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
								MOMENT					SHEAR						MOMENT					
							LIVE-LOAD FACTORS (γ_{LL})	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)	LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93 (INVENTORY)	N/A	1	1.06	--	1.75	0.93	1.33	2	I	43.19	1.12	1.26	3	I	20.77	0.80	0.96	1.06	1	EL		46.48
		HL-93 (OPERATING)	N/A		1.65	--	1.35	0.93	1.72	2	I	43.19	1.12	1.65	3	I	20.77	N/A	--	--	--	--	--	46.48
		HS-20 (INVENTORY)	36.000	2	1.53	55.02	1.75	0.93	1.76	2	I	43.19	1.12	1.64	2	I	82.26	0.80	0.96	1.53	1	EL		46.48
		HS-20 (OPERATING)	36.000		2.16	77.90	1.35	0.93	2.28	2	I	43.19	1.12	2.16	2	I	82.26	N/A	--	--	--	--	--	46.48
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH	12.500		3.95	49.40	1.40	0.93	5.35	2	I	43.19	1.12	5.98	2	I	82.26	0.80	0.96	3.95	1	EL		46.48
		S3C	21.500		2.30	49.39	1.40	0.93	3.15	2	I	43.19	1.12	3.32	2	I	82.26	0.80	0.96	2.30	1	EL		46.48
		S3A	22.750		2.18	49.59	1.40	0.93	2.99	2	I	43.19	1.12	3.16	2	I	82.26	0.80	0.96	2.18	1	EL		46.48
		S4A	26.750		1.91	51.01	1.40	0.93	2.66	2	I	43.19	1.12	2.67	2	I	82.26	0.80	0.96	1.91	1	EL		46.48
		S5A	30.500		1.68	51.35	1.40	0.93	2.35	2	I	43.19	1.12	2.43	2	I	82.26	0.80	0.96	1.68	1	EL		46.48
		S6A	34.500		1.52	52.40	1.40	0.93	2.14	2	I	43.19	1.12	2.17	2	I	82.26	0.80	0.96	1.52	1	EL		46.48
		S7B	38.500		1.38	53.19	1.40	0.93	1.96	2	I	43.19	1.12	2.02	2	I	82.26	0.80	0.96	1.38	1	EL		46.48
		S7A	40.000	3	1.36	54.52	1.40	0.93	1.95	2	I	43.19	1.12	2.07	2	I	82.26	0.80	0.96	1.36	1	EL		46.48
	TRUCK TRACTOR SEMI-TRAILER (TTST)	T4A	28.250		1.86	52.64	1.40	0.93	2.64	2	I	43.19	1.12	2.64	2	I	82.26	0.80	0.96	1.86	1	EL		46.48
		T5B	32.000		1.65	52.66	1.40	0.93	2.33	2	I	43.19	1.12	2.46	2	I	82.26	0.80	0.96	1.65	1	EL		46.48
		T6A	36.000		1.50	54.08	1.40	0.93	2.15	2	I	43.19	1.12	2.29	2	I	82.26	0.80	0.96	1.50	1	EL		46.48
		T7A	40.000		1.39	55.47	1.40	0.93	2.01	2	I	43.19	1.12	2.07	2	I	82.26	0.80	0.96	1.39	1	EL		46.48
		T7B	40.000		1.45	57.84	1.40	0.93	2.16	2	I	43.19	1.12	1.94	2	I	82.26	0.80	0.96	1.45	1	EL		46.48

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)

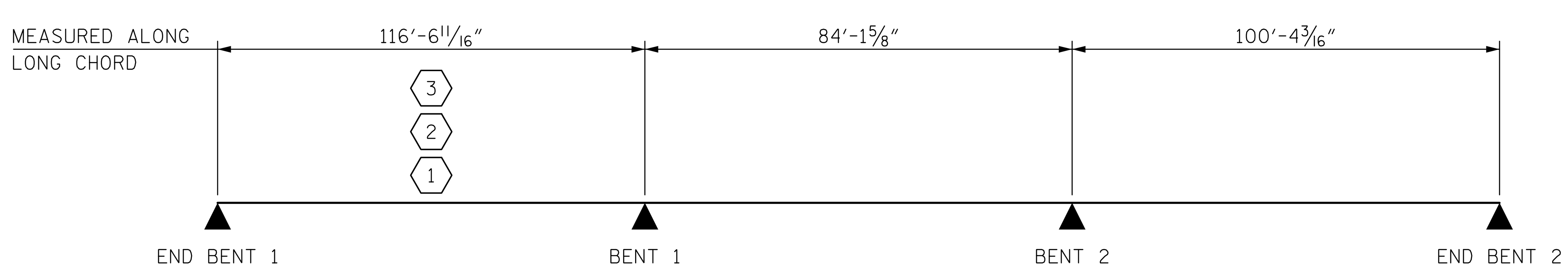
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. U-2579B
FORSYTH COUNTY
STATION: 33+15.67 -Y4CD-

DocuSigned by: Steven K. Doerrer
A22D3DBEFA1D43F...
8/6/2014

NORTH CAROLINA PROFESSIONAL SEAL 16572 ENGINEER STEVEN K. DOERRER

Prepared by: JACOBS
JACOBS ENGINEERING GROUP
111 CORNING ROAD, SUITE 200
CARY, NORTH CAROLINA 27518
TEL: (919) 859-5000

DWG. NO. 5 OF 43

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS (INTERSTATE TRAFFIC)

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-271
TOTAL SHEETS 707

ASSEMBLED BY : EML	DATE : 6/2/14
CHECKED BY : OKH	DATE : 6/3/14
DRAWN BY : MAA 1/08	REV. 11/12/08RR MAA/GM
CHECKED BY : GM/DI 2/08	REV. 10/1/11 MAA/GM

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

STD. NO. LRFR2