GENERAL DATA & ESTIMATED QUANTITIES FOR BOX CULVERTS UNDER HIGH COVER

LESS THAN 2'-6" COVER — L = 150 FT.

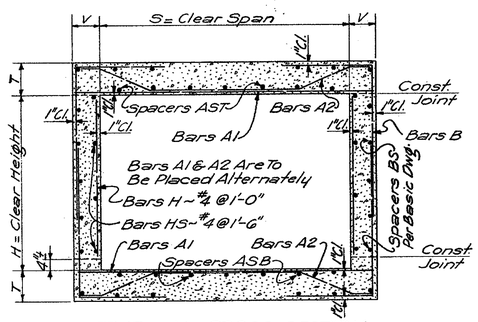
AREA OF OPENING SQ.FT.	SIZE OF CULVERT	MOD. DWG. NO.	"T"	"V"	"W"	BARS "A1" SIZE	BARS "A1" SPAC. IN.	BARS "A2" SIZE	BARS "A2" SPAC. IN.	BARS "B" SIZE	BARS "B" SPAC. IN.	ESTIMATED QUANTITIES TOTAL CULVERT CONC. CU.YDS.	TOTAL CULVERT REINF. LBS.	PER LIN.FT.BARREL CONC. CU.YDS.	PER LIN.FT.BARREL REINF. LBS.	1 AUX. SLAB "J" CONC. CU.YDS	1 AUX. SLAB "J" REINF. LBS.
16	4x4		6"	6"	1'-0"	#5	1'-4"	#5	1'-4"	#5	8"	55.77	11,178	0.3333	69.95	0.25	15
20	5x4		7"	6½"	1'-1"	#5	1'-0"	#5	1'-0"	#5	7"	69.80	13,924	0.4234	87.80	0.30	18
24	6x4		7½"	6½"	1'-1½"	#6	1'-4"	#6	1'-4"	#5	7"	80.07	15,891	0.4884	100.55	0.35	21
28	7x4		8½"	7"	1'-2½"	#7	1'-4"	#7	1'-4"	#6	8"	97.54	21,066	0.6013	134.90	0.40	23
32	8x4		8½"	7"	1'-2½"	#7	1'-4"	#7	1'-4"	#6	8"	105.90	22,570	0.6538	144.63	0.45	26
36	9x4		9½"	8"	1'-3½"	#7	1'-2"	#7	1'-2"	#6	7"	128.91	27,199	0.8035	174.65	0.51	29
40	10x4		10"	8½"	1'-4"	#8	1'-4"	#8	1'-4"	#7	8"	146.07	33,432	0.9146	216.35	0.56	32
25	5x5		6½"	6"	1'-4½"	#6	1'-4"	#6	1'-4"	#5	7"	71.83	15,421	0.4259	96.40	0.30	18
30	6x5		7½"	6½"	1'-5½"	#6	1'-2"	#6	1'-2"	#5	6"	87.83	18,979	0.5286	119.72	0.35	21
35	7x5		7½"	6½"	1'-5½"	#7	1'-4"	#7	1'-4"	#6	8"	95.30	22,312	0.5749	141.76	0.40	23
40	8x5		8½"	7"	1'-6½"	#7	1'-2"	#7	1'-2"	#6	7"	114.21	26,627	0.6970	169.70	0.45	26
45	9x5		8"	7"	1'-6"	#7	1'-4"	#7	1'-4"	#6	8"	117.88	25,461	0.7181	162.11	0.50	29
50	10x5		9"	8"	1'-7"	#7	1'-2"	#7	1'-2"	#6	7"	142.27	30,725	0.8766	196.27	0.56	32
60	12x5		10"	8½"	1'-8"	#8	1'-4"	#8	1'-4"	#7	8"	175.48	39,002	1.0905	251.32	0.66	38
24	4x6		6"	6½"	1'-1"	#5	1'-2"	#5	1'-2"	#5	6"	76.03	15,916	0.4290	97.76	0.25	15
36	6x6		7½"	7"	1'-2½"	#7	1'-4"	#7	1'-4"	#6	7"	101.85	23,703	0.5910	148.70	0.35	21
48	8x6		8½"	7½"	1'-3½"	#7	1'-4"	#7	1'-4"	#6	7"	129.16	27,102	0.7631	170.57	0.46	26
60	10x6		10"	8½"	1'-5"	#8	1'-4"	#8	1'-4"	#7	8"	169.15	36,896	1.0195	235.30	0.56	32
72	12x6		10"	8½"	1'-5"	#8	1'-4"	#8	1'-4"	#7	8"	189.04	40,798	1.1430	260.12	0.66	38
84	14x6		11½"	10"	1'-6½"	#8	1'-2"	#8	1'-2"	#7	7"	241.52	51,026	1.4825	326.91	0.77	44
96	16x6		1'-1"	11½"	1'-8"	#9	1'-4"	#9	1'-4"	#8	8"	300.24	62,378	1.8637	402.74	0.88	50
108	18x6		1'-2½"	1'-1"	1'-9½"	#9	1'-2"	#9	1'-2"	#8	6"	365.23	81,990	2.2865	531.78	1.00	55
120	20x6		1'-3½"	1'-2"	1'-10½"	#10	1'-4"	#10	1'-4"	#10	8"	422.03	101,627	2.6553	662.72	1.10	61
64	8x8		9"	8"	1'-9"	#6	11"	#6	11"	#6	6½"	163.41	32,762	0.9136	200.79	0.46	27
80	10x8		9½"	8"	1'-9½"	#6	11"	#6	11"	#6	6½"	187.56	36,546	1.0597	225.06	0.56	32
96	12x8		11"	9"	1'-11"	#7	1'-0"	#7	1'-0"	#6	6"	235.28	45,061	1.3611	280.42	0.67	38
112	14x8		1'-0½"	10½"	2'-0½"	#8	1'-2"	#8	1'-2"	#7	6½"	293.74	57,635	1.7338	363.17	0.78	44
128	16x8		1'-2"	11½"	2'-2"	#8	1'-0"	#8	1'-0"	#8	7½"	353.67	70,715	2.1162	449.28	0.88	50
144	18x8		1'-3"	1'-1"	2'-3"	#8	11"	#8	11"	#8	6½"	415.15	84,642	2.5092	542.12	1.00	55
160	20x8		1'-4½"	1'-2½"	2'-4½"	#8	10"	#8	10"	#8	5½"	491.34	102,364	2.9992	658.46	1.11	61
100	10x10		9½"	9"	2'-9½"	#7	1'-2"	#7	1'-2"	#6	6"	222.77	42,402	1.2300	256.53	0.57	32
120	12x10		11"	10"	2'-11"	#7	1'-0"	#7	1'-0"	#7	7"	272.34	52,494	1.5453	322.43	0.67	38
140	14x10		1'-0½"	11"	3'-0½"	#7	10"	#7	10"	#7	6"	328.01	65,513	1.9007	408.57	0.78	44
160	16x10		1'-2"	1'-0"	3'-2"	#8	1'-0"	#8	1'-0"	#8	7"	389.78	77,586	2.2963	487.12	0.89	50
180	18x10		1'-4"	1'-1½"	3'-4"	#9	1'-1"	#9	1'-1"	#8	6½"	472.96	92,540	2.8334	588.09	1.00	56
200	20x10		1'-5"	1'-3"	3'-5"	#9	1'-0"	#9	1'-0"	#8	5½"	543.33	110,675	3.2870	706.45	1.11	61
220	22x10		1'-6"	1'-4"	3'-6"	#9	11"	#9	11"	#9	6"	611.93	132,276	3.7284	849.34	1.22	67
144	12x12		1½"	10½"	3'-8½"	#7	11"	#7	11"	#7	6½"	318.36	60,770	1.7539	368.01	0.68	38
168	14x12		1'-2"	11½"	3'-11"	#8	1'-0"	#8	1'-0"	#7	6"	392.38	73,296	2.2273	449.40	0.79	44
192	16x12		1'-3"	1'-0"	4'-0"	#8	11"	#8	11"	#8	7"	444.12	85,838	2.5556	531.12	0.89	50
216	18x12		1'-4"	1'-1½"	4'-1"	#8	10"	#8	10"	#8	6"	513.33	102,740	3.0000	643.11	1.00	56
240	20x12		1'-6"	1'-3"	4'-3"	#9	11"	#9	11"	#8	5½"	607.98	121,401	3.6111	766.88	1.11	61
264	22x12		1'-7"	1'-4"	4'-4"	#11	1'-5"	#11	1'-5"	#10	8"	680.68	136,998	4.0782	871.98	1.22	67
288	24x12		1'-8½"	1'-5½"	4'-5½"	#10	1'-0"	#10	1'-0"	#9	6"	777.17	157,882	4.7024	1006.78	1.33	73

MAX. 15 FT. COVER — L = 150 FT.

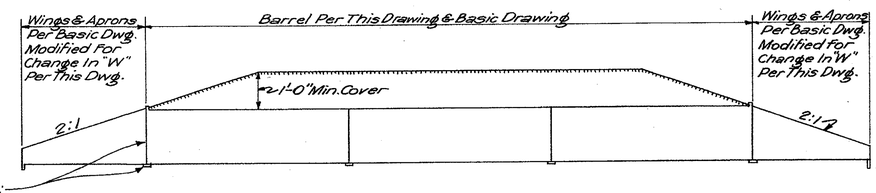
SIZE OF CULVERT	"T"	"V"	"W"	BARS "A1" SIZE	BARS "A1" SPAC. IN.	BARS "A2" SIZE	BARS "A2" SPAC. IN.	BARS "B" SIZE	BARS "B" SPAC. IN.	ESTIMATED QUANTITIES TOTAL CULVERT CONC. CU.YDS.	TOTAL CULVERT REINF. LBS.	PER LIN.FT.BARREL CONC. CU.YDS.	PER LIN.FT.BARREL REINF. LBS.	1 AUX. SLAB "J" CONC. CU.YDS.	1 AUX. SLAB "J" REINF. LBS.
4x4															
5x4															
6x4															
7x4															
8x4	8½"	7"	1'-2½"	#7	1'-4"	#7	1'-4"	#6	8"	105.90	22,570	0.6538	144.63	0.45	26
9x4	9½"	8"	1'-3½"	#7	1'-2"	#7	1'-2"	#6	7"	128.91	27,199	0.8035	174.65	0.51	29
10x4	10"	8½"	1'-4"	#8	1'-4"	#8	1'-4"	#7	8"	146.07	33,432	0.9146	216.35	0.56	32
5x5															
6x5															
7x5	7½"	6½"	1'-5½"	#7	1'-4"	#7	1'-4"	#6	8"	95.30	22,312	0.5749	141.76	0.40	23
8x5	8½"	7"	1'-6½"	#7	1'-2"	#7	1'-2"	#6	7"	114.21	26,627	0.6970	169.70	0.45	26
9x5	9"	7½"	1'-7"	#7	1'-2"	#7	1'-2"	#6	7"	130.38	28,537	0.8009	182.08	0.51	29
10x5	10½"	8½"	1'-8½"	#7	1'-0"	#7	1'-0"	#6	6"	161.22	35,033	1.0023	225.47	0.56	32
12x5	11½"	9½"	1'-9½"	#8	1'-2"	#8	1'-2"	#7	7"	200.62	44,220	1.2575	285.18	0.67	38
4x6															
6x6															
8x6	8½"	7½"	1'-3½"	#7	1'-4"	#7	1'-4"	#6	7"	129.16	27,102	0.7631	170.57	0.46	26
10x6	10"	8½"	1'-5"	#8	1'-4"	#8	1'-4"	#7	8"	169.15	36,896	1.0195	235.30	0.56	32
12x6	11½"	9½"	1'-6½"	#8	1'-2"	#8	1'-2"	#7	7"	215.16	46,088	1.3161	294.86	0.67	38
14x6	1'-1"	11"	1'-8"	#9	1'-4"	#9	1'-4"	#8	7"	271.00	60,808	1.6780	392.44	0.78	44
16x6	1'-2½"	1'-0½"	1'-9½"	#9	1'-2"	#9	1'-2"	#8	6"	333.07	75,615	2.0815	490.61	0.89	50
18x6	1'-4"	1'-2"	1'-11"	#10	1'-4"	#10	1'-4"	#9	7"	401.40	90,744	2.5267	590.02	1.00	56
20x6	1'-5½"	1'-3½"	2'-0½"	#10	1'-2"	#10	1'-2"	#10	8"	476.01	109,761	3.0137	715.73	1.12	62
8x8	9"	8"	1'-9"	#6	11"	#6	11"	#6	6½"	163.41	32,762	0.9136	200.79	0.46	27
10x8	10½"	9"	1'-10½"	#7	1'-1"	#7	1'-1"	#6	5½"	207.33	41,514	1.1898	258.13	0.57	32
12x8	1'-0½"	10"	2'-0½"	#7	10"	#7	10"	#6	5"	263.72	52,665	1.5484	331.03	0.67	38
14x8	1'-2"	11½"	2'-2"	#8	1'-0"	#8	1'-0"	#7	5½"	325.59	66,438	1.9434	421.88	0.79	44
16x8	1'-3½"	1'-0½"	2'-3½"	#9	1'-1"	#9	1'-1"	#8	6½"	388.79	80,950	2.3475	518.98	0.89	50
18x8	1'-4½"	1'-2½"	2'-4½"	#9	1'-0"	#9	1'-0"	#8	5½"	458.56	98,636	2.7955	634.54	1.01	56
20x8	1'-6½"	1'-4½"	2'-6½"	#9	11"	#9	11"	#8	5"	554.02	115,780	3.4129	747.86	1.12	62
10x10	11"	10"	2'-11"	#7	1'-1"	#7	1'-1"	#7	7"	250.10	47,299	1.4095	289.13	0.58	33
12x10	1'-1½"	11"	3'-1½"	#7	11"	#7	11"	#7	6"	316.03	58,731	1.8318	364.51	0.68	38
14x10	1'-2"	1'-0½"	3'-2"	#8	1'-0"	#8	1'-0"	#7	5½"	367.62	71,271	2.1616	447.05	0.79	44
16x10	1'-4"	1'-1½"	3'-4"	#8	11"	#8	11"	#8	6"	441.37	87,211	2.6358	552.16	0.90	50
18x10	1'-6"	1'-2½"	3'-6"	#9	11"	#9	11"	#8	5½"	523.18	108,123	3.1638	690.65	1.01	56
20x10	1'-7"	1'-4½"	3'-7"	#9	10"	#9	10"	#8	5"	604.00	126,637	3.6868	812.43	1.12	62
22x10	1'-8½"	1'-6"	3'-8½"	#9	10"	#9	10"	#9	5½"	694.79	145,869	4.2746	939.78	1.23	68
12x12	1'-1"	11½"	3'-10"	#7	10"	#7	10"	#7	5½"	351.11	68,470	1.9686	418.68	0.60	38
14x12	1'-3"	1'-0½"	4'-0"	#8	10"	#8	10"	#7	5"	420.90	85,455	2.4151	530.35	0.79	44
16x12	1'-5"	1'-1½"	4'-2"	#8	10"	#8	10"	#8	6½"	498.82	93,060	2.9152	580.63	0.90	50
18x12	1'-6"	1'-3"	4'-3"	#9	11"	#9	11"	#8	5½"	572.46	114,639	3.3889	722.86	1.01	56
20x12	1'-8"	1'-4½"	4'-5"	#9	10"	#9	10"	#8	5"	671.78	133,530	4.0309	846.88	1.12	62
22x12	1'-9"	1'-5½"	4'-6"	#11	1'-3"	#11	1'-3"	#10	7"	748.73	156,049	4.5262	994.05	1.23	68
24x12															

MAX. 20 FT. COVER — L = 150 FT.

SIZE OF CULVERT	"T"	"V"	"W"	BARS "A1" SIZE	BARS "A1" SPAC. IN.	BARS "A2" SIZE	BARS "A2" SPAC. IN.	BARS "B" SIZE	BARS "B" SPAC. IN.	ESTIMATED QUANTITIES TOTAL CULVERT CONC. CU.YDS.	TOTAL CULVERT REINF. LBS.	PER LIN.FT.BARREL CONC. CU.YDS.	PER LIN.FT.BARREL REINF. LBS.	1 AUX. SLAB "J" CONC. CU.YDS.	1 AUX. SLAB "J" REINF. LBS.	SIZE OF CULVERT
4x4																4x4
5x4																5x4
6x4	7½"	6½"	1'-1½"	#6	1'-4"	#6	1'-4"	#5	7"	80.07	15,891	0.4884	100.55	0.35	21	6x4
7x4	8½"	7"	1'-2½"	#7	1'-4"	#7	1'-4"	#6	8"	97.54	21,066	0.6013	134.90	0.40	23	7x4
8x4	9"	7½"	1'-3"	#7	1'-2"	#7	1'-2"	#6	7"	112.74	25,248	0.6991	162.01	0.46	26	8x4
9x4	10"	8½"	1'-4"	#7	1'-0"	#7	1'-0"	#6	6"	136.35	30,804	0.8529	199.77	0.51	29	9x4
10x4	10½"	9"	1'-4½"	#8	1'-4"	#8	1'-4"	#7	8"	154.07	33,686	0.9676	218.04	0.57	32	10x4
5x5	6½"	6"	1'-4½"	#6	1'-4"	#6	1'-4"	#5	7"	71.83	15,421	0.4259	96.40	0.30	18	5x5
6x5	7½"	6½"	1'-5½"	#6	1'-2"	#6	1'-2"	#5	6"	87.83	18,979	0.5286	119.72	0.35	21	6x5
7x5	8½"	7"	1'-6½"	#7	1'-4"	#7	1'-4"	#6	8"	105.82	22,561	0.6446	143.42	0.40	23	7x5
8x5	9½"	8"	1'-7½"	#7	1'-2"	#7	1'-2"	#6	7"	128.87	27,110	0.7942	172.89	0.46	27	8x5
9x5	10"	8½"	1'-8"	#7	1'-0"	#7	1'-0"	#6	6"	146.12	32,622	0.9054	209.79	0.51	29	9x5
10x5	11½"	9½"	1'-9½"	#7	10"	#7	10"	#6	5"	178.28	41,140	1.1155	266.18	0.57	32	10x5
12x5	1'-0½"	10½"	1'-10½"	#8	1'-0"	#8	1'-0"	#7	6"	219.84	50,854	1.3850	330.26	0.68	38	12x5
4x6																4x6
6x6	7½"	7"	1'-2½"	#7	1'-4"	#7	1'-4"	#6	7"	101.85	23,703	0.5910	148.70	0.35	21	6x6
8x6	9½"	8"	1'-4½"	#7	1'-2"	#7	1'-2"	#6	6"	141.33	30,537	0.8436	193.46	0.46	27	8x6
10x6	11½"	9½"	1'-6½"	#8	1'-2"	#8	1'-2"	#7	7"	192.51	41,762	1.1742	266.92	0.57	32	10x6
12x6	1'-1"	10½"	1'-8"	#8	1'-0"	#8	1'-0"	#7	6"	241.75	52,999	1.4923	341.78	0.68	38	12x6
14x6	1'-2½"	1'-0½"	1'-9½"	#9	1'-2"	#9	1'-2"	#8	7"	304.85	65,562	1.9026	423.43	0.79	44	14x6
16x6	1'-4"	1'-2"	1'-11"	#9	1'-0"	#9	1'-0"	#8	6"	370.40	82,241	2.3292	535.08	0.91	50	16x6
18x6	1'-6"	1'-3½"	2'-1"	#10	1'-2"	#10	1'-2"	#10	8"	451.78	103,121	2.8611	672.31	1.02	56	18x6
20x6	1'-7½"	1'-5"	2'-2½"	#10	1'-0"	#10	1'-0"	#10	7"	530.88	127,000	3.3781	830.49	1.13	62	20x6
8x8	10"	9"	1'-10"	#7	1'-2"	#7	1'-2"	#6	6"	181.24	35,165	1.0309	216.15	0.47	27	8x8
10x8	11½"	10"	1'-11½"	#7	11"	#7	11"	#7	7"	227.42	46,056	1.3220	287.60	0.58	33	10x8
12x8	1'-1½"	11"	2'-1½"	#9	1'-3"	#9	1'-3"	#7	6½"	286.14	56,708	1.6960	358.43	0.68	38	12x8
14x8	1'-3½"	1'-0½"	2'-3½"	#8	11"	#8	11"	#7	5"	357.87	72,533	2.1561	462.52	0.79	44	14x8
16x8	1'-5"	1'-2"	2'-5"	#9	11"	#9	11"	#8	6"	429.42	91,644	2.6152	588.95	0.91	50	16x8
18x8	1'-6½"	1'-4"	2'-6½"	#9	11"	#9	11"	#8	5"	512.36	108,516	3.1502	700.39	1.02	56	18x8
20x8	1'-8½"	1'-6"	2'-8½"	#9	10"	#9	10"	#9	5½"	612.66	131,607	3.7094	853.28	1.14	62	20x8
10x10	11½"	11"	2'-11½"	#7	11"	#7	11"	#7	6½"	266.67	51,743	1.5191	319.54	0.58	33	10x10
12x10	1'-1½"	1'-0"	3'-1½"	#8	1'-0"	#8	1'-0"	#7	5½"	327.42	65,341	1.9074	408.58	0.69	39	12x10
14x10	1'-3½"	1'-1½"	3'-3½"	#8	11"	#8	11"	#8	6½"	402.09	78,230	2.3881	494.14	0.80	44	14x10
16x10	1'-5"	1'-3"	3'-5"	#9	11"	#9	11"	#9	7½"	476.45	98,495	2.8673	627.36	0.91	50	16x10
18x10	1'-7½"	1'-4"	3'-7½"	#9	10"	#9	10"	#8	5"	570.47	119,062	3.4753	762.94	1.02	56	18x10
20x10	1'-9"	1'-6"	3'-9"	#10	1'-0"	#10	1'-0"	#9	5½"	666.65	141,065	4.0926	908.83	1.14	62	20x10
22x10																
12x12	1'-2"	1'-0½"	3'-11"	#8	1'-0"	#8	1'-0"	#7	5"	377.64	74,393	2.1430	457.87	0.70	39	12x12
14x12	1'-4½"	1'-2"	4'-1½"	#8	10"	#8	10"	#8	6½"	464.33	87,326	2.7006	543.52	0.81	45	14x12
16x12	1'-6"	1'-2½"	4'-3"	#9	11"	#9	11"	#8	5½"	529.99	107,134	3.1203	674.34	0.91	50	16x12
18x12	1'-7½"	1'-4½"	4'-4½"	#9	10"	#9	10"	#8	5"	622.72	125,971	3.7199	797.68	1.02	56	18x12
20x12	1'-10"	1'-5½"	4'-7"	#10	11"	#10	11"	#9	5½"	720.23	153,677	4.4084	981.79	1.13	62	20x12

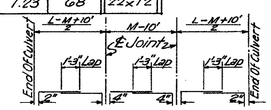


TYPICAL CROSS SECTION

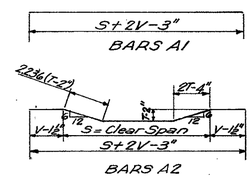


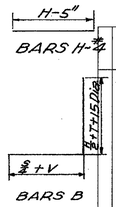
NOTE:
Auxiliary Slabs "W" And Vertical Construction Joints At The Wings Are Required Only Where Called For By The Basic Drawing And Auxiliary Slab "W" Are Not To Be Used For Culvert Heights Of Less Than 8 Feet.

SIDE ELEVATION OF CULVERT
See Drawing No. IBJL-1 For Joint locations.



ONE SET OF BARS HS ~ #4





BAR BENDING DETAILS
Dimensions Are Out To Out.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

BOX CULVERT DRAWING

IBS CULVERTS MODIFIED FOR HIGH COVER WINGS WITH 2:1 SLOPE

DATE	REVISION	BY

FILENAME:
DESIGN TEAM ____ CHECKED ____ DATE ____

WORKING NUMBER
SD-IBSM-2WA
SHEET NUMBER

COUNTY:
DESIGN TEAM:
PROJECT NO.:
FILENAME: