

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR STEEL GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTOR (RF)	TONS = W x RF	STRENGTH I LIMIT STATE						SERVICE II LIMIT STATE						COMMENT NUMBER						
						MOMENT			SHEAR			MOMENT												
						LIVE-LOAD FACTORS (%LL)	DISTRIBUTION FACTOR (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	DISTRIBUTION FACTOR (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	LIVE-LOAD FACTORS (%LL)		DISTRIBUTION FACTOR (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.10	--	1.75	-	1.17	A	4	97.35	-	1.10	A	2	97.35	1.30	-	1.44	B	5	63.75	1,2,3	
	HL-93 (OPERATING)	N/A		1.42	--	1.35	-	1.52	A	4	97.35	-	1.42	A	2	97.35	1.00	-	1.87	B	5	63.75	1,2,3	
	HS-20 (INVENTORY)	36.000	2	1.55	55.80	1.75	-	2.08	B	5	63.75	-	1.55	A	2	97.35	1.30	-	2.61	B	5	63.75	1,2,3	
	HS-20 (OPERATING)	36.000		2.01	72.33	1.35	-	2.70	B	5	63.75	-	2.01	A	2	97.35	1.00	-	3.39	B	5	63.75	1,2,3	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		4.55	61.43	1.40	-	6.14	B	5	63.75	-	4.55	A	2	97.35	1.30	-	6.18	B	5	63.75	1,2,3
		SNGARBS2	20.000		3.24	64.80	1.40	-	4.44	B	5	63.75	-	3.24	A	2	97.35	1.30	-	4.47	B	5	63.75	1,2,3
		SNAGRIS2	22.000		3.01	66.22	1.40	-	4.14	B	5	63.75	-	3.01	A	2	97.35	1.30	-	4.17	B	5	63.75	1,2,3
		SNCOTTS3	27.250		2.31	62.95	1.40	-	3.07	B	5	63.75	-	2.31	A	2	97.35	1.30	-	3.08	B	5	63.75	1,2,3
		SNAGGRS4	34.925		1.92	67.06	1.40	-	2.51	B	5	63.75	-	1.92	A	2	97.35	1.30	-	2.52	B	5	63.75	1,2,3
		SNS5A	35.550		1.89	67.19	1.40	-	2.49	B	5	63.75	-	1.89	A	2	97.35	1.30	-	2.50	B	5	63.75	1,2,3
		SNS6A	39.950		1.71	68.31	1.40	-	2.26	B	5	63.75	-	1.71	A	2	97.35	1.30	-	2.27	B	5	63.75	1,2,3
	SNS7B	42.000		1.69	70.98	1.40	-	2.14	B	5	63.75	-	1.69	A	2	97.35	1.30	-	2.15	B	5	63.75	1,2,3	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.11	69.63	1.40	-	2.74	B	5	63.75	-	2.11	A	2	97.35	1.30	-	2.75	B	5	63.75	1,2,3
		TNT4A	33.075		2.06	68.13	1.40	-	2.72	B	5	63.75	-	2.06	A	2	97.35	1.30	-	2.74	B	5	63.75	1,2,3
		TNT6A	41.600		1.81	75.30	1.40	-	2.23	B	5	63.75	-	1.81	A	2	97.35	1.30	-	2.24	B	5	63.75	1,2,3
		TNT7A	42.000		1.77	74.34	1.40	-	2.25	B	5	63.75	-	1.77	A	2	97.35	1.30	-	2.26	B	5	63.75	1,2,3
		TNT7B	42.000		1.70	71.40	1.40	-	2.25	B	5	63.75	-	1.70	A	2	97.35	1.30	-	2.26	B	5	63.75	1,2,3
		TNAGRIT4	43.000		1.67	71.81	1.40	-	2.18	B	5	63.75	-	1.67	A	2	97.35	1.30	-	2.19	B	5	63.75	1,2,3
TNACT5A		45.000		1.64	73.80	1.40	-	2.07	B	5	63.75	-	1.64	A	2	97.35	1.30	-	2.08	B	5	63.75	1,2,3	
TNACT5B	45.000		3	1.58	71.10	1.40	-	2.05	B	5	63.75	-	1.58	A	2	97.35	1.30	-	2.06	B	5	63.75	1,2,3	
FATIGUE	HL-93 (INVENTORY)	%LL=0.75		-																				

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	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. THE ORIGINAL DESIGN AND RATING OF THIS BRIDGE WERE BASED ON AN INFLUENCE SURFACE ANALYSIS. LIVE LOAD DISTRIBUTION FACTORS WERE NOT USED AND ARE NOT PROVIDED.
2. THE SOFTWARE PACKAGE MDX VERSION 6.5.2943 WAS USED FOR THE INFLUENCE SURFACE ANALYSIS.
3. DISTANCE FROM LEFT END OF SPAN IS GIVEN WITH RESPECT TO CENTERLINE OF BEARING AND IS MEASURED ALONG THE CONTROLLING GIRDER.
4. FATIGUE RATING IS NOT REQUIRED OR REPORTED SINCE GIRDERS DO NOT INCLUDE FATIGUE-PRONE DETAILS.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

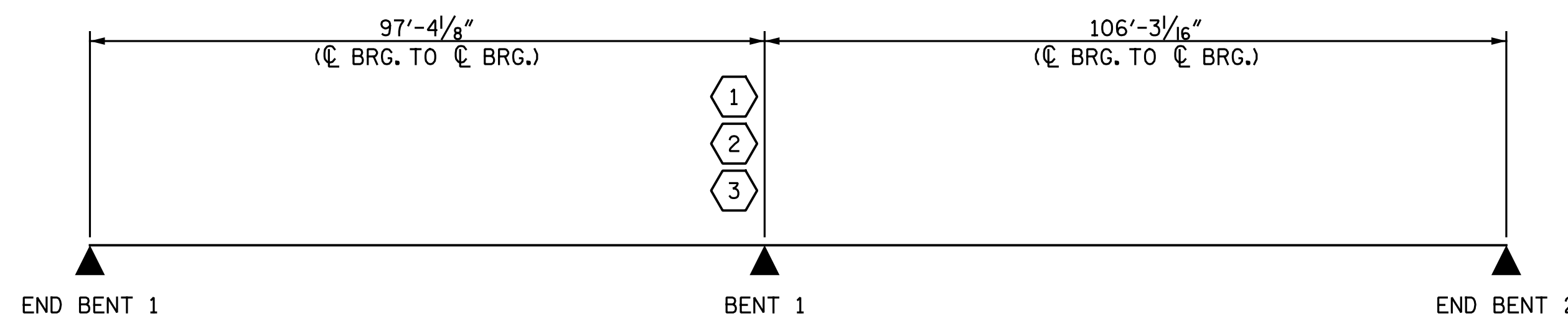
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

GIRDER LOCATION IS PROVIDED USING GIRDER NUMBER, WHERE GIRDER 1 IS THE LEFT EXTERIOR GIRDER LOOKING AHEAD STATION. SEE "FRAMING PLAN" SHEET FOR ALL GIRDER LOCATIONS.



LRFR SUMMARY

PROJECT NO. U-3330

NASH COUNTY

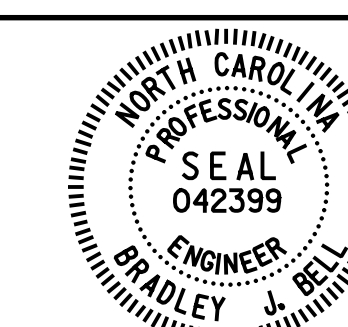
STATION: 18+22.61 -Y1- =

43+04.76 -L-

SHEET 4 OF 4

DRAWN BY : N. B. SPEAKS DATE : 8-10-16
 CHECKED BY : A. H. SHARPE DATE : 9-8-16

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UNLESS ALL SIGNATURES COMPLETED



DocuSigned by:
Bradley J. Bell
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1/27/2017

Michael Baker
INTERNATIONAL

Michael Baker Engineering
8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

LRFR SUMMARY
FOR STEEL GIRDERS
(NON-INTERSTATE TRAFFIC)

RIGHT LANES

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S2-4
2			4			TOTAL SHEETS 39