

### LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (Y <sub>LL</sub> )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	LIVE-LOAD FACTORS (Y <sub>LL</sub> )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.22	--	1.75	0.460	1.97	A	I	59.2	0.790	1.81	A	ER	12.8	0.80	0.460	1.22	A	I	59.2		
	HL-93 (OPERATING)	N/A		2.38	--	1.35	0.460	2.55	A	I	59.2	0.790	2.38	A	ER	12.8	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	2	1.77	63.72	1.75	0.460	2.87	A	I	59.2	0.790	2.51	A	ER	38.5	0.80	0.460	1.77	A	I	59.2		
	HS-20 (OPERATING)	36.000		3.32	119.52	1.35	0.460	3.72	A	I	59.2	0.790	3.32	A	ER	38.5	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		4.29	57.92	1.40	0.460	8.68	A	I	59.2	0.790	8.16	A	ER	38.5	0.80	0.460	4.29	A	I	59.2	
		SNGARBS2	20.000		3.06	61.20	1.40	0.460	6.21	A	I	59.2	0.790	5.65	A	ER	38.5	0.80	0.460	3.06	A	I	59.2	
		SNAGRIS2	22.000		2.85	62.70	1.40	0.460	5.78	A	I	59.2	0.790	5.20	A	ER	38.5	0.80	0.460	2.85	A	I	59.2	
		SNCOTTS3	27.250		2.13	58.04	1.40	0.460	4.31	A	I	59.2	0.790	3.96	A	ER	38.5	0.80	0.460	2.13	A	I	59.2	
		SNAGGRS4	34.925		1.73	60.42	1.40	0.460	3.50	A	I	59.2	0.790	3.19	A	ER	38.5	0.80	0.460	1.73	A	I	59.2	
		SNS5A	35.550		1.69	60.08	1.40	0.460	3.43	A	I	59.2	0.790	3.20	A	ER	38.5	0.80	0.460	1.69	A	I	59.2	
		SNS6A	39.950		1.53	61.12	1.40	0.460	3.11	A	I	59.2	0.790	2.88	A	ER	38.5	0.80	0.460	1.53	A	I	59.2	
		SNS7B	42.000		1.46	61.32	1.40	0.460	2.96	A	I	59.2	0.790	2.80	A	ER	38.5	0.80	0.460	1.46	A	I	59.2	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.87	61.71	1.40	0.460	3.78	A	I	59.2	0.790	3.48	A	ER	38.5	0.80	0.460	1.87	A	I	59.2	
		TNT4A	33.075		1.87	61.85	1.40	0.460	3.78	A	I	59.2	0.790	3.42	A	ER	38.5	0.80	0.460	1.87	A	I	59.2	
		TNT6A	41.600		1.51	62.82	1.40	0.460	3.06	A	I	59.2	0.790	2.94	A	ER	38.5	0.80	0.460	1.51	A	I	59.2	
		TNT7A	42.000		1.51	63.42	1.40	0.460	3.05	A	I	59.2	0.790	2.88	A	ER	38.5	0.80	0.460	1.51	A	I	59.2	
		TNT7B	42.000		1.54	64.68	1.40	0.460	3.11	A	I	59.2	0.790	2.75	A	ER	38.5	0.80	0.460	1.54	A	I	59.2	
		TNAGRIT4	43.000		1.48	63.64	1.40	0.460	2.99	A	I	59.2	0.790	2.66	A	ER	38.5	0.80	0.460	1.48	A	I	59.2	
EMERGENCY VEHICLE (EV)	EV2	28.750		2.15	61.81	1.30	0.460	4.69	A	I	59.2	0.790	4.21	A	ER	38.5	0.80	0.460	2.15	A	I	59.2		
	EV3	43.000	4	1.42	61.06	1.30	0.460	3.10	A	I	59.2	0.790	2.76	A	ER	38.5	0.80	0.460	1.42	A	I	59.2		

**LOAD FACTORS:**

DESIGN LOAD RATING FACTORS	LIMIT STATE	Y <sub>DC</sub>	Y <sub>DW</sub>
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

**NOTES:**

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.  
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

**COMMENTS:**

A 2D GRILLAGE MODEL WAS DEVELOPED USING 3D FEM SOFTWARE (MIDAS 2021) AND THE DISTRIBUTION FACTORS WERE COMPUTED.

# CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING \*\*

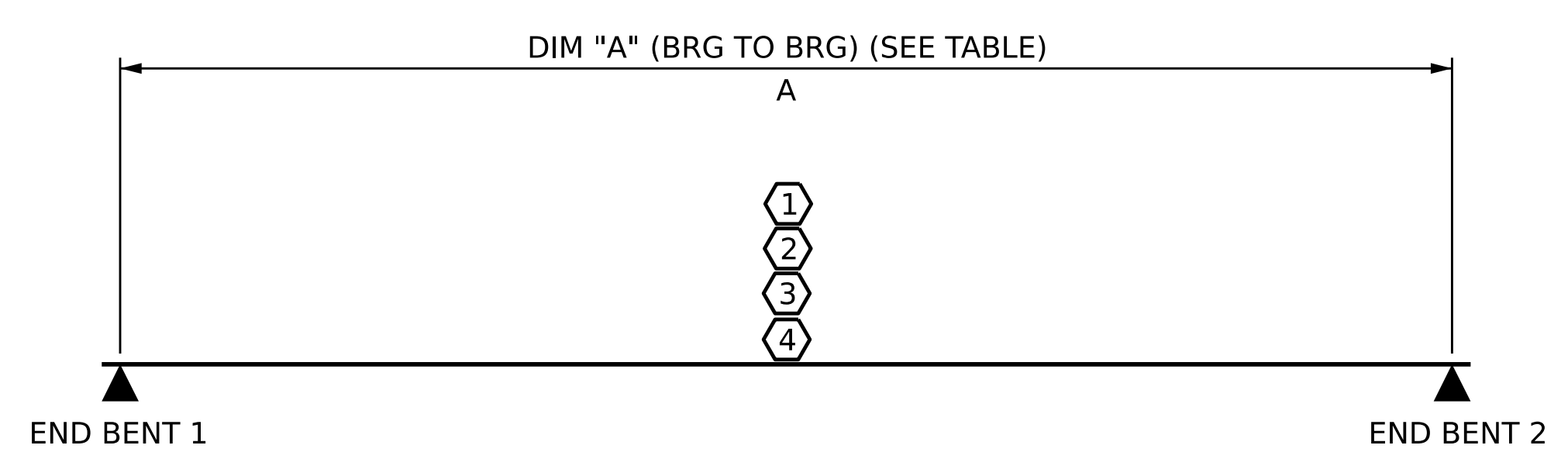
4 EMERGENCY VEHICLE LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

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GIRDER LOCATION

I - INTERIOR GIRDER  
EL - EXTERIOR LEFT GIRDER  
ER - EXTERIOR RIGHT GIRDER



**LRFR SUMMARY**

DIM "A"	
GIRDER 1	113' - 2 <sup>5</sup> / <sub>16</sub> "
GIRDER 2	114' - 9 <sup>5</sup> / <sub>8</sub> "
GIRDER 3	116' - 11 <sup>5</sup> / <sub>8</sub> "
GIRDER 4	119' - 2 <sup>3</sup> / <sub>16</sub> "
GIRDER 5	121' - 6 <sup>3</sup> / <sub>4</sub> "
GIRDER 6	124' - 1 <sup>3</sup> / <sub>4</sub> "
GIRDER 7	126' - 11 <sup>3</sup> / <sub>16</sub> "

**AECOM**

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PROJECT NO. B-3186 / B-5898  
HAYWOOD COUNTY  
STATION: 32+21.34 -L\_ LT-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**STANDARD LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS**  
(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-06
1			3			TOTAL SHEETS 43
2			4			

ASSEMBLED BY : M.L. CATER	DATE : 05/23
CHECKED BY : S. NATARAJAN	DATE : 05/23
DRAWN BY : WJH 8/89	REV. 1/15 MAA/TMG
CHECKED BY : CRK 8/89	REV. 12/17 MAA/THC
	REV. 10/21 BNB/AAI

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