LOAD AND RESISTANCE FACTOR RATING (LRFD) 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					
							LIVELOAD FACTORS	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)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	(1)	1.01	--	1.75	0.67	1.22	D	I	32.438	1.01	1.41	D	I	25.95	0.80	0.715	1.01	B	EL	49.212	
		HL-93(Opr)	N/A	--	1.58	--	1.35	0.67	1.58	D	I	32.438	1.01	1.83	D	I	25.95	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	(2)	1.37	49.250	1.75	0.673	1.56	D	EL	32.587	1.01	1.64	D	I	25.95	0.80	0.67	1.37	D	I	32.438	
		HS-20(Opr)	36.000	--	2.03	73.020	1.35	0.673	2.03	D	EL	32.587	1.01	2.13	D	I	25.95	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.01	40.693	1.4	0.673	4.31	D	EL	32.587	1.01	4.45	D	I	25.95	0.80	0.67	3.01	D	I	32.438	
		SNGARBS2	20.000	--	2.28	45.550	1.4	0.673	3.26	D	EL	32.587	1.01	3.3	D	I	25.95	0.80	0.67	2.28	D	I	32.438	
		SNAGRIS2	22.000	--	2.17	47.744	1.4	0.673	3.1	D	EL	32.587	1.01	3.11	D	I	25.95	0.80	0.67	2.17	D	I	32.438	
		SNCOTTS3	27.250	--	1.50	40.900	1.4	0.673	2.15	D	EL	32.587	1.01	2.24	D	I	25.95	0.80	0.67	1.50	D	I	32.438	
		SNAGGRS4	34.925	--	1.27	44.221	1.4	0.673	1.81	D	EL	32.587	1.01	1.95	D	I	25.95	0.80	0.67	1.27	D	I	32.438	
		SNS5A	35.550	--	1.24	43.989	1.4	0.673	1.77	D	EL	32.587	1.01	2.02	D	I	25.95	0.80	0.67	1.24	D	I	32.438	
		SNS6A	39.950	--	1.14	45.556	1.4	0.673	1.63	D	EL	32.587	1.01	1.89	D	I	25.95	0.80	0.67	1.14	D	I	32.438	
		SNS7B	42.000	--	1.09	45.618	1.4	0.673	1.55	D	EL	32.587	1.01	1.91	D	I	25.95	0.80	0.67	1.09	D	I	32.438	
	TTST	TNAGRIT3	33.000	--	1.39	45.938	1.4	0.673	1.99	D	EL	32.587	1.01	2.21	D	I	25.95	0.80	0.67	1.39	D	I	32.438	
		TNT4A	33.075	--	1.40	46.291	1.4	0.673	2	D	EL	32.587	1.01	2.11	D	I	25.95	0.80	0.67	1.40	D	I	32.438	
		TNT6A	41.600	--	1.15	47.807	1.4	0.673	1.64	D	EL	32.587	1.01	2.15	D	I	25.95	0.80	0.67	1.15	D	I	32.438	
		TNT7A	42.000	--	1.16	48.618	1.4	0.673	1.66	D	EL	32.587	1.01	2.03	D	I	25.95	0.80	0.67	1.16	D	I	32.438	
		TNT7B	42.000	--	1.20	50.570	1.4	0.673	1.72	D	EL	32.587	1.01	1.82	D	I	25.95	0.80	0.67	1.20	D	I	32.438	
		TNAGRIT4	43.000	--	1.14	49.044	1.4	0.673	1.63	D	EL	32.587	1.01	1.75	D	I	25.95	0.80	0.67	1.14	D	I	32.438	
		TNAGT5A	45.000	--	1.07	48.293	1.4	0.673	1.53	D	EL	32.587	1.01	1.81	D	I	25.95	0.80	0.67	1.07	D	I	32.438	
		TNAGT5B	45.000	(3)	1.06	47.619	1.4	0.673	1.51	D	EL	32.587	1.01	1.66	D	I	25.95	0.80	0.67	1.06	D	I	32.438	

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:

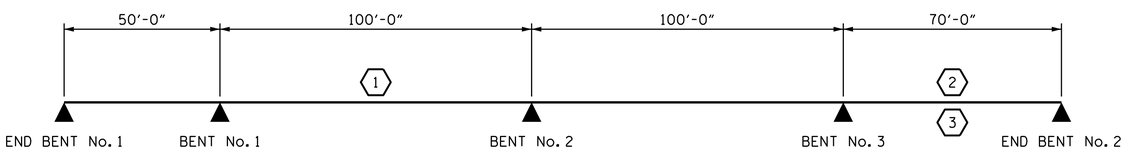
1.
2.
3.
4.

(#) 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

DIMENSIONS SHOWN ARE W.P. TO W.P. ALONG -L-

PROJECT NO. B-3673
MCDOWELL COUNTY
STATION: 29+38.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS
(NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL SEAL 17230 ENGINEER WAEL S. ARAFAT

DocuSigned by: Wael Arafat 4139C12A32AB406... 2/24/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			43

STD. NO. LRFR1

ASSEMBLED BY : A.M. LEE, PE DATE : 10/16/2014
CHECKED BY : J.P. McCARTHA DATE : 1/2015
DRAWN BY : MAA 1/08
CHECKED BY : GM/DI 2/08
REV. 11/12/08RR MAA/GM
REV. 10/1/11 MAA/GM
DESIGN ENGINEER OF RECORD: J.P. McCARTHA DATE : 1-14-15

23-FEB-2015 16:57
R:\Structures\Plans\Final Plans\B3673_SD_LRFR.dgn
warafat