

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						LIVE-LOAD FACTORS (γ <sub>LL</sub> )	MOMENT					SHEAR					LIVE-LOAD FACTORS (γ <sub>LL</sub> )	MOMENT						
							DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FH)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FH)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FH)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.36	--	1.75	0.950	1.99	A	E	44.8	1.118	1.46	B	I	8.40	0.80	0.874	1.36	A	I	44.8		
	HL-93 (OPERATING)	N/A		1.89	--	1.35	0.950	2.54	A	E	44.8	1.118	1.89	B	I	8.40	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	②	1.84	66.24	1.75	0.950	2.64	A	E	44.8	1.118	1.97	B	I	35.7	0.80	0.874	1.84	A	I	44.8		
	HS-20 (OPERATING)	36.000		2.50	90.00	1.35	0.950	3.43	A	E	44.8	1.118	2.50	B	I	35.7	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH		3.39	45.76	1.40	0.950	7.41	A	E	44.8	1.118	5.04	A	I	54.0	0.80	0.874	3.39	B	I	44.8		
		SNGARBS2	20.000		2.49	49.80	1.40	0.950	5.39	B	E	54.0	1.118	3.78	A	I	54.0	0.80	0.874	2.49	A	I	44.8	
		SNAGRIS2	22.000		2.33	51.26	1.40	0.950	5.06	B	E	54.0	1.118	3.56	A	I	54.0	0.80	0.874	2.33	A	I	44.8	
		SNCOTTS3	27.250		1.69	46.05	1.40	0.950	3.66	A	E	44.8	1.118	2.68	A	I	54.0	0.80	0.874	1.69	A	I	44.8	
		SNAGGRS4	34.925		1.40	48.89	1.40	0.950	3.04	B	E	54.0	1.118	2.21	A	I	54.0	0.80	0.874	1.40	A	I	44.8	
		SNS5A	35.550		1.38	49.05	1.40	0.950	2.98	A	E	35.7	1.118	2.26	A	I	54.0	0.80	0.874	1.38	A	I	44.8	
		SNS6A	39.950		1.25	49.93	1.40	0.950	2.72	B	E	54.0	1.118	2.09	A	I	54.0	0.80	0.874	1.25	A	I	44.8	
	SNS7B	42.000		1.19	49.98	1.40	0.950	2.59	A	E	44.8	1.118	2.08	A	I	54.0	0.80	0.874	1.19	A	I	44.8		
	TRUCK TRACTOR SEMI-TRAILER (TST)	TNAGRIT3	33.000		1.54	50.82	1.40	0.950	3.34	B	E	54.0	1.118	2.40	B	I	35.7	0.80	0.874	1.54	A	I	44.8	
		TNT4A	33.075		1.53	50.60	1.40	0.950	3.31	B	E	54.0	1.118	2.57	A	I	54.0	0.80	0.874	1.53	A	I	44.8	
		TNT6A	41.600		1.25	52.00	1.40	0.950	2.71	A	E	44.8	1.118	2.18	A	I	81.3	0.80	0.874	1.25	A	I	44.8	
		TNT7A	42.000		1.25	52.50	1.40	0.950	2.71	A	E	35.7	1.118	2.14	A	I	54.0	0.80	0.874	1.25	A	I	44.8	
		TNT7B	42.000		1.28	53.76	1.40	0.950	2.76	B	E	54.0	1.118	2.02	A	I	54.0	0.80	0.874	1.28	A	I	44.8	
		TNAGRIT4	43.000		1.23	52.89	1.40	0.950	2.66	B	E	54.0	1.118	2.02	B	I	35.7	0.80	0.874	1.23	A	I	44.8	
TNAGT5A		45.000		1.16	52.20	1.40	0.950	2.53	B	E	54.0	1.118	1.97	A	I	81.3	0.80	0.874	1.16	A	I	44.8		
TNAGT5B	45.000		③	1.15	51.75	1.40	0.950	2.49	A	E	44.8	1.118	1.87	A	I	54.0	0.80	0.874	1.15	A	I	44.8		

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ <sub>DC</sub>	γ <sub>DW</sub>
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

③ CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

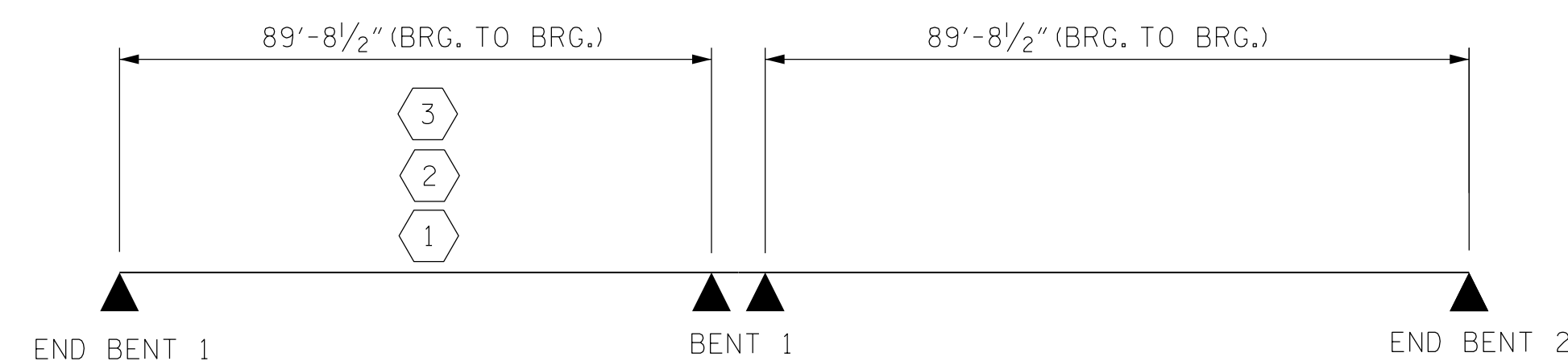
GIRDER LOCATION

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

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.



LRFR SUMMARY

PROJECT NO. R-2707C  
CLEVELAND COUNTY  
STATION: 20+70.23-Y3- POT

SHEET 4 OF 4



DocuSigned by:  
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2/6/2017

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-4
1			3			TOTAL SHEETS
2			4			29

STR.#4

DRAWN BY: H.ASSFOURA DATE: 08/16  
CHECKED BY: J.LOFIUS DATE: 11/16  
DESIGN ENGINEER OF RECORD: J.LOFIUS DATE: 01/17