

**LOAD AND RESISTANCE FACTOR RATING (LRFR)
SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS**

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE								COMMENT NUMBER		
						MOMENT				SHEAR						
						LIVE-LOAD FACTORS (LL)	RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)	RATING FACTOR	BOX NO.	ELEMENT TYPE		DISTANCE FROM LEFT END OF ELEMENT (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.06	--	1.75	1.06	1	TOP SLAB	5.38	1.15	1	BOTTOM SLAB	11.67		
	HL-93 (OPERATING)	N/A		1.38	--	1.35	1.38	1	TOP SLAB	5.38	1.49	1	BOTTOM SLAB	11.67		
	HS-20 (INVENTORY)	36.000	②	1.15	41.33	1.75	1.32	1	TOP SLAB	5.38	1.15	1	BOTTOM SLAB	11.67		
	HS-20 (OPERATING)	36.000		1.49	53.57	1.35	1.71	1	TOP SLAB	5.38	1.49	1	BOTTOM SLAB	11.67		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.40	32.45	1.40	2.40	1	TOP SLAB	5.38	2.73	1	TOP SLAB	11.57	
		SNGARBS2	20.000		2.25	44.92	1.40	2.25	1	TOP SLAB	5.38	2.29	1	BOTTOM SLAB	11.67	
		SNAGRIS2	22.000		2.09	46.00	1.40	2.40	1	TOP SLAB	5.38	2.09	1	BOTTOM SLAB	11.67	
		SNCOTTS3	27.250		1.33	36.31	1.40	1.33	1	TOP SLAB	5.38	1.50	1	TOP SLAB	11.57	
		SNAGGRS4	34.925		1.31	45.80	1.40	1.50	1	BOTTOM SLAB	11.72	1.31	1	BOTTOM SLAB	11.67	
		SNS5A	35.550		1.30	46.23	1.40	1.48	1	BOTTOM SLAB	11.72	1.30	1	BOTTOM SLAB	11.67	
		SNS6A	39.950		1.29	51.55	1.40	1.46	1	BOTTOM SLAB	11.72	1.29	1	BOTTOM SLAB	11.67	
		SNS7B	42.000		1.22	51.27	1.40	1.46	1	BOTTOM SLAB	11.72	1.22	1	BOTTOM SLAB	11.67	
	TRUCK TRACTOR SEMI-TRAILER (TTS1)	TNAGRIT3	33.000		1.41	46.38	1.40	1.68	1	BOTTOM SLAB	11.72	1.41	1	BOTTOM SLAB	11.67	
		TNT4A	33.075		1.45	47.92	1.40	1.59	1	TOP SLAB	5.38	1.45	1	BOTTOM SLAB	11.67	
		TNT6A	41.600		1.29	53.55	1.40	1.62	1	BOTTOM SLAB	11.72	1.29	1	BOTTOM SLAB	11.67	
		TNT7A	42.000		1.23	51.72	1.40	1.50	1	BOTTOM SLAB	11.72	1.23	1	BOTTOM SLAB	11.67	
		TNT7B	42.000		1.33	55.69	1.40	1.50	1	BOTTOM SLAB	11.72	1.33	1	BOTTOM SLAB	11.67	
		TNAGRIT4	43.000		1.14	48.98	1.40	1.33	1	BOTTOM SLAB	11.72	1.14	1	BOTTOM SLAB	11.67	
TNAGT5A	45.000		1.19	53.67	1.40	1.40	1	BOTTOM SLAB	11.72	1.19	1	BOTTOM SLAB	11.67			
TNAGT5B	45.000		③	1.10	49.33	1.40	1.31	1	BOTTOM SLAB	11.72	1.10	1	BOTTOM SLAB	11.67		

LOAD FACTORS:

DESIGN LOAD RATING FACTORS

LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
LS	1.75	--
WA	1.00	--

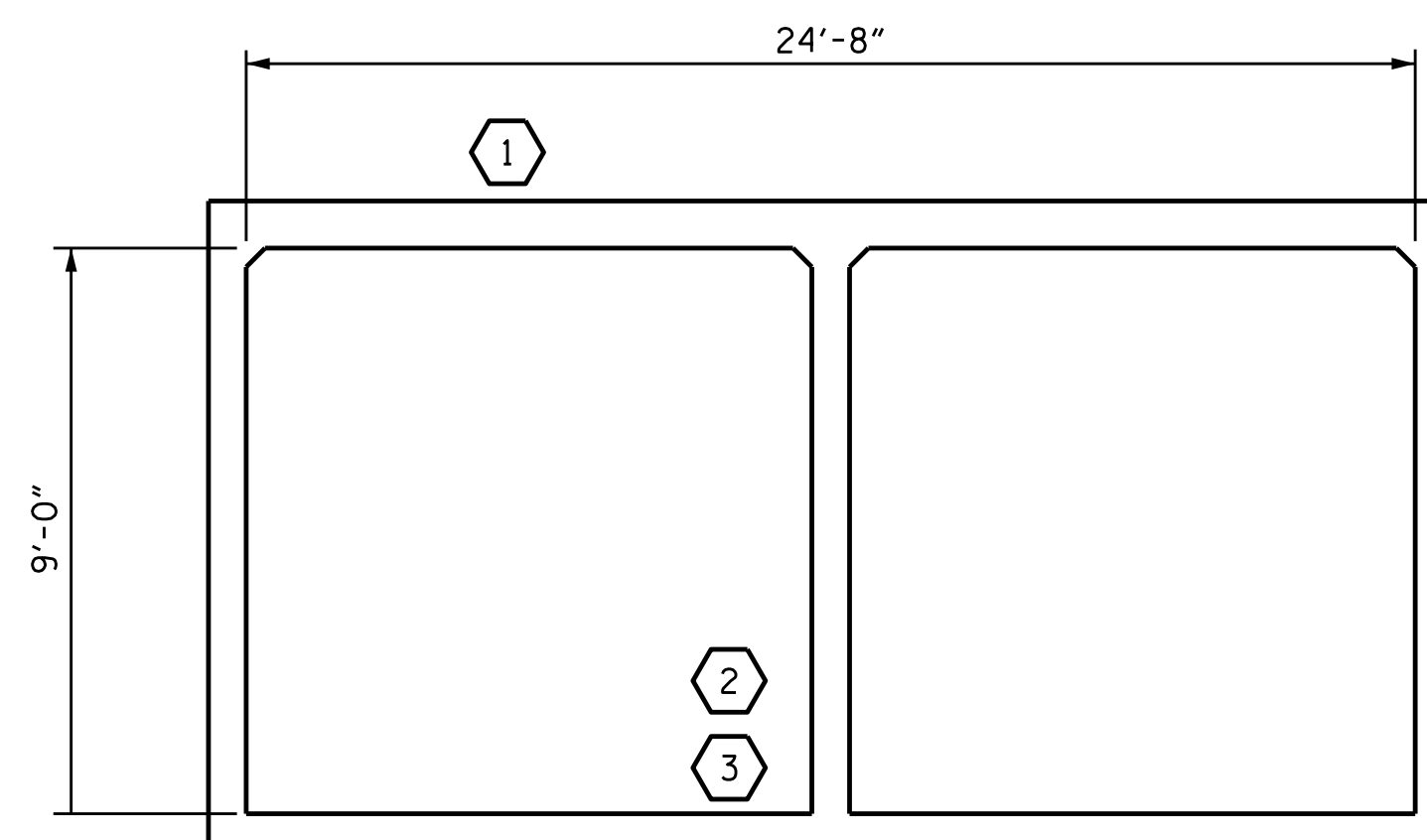
NOTE:

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

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

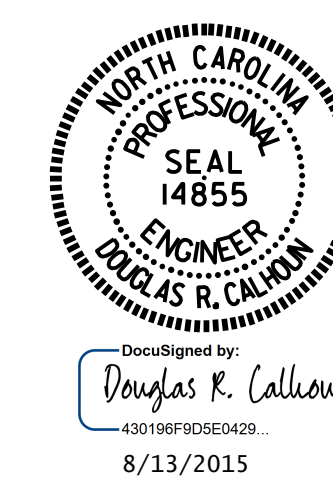


LRFR SUMMARY

(LOOKING DOWNSTREAM)

PROJECT NO. B-4780
MONTGOMERY COUNTY
 STATION: 15+07.00 -L-

SHEET 6 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 REINFORCED CONCRETE
 BOX CULVERTS
 (NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-6
1			3			TOTAL SHEETS
2			4			6

ASSEMBLED BY :	A. SORSENGINH	DATE :	9/2013
CHECKED BY :	T. KIRSCHBAUM	DATE :	10/2013
DRAWN BY :	WMC	REV. 10/1/11	MAA/GM
CHECKED BY :	GM		