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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 × RF	STRENGTH I LIMIT STATE											SERVICE III 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 RATING		HL-93 (INVENTORY)	N/A	1	1.47	--	1.75	0.220	1.750	A	EL	29.290	0.690	**1.47**	A	EL	47.290	0.80	0.220	2.040	A	EL	29.290	
DESIGN LOAD RATING		HL-93 (OPERATING)	N/A		1.94	--	1.35	0.220	2.270	A	EL	29.290	0.690	1.94	A	EL	47.290	N/A	--	--	--	--	--	
DESIGN LOAD RATING		HS-20 (INVENTORY)	36.000	2	1.78	64.08	1.75	0.220	2.200	A	EL	29.290	0.690	**1.78**	A	EL	47.290	0.80	0.220	2.580	A	EL	29.290	
DESIGN LOAD RATING		HS-20 (OPERATING)	36.000		2.36	84.96	1.35	0.220	2.860	A	EL	29.290	0.690	2.36	A	EL	47.290	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		5.34	72.09	1.40	0.220	5.980	A	EL	29.290	0.690	5.34	A	EL	47.290	0.80	0.220	5.550	A	EL	29.290	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNGARBS2	20.000		3.84	76.80	1.40	0.220	4.490	A	EL	29.290	0.690	3.84	A	EL	47.290	0.80	0.220	4.250	A	EL	29.290	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNAGRIS2	22.000		3.58	78.76	1.40	0.220	4.260	A	EL	29.290	0.690	3.58	A	EL	47.290	0.80	0.220	4.080	A	EL	29.290	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNCOTTS3	27.250		2.59	70.58	1.40	0.220	2.980	A	EL	29.290	0.690	2.59	A	EL	47.290	0.80	0.220	2.760	A	EL	29.290	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNAGGRS4	34.925		2.18	76.14	1.40	0.220	2.540	A	EL	29.290	0.690	2.18	A	EL	47.290	0.80	0.220	2.350	A	EL	29.290	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNS5A	35.550		2.23	79.28	1.40	0.220	2.480	A	EL	29.290	0.690	2.23	A	EL	47.290	0.80	0.220	2.300	A	EL	29.290	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNS6A	39.950		2.05	81.90	1.40	0.220	2.300	A	EL	29.290	0.690	2.05	A	EL	47.290	0.80	0.220	2.130	A	EL	29.290	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNS7B	42.000		2.04	85.68	1.40	0.220	2.190	A	EL	29.290	0.690	2.04	A	EL	47.290	0.80	0.220	2.030	A	EL	29.290	
LEGAL LOAD RATING	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.44	80.52	1.40	0.220	2.810	A	EL	29.290	0.690	2.44	A	EL	47.290	0.80	0.220	2.600	A	EL	29.290	
LEGAL LOAD RATING	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNT4A	33.075		2.37	78.39	1.40	0.220	2.810	A	EL	29.290	0.690	2.37	A	EL	47.290	0.80	0.220	2.620	A	EL	29.290	
LEGAL LOAD RATING	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNT6A	41.600		2.28	94.85	1.40	0.220	2.330	A	EL	29.290	0.690	2.28	A	EL	47.290	0.80	0.220	2.160	A	EL	29.290	
LEGAL LOAD RATING	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNT7A	42.000		2.10	88.20	1.40	0.220	2.350	A	EL	29.290	0.690	2.10	A	EL	47.290	0.80	0.220	2.180	A	EL	29.290	
LEGAL LOAD RATING	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNT7B	42.000		1.97	82.74	1.40	0.220	2.390	A	EL	29.290	0.690	1.97	A	EL	47.290	0.80	0.220	2.280	A	EL	29.290	
LEGAL LOAD RATING	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT4	43.000		1.90	81.70	1.40	0.220	2.290	A	EL	29.290	0.690	1.90	A	EL	47.290	0.80	0.220	2.150	A	EL	29.290	
LEGAL LOAD RATING	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGT5A	45.000		1.93	86.85	1.40	0.220	2.180	A	EL	29.290	0.690	1.93	A	EL	47.290	0.80	0.220	2.020	A	EL	29.290	
LEGAL LOAD RATING	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGT5B	45.000	3	1.80	81.00	1.40	0.220	2.140	A	EL	29.290	0.690	**1.80**	A	EL	47.290	0.80	0.220	1.990	A	EL	29.290	

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)

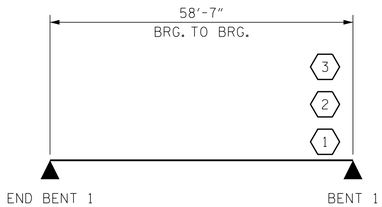
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



SPAN A
(SPAN B & C SIMILAR)

LRFR SUMMARY

PROJECT NO. 17BP.4.R.82
EDGECOMBE COUNTY
STATION: 16+56.00 -L-

ENGINEER OF RECORD
DocuSigned by: John Arthur Dilworth
6213A0B0B7C9B4...
NORTH CAROLINA PROFESSIONAL SEAL 22072 ENGINEER JOHN ARTHUR DILWORTH
4/9/2018

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
Bus: 919 851 8077
Fax: 919 851 8107
LICENSE NO. F-0377

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LRFR SUMMARY FOR
60' CORED SLAB UNIT
45° SKEW

(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			S-19

DRAWN BY : J. PENDERGRAFT DATE : 11-17
CHECKED BY : J. DILWORTH DATE : 11-17

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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