

DATE: 5/27/2020  
TIME: 12:55:06 PM

USER: nusrat@p001\Users\nusrat\Documents\Drawings\004\_Drawings\004\_DOT\_S04\_BR-0042\_SML\_LRFRR.dgn

## 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 <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 (γ <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	1.09	--	1.75	0.78	1.17	A	E	49.83	1.19	1.17	A	I	59.94	0.80	0.700	1.09	A	I	49.83		
	HL-93 (OPERATING)	N/A		1.52	--	1.35	0.78	1.52	A	E	49.83	1.19	1.60	A	I	9.40	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	②	1.53	55.08	1.75	0.78	1.65	A	E	49.83	1.19	1.67	A	I	9.40	0.80	0.700	1.53	A	I	49.83		
	HS-20 (OPERATING)	36.000		2.13	76.68	1.35	0.78	2.13	A	E	49.83	1.19	2.19	A	I	9.40	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH		3.64	49.14	1.40	0.78	4.90	A	E	49.83	1.19	5.62	A	I	9.40	0.80	0.700	3.64	A	I	49.83		
		SNGARBS2	20.000		2.63	52.60	1.40	0.78	3.54	A	E	49.83	1.19	3.92	A	I	9.40	0.80	0.700	2.63	A	I	49.83	
		SNAGRIS2	22.000		2.46	54.12	1.40	0.78	3.31	A	E	49.83	1.19	3.61	A	I	9.40	0.80	0.700	2.46	A	I	49.83	
		SNCOTTS3	27.250		1.81	49.32	1.40	0.78	2.43	A	E	49.83	1.19	2.72	A	I	9.40	0.80	0.700	1.81	A	I	49.83	
		SNAGGRS4	34.925		1.48	51.69	1.40	0.78	1.99	A	E	49.83	1.19	2.12	A	I	9.40	0.80	0.700	1.48	A	I	49.83	
		SNS5A	35.550		1.45	51.55	1.40	0.78	1.95	A	E	49.83	1.19	2.13	A	I	9.40	0.80	0.700	1.45	A	I	49.83	
		SNS6A	39.950		1.32	52.73	1.40	0.78	1.77	A	E	49.83	1.19	1.92	A	I	9.40	0.80	0.780	1.32	A	E	49.83	
	SNS7B	42.000		1.25	52.50	1.40	0.78	1.69	A	E	49.83	1.19	1.82	A	I	9.40	0.80	0.700	1.25	A	I	49.83		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.60	52.80	1.40	0.78	2.16	A	E	49.83	1.19	2.28	A	I	9.40	0.80	0.700	1.60	A	I	49.83	
		TNT4A	33.075		1.61	53.25	1.40	0.78	2.16	A	E	49.83	1.19	2.39	A	I	9.40	0.80	0.780	1.61	A	E	49.83	
		TNT6A	41.600		1.30	54.08	1.40	0.78	1.75	A	E	49.83	1.19	1.91	A	I	9.40	0.80	0.700	1.30	A	I	49.83	
		TNT7A	42.000		1.30	54.60	1.40	0.78	1.75	A	E	49.83	1.19	1.92	A	I	9.40	0.80	0.700	1.30	A	I	49.83	
		TNT7B	42.000		1.33	55.86	1.40	0.78	1.79	A	E	49.83	1.19	1.83	A	I	9.40	0.80	0.700	1.33	A	I	49.83	
		TNAGRIT4	43.000		1.28	55.04	1.40	0.78	1.72	A	E	49.83	1.19	1.80	A	I	9.40	0.80	0.780	1.28	A	E	49.83	
TNAGT5A		45.000		1.21	54.45	1.40	0.78	1.63	A	E	49.83	1.19	1.72	A	I	9.40	0.80	0.780	1.21	A	E	49.83		
TNAGT5B	45.000	③	1.20	54.00	1.40	0.78	1.61	A	E	49.83	1.19	1.71	A	I	9.40	0.80	0.780	1.20	A	E	49.83			

**LOAD FACTORS:**

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ <sub>DC</sub>	γ <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:**

1. GIRDERS DESIGNED AS SIMPLE SPANS FOR FLEXURE. GIRDERS DESIGNED AS SIMPLE-MADE-CONTINUOUS (FOR LIVE LOAD AND SUPERIMPOSED DEAD LOAD) FOR SHEAR.

# CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

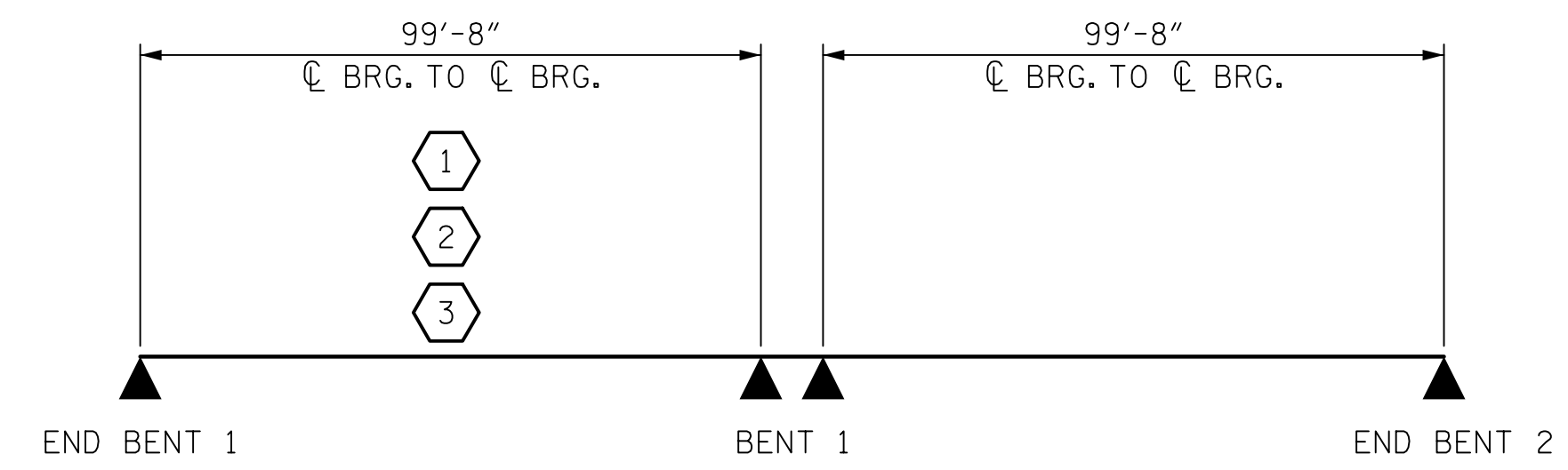
③ LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

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GIRDER LOCATION

I - INTERIOR GIRDER  
E - EXTERIOR GIRDER



LRFR SUMMARY

PROJECT NO. BR-0042  
ROCKINGHAM COUNTY  
 STATION: 19+56.99 -L-

ASSEMBLED BY : H.T. ROSEMOND	DATE : 06/2019
CHECKED BY : J.C. MORRISON	DATE : 06/2019
DRAWN BY : MAA 1/08	REV. 11/12/08RR 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

**AECOM**

AECOM TECHNICAL SERVICES OF NC, INC.  
701 CORPORATE CENTER DRIVE, SUITE 475  
RALEIGH, NC 27607  
(919) 854-6200 www.aecom.com  
AECOM License No. F-0342

Designed by:  
*John C. Morrison*

NORTH CAROLINA  
PROFESSIONAL  
ENGINEER  
JOHN C. MORRISON  
SEAL  
030474  
5/27/2020

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:
1			3		
2			4		
					TOTAL SHEETS <b>28</b>