

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	1.14	-	1.75	0.96	1.32	B	E	31.67	1.16	1.37	B	I	44.60	0.80	0.90	1.14	B	I	31.67		
	HL-93 (OPERATING)	N/A		1.72	-	1.35	0.96	1.72	B	E	31.67	1.16	1.88	B	I	12.27	N/A	-	-	-	-	-		
	HS-20 (INVENTORY)	36.000	②	1.46	52.56	1.75	0.96	1.70	B	E	31.67	1.16	1.77	B	I	51.07	0.80	0.90	1.46	B	I	31.67		
	HS-20 (OPERATING)	36.000		2.21	79.56	1.35	0.96	2.21	B	E	31.67	1.16	2.33	B	I	51.07	N/A	-	-	-	-	-		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.23	43.61	1.40	0.96	4.69	B	E	31.67	1.16	5.58	B	I	12.27	0.80	0.90	3.23	B	I	31.67	
		SNGARBS2	20.000		2.44	48.80	1.40	0.96	3.54	B	E	31.67	1.16	4.03	B	I	12.27	0.80	0.90	2.44	B	I	31.67	
		SNAGRIS2	22.000		2.32	51.04	1.40	0.96	3.38	B	E	31.67	1.16	3.77	B	I	12.27	0.80	0.90	2.32	B	I	31.67	
		SNCOTTS3	27.250		1.61	43.87	1.40	0.96	2.34	B	E	31.67	1.16	2.56	B	I	51.07	0.80	0.90	1.61	B	I	31.67	
		SNAGGRS4	34.925		1.35	47.14	1.40	0.96	1.97	B	E	31.67	1.16	2.15	B	I	12.27	0.80	0.90	1.35	B	I	31.67	
		SNS5A	35.550		1.32	46.93	1.40	0.96	1.93	B	E	31.67	1.16	2.13	B	I	12.27	0.80	0.90	1.32	B	I	31.67	
		SNS6A	39.950		1.22	48.74	1.40	0.96	1.77	B	E	31.67	1.16	1.95	B	I	51.07	0.80	0.90	1.22	B	I	31.67	
	SNS7B	42.000		1.16	48.72	1.40	0.96	1.69	B	E	31.67	1.16	1.94	B	I	51.07	0.80	0.90	1.16	B	I	31.67		
	TRUCK TRACTOR SEMI- TRAILER (TTST)	TNAGRIT3	33.000		1.49	49.17	1.40	0.96	2.17	B	E	31.67	1.16	2.36	B	I	12.27	0.80	0.90	1.49	B	I	31.67	
		TNT4A	33.075		1.50	49.61	1.40	0.96	2.18	B	E	31.67	1.16	2.33	B	I	12.27	0.80	0.90	1.50	B	I	31.67	
		TNT6A	41.600		1.23	51.17	1.40	0.96	1.79	B	E	31.67	1.16	2.21	B	I	12.27	0.80	0.90	1.23	B	I	31.67	
		TNT7A	42.000		1.24	52.08	1.40	0.96	1.80	B	E	31.67	1.16	2.06	B	I	51.07	0.80	0.90	1.24	B	I	31.67	
		TNT7B	42.000		1.29	54.18	1.40	0.96	1.87	B	E	31.67	1.16	1.87	B	I	51.07	0.80	0.90	1.29	B	I	31.67	
		TNAGRIT4	43.000		1.22	52.46	1.40	0.96	1.77	B	E	31.67	1.16	1.88	B	I	51.07	0.80	0.90	1.22	B	I	31.67	
TNAGT5A		45.000		1.15	51.75	1.40	0.96	1.67	B	E	31.67	1.16	1.98	B	I	51.07	0.80	0.90	1.15	B	I	31.67		
TNAGT5B	45.000	③	1.13	50.85	1.40	0.96	1.65	B	E	31.67	1.16	1.78	B	I	12.27	0.80	0.90	1.13	B	I	31.67			
EMERGENCY VEHICLE (EV)	EV2	28.750		1.73	49.74	1.30	0.96	2.70	B	E	31.67	1.16	2.95	B	I	12.27	0.80	0.90	1.73	B	I	31.67		
	EV3	45.000	④	1.13	48.59	1.30	0.96	1.77	B	E	31.67	1.16	1.78	B	I	12.27	0.80	0.90	1.13	B	I	31.67		

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ _{DC}	γ _{OW}
	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.
- 2.
- 3.
- 4.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

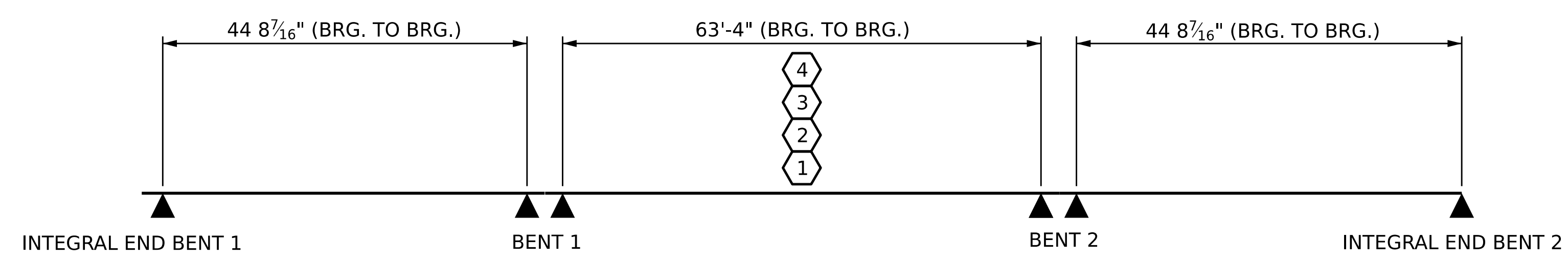
③ LEGAL LOAD RATING **

④ EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. **BR-0100**
RUTHERFORD COUNTY
 STATION: **18+28.00 -L-**
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD

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

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

DocuSigned by:
 Elizabeth F. Lawes
 935644223278/2024

WSP

WSP USA Inc.
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 SUITE 1500
 RALEIGH, NC 27601
 TEL: 1.919.836.4040
 LICENSE NO. F-0165

DRAWN BY: MAA 1/08	REV. 11/12/OBRR	MAA/GM
CHECKED BY: GM/DI 2/08	REV. 10/11/11	MAA/GM
	REV. 12/17	MAA/THC
DESIGNED BY: J. WHEATLEY	DATE: MAY 2024	
DRAWN BY: M. HOBBS	DATE: MAY 2024	
CHECKED BY: E. LAWES	DATE: MAY 2024	
DESIGN ENGINEER OF RECORD: E. LAWES	DATE: MAY 2024	

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			5-6
2			4			TOTAL SHEETS 30