

APPENDIX G
Results of Analyses Critical Values Bridge Models

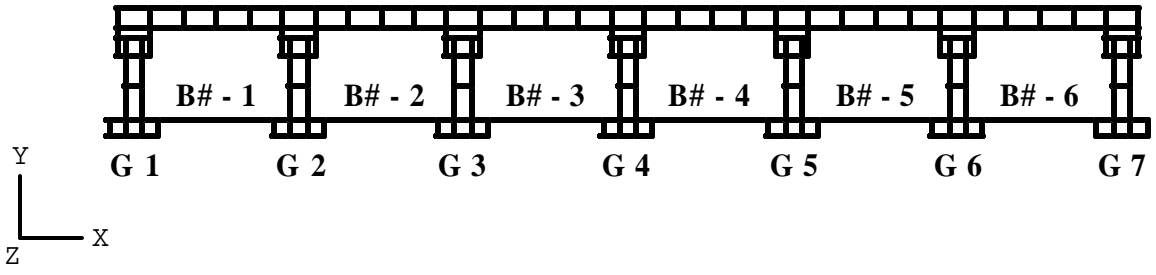


Figure 6 Repeated

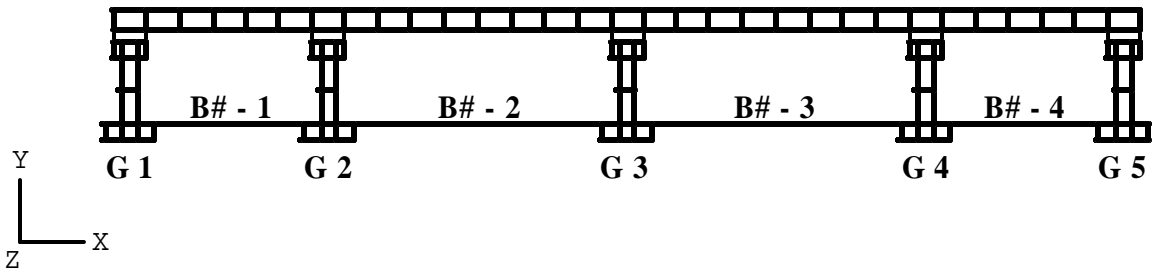


Figure 7 Repeated

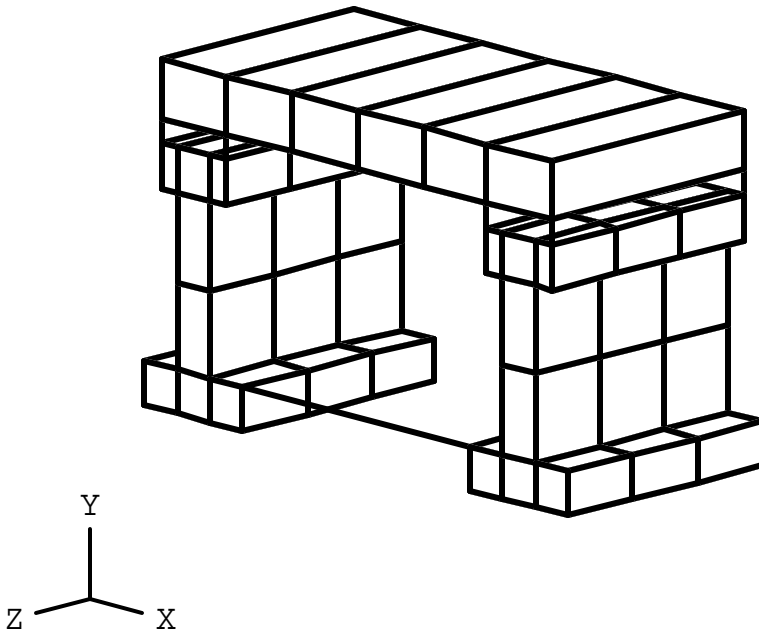


Figure 8 Repeated

Table 1
Maximum stresses in top surface of deck elements

	Model	Von Mises	SXX (MPa)	SYX (MPa)	SXY (MPa)	
Group A	101	Min	77	-18.9	-16.2	-9.7
		Max	11,041	17.8	13.6	7.4
	102	Min	74	-19.0	-16.2	-9.8
		Max	11,081	17.9	13.4	7.4
	103	Min	71	-19.0	-16.2	-9.8
		Max	11,077	18.0	13.4	7.4
Group B	104	Min	81	-19.3	-15.5	-4.8
		Max	10,257	9.4	11.6	4.6
	105	Min	197	-19.4	-15.5	-4.8
		Max	10,282	9.5	11.5	4.6
	106	Min	168	-19.4	-15.5	-4.8
		Max	10,266	9.5	11.6	4.6
Group C	107	Min	65	-24.2	-16.1	-21.0
		Max	22,863	32.9	18.3	9.3
	108	Min	89	-24.4	-16.2	-21.1
		Max	22,933	33.3	18.4	9.4
	109	Min	94	-24.4	-16.2	-21.1
		Max	22,938	33.4	18.4	9.4
Group D	110	Min	138	-17.8	-15.7	-9.1
		Max	9,807	13.4	11.4	5.8
	111	Min	179	-17.9	-15.7	-9.2
		Max	9,821	13.3	11.4	5.9
	112	Min	146	-17.8	-15.7	-9.2
		Max	9,809	13.4	11.5	5.9
Group E	113	Min	67	-11.5	-7.6	-6.8
		Max	10,331	19.2	7.5	5.0
	114	Min	58	-11.5	-7.6	-6.8
		Max	10,388	19.3	7.5	5.1
	115	Min	58	-11.5	-7.6	-6.8
		Max	10,406	19.3	7.5	5.1
Group F	116	Min	22	-20.5	-14.0	-5.9
		Max	10,675	9.3	6.7	6.5
	117	Min	75	-20.5	-14.1	-5.9
		Max	10,685	9.3	6.5	6.6
	118	Min	89	-20.5	-14.1	-5.9
		Max	10,687	9.3	6.5	6.6
Group G	119	Min	71	-16.3	-8.4	-15.6
		Max	17,457	32.1	20.6	6.1
	120	Min	42	-16.4	-8.4	-15.6
		Max	17,459	32.3	20.7	6.1
	121	Min	42	-16.5	-8.4	-15.6
		Max	17,454	32.3	20.7	6.1
Group H	122	Min	129	-17.4	-14.6	-11.9
		Max	12,908	17.2	11.6	8.8
	123	Min	77	-17.5	-14.6	-11.9
		Max	12,896	17.2	11.6	8.9
	124	Min	104	-17.5	-14.6	-11.9
		Max	12,897	17.2	11.6	8.9

Table 2
Maximum stresses in bottom surface of deck elements

	Model	Von Mises	SXX (MPa)	SYX (MPa)	SXY (MPa)	
Group A	101	Min	54	-17.8	-13.7	-7.4
		Max	11,047	18.9	16.1	9.7
	102	Min	54	-17.9	-13.4	-7.4
		Max	11,087	19.0	16.1	9.8
	103	Min	68	-18.0	-13.5	-7.4
		Max	11,083	19.0	16.2	9.8
Group B	104	Min	61	-9.4	-11.6	-4.6
		Max	10,250	19.3	15.4	4.8
	105	Min	178	-9.5	-11.6	-4.6
		Max	10,275	19.4	15.4	4.8
	106	Min	154	-9.5	-11.7	-4.6
		Max	10,258	19.4	15.4	4.8
Group C	107	Min	65	-32.9	-18.3	-9.3
		Max	22,861	24.2	16.0	21.0
	108	Min	56	-33.3	-18.4	-9.4
		Max	22,932	24.4	16.1	21.1
	109	Min	53	-33.4	-18.4	-9.4
		Max	22,937	24.4	16.1	21.1
Group D	110	Min	117	-13.4	-11.5	-5.8
		Max	9,800	17.8	15.7	9.1
	111	Min	153	-13.3	-11.4	-5.9
		Max	9,814	17.9	15.6	9.1
	112	Min	120	-13.4	-11.5	-5.9
		Max	9,801	17.9	15.6	9.2
Group E	113	Min	107	-19.2	-7.6	-5.0
		Max	10,339	11.5	7.4	6.8
	114	Min	98	-19.3	-7.7	-5.1
		Max	10,396	11.5	7.4	6.8
	115	Min	104	-19.3	-7.7	-5.1
		Max	10,413	11.5	7.4	6.8
Group F	116	Min	108	-8.7	-7.3	-6.6
		Max	10,673	20.5	14.1	5.5
	117	Min	101	-8.7	-7.1	-6.6
		Max	10,683	20.6	14.1	5.5
	118	Min	117	-8.7	-7.1	-6.6
		Max	10,685	20.6	14.1	5.5
Group G	119	Min	91	-32.1	-20.7	-6.1
		Max	17,457	16.3	8.2	15.6
	120	Min	78	-32.3	-20.8	-6.1
		Max	17,460	16.4	8.2	15.6
	121	Min	74	-32.3	-20.8	-6.1
		Max	17,455	16.4	8.2	15.6
Group H	122	Min	157	-16.2	-10.3	-8.9
		Max	12,162	17.6	14.7	11.4
	123	Min	72	-16.3	-10.5	-8.9
		Max	12,149	17.7	14.7	11.4
	124	Min	104	-16.3	-10.5	-8.9
		Max	12,146	17.6	14.7	11.4

Table 3
Maximum stresses in critical girder

		Von Mises	SXX (MPa)	SYX (MPa)	SZZ (MPa)	SXY (MPa)	SXZ (MPa)	SYZ (MPa)	
Group A	101	Min	128	-17.3	-17.9	-68.0	-6.1	-18.9	-19.8
		Max	41,867	7.5	8.3	50.2	7.2	18.0	22.9
	102	Min	111	-23.6	-18.0	-65.2	-9.6	-6.8	-17.3
		Max	40,306	8.4	8.5	48.7	8.6	5.2	23.4
	103	Min	111	-11.9	-17.8	-64.5	-5.6	-6.6	-15.1
		Max	39,301	6.7	8.3	48.8	7.5	5.1	23.5
Group B	104	Min	150	-10.8	-19.7	-42.6	-8.5	-13.1	-12.1
		Max	26,964	6.3	4.8	36.9	7.1	10.4	13.4
	105	Min	205	-10.1	-19.5	-41.0	-8.4	-4.5	-8.9
		Max	25,905	6.2	4.5	35.8	7.0	3.7	13.8
	106	Min	202	-10.2	-19.6	-41.0	-8.4	-4.3	-8.5
		Max	25,839	6.2	4.4	36.3	7.2	3.6	13.9
Group C	107	Min	143	-20.8	-22.8	-66.1	-13.5	-22.6	-20.9
		Max	41,157	9.2	14.8	49.4	8.4	20.5	22.8
	108	Min	143	-12.1	-22.8	-62.9	-13.5	-8.9	-14.3
		Max	37,970	9.9	14.7	48.3	8.3	7.2	23.4
	109	Min	148	-12.2	-22.9	-62.8	-13.6	-9.9	-14.3
		Max	37,962	7.5	14.6	48.5	8.3	7.2	23.2
Group D	110	Min	164	-11.6	-20.4	-42.2	-9.0	-11.9	-11.1
		Max	26,685	6.4	4.8	36.4	7.5	11.6	13.4
	111	Min	146	-10.2	-20.3	-40.4	-8.8	-5.4	-8.4
		Max	25,561	6.3	4.6	35.2	7.4	4.8	13.9
	112	Min	163	-10.3	-20.4	-40.5	-8.8	-5.4	-8.4
		Max	25,610	6.3	4.5	35.7	7.6	4.8	13.9
Group E	113	Min	67	-9.4	-10.4	-46.6	-4.1	-11.6	-12.9
		Max	10,331	4.7	4.1	33.1	4.5	12.1	17.6
	114	Min	122	-8.0	-10.5	-44.9	-3.1	-5.4	-9.7
		Max	27,394	4.2	4.1	32.1	3.7	4.3	17.9
	115	Min	121	-8.0	-10.3	-44.8	-4.0	-5.3	-9.8
		Max	27,401	4.2	4.0	32.2	4.8	4.1	18.0
Group F	116	Min	369	-9.8	-16.5	-56.9	-6.1	-14.8	-15.0
		Max	34,740	6.3	4.5	33.6	3.7	8.4	21.8
	117	Min	392	-11.9	-16.3	-55.3	-6.0	-11.8	-13.4
		Max	33,575	6.3	4.5	32.6	3.6	5.3	22.1
	118	Min	406	-9.9	-16.3	-54.7	-6.0	-11.9	-11.7
		Max	33,792	6.3	4.4	32.6	3.9	5.6	22.4
Group G	119	Min	136	-11.3	-11.6	-46.1	-6.1	-12.1	-13.3
		Max	28,551	7.4	8.1	33.1	4.6	10.6	18.2
	120	Min	133	-8.2	-11.6	-44.7	-6.0	-7.3	-9.9
		Max	27,277	7.6	8.0	32.3	4.7	5.7	18.5
	121	Min	131	-8.2	-12.2	-44.6	-5.0	-8.3	-9.7
		Max	27,229	5.6	7.9	32.4	5.1	6.8	18.2
Group H	122	Min	318	-11.8	-15.6	-56.4	-5.8	-13.5	-15.2
		Max	34,611	7.4	4.2	33.6	4.3	9.5	19.0
	123	Min	340	-9.7	-15.5	-53.8	-4.6	-10.7	-10.9
		Max	32,534	7.6	4.2	32.5	4.5	5.1	19.2
	124	Min	343	-9.6	-15.3	-54.2	-5.6	-11.6	-11.4
		Max	32,961	6.1	4.2	32.7	4.3	5.6	21.5

Table 4
Maximum displacements in critical girder

	Model		X DISP.	Y DISP.	Z DISP.	X ROT.	Y ROT.	Z ROT.
			(mm)	(mm)	(mm)	(rad)	(rad)	(rad)
Group A	101	Min	-2.4	-134.6	-13.5	-0.0166	0.0000	-0.0023
		Max	1.3	6.6	9.2	0.0170	0.0000	0.0044
	102	Min	-1.6	-135.3	-13.5	-0.0167	0.0000	-0.0023
		Max	1.4	6.6	9.4	0.0170	0.0000	0.0044
	103	Min	-1.7	-135.4	-13.5	-0.0167	0.0000	-0.0023
		Max	1.1	6.5	9.4	0.0171	0.0000	0.0044
Group B	104	Min	-2.0	-42.9	-5.9	-0.0071	0.0000	-0.0011
		Max	0.8	0.9	3.9	0.0075	0.0000	0.0045
	105	Min	-2.1	-43.2	-5.9	-0.0071	0.0000	-0.0011
		Max	0.8	1.0	4.0	0.0075	0.0000	0.0046
	106	Min	-2.1	-43.2	-5.9	-0.0071	0.0000	-0.0011
		Max	0.8	0.9	4.0	0.0075	0.0000	0.0047
Group C	107	Min	-4.3	-128.9	-12.8	-0.0156	0.0000	-0.0042
		Max	3.2	5.8	8.8	0.0161	0.0000	0.0076
	108	Min	-3.6	-129.7	-12.9	-0.0157	0.0000	-0.0042
		Max	2.7	5.6	9.0	0.0162	0.0000	0.0077
	109	Min	-3.4	-129.8	-12.8	-0.0157	0.0000	-0.0042
		Max	2.8	5.6	9.0	0.0162	0.0000	0.0077
Group D	110	Min	-2.1	-42.1	-5.7	-0.0067	0.0000	-0.0020
		Max	0.8	0.7	3.8	0.0074	0.0000	0.0033
	111	Min	-2.2	-42.4	-5.7	-0.0068	0.0000	-0.0021
		Max	0.8	0.9	3.9	0.0074	0.0000	0.0033
	112	Min	-2.2	-42.4	-5.7	-0.0068	0.0000	-0.0021
		Max	0.8	0.8	3.9	0.0074	0.0000	0.0033
Group E	113	Min	-2.4	-148.4	-17.3	-0.0139	0.0000	-0.0022
		Max	1.7	1.5	9.6	0.0115	0.0000	0.0039
	114	Min	-2.3	-148.9	-17.3	-0.0139	0.0000	-0.0022
		Max	1.4	1.5	9.7	0.0115	0.0000	0.0039
	115	Min	-2.3	-148.9	-17.3	-0.0139	0.0000	-0.0022
		Max	1.4	1.5	9.7	0.0115	0.0000	0.0039
Group F	116	Min	-2.1	-110.0	-13.8	-0.0115	0.0000	-0.0013
		Max	26.5	2.5	7.2	0.0107	0.0000	0.0079
	117	Min	-2.1	-110.5	-13.8	-0.0116	0.0000	-0.0013
		Max	26.3	3.1	7.3	0.0107	0.0000	0.0080
	118	Min	-2.1	-110.5	-13.8	-0.0116	0.0000	-0.0013
		Max	26.3	3.1	7.4	0.0107	0.0000	0.0080
Group G	119	Min	-4.8	-145.6	-16.9	-0.0133	0.0000	-0.0038
		Max	3.7	1.3	9.7	0.0112	0.0000	0.0065
	120	Min	-4.9	-146.0	-17.0	-0.0133	0.0000	-0.0038
		Max	3.0	1.3	9.8	0.0112	0.0000	0.0065
	121	Min	-4.7	-146.1	-17.0	-0.0133	0.0000	-0.0038
		Max	3.1	1.3	9.8	0.0112	0.0000	0.0065
Group H	122	Min	-1.8	-108.5	-13.6	-0.0111	0.0000	-0.0025
		Max	26.3	2.1	7.0	0.0107	0.0000	0.0067
	123	Min	-1.7	-109.0	-13.6	-0.0111	0.0000	-0.0026
		Max	25.9	2.8	7.2	0.0108	0.0000	0.0068
	124	Min	-1.8	-109.0	-13.6	-0.0111	0.0000	-0.0026
		Max	26.1	2.7	7.2	0.0108	0.0000	0.0068

Table 5
Maximum axial forces in diaphragms

	Model No.	Axial Force in Diaphragm (kN)
Group A	101	-751.5
	102	-304.9
	103	
Group B	104	-431.7
	105	-123.6
	106	
Group C	107	-661.4
	108	-53.0
	109	
Group D	110	-406.3
	111	-54.7
	112	
Group E	113	-1008.9
	114	-100.9
	115	
Group F	116	-1183.4
	117	-480.4
	118	
Group G	119	-842.6
	120	-40.0
	121	
Group H	122	-1104.1
	123	-129.3
	124	