2'- 9 1/4"	0'- 6 5/8"	8'- 4"	3'-11"	0'- 6 5/8"	4	29'- 2"

WING	SIZE	WF5						WF6						WF7						WH1		WH3	
		a			LENGTH			SIZE	LENGTH			SIZE	a			LENGTH			SIZE	LENGTH	SIZE	LENGTH	
		From	To	Vary By	From	To	Vary By		From	To	Vary By		From	To	Vary By	From	To	Vary By					
A	--	----	----	----	----	----	4	3'- 5"	2'- 8 ³ / ₈ "	0'- 2 ⁷ / ₈ "	--	----	----	----	----	----	4	4'- 6"	4	5'- 0"			
B	--	----	----	----	----	----	4	3'- 5"	2'- 7 ¹ / ₂ "	0'- 2 ³ / ₈ "	--	----	----	----	----	----	4	5'- 6"	4	6'- 1"			
C	--	----	----	----	----	----	4	3'- 6"	2'- 6 ³ / ₄ "	0'- 2 ¹ / ₄ "	--	----	----	----	----	----	4	6'- 6"	4	7'- 3"			
D	--	----	----	----	----	----	4	3'- 6"	2'- 6 ³ / ₄ "	0'- 2 ¹ / ₄ "	--	----	----	----	----	----	4	6'- 6"	4	7'- 3"			
E	--	----	----	----	----	----	4	3'-11"	2'- 8 ¹ / ₂ "	0'- 2 ³ / ₄ "	--	----	----	----	----	----	4	7'- 6"	4	8'- 4"			
F	--	----	----	----	----	----	4	3'-11"	2'- 8 ³ / ₄ "	0'- 2 ³ / ₈ "	--	----	----	----	----	----	4	8'- 6"	4	9'- 5"			
G	--	----	----	----	----	----	4	4'-11"	2'-10 ¹ / ₄ "	0'- 4 ¹ / ₈ "	--	----	----	----	----	----	4	8'- 6"	4	9'- 5"			
H	--	----	----	----	----	----	4	4'-11"	2'- 8 ³ / ₄ "	0'- 3 ³ / ₄ "	--	----	----	----	----	----	4	9'- 6"	4	10'- 7"			
I	--	----	----	----	----	----	4	5'- 5"	2'- 8"	0'- 4 ¹ / ₈ "	--	----	----	----	----	----	4	10'- 6"	4	11'- 7"			
J	4	5'-11"	5'- 1/2"	0'- 2 ⁵ / ₈ "	6'-11"	6'- 1/2"	0'- 2 ⁵ / ₈ "	4	5'-11"	2'- 7 ⁵ / ₈ "	0'- 4 ³ / ₈ "	--	----	----	----	----	4	11'- 6"	4	12'- 8"			
K	4	6'- 5"	5'- 6"	0'- 2 ³ / ₄ "	7'- 5"	6'- 6"	0'- 2 ³ / ₄ "	4	6'- 5"	2'- 6 ³ / ₄ "	0'- 4 ⁵ / ₈ "	--	----	----	----	----	4	12'- 6"	4	13'- 7"			
L	5	6'-11 ¹ / ₄ "	5'-10 ¹ / ₄ "	0'- 3 ¹ / ₄ "	8'- 1"	7'- 0"	0'- 3 ¹ / ₄ "	4	6'-11"	2'- 6 ¹ / ₂ "	0'- 5 ¹ / ₄ "	--	----	----	----	----	4	12'- 6"	4	13'-10"			
M	5	6'-11 ¹ / ₄ "	5'- 5 ¹ / ₄ "	0'- 3"	8'- 1"	6'- 7"	0'- 3"	4	6'-11"	2'-10 ¹ / ₄ "	0'- 4 ⁷ / ₈ "	--	----	----	----	----	4	13'- 6"	4	14'-11"			
N	5	7'-10 ¹ / ₄ "	5'- 9 ³ / ₄ "	0'- 3 ¹ / ₂ "	9'- 0"	6'-11 ¹ / ₂ "	0'- 3 ¹ / ₂ "	4	7'-11"	2'-11"	0'- 6"	--	----	----	----	----	4	13'- 6"	4	14'-11"			
O	5	7'-10 ¹ / ₄ "	5'- 8 ¹ / ₄ "	0'- 3 ¹ / ₄ "	9'- 0"	6'-10"	0'- 3 ¹ / ₄ "	4	7'-11"	2'-10 ¹ / ₂ "	0'- 5 ¹ / ₂ "	--	----	----	----	----	4	14'- 6"	4	16'- 1"			
P	6	8'- 4 ¹ / ₂ "	5'- 6 ³ / ₄ "	0'- 3 ³ / ₈ "	9'- 9"	6'-11 ¹ / ₄ "	0'- 3 ³ / ₈ "	4	8'- 5"	2'- 9 ¹ / ₂ "	0'- 5 ⁵ / ₈ "	--	----	----	----	----	4	15'- 6"	4	17'- 2"			
Q	5	7'- 4 ¹ / ₄ "	5'- 6 ¹ / ₂ "	0'- 3 ⁵ / ₈ "	8'- 6"	6'- 8 ¹ / ₄ "	0'- 3 ⁵ / ₈ "	4	8'-11"	2'- 9 ¹ / ₂ "	0'- 6 ¹ / ₈ "	5	8'-10 ¹ / ₄ "	7'- 8"	0'- 2 ³ / ₈ "	10'- 0"	8'- 9 ³ / ₄ "	0'- 2 ³ / ₈ "	4	15'- 6"	4	17'- 2"	
R	5	7'- 5 ¹ / ₄ "	5'- 6 ³ / ₄ "	0'- 3 ³ / ₄ "	8'- 7"	6'- 8 ¹ / ₂ "	0'- 3 ³ / ₄ "	4	9'- 5"	2'- 7 ³ / ₄ "	0'- 6 ¹ / ₄ "	5	9'- 4 ¹ / ₄ "	7'- 8 ¹ / ₄ "	0'- 2 ¹ / ₂ "	10'- 6"	8'-10"	0'- 2 ¹ / ₂ "	4	16'- 6"	4	18'- 3"	
S	5	7'- 6 ¹ / ₄ "	5'- 5 ³ / ₄ "	0'- 3 ¹ / ₂ "	8'- 8"	6'- 7 ¹ / ₂ "	0'- 3 ¹ / ₂ "	4	9'- 5"	2'- 6 ³ / ₄ "	0'- 5 ⁷ / ₈ "	5	9'- 4 ¹ / ₄ "	7'-10 ¹ / ₄ "	0'- 2 ¹ / ₄ "	10'- 6"	9'- 0"	0'- 2 ¹ / ₄ "	4	17'- 6"	4	19'- 5"	
T	5	8'- 3 ¹ / ₄ "	6'- 3 ¹ / ₄ "	0'- 4"	9'- 5"	7'- 5"	0'- 4"	4	10'-10"	3'- 1 ¹ / ₄ "	0'- 6 ⁵ / ₈ "	5	10'-10 ¹ / ₄ "	8'- 8"	0'- 2 ⁵ / ₈ "	12'- 0"	9'- 9 ³ / ₄ "	0'- 2 ⁵ / ₈ "	4	18'- 6"	4	20'- 5"	
U	5	8'- 2 ¹ / ₄ "	6'- 0"	0'- 4 ³ / ₈ "	9'- 4"	7'- 1 ³ / ₄ "	0'- 4 ³ / ₈ "	4	11'- 4"	3'- 1 ¹ / ₄ "	0'- 7 ¹ / ₈ "	5	11'- 4 ¹ / ₄ "	8'- 5 ³ / ₄ "	0'- 2 ⁷ / ₈ "	12'- 6"	9'- 7 ¹ / ₂ "	0'- 2 ⁷ / ₈ "	4	18'- 6"	4	20'- 5"	
V	6	8'- 7 ¹ / ₂ "	6'- 6"	0'- 4 ¹ / ₄ "	10'- 0"	7'-10 ¹ / ₂ "	0'- 4 ¹ / ₄ "	4	11'-10"	2'-11 ¹ / ₈ "	0'- 7 ¹ / ₈ "	6	11'-10 ¹ / ₂ "	9'- 0"	0'- 2 ⁷ / ₈ "	13'- 3"	10'- 4 ¹ / ₂ "	0'- 2 ⁷ / ₈ "	4	19'- 6"	4	21'- 6"	
W	6	9'- 5 ¹ / ₂ "	7'- 2 ¹ / ₂ "	0'- 4 ¹ / ₂ "	10'-10"	8'- 7"	0'- 4 ¹ / ₂ "	4	12'-10"	2'-10"	0'- 7 ¹ / ₂ "	6	12'-10 ¹ / ₂ "	9'-10 ¹ / ₂ "	0'- 3"	14'- 3"	11'- 3"	0'- 3"	4	20'- 6"	4	22'- 8"	
X	6	10'- 5 ¹ / ₂ "	7'-10 ³ / ₄ "	0'- 5 ¹ / ₈ "	11'-10"	9'- 3 ¹ / ₄ "	0'- 5 ¹ / ₈ "	4	14'- 4"	2'-10"	0'- 8 ⁵ / ₈ "	6	14'- 3 ¹ / ₂ "	10'-11"	0'- 3 ³ / ₈ "	15'- 8"	12'- 3 ¹ / ₂ "	0'- 3 ³ / ₈ "	4	20'- 6"	4	22'- 8"	
Y	6	10'- 7 ¹ / ₂ "	7'- 9 ³ / ₈ "	0'- 4 ⁷ / ₈ "	12'- 0"	9'- 1 ⁷ / ₈ "	0'- 4 ⁷ / ₈ "	4	14'- 4"	2'- 9 ⁷ / ₈ "	0'- 8 ¹ / ₈ "	6	14'- 3 ¹ / ₂ "	11'- 1/2"	0'- 3 ¹ / ₄ "	15'- 8"	12'- 5"	0'- 3 ¹ / ₄ "	4	21'- 6"	4	23'- 9"	
Z	7	11'- 1 ³ / ₄ "	7'- 5 ¹ / ₈ "	0'- 4 ¹ / ₈ "	12'- 9"	9'- 1 ¹ / ₈ "	0'- 4 ¹ / ₈ "	4	14'-10"	2'- 7 ³ / ₄ "	0'- 8 ¹ / ₈ "	7	14'- 9 ³ / ₄ "	11'- 6 ³ / ₄ "	0'- 3 ¹ / ₄ "	16'- 5"	13'- 2"	0'- 3 ¹ / ₄ "	4	22'- 6"	4	24'-11"	
AA	7	11'- 3 ³ / ₄ "	7'-10 ¹ / ₈ "	0'- 4 ⁵ / ₈ "	12'-11"	9'- 5 ³ / ₈ "	0'- 4 ⁵ / ₈ "	4	14'-10"	3'- 1 ¹ / ₄ "	0'- 7 ¹ / ₈ "	7	14'- 9 ³ / ₄ "	11'- 8 ¹ / ₄ "	0'- 3 ¹ / ₈ "	16'- 5"	13'- 3 ¹ / ₂ "	0'- 3 ¹ / ₈ "	4	23'- 6"	4	26'- 0"	
BB	7	11'- 7 ³ / ₄ "	7'- 7"	0'- 4 ¹ / ₈ "	13'- 3"	9'- 2 ¹ / ₄ "	0'- 4 ¹ / ₈ "	4	15'- 4"	3'- 1 ³ / ₄ "	0'- 8 ¹ / ₈ "	7	15'- 3 ³ / ₄ "	12'- 3 ¹ / ₄ "	0'- 3 ¹ / ₄ "	16'-11"	13'- 8"	0'- 3 ¹ / ₄ "	4	23'- 6"	4	26'- 0"	
CC	7	11'- 3 ³ / ₄ "	7'- 4 ¹ / ₄ "	0'- 4 ³ / ₄ "	12'-11"	8'-11 ¹ / ₂ "	0'- 4 ³ / ₄ "	4	15'- 4"	3'- 3 ¹ / ₄ "	0'- 7 ³ / ₄ "	7	15'- 3 ³ / ₄ "	11'- 8"	0'- 3 ¹ / ₈ "	16'-11"	13'- 3 ¹ / ₄ "	0'- 3 ¹ / ₈ "	4	24'- 6"	4	27'- 1"	
DD	7	11'- 9 ³ / ₄ "	7'-11 ¹ / ₂ "	0'- 4 ⁵ / ₈ "	13'- 5"	9'- 6 ³ / ₄ "	0'- 4 ⁵ / ₈ "	4	15'-10"	2'-11"	0'- 7 ³ / ₄ "	7	15'- 9 ³ / ₄ "	12'- 2"	0'- 3 ¹ / ₈ "	17'- 5"	13'- 9 ¹ / ₄ "	0'- 3 ¹ / ₈ "	4	25'- 6"	4	28'- 3"	
EE	7	11'-11 ³ / ₄ "	7'- 8 ¹ / ₂ "	0'- 5 ¹ / ₈ "	13'- 7"	9'- 3 ³ / ₄ "	0'- 5 ¹ / ₈ "	4	16'-10"	2'-10 ¹ / ₂ "	0'- 8 ³ / ₈ "	8	16'-10"	12'- 4"	0'- 3 ³ / ₈ "	18'- 8"	14'- 2"	0'- 3 ³ / ₈ "	4	25'- 6"	4	28'- 3"	

WING DETAILS
 1 1/2:1 FILL SLOPE - TYPE I
 VIRGINIA DEPARTMENT OF TRANSPORTATION

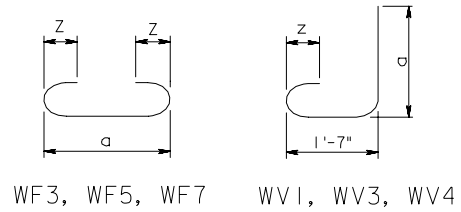
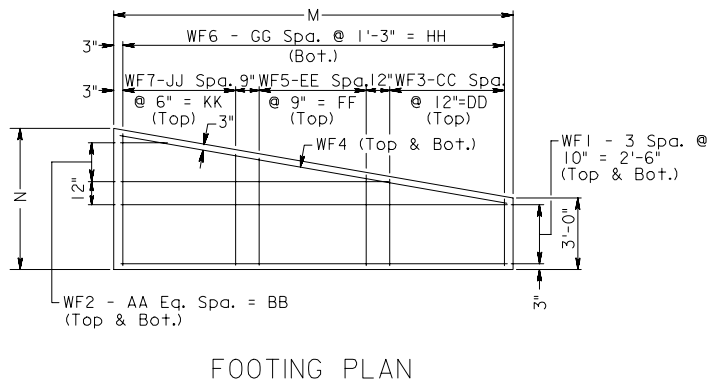
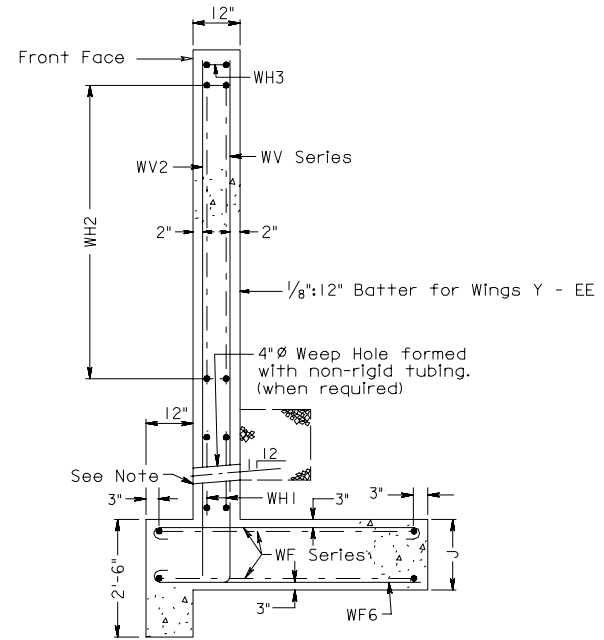
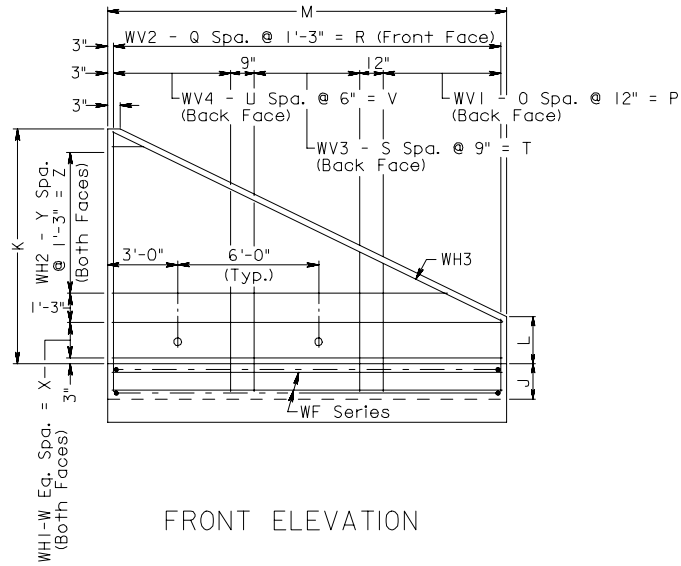
STRUCTURE
 AND
 BRIDGE
 DIVISION

WING	WH2					WV1						WV2					
	SIZE	LENGTH			#	Eq	SIZE	a			LENGTH			SIZE	LENGTH		
		From	To	Vary By				From	To	Vary By	From	To	Vary By		From	To	Vary By
A	4	2'- 1"	-----	-----	2	4	4'-11 1/4"	3'- 1/4"	0'- 5/2"	6'-11"	5'- 1"	0'- 5/2"	4	5'- 0"	3'- 2/4"	0'- 7/4"	
B	4	4'- 8"	2'- 3/8"	2'- 7 5/8"	2	4	5'- 5/4"	3'- 1/8"	0'- 5 5/8"	7'- 5"	5'- 7/8"	0'- 5 5/8"	4	5'- 6"	3'- 1"	0'- 7/4"	
C	4	4'- 7"	2'- 1/4"	2'- 6 3/4"	2	4	5'-11 1/4"	3'- 3/4"	0'- 5 3/4"	7'-11"	5'- 1/2"	0'- 5 3/4"	4	6'- 0"	2'-11 3/4"	0'- 7/4"	
D	4	4'- 7"	2'- 1/4"	2'- 6 3/4"	2	4	6'- 5/4"	3'- 6 3/4"	0'- 5 3/4"	8'- 5"	5'- 6 1/2"	0'- 5 3/4"	4	6'- 6"	3'- 5 3/4"	0'- 7/4"	
E	4	7'- 2"	2'- 0"	2'- 7"	2	4	6'-11 1/4"	3'- 7"	0'- 5 3/4"	8'-11"	5'- 6 3/4"	0'- 5 3/4"	4	7'- 0"	3'- 3 3/4"	0'- 7 3/8"	
F	4	7'- 2"	2'- 0"	2'- 7"	2	4	7'- 5/4"	3'- 7/4"	0'- 5 3/4"	9'- 5"	5'- 7"	0'- 5 3/4"	4	7'- 6"	3'- 9 3/4"	0'- 7 3/8"	
G	4	7'- 2"	2'- 0"	2'- 7"	2	4	7'-11 1/4"	4'- 1/4"	0'- 5 3/4"	9'-11"	6'- 1"	0'- 5 3/4"	4	8'- 0"	4'- 3 3/4"	0'- 7 3/8"	
H	4	7'- 2"	2'- 0"	2'- 7"	2	4	8'- 5/4"	4'- 1 1/2"	0'- 5 3/4"	10'- 5"	6'- 1 1/4"	0'- 5 3/4"	4	8'- 6"	4'- 2 3/8"	0'- 7 3/8"	
I	4	10'- 2"	2'- 1 1/4"	2'- 8 1/4"	2	4	8'-11 1/4"	4'- 4/4"	0'- 5 1/2"	10'-11"	6'- 4"	0'- 5 1/2"	4	9'- 0"	4'- 4"	0'- 7"	
J	4	10'- 1"	2'- 1"	2'- 8"	2	4	9'- 5/4"	4'- 3 3/8"	0'- 5 5/8"	11'- 5"	6'- 3/8"	0'- 5 5/8"	4	9'- 6"	4'- 3"	0'- 7"	
K	4	11'- 0"	2'- 3 3/8"	2'-10 7/8"	2	4	8'- 3/4"	4'- 9/4"	0'- 5 1/4"	10'- 3"	6'- 9"	0'- 5 1/4"	4	10'- 0"	4'- 7"	0'- 6 1/2"	
L	4	10'- 0"	2'- 3/4"	2'- 7 3/4"	2	4	8'- 7/4"	4'-10 1/4"	0'- 5 5/8"	10'- 7"	6'-10"	0'- 5 5/8"	4	10'- 6"	4'- 6 3/4"	0'- 7 1/8"	
M	4	12'- 8"	2'- 1/2"	2'- 7 1/8"	2	4	9'- 1/4"	4'- 9 1/2"	0'- 5 3/4"	11'- 1"	6'- 9/4"	0'- 5 3/4"	4	11'- 0"	5'- 3/4"	0'- 7 1/8"	
N	4	12'- 8"	2'- 1/2"	2'- 7 1/8"	2	4	9'- 7/4"	5'- 3 1/2"	0'- 5 3/4"	11'- 7"	7'- 3 1/4"	0'- 5 3/4"	4	11'- 6"	5'- 6 3/4"	0'- 7 1/8"	
O	4	12'- 7"	2'- 1/2"	2'- 7 5/8"	2	4	9'- 4/4"	5'- 1 5/8"	0'- 5 5/8"	11'- 4"	7'- 1 3/8"	0'- 5 5/8"	4	12'- 0"	5'- 5 5/8"	0'- 7 1/8"	
P	4	15'- 2"	2'- 1/2"	2'- 7 1/2"	2	4	9'- 6 1/4"	5'- 2 1/2"	0'- 5 3/4"	11'- 6"	7'- 2 1/4"	0'- 5 3/4"	4	12'- 6"	5'- 4 1/2"	0'- 7 1/8"	
Q	4	15'- 2"	2'- 1/2"	2'- 7 1/2"	2	4	9'- 7 1/4"	5'-10 1/4"	0'- 5 5/8"	11'- 7"	7'-10"	0'- 5 5/8"	4	13'- 0"	5'-10 1/2"	0'- 7 1/8"	
R	4	15'- 1"	2'- 3/4"	2'- 7 1/4"	2	4	8'- 7/4"	5'- 8 3/4"	0'- 5 3/4"	10'- 7"	7'- 8 1/2"	0'- 5 3/4"	4	13'- 6"	5'- 7 3/4"	0'- 7 1/4"	
S	4	15'- 1"	2'- 1/8"	2'- 7 3/8"	2	4	9'- 1/4"	5'- 8 1/8"	0'- 5 7/8"	11'- 1"	7'- 7 7/8"	0'- 5 7/8"	4	14'- 0"	5'- 6 1/2"	0'- 7 1/4"	
T	4	18'- 2"	2'- 1 1/4"	2'- 8 1/8"	2	4	10'- 2 1/4"	6'- 5 1/4"	0'- 5 5/8"	12'- 2"	8'- 5"	0'- 5 5/8"	4	15'- 0"	6'-10"	0'- 7"	
U	4	18'- 2"	2'- 1 1/4"	2'- 8 1/8"	2	4	9'-10 1/4"	7'- 1/2"	0'- 5 5/8"	11'-10"	9'- 1/4"	0'- 5 5/8"	4	15'- 6"	7'- 4"	0'- 7"	
V	4	18'- 1"	2'- 1"	2'- 8"	2	4	9'-10 1/4"	7'- 1/2"	0'- 5 5/8"	11'-10"	9'- 1/4"	0'- 5 5/8"	4	16'- 0"	7'- 3"	0'- 7"	
W	4	18'- 0"	2'- 3/4"	2'- 7 1/8"	2	5	10'- 4 3/4"	7'- 1/2"	0'- 5 3/4"	12'- 5"	9'- 3/4"	0'- 5 3/4"	4	16'- 6"	7'- 0"	0'- 7 1/8"	
X	4	18'- 0"	2'- 3/4"	2'- 7 1/8"	2	5	10'-10 3/4"	7'- 6 1/2"	0'- 5 3/4"	12'-11"	9'- 6 3/4"	0'- 5 3/4"	4	17'- 0"	7'- 6"	0'- 7 1/8"	
Y	4	20'- 8"	2'- 7/8"	2'- 7 1/8"	2	5	11'- 3 3/4"	7'- 6 3/4"	0'- 5 5/8"	13'- 4"	9'- 7"	0'- 5 5/8"	4	17'- 6"	7'- 4 1/8"	0'- 7 1/8"	
Z	4	20'- 7"	2'- 3/4"	2'- 7 3/4"	2	5	11'- 9 3/4"	7'- 7 1/8"	0'- 5 5/8"	13'-10"	9'- 7 3/8"	0'- 5 5/8"	4	18'- 0"	7'- 3 3/4"	0'- 7 1/8"	
AA	4	23'- 2"	2'- 1"	2'- 7 5/8"	2	5	11'- 2 3/4"	7'- 5 3/4"	0'- 5 5/8"	13'- 3"	9'- 6"	0'- 5 5/8"	4	18'- 6"	7'- 9 3/4"	0'- 7 1/8"	
BB	4	23'- 2"	2'- 1"	2'- 7 5/8"	2	5	11'- 8 3/4"	7'-11 3/4"	0'- 5 5/8"	13'- 9"	10'- 0"	0'- 5 5/8"	4	19'- 0"	8'- 3 3/4"	0'- 7 1/8"	
CC	4	23'- 1"	2'- 1"	2'- 7 1/2"	2	5	11'-10 3/4"	8'- 3/4"	0'- 5 3/4"	13'-11"	10'- 1"	0'- 5 3/4"	4	19'- 6"	8'- 2 5/8"	0'- 7 1/8"	
DD	4	23'- 1"	2'- 0"	2'- 7 5/8"	2	5	12'- 4 3/4"	8'- 6 3/4"	0'- 5 3/4"	14'- 5"	10'- 7"	0'- 5 3/4"	4	20'- 6"	8'- 7 1/2"	0'- 7 1/8"	
EE	4	23'- 1"	2'- 0"	2'- 7 5/8"	2	5	12'- 4 3/4"	9'- 1 3/8"	0'- 5 5/8"	14'- 5"	11'- 1 5/8"	0'- 5 5/8"	4	21'- 0"	9'- 1 1/2"	0'- 7 1/8"	

WING	SIZE	WV3						WV4						
		a			LENGTH			a			LENGTH			
		From	To	Vary By	From	To	Vary By	From	To	Vary By	From	To	Vary By	
A	--	----	----	----	----	----	----	--	----	----	----	----	----	----
B	--	----	----	----	----	----	----	--	----	----	----	----	----	----
C	--	----	----	----	----	----	----	--	----	----	----	----	----	----
D	--	----	----	----	----	----	----	--	----	----	----	----	----	----
E	--	----	----	----	----	----	----	--	----	----	----	----	----	----
F	--	----	----	----	----	----	----	--	----	----	----	----	----	----
G	--	----	----	----	----	----	----	--	----	----	----	----	----	----
H	--	----	----	----	----	----	----	--	----	----	----	----	----	----
I	--	----	----	----	----	----	----	--	----	----	----	----	----	----
J	--	----	----	----	----	----	----	--	----	----	----	----	----	----
K	4	9'-11 1/4"	8'- 8/4"	0'- 3 3/4"	11'-11"	10'- 8"	0'- 3 3/4"	--	----	----	----	----	----	----
L	4	10'- 5/4"	9'- 3/4"	0'- 4/8"	12'- 5"	11'- 1/2"	0'- 4/8"	--	----	----	----	----	----	----
M	5	10'-11 3/4"	9'- 6 3/4"	0'- 4/4"	13'- 0"	11'- 7"	0'- 4/4"	--	----	----	----	----	----	----
N	5	11'- 5 3/4"	10'- 3/4"	0'- 4/4"	13'- 6"	12'- 1"	0'- 4/4"	--	----	----	----	----	----	----
O	5	11'-11 3/4"	9'-10 1/4"	0'- 4/4"	14'- 0"	11'-10 1/2"	0'- 4/4"	--	----	----	----	----	----	----
P	6	12'- 5 5/8"	9'-11 7/8"	0'- 4/4"	14'- 7"	12'- 1 1/4"	0'- 4/4"	--	----	----	----	----	----	----
Q	6	12'-11 5/8"	10'- 1 5/8"	0'- 4/4"	15'- 1"	12'- 3"	0'- 4/4"	--	----	----	----	----	----	----
R	5	11'- 2 3/4"	9'- 1/2"	0'- 4 3/8"	13'- 3"	11'- 3/4"	0'- 4 3/8"	5	13'- 5 3/4"	11'- 6 3/4"	0'- 2 7/8"	15'- 6"	13'- 7"	0'- 2 7/8"
S	5	11'- 8 3/4"	9'- 6 1/2"	0'- 4 3/8"	13'- 9"	11'- 6 3/4"	0'- 4 3/8"	5	13'-11 3/4"	12'- 3/4"	0'- 2 7/8"	16'- 0"	14'- 1"	0'- 2 7/8"
T	5	12'- 8 3/4"	10'- 8"	0'- 4/8"	14'- 9"	12'- 8 1/4"	0'- 4/8"	5	14'-11 3/4"	13'- 3/4"	0'- 2 7/8"	17'- 0"	15'- 1"	0'- 2 7/8"
U	5	12'- 9 3/4"	10'- 4"	0'- 4/4"	14'-10"	12'- 4/4"	0'- 4/4"	6	15'- 5 5/8"	13'- 2/8"	0'- 2 3/4"	17'- 7"	15'- 3 1/2"	0'- 2 3/4"
V	5	12'- 9 3/4"	10'- 4"	0'- 4/4"	14'-10"	12'- 4/4"	0'- 4/4"	6	15'-11 5/8"	13'- 2 5/8"	0'- 2 3/4"	18'- 1"	15'- 4"	0'- 2 3/4"
W	6	13'- 3 5/8"	10'- 9 7/8"	0'- 4/4"	15'- 5"	12'-11 1/4"	0'- 4/4"	6	16'- 5 5/8"	13'- 7/8"	0'- 2 7/8"	18'- 7"	15'- 8 1/2"	0'- 2 7/8"
X	6	13'- 9 5/8"	11'- 3 7/8"	0'- 4/4"	15'-11"	13'- 5/4"	0'- 4/4"	7	16'-11 5/8"	14'- 1/8"	0'- 2 7/8"	19'- 2"	16'- 3 1/2"	0'- 2 7/8"
Y	6	14'- 3 5/8"	11'- 9 7/8"	0'- 4/4"	16'- 5"	13'-11 1/4"	0'- 4/4"	6	17'- 5 5/8"	14'- 7/8"	0'- 2 7/8"	19'- 7"	16'- 8 1/2"	0'- 2 7/8"
Z	6	14'- 9 5/8"	12'- 3 7/8"	0'- 4/4"	16'-11"	14'- 5/4"	0'- 4/4"	7	17'-11 5/8"	15'- 1/8"	0'- 2 7/8"	20'- 2"	17'- 3 1/2"	0'- 2 7/8"
AA	7	15'- 3 5/8"	11'- 9 1/8"	0'- 4/4"	17'- 6"	13'-11 1/2"	0'- 4/4"	7	18'- 5 5/8"	15'- 7/8"	0'- 2 7/8"	20'- 8"	17'- 9 1/2"	0'- 2 7/8"
BB	7	15'- 9 5/8"	12'- 3 1/8"	0'- 4/4"	18'- 0"	14'- 5 1/2"	0'- 4/4"	7	18'-11 5/8"	16'- 1/8"	0'- 2 7/8"	21'- 2"	18'- 3 1/2"	0'- 2 7/8"
CC	7	16'- 3 5/8"	12'- 4 7/8"	0'- 4/4"	18'- 6"	14'- 7 1/4"	0'- 4/4"	7	19'- 5 5/8"	16'- 7/8"	0'- 2 7/8"	21'- 8"	18'- 9 1/2"	0'- 2 7/8"
DD	7	16'- 9 5/8"	12'-10 7/8"	0'- 4/4"	19'- 0"	15'- 1 1/4"	0'- 4/4"	8	20'- 5 1/2"	17'- 1 1/4"	0'- 2 7/8"	22'- 9"	19'- 4 3/4"	0'- 2 7/8"
EE	7	16'- 9 5/8"	12'-10 7/8"	0'- 4/4"	19'- 0"	15'- 1 1/4"	0'- 4/4"	8	20'-11 1/2"	17'- 1 1/2"	0'- 2 7/8"	23'- 3"	19'- 5"	0'- 2 7/8"

WING DETAILS
 1 1/2:1 FILL SLOPE - TYPE I
 VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
 AND
 BRIDGE
 DIVISION



Bar Size	Pin Dia.	Z
#3	2 1/4"	4"
#4	3"	4 1/2"
#5	3 3/4"	5"
#6	4 1/2"	6"
#7	5 1/4"	7"
#8	6"	8"
#9	9"	10 1/8"

Bar Size	Splice Length
#4	1'-4"
#5	1'-8"
#6	1'-11"
#7	2'-4"
#8	3'-1"
#9	3'-11"

GENERAL NOTE

Specifications:

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

All concrete shall be Class A4.

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

Dimensions on bar diagrams are out-to-out of bars. Bars are straight unless otherwise shown.

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

At the Contractor's option, WV Series bars may be spliced at the top of footing in order to facilitate construction. Splice lengths shall be in accordance with TABLE C. No additional compensation shall be provided for the increase in reinforcing steel quantity due to the splices.

When concrete protective coating is required, all steel shall be epoxy-coated.

Bearing capacity of foundations shall be 1.5 Tons/Sq. Ft. minimum for wings A - X and 2 Tons/Sq. Ft. minimum for wings Y - EE.

Weepholes shall be placed at lowest point feasible for free drainage away from wing.

Four Type I Wings are to be used for straight crossings and skews up to 20°. Two Type I & two Type II Wings are to be used for skews from 25° to 45°. For skews above 45°, special design wings are required. The wingwall to be used for each culvert is shown on the BC series sheets.

The designs shown are applicable for a 45° skew with the roadway and other conditions indicated. Any change in these conditions invalidates these designs.

Quantities shown are for one wing.

WING	Quantity (One Wing)	
	Concrete Cu. Yd.	Reinforcing Steel Lbs.
A	2.110	133.183
B	2.504	165.003
C	2.916	188.084
D	3.347	211.979
E	3.796	248.635
F	4.424	276.524
G	4.923	318.386
H	5.836	360.316
I	6.392	388.442
J	7.186	454.546
K	8.026	511.375
L	8.913	572.281
M	9.582	626.003
N	10.546	702.040
O	11.825	879.295
P	12.580	964.846
Q	13.679	1063.138
R	14.810	1350.012
S	17.199	1225.256
T	19.817	1532.432
U	21.317	1745.661
V	22.858	2152.605
W	23.964	1823.343
X	25.975	2817.287
Y	28.546	2310.426
Z	30.359	3017.503
AA	32.262	3328.030
BB	34.212	3818.744
CC	35.571	4104.313
DD	37.575	5249.194
EE	40.334	4171.222

WING	DIMENSIONS					BAR SPACINGS																	NO. WEEP HOLES					
	J	K	L	M	N	WV1		WV2		WV3		WV4		WH1		WH2		WF2		WF3		WF5		WF6		WF7		
						O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE		FF	GG	HH	JJ	KK
A	1'- 6"	4'- 0"	1'- 0"	6'- 6"	4'- 0"	6	6'- 0"	4	5'- 0"	--	----	--	----	--	----	1	1'- 3"	--	----	6	6'- 0"	--	----	4	5'- 0"	--	----	--
B	1'- 6"	4'- 6"	1'- 0"	7'- 6"	4'- 0"	7	7'- 0"	5	6'- 3"	--	----	--	----	1	0'- 6"	1	1'- 3"	--	----	7	7'- 0"	--	----	5	6'- 3"	--	----	--
C	1'- 6"	5'- 0"	1'- 0"	8'- 6"	4'- 0"	8	8'- 0"	6	7'- 6"	--	----	--	----	--	----	2	2'- 6"	--	----	8	8'- 0"	--	----	6	7'- 6"	--	----	--
D	1'- 6"	5'- 6"	1'- 0"	9'- 6"	4'- 0"	9	9'- 0"	7	8'- 9"	--	----	--	----	--	----	2	2'- 6"	--	----	9	9'- 0"	--	----	7	8'- 9"	--	----	--
E	1'- 6"	6'- 0"	1'- 0"	10'- 6"	4'- 0"	10	10'- 0"	8	10'- 0"	--	----	--	----	--	----	3	3'- 9"	--	----	10	10'- 0"	--	----	8	10'- 0"	--	----	--
F	1'- 6"	6'- 6"	1'- 0"	11'- 6"	4'- 6"	11	11'- 0"	8	10'- 0"	--	----	--	----	--	----	3	3'- 9"	--	----	11	11'- 0"	--	----	8	10'- 0"	--	----	--
G	1'- 6"	7'- 0"	1'- 0"	12'- 6"	4'- 6"	12	12'- 0"	9	11'- 3"	--	----	--	----	1	0'- 6"	3	3'- 9"	--	----	12	12'- 0"	--	----	9	11'- 3"	--	----	--
H	1'- 6"	7'- 6"	1'- 0"	14'- 0"	5'- 0"	13	13'- 0"	10	12'- 6"	--	----	--	----	--	----	4	5'- 0"	--	----	13	13'- 0"	--	----	10	12'- 6"	--	----	--
I	1'- 6"	8'- 0"	1'- 0"	15'- 0"	5'- 0"	14	14'- 0"	11	13'- 9"	--	----	--	----	--	----	4	5'- 0"	--	----	14	14'- 0"	--	----	11	13'- 9"	--	----	--
J	1'- 6"	8'- 6"	1'- 0"	16'- 0"	5'- 6"	15	15'- 0"	12	15'- 0"	--	----	--	----	--	----	5	6'- 3"	1	0'- 9"	15	15'- 0"	--	----	12	15'- 0"	--	----	--
K	1'- 6"	9'- 0"	1'- 0"	17'- 0"	6'- 0"	12	12'- 0"	13	16'- 3"	4	3'- 0"	--	----	--	----	5	6'- 3"	2	1'- 3"	12	12'- 0"	4	3'- 0"	13	16'- 3"	--	----	--
L	1'- 6"	9'- 6"	1'- 0"	18'- 0"	6'- 6"	13	13'- 0"	14	17'- 6"	4	3'- 0"	--	----	1	0'- 6"	5	6'- 3"	2	1'- 9"	13	13'- 0"	4	3'- 0"	14	17'- 6"	--	----	--
M	1'- 6"	10'- 0"	1'- 0"	19'- 0"	6'- 6"	14	14'- 0"	14	17'- 6"	4	3'- 0"	--	----	--	----	6	7'- 6"	2	1'- 9"	14	14'- 0"	4	3'- 0"	14	17'- 6"	--	----	--
N	1'- 6"	10'- 6"	1'- 0"	20'- 0"	7'- 0"	15	15'- 0"	15	18'- 9"	4	3'- 0"	--	----	--	----	6	7'- 6"	3	2'- 3"	14	14'- 0"	6	4'- 6"	15	18'- 9"	--	----	1
O	1'- 6"	11'- 0"	1'- 0"	21'- 6"	7'- 6"	15	15'- 0"	16	20'- 0"	6	4'- 6"	--	----	--	----	7	8'- 9"	3	2'- 9"	14	14'- 0"	8	6'- 0"	16	20'- 0"	--	----	1
P	1'- 6"	11'- 6"	1'- 0"	22'- 6"	7'- 6"	15	15'- 0"	17	21'- 3"	8	6'- 0"	--	----	--	----	7	8'- 9"	3	2'- 9"	13	13'- 0"	10	7'- 6"	17	21'- 3"	--	----	1
Q	1'- 6"	12'- 0"	1'- 0"	23'- 6"	8'- 0"	16	16'- 0"	18	22'- 6"	8	6'- 0"	--	----	1	0'- 6"	7	8'- 9"	4	3'- 3"	14	14'- 0"	10	7'- 6"	18	22'- 6"	--	----	1
R	1'- 6"	12'- 6"	1'- 0"	24'- 6"	8'- 6"	15	15'- 0"	19	23'- 9"	10	7'- 6"	--	----	--	----	8	10'- 0"	4	3'- 9"	14	14'- 0"	12	9'- 0"	19	23'- 9"	--	----	1
S	1'- 9"	13'- 0"	1'- 0"	25'- 6"	9'- 0"	16	16'- 0"	20	25'- 0"	5	3'- 9"	7	3'- 6"	--	----	8	10'- 0"	5	4'- 3"	13	13'- 0"	14	10'- 6"	20	25'- 0"	--	----	2
T	2'- 0"	13'- 6"	1'- 0"	26'- 6"	9'- 6"	15	15'- 0"	20	25'- 0"	7	5'- 3"	8	4'- 0"	--	----	9	11'- 3"	5	4'- 9"	15	15'- 0"	7	5'- 3"	20	25'- 0"	8	4'- 0"	2
U	2'- 0"	14'- 0"	1'- 0"	27'- 6"	10'- 0"	16	16'- 0"	21	26'- 3"	7	5'- 3"	8	4'- 0"	--	----	9	11'- 3"	6	5'- 3"	15	15'- 0"	7	5'- 3"	21	26'- 3"	10	5'- 0"	2
V	2'- 0"	14'- 6"	1'- 0"	28'- 6"	10'- 6"	15	15'- 0"	22	27'- 6"	9	6'- 9"	9	4'- 6"	1	0'- 6"	9	11'- 3"	6	5'- 9"	15	15'- 0"	7	5'- 3"	22	27'- 6"	12	6'- 0"	2
W	2'- 0"	15'- 0"	1'- 0"	29'- 6"	10'- 6"	16	16'- 0"	23	28'- 9"	9	6'- 9"	9	4'- 6"	--	----	10	12'- 6"	6	5'- 9"	15	15'- 0"	7	5'- 3"	23	28'- 9"	14	7'- 0"	2
X	2'- 0"	15'- 6"	1'- 0"	31'- 0"	11'- 0"	14	14'- 0"	24	30'- 0"	13	9'- 9"	10	5'- 0"	--	----	10	12'- 6"	7	6'- 3"	13	13'- 0"	11	8'- 3"	24	30'- 0"	15	7'- 6"	3
Y	2'- 0"	16'- 0"	1'- 0"	32'- 0"	11'- 6"	15	15'- 0"	25	31'- 3"	13	9'- 9"	10	5'- 0"	--	----	11	13'- 9"	7	6'- 9"	14	14'- 0"	11	8'- 3"	25	31'- 3"	15	7'- 6"	3
Z	2'- 0"	16'- 6"	1'- 0"	33'- 0"	12'- 0"	15	15'- 0"	26	32'- 6"	13	9'- 9"	12	6'- 0"	--	----	11	13'- 9"	8	7'- 3"	15	15'- 0"	11	8'- 3"	26	32'- 6"	15	7'- 6"	3
AA	2'- 0"	17'- 0"	1'- 0"	34'- 0"	12'- 6"	15	15'- 0"	26	32'- 6"	13	9'- 9"	14	7'- 0"	1	0'- 6"	11	13'- 9"	8	7'- 9"	15	15'- 0"	11	8'- 3"	26	32'- 6"	17	8'- 6"	3
BB	2'- 0"	17'- 6"	1'- 0"	35'- 0"	13'- 0"	15	15'- 0"	27	33'- 9"	13	9'- 9"	16	8'- 0"	--	----	12	15'- 0"	9	8'- 3"	14	14'- 0"	15	11'- 3"	27	33'- 9"	15	7'- 6"	4
CC	2'- 0"	18'- 0"	1'- 0"	36'- 0"	13'- 0"	16	16'- 0"	28	35'- 0"	13	9'- 9"	16	8'- 0"	--	----	12	15'- 0"	9	8'- 3"	15	15'- 0"	15	11'- 3"	28	35'- 0"	15	7'- 6"	4
DD	2'- 0"	18'- 6"	1'- 0"	37'- 0"	13'- 6"	14	14'- 0"	29	36'- 3"	17	12'- 9"	16	8'- 0"	--	----	13	16'- 3"	9	8'- 9"	16	16'- 0"	15	11'- 3"	29	36'- 3"	15	7'- 6"	4
EE	2'- 0"	19'- 0"	1'- 0"	38'- 6"	14'- 0"	15	15'- 0"	30	37'- 6"	17	12'- 9"	17	8'- 6"	--	----	13	16'- 3"	10	9'- 3"	16	16'- 0"	15	11'- 3"	30	37'- 6"	18	9'- 0"	4

WING DETAILS
 1 1/2:1 FILL SLOPE - TYPE II
 VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

WING	WF1		WF2					WF3						WF4		
	SIZE	LENGTH	SIZE	LENGTH				SIZE	a			LENGTH			SIZE	LENGTH
				From	To	Vary By	# Ea		From	To	Vary By	From	To	Vary By		
A	4	6'- 0"	--	-----	-----	-----	--	4	3'- 6"	2'- 6"	0'- 2"	4'- 6"	3'- 6"	0'- 2"	4	6'- 1"
B	4	7'- 0"	--	-----	-----	-----	--	4	3'- 6"	2'- 6 ⁵ / ₈ "	0'- 1 ⁵ / ₈ "	4'- 6"	3'- 6 ⁵ / ₈ "	0'- 1 ⁵ / ₈ "	4	7'- 1"
C	4	8'- 0"	--	-----	-----	-----	--	4	3'- 6"	2'- 6"	0'- 1 ¹ / ₂ "	4'- 6"	3'- 6"	0'- 1 ¹ / ₂ "	4	8'- 1"
D	4	9'- 0"	--	-----	-----	-----	--	4	3'- 6"	2'- 6 ³ / ₄ "	0'- 1 ¹ / ₄ "	4'- 6"	3'- 6 ³ / ₄ "	0'- 1 ¹ / ₄ "	4	9'- 1"
E	4	10'- 0"	--	-----	-----	-----	--	4	3'- 6"	2'- 6 ³ / ₄ "	0'- 1 ¹ / ₈ "	4'- 6"	3'- 6 ³ / ₄ "	0'- 1 ¹ / ₈ "	4	10'- 1"
F	4	11'- 0"	4	3'- 7"	-----	-----	2	4	4'- 0"	2'- 6 ¹ / ₈ "	0'- 1 ⁵ / ₈ "	5'- 0"	3'- 6 ¹ / ₈ "	0'- 1 ⁵ / ₈ "	4	11'- 1"
G	4	12'- 0"	4	3'-11"	-----	-----	2	4	4'- 0"	2'- 6"	0'- 1 ¹ / ₂ "	5'- 0"	3'- 6"	0'- 1 ¹ / ₂ "	4	12'- 1"
H	4	13'- 6"	4	6'- 9"	-----	-----	2	4	4'- 6"	2'- 7 ¹ / ₄ "	0'- 1 ³ / ₄ "	5'- 6"	3'- 7 ¹ / ₄ "	0'- 1 ³ / ₄ "	4	13'- 8"
I	4	14'- 6"	4	7'- 3"	-----	-----	2	4	4'- 6"	2'- 7 ¹ / ₄ "	0'- 1 ⁵ / ₈ "	5'- 6"	3'- 7 ¹ / ₄ "	0'- 1 ⁵ / ₈ "	4	14'- 8"
J	4	15'- 6"	4	9'- 4"	4'- 6 ³ / ₈ "	4'- 9 ⁵ / ₈ "	2	4	4'-11"	2'- 6 ³ / ₈ "	0'- 1 ⁷ / ₈ "	5'-11"	3'- 6 ³ / ₈ "	0'- 1 ⁷ / ₈ "	4	15'- 8"
K	4	16'- 6"	4	11'- 1"	3'-11 ³ / ₄ "	3'- 6 ⁵ / ₈ "	2	4	4'- 9"	2'- 7 ¹ / ₂ "	0'- 2 ¹ / ₈ "	5'- 9"	3'- 7 ¹ / ₂ "	0'- 2 ¹ / ₈ "	4	16'- 9"
L	4	17'- 6"	4	12'- 7"	3'- 7"	4'- 6"	2	4	5'- 2"	2'- 7 ¹ / ₈ "	0'- 2 ³ / ₈ "	6'- 2"	3'- 7 ¹ / ₈ "	0'- 2 ³ / ₈ "	4	17'-10"
M	4	18'- 6"	4	13'- 4"	3'- 9 ¹ / ₂ "	4'- 9 ¹ / ₄ "	2	4	5'- 3"	2'- 7 ¹ / ₂ "	0'- 2 ¹ / ₄ "	6'- 3"	3'- 7 ¹ / ₂ "	0'- 2 ¹ / ₄ "	4	18'-10"
N	4	19'- 6"	4	14'- 9"	3'- 5 ⁵ / ₈ "	3'- 9 ¹ / ₈ "	2	4	5'- 4"	2'- 6 ³ / ₄ "	0'- 2 ³ / ₈ "	6'- 4"	3'- 6 ³ / ₄ "	0'- 2 ³ / ₈ "	4	19'-11"
O	4	21'- 0"	4	16'- 5"	3'- 3 ⁷ / ₈ "	4'- 4 ³ / ₈ "	2	4	5'- 6"	2'- 7"	0'- 2 ¹ / ₂ "	6'- 6"	3'- 7"	0'- 2 ¹ / ₂ "	4	21'- 5"
P	4	22'- 0"	4	17'- 3"	3'- 5 ⁵ / ₈ "	4'- 7 ¹ / ₈ "	2	4	5'- 3"	2'- 8 ¹ / ₈ "	0'- 2 ³ / ₈ "	6'- 3"	3'- 8 ¹ / ₈ "	0'- 2 ³ / ₈ "	4	22'- 5"
Q	4	23'- 0"	4	18'- 6"	3'- 3"	3'- 9 ³ / ₄ "	2	4	5'- 8"	2'- 7 ¹ / ₄ "	0'- 2 ⁵ / ₈ "	6'- 8"	3'- 7 ¹ / ₄ "	0'- 2 ⁵ / ₈ "	4	23'- 6"
R	4	24'- 0"	4	19'- 9"	3'- 1 ¹ / ₂ "	4'- 2 ¹ / ₈ "	2	4	5'- 8"	2'- 7 ¹ / ₄ "	0'- 2 ⁵ / ₈ "	6'- 8"	3'- 7 ¹ / ₄ "	0'- 2 ⁵ / ₈ "	4	24'- 7"
S	4	25'- 0"	4	21'- 0"	2'-11 ¹ / ₈ "	3'- 7 ³ / ₈ "	2	4	5'- 9"	2'- 7 ⁵ / ₈ "	0'- 2 ⁷ / ₈ "	6'- 9"	3'- 7 ⁵ / ₈ "	0'- 2 ⁷ / ₈ "	4	25'- 8"
T	4	26'- 0"	4	22'- 2"	2'- 9 ¹ / ₂ "	3'-10 ¹ / ₂ "	2	4	6'- 3"	2'- 6"	0'- 3"	7'- 3"	3'- 6"	0'- 3"	4	26'- 9"
U	4	27'- 0"	4	23'- 3"	2'- 8 ¹ / ₄ "	3'- 5 ¹ / ₈ "	2	4	6'- 4"	2'- 7"	0'- 3"	7'- 4"	3'- 7"	0'- 3"	4	27'-10"
V	4	28'- 0"	4	24'- 5"	2'- 6 ¹ / ₂ "	3'- 7 ³ / ₄ "	2	4	6'- 6"	2'- 7 ¹ / ₈ "	0'- 3 ¹ / ₈ "	7'- 6"	3'- 7 ¹ / ₈ "	0'- 3 ¹ / ₈ "	4	28'-11"
W	4	29'- 0"	4	25'- 3"	2'- 8 ¹ / ₄ "	3'- 9 ¹ / ₈ "	2	4	6'- 4"	2'- 7"	0'- 3"	7'- 4"	3'- 7"	0'- 3"	4	29'-11"
X	4	30'- 6"	4	26'-10"	2'- 7 ¹ / ₂ "	3'- 5 ¹ / ₂ "	2	4	5'-11"	2'- 6 ³ / ₈ "	0'- 3 ¹ / ₈ "	6'-11"	3'- 6 ³ / ₈ "	0'- 3 ¹ / ₈ "	4	31'- 6"
Y	4	31'- 6"	4	27'-11"	2'- 6 ¹ / ₂ "	3'- 7 ¹ / ₂ "	2	4	6'- 3"	2'- 7 ¹ / ₄ "	0'- 3 ¹ / ₈ "	7'- 3"	3'- 7 ¹ / ₄ "	0'- 3 ¹ / ₈ "	4	32'- 7"
Z	4	32'- 6"	4	29'- 1"	2'- 6"	3'- 3 ⁷ / ₈ "	2	4	6'- 8"	2'- 7 ¹ / ₄ "	0'- 3 ¹ / ₄ "	7'- 8"	3'- 7 ¹ / ₄ "	0'- 3 ¹ / ₄ "	4	33'- 8"
AA	4	33'- 6"	4	30'- 2"	2'- 5"	3'- 5 ⁵ / ₈ "	2	4	6'- 9"	2'- 6 ³ / ₈ "	0'- 3 ³ / ₈ "	7'- 9"	3'- 6 ³ / ₈ "	0'- 3 ³ / ₈ "	4	34'- 9"
BB	4	34'- 6"	4	31'- 3"	2'- 4 ¹ / ₂ "	3'- 2 ¹ / ₂ "	2	4	6'- 7"	2'- 6"	0'- 3 ¹ / ₂ "	7'- 7"	3'- 6"	0'- 3 ¹ / ₂ "	4	35'-11"
CC	4	35'- 6"	4	32'- 1"	2'- 5 ¹ / ₂ "	3'- 3 ¹ / ₂ "	2	4	6'- 9"	2'- 6 ³ / ₈ "	0'- 3 ³ / ₈ "	7'- 9"	3'- 6 ³ / ₈ "	0'- 3 ³ / ₈ "	4	36'-10"
DD	4	36'- 6"	4	33'- 2"	2'- 3 ⁷ / ₈ "	3'- 5 ¹ / ₈ "	2	4	7'- 1"	2'- 7"	0'- 3 ³ / ₈ "	8'- 1"	3'- 7"	0'- 3 ³ / ₈ "	4	37'-11"
EE	4	38'- 0"	4	34'- 9"	2'- 4 ¹ / ₄ "	3'- 2 ⁷ / ₈ "	2	4	7'- 2"	2'- 6"	0'- 3 ¹ / ₂ "	8'- 2"	3'- 6"	0'- 3 ¹ / ₂ "	4	39'- 6"

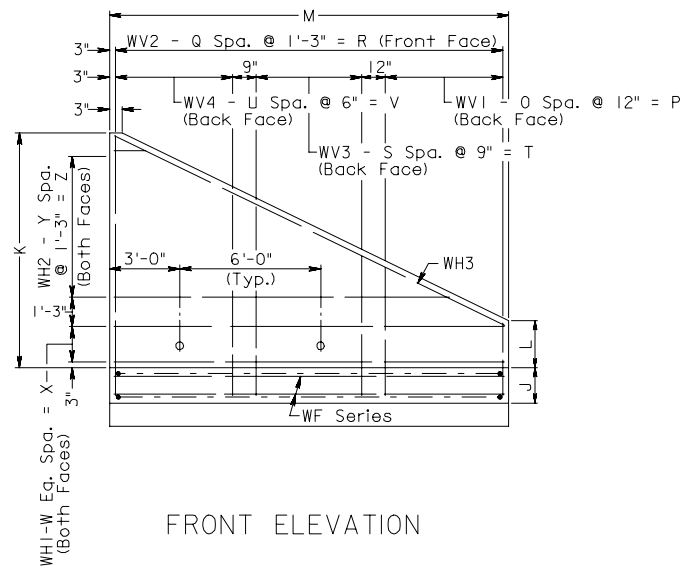
WING	SIZE	WF5						WF6						WF7						WH1		WH3	
		a			LENGTH			SIZE	LENGTH			SIZE	a			LENGTH			SIZE	LENGTH	SIZE	LENGTH	
		From	To	Vary By	From	To	Vary By		From	To	Vary By		From	To	Vary By	From	To	Vary By					
A	--	----	----	----	----	----	4	3'- 6"	2'- 8"	0'- 2 1/2"	--	----	----	----	----	----	4	6'- 0"	4	6'- 8"			
B	--	----	----	----	----	----	4	3'- 6"	2'- 7 3/8"	0'- 2 1/8"	--	----	----	----	----	----	4	7'- 0"	4	7'- 9"			
C	--	----	----	----	----	----	4	3'- 6"	2'- 6 3/4"	0'- 1 7/8"	--	----	----	----	----	----	4	8'- 0"	4	8'- 11"			
D	--	----	----	----	----	----	4	3'- 6"	2'- 6 5/8"	0'- 1 5/8"	--	----	----	----	----	----	4	9'- 0"	4	10'- 0"			
E	--	----	----	----	----	----	4	3'- 6"	2'- 8"	0'- 1 1/2"	--	----	----	----	----	----	4	10'- 0"	4	11'- 2"			
F	--	----	----	----	----	----	4	4'- 0"	2'- 8"	0'- 2"	--	----	----	----	----	----	4	11'- 0"	4	12'- 3"			
G	--	----	----	----	----	----	4	4'- 0"	2'- 7 1/8"	0'- 1 7/8"	--	----	----	----	----	----	4	12'- 0"	4	13'- 4"			
H	--	----	----	----	----	----	4	4'- 6"	2'- 7 1/2"	0'- 2 1/4"	--	----	----	----	----	----	4	13'- 6"	4	14'- 11"			
I	--	----	----	----	----	----	4	4'- 6"	2'- 8"	0'- 2"	--	----	----	----	----	----	4	14'- 6"	4	16'- 1"			
J	--	----	----	----	----	----	4	4'- 11"	2'- 8"	0'- 2 1/4"	--	----	----	----	----	----	4	15'- 6"	4	17'- 2"			
K	4	5'- 5"	4'- 11"	0'- 1 1/2"	6'- 5"	5'- 11"	0'- 1 1/2"	4	5'- 5"	2'- 6 7/8"	0'- 2 5/8"	--	----	----	----	----	4	16'- 6"	4	18'- 3"			
L	4	5'- 11"	5'- 4 1/2"	0'- 1 5/8"	6'- 11"	6'- 4 1/2"	0'- 1 5/8"	4	5'- 11"	2'- 6 3/4"	0'- 2 7/8"	--	----	----	----	----	4	17'- 6"	4	19'- 5"			
M	4	5'- 11"	5'- 5"	0'- 1 1/2"	6'- 11"	6'- 5"	0'- 1 1/2"	4	5'- 11"	2'- 8 1/2"	0'- 2 3/4"	--	----	----	----	----	4	18'- 6"	4	20'- 6"			
N	5	6'- 5 1/4"	5'- 6 3/4"	0'- 1 3/4"	7'- 7"	6'- 8 1/2"	0'- 1 3/4"	4	6'- 5"	2'- 8"	0'- 3"	--	----	----	----	----	4	19'- 6"	4	21'- 8"			
O	5	6'- 11 1/4"	5'- 8 1/4"	0'- 1 7/8"	8'- 1"	6'- 10"	0'- 1 7/8"	4	6'- 11"	2'- 9"	0'- 3 1/8"	--	----	----	----	----	4	21'- 0"	4	23'- 3"			
P	6	6'- 11 1/2"	5'- 6"	0'- 1 3/4"	8'- 4"	6'- 10 1/2"	0'- 1 3/4"	4	6'- 11"	2'- 8"	0'- 3"	--	----	----	----	----	4	22'- 0"	4	24'- 4"			
Q	6	7'- 5 1/2"	5'- 10 3/4"	0'- 1 7/8"	8'- 10"	7'- 3 1/4"	0'- 1 7/8"	4	7'- 5"	2'- 8 3/4"	0'- 3 1/8"	--	----	----	----	----	4	23'- 0"	4	25'- 5"			
R	6	7'- 11 1/2"	5'- 11 1/2"	0'- 2"	9'- 4"	7'- 4"	0'- 2"	4	7'- 11"	2'- 6 7/8"	0'- 3 3/8"	--	----	----	----	----	4	24'- 0"	4	26'- 7"			
S	6	8'- 5 1/2"	5'- 11 3/4"	0'- 2 1/8"	9'- 10"	7'- 4 1/4"	0'- 2 1/8"	4	8'- 5"	2'- 7"	0'- 3 1/2"	--	----	----	----	----	4	25'- 0"	4	27'- 8"			
T	5	7'- 9 1/4"	6'- 5 1/2"	0'- 2 1/4"	8'- 11"	7'- 7 1/4"	0'- 2 1/4"	4	8'- 11"	2'- 10 1/2"	0'- 3 5/8"	5	8'- 11 1/4"	7'- 11 1/4"	0'- 1 1/2"	10'- 1"	9'- 1"	0'- 1 1/2"	4	26'- 0"	4	28'- 10"	
U	5	7'- 11 1/4"	6'- 7 1/2"	0'- 2 1/4"	9'- 1"	7'- 9 1/4"	0'- 2 1/4"	4	9'- 5"	2'- 10 1/4"	0'- 3 3/4"	5	9'- 5 1/4"	8'- 2 1/4"	0'- 1 1/2"	10'- 7"	9'- 4"	0'- 1 1/2"	4	27'- 0"	4	29'- 11"	
V	5	8'- 2 1/4"	6'- 9 5/8"	0'- 2 3/8"	9'- 4"	7'- 11 3/8"	0'- 2 3/8"	4	9'- 11"	2'- 7"	0'- 4"	6	9'- 11 1/2"	8'- 4"	0'- 1 5/8"	11'- 4"	9'- 8 1/2"	0'- 1 5/8"	4	28'- 0"	4	31'- 0"	
W	5	7'- 11 1/4"	6'- 7 1/2"	0'- 2 1/4"	9'- 1"	7'- 9 1/4"	0'- 2 1/4"	4	9'- 11"	2'- 8 3/4"	0'- 3 3/4"	6	9'- 11 1/2"	8'- 2 1/2"	0'- 1 1/2"	11'- 4"	9'- 7"	0'- 1 1/2"	4	29'- 0"	4	32'- 2"	
X	6	8'- 3 1/2"	6'- 1 3/8"	0'- 2 3/8"	9'- 8"	7'- 5 7/8"	0'- 2 3/8"	4	10'- 5"	2'- 8"	0'- 3 1/8"	6	10'- 5 1/2"	8'- 5 1/8"	0'- 1 5/8"	11'- 10"	9'- 9 5/8"	0'- 1 5/8"	4	30'- 6"	4	33'- 9"	
Y	6	8'- 8 1/2"	6'- 6 3/8"	0'- 2 3/8"	10'- 1"	7'- 10 7/8"	0'- 2 3/8"	4	10'- 11"	2'- 7"	0'- 4"	7	10'- 10 3/4"	8'- 10 3/8"	0'- 1 5/8"	12'- 6"	10'- 5 5/8"	0'- 1 5/8"	4	31'- 6"	4	34'- 10"	
Z	6	9'- 2 1/2"	6'- 11"	0'- 2 1/2"	10'- 7"	8'- 3 1/2"	0'- 2 1/2"	4	11'- 5"	2'- 5 3/4"	0'- 4 1/8"	7	11'- 4 3/4"	9'- 4 3/8"	0'- 1 5/8"	13'- 0"	10'- 11 5/8"	0'- 1 5/8"	4	32'- 6"	4	35'- 11"	
AA	6	9'- 4 1/2"	7'- 1"	0'- 2 1/2"	10'- 9"	8'- 5 1/2"	0'- 2 1/2"	4	11'- 11"	2'- 8 1/2"	0'- 4 1/4"	7	11'- 10 3/4"	9'- 7 1/8"	0'- 1 5/8"	13'- 6"	11'- 2 3/8"	0'- 1 5/8"	4	33'- 6"	4	37'- 1"	
BB	7	10'- 3/4"	6'- 9 3/8"	0'- 2 5/8"	11'- 8"	8'- 4 5/8"	0'- 2 5/8"	4	12'- 5"	2'- 10 1/4"	0'- 4 1/4"	8	12'- 5"	10'- 2 3/4"	0'- 1 3/4"	14'- 3"	12'- 3/4"	0'- 1 3/4"	4	34'- 6"	4	38'- 2"	
CC	7	10'- 1 3/4"	7'- 1/4"	0'- 2 1/2"	11'- 9"	8'- 7 1/2"	0'- 2 1/2"	4	12'- 5"	2'- 9 1/2"	0'- 4 1/8"	8	12'- 5"	10'- 4 5/8"	0'- 1 5/8"	14'- 3"	12'- 2 5/8"	0'- 1 5/8"	4	35'- 6"	4	39'- 4"	
DD	7	10'- 6 3/4"	7'- 5 1/4"	0'- 2 1/2"	12'- 2"	9'- 1/2"	0'- 2 1/2"	4	12'- 11"	2'- 7 3/4"	0'- 4 1/4"	8	12'- 11"	10'- 8 3/4"	0'- 1 3/4"	14'- 9"	12'- 6 3/4"	0'- 1 3/4"	4	36'- 6"	4	40'- 5"	
EE	7	10'- 7 3/4"	7'- 4 3/8"	0'- 2 5/8"	12'- 3"	8'- 11 5/8"	0'- 2 5/8"	4	13'- 5"	2'- 9 1/2"	0'- 4 1/4"	8	13'- 5"	10'- 9 1/2"	0'- 1 3/4"	15'- 3"	12'- 7 1/2"	0'- 1 3/4"	4	38'- 0"	4	42'- 0"	

WING	WH2						WV1						WV2					
	SIZE	LENGTH				Ea	SIZE	a			LENGTH			SIZE	LENGTH			
		From	To	Vary By	#			From	To	Vary By	From	To	Vary By		From	To	Vary By	
A	4	4'- 8"	2'- 3/8"	2'- 7 5/8"	2	4	4'- 11 1/4"	2'- 3/4"	0'- 5 3/4"	6'- 11"	4'- 1/2"	0'- 5 3/4"	4	5'- 0"	2'- 7"	0'- 7 1/4"		
B	4	4'- 7"	2'- 1/8"	2'- 6 7/8"	2	4	5'- 5 1/4"	2'- 1"	0'- 5 3/4"	7'- 5"	4'- 3/4"	0'- 5 3/4"	4	5'- 6"	2'- 5 3/4"	0'- 7 1/4"		
C	4	7'- 2"	2'- 0"	2'- 7"	2	4	5'- 11 1/4"	2'- 1 1/4"	0'- 5 3/4"	7'- 11"	4'- 1"	0'- 5 3/4"	4	6'- 0"	2'- 3 3/4"	0'- 7 3/8"		
D	4	7'- 2"	2'- 0"	2'- 7"	2	4	6'- 5 1/4"	2'- 1 1/2"	0'- 5 3/4"	8'- 5"	4'- 1 1/4"	0'- 5 3/4"	4	6'- 6"	2'- 2 3/8"	0'- 7 3/8"		
E	4	9'- 8"	1'- 11 3/4"	2'- 6 3/4"	2	4	6'- 11 1/4"	2'- 1/2"	0'- 5 7/8"	8'- 11"	4'- 1/4"	0'- 5 7/8"	4	7'- 0"	2'- 1"	0'- 7 3/8"		
F	4	9'- 8"	1'- 11 3/4"	2'- 6 3/4"	2	4	7'- 5 1/4"	2'- 5/8"	0'- 5 7/8"	9'- 5"	4'- 3/8"	0'- 5 7/8"	4	7'- 6"	2'- 7"	0'- 7 3/8"		
G	4	9'- 8"	1'- 11 3/4"	2'- 6 3/4"	2	4	7'- 11 1/4"	2'- 3/4"	0'- 5 7/8"	9'- 11"	4'- 1/2"	0'- 5 7/8"	4	8'- 0"	2'- 5 5/8"	0'- 7 3/8"		
H	4	12'- 8"	2'- 1/2"	2'- 7 7/8"	2	4	8'- 5 1/4"	2'- 4 7/8"	0'- 5 5/8"	10'- 5"	4'- 3 7/8"	0'- 5 5/8"	4	8'- 6"	2'- 6 3/4"	0'- 7 1/8"		
I	4	12'- 7"	2'- 1/2"	2'- 7 5/8"	2	4	8'- 11 1/4"	2'- 4 1/2"	0'- 5 5/8"	10'- 11"	4'- 4 1/4"	0'- 5 5/8"	4	9'- 0"	2'- 5 5/8"	0'- 7 1/8"		
J	4	15'- 2"	2'- 1/2"	2'- 7 1/2"	2	4	9'- 5 1/4"	2'- 4 7/8"	0'- 5 5/8"	11'- 5"	4'- 4 5/8"	0'- 5 5/8"	4	9'- 6"	2'- 4 1/2"	0'- 7 1/8"		
K	4	15'- 1"	2'- 3/4"	2'- 7 1/4"	2	4	8'- 1 1/4"	2'- 4 1/4"	0'- 5 3/4"	10'- 1"	4'- 4"	0'- 5 3/4"	4	10'- 0"	2'- 1 3/4"	0'- 7 1/4"		
L	4	15'- 1"	2'- 1/8"	2'- 7 3/8"	2	4	8'- 6 1/4"	2'- 3 1/2"	0'- 5 3/4"	10'- 6"	4'- 3 1/4"	0'- 5 3/4"	4	10'- 6"	2'- 1/2"	0'- 7 1/4"		
M	4	17'- 8"	2'- 1/2"	2'- 7 1/4"	2	4	9'- 1/4"	2'- 3 3/4"	0'- 5 3/4"	11'- 0"	4'- 3 1/2"	0'- 5 3/4"	4	11'- 0"	2'- 6 1/2"	0'- 7 1/4"		
N	4	17'- 7"	2'- 1/4"	2'- 7 1/8"	2	4	9'- 6 1/4"	2'- 4"	0'- 5 3/4"	11'- 6"	4'- 3 3/4"	0'- 5 3/4"	4	11'- 6"	2'- 5 1/4"	0'- 7 1/4"		
O	4	20'- 8"	2'- 7/8"	2'- 7 7/8"	2	4	9'- 4 1/4"	2'- 3 7/8"	0'- 5 5/8"	11'- 4"	4'- 3 5/8"	0'- 5 5/8"	4	12'- 0"	2'- 6"	0'- 7 1/8"		
P	4	20'- 7"	2'- 3/4"	2'- 7 3/4"	2	4	9'- 2 1/4"	2'- 1 7/8"	0'- 5 5/8"	11'- 2"	4'- 1 5/8"	0'- 5 5/8"	4	12'- 6"	2'- 4 7/8"	0'- 7 1/8"		
Q	4	20'- 7"	2'- 3/4"	2'- 7 3/4"	2	4	9'- 8 1/4"	2'- 1/4"	0'- 5 3/4"	11'- 8"	4'- 0"	0'- 5 3/4"	4	13'- 0"	2'- 3 3/4"	0'- 7 1/8"		
R	4	23'- 2"	2'- 1"	2'- 7 5/8"	2	4	9'- 5 1/4"	2'- 4 7/8"	0'- 5 5/8"	11'- 5"	4'- 4 5/8"	0'- 5 5/8"	4	13'- 6"	2'- 2 5/8"	0'- 7 1/8"		
S	4	23'- 1"	2'- 1"	2'- 7 1/2"	2	4	9'- 11 1/4"	2'- 3 1/4"	0'- 5 3/4"	11'- 11"	4'- 3"	0'- 5 3/4"	4	14'- 3"	2'- 4 1/2"	0'- 7 1/8"		
T	4	25'- 8"	2'- 1/2"	2'- 7 1/2"	2	4	9'- 9 1/4"	2'- 7"	0'- 5 3/4"	11'- 9"	4'- 6 3/4"	0'- 5 3/4"	4	15'- 0"	3'- 1 1/2"	0'- 7 1/8"		
U	4	25'- 7"	2'- 5/8"	2'- 7 3/8"	2	4	10'- 2 1/4"	2'- 6 1/4"	0'- 5 3/4"	12'- 2"	4'- 6"	0'- 5 3/4"	4	15'- 6"	3'- 3/8"	0'- 7 1/8"		
V	4	25'- 7"	2'- 5/8"	2'- 7 3/8"	2	4	9'- 9 1/4"	2'- 7"	0'- 5 3/4"	11'- 9"	4'- 6 3/4"	0'- 5 3/4"	4	16'- 0"	2'- 11 1/4"	0'- 7 1/8"		
W	4	28'- 2"	2'- 1/4"	2'- 7 3/8"	2	4	10'- 3 1/4"	2'- 7 1/4"	0'- 5 3/4"	12'- 3"	4'- 7"	0'- 5 3/4"	4	16'- 6"	2'- 7 1/4"	0'- 7 1/4"		
X	4	28'- 7"	2'- 1/4"	2'- 7 7/8"	2	4	9'- 2 1/4"	2'- 7 1/2"	0'- 5 5/8"	11'- 2"	4'- 7 1/4"	0'- 5 5/8"	4	17'- 0"	2'- 9"	0'- 7 1/8"		
Y	4	31'- 2"	2'- 3/4"	2'- 7 3/4"	2	4	9'- 8 1/4"	2'- 7 7/8"	0'- 5 5/8"	11'- 8"	4'- 7 5/8"	0'- 5 5/8"	4	17'- 6"	2'- 7 7/8"	0'- 7 1/8"		
Z	4	31'- 1"	2'- 1 1/8"	2'- 7 5/8"	2	4	9'- 8 1/4"	2'- 7 7/8"	0'- 5 5/8"	11'- 8"	4'- 7 5/8"	0'- 5 5/8"	4	18'- 0"	2'- 6 3/4"	0'- 7 1/8"		
AA	4	31'- 1"	2'- 1 1/8"	2'- 7 5/8"	2	4	9'- 8 1/4"	2'- 7 7/8"	0'- 5 5/8"	11'- 8"	4'- 7 5/8"	0'- 5 5/8"	4	18'- 6"	3'- 3/4"	0'- 7 1/8"		
BB	4	33'- 8"	2'- 1/2"	2'- 7 5/8"	2	4	9'- 8 1/4"	2'- 7 7/8"	0'- 5 5/8"	11'- 8"	4'- 7 5/8"	0'- 5 5/8"	4	19'- 0"	2'- 11 5/8"	0'- 7 1/8"		
CC	4	33'- 7"	2'- 1"	2'- 7 1/2"	2	4	10'- 2 1/4"	2'- 6 1/4"	0'- 5 3/4"	12'- 2"	4'- 6"	0'- 5 3/4"	4	19'- 6"	2'- 10 1/2"	0'- 7 1/8"		
DD	4	36'- 2"	2'- 1/2"	2'- 7 1/2"	2	4	9'- 3 1/4"	2'- 6 3/4"	0'- 5 3/4"	11'- 3"	4'- 6 1/2"	0'- 5 3/4"	4	20'- 0"	2'- 9 3/8"	0'- 7 1/8"		
EE	4	36'- 7"	2'- 5/8"	2'- 7 7/8"	2	4	9'- 8 1/4"	2'- 7 7/8"	0'- 5 5/8"	11'- 8"	4'- 7 5/8"	0'- 5 5/8"	4	20'- 6"	2'- 8 1/4"	0'- 7 1/8"		

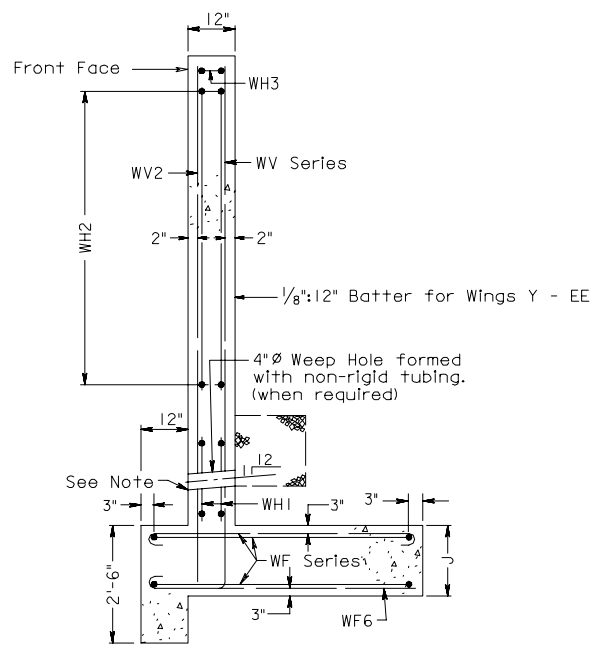
WING	SIZE	WV3						WV4						
		a			LENGTH			a			LENGTH			
		From	To	Vary By	From	To	Vary By	From	To	Vary By	From	To	Vary By	
A	--	----	----	----	----	----	----	--	----	----	----	----	----	----
B	--	----	----	----	----	----	----	--	----	----	----	----	----	----
C	--	----	----	----	----	----	----	--	----	----	----	----	----	----
D	--	----	----	----	----	----	----	--	----	----	----	----	----	----
E	--	----	----	----	----	----	----	--	----	----	----	----	----	----
F	--	----	----	----	----	----	----	--	----	----	----	----	----	----
G	--	----	----	----	----	----	----	--	----	----	----	----	----	----
H	--	----	----	----	----	----	----	--	----	----	----	----	----	----
I	--	----	----	----	----	----	----	--	----	----	----	----	----	----
J	--	----	----	----	----	----	----	--	----	----	----	----	----	----
K	4	9'-11 1/4"	8'- 6 1/4"	0'- 4 1/4"	11'-11"	10'- 6"	0'- 4 1/4"	--	----	----	----	----	----	----
L	4	10'- 5 1/4"	9'- 1/4"	0'- 4 1/4"	12'- 5"	11'- 0"	0'- 4 1/4"	--	----	----	----	----	----	----
M	5	10'-11 3/4"	9'- 6 1/4"	0'- 4 3/8"	13'- 0"	11'- 6 1/2"	0'- 4 3/8"	--	----	----	----	----	----	----
N	5	11'- 5 3/4"	10'- 1/4"	0'- 4 3/8"	13'- 6"	12'- 1/2"	0'- 4 3/8"	--	----	----	----	----	----	----
O	5	11'-11 3/4"	9'-10 1/4"	0'- 4 1/4"	14'- 0"	11'-10 1/2"	0'- 4 1/4"	--	----	----	----	----	----	----
P	6	12'- 5 5/8"	9'- 7 5/8"	0'- 4 1/4"	14'- 7"	11'- 9"	0'- 4 1/4"	--	----	----	----	----	----	----
Q	6	12'-11 5/8"	10'- 1 5/8"	0'- 4 1/4"	15'- 1"	12'- 3"	0'- 4 1/4"	--	----	----	----	----	----	----
R	6	13'- 5 5/8"	9'-11 1/8"	0'- 4 1/4"	15'- 7"	12'- 1/2"	0'- 4 1/4"	--	----	----	----	----	----	----
S	5	12'- 2 3/4"	10'- 4 7/8"	0'- 4 3/8"	14'- 3"	12'- 5 1/8"	0'- 4 3/8"	5	14'- 2 3/4"	12'- 6 5/8"	0'- 2 7/8"	16'- 3"	14'- 6 7/8"	0'- 2 7/8"
T	5	12'- 8 3/4"	10'- 2 1/8"	0'- 4 3/8"	14'- 9"	12'- 2 3/8"	0'- 4 3/8"	5	14'-11 3/4"	13'- 3/4"	0'- 2 7/8"	17'- 0"	15'- 1"	0'- 2 7/8"
U	6	13'- 2 5/8"	10'- 8"	0'- 4 3/8"	15'- 4"	12'- 9 3/8"	0'- 4 3/8"	6	15'- 5 5/8"	13'- 6 5/8"	0'- 2 7/8"	17'- 7"	15'- 8"	0'- 2 7/8"
V	6	13'- 5 5/8"	10'- 3 3/8"	0'- 4 1/4"	15'- 7"	12'- 4 3/4"	0'- 4 1/4"	6	15'-11 5/8"	13'- 9 3/4"	0'- 2 7/8"	18'- 1"	15'-11 1/8"	0'- 2 7/8"
W	6	13'-11 5/8"	10'- 8 1/4"	0'- 4 3/8"	16'- 1"	12'- 9 5/8"	0'- 4 3/8"	6	16'- 5 5/8"	14'- 3 3/4"	0'- 2 7/8"	18'- 7"	16'- 5 1/8"	0'- 2 7/8"
X	6	14'- 3 5/8"	9'- 8 3/8"	0'- 4 1/4"	16'- 5"	11'- 9 3/4"	0'- 4 1/4"	7	16'-11 5/8"	14'- 6 7/8"	0'- 2 7/8"	19'- 2"	16'- 9 1/4"	0'- 2 7/8"
Y	6	14'- 8 5/8"	10'- 1 3/8"	0'- 4 1/4"	16'-10"	12'- 2 3/4"	0'- 4 1/4"	6	17'- 5 5/8"	15'- 7 1/8"	0'- 2 7/8"	19'- 7"	17'- 2 1/4"	0'- 2 7/8"
Z	6	14'- 9 3/8"	10'- 2 3/8"	0'- 4 1/4"	16'-11"	12'- 3 3/4"	0'- 4 1/4"	7	17'-11 5/8"	15'- 1 1/8"	0'- 2 7/8"	20'- 2"	17'- 3 1/2"	0'- 2 7/8"
AA	6	14'- 9 5/8"	10'- 2 3/8"	0'- 4 1/4"	16'-11"	12'- 3 3/4"	0'- 4 1/4"	7	18'- 5 5/8"	15'- 1 3/8"	0'- 2 7/8"	20'- 8"	17'- 3 3/4"	0'- 2 7/8"
BB	6	14'- 9 5/8"	10'- 2 3/8"	0'- 4 1/4"	16'-11"	12'- 3 3/4"	0'- 4 1/4"	7	18'-11 5/8"	15'- 1 5/8"	0'- 2 7/8"	21'- 2"	17'- 4"	0'- 2 7/8"
CC	7	15'- 3 5/8"	10'- 8 3/8"	0'- 4 1/4"	17'- 6"	12'-10 3/4"	0'- 4 1/4"	7	19'- 5 5/8"	15'- 7 5/8"	0'- 2 7/8"	21'- 8"	17'-10"	0'- 2 7/8"
DD	7	15'- 9 5/8"	9'- 9 3/8"	0'- 4 1/4"	18'- 0"	11'-11 3/4"	0'- 4 1/4"	8	19'-11 1/2"	16'- 1 1/2"	0'- 2 7/8"	22'- 3"	18'- 5"	0'- 2 7/8"
EE	7	16'- 1 5/8"	10'- 1 3/8"	0'- 4 1/4"	18'- 4"	12'- 3 3/4"	0'- 4 1/4"	8	20'- 5 1/2"	16'- 4 5/8"	0'- 2 7/8"	22'- 9"	18'- 8 1/8"	0'- 2 7/8"

WING DETAILS
 1 1/2:1 FILL SLOPE - TYPE II
 VIRGINIA DEPARTMENT OF TRANSPORTATION

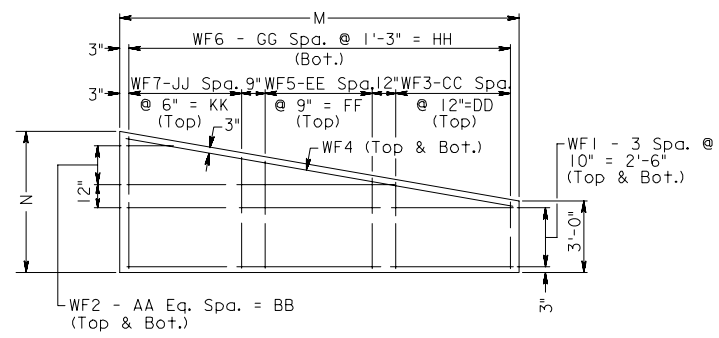
STRUCTURE
 AND
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 DIVISION



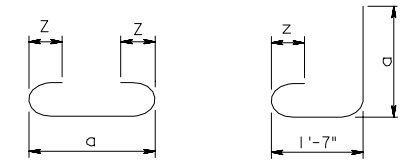
FRONT ELEVATION



END VIEW



FOOTING PLAN



WF3, WF5, WF7 WV1, WV3, WV4

TABLE B		
Bar Size	Pin Dia.	Z
#3	2 1/4"	4"
#4	3"	4 1/2"
#5	3 3/4"	5"
#6	4 1/2"	6"
#7	5 1/4"	7"
#8	6"	8"
#9	9"	10 7/8"

TABLE C	
Bar Size	Splice Length
#4	1'-4"
#5	1'-8"
#6	1'-11"
#7	2'-4"
#8	3'-1"
#9	3'-11"

GENERAL NOTE

Specifications:

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

All concrete shall be Class A4.

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

Dimensions on bar diagrams are out-to-out of bars. Bars are straight unless otherwise shown.

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

At the Contractor's option, WV Series bars may be spliced at the top of footing in order to facilitate construction. Splice lengths shall be in accordance with TABLE C. No additional compensation shall be provided for the increase in reinforcing steel quantity due to the splices.

When concrete protective coating is required, all steel shall be epoxy-coated.

Bearing capacity of foundations shall be 1.5 Tons/Sq. Ft. minimum for wings A - X and 2 Tons/Sq. Ft. minimum for wings Y - EE.

Weepholes shall be placed at lowest point feasible for free drainage away from wing.

Four Type I Wings are to be used for straight crossings and skews up to 20°. Two Type I & two Type II Wings are to be used for skews from 25° to 45°. For skews above 45°, special design wings are required. The wingwall to be used for each culvert is shown on the BC series sheets.

The designs shown are applicable for a 45° skew with the roadway and other conditions indicated. Any change in these conditions invalidates these designs.

Quantities shown are for one wing.

WING	Quantity (One Wing)	
	Concrete Cu. Yd.	Reinforcing Steel Lbs.
A	2.334	146,814
B	2.741	179,226
C	3.208	202,300
D	3.658	227,238
E	4.174	268,139
F	4.665	294,699
G	5.412	348,564
H	6.153	378,666
I	6.798	431,368
J	7.621	479,805
K	8.567	531,895
L	9.236	601,618
M	10.275	652,010
N	10.623	706,389
O	11.644	765,083
P	12.804	868,664
Q	13.615	938,923
R	14.852	1,247,994
S	16.063	1,193,231
T	17.077	1,263,468
U	18.343	1,566,661
V	19.708	2,817,906
W	21.169	1,838,465
X	24.710	2,352,406
Y	29.398	2,856,703
Z	31.458	2,680,408
AA	33.355	3,557,475
BB	36.175	3,205,508
CC	38.270	3,362,599
DD	45.675	4,925,833
EE	48.208	5,122,544

WING	DIMENSIONS					BAR SPACINGS																	NO. WEEP HOLES					
	J	K	L	M	N	WV1		WV2		WV3		WV4		WH1		WH2		WF2		WF3		WF5		WF6		WF7		
						O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE		FF	GG	HH	JJ	KK
A	1'- 6"	4'- 0"	1'- 6"	7'- 0"	4'- 0"	6	6'- 0"	5	6'- 3"	--	----	--	----	--	----	1	1'- 3"	--	----	6	6'- 0"	--	----	5	6'- 3"	--	----	--
B	1'- 6"	4'- 6"	1'- 6"	8'- 0"	4'- 0"	7	7'- 0"	6	7'- 6"	--	----	--	----	1	0'- 6"	1	1'- 3"	--	----	7	7'- 0"	--	----	6	7'- 6"	--	----	--
C	1'- 6"	5'- 0"	1'- 9"	9'- 0"	4'- 0"	8	8'- 0"	6	7'- 6"	--	----	--	----	1	1'- 0"	1	1'- 3"	--	----	8	8'- 0"	--	----	6	7'- 6"	--	----	--
D	1'- 6"	5'- 6"	1'- 9"	10'- 0"	4'- 0"	9	9'- 0"	7	8'- 9"	--	----	--	----	--	----	2	2'- 6"	--	----	9	9'- 0"	--	----	7	8'- 9"	--	----	--
E	1'- 6"	6'- 0"	2'- 0"	11'- 0"	4'- 0"	10	10'- 0"	8	10'- 0"	--	----	--	----	1	0'- 9"	2	2'- 6"	--	----	10	10'- 0"	--	----	8	10'- 0"	--	----	--
F	1'- 6"	6'- 6"	2'- 0"	12'- 0"	4'- 0"	11	11'- 0"	9	11'- 3"	--	----	--	----	1	1'- 3"	2	2'- 6"	--	----	11	11'- 0"	--	----	9	11'- 3"	--	----	--
G	1'- 6"	7'- 0"	2'- 3"	13'- 0"	4'- 6"	12	12'- 0"	10	12'- 6"	--	----	--	----	2	1'- 9"	2	2'- 6"	--	----	12	12'- 0"	--	----	10	12'- 6"	--	----	--
H	1'- 6"	7'- 6"	2'- 3"	14'- 0"	5'- 0"	13	13'- 0"	10	12'- 6"	--	----	--	----	1	1'- 0"	3	3'- 9"	--	----	13	13'- 0"	--	----	10	12'- 6"	--	----	--
I	1'- 6"	8'- 0"	2'- 6"	15'- 0"	5'- 0"	14	14'- 0"	11	13'- 9"	--	----	--	----	2	1'- 6"	3	3'- 9"	--	----	14	14'- 0"	--	----	11	13'- 9"	--	----	--
J	1'- 6"	8'- 6"	2'- 6"	16'- 0"	5'- 6"	15	15'- 0"	12	15'- 0"	--	----	--	----	2	2'- 0"	3	3'- 9"	1	0'- 9"	15	15'- 0"	--	----	12	15'- 0"	--	----	--
K	1'- 6"	9'- 0"	2'- 9"	17'- 0"	6'- 0"	16	16'- 0"	13	16'- 3"	--	----	--	----	1	1'- 3"	4	5'- 0"	2	1'- 3"	16	16'- 0"	--	----	13	16'- 3"	--	----	--
L	1'- 6"	9'- 6"	2'- 9"	18'- 0"	6'- 0"	12	12'- 0"	14	17'- 6"	6	4'- 6"	--	----	2	1'- 9"	4	5'- 0"	2	1'- 3"	17	17'- 0"	--	----	14	17'- 6"	--	----	--
M	1'- 6"	10'- 0"	3'- 0"	19'- 0"	6'- 6"	13	13'- 0"	14	17'- 6"	6	4'- 6"	--	----	2	2'- 3"	4	5'- 0"	2	1'- 9"	13	13'- 0"	6	4'- 6"	14	17'- 6"	--	----	--
N	1'- 6"	10'- 6"	3'- 6"	19'- 0"	6'- 6"	10	10'- 0"	14	17'- 6"	6	4'- 6"	4	2'- 0"	3	2'- 9"	4	5'- 0"	2	1'- 9"	13	13'- 0"	6	4'- 6"	14	17'- 6"	--	----	--
O	1'- 6"	11'- 0"	3'- 6"	20'- 0"	7'- 0"	11	11'- 0"	15	18'- 9"	6	4'- 6"	4	2'- 0"	2	2'- 0"	5	6'- 3"	3	2'- 3"	14	14'- 0"	6	4'- 6"	15	18'- 9"	--	----	1
P	1'- 6"	11'- 6"	3'- 9"	21'- 0"	7'- 6"	8	8'- 0"	16	20'- 0"	9	6'- 9"	8	4'- 0"	2	2'- 6"	5	6'- 3"	3	2'- 9"	9	9'- 0"	5	3'- 9"	16	20'- 0"	12	6'- 0"	1
Q	1'- 6"	12'- 0"	3'- 9"	22'- 0"	7'- 6"	9	9'- 0"	17	21'- 3"	9	6'- 9"	8	4'- 0"	3	3'- 0"	5	6'- 3"	3	2'- 9"	10	10'- 0"	5	3'- 9"	17	21'- 3"	12	6'- 0"	1
R	1'- 6"	12'- 6"	4'- 0"	23'- 0"	8'- 0"	10	10'- 0"	18	22'- 6"	9	6'- 9"	8	4'- 0"	3	3'- 6"	5	6'- 3"	4	3'- 3"	11	11'- 0"	5	3'- 9"	18	22'- 6"	12	6'- 0"	1
S	1'- 6"	13'- 0"	4'- 0"	24'- 0"	8'- 6"	11	11'- 0"	18	22'- 6"	9	6'- 9"	8	4'- 0"	3	2'- 9"	6	7'- 6"	4	3'- 9"	12	12'- 0"	5	3'- 9"	18	22'- 6"	12	6'- 0"	1
T	1'- 6"	13'- 6"	4'- 3"	25'- 0"	8'- 6"	12	12'- 0"	19	23'- 9"	9	6'- 9"	8	4'- 0"	3	3'- 3"	6	7'- 6"	4	3'- 9"	9	9'- 0"	7	5'- 3"	19	23'- 9"	17	8'- 6"	2
U	1'- 6"	14'- 0"	4'- 3"	26'- 0"	9'- 0"	12	12'- 0"	20	25'- 0"	9	6'- 9"	10	5'- 0"	3	3'- 9"	6	7'- 6"	5	4'- 3"	11	11'- 0"	11	8'- 3"	20	25'- 0"	9	4'- 6"	2
V	1'- 6"	14'- 6"	4'- 6"	27'- 0"	9'- 6"	10	10'- 0"	21	26'- 3"	13	9'- 9"	10	5'- 0"	3	3'- 0"	7	8'- 9"	5	4'- 9"	11	11'- 0"	11	8'- 3"	21	26'- 3"	11	5'- 6"	2
W	1'- 6"	15'- 0"	4'- 6"	28'- 0"	10'- 0"	11	11'- 0"	22	27'- 6"	13	9'- 9"	10	5'- 0"	3	3'- 6"	7	8'- 9"	6	5'- 3"	11	11'- 0"	11	8'- 3"	22	27'- 6"	13	6'- 6"	2
X	1'- 9"	15'- 6"	4'- 9"	29'- 0"	11'- 0"	11	11'- 0"	22	27'- 6"	13	9'- 9"	12	6'- 0"	4	4'- 0"	7	8'- 9"	7	6'- 3"	9	9'- 0"	15	11'- 3"	22	27'- 6"	13	6'- 6"	2
Y	2'- 0"	16'- 0"	4'- 9"	30'- 0"	12'- 0"	10	10'- 0"	23	28'- 9"	17	12'- 9"	10	5'- 0"	3	3'- 3"	8	10'- 0"	8	7'- 3"	9	9'- 0"	15	11'- 3"	23	28'- 9"	15	7'- 6"	3
Z	2'- 0"	16'- 6"	5'- 0"	31'- 0"	12'- 6"	10	10'- 0"	24	30'- 0"	17	12'- 9"	12	6'- 0"	3	3'- 9"	8	10'- 0"	8	7'- 9"	9	9'- 0"	15	11'- 3"	24	30'- 0"	17	8'- 6"	3
AA	2'- 0"	17'- 0"	5'- 0"	32'- 0"	13'- 0"	11	11'- 0"	25	31'- 3"	17	12'- 9"	12	6'- 0"	4	4'- 3"	8	10'- 0"	9	8'- 3"	10	10'- 0"	15	11'- 3"	25	31'- 3"	17	8'- 6"	3
BB	2'- 0"	17'- 6"	5'- 3"	33'- 0"	14'- 0"	12	12'- 0"	26	32'- 6"	17	12'- 9"	12	6'- 0"	4	4'- 9"	8	10'- 0"	10	9'- 3"	11	11'- 0"	15	11'- 3"	26	32'- 6"	17	8'- 6"	3
CC	2'- 0"	18'- 0"	5'- 3"	34'- 0"	14'- 6"	13	13'- 0"	26	32'- 6"	17	12'- 9"	12	6'- 0"	4	4'- 0"	9	11'- 3"	10	9'- 9"	12	12'- 0"	15	11'- 3"	26	32'- 6"	17	8'- 6"	3
DD	2'- 6"	18'- 6"	5'- 6"	35'- 0"	15'- 0"	12	12'- 0"	27	33'- 9"	17	12'- 9"	16	8'- 0"	4	4'- 6"	9	11'- 3"	11	10'- 3"	10	10'- 0"	19	14'- 3"	27	33'- 9"	17	8'- 6"	4
EE	2'- 6"	19'- 0"	5'- 6"	36'- 0"	15'- 6"	12	12'- 0"	28	35'- 0"	17	12'- 9"	18	9'- 0"	4	5'- 0"	9	11'- 3"	11	10'- 9"	11	11'- 0"	19	14'- 3"	28	35'- 0"	17	8'- 6"	4

WING DETAILS
2:1 FILL SLOPE - TYPE I
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
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WING	WF1		WF2					WF3						WF4		
	SIZE	LENGTH	SIZE	LENGTH				SIZE	a			LENGTH			SIZE	LENGTH
				From	To	Vary By	# Ea		From	To	Vary By	From	To	Vary By		
A	4	6'- 6"	--	-----	-----	-----	--	4	3'- 6"	2'- 7 1/2"	0'- 1 3/4"	4'- 6"	3'- 7 1/2"	0'- 1 3/4"	4	6'- 7"
B	4	7'- 6"	--	-----	-----	-----	--	4	3'- 6"	2'- 7 1/2"	0'- 1 1/2"	4'- 6"	3'- 7 1/2"	0'- 1 1/2"	4	7'- 7"
C	4	8'- 6"	--	-----	-----	-----	--	4	3'- 6"	2'- 7"	0'- 1 3/8"	4'- 6"	3'- 7"	0'- 1 3/8"	4	8'- 7"
D	4	9'- 6"	--	-----	-----	-----	--	4	3'- 6"	2'- 6 3/4"	0'- 1 1/4"	4'- 6"	3'- 6 3/4"	0'- 1 1/4"	4	9'- 7"
E	4	10'- 6"	--	-----	-----	-----	--	4	3'- 6"	2'- 6 3/4"	0'- 1 1/8"	4'- 6"	3'- 6 3/4"	0'- 1 1/8"	4	10'- 7"
F	4	11'- 6"	--	-----	-----	-----	--	4	3'- 6"	2'- 7"	0'- 1"	4'- 6"	3'- 7"	0'- 1"	4	11'- 6"
G	4	12'- 6"	4	4'- 1"	-----	-----	2	4	4'- 0"	2'- 7 1/2"	0'- 1 3/8"	5'- 0"	3'- 7 1/2"	0'- 1 3/8"	4	12'- 7"
H	4	13'- 6"	4	6'- 9"	-----	-----	2	4	4'- 6"	2'- 7 1/4"	0'- 1 3/4"	5'- 6"	3'- 7 1/4"	0'- 1 3/4"	4	13'- 8"
I	4	14'- 6"	4	7'- 3"	-----	-----	2	4	4'- 6"	2'- 7 1/4"	0'- 1 5/8"	5'- 6"	3'- 7 1/4"	0'- 1 5/8"	4	14'- 8"
J	4	15'- 6"	4	9'- 4"	4'- 6 3/8"	4'- 9 5/8"	2	4	4'-11"	2'- 6 7/8"	0'- 1 7/8"	5'-11"	3'- 6 7/8"	0'- 1 7/8"	4	15'- 8"
K	4	16'- 6"	4	11'- 1"	3'-11 3/4"	3'- 6 5/8"	2	4	5'- 5"	2'- 7"	0'- 2 1/8"	6'- 5"	3'- 7"	0'- 2 1/8"	4	16'- 9"
L	4	17'- 6"	4	11'- 9"	4'- 2 3/4"	3'- 9 1/8"	2	4	5'- 5"	2'- 7"	0'- 2"	6'- 5"	3'- 7"	0'- 2"	4	17'- 9"
M	4	18'- 6"	4	13'- 4"	3'- 9 1/2"	4'- 9 1/4"	2	4	4'-11"	2'- 5 3/4"	0'- 2 1/4"	5'-11"	3'- 5 3/4"	0'- 2 1/4"	4	18'-10"
N	4	18'- 6"	4	13'- 4"	3'- 9 1/2"	4'- 9 1/4"	2	4	4'-11"	2'- 5 3/4"	0'- 2 1/4"	5'-11"	3'- 5 3/4"	0'- 2 1/4"	4	18'-10"
O	4	19'- 6"	4	14'- 9"	3'- 5 5/8"	3'- 9 1/8"	2	4	5'- 4"	2'- 6 3/4"	0'- 2 5/8"	6'- 4"	3'- 6 3/4"	0'- 2 5/8"	4	19'-11"
P	4	20'- 6"	4	16'- 1"	3'- 2 1/2"	4'- 3 1/2"	2	4	4'- 6"	2'- 6 3/8"	0'- 2 5/8"	5'- 6"	3'- 6 3/8"	0'- 2 5/8"	4	21'- 0"
Q	4	21'- 6"	4	16'-10"	3'- 4 3/4"	4'- 5 3/4"	2	4	4'- 7"	2'- 6"	0'- 2 1/2"	5'- 7"	3'- 6"	0'- 2 1/2"	4	21'-11"
R	4	22'- 6"	4	18'- 1"	3'- 2"	3'- 8 3/4"	2	4	4'-11"	2'- 6 1/8"	0'- 2 5/8"	5'-11"	3'- 6 1/8"	0'- 2 5/8"	4	23'- 0"
S	4	23'- 6"	4	19'- 4"	3'- 0"	4'- 1"	2	4	5'- 4"	2'- 7"	0'- 2 3/4"	6'- 4"	3'- 7"	0'- 2 3/4"	4	24'- 1"
T	4	24'- 6"	4	20'- 2"	3'- 1 1/2"	4'- 3 1/8"	2	4	4'- 6"	2'- 6 3/8"	0'- 2 5/8"	5'- 6"	3'- 6 3/8"	0'- 2 5/8"	4	25'- 1"
U	4	25'- 6"	4	21'- 5"	2'-11 3/4"	3'- 8 1/4"	2	4	5'- 1"	2'- 6 3/4"	0'- 2 3/4"	6'- 1"	3'- 6 3/4"	0'- 2 3/4"	4	26'- 2"
V	4	26'- 6"	4	22'- 7"	2'-10 1/8"	3'-11 3/8"	2	4	5'- 2"	2'- 6 3/8"	0'- 2 7/8"	6'- 2"	3'- 6 3/8"	0'- 2 7/8"	4	27'- 3"
W	4	27'- 6"	4	23'- 9"	2'- 8 1/4"	3'- 6 1/8"	2	4	5'- 4"	2'- 7"	0'- 3"	6'- 4"	3'- 7"	0'- 3"	4	28'- 4"
X	4	28'- 6"	4	25'- 1"	2'- 4 1/8"	3'- 2 7/8"	2	4	5'- 1"	2'- 6 5/8"	0'- 3 3/8"	6'- 1"	3'- 6 5/8"	0'- 3 3/8"	4	29'- 7"
Y	4	29'- 6"	4	26'- 5"	2'- 2"	3'- 3 1/8"	2	4	5'- 3"	2'- 6 3/8"	0'- 3 5/8"	6'- 3"	3'- 6 3/8"	0'- 3 5/8"	4	30'-10"
Z	4	30'- 6"	4	27'- 5"	2'- 2"	3'- 1 7/8"	2	4	5'- 4"	2'- 6 1/4"	0'- 3 3/4"	6'- 4"	3'- 6 1/4"	0'- 3 3/4"	4	31'-11"
AA	4	31'- 6"	4	28'- 6"	2'- 1 7/8"	2'-11 1/8"	2	4	5'- 8"	2'- 6 1/2"	0'- 3 3/4"	6'- 8"	3'- 6 1/2"	0'- 3 3/4"	4	33'- 0"
BB	4	32'- 6"	4	29'- 9"	1'-11 1/4"	2'- 9 3/8"	2	4	6'- 3"	2'- 7"	0'- 4"	7'- 3"	3'- 7"	0'- 4"	4	34'- 3"
CC	4	33'- 6"	4	30'- 9"	1'-10 3/4"	2'-10 5/8"	2	4	6'- 8"	2'- 6 1/2"	0'- 4 1/8"	7'- 8"	3'- 6 1/2"	0'- 4 1/8"	4	35'- 4"
DD	4	34'- 6"	4	31'-10"	1'-11 1/8"	2'- 8 5/8"	2	4	6'- 0"	2'- 6 3/4"	0'- 4 1/8"	7'- 0"	3'- 6 3/4"	0'- 4 1/8"	4	36'- 6"
EE	4	35'- 6"	4	32'-10"	1'-10 3/4"	2'- 9 3/4"	2	4	6'- 5"	2'- 6 1/4"	0'- 4 1/4"	7'- 5"	3'- 6 1/4"	0'- 4 1/4"	4	37'- 7"

WING	SIZE	WF5						WF6						WF7						WH1		WH3	
		a			LENGTH			SIZE	LENGTH			SIZE	a			LENGTH			SIZE	LENGTH	SIZE	LENGTH	
		From	To	Vary By	From	To	Vary By		From	To	Vary By		From	To	Vary By	From	To	Vary By					
A	--	----	----	----	----	----	4	3'- 6"	2'- 6 ³ / ₄ "	0'- 2 ¹ / ₄ "	--	----	----	----	----	----	4	6'- 6"	4	6'-11"			
B	--	----	----	----	----	----	4	3'- 6"	2'- 6"	0'- 2"	--	----	----	----	----	----	4	7'- 6"	4	8'- 1"			
C	--	----	----	----	----	----	4	3'- 6"	2'- 7 ¹ / ₂ "	0'- 1 ³ / ₄ "	--	----	----	----	----	----	4	8'- 6"	4	9'- 1"			
D	--	----	----	----	----	----	4	3'- 6"	2'- 7 ¹ / ₂ "	0'- 1 ¹ / ₂ "	--	----	----	----	----	----	4	9'- 6"	4	10'- 2"			
E	--	----	----	----	----	----	4	3'- 6"	2'- 7"	0'- 1 ³ / ₈ "	--	----	----	----	----	----	4	10'- 6"	4	11'- 2"			
F	--	----	----	----	----	----	4	3'- 6"	2'- 6 ³ / ₄ "	0'- 1 ¹ / ₄ "	--	----	----	----	----	----	4	11'- 6"	4	12'- 4"			
G	--	----	----	----	----	----	4	4'- 0"	2'- 6 ¹ / ₂ "	0'- 1 ³ / ₄ "	--	----	----	----	----	----	4	12'- 6"	4	13'- 4"			
H	--	----	----	----	----	----	4	4'- 6"	2'- 7 ¹ / ₂ "	0'- 2 ¹ / ₄ "	--	----	----	----	----	----	4	13'- 6"	4	14'- 5"			
I	--	----	----	----	----	----	4	4'- 6"	2'- 8"	0'- 2"	--	----	----	----	----	----	4	14'- 6"	4	15'- 6"			
J	--	----	----	----	----	----	4	4'-11"	2'- 8"	0'- 2 ¹ / ₄ "	--	----	----	----	----	----	4	15'- 6"	4	16'- 7"			
K	--	----	----	----	----	----	4	5'- 5"	2'- 6 ³ / ₈ "	0'- 2 ⁵ / ₈ "	--	----	----	----	----	----	4	16'- 6"	4	17'- 7"			
L	--	----	----	----	----	----	4	5'- 5"	2'- 6"	0'- 2 ¹ / ₂ "	--	----	----	----	----	----	4	17'- 6"	4	18'- 9"			
M	4	5'-11"	5'- 1 ¹ / ₄ "	0'- 1 ⁵ / ₈ "	6'-11"	6'- 1 ¹ / ₄ "	0'- 1 ⁵ / ₈ "	4	5'-11"	2'- 8 ¹ / ₂ "	0'- 2 ³ / ₄ "	--	----	----	----	----	4	18'- 6"	4	19'- 9"			
N	4	5'-11"	5'- 1 ¹ / ₄ "	0'- 1 ⁵ / ₈ "	6'-11"	6'- 1 ¹ / ₄ "	0'- 1 ⁵ / ₈ "	4	5'-11"	2'- 8 ¹ / ₂ "	0'- 2 ³ / ₄ "	--	----	----	----	----	4	18'- 6"	4	19'- 9"			
O	4	6'- 5"	5'- 6 ¹ / ₂ "	0'- 1 ³ / ₄ "	7'- 5"	6'- 6 ¹ / ₂ "	0'- 1 ³ / ₄ "	4	6'- 5"	2'- 8"	0'- 3"	--	----	----	----	----	4	19'- 6"	4	20'-10"			
P	4	5'- 6"	4'- 8"	0'- 2"	6'- 6"	5'- 8"	0'- 2"	4	6'-11"	2'- 7"	0'- 3 ¹ / ₄ "	4	6'-11"	5'- 8"	0'- 1 ¹ / ₄ "	7'-11"	6'- 8"	0'- 1 ¹ / ₄ "	4	20'- 6"	4	21'-11"	
Q	4	5'- 7"	4'- 9 ⁵ / ₈ "	0'- 1 ⁷ / ₈ "	6'- 7"	5'- 9 ⁵ / ₈ "	0'- 1 ⁷ / ₈ "	4	6'-11"	2'- 8"	0'- 3"	4	6'-11"	5'- 8"	0'- 1 ¹ / ₄ "	7'-11"	6'- 8"	0'- 1 ¹ / ₄ "	4	21'- 6"	4	23'- 0"	
R	4	6'- 0"	5'- 2"	0'- 2"	7'- 0"	6'- 2"	0'- 2"	4	7'- 5"	2'- 6 ¹ / ₂ "	0'- 3 ¹ / ₄ "	4	7'- 5"	6'- 2"	0'- 1 ¹ / ₄ "	8'- 5"	7'- 2"	0'- 1 ¹ / ₄ "	4	22'- 6"	4	24'- 0"	
S	4	6'- 5"	5'- 6 ³ / ₈ "	0'- 2 ¹ / ₈ "	7'- 5"	6'- 6 ³ / ₈ "	0'- 2 ¹ / ₈ "	4	7'-11"	2'-10 ¹ / ₄ "	0'- 3 ³ / ₈ "	4	7'-11"	6'- 6 ¹ / ₂ "	0'- 1 ³ / ₈ "	8'-11"	7'- 6 ¹ / ₂ "	0'- 1 ³ / ₈ "	4	23'- 6"	4	25'- 2"	
T	4	5'-11"	4'- 9"	0'- 2"	6'-11"	5'- 9"	0'- 2"	4	7'-11"	2'- 9 ¹ / ₄ "	0'- 3 ¹ / ₄ "	4	7'-11"	6'- 1 ³ / ₄ "	0'- 1 ¹ / ₄ "	8'-11"	7'- 1 ³ / ₄ "	0'- 1 ¹ / ₄ "	4	24'- 6"	4	26'- 2"	
U	5	7'- 2 ¹ / ₄ "	5'- 4 ¹ / ₄ "	0'- 2"	8'- 4"	6'- 6"	0'- 2"	4	8'- 5"	2'- 7"	0'- 3 ¹ / ₂ "	5	8'- 5 ¹ / ₄ "	7'- 4 ⁷ / ₈ "	0'- 1 ³ / ₈ "	9'- 7"	8'- 6 ⁵ / ₈ "	0'- 1 ³ / ₈ "	4	25'- 6"	4	27'- 3"	
V	5	7'- 5 ¹ / ₄ "	5'- 5 ⁷ / ₈ "	0'- 2 ¹ / ₈ "	8'- 7"	6'- 7 ⁵ / ₈ "	0'- 2 ¹ / ₈ "	4	8'-11"	2'- 6 ⁷ / ₈ "	0'- 3 ⁵ / ₈ "	5	8'-11 ¹ / ₄ "	7'- 6 ³ / ₄ "	0'- 1 ¹ / ₂ "	10'- 1"	8'- 8 ¹ / ₂ "	0'- 1 ¹ / ₂ "	4	26'- 6"	4	28'- 3"	
W	5	7'- 7 ¹ / ₄ "	5'- 6 ¹ / ₂ "	0'- 2 ¹ / ₄ "	8'- 9"	6'- 8 ¹ / ₄ "	0'- 2 ¹ / ₄ "	4	9'- 5"	2'- 6 ¹ / ₂ "	0'- 3 ³ / ₄ "	5	9'- 5 ¹ / ₄ "	7'- 9 ³ / ₄ "	0'- 1 ¹ / ₂ "	10'- 7"	8'-11 ¹ / ₂ "	0'- 1 ¹ / ₂ "	4	27'- 6"	4	29'- 5"	
X	5	8'- 5 ¹ / ₄ "	5'- 3 ³ / ₄ "	0'- 2 ¹ / ₂ "	9'- 7"	6'- 5 ¹ / ₂ "	0'- 2 ¹ / ₂ "	4	10'- 5"	2'-10 ¹ / ₄ "	0'- 4 ¹ / ₈ "	5	10'- 5 ¹ / ₄ "	8'- 8 ¹ / ₈ "	0'- 1 ⁵ / ₈ "	11'- 7"	9'- 9 ⁷ / ₈ "	0'- 1 ⁵ / ₈ "	4	28'- 6"	4	30'- 5"	
Y	5	8'-11 ¹ / ₄ "	5'- 6"	0'- 2 ³ / ₄ "	10'- 1"	6'- 7 ³ / ₄ "	0'- 2 ³ / ₄ "	4	11'- 5"	2'- 9 ¹ / ₂ "	0'- 4 ¹ / ₂ "	5	11'- 5 ¹ / ₄ "	9'- 1 ¹ / ₈ "	0'- 1 ⁷ / ₈ "	12'- 7"	10'- 2 ⁷ / ₈ "	0'- 1 ⁷ / ₈ "	4	29'- 6"	4	31'- 6"	
Z	5	9'- 1 ¹ / ₄ "	5'- 8"	0'- 2 ³ / ₄ "	10'- 3"	6'- 9 ³ / ₄ "	0'- 2 ³ / ₄ "	4	11'-11"	2'- 8"	0'- 4 ³ / ₈ "	5	11'-11 ¹ / ₄ "	9'- 3 ³ / ₈ "	0'- 1 ⁷ / ₈ "	13'- 1"	10'- 5 ¹ / ₈ "	0'- 1 ⁷ / ₈ "	4	30'- 6"	4	32'- 7"	
AA	6	9'- 6 ¹ / ₂ "	5'-11 ³ / ₈ "	0'- 2 ¹ / ₈ "	10'-11"	7'- 3 ⁷ / ₈ "	0'- 2 ⁷ / ₈ "	4	12'- 5"	2'- 6 ¹ / ₄ "	0'- 4 ³ / ₄ "	6	12'- 4 ¹ / ₂ "	9'- 8 ⁵ / ₈ "	0'- 1 ⁷ / ₈ "	13'- 9"	11'- 1 ¹ / ₈ "	0'- 1 ⁷ / ₈ "	4	31'- 6"	4	33'- 8"	
BB	6	10'- 3 ¹ / ₂ "	6'- 6 ¹ / ₂ "	0'- 3"	11'- 8"	7'-11"	0'- 3"	4	13'- 5"	2'- 7"	0'- 5"	6	13'- 4 ¹ / ₂ "	10'- 6 ¹ / ₂ "	0'- 2"	14'- 9"	11'-11"	0'- 2"	4	32'- 6"	4	34'- 8"	
CC	6	10'- 9 ¹ / ₂ "	7'- 1 ¹ / ₂ "	0'- 3"	12'- 2"	8'- 5"	0'- 3"	4	13'-11"	2'- 9 ³ / ₄ "	0'- 5 ¹ / ₈ "	6	13'-10 ¹ / ₂ "	11'- 1 ¹ / ₂ "	0'- 2"	15'- 3"	12'- 5"	0'- 2"	4	33'- 6"	4	35'-10"	
DD	6	11'- 2 ¹ / ₂ "	6'- 3 ¹ / ₈ "	0'- 3 ¹ / ₈ "	12'- 7"	7'- 7 ⁵ / ₈ "	0'- 3 ¹ / ₈ "	4	14'- 5"	2'-10 ⁵ / ₈ "	0'- 5 ¹ / ₈ "	6	14'- 4 ¹ / ₂ "	11'- 6 ¹ / ₂ "	0'- 2"	15'- 9"	12'-11"	0'- 2"	4	34'- 6"	4	36'-10"	
EE	6	11'- 8 ¹ / ₂ "	6'- 9 ¹ / ₈ "	0'- 3 ¹ / ₈ "	13'- 1"	8'- 1 ⁵ / ₈ "	0'- 3 ¹ / ₈ "	4	14'-11"	2'- 8"	0'- 5 ¹ / ₄ "	6	14'-10 ¹ / ₂ "	11'-10 ³ / ₈ "	0'- 2 ¹ / ₈ "	16'- 3"	13'- 2 ⁷ / ₈ "	0'- 2 ¹ / ₈ "	4	35'- 6"	4	37'-11"	

WING DETAILS
 2:1 FILL SLOPE - TYPE I
 VIRGINIA DEPARTMENT OF TRANSPORTATION

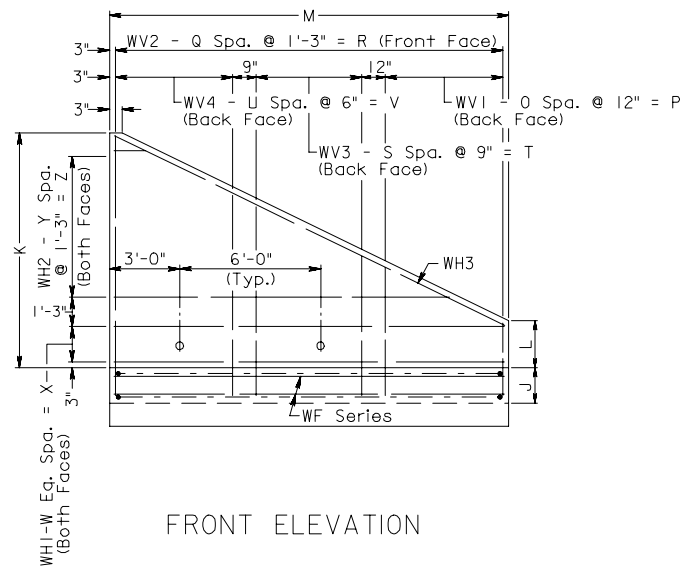
STRUCTURE
 AND
 BRIDGE
 DIVISION

WING	WH2						WV1						WV2					
	SIZE	LENGTH			#	Eq	SIZE	a			LENGTH			SIZE	LENGTH			
		From	To	Vary By				From	To	Vary By	From	To	Vary By		From	To	Vary By	
A	4	6'- 0"	2'- 7 ¹ / ₈ "	3'- 4 ¹ / ₈ "	2	4	5'- 1/4"	2'- 9/4"	0'- 4 ¹ / ₂ "	7'- 0"	4'- 9"	0'- 4 ¹ / ₂ "	4	5'- 0"	2'- 7 ¹ / ₈ "	0'- 5 ¹ / ₈ "		
B	4	5'- 9"	2'- 6 ¹ / ₂ "	3'- 2 ¹ / ₂ "	2	4	5'- 6 ¹ / ₄ "	2'- 9"	0'- 4 ³ / ₄ "	7'- 6"	4'- 8 ³ / ₄ "	0'- 4 ³ / ₄ "	4	5'- 6"	2'- 6 ³ / ₄ "	0'- 5 ¹ / ₈ "		
C	4	6'- 0"	2'- 7 ³ / ₄ "	3'- 4 ¹ / ₄ "	2	4	6'- 1/4"	3'- 1/4"	0'- 4 ¹ / ₂ "	8'- 0"	5'- 0"	0'- 4 ¹ / ₂ "	4	6'- 0"	3'- 2 ¹ / ₄ "	0'- 5 ¹ / ₈ "		
D	4	9'- 1"	2'- 6 ¹ / ₂ "	3'- 3 ¹ / ₄ "	2	4	6'- 6 ¹ / ₄ "	3'- 5 ¹ / ₈ "	0'- 4 ⁵ / ₈ "	8'- 6"	5'- 3 ¹ / ₈ "	0'- 4 ⁵ / ₈ "	4	6'- 6"	3'- 1 ³ / ₄ "	0'- 5 ³ / ₈ "		
E	4	9'- 4"	2'- 7 ³ / ₄ "	3'- 4 ¹ / ₈ "	2	4	7'- 1/4"	3'- 3 ¹ / ₄ "	0'- 4 ¹ / ₂ "	9'- 0"	5'- 3"	0'- 4 ¹ / ₂ "	4	7'- 0"	3'- 3"	0'- 5 ¹ / ₈ "		
F	4	9'- 1"	2'- 6 ³ / ₄ "	3'- 3 ¹ / ₈ "	2	4	7'- 6 ¹ / ₄ "	3'- 3 ³ / ₈ "	0'- 4 ⁵ / ₈ "	9'- 6"	5'- 3 ¹ / ₈ "	0'- 4 ⁵ / ₈ "	4	7'- 6"	3'- 2 ¹ / ₄ "	0'- 5 ³ / ₄ "		
G	4	9'- 4"	2'- 7 ¹ / ₂ "	3'- 4 ¹ / ₄ "	2	4	8'- 1/4"	3'- 6 ¹ / ₄ "	0'- 4 ¹ / ₂ "	10'- 0"	5'- 6"	0'- 4 ¹ / ₂ "	4	8'- 0"	3'- 3 ³ / ₄ "	0'- 5 ¹ / ₈ "		
H	4	12'- 5"	2'- 6 ¹ / ₈ "	3'- 3 ³ / ₈ "	2	4	8'- 6 ¹ / ₄ "	3'- 6 ¹ / ₈ "	0'- 4 ⁵ / ₈ "	10'- 6"	5'- 5 ¹ / ₈ "	0'- 4 ⁵ / ₈ "	4	8'- 6"	3'- 8 ¹ / ₂ "	0'- 5 ³ / ₄ "		
I	4	12'- 8"	2'- 7 ⁵ / ₈ "	3'- 4 ¹ / ₈ "	2	4	9'- 1/4"	3'- 9 ¹ / ₄ "	0'- 4 ¹ / ₂ "	11'- 0"	5'- 9"	0'- 4 ¹ / ₂ "	4	9'- 0"	3'-10 ¹ / ₈ "	0'- 5 ¹ / ₈ "		
J	4	12'- 5"	2'- 6 ¹ / ₈ "	3'- 3 ³ / ₈ "	2	4	9'- 6 ¹ / ₄ "	3'- 8 ¹ / ₈ "	0'- 4 ⁵ / ₈ "	11'- 6"	5'- 8 ⁵ / ₈ "	0'- 4 ⁵ / ₈ "	4	9'- 6"	3'- 9"	0'- 5 ³ / ₄ "		
K	4	16'- 0"	2'- 7 ¹ / ₂ "	3'- 4 ¹ / ₈ "	2	4	10'- 1/4"	4'- 1/4"	0'- 4 ¹ / ₂ "	12'- 0"	6'- 0"	0'- 4 ¹ / ₂ "	4	10'- 0"	3'-10 ¹ / ₈ "	0'- 5 ¹ / ₈ "		
L	4	15'- 9"	2'- 7"	3'- 3 ¹ / ₂ "	2	4	8'- 4 ¹ / ₄ "	3'-10 ¹ / ₄ "	0'- 4 ¹ / ₂ "	10'- 4"	5'-10"	0'- 4 ¹ / ₂ "	4	10'- 6"	3'- 9 ¹ / ₂ "	0'- 5 ³ / ₄ "		
M	4	16'- 0"	2'- 7 ¹ / ₂ "	3'- 4 ¹ / ₈ "	2	4	8'-11 ¹ / ₄ "	4'- 3/4"	0'- 4 ¹ / ₂ "	10'-11"	6'- 1/2"	0'- 4 ¹ / ₂ "	4	11'- 0"	4'- 5 ¹ / ₄ "	0'- 5 ¹ / ₈ "		
N	4	16'- 0"	2'- 7 ¹ / ₂ "	3'- 4 ¹ / ₈ "	2	4	8'- 5 ¹ / ₄ "	4'- 8 ¹ / ₄ "	0'- 4 ¹ / ₂ "	10'- 5"	6'- 8"	0'- 4 ¹ / ₂ "	4	11'- 6"	4'-11 ¹ / ₄ "	0'- 5 ¹ / ₈ "		
O	4	19'- 1"	2'- 6 ¹ / ₈ "	3'- 3 ⁵ / ₈ "	2	4	8'-10 ¹ / ₄ "	4'- 8 ³ / ₄ "	0'- 4 ¹ / ₂ "	10'-10"	6'- 8 ¹ / ₂ "	0'- 4 ¹ / ₂ "	4	12'- 0"	4'- 9 ³ / ₄ "	0'- 5 ³ / ₄ "		
P	4	19'- 4"	2'- 7 ³ / ₈ "	3'- 4 ¹ / ₈ "	2	4	7'-10 ¹ / ₄ "	4'-10 ¹ / ₄ "	0'- 4 ¹ / ₂ "	9'-10"	6'-10"	0'- 4 ¹ / ₂ "	4	12'- 6"	5'- 0"	0'- 5 ¹ / ₈ "		
Q	4	19'- 1"	2'- 6 ¹ / ₈ "	3'- 3 ⁵ / ₈ "	2	4	8'- 3 ¹ / ₄ "	4'- 9 ⁵ / ₈ "	0'- 4 ⁵ / ₈ "	10'- 3"	6'- 9 ³ / ₈ "	0'- 4 ⁵ / ₈ "	4	13'- 0"	4'-10 ¹ / ₄ "	0'- 5 ³ / ₄ "		
R	4	19'- 4"	2'- 7 ³ / ₈ "	3'- 4 ¹ / ₈ "	2	4	8'-10 ¹ / ₄ "	5'- 1 ¹ / ₄ "	0'- 4 ¹ / ₂ "	10'-10"	7'- 1"	0'- 4 ¹ / ₂ "	4	13'- 6"	5'- 3/4"	0'- 5 ¹ / ₈ "		
S	4	22'- 5"	2'- 7 ¹ / ₄ "	3'- 3 ⁵ / ₈ "	2	4	9'- 3 ¹ / ₄ "	5'- 3/8"	0'- 4 ⁵ / ₈ "	11'- 3"	7'- 1/8"	0'- 4 ⁵ / ₈ "	4	14'- 0"	5'- 4 ¹ / ₂ "	0'- 5 ³ / ₄ "		
T	4	22'- 8"	2'- 7 ¹ / ₄ "	3'- 4 ¹ / ₈ "	2	4	9'- 9 ¹ / ₄ "	5'- 3 ¹ / ₄ "	0'- 4 ¹ / ₂ "	11'- 9"	7'- 3"	0'- 4 ¹ / ₂ "	4	14'- 6"	5'- 7 ¹ / ₈ "	0'- 5 ¹ / ₈ "		
U	4	22'- 5"	2'- 7 ¹ / ₄ "	3'- 3 ⁵ / ₈ "	2	4	9'-10 ¹ / ₄ "	5'- 4 ¹ / ₄ "	0'- 4 ¹ / ₂ "	11'-10"	7'- 4"	0'- 4 ¹ / ₂ "	4	15'- 0"	5'- 5"	0'- 5 ³ / ₄ "		
V	4	26'- 0"	2'- 7 ¹ / ₈ "	3'- 4 ¹ / ₈ "	2	4	9'- 4 ¹ / ₄ "	5'- 7 ¹ / ₄ "	0'- 4 ¹ / ₂ "	11'- 4"	7'- 7"	0'- 4 ¹ / ₂ "	4	15'- 6"	5'- 7 ¹ / ₈ "	0'- 5 ¹ / ₈ "		
W	4	25'- 9"	2'- 6 ³ / ₄ "	3'- 3 ³ / ₄ "	2	4	9'- 9 ¹ / ₄ "	5'- 6 ³ / ₈ "	0'- 4 ⁵ / ₈ "	11'- 9"	7'- 6 ¹ / ₈ "	0'- 4 ⁵ / ₈ "	4	16'- 0"	5'- 5 ¹ / ₂ "	0'- 5 ³ / ₄ "		
X	4	26'- 0"	2'- 7 ¹ / ₈ "	3'- 4 ¹ / ₈ "	2	4	10'- 2 ¹ / ₄ "	6'- 3/4"	0'- 4 ¹ / ₂ "	12'- 2"	8'- 1/2"	0'- 4 ¹ / ₂ "	4	16'- 9"	6'- 5 ¹ / ₄ "	0'- 5 ¹ / ₈ "		
Y	4	29'- 1"	2'- 7"	3'- 3 ³ / ₄ "	2	4	10'- 1 ¹ / ₄ "	6'- 4 ¹ / ₄ "	0'- 4 ¹ / ₂ "	12'- 1"	8'- 4"	0'- 4 ¹ / ₂ "	4	17'- 6"	6'- 8 ⁵ / ₈ "	0'- 5 ¹ / ₈ "		
Z	4	29'- 4"	2'- 7"	3'- 4 ¹ / ₈ "	2	4	10'- 4 ¹ / ₄ "	6'- 7 ¹ / ₄ "	0'- 4 ¹ / ₂ "	12'- 4"	8'- 7"	0'- 4 ¹ / ₂ "	4	18'- 0"	6'- 9"	0'- 5 ¹ / ₈ "		
AA	4	29'- 1"	2'- 7"	3'- 3 ³ / ₄ "	2	5	10'- 8 ³ / ₄ "	6'- 7 ¹ / ₄ "	0'- 4 ¹ / ₂ "	12'- 9"	8'- 7 ¹ / ₂ "	0'- 4 ¹ / ₂ "	4	18'- 6"	6'- 9 ³ / ₈ "	0'- 5 ¹ / ₈ "		
BB	4	29'- 4"	2'- 7"	3'- 4 ¹ / ₈ "	2	5	11'- 3 ³ / ₄ "	6'- 9 ³ / ₄ "	0'- 4 ¹ / ₂ "	13'- 4"	8'-10"	0'- 4 ¹ / ₂ "	4	19'- 0"	6'- 9 ³ / ₄ "	0'- 5 ¹ / ₈ "		
CC	4	32'- 5"	2'- 7 ¹ / ₄ "	3'- 3 ³ / ₄ "	2	5	11'- 8 ³ / ₄ "	6'-10 ¹ / ₄ "	0'- 4 ¹ / ₂ "	13'- 9"	8'-10 ¹ / ₂ "	0'- 4 ¹ / ₂ "	4	19'- 6"	7'- 3 ³ / ₄ "	0'- 5 ¹ / ₈ "		
DD	4	32'- 8"	2'- 8"	3'- 4"	2	5	12'- 3/4"	7'- 6 ³ / ₄ "	0'- 4 ¹ / ₂ "	14'- 1"	9'- 7"	0'- 4 ¹ / ₂ "	4	20'- 6"	7'-10 ¹ / ₈ "	0'- 5 ¹ / ₈ "		
EE	4	32'- 5"	2'- 7 ¹ / ₄ "	3'- 3 ³ / ₄ "	2	5	12'- 1 ³ / ₄ "	7'- 6 ¹ / ₄ "	0'- 4 ⁵ / ₈ "	14'- 2"	9'- 6 ¹ / ₂ "	0'- 4 ⁵ / ₈ "	4	21'- 0"	7'-10 ¹ / ₂ "	0'- 5 ¹ / ₈ "		

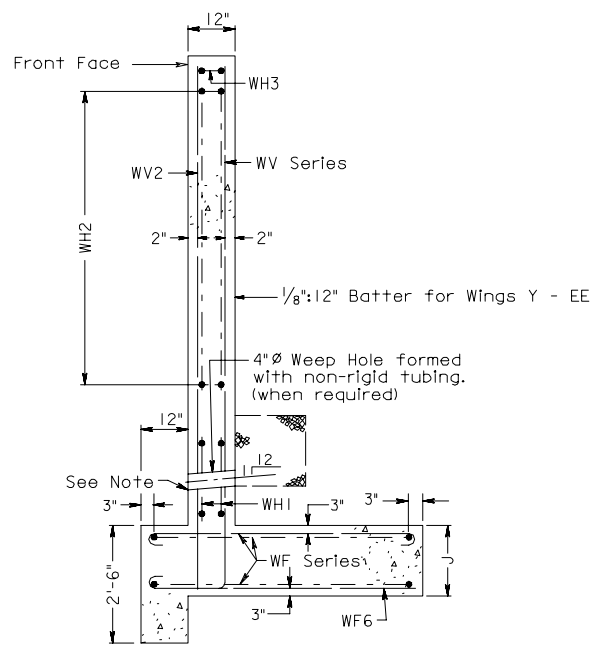
WING	SIZE	WV3						WV4						
		a			LENGTH			a			LENGTH			
		From	To	Vary By	From	To	Vary By	From	To	Vary By	From	To	Vary By	
A	--	----	----	----	----	----	----	--	----	----	----	----	----	----
B	--	----	----	----	----	----	----	--	----	----	----	----	----	----
C	--	----	----	----	----	----	----	--	----	----	----	----	----	----
D	--	----	----	----	----	----	----	--	----	----	----	----	----	----
E	--	----	----	----	----	----	----	--	----	----	----	----	----	----
F	--	----	----	----	----	----	----	--	----	----	----	----	----	----
G	--	----	----	----	----	----	----	--	----	----	----	----	----	----
H	--	----	----	----	----	----	----	--	----	----	----	----	----	----
I	--	----	----	----	----	----	----	--	----	----	----	----	----	----
J	--	----	----	----	----	----	----	--	----	----	----	----	----	----
K	--	----	----	----	----	----	----	--	----	----	----	----	----	----
L	4	10'- 6/4"	8'- 9/4"	0'- 3/2"	12'- 6"	10'- 9"	0'- 3/2"	--	----	----	----	----	----	----
M	4	11'- 1/4"	9'- 3/4"	0'- 3/2"	13'- 0"	11'- 3"	0'- 3/2"	--	----	----	----	----	----	----
N	4	10'- 5/4"	8'- 9"	0'- 3/8"	12'- 5"	10'- 8 3/4"	0'- 3/8"	4	11'- 6/4"	10'- 8 3/4"	0'- 2 3/8"	13'- 6"	12'- 8 1/2"	0'- 2 3/8"
O	4	10'-11 1/4"	9'- 3"	0'- 3/8"	12'-11"	11'- 2 3/4"	0'- 3/8"	4	12'- 1/4"	11'- 2 3/4"	0'- 2 3/8"	14'- 0"	13'- 2 1/2"	0'- 2 3/8"
P	4	10'- 8 1/4"	8'- 1 7/8"	0'- 3/8"	12'- 8"	10'- 1 5/8"	0'- 3/8"	4	12'- 6 1/4"	11'- 1/4"	0'- 2 1/4"	14'- 6"	13'- 0"	0'- 2 1/4"
Q	4	11'- 2 1/4"	8'- 7 1/8"	0'- 3/8"	13'- 2"	10'- 7 5/8"	0'- 3/8"	4	13'- 1/4"	11'- 5/4"	0'- 2 3/8"	15'- 0"	13'- 5"	0'- 2 3/8"
R	5	11'- 8 3/4"	9'- 2 3/8"	0'- 3/8"	13'- 9"	11'- 2 5/8"	0'- 3/8"	5	13'- 5 3/4"	11'-11 3/4"	0'- 2 1/4"	15'- 6"	14'- 0"	0'- 2 1/4"
S	5	12'- 1 3/4"	9'- 7 3/8"	0'- 3/8"	14'- 2"	11'- 7 5/8"	0'- 3/8"	5	13'-11 3/4"	12'- 5 3/4"	0'- 2 1/4"	16'- 0"	14'- 6"	0'- 2 1/4"
T	5	12'- 8 3/4"	10'- 2 3/8"	0'- 3/8"	14'- 9"	12'- 2 5/8"	0'- 3/8"	5	14'- 5 3/4"	12'-11 3/4"	0'- 2 1/4"	16'- 6"	15'- 0"	0'- 2 1/4"
U	5	12'- 9 3/4"	10'- 3 3/8"	0'- 3/8"	14'-10"	12'- 3 5/8"	0'- 3/8"	5	14'-11 3/4"	13'- 1 1/4"	0'- 2 1/4"	17'- 0"	15'- 1 1/2"	0'- 2 1/4"
V	6	13'- 3 5/8"	9'- 7 3/4"	0'- 3/8"	15'- 5"	11'- 9 1/8"	0'- 3/8"	6	15'- 5 5/8"	13'- 7 1/8"	0'- 2 1/4"	17'- 7"	15'- 8 1/2"	0'- 2 1/4"
W	6	13'- 9 5/8"	10'- 1 3/4"	0'- 3/8"	15'-11"	12'- 3 1/8"	0'- 3/8"	6	15'-11 5/8"	14'- 1 1/8"	0'- 2 1/4"	18'- 1"	16'- 2 1/2"	0'- 2 1/4"
X	6	14'- 2 5/8"	10'- 6 3/4"	0'- 3/8"	16'- 4"	12'- 8 1/8"	0'- 3/8"	6	16'- 8 5/8"	14'- 5 5/8"	0'- 2 1/4"	18'-10"	16'- 7"	0'- 2 1/4"
Y	6	15'- 3 5/8"	10'- 6 1/4"	0'- 3/8"	17'- 5"	12'- 7 5/8"	0'- 3/8"	6	17'- 5 5/8"	15'- 7 1/8"	0'- 2 1/4"	19'- 7"	17'- 8 1/2"	0'- 2 1/4"
Z	6	15'- 5 5/8"	10'- 8 1/4"	0'- 3/8"	17'- 7"	12'- 9 5/8"	0'- 3/8"	6	17'-11 5/8"	15'- 8 5/8"	0'- 2 1/4"	20'- 1"	17'-10"	0'- 2 1/4"
AA	7	15'-11 5/8"	11'- 2 1/4"	0'- 3/8"	18'- 2"	13'- 4 5/8"	0'- 3/8"	7	18'- 5 5/8"	16'- 2 5/8"	0'- 2 1/4"	20'- 8"	18'- 5"	0'- 2 1/4"
BB	7	16'- 5 5/8"	11'- 8 1/4"	0'- 3/8"	18'- 8"	13'-10 5/8"	0'- 3/8"	7	18'-11 5/8"	16'- 8 5/8"	0'- 2 1/4"	21'- 2"	18'-11"	0'- 2 1/4"
CC	7	16'-11 5/8"	12'- 2 1/4"	0'- 3/8"	19'- 2"	14'- 4 5/8"	0'- 3/8"	7	19'- 5 5/8"	17'- 2 5/8"	0'- 2 1/4"	21'- 8"	19'- 5"	0'- 2 1/4"
DD	7	17'- 2 5/8"	12'- 5 1/4"	0'- 3/8"	19'- 5"	14'- 7 5/8"	0'- 3/8"	7	20'- 5 5/8"	17'- 5 5/8"	0'- 2 1/4"	22'- 8"	19'- 8"	0'- 2 1/4"
EE	7	17'- 3 5/8"	12'- 6 1/4"	0'- 3/8"	19'- 6"	14'- 8 5/8"	0'- 3/8"	8	20'-11 1/2"	17'- 7"	0'- 2 1/4"	23'- 3"	19'-10 1/2"	0'- 2 1/4"

WING DETAILS
 2:1 FILL SLOPE - TYPE I
 VIRGINIA DEPARTMENT OF TRANSPORTATION

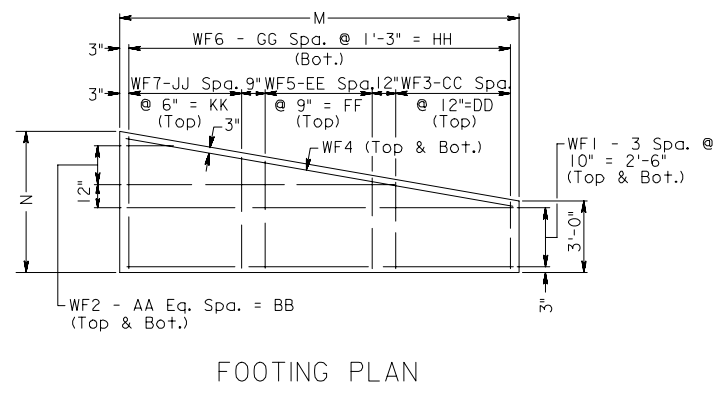
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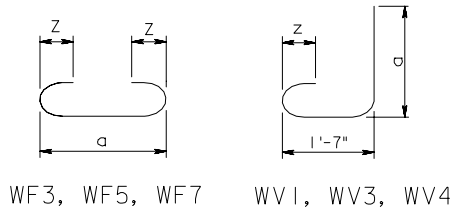
FRONT ELEVATION



END VIEW



FOOTING PLAN



WF3, WF5, WF7 WV1, WV3, WV4

TABLE B		
Bar Size	Pin Dia.	Z
#3	2 1/4"	4"
#4	3"	4 1/2"
#5	3 3/4"	5"
#6	4 1/2"	6"
#7	5 1/4"	7"
#8	6"	8"
#9	9"	10 1/8"

TABLE C	
Bar Size	Splice Length
#4	1'- 4"
#5	1'- 8"
#6	1'-11"
#7	2'- 4"
#8	3'- 1"
#9	3'-11"

GENERAL NOTE

Specifications:

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

All concrete shall be Class A4.

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

Dimensions on bar diagrams are out-to-out of bars. Bars are straight unless otherwise shown.

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

At the Contractor's option, WV Series bars may be spliced at the top of footing in order to facilitate construction. Splice lengths shall be in accordance with TABLE C. No additional compensation shall be provided for the increase in reinforcing steel quantity due to the splices.

When concrete protective coating is required, all steel shall be epoxy-coated.

Bearing capacity of foundations shall be 1.5 Tons/Sq. Ft. minimum for wings A - X and 2 Tons/Sq. Ft. minimum for wings Y - EE.

Weepholes shall be placed at lowest point feasible for free drainage away from wing.

Four Type I Wings are to be used for straight crossings and skews up to 20°. Two Type I & two Type II Wings are to be used for skews from 25° to 45°. For skews above 45°, special design wings are required. The wingwall to be used for each culvert is shown on the BC series sheets.

The designs shown are applicable for a 45° skew with the roadway and other conditions indicated. Any change in these conditions invalidates these designs.

Quantities shown are for one wing.

WING	Quantity (One Wing)	
	Concrete Cu. Yd.	Reinforcing Steel Lbs.
A	2.917	182.454
B	3.499	233.188
C	3.939	252.894
D	4.573	286.711
E	5.233	341.981
F	6.145	383.724
G	6.881	445.681
H	7.910	489.811
I	8.512	517.004
J	9.643	613.342
K	10.529	655.405
L	11.777	771.234
M	13.099	837.992
N	14.106	919.335
O	15.275	1017.802
P	16.355	1093.189
Q	17.891	1292.357
R	19.035	1525.633
S	20.691	1704.239
T	21.910	1952.852
U	23.368	2116.654
V	24.678	2112.153
W	28.412	2270.223
X	32.434	3904.347
Y	35.972	2730.572
Z	37.707	2849.343
AA	39.857	3392.164
BB	42.547	3594.334
CC	46.155	4755.614
DD	49.940	5500.464
EE	51.922	6808.705

WING	DIMENSIONS					BAR SPACINGS																	NO. WEEP HOLES					
	J	K	L	M	N	WV1		WV2		WV3		WV4		WH1		WH2		WF2		WF3		WF5		WF6		WF7		
						O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE		FF	GG	HH	JJ	KK
A	1'- 6"	4'- 0"	1'- 0"	9'- 0"	4'- 0"	8	8'- 0"	6	7'- 6"	--	----	--	----	--	----	1	1'- 3"	--	----	8	8'- 0"	--	----	6	7'- 6"	--	----	--
B	1'- 6"	4'- 6"	1'- 0"	10'- 6"	4'- 0"	10	10'- 0"	8	10'- 0"	--	----	--	----	1	0'- 6"	1	1'- 3"	--	----	10	10'- 0"	--	----	8	10'- 0"	--	----	--
C	1'- 6"	5'- 0"	1'- 0"	11'- 6"	4'- 0"	11	11'- 0"	8	10'- 0"	--	----	--	----	--	----	2	2'- 6"	--	----	11	11'- 0"	--	----	8	10'- 0"	--	----	--
D	1'- 6"	5'- 6"	1'- 0"	13'- 0"	4'- 0"	12	12'- 0"	10	12'- 6"	--	----	--	----	--	----	2	2'- 6"	--	----	12	12'- 0"	--	----	10	12'- 6"	--	----	--
E	1'- 6"	6'- 0"	1'- 0"	14'- 6"	4'- 0"	14	14'- 0"	11	13'- 9"	--	----	--	----	--	----	3	3'- 9"	--	----	14	14'- 0"	--	----	11	13'- 9"	--	----	--
F	1'- 6"	6'- 6"	1'- 0"	16'- 0"	4'- 6"	15	15'- 0"	12	15'- 0"	--	----	--	----	--	----	3	3'- 9"	--	----	15	15'- 0"	--	----	12	15'- 0"	--	----	--
G	1'- 6"	7'- 0"	1'- 0"	17'- 6"	4'- 6"	17	17'- 0"	13	16'- 3"	--	----	--	----	1	0'- 6"	3	3'- 9"	--	----	17	17'- 0"	--	----	13	16'- 3"	--	----	--
H	1'- 6"	7'- 6"	1'- 0"	19'- 0"	5'- 0"	18	18'- 0"	14	17'- 6"	--	----	--	----	--	----	4	5'- 0"	--	----	18	18'- 0"	--	----	14	17'- 6"	--	----	--
I	1'- 6"	8'- 0"	1'- 0"	20'- 0"	5'- 0"	19	19'- 0"	15	18'- 9"	--	----	--	----	--	----	4	5'- 0"	--	----	19	19'- 0"	--	----	15	18'- 9"	--	----	--
J	1'- 6"	8'- 6"	1'- 0"	21'- 6"	5'- 6"	21	21'- 0"	16	20'- 0"	--	----	--	----	--	----	5	6'- 3"	1	0'- 9"	21	21'- 0"	--	----	16	20'- 0"	--	----	--
K	1'- 6"	9'- 0"	1'- 0"	23'- 0"	5'- 6"	22	22'- 0"	18	22'- 6"	--	----	--	----	--	----	5	6'- 3"	1	0'- 9"	22	22'- 0"	--	----	18	22'- 6"	--	----	--
L	1'- 6"	9'- 6"	1'- 0"	24'- 6"	6'- 0"	17	17'- 0"	19	23'- 9"	8	6'- 0"	--	----	1	0'- 6"	5	6'- 3"	2	1'- 3"	24	24'- 0"	--	----	19	23'- 9"	--	----	--
M	1'- 6"	10'- 0"	1'- 0"	26'- 0"	6'- 6"	17	17'- 0"	20	25'- 0"	10	7'- 6"	--	----	--	----	6	7'- 6"	2	1'- 9"	20	20'- 0"	6	4'- 6"	20	25'- 0"	--	----	2
N	1'- 6"	10'- 6"	1'- 0"	27'- 6"	6'- 6"	12	12'- 0"	21	26'- 3"	13	9'- 9"	7	3'- 6"	--	----	6	7'- 6"	2	1'- 9"	22	22'- 0"	5	3'- 9"	21	26'- 3"	--	----	2
O	1'- 6"	11'- 0"	1'- 0"	28'- 6"	7'- 0"	13	13'- 0"	22	27'- 6"	13	9'- 9"	7	3'- 6"	--	----	7	8'- 9"	3	2'- 3"	23	23'- 0"	5	3'- 9"	22	27'- 6"	--	----	2
P	1'- 6"	11'- 6"	1'- 0"	30'- 0"	7'- 0"	15	15'- 0"	23	28'- 9"	13	9'- 9"	6	3'- 0"	--	----	7	8'- 9"	3	2'- 3"	17	17'- 0"	9	6'- 9"	23	28'- 9"	8	4'- 0"	3
Q	1'- 6"	12'- 0"	1'- 0"	31'- 6"	7'- 6"	15	15'- 0"	24	30'- 0"	13	9'- 9"	9	4'- 6"	1	0'- 6"	7	8'- 9"	3	2'- 9"	18	18'- 0"	9	6'- 9"	24	30'- 0"	9	4'- 6"	3
R	1'- 6"	12'- 6"	1'- 0"	33'- 0"	7'- 6"	15	15'- 0"	26	32'- 6"	13	9'- 9"	12	6'- 0"	--	----	8	10'- 0"	3	2'- 9"	19	19'- 0"	9	6'- 9"	26	32'- 6"	10	5'- 0"	3
S	1'- 6"	13'- 0"	1'- 0"	34'- 6"	8'- 0"	15	15'- 0"	27	33'- 9"	13	9'- 9"	15	7'- 6"	--	----	8	10'- 0"	4	3'- 3"	19	19'- 0"	9	6'- 9"	27	33'- 9"	13	6'- 6"	3
T	1'- 6"	13'- 6"	1'- 0"	36'- 0"	8'- 0"	14	14'- 0"	28	35'- 0"	15	11'- 3"	17	8'- 6"	--	----	9	11'- 3"	4	3'- 3"	19	19'- 0"	11	8'- 3"	28	35'- 0"	13	6'- 6"	4
U	1'- 6"	14'- 0"	1'- 0"	37'- 0"	8'- 6"	14	14'- 0"	29	36'- 3"	17	12'- 9"	16	8'- 0"	--	----	9	11'- 3"	4	3'- 9"	19	19'- 0"	13	9'- 9"	29	36'- 3"	12	6'- 0"	4
V	1'- 6"	14'- 6"	1'- 0"	38'- 6"	8'- 6"	15	15'- 0"	30	37'- 6"	17	12'- 9"	17	8'- 6"	1	0'- 6"	9	11'- 3"	4	3'- 9"	20	20'- 0"	13	9'- 9"	30	37'- 6"	13	6'- 6"	4
W	1'- 9"	15'- 0"	1'- 0"	40'- 0"	9'- 0"	15	15'- 0"	31	38'- 9"	19	14'- 3"	17	8'- 6"	--	----	10	12'- 6"	5	4'- 3"	20	20'- 0"	15	11'- 3"	31	38'- 9"	13	6'- 6"	5
X	2'- 0"	15'- 6"	1'- 0"	41'- 6"	9'- 6"	17	17'- 0"	32	40'- 0"	17	12'- 9"	19	9'- 6"	--	----	10	12'- 6"	5	4'- 9"	20	20'- 0"	17	12'- 9"	32	40'- 0"	13	6'- 6"	5
Y	2'- 0"	16'- 0"	1'- 0"	43'- 0"	10'- 0"	20	20'- 0"	34	42'- 6"	15	11'- 3"	19	9'- 6"	--	----	11	13'- 9"	6	5'- 3"	18	18'- 0"	19	14'- 3"	34	42'- 6"	17	8'- 6"	5
Z	2'- 0"	16'- 6"	1'- 0"	44'- 6"	10'- 0"	20	20'- 0"	35	43'- 9"	17	12'- 9"	19	9'- 6"	--	----	11	13'- 9"	6	5'- 3"	18	18'- 0"	21	15'- 9"	35	43'- 9"	17	8'- 6"	5
AA	2'- 0"	17'- 0"	1'- 0"	45'- 6"	10'- 6"	21	21'- 0"	36	45'- 0"	17	12'- 9"	19	9'- 6"	1	0'- 6"	11	13'- 9"	6	5'- 9"	19	19'- 0"	21	15'- 9"	36	45'- 0"	17	8'- 6"	6
BB	2'- 0"	17'- 6"	1'- 0"	47'- 0"	11'- 0"	21	21'- 0"	37	46'- 3"	19	14'- 3"	19	9'- 6"	--	----	12	15'- 0"	7	6'- 3"	19	19'- 0"	23	17'- 3"	37	46'- 3"	17	8'- 6"	6
CC	2'- 0"	18'- 0"	1'- 0"	48'- 6"	12'- 0"	19	19'- 0"	38	47'- 6"	21	15'- 9"	23	11'- 6"	--	----	12	15'- 0"	8	7'- 3"	19	19'- 0"	25	18'- 9"	38	47'- 6"	17	8'- 6"	6
DD	2'- 0"	18'- 6"	1'- 0"	50'- 0"	13'- 0"	18	18'- 0"	39	48'- 9"	23	17'- 3"	25	12'- 6"	--	----	13	16'- 3"	9	8'- 3"	17	17'- 0"	27	20'- 3"	39	48'- 9"	21	10'- 6"	7
EE	2'- 0"	19'- 0"	1'- 0"	51'- 6"	13'- 0"	18	18'- 0"	40	50'- 0"	25	18'- 9"	25	12'- 6"	--	----	13	16'- 3"	9	8'- 3"	17	17'- 0"	29	21'- 9"	40	50'- 0"	21	10'- 6"	7

WING DETAILS
 2:1 FILL SLOPE - TYPE II
 VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
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 DIVISION

WING	WF1		WF2					WF3						WF4		
	SIZE	LENGTH	SIZE	LENGTH				SIZE	a			LENGTH			SIZE	LENGTH
				From	To	Vary By	# Ea		From	To	Vary By	From	To	Vary By		
A	4	8'- 6"	--	-----	-----	-----	--	4	3'- 6"	2'- 7"	0'- 1 ³ / ₈ "	4'- 6"	3'- 7"	0'- 1 ³ / ₈ "	4	8'- 7"
B	4	10'- 0"	--	-----	-----	-----	--	4	3'- 6"	2'- 6 ³ / ₄ "	0'- 1 ¹ / ₈ "	4'- 6"	3'- 6 ³ / ₄ "	0'- 1 ¹ / ₈ "	4	10'- 1"
C	4	11'- 0"	--	-----	-----	-----	--	4	3'- 6"	2'- 5 ⁵ / ₈ "	0'- 1 ¹ / ₈ "	4'- 6"	3'- 5 ⁵ / ₈ "	0'- 1 ¹ / ₈ "	4	11'- 0"
D	4	12'- 6"	--	-----	-----	-----	--	4	3'- 6"	2'- 6"	0'- 1"	4'- 6"	3'- 6"	0'- 1"	4	12'- 6"
E	4	14'- 0"	--	-----	-----	-----	--	4	3'- 6"	2'- 5 ³ / ₄ "	0'- ⁷ / ₈ "	4'- 6"	3'- 5 ³ / ₄ "	0'- ⁷ / ₈ "	4	14'- 0"
F	4	15'- 6"	4	5'- 1"	-----	-----	2	4	4'- 0"	2'- 7 ⁷ / ₈ "	0'- 1 ¹ / ₈ "	5'- 0"	3'- 7 ⁷ / ₈ "	0'- 1 ¹ / ₈ "	4	15'- 7"
G	4	17'- 0"	4	5'- 7"	-----	-----	2	4	4'- 0"	2'- 7"	0'- 1"	5'- 0"	3'- 7"	0'- 1"	4	17'- 1"
H	4	18'- 6"	4	9'- 3"	-----	-----	2	4	4'- 6"	2'- 7 ¹ / ₂ "	0'- 1 ¹ / ₄ "	5'- 6"	3'- 7 ¹ / ₂ "	0'- 1 ¹ / ₄ "	4	18'- 7"
I	4	19'- 6"	4	9'- 9"	-----	-----	2	4	4'- 6"	2'- 6 ¹ / ₄ "	0'- 1 ¹ / ₄ "	5'- 6"	3'- 6 ¹ / ₄ "	0'- 1 ¹ / ₄ "	4	19'- 7"
J	4	21'- 0"	4	12'- 8"	6'- 2 ¹ / ₄ "	6'- 5 ³ / ₄ "	2	4	5'- 0"	2'- 7 ¹ / ₈ "	0'- 1 ³ / ₈ "	6'- 0"	3'- 7 ¹ / ₈ "	0'- 1 ³ / ₈ "	4	21'- 2"
K	4	22'- 6"	4	13'- 6"	6'- 7 ⁵ / ₈ "	6'-10 ³ / ₈ "	2	4	5'- 0"	2'- 5 ³ / ₄ "	0'- 1 ³ / ₈ "	6'- 0"	3'- 5 ³ / ₄ "	0'- 1 ³ / ₈ "	4	22'- 8"
L	4	24'- 0"	4	16'- 1"	5'-10 ¹ / ₄ "	5'- 1 ³ / ₈ "	2	4	5'- 6"	2'- 6"	0'- 1 ¹ / ₂ "	6'- 6"	3'- 6"	0'- 1 ¹ / ₂ "	4	24'- 2"
M	4	25'- 6"	4	18'- 4"	5'- 3 ¹ / ₂ "	6'- 6 ¹ / ₄ "	2	4	5'- 3"	2'- 6 ¹ / ₂ "	0'- 1 ⁵ / ₈ "	6'- 3"	3'- 6 ¹ / ₂ "	0'- 1 ⁵ / ₈ "	4	25'- 9"
N	4	27'- 0"	4	19'- 5"	5'- 7 ¹ / ₂ "	6'-10 ³ / ₄ "	2	4	5'- 4"	2'- 7"	0'- 1 ¹ / ₂ "	6'- 4"	3'- 7"	0'- 1 ¹ / ₂ "	4	27'- 3"
O	4	28'- 0"	4	21'- 1"	5'- 1"	5'- 4"	2	4	5'-10"	2'- 5 ³ / ₄ "	0'- 1 ³ / ₄ "	6'-10"	3'- 5 ³ / ₄ "	0'- 1 ³ / ₄ "	4	28'- 3"
P	4	29'- 6"	4	22'- 3"	5'- 4 ¹ / ₈ "	5'- 7 ⁵ / ₈ "	2	4	4'-10"	2'- 6 ³ / ₈ "	0'- 1 ⁵ / ₈ "	5'-10"	3'- 6 ³ / ₈ "	0'- 1 ⁵ / ₈ "	4	29'- 9"
Q	4	31'- 0"	4	24'- 3"	4'-11 ⁵ / ₈ "	6'- 5 ¹ / ₈ "	2	4	5'- 1"	2'- 5 ¹ / ₂ "	0'- 1 ³ / ₄ "	6'- 1"	3'- 5 ¹ / ₂ "	0'- 1 ³ / ₄ "	4	31'- 4"
R	4	32'- 6"	4	25'- 5"	5'- 2 ³ / ₄ "	6'- 8 ³ / ₄ "	2	4	5'- 1"	2'- 6 ¹ / ₈ "	0'- 1 ⁵ / ₈ "	6'- 1"	3'- 6 ¹ / ₈ "	0'- 1 ⁵ / ₈ "	4	32'-10"
S	4	34'- 0"	4	27'- 4"	4'-11"	5'- 7 ¹ / ₄ "	2	4	5'- 3"	2'- 5 ³ / ₄ "	0'- 1 ³ / ₄ "	6'- 3"	3'- 5 ³ / ₄ "	0'- 1 ³ / ₄ "	4	34'- 4"
T	4	35'- 6"	4	28'- 6"	5'- 1 ¹ / ₂ "	5'-10 ¹ / ₈ "	2	4	5'- 2"	2'- 7 ¹ / ₈ "	0'- 1 ⁵ / ₈ "	6'- 2"	3'- 7 ¹ / ₈ "	0'- 1 ⁵ / ₈ "	4	35'-10"
U	4	36'- 6"	4	30'- 0"	4'- 9 ¹ / ₂ "	6'- 3 ⁵ / ₈ "	2	4	5'- 4"	2'- 6 ³ / ₄ "	0'- 1 ³ / ₄ "	6'- 4"	3'- 6 ³ / ₄ "	0'- 1 ³ / ₄ "	4	36'-11"
V	4	38'- 0"	4	31'- 3"	4'-11 ¹ / ₂ "	6'- 6 ⁷ / ₈ "	2	4	5'- 5"	2'- 6"	0'- 1 ³ / ₄ "	6'- 5"	3'- 6"	0'- 1 ³ / ₄ "	4	38'- 5"
W	4	39'- 6"	4	33'- 1"	4'- 9"	5'- 8"	2	4	5'- 6"	2'- 7"	0'- 1 ³ / ₄ "	6'- 6"	3'- 7"	0'- 1 ³ / ₄ "	4	39'-11"
X	4	41'- 0"	4	34'-10"	4'- 6 ¹ / ₄ "	6'- ³ / ₄ "	2	4	5'- 8"	2'- 6 ¹ / ₂ "	0'- 1 ⁷ / ₈ "	6'- 8"	3'- 6 ¹ / ₂ "	0'- 1 ⁷ / ₈ "	4	41'- 6"
Y	4	42'- 6"	4	36'- 7"	4'- 4"	5'- 4 ¹ / ₂ "	2	4	5'- 6"	2'- 6"	0'- 2"	6'- 6"	3'- 6"	0'- 2"	4	43'- 1"
Z	4	44'- 0"	4	37'-10"	4'- 6 ¹ / ₄ "	5'- 6 ⁵ / ₈ "	2	4	5'- 4"	2'- 6 ¹ / ₄ "	0'- 1 ⁷ / ₈ "	6'- 4"	3'- 6 ¹ / ₄ "	0'- 1 ⁷ / ₈ "	4	44'- 6"
AA	4	45'- 0"	4	39'- 2"	4'- 3 ¹ / ₂ "	5'- 9 ³ / ₄ "	2	4	5'- 8"	2'- 6"	0'- 2"	6'- 8"	3'- 6"	0'- 2"	4	45'- 7"
BB	4	46'- 6"	4	40'-10"	4'- 1 ⁷ / ₈ "	5'- 2 ⁷ / ₈ "	2	4	5'- 9"	2'- 7"	0'- 2"	6'- 9"	3'- 7"	0'- 2"	4	47'- 2"
CC	4	48'- 0"	4	42'-10"	3'- 9"	4'-10 ⁵ / ₈ "	2	4	6'- 1"	2'- 6 ¹ / ₄ "	0'- 2 ¹ / ₄ "	7'- 1"	3'- 6 ¹ / ₄ "	0'- 2 ¹ / ₄ "	4	48'-10"
DD	4	49'- 6"	4	44'- 9"	3'- 6"	4'- 7"	2	4	5'-11"	2'- 6 ⁵ / ₈ "	0'- 2 ³ / ₈ "	6'-11"	3'- 6 ⁵ / ₈ "	0'- 2 ³ / ₈ "	4	50'- 6"
EE	4	51'- 0"	4	46'- 1"	3'- 7 ³ / ₈ "	4'- 8 ⁵ / ₈ "	2	4	5'-10"	2'- 5 ⁵ / ₈ "	0'- 2 ³ / ₈ "	6'-10"	3'- 5 ⁵ / ₈ "	0'- 2 ³ / ₈ "	4	51'-11"

WING	SIZE	WF5						WF6						WF7						WH1		WH3	
		a			LENGTH			SIZE	LENGTH			SIZE	a			LENGTH			SIZE	LENGTH	SIZE	LENGTH	
		From	To	Vary By	From	To	Vary By		From	To	Vary By		From	To	Vary By	From	To	Vary By					
A	--	----	----	----	----	----	4	3'- 6"	2'- 7½"	0'- 1¾"	--	----	----	----	----	----	4	8'- 6"	4	9'- 0"			
B	--	----	----	----	----	----	4	3'- 6"	2'- 6"	0'- 1½"	--	----	----	----	----	----	4	10'- 0"	4	10'- 7"			
C	--	----	----	----	----	----	4	3'- 6"	2'- 7"	0'- 1¾"	--	----	----	----	----	----	4	11'- 0"	4	11'- 8"			
D	--	----	----	----	----	----	4	3'- 6"	2'- 6¾"	0'- 1½"	--	----	----	----	----	----	4	12'- 6"	4	13'- 3"			
E	--	----	----	----	----	----	4	3'- 6"	2'- 7"	0'- 1"	--	----	----	----	----	----	4	14'- 0"	4	14'-10"			
F	--	----	----	----	----	----	4	4'- 0"	2'- 7½"	0'- 1¾"	--	----	----	----	----	----	4	15'- 6"	4	16'- 5"			
G	--	----	----	----	----	----	4	4'- 0"	2'- 7¾"	0'- 1¼"	--	----	----	----	----	----	4	17'- 0"	4	18'- 0"			
H	--	----	----	----	----	----	4	4'- 6"	2'- 7¼"	0'- 1½"	--	----	----	----	----	----	4	18'- 6"	4	19'- 7"			
I	--	----	----	----	----	----	4	4'- 6"	2'- 7½"	0'- 1½"	--	----	----	----	----	----	4	19'- 6"	4	20'- 8"			
J	--	----	----	----	----	----	4	5'- 0"	2'- 8"	0'- 1¾"	--	----	----	----	----	----	4	21'- 0"	4	22'- 3"			
K	--	----	----	----	----	----	4	5'- 0"	2'- 6¾"	0'- 1½"	--	----	----	----	----	----	4	22'- 6"	4	23'-10"			
L	--	----	----	----	----	----	4	5'- 6"	2'- 6¾"	0'- 1¾"	--	----	----	----	----	----	4	24'- 0"	4	25'- 5"			
M	4	6'- 0"	5'- 4½"	0'- 1¼"	7'- 0"	6'- 4½"	0'- 1¼"	4	6'- 0"	2'- 8"	0'- 2"	--	----	----	----	----	4	25'- 6"	4	27'- 0"			
N	4	6'- 0"	5'- 5¾"	0'- 1¼"	7'- 0"	6'- 5¾"	0'- 1¼"	4	6'- 0"	2'- 8½"	0'- 1¾"	--	----	----	----	----	4	27'- 0"	4	28'- 7"			
O	4	6'- 6"	5'- 11½"	0'- 1¾"	7'- 6"	6'- 11½"	0'- 1¾"	4	6'- 6"	2'- 7¼"	0'- 2½"	--	----	----	----	----	4	28'- 0"	4	29'- 8"			
P	4	5'-10"	4'-10¾"	0'- 1¼"	6'-10"	5'-10¾"	0'- 1¼"	4	6'- 6"	2'- 8"	0'- 2"	4	6'- 6"	5'-11"	0'- 7⁄8"	7'- 6"	6'-11"	0'- 7⁄8"	4	29'- 6"	4	31'- 3"	
Q	4	6'- 3"	5'- 2½"	0'- 1¾"	7'- 3"	6'- 2½"	0'- 1¾"	4	7'- 0"	2'- 9"	0'- 2½"	4	7'- 0"	6'- 4½"	0'- 7⁄8"	8'- 0"	7'- 4½"	0'- 7⁄8"	4	31'- 0"	4	32'-10"	
R	4	6'- 2"	5'- 2¾"	0'- 1¼"	7'- 2"	6'- 2¾"	0'- 1¼"	4	7'- 0"	2'- 4¾"	0'- 2½"	4	7'- 0"	6'- 3¼"	0'- 7⁄8"	8'- 0"	7'- 3¼"	0'- 7⁄8"	4	32'- 6"	4	34'- 5"	
S	4	6'- 5"	5'- 4½"	0'- 1¾"	7'- 5"	6'- 4½"	0'- 1¾"	4	7'- 6"	2'- 5¼"	0'- 2¼"	4	7'- 6"	6'- 6½"	0'- 7⁄8"	8'- 6"	7'- 6½"	0'- 7⁄8"	4	34'- 0"	4	36'- 0"	
T	5	6'- 5¼"	5'- 3½"	0'- 1¼"	7'- 7"	6'- 5¼"	0'- 1¼"	4	7'- 6"	2'- 6½"	0'- 2½"	5	7'- 5¼"	6'- 7½"	0'- ¾"	8'- 7"	7'- 9¼"	0'- ¾"	4	35'- 6"	4	37'- 7"	
U	5	6'-11¼"	5'- 5¾"	0'- 1¾"	8'- 1"	6'- 7½"	0'- 1¾"	4	8'- 0"	2'- 6¾"	0'- 2¼"	5	7'-11¼"	7'- ¾"	0'- 7⁄8"	9'- 1"	8'- 2½"	0'- 7⁄8"	4	36'- 6"	4	38'- 9"	
V	5	6'-11¼"	5'- 7"	0'- 1¼"	8'- 1"	6'- 8¾"	0'- 1¼"	4	8'- 0"	2'- 8¼"	0'- 2½"	5	7'-11¼"	6'-11½"	0'- 7⁄8"	9'- 1"	8'- 1½"	0'- 7⁄8"	4	38'- 0"	4	40'- 4"	
W	5	7'- 4¼"	5'- 7½"	0'- 1¾"	8'- 6"	6'- 9¾"	0'- 1¾"	4	8'- 6"	2'- 8¼"	0'- 2¼"	5	8'- 5¼"	7'- 5½"	0'- 7⁄8"	9'- 7"	8'- 7½"	0'- 7⁄8"	4	39'- 6"	4	41'-11"	
X	5	7'-10¼"	5'-10¾"	0'- 1¾"	9'- 0"	7'- 5½"	0'- 1¾"	4	8'-11"	2'- 7"	0'- 2¾"	5	8'-11¼"	7'-11½"	0'- 7⁄8"	10'- 1"	9'- 1½"	0'- 7⁄8"	4	41'- 0"	4	43'- 6"	
Y	5	7'-11¼"	5'- 6¾"	0'- 1½"	9'- 1"	6'- 8½"	0'- 1½"	4	9'- 5"	2'- 8¼"	0'- 2¾"	5	9'- 5¼"	8'- ¼"	0'- 1"	10'- 7"	9'- 2"	0'- 1"	4	42'- 6"	4	45'- 0"	
Z	5	8'- ¼"	5'- 7¾"	0'- 1¾"	9'- 2"	6'- 9½"	0'- 1¾"	4	9'- 5"	2'- 5¾"	0'- 2¾"	5	9'- 5¼"	8'- 2¾"	0'- 7⁄8"	10'- 7"	9'- 4½"	0'- 7⁄8"	4	44'- 0"	4	46'- 7"	
AA	6	8'- 5½"	5'-10"	0'- 1½"	9'-10"	7'- 2½"	0'- 1½"	4	9'-11"	2'- 5"	0'- 2½"	6	9'-11½"	8'- 6½"	0'- 1"	11'- 4"	9'-11"	0'- 1"	4	45'- 0"	4	47'- 9"	
BB	6	8'-10½"	6'- 0"	0'- 1½"	10'- 3"	7'- 4½"	0'- 1½"	4	10'- 5"	2'- 8½"	0'- 2½"	6	10'- 5½"	9'- ½"	0'- 1"	11'-10"	10'- 5"	0'- 1"	4	46'- 6"	4	49'- 4"	
CC	6	9'- 8½"	6'- 3½"	0'- 1½"	11'- 1"	7'- 8½"	0'- 1½"	4	11'- 5"	2'- 8½"	0'- 2¾"	6	11'- 5½"	9'-10¾"	0'- 1½"	12'-10"	11'- 2½"	0'- 1½"	4	48'- 0"	4	50'-11"	
DD	6	10'- 2½"	6'- 3¼"	0'- 1¾"	11'- 7"	7'- 7¾"	0'- 1¾"	4	12'- 5"	2'- 8"	0'- 3"	7	12'- 5¾"	10'- 3½"	0'- 1¼"	14'- 1"	11'-10¾"	0'- 1¼"	4	49'- 6"	4	52'- 6"	
EE	7	10'- 2¾"	6'- 0"	0'- 1¾"	11'-10"	7'- 7¼"	0'- 1¾"	4	12'- 5"	2'-10"	0'- 2½"	7	12'- 5¾"	10'- 6½"	0'- 1½"	14'- 1"	12'- 1¾"	0'- 1½"	4	51'- 0"	4	54'- 1"	

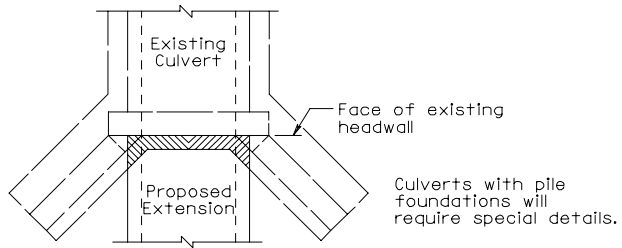
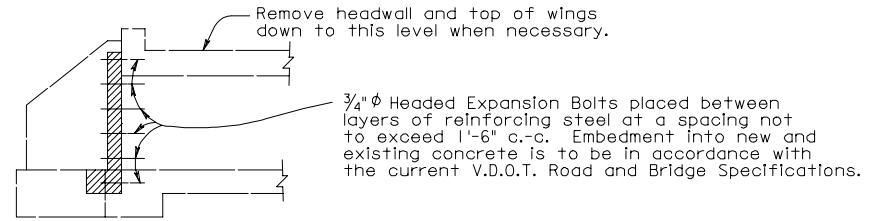
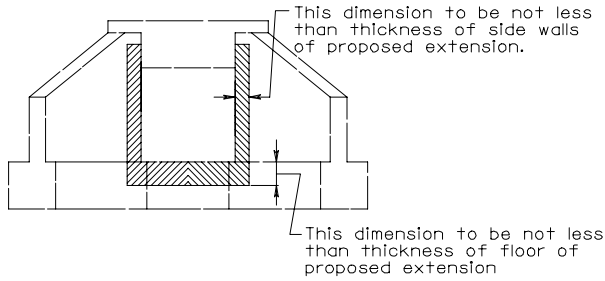
WING	WH2						WV1						WV2					
	SIZE	LENGTH			#	Eq	SIZE	a			LENGTH			SIZE	LENGTH			
		From	To	Vary By				From	To	Vary By	From	To	Vary By		From	To	Vary By	
A	4	6'- 6"	2'-10 1/2"	3'- 7 1/2"	2	4	5'- 1/4"	2'- 3/4"	0'- 4 1/8"	7'- 0"	4'- 3"	0'- 4 1/8"	4	5'- 0"	2'- 5 1/4"	0'- 5 1/8"		
B	4	6'- 7"	2'-10 5/8"	3'- 8 3/8"	2	4	5'- 6 1/4"	2'- 1"	0'- 4 1/8"	7'- 6"	4'- 3 1/4"	0'- 4 1/8"	4	5'- 6"	2'- 1"	0'- 5 1/8"		
C	4	9'-10"	2'- 9 1/4"	3'- 6 3/8"	2	4	6'- 1/4"	2'- 1 1/2"	0'- 4 1/4"	8'- 0"	4'- 1 1/4"	0'- 4 1/4"	4	6'- 0"	2'- 5"	0'- 5 3/8"		
D	4	9'-10"	2'- 9 1/2"	3'- 6 1/4"	2	4	6'- 6 1/4"	2'- 3/4"	0'- 4 1/4"	8'- 6"	4'- 3"	0'- 4 1/4"	4	6'- 6"	2'- 1/4"	0'- 5 3/8"		
E	4	13'- 6"	2'- 9 3/4"	3'- 6 3/4"	2	4	7'- 1/4"	2'- 3/4"	0'- 4 1/4"	9'- 0"	4'- 1/2"	0'- 4 1/4"	4	7'- 0"	2'- 2 1/4"	0'- 5 1/4"		
F	4	13'- 7"	2'-10"	3'- 7"	2	4	7'- 6 1/4"	2'- 2 1/2"	0'- 4 1/4"	9'- 6"	4'- 2 1/4"	0'- 4 1/4"	4	7'- 6"	2'- 3"	0'- 5 1/4"		
G	4	13'- 7"	2'-10"	3'- 7"	2	4	8'- 1/4"	2'- 0"	0'- 4 1/4"	10'- 0"	3'-11 3/4"	0'- 4 1/4"	4	8'- 0"	2'- 3 3/4"	0'- 5 1/4"		
H	4	17'- 3"	2'-10"	3'- 7 1/4"	2	4	8'- 6 1/4"	2'- 4"	0'- 4 1/8"	10'- 6"	4'- 3 3/4"	0'- 4 1/8"	4	8'- 6"	2'- 4 1/2"	0'- 5 1/4"		
I	4	16'-11"	2'- 9 1/2"	3'- 6 3/8"	2	4	9'- 1/4"	2'- 3 1/2"	0'- 4 1/4"	11'- 0"	4'- 3 1/4"	0'- 4 1/4"	4	9'- 0"	2'- 3 3/8"	0'- 5 3/8"		
J	4	20'- 6"	2'- 9 1/2"	3'- 6 1/2"	2	4	9'- 6 1/4"	2'- 1"	0'- 4 1/4"	11'- 6"	4'- 3 1/4"	0'- 4 1/4"	4	9'- 6"	2'- 6"	0'- 5 1/4"		
K	4	20'- 7"	2'- 9 1/8"	3'- 6 5/8"	2	4	10'- 1/4"	2'- 2 3/4"	0'- 4 1/4"	12'- 0"	4'- 2 1/2"	0'- 4 1/4"	4	10'- 0"	2'- 1 1/2"	0'- 5 1/4"		
L	4	20'- 8"	2'- 9 5/8"	3'- 6 1/8"	2	4	8'- 1/4"	2'- 0"	0'- 4 1/4"	10'- 0"	3'-11 3/4"	0'- 4 1/4"	4	10'- 6"	2'- 2 1/4"	0'- 5 1/4"		
M	4	24'- 3"	2'- 9 3/4"	3'- 6 1/8"	2	4	8'- 1/4"	2'- 0"	0'- 4 1/4"	10'- 0"	3'-11 3/4"	0'- 4 1/4"	4	11'- 0"	2'- 3"	0'- 5 1/4"		
N	4	24'- 4"	2'-10"	3'- 7"	2	4	6'- 3 1/4"	2'- 1/4"	0'- 4 1/4"	8'- 3"	4'- 0"	0'- 4 1/4"	4	11'- 6"	2'- 3 3/4"	0'- 5 1/4"		
O	4	27'- 6"	2'- 9 3/8"	3'- 6 3/8"	2	4	6'- 8 1/4"	2'- 1"	0'- 4 1/4"	8'- 8"	4'- 3 1/4"	0'- 4 1/4"	4	12'- 0"	2'- 1 3/4"	0'- 5 3/8"		
P	4	27'- 7"	2'- 9 1/2"	3'- 6 1/2"	2	4	7'- 4 1/4"	2'- 1/2"	0'- 4 1/4"	9'- 4"	4'- 1/4"	0'- 4 1/4"	4	12'- 6"	2'- 5 1/4"	0'- 5 1/4"		
Q	4	27'- 8"	2'- 9 5/8"	3'- 6 5/8"	2	4	7'- 4 1/4"	2'- 1/2"	0'- 4 1/4"	9'- 4"	4'- 1/4"	0'- 4 1/4"	4	13'- 0"	2'- 6"	0'- 5 1/4"		
R	4	31'- 3"	2'-10"	3'- 6 5/8"	2	4	7'- 4 1/4"	2'- 1/2"	0'- 4 1/4"	9'- 4"	4'- 1/4"	0'- 4 1/4"	4	13'- 6"	2'- 1 1/2"	0'- 5 1/4"		
S	4	31'- 4"	2'-10"	3'- 6 3/4"	2	4	7'- 4 1/4"	2'- 1/2"	0'- 4 1/4"	9'- 4"	4'- 1/4"	0'- 4 1/4"	4	14'- 0"	2'- 2 1/4"	0'- 5 1/4"		
T	4	35'- 0"	2'-10 1/8"	3'- 6 1/8"	2	4	6'-11 1/4"	2'- 1 1/2"	0'- 4 1/8"	8'-11"	4'- 1 1/4"	0'- 4 1/8"	4	14'- 6"	2'- 3"	0'- 5 1/4"		
U	4	34'- 7"	2'- 9 5/8"	3'- 6 3/8"	2	4	7'- 1/4"	2'- 3/4"	0'- 4 1/4"	9'- 0"	4'- 1/2"	0'- 4 1/4"	4	15'- 0"	2'- 3 3/4"	0'- 5 1/4"		
V	4	34'- 8"	2'- 9 1/2"	3'- 6 1/2"	2	4	7'- 4 1/4"	2'- 1/2"	0'- 4 1/4"	9'- 4"	4'- 1/4"	0'- 4 1/4"	4	15'- 6"	2'- 4 1/2"	0'- 5 1/4"		
W	4	38'- 3"	2'-10"	3'- 6 1/2"	2	4	7'- 7 1/4"	2'- 3 1/2"	0'- 4 1/4"	9'- 7"	4'- 3 1/4"	0'- 4 1/4"	4	16'- 3"	2'- 8 1/4"	0'- 5 1/4"		
X	4	38'- 4"	2'- 9 3/4"	3'- 6 5/8"	2	4	8'- 6 1/4"	2'- 6"	0'- 4 1/4"	10'- 6"	4'- 5 3/4"	0'- 4 1/4"	4	17'- 0"	3'- 0"	0'- 5 1/4"		
Y	4	42'- 0"	2'- 9 3/4"	3'- 6 3/4"	2	4	9'- 7 1/4"	2'- 6 1/4"	0'- 4 1/4"	11'- 7"	4'- 6"	0'- 4 1/4"	4	17'- 6"	2'- 7 1/2"	0'- 5 1/4"		
Z	4	42'- 1"	2'- 9 3/8"	3'- 6 1/8"	2	4	9'- 7 1/4"	2'- 6 1/4"	0'- 4 1/4"	11'- 7"	4'- 6"	0'- 4 1/4"	4	18'- 0"	2'- 8 1/4"	0'- 5 1/4"		
AA	4	41'- 8"	2'- 9 1/8"	3'- 6 3/8"	2	4	10'- 1/4"	2'- 7"	0'- 4 1/4"	12'- 0"	4'- 6 3/4"	0'- 4 1/4"	4	18'- 6"	2'- 9"	0'- 5 1/4"		
BB	4	45'- 3"	2'- 9"	3'- 6 1/2"	2	4	10'- 1/4"	2'- 7"	0'- 4 1/4"	12'- 0"	4'- 6 3/4"	0'- 4 1/4"	4	19'- 0"	2'- 9 3/4"	0'- 5 1/4"		
CC	4	45'- 4"	2'-10"	3'- 6 1/2"	2	4	9'- 3 1/4"	2'- 6 1/2"	0'- 4 1/4"	11'- 3"	4'- 6 1/4"	0'- 4 1/4"	4	19'- 6"	2'-10 1/2"	0'- 5 1/4"		
DD	4	49'- 0"	2'- 9 1/8"	3'- 6 5/8"	2	4	8'-11 1/4"	2'- 6 3/4"	0'- 4 1/4"	10'-11"	4'- 6 1/2"	0'- 4 1/4"	4	20'- 0"	2'-11 1/4"	0'- 5 1/4"		
EE	4	49'- 1"	2'- 9 1/4"	3'- 6 3/4"	2	4	8'-10 1/4"	2'- 5 3/4"	0'- 4 1/4"	10'-10"	4'- 5 1/2"	0'- 4 1/4"	4	20'- 6"	3'- 0"	0'- 5 1/4"		

WING	SIZE	WV3						WV4						
		a			LENGTH			a			LENGTH			
		From	To	Vary By	From	To	Vary By	From	To	Vary By	From	To	Vary By	
A	--	----	----	----	----	----	----	--	----	----	----	----	----	----
B	--	----	----	----	----	----	----	--	----	----	----	----	----	----
C	--	----	----	----	----	----	----	--	----	----	----	----	----	----
D	--	----	----	----	----	----	----	--	----	----	----	----	----	----
E	--	----	----	----	----	----	----	--	----	----	----	----	----	----
F	--	----	----	----	----	----	----	--	----	----	----	----	----	----
G	--	----	----	----	----	----	----	--	----	----	----	----	----	----
H	--	----	----	----	----	----	----	--	----	----	----	----	----	----
I	--	----	----	----	----	----	----	--	----	----	----	----	----	----
J	--	----	----	----	----	----	----	--	----	----	----	----	----	----
K	--	----	----	----	----	----	----	--	----	----	----	----	----	----
L	4	10'- 6/4"	8'- 4/4"	0'- 3/4"	12'- 6"	10'- 4"	0'- 3/4"	--	----	----	----	----	----	----
M	4	11'- 1/4"	8'- 3/4"	0'- 3/4"	13'- 0"	10'- 3/2"	0'- 3/4"	--	----	----	----	----	----	----
N	4	10'- 1/4"	6'- 7/8"	0'- 3/8"	12'- 0"	8'- 7/8"	0'- 3/8"	4	11'- 6/4"	10'- 3/8"	0'- 2/8"	13'- 6"	12'- 3/8"	0'- 2/8"
O	4	10'- 6/4"	7'- 0"	0'- 3/4"	12'- 6"	8'- 11/4"	0'- 3/4"	4	12'- 1/4"	10'- 9/8"	0'- 2/8"	14'- 0"	12'- 9/8"	0'- 2/8"
P	4	11'- 2/4"	7'- 8"	0'- 3/4"	13'- 2"	9'- 7/4"	0'- 3/4"	4	12'- 6/4"	11'- 4/4"	0'- 2/4"	14'- 6"	13'- 4/2"	0'- 2/4"
Q	4	11'- 1/4"	7'- 8/5"	0'- 3/8"	13'- 1"	9'- 8/8"	0'- 3/8"	4	13'- 1/4"	11'- 5/8"	0'- 2/8"	15'- 0"	13'- 4/8"	0'- 2/8"
R	4	11'- 1/4"	7'- 8/5"	0'- 3/8"	13'- 1"	9'- 8/8"	0'- 3/8"	5	13'- 5/4"	11'- 4/4"	0'- 2/8"	15'- 6"	13'- 4/2"	0'- 2/8"
S	4	11'- 1/4"	7'- 8/5"	0'- 3/8"	13'- 1"	9'- 8/8"	0'- 3/8"	5	13'- 11/4"	11'- 3/8"	0'- 2/8"	16'- 0"	13'- 4/8"	0'- 2/8"
T	4	11'- 3/4"	7'- 4/8"	0'- 3/8"	13'- 3"	9'- 4/8"	0'- 3/8"	5	14'- 5/4"	11'- 5/8"	0'- 2/8"	16'- 6"	13'- 5/8"	0'- 2/8"
U	5	11'- 10/4"	7'- 3/2"	0'- 3/4"	13'- 11"	9'- 3/4"	0'- 3/4"	5	14'- 11/4"	12'- 1/4"	0'- 2/8"	17'- 0"	14'- 2"	0'- 2/8"
V	5	12'- 2/4"	7'- 9/8"	0'- 3/8"	14'- 3"	9'- 9/8"	0'- 3/8"	6	15'- 5/8"	12'- 5/2"	0'- 2/8"	17'- 7"	14'- 6/8"	0'- 2/8"
W	5	12'- 11/4"	8'- 3/8"	0'- 3/8"	15'- 0"	10'- 5/8"	0'- 3/8"	6	16'- 2/8"	13'- 2/2"	0'- 2/8"	18'- 4"	15'- 3/8"	0'- 2/8"
X	6	13'- 4/8"	8'- 11/2"	0'- 3/8"	15'- 6"	11'- 7/8"	0'- 3/8"	6	16'- 11/8"	13'- 7/4"	0'- 2/8"	19'- 1"	15'- 8/8"	0'- 2/8"
Y	6	13'- 10/8"	9'- 11/4"	0'- 3/8"	16'- 0"	12'- 1/8"	0'- 3/8"	6	17'- 5/8"	14'- 1/4"	0'- 2/8"	19'- 7"	16'- 2/8"	0'- 2/8"
Z	6	14'- 4/8"	9'- 11/2"	0'- 3/8"	16'- 6"	12'- 7/8"	0'- 3/8"	6	17'- 11/8"	14'- 7/4"	0'- 2/8"	20'- 1"	16'- 8/8"	0'- 2/8"
AA	6	14'- 10/8"	10'- 3/8"	0'- 3/4"	17'- 0"	12'- 4/4"	0'- 3/4"	7	18'- 5/8"	15'- 1/4"	0'- 2/8"	20'- 8"	17'- 3/8"	0'- 2/8"
BB	6	15'- 4/8"	10'- 2/8"	0'- 3/4"	17'- 6"	12'- 4/4"	0'- 3/4"	7	18'- 11/8"	15'- 7/4"	0'- 2/8"	21'- 2"	17'- 9/8"	0'- 2/8"
CC	6	15'- 1/8"	9'- 8"	0'- 3/8"	17'- 3"	11'- 9/8"	0'- 3/8"	7	19'- 5/8"	15'- 4/4"	0'- 2/8"	21'- 8"	17'- 7/8"	0'- 2/8"
DD	6	15'- 3/8"	9'- 3/4"	0'- 3/8"	17'- 5"	11'- 5/8"	0'- 3/8"	7	19'- 11/8"	15'- 6/2"	0'- 2/8"	22'- 2"	17'- 8/8"	0'- 2/8"
EE	7	15'- 9/8"	9'- 3/2"	0'- 3/8"	18'- 0"	11'- 5/8"	0'- 3/8"	8	20'- 5/2"	16'- 3/8"	0'- 2/8"	22'- 9"	18'- 3/8"	0'- 2/8"

WING DETAILS
 2:1 FILL SLOPE - TYPE II
 DEPARTMENT OF TRANSPORTATION

STRUCTURE
 AND
 BRIDGE
 DIVISION

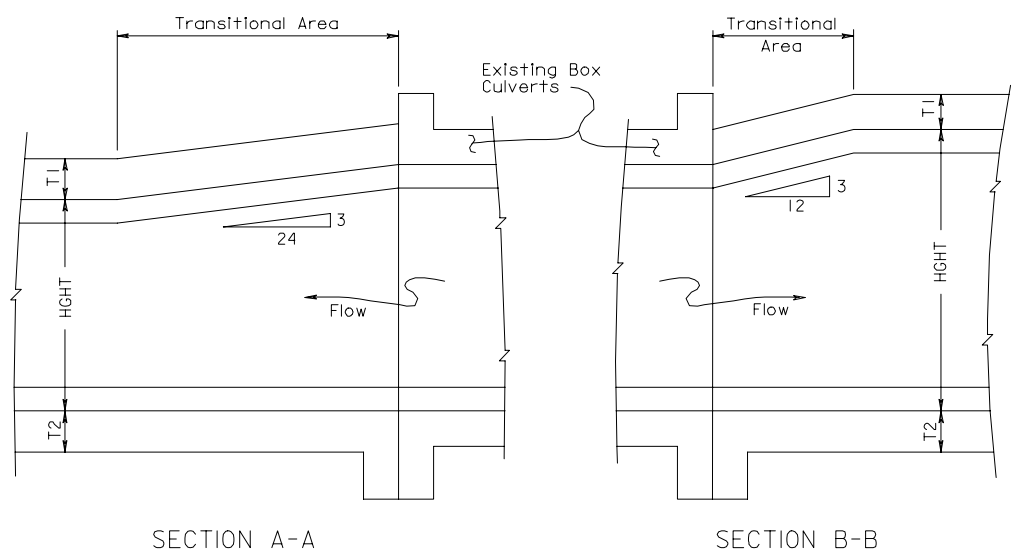
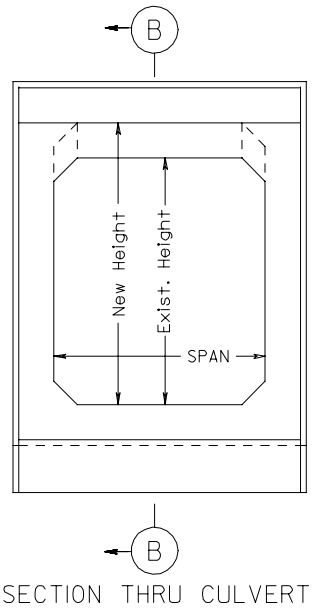
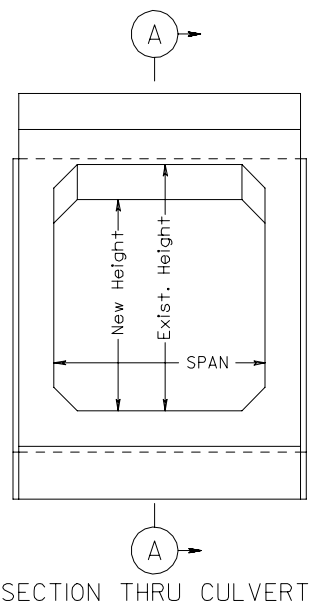
In case of skewed culverts, wingwalls conflicting with barrel of proposed extension are to be removed.



Notes:

Shaded portion indicates existing concrete to be removed, so that all portions of proposed extension will begin in a vertical plane at face of existing headwall.
 Details of proposed extension including headwall for same can be obtained from box culvert standard.
 Unit price bid for concrete and reinforcement shall include cost of removal and disposal of old concrete and the furnishing and placing of dowels and expansion bolts required.

DETAILS FOR WIDENING EXISTING BOX CULVERTS
 MODIFICATIONS TO EXISTING BOX
 VIRGINIA DEPARTMENT OF TRANSPORTATION

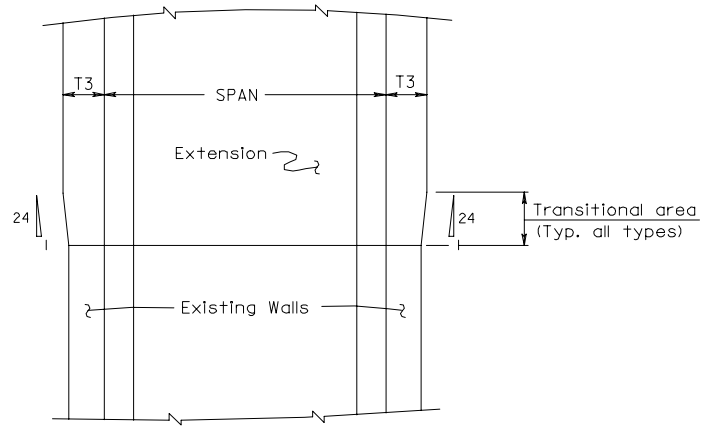


Notes:

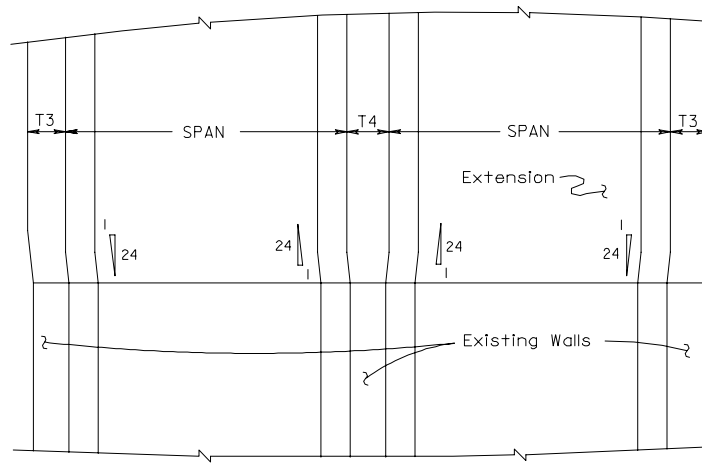
Adjustments in quantities will be required when a change in height exists as shown in Sections A & B. Quantities of concrete and reinforcing steel shall be increased or decreased accordingly. For cases where only wall thickness changes, there shall be no quantity adjustments.

For SPAN, HGT, & T dimensions, refer to appropriate Box Culvert Standard. This standard is to be used only when a change in height or wall thickness occurs. It does not apply to changes in SPAN.

For SPAN, HGHT, & T dimensions, refer to appropriate Box Culvert Standard. This standard is to be used only when a change in height or wall thickness occurs. It does not apply to changes in SPAN.



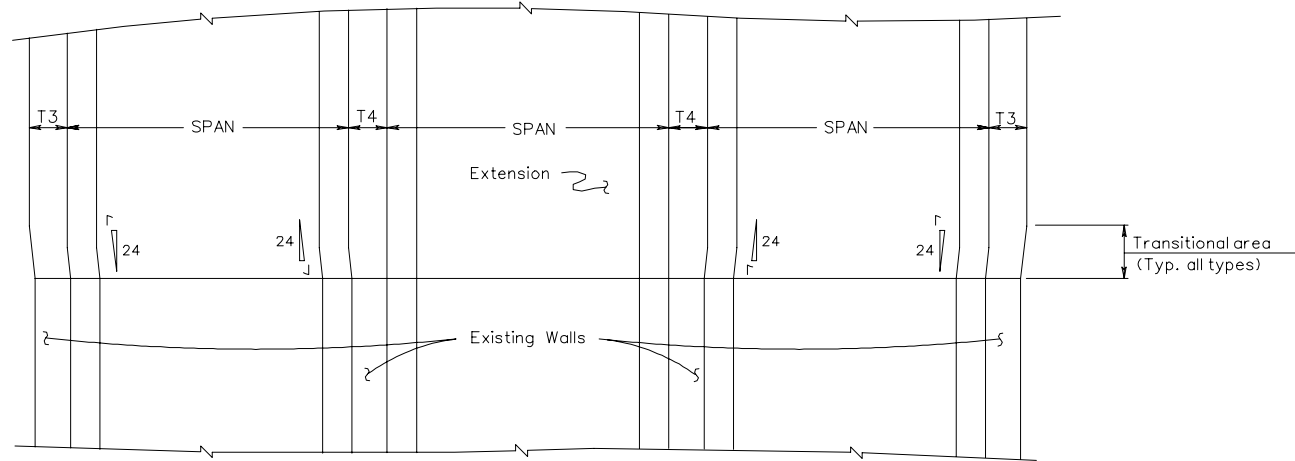
SINGLE BOX CULVERT



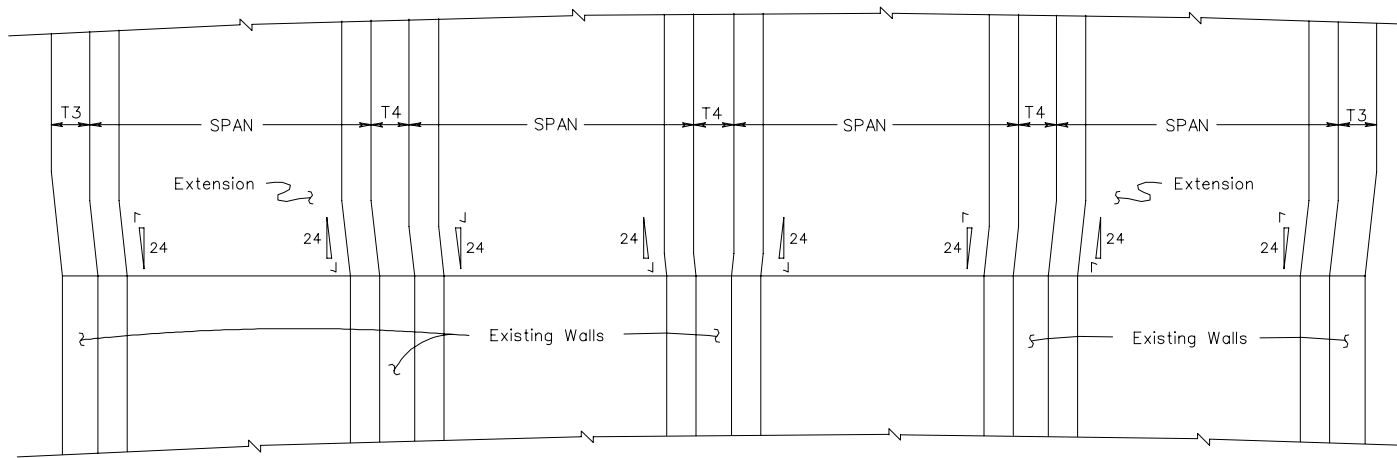
DOUBLE BOX CULVERT

DETAILS FOR WIDENING EXISTING BOX CULVERTS
WALL TRANSITIONS

For SPAN, HGHT, & T dimensions, refer to appropriate Box Culvert Standard. This standard is to be used only when a change in height or wall thickness occurs. It does not apply to changes in SPAN.



TRIPLE BOX CULVERT



QUADRUPLE BOX CULVERT