LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE BOX BEAM UNITS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W × RF	STRENGTH I LIMIT STATE											SERVICE III LIMIT STATE						COMMENT NUMBER
							LIVE-LOAD FACTORS $\gamma_{(LL)}$	MOMENT					SHEAR					LIVE-LOAD FACTORS $\gamma_{(LL)}$	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	1.04	--	1.75	0.218	1.66	A	EL	54.674	0.646	1.06	A	EL	5.467	0.80	0.218	1.04	A	EL	54.674	
		HL-93 (OPERATING)	N/A		1.37	--	1.35	0.218	2.15	A	EL	54.674	0.646	1.37	A	EL	5.467	N/A	--	--	--	--	--	
		HS-20 (INVENTORY)	36.000	2	1.46	52.673	1.75	0.218	2.36	A	EL	54.674	0.646	1.46	A	EL	5.467	0.80	0.218	1.48	A	EL	54.674	
		HS-20 (OPERATING)	36.000		1.9	68.280	1.35	0.218	3.06	A	EL	54.674	0.646	1.9	A	EL	5.467	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.56	48.089	1.40	0.218	7.09	A	EL	54.674	0.646	4.55	A	EL	5.467	0.80	0.218	3.56	A	EL	54.674	
		SNGARBS2	20.000		2.56	51.219	1.40	0.218	5.1	A	EL	54.674	0.646	3.17	A	EL	5.467	0.80	0.218	2.56	A	EL	54.674	
		SNAGRIS2	22.000		2.39	52.535	1.40	0.218	4.75	A	EL	54.674	0.646	2.92	A	EL	5.467	0.80	0.218	2.39	A	EL	54.674	
		SNCOTTS3	27.250		1.77	48.228	1.40	0.218	3.52	A	EL	54.674	0.646	2.27	A	EL	5.467	0.80	0.218	1.77	A	EL	54.674	
		SNAGGRS4	34.925		1.44	50.393	1.40	0.218	2.87	A	EL	54.674	0.646	1.84	A	EL	5.467	0.80	0.218	1.44	A	EL	54.674	
		SNS5A	35.550		1.41	50.246	1.40	0.218	2.81	A	EL	54.674	0.646	1.84	A	EL	5.467	0.80	0.218	1.41	A	EL	54.674	
		SNS6A	39.950		1.28	51.222	1.40	0.218	2.55	A	EL	54.674	0.646	1.66	A	EL	5.467	0.80	0.218	1.28	A	EL	54.674	
		SNS7B	42.000		1.22	51.260	1.40	0.218	2.43	A	EL	54.674	0.646	1.61	A	EL	5.467	0.80	0.218	1.22	A	EL	54.674	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.56	51.455	1.40	0.218	3.1	A	EL	54.674	0.646	1.99	A	EL	5.467	0.80	0.218	1.56	A	EL	54.674	
		TNT4A	33.075		1.56	51.670	1.40	0.218	3.11	A	EL	54.674	0.646	1.96	A	EL	5.467	0.80	0.218	1.56	A	EL	54.674	
		TNT6A	41.600		1.26	52.572	1.40	0.218	2.52	A	EL	54.674	0.646	1.67	A	EL	5.467	0.80	0.218	1.26	A	EL	54.674	
		TNT7A	42.000		1.26	53.043	1.40	0.218	2.51	A	EL	54.674	0.646	1.65	A	EL	5.467	0.80	0.218	1.26	A	EL	54.674	
		TNT7B	42.000		1.29	54.149	1.40	0.218	2.57	A	EL	54.674	0.646	1.59	A	EL	5.467	0.80	0.218	1.29	A	EL	54.674	
		TNAGRIT4	43.000		1.24	53.288	1.40	0.218	2.47	A	EL	54.674	0.646	1.54	A	EL	5.467	0.80	0.218	1.24	A	EL	54.674	
		TNAGT5A	45.000		1.17	52.855	1.40	0.218	2.34	A	EL	54.674	0.646	1.51	A	EL	5.467	0.80	0.218	1.17	A	EL	54.674	
		TNAGT5B	45.000	3	1.17	52.461	1.40	0.218	2.32	A	EL	54.674	0.646	1.47	A	EL	5.467	0.80	0.218	1.17	A	EL	54.674	

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 III LIMIT STATES.

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

COMMENTS:

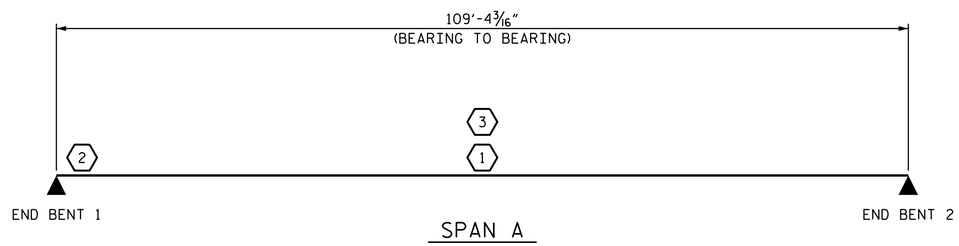
1.
2.
3.
4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)
(2) DESIGN LOAD RATING (HS-20)
(3) LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. U-3615B
GUILFORD COUNTY
STATION: 233+87.56 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR PRESTRESSED CONCRETE BOX BEAM UNITS
(NON-INTERSTATE TRAFFIC)
(LEFT LANE)

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING HSIUNG FANG

DocuSigned by: E72086400977435...
12/3/2014

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-49
1			3			TOTAL SHEETS
2			4			91

ASSEMBLED BY : P.K. NEWTON DATE : 11/3/14
CHECKED BY : T.H. FANG DATE : 11/10/14
DESIGN ENGINEER OF RECORD: P.K. NEWTON DATE : 11/12/14
DRAWN BY : MAA 1/08
CHECKED BY : GM/DI 2/08
REV. 11/12/08RR MAA/GM
REV. 10/1/11 MAA/GM

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tfang

STR. #2 STD. NO. LRFR1