

Concrete Box Culvert (CBC) Load Ratings

NMDOT Standard Serial 511, dated Apr 2007

Single-Barrel Culverts	DIM (ft)		INVENTORY		OPERATING	
	Span, S	Height, H	RF	HS Rating	RF	HS Rating
	4	2	1.63	HS 32.5	2.71	HS 54.2
	4	3	1.55	HS 31.1	2.59	HS 51.8
	4	4	1.51	HS 30.2	2.52	HS 50.4
	6	2	1.60	HS 32.0	2.67	HS 53.3
	6	3	1.75	HS 35.0	2.92	HS 58.3
	6	4	1.91	HS 38.3	3.19	HS 63.8
	6	5	1.87	HS 37.4	3.12	HS 62.4
	6	6	1.85	HS 37.0	3.08	HS 61.7
	6	7	1.81	HS 36.3	3.02	HS 60.4
	8	4	2.16	HS 43.2	3.60	HS 72.0
	8	5	2.31	HS 46.2	3.85	HS 77.0
	8	6	2.30	HS 46.0	3.83	HS 76.6
	8	7	2.28	HS 45.6	3.80	HS 76.1
	8	8	2.17	HS 43.4	3.62	HS 72.3
	10	3	1.64	HS 32.7	2.73	HS 54.5
	10	4	1.78	HS 35.6	2.97	HS 59.3
	10	5	1.91	HS 38.1	3.18	HS 63.5
	10	6	2.01	HS 40.2	3.35	HS 67.0
	10	7	2.09	HS 41.7	3.48	HS 69.6
	10	8	2.41	HS 48.2	4.01	HS 80.3
	10	9	2.40	HS 47.9	4.00	HS 79.9
	10	10	2.40	HS 48.0	4.00	HS 80.0
	10	11	2.42	HS 48.4	4.03	HS 80.7
	10	12	2.42	HS 48.4	4.09	HS 81.8
	12	6	2.53	HS 50.6	4.22	HS 84.4
	12	7	2.58	HS 51.5	4.29	HS 85.9
	12	8	2.54	HS 50.8	4.23	HS 84.6
	12	9	2.51	HS 50.3	4.19	HS 83.8
	12	10	2.50	HS 50.0	4.17	HS 83.4
	12	12	2.52	HS 50.3	4.19	HS 83.8
	14	8	2.46	HS 49.2	4.10	HS 82.0
	14	9	2.43	HS 48.6	4.05	HS 81.0
	14	10	2.41	HS 48.2	4.02	HS 80.4
	14	11	2.41	HS 48.1	4.01	HS 80.2
	14	12	2.41	HS 48.2	4.02	HS 80.3
	14	13	2.42	HS 48.5	4.04	HS 80.8
	14	14	2.45	HS 49.0	4.08	HS 81.6

Notes:

1. Applicable to culverts constructed in accordance with the serial listed above.
2. **DO NOT USE** with earlier standards.
Contact NMDOT Bridge Management Section.
3. Culverts constructed using Multiple Serial sizes :
Use lowest ratings. Example: 7-Barrel structure consisting of a 4-10 x 6 CBC & a 3-10 x 6 CBC.

3-barrel CBC ratings: HS 30.7/ HS 51.2

4-barrel CBC ratings: **HS 30.4/ HS 50.7 - controls**

Specification: AASHTO Manual For Bridge Evaluation, 1st Edition, 2008

Calculation method: BRASS-Culvert Version 2.3.0

Load Rating Method: Load Factor Rating (LFR)

Calculations by: Ted Barber, P.E., NMDOT

Concrete Box Culvert (CBC) Load Ratings

NMDOT Standard Serial 511, dated Apr 2007

	DIM (ft)		INVENTORY		OPERATING	
	Span, S	Height, H	RF	HS Rating	RF	HS Rating
Double-Barrel Culverts	4	2	1.30	HS 26.1	2.17	HS 43.5
	4	3	1.36	HS 27.1	2.26	HS 45.2
	4	4	1.36	HS 27.3	2.27	HS 45.5
	6	2	1.51	HS 30.2	2.52	HS 50.4
	6	3	1.58	HS 31.6	2.64	HS 52.7
	6	4	1.59	HS 31.9	2.66	HS 53.2
	6	5	1.57	HS 31.4	2.61	HS 52.3
	6	6	1.55	HS 31.0	2.59	HS 51.7
	6	7	1.54	HS 30.8	2.57	HS 51.4
	8	4	1.01	HS 20.2	1.69	HS 33.7
	8	5	1.00	HS 20.0	1.67	HS 33.4
	8	6	1.01	HS 20.1	1.68	HS 33.5
	8	7	1.02	HS 20.5	1.71	HS 34.2
	8	8	1.06	HS 21.1	1.76	HS 35.3
	10	3	1.32	HS 26.3	2.20	HS 43.9
	10	4	1.29	HS 25.8	2.15	HS 42.9
	10	5	1.28	HS 25.5	2.13	HS 42.5
	10	6	1.28	HS 25.6	2.13	HS 42.6
	10	7	1.29	HS 25.8	2.15	HS 43.1
	10	8	1.33	HS 26.6	2.22	HS 44.3
	10	9	1.36	HS 27.1	2.26	HS 45.2
	10	10	1.40	HS 28.0	2.33	HS 46.6
	10	11	1.45	HS 29.1	2.42	HS 48.5
	10	12	1.53	HS 30.5	2.54	HS 50.8
	12	6	1.08	HS 21.6	1.80	HS 36.0
	12	7	1.08	HS 21.7	1.81	HS 36.1
	12	8	1.10	HS 21.9	1.83	HS 36.5
	12	9	1.11	HS 22.2	1.85	HS 37.1
	12	10	1.14	HS 22.7	1.89	HS 37.9
	12	12	1.20	HS 24.0	2.00	HS 40.1
14	8	1.24	HS 24.9	2.07	HS 41.5	
14	9	1.26	HS 25.1	2.09	HS 41.8	
14	10	1.27	HS 25.4	2.12	HS 42.4	
14	11	1.29	HS 25.8	2.15	HS 43.1	
14	12	1.32	HS 26.4	2.20	HS 44.0	
14	13	1.35	HS 27.0	2.25	HS 45.1	
14	14	1.39	HS 27.8	2.32	HS 46.3	

Notes:

1. Applicable to culverts constructed in accordance with the serial listed above.
2. **DO NOT USE** with earlier standards.
Contact NMDOT Bridge Management Section.
3. Culverts constructed using Multiple Serial sizes :
Use lowest ratings. Example: 7-Barrel structure consisting of a 4-10 x 6 CBC & a 3-10 x 6 CBC.

3-barrel CBC ratings: HS 30.7/ HS 51.2

4-barrel CBC ratings: **HS 30.4/ HS 50.7 - controls**

Specification: AASHTO Manual For Bridge Evaluation, 1st Edition, 2008

Calculation method: BRASS-Culvert Version 2.3.0

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	DIM (ft)		INVENTORY		OPERATING	
	Span, S	Height, H	RF	HS Rating	RF	HS Rating
Triple-Barrel Culverts	4	2	1.29	HS 25.9	2.16	HS 43.1
	4	3	1.37	HS 27.4	2.28	HS 45.6
	4	4	1.37	HS 27.4	2.28	HS 45.6
	6	2	1.50	HS 30.0	2.50	HS 50.0
	6	3	1.60	HS 31.9	2.66	HS 53.2
	6	4	1.56	HS 31.1	2.59	HS 51.9
	6	5	1.53	HS 30.6	2.55	HS 51.0
	6	6	1.52	HS 30.3	2.53	HS 50.6
	6	7	1.51	HS 30.2	2.52	HS 50.4
	8	4	1.42	HS 28.4	2.37	HS 47.4
	8	5	1.40	HS 27.9	2.33	HS 46.6
	8	6	1.39	HS 27.7	2.31	HS 46.2
	8	7	1.38	HS 27.7	2.31	HS 46.1
	8	8	1.39	HS 27.8	2.32	HS 46.3
	10	3	1.56	HS 31.2	2.60	HS 52.0
	10	4	1.55	HS 30.9	2.58	HS 51.6
	10	5	1.54	HS 30.8	2.56	HS 51.3
	10	6	1.54	HS 30.7	2.56	HS 51.2
	10	7	1.54	HS 30.7	2.56	HS 51.2
	10	8	1.58	HS 31.5	2.63	HS 52.5
	10	9	1.58	HS 31.7	2.64	HS 52.8
	10	10	1.60	HS 31.9	2.66	HS 53.2
	10	11	1.61	HS 32.2	2.69	HS 53.7
	10	12	1.63	HS 32.6	2.72	HS 54.4
	12	6	1.17	HS 23.4	1.95	HS 39.0
	12	7	1.17	HS 23.4	1.95	HS 39.1
	12	8	1.18	HS 23.5	1.96	HS 39.2
	12	9	1.18	HS 23.7	1.97	HS 39.5
	12	10	1.19	HS 23.9	1.99	HS 39.8
	12	12	1.22	HS 24.5	2.04	HS 40.8
14	8	1.33	HS 26.6	2.22	HS 44.3	
14	9	1.33	HS 26.7	2.22	HS 44.5	
14	10	1.34	HS 26.8	2.23	HS 44.7	
14	11	1.35	HS 27.0	2.25	HS 45.0	
14	12	1.36	HS 27.2	2.27	HS 45.4	
14	13	1.38	HS 27.5	2.29	HS 45.9	
14	14	1.39	HS 27.9	2.32	HS 46.4	

Notes:

1. Applicable to culverts constructed in accordance with the serial listed above.
2. **DO NOT USE** with earlier standards.
Contact NMDOT Bridge Management Section.
3. Culverts constructed using Multiple Serial sizes :
Use lowest ratings. Example: 7-Barrel structure consisting of a 4-10 x 6 CBC & a 3-10 x 6 CBC.

3-barrel CBC ratings: HS 30.7/ HS 51.2

4-barrel CBC ratings: **HS 30.4/ HS 50.7 - controls**

Specification: AASHTO Manual For Bridge Evaluation, 1st Edition, 2008

Calculation method: BRASS-Culvert Version 2.3.0

Load Rating Method: Load Factor Rating (LFR)

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	DIM (ft)		INVENTORY		OPERATING	
	Span, S	Height, H	RF	HS Rating	RF	HS Rating
Quadruple-Barrel Culverts	4	2	1.29	HS 25.8	2.15	HS 43.1
	4	3	1.35	HS 26.9	2.24	HS 44.9
	4	4	1.37	HS 27.4	2.29	HS 45.7
	6	2	1.48	HS 29.7	2.47	HS 49.4
	6	3	1.57	HS 31.4	2.62	HS 52.3
	6	4	1.57	HS 31.3	2.61	HS 52.2
	6	5	1.54	HS 30.8	2.57	HS 51.3
	6	6	1.53	HS 30.5	2.54	HS 50.8
	6	7	1.52	HS 30.4	2.53	HS 50.6
	8	4	1.43	HS 28.7	2.39	HS 47.8
	8	5	1.41	HS 28.2	2.35	HS 47.0
	8	6	1.40	HS 27.9	2.33	HS 46.6
	8	7	1.39	HS 27.9	2.32	HS 46.5
	8	8	1.40	HS 28.0	2.33	HS 46.7
	10	3	1.54	HS 30.7	2.56	HS 51.2
	10	4	1.53	HS 30.5	2.55	HS 50.9
	10	5	1.52	HS 30.4	2.54	HS 50.7
	10	6	1.52	HS 30.4	2.54	HS 50.7
	10	7	1.53	HS 30.6	2.55	HS 51.0
	10	8	1.58	HS 31.5	2.63	HS 52.6
	10	9	1.59	HS 31.8	2.65	HS 53.0
	10	10	1.61	HS 32.2	2.68	HS 53.7
	10	11	1.63	HS 32.7	2.72	HS 54.4
	10	12	1.62	HS 32.4	2.70	HS 54.0
	12	6	1.16	HS 23.2	1.93	HS 38.6
	12	7	1.16	HS 23.3	1.94	HS 38.8
	12	8	1.17	HS 23.4	1.95	HS 39.0
	12	9	1.18	HS 23.7	1.97	HS 39.4
	12	10	1.20	HS 24.0	2.00	HS 39.9
	12	12	1.24	HS 24.8	2.07	HS 41.3
14	8	1.32	HS 26.4	2.20	HS 44.0	
14	9	1.33	HS 26.5	2.21	HS 44.2	
14	10	1.34	HS 26.8	2.23	HS 44.6	
14	11	1.35	HS 27.0	2.25	HS 45.1	
14	12	1.37	HS 27.4	2.28	HS 45.6	
14	13	1.39	HS 27.8	2.32	HS 46.3	
14	14	1.41	HS 28.2	2.35	HS 47.1	

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