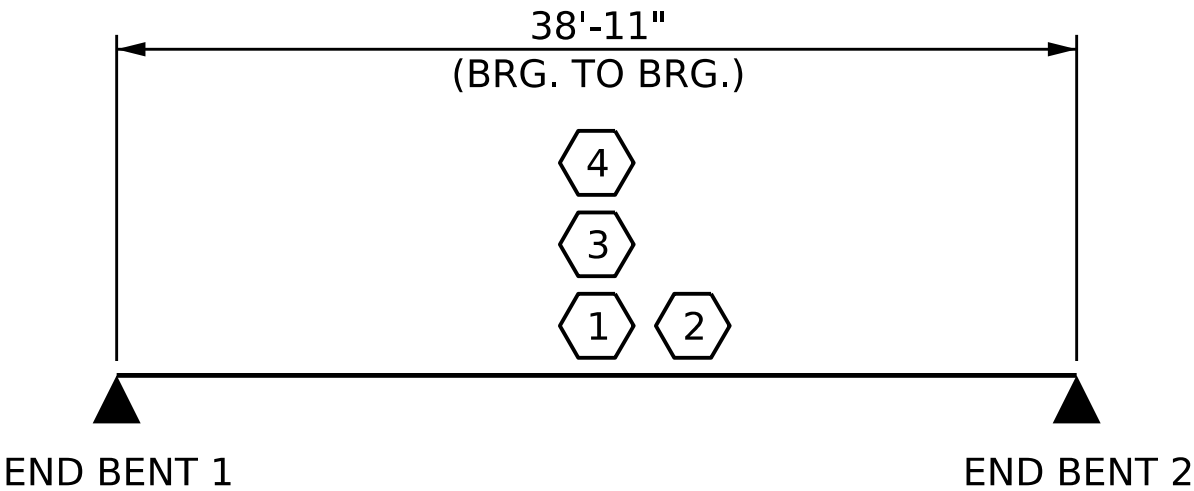


8/26/21

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LOAD AND RESISTANCE FACTOR RATING (LRFR) STEEL GIRDERS (W 18 X 76)																								
LOAD TYPE		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	HL-93 (INVENTORY)		N/A	Ⓢ1	1.02	--	1.75	0.373	1.02	A	I	20.00	0.373	3.53	A	I	0.00	1.30	0.373	1.21	A	I	20.00	
	HL-93 (OPERATING)		N/A		1.32	--	1.35	0.373	1.32	A	I	20.00	0.373	4.57	A	I	0.00	N/A	--	--	--	--	--	
	HS-20 (INVENTORY)		36.000	Ⓢ2	1.24	44.64	1.75	0.373	1.24	A	I	24.00	0.373	4.14	A	I	0.00	1.30	0.373	1.49	A	I	24.00	
	HS-20 (OPERATING)		36.000		1.61	57.96	1.35	0.373	1.61	A	I	24.00	0.373	5.37	A	I	0.00	N/A	--	--	--	--	--	
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500		2.81	37.94	1.40	0.373	2.92	A	I	20.00	0.373	9.99	A	I	0.00	1.30	0.373	2.81	A	I	20.00	
		SNGARBS2	20.000		2.28	45.60	1.40	0.373	2.37	A	I	16.00	0.373	8.35	A	I	0.00	1.30	0.373	2.28	A	I	16.00	
		SNAGRIS2	22.000		2.22	48.84	1.40	0.373	2.31	A	I	24.00	0.373	7.87	A	I	0.00	1.30	0.373	2.22	A	I	16.00	
		SNCOTTS3	27.250		1.41	38.42	1.40	0.373	1.46	A	I	20.00	0.373	5.68	A	I	0.00	1.30	0.373	1.41	A	I	20.00	
		SNAGGRS4	34.925		1.26	44.01	1.40	0.373	1.31	A	I	20.00	0.373	4.93	A	I	0.00	1.30	0.373	1.26	A	I	20.00	
		SNS5A	35.550		1.23	43.73	1.40	0.373	1.27	A	I	20.00	0.373	5.11	A	I	0.00	1.30	0.373	1.23	A	I	20.00	
		SNS6A	39.950		1.16	46.34	1.40	0.373	1.21	A	I	20.00	0.373	4.76	A	I	0.00	1.30	0.373	1.16	A	I	20.00	
		SNS7B	42.000	Ⓢ3	1.11	46.62	1.40	0.373	1.15	A	I	20.00	0.373	4.81	A	I	0.00	1.30	0.373	1.11	A	I	20.00	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.43	47.19	1.40	0.373	1.49	A	I	20.00	0.373	5.59	A	I	0.00	1.30	0.373	1.43	A	I	20.00	
		TNT4A	33.075		1.45	47.96	1.40	0.373	1.50	A	I	20.00	0.373	5.34	A	I	0.00	1.30	0.373	1.45	A	I	20.00	
		TNT6A	41.600		1.23	51.17	1.40	0.373	1.27	A	I	20.00	0.373	5.21	A	I	0.00	1.30	0.373	1.23	A	I	20.00	
		TNT7A	42.000		1.26	52.92	1.40	0.373	1.30	A	I	20.00	0.373	4.81	A	I	0.00	1.30	0.373	1.26	A	I	20.00	
		TNT7B	42.000		1.29	54.18	1.40	0.373	1.34	A	I	24.00	0.373	4.60	A	I	0.00	1.30	0.373	1.29	A	I	16.00	
		TNAGRIT4	43.000		1.24	53.32	1.40	0.373	1.29	A	I	16.00	0.373	4.42	A	I	0.00	1.30	0.373	1.24	A	I	16.00	
		TNAGT5A	45.000		1.16	52.20	1.40	0.373	1.20	A	I	20.00	0.373	4.55	A	I	0.00	1.30	0.373	1.16	A	I	20.00	
		TNAGT5B	45.000		1.12	50.40	1.40	0.373	1.17	A	I	20.00	0.373	4.19	A	I	0.00	1.30	0.373	1.12	A	I	20.00	
EMERGENCY VEHICLE (EV)	EV2	28.750		1.82	52.33	1.30	0.373	1.82	A	I	16.00	0.373	6.34	A	I	0.00	N/A	--	--	--	--	--		
	EV3	43.000	Ⓢ4	1.20	51.60	1.30	0.373	1.20	A	I	20.00	0.373	4.31	A	I	0.00	N/A	--	--	--	--	--		



LRFR SUMMARY

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ DC	γ DW
	STRENGTH I	1.25	1.50
	SERVICE II	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE II LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

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Ⓢ	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	

PROJECT NO. DF18314.2045324

HENDERSON COUNTY

STATION: 11+67.50 -L-

ASSEMBLED BY:	ZCS	DATE :	5/25
CHECKED BY :	MGC	DATE :	7/25
DRAWN BY :	GA 5/2024		
CHECKED BY :	AKP 7/2024		

10/10/2025

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
201 W. MARION ST STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR
40FT STEEL GIRDERS
(NON-INTERSTATE TRAFFIC)

REVISIONS							SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:		S-4
1			3			TOTAL SHEETS	13
2			4				