

LOAD FACTORS:

DESIGN LOAD RATING SERVICE FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE II	1.00	1.00

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE II LIMIT STATE					COMMENT NUMBER			
						LIVE-LOAD FACTORS (γ_{LL})	MOMENT					SHEAR					LIVE-LOAD FACTORS (γ_{LL})	MOMENT						
							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)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	0.64	--	1.75	0.468	0.64	B	9	0.00	0.934	0.73	B	8	18.25	1.30	0.468	1.24	B	9	0.00	1	
	HL-93 (OPERATING)	N/A		0.83	--	1.35	0.468	0.83	B	9	0.00	0.934	0.94	B	8	18.25	1.00	0.468	1.61	B	9	0.00	1	
	HS-20 (INVENTORY)	36.000	②	1.06	38.16	1.75	0.468	1.07	B	9	0.00	0.934	1.06	B	8	18.25	1.30	0.468	1.99	B	9	72.98	1	
	HS-20 (OPERATING)	36.000		1.37	49.32	1.35	0.468	1.39	B	9	0.00	0.934	1.37	B	8	18.25	1.00	0.468	2.59	B	9	72.98	1	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		1.91	25.79	1.40	0.468	1.91	B	9	0.00	0.467	2.74	B	9	18.25	1.30	0.468	2.95	B	9	0.00	1
		SNGARBS2	20.000		1.70	34.00	1.40	0.468	1.70	B	9	0.00	0.467	2.29	B	9	18.25	1.30	0.468	2.63	B	9	0.00	1
		SNAGRIS2	22.000		1.65	36.30	1.40	0.468	1.65	B	9	0.00	0.934	2.12	B	8	18.25	1.30	0.468	2.55	B	9	0.00	1
		SNCOTTS3	27.250		1.49	40.60	1.40	0.468	1.49	B	9	0.00	0.934	1.67	B	8	18.25	1.30	0.468	2.23	B	9	72.98	1
		SNAGGRS4	34.925		1.33	46.45	1.40	0.468	1.33	B	9	0.00	0.934	1.33	B	8	18.25	1.30	0.468	1.95	B	9	72.98	1
		SNS5A	35.550		1.32	46.93	1.40	0.468	1.32	B	9	0.00	0.934	1.33	B	8	18.25	1.30	0.468	1.93	B	9	72.98	1
		SNS6A	39.950		1.19	47.54	1.40	0.468	1.25	B	9	0.00	0.934	1.19	B	8	18.25	1.30	0.709	1.78	B	8	72.98	1
		SNS7B	42.000		1.15	48.30	1.40	0.468	1.21	B	9	0.00	0.934	1.15	B	8	18.25	1.30	0.709	1.70	B	8	72.98	1
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.37	45.21	1.40	0.468	1.37	B	9	0.00	0.934	1.43	B	8	18.25	1.30	0.468	2.06	B	9	72.98	1
		TNT4A	33.075		1.37	45.31	1.40	0.468	1.37	B	9	0.00	0.934	1.42	B	8	18.25	1.30	0.468	2.05	B	9	72.98	1
		TNT6A	41.600		1.19	49.50	1.40	0.468	1.22	B	9	0.00	0.934	1.19	B	8	18.25	1.30	0.709	1.76	B	8	72.98	1
		TNT7A	42.000		1.17	49.14	1.40	0.468	1.22	B	9	0.00	0.934	1.17	B	8	18.25	1.30	0.709	1.75	B	8	72.98	1
		TNT7B	42.000		1.14	47.88	1.40	0.468	1.22	B	9	0.00	0.934	1.14	B	8	18.25	1.30	0.709	1.78	B	8	72.98	1
		TNAGRIT4	43.000		1.11	47.73	1.40	0.468	1.20	B	9	0.00	0.934	1.11	B	8	18.25	1.30	0.709	1.72	B	8	72.98	1
	TNAGT5A	45.000		1.08	48.60	1.40	0.468	1.17	B	9	0.00	0.934	1.08	B	8	18.25	1.30	0.709	1.64	B	8	72.98	1	
	TNAGT5B	45.000	③	1.06	47.70	1.40	0.468	1.17	B	9	0.00	0.934	1.06	B	8	18.25	1.30	0.709	1.62	B	8	72.98	1	
FATIGUE	HL-93 (INVENTORY)	$\gamma_{LL} = 0.80$	--	1.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	

NOTES:
 MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE II LIMIT STATES.
 ALLOWABLE STRESS FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:
 1. DISTANCE FROM LEFT END OF SPAN IS GIVEN WITH RESPECT TO THE CENTERLINE OF BEARING AND IS MEASURED ALONG THE CONTROLLING GIRDER.
 2. A FATIGUE LIVE LOAD FACTOR OF 0.80 WAS USED TO BE CONSISTENT WITH THE LATEST EDITION OF THE MANUAL FOR BRIDGE EVALUATION.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93) **

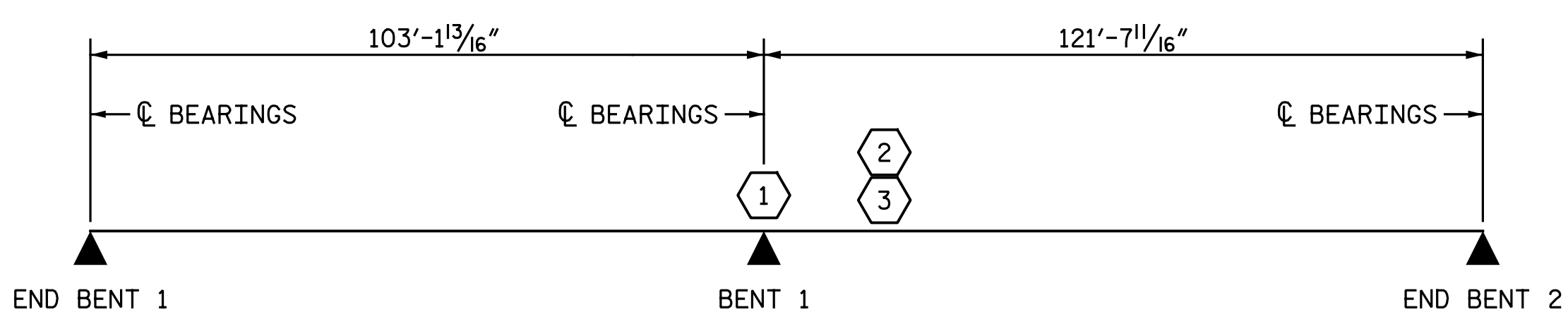
② DESIGN LOAD RATING (HS-20) **

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

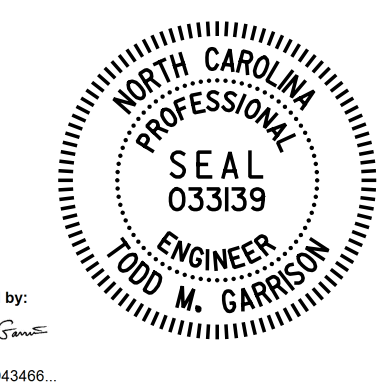
GIRDER LOCATION

GIRDER LOCATION PROVIDED UTILIZES GIRDER NUMBERS, WHERE GIRDER 1 IS LEFT EXTERIOR GIRDER LOOKING AHEAD STATION.



LRFR SUMMARY

PROJECT NO. I-5986B
 JOHNSTON COUNTY
 STATION: 25+31.59 -Y18-



DocuSigned by:
 Todd M. Garrison
 61EAF752943466
 4/27/2021

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 STEEL GIRDERS
 (NON-INTERSTATE TRAFFIC)

ASSEMBLED BY : N. B. SPEAKS	DATE : 1-29-21
CHECKED BY : T. M. GARRISON	DATE : 2-1-21
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

Michael Baker INTERNATIONAL	Michael Baker Engineering 8000 Regency Parkway, Suite 600 Cary, North Carolina 27518 NC License No. : F-1084		REVISIONS			SHEET NO.
	NO.	BY:	DATE:	NO.	BY:	DATE:
1			3			S4-3
2			4			TOTAL SHEETS 14