

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 (γ _{LL})	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 (γ _{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.20	---	1.75	0.830	1.410	A	EL	26.150	0.960	1.350	A	I	36.870	0.80	0.790	1.200	A	I	26.150		
	HL-93 (OPERATING)	N/A		1.83	---	1.35	0.830	1.830	A	EL	26.150	0.960	1.890	A	I	42.230	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	②	1.50	54.000	1.75	0.830	1.770	A	EL	26.150	0.960	1.710	A	I	42.230	0.80	0.790	1.500	A	I	26.150		
	HS-20 (OPERATING)	36.000		2.24	80.640	1.35	0.830	2.290	A	EL	26.150	0.960	2.240	A	I	42.230	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.13	42.255	1.40	0.830	4.590	A	EL	26.150	0.960	4.890	A	I	42.230	0.80	0.790	3.130	A	I	26.150	
		SNGARBS2	20.000		2.44	48.800	1.40	0.830	3.580	A	EL	26.150	0.960	3.570	A	I	42.230	0.80	0.790	2.440	A	I	26.150	
		SNAGRIS2	22.000		2.36	51.920	1.40	0.830	3.460	A	EL	26.150	0.960	3.350	A	I	42.230	0.80	0.790	2.360	A	I	26.150	
		SNCOTTS3	27.250		1.56	42.510	1.40	0.830	2.290	A	EL	26.150	0.960	2.400	A	I	42.230	0.80	0.790	1.560	A	I	26.150	
		SNAGGRS4	34.925		1.35	47.149	1.40	0.830	1.970	A	EL	26.150	0.960	2.060	A	I	42.230	0.80	0.790	1.350	A	I	26.150	
		SNS5A	35.550		1.31	46.571	1.40	0.830	1.930	A	EL	26.150	0.960	2.130	A	I	42.230	0.80	0.790	1.310	A	I	26.150	
		SNS6A	39.950		1.22	48.739	1.40	0.830	1.790	A	EL	26.150	0.960	1.960	A	I	42.230	0.80	0.790	1.220	A	I	26.150	
		SNS7B	42.000		1.17	49.140	1.40	0.830	1.710	A	EL	26.150	0.960	1.970	A	I	42.230	0.80	0.790	1.170	A	I	26.150	
	TRUCK TRACTOR SEMI-TRAILER (TTS)	TNAGRIT3	33.000		1.50	49.500	1.40	0.830	2.190	A	EL	26.150	0.960	2.340	A	I	42.230	0.80	0.790	1.500	A	I	26.150	
		TNT4A	33.075		1.51	49.943	1.40	0.830	2.210	A	EL	26.150	0.960	2.240	A	I	42.230	0.80	0.790	1.510	A	I	26.150	
		TNT6A	41.600		1.25	52.000	1.40	0.830	1.840	A	EL	26.150	0.960	2.170	A	I	42.230	0.80	0.790	1.250	A	I	26.150	
		TNT7A	42.000		1.27	53.340	1.40	0.830	1.860	A	EL	26.150	0.960	2.000	A	I	42.230	0.80	0.790	1.270	A	I	26.150	
		TNT7B	42.000		1.32	55.440	1.40	0.830	1.940	A	EL	26.150	0.960	1.900	A	I	42.230	0.80	0.790	1.320	A	I	26.150	
		TNAGRIT4	43.000		1.25	53.750	1.40	0.830	1.840	A	EL	26.150	0.960	1.830	A	I	42.230	0.80	0.790	1.250	A	I	26.150	
TNAGT5A	45.000		1.17	52.650	1.40	0.830	1.720	A	EL	26.150	0.960	1.880	A	I	42.230	0.80	0.790	1.170	A	I	26.150			
TNAGT5B	45.000		③	1.15	51.750	1.40	0.830	1.690	A	EL	26.150	0.960	1.730	A	I	42.230	0.80	0.790	1.150	A	I	26.150		

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ _{DC}	γ _{DW}
	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:

1. SPAN A IS THE SAME AS SPAN B
- 2.
- 3.
- 4.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

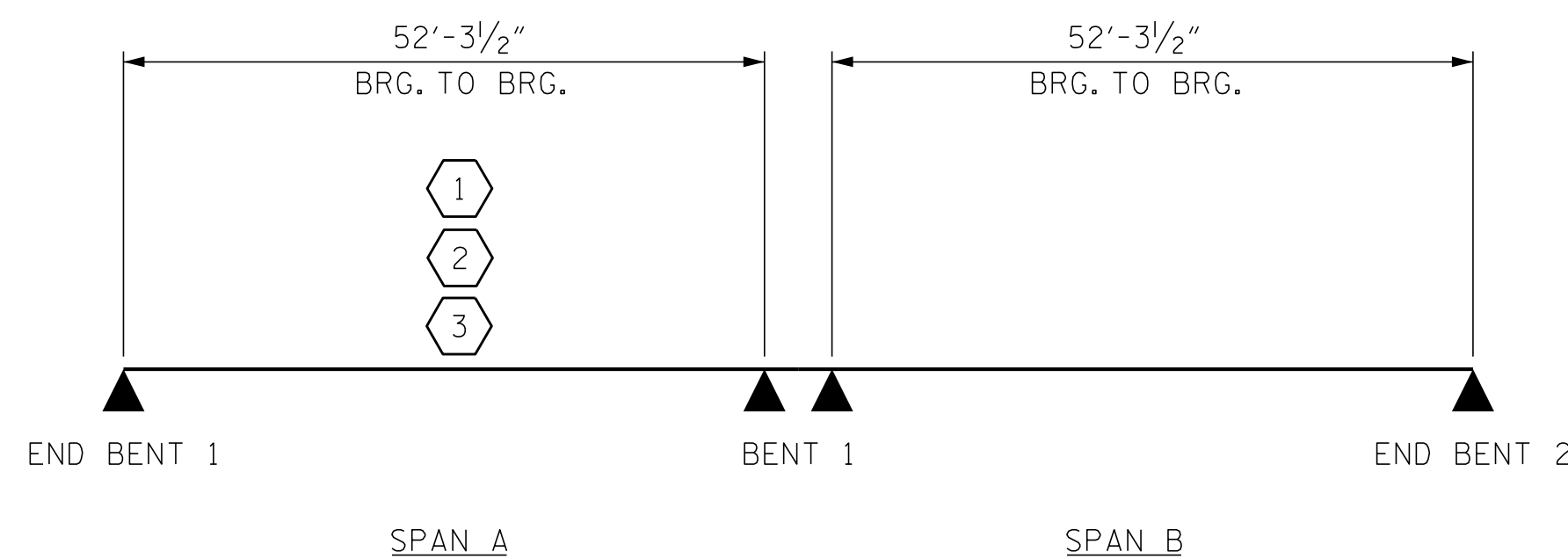
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING ***

*** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. BR-0014
CUMBERLAND COUNTY
STATION: 21+37.00 -LREV-

P:\2018\SMU Bridge Replacement Program\BR-0014\Structures\DGN\BR0014_SMU_LRFR.dgn 6/6/2019 11:32:16 AM

ASSEMBLED BY : D. HODGE	DATE : 4/19
CHECKED BY : G.M. GILLAND	DATE : 4/19
DRAWN BY : MAA 1/08	REV. 11/2/08RR MAA/GM
CHECKED BY : GM/DI 2/08	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

ENGINEER OF RECORD
6/6/2019

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SEAL
37400
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
S-4
TOTAL SHEETS
28