

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR STEEL FLOOR BEAMS

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			
						MOMENT					SHEAR					AXIAL					MOMENT								
						LIVE-LOAD FACTORS (γ _{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	BAY LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	BAY LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	BAY LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ _{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		BAY LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.43	--	1.75	FEM	1.73	C	1	188.66	FEM	3.81	C	2	165.08	FEM	1.43	C	2	188.66	1.30	FEM	2.21	C	3	188.66		
	HL-93 (OPERATING)	N/A		1.70	--	1.35	FEM	2.24	C	2	165.08	FEM	4.94	C	2	165.08	FEM	1.70	C	2	165.08	1.00	FEM	3.01	B	3	212.25		
	HS-20 (INVENTORY)	36.000	②	1.45	52,156	1.75	FEM	1.89	C	2	165.08	FEM	3.81	C	2	165.08	FEM	1.45	C	2	165.08	1.30	FEM	2.86	C	3	188.66		
	HS-20 (OPERATING)	36.000		2.06	74,019	1.35	FEM	3.06	C	3	188.66	FEM	6.43	B	2	94.33	FEM	2.06	C	2	165.08	1.00	FEM	3.90	C	3	188.66		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH		2.65	33,064	1.40	FEM	5.33	C	1	188.66	FEM	11.07	B	2	0.00	FEM	2.65	C	2	165.08	1.30	FEM	5.45	C	3	188.66		
		S3C		2.23	48,040	1.40	FEM	3.46	C	1	188.66	FEM	7.08	B	2	0.00	FEM	2.23	C	2	165.08	1.30	FEM	3.53	C	3	188.66		
		S3A		2.19	49,791	1.40	FEM	3.33	C	1	188.66	FEM	6.83	B	2	94.33	FEM	2.19	C	2	165.08	1.30	FEM	3.39	C	3	188.66		
		S4A		2.08	55,599	1.40	FEM	3.06	C	1	188.66	FEM	6.28	B	2	94.33	FEM	2.08	C	2	165.08	1.30	FEM	3.13	C	3	188.66		
		S5A		1.97	68,897	1.40	FEM	2.75	C	1	188.66	FEM	5.62	B	2	94.33	FEM	1.97	C	2	165.08	1.30	FEM	2.81	C	3	188.66		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	S6A		1.89	67,365	1.40	FEM	2.57	C	1	188.66	FEM	5.25	B	2	94.33	FEM	1.89	C	2	165.08	1.30	FEM	2.63	C	3	188.66		
		S7B		③	1.81	72,479	1.40	FEM	2.39	C	1	188.66	FEM	4.89	C	2	165.08	FEM	1.81	C	2	188.66	1.30	FEM	2.44	B	3	0.00	
		S7A		1.82	76,480	1.40	FEM	2.41	C	1	188.66	FEM	4.97	C	2	165.08	FEM	1.82	C	2	188.66	1.30	FEM	2.47	B	3	0.00		
		T4A		2.07	68,343	1.40	FEM	3.09	C	1	188.66	FEM	6.42	C	2	165.08	FEM	2.07	C	2	165.08	1.30	FEM	3.16	C	3	188.66		
		T5B		1.96	64,874	1.40	FEM	2.80	C	1	188.66	FEM	5.68	C	2	165.08	FEM	1.96	C	2	165.08	1.30	FEM	2.86	B	3	0.00		
	T6A		1.90	79,124	1.40	FEM	2.62	C	3	235.83	FEM	5.40	C	2	165.08	FEM	1.90	C	2	165.08	1.30	FEM	2.68	B	3	0.00			
	T7A		1.84	73,520	1.40	FEM	2.52	C	3	235.83	FEM	5.20	C	2	165.08	FEM	1.84	C	2	165.08	1.30	FEM	2.59	C	3	188.66			
	T7B		1.89	75,536	1.40	FEM	2.65	C	1	188.66	FEM	5.62	B	2	94.33	FEM	1.89	C	2	165.08	1.30	FEM	2.70	C	3	188.66			
FATIGUE	HL-93 (INVENTORY)	γ _{LL} =0.80																											

DATE: 2/27/2020
TIME: 3:56:54 PM

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 STRESS FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1. LOAD RATING INCLUDES 1" PPC OVERLAY.
- 2.
- 3.
- 4.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

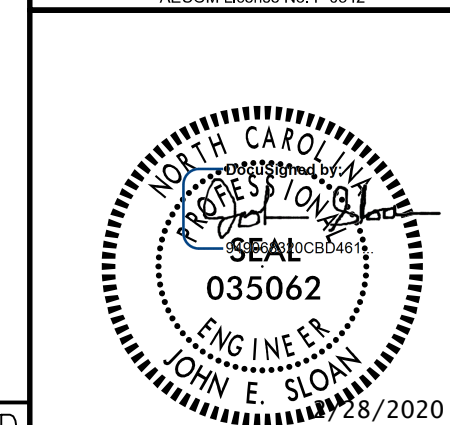
** SEE CHART FOR VEHICLE TYPE



LRFR SUMMARY

PROJECT NO. 15BPR.20
HENDERSON COUNTY
 STATION: 35+30.22 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE

LRFR SUMMARY FOR
 STEEL FLOORBEAMS
 (INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			129

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

USER: Merch Research
 DGN: R:\Structures\04 Drawings\01_DIT_15BPR20_SML_LRFR.dgn

ASSEMBLED BY : N. BROWN	DATE : 04/2019
CHECKED BY : J. LIU/J. SLOAN	DATE : 04/2019
DRAWN BY : MAA 1/08	REV. 11/12/08RRR MAA/GM
CHECKED BY : GM/DI 2/08	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC