

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	--

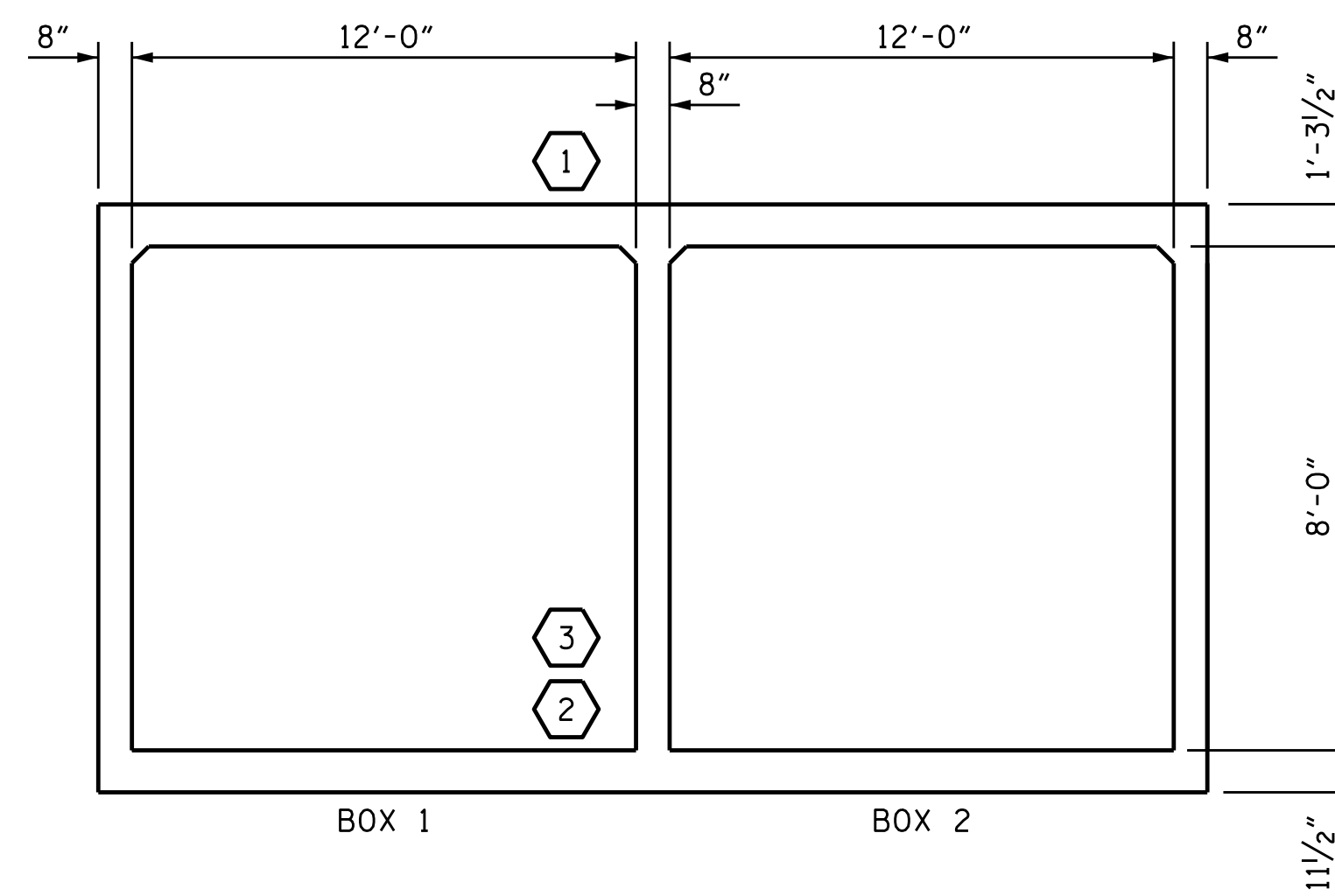
NOTE

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

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

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

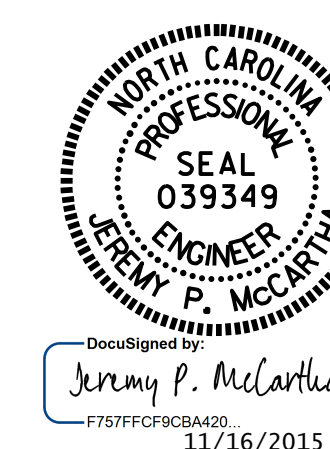
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE								COMMENT NUMBER		
						LIVE-LOAD FACTORS (LL)	MOMENT				SHEAR					
							RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)	RATING FACTOR	BOX NO.	ELEMENT TYPE		DISTANCE FROM LEFT END OF ELEMENT (ft)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.03	--	1.75	1.29	1	BOTTOM SLAB	11.72	1.03	1	TOP SLAB	11.34		
	HL-93 (OPERATING)	N/A		1.33	--	1.35	1.68	1	BOTTOM SLAB	11.72	1.33	1	TOP SLAB	11.34		
	HS-20 (INVENTORY)	36.000	2	1.12	40.16	1.75	1.29	1	BOTTOM SLAB	11.72	1.12	1	BOTTOM SLAB	11.64		
	HS-20 (OPERATING)	36.000		1.45	52.06	1.35	1.68	1	BOTTOM SLAB	11.72	1.45	1	BOTTOM SLAB	11.64		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH		2.40	32.42	1.40	2.77	1	TOP SLAB	5.38	2.40	1	TOP SLAB	11.34		
		SNGARBS2	20.000		2.23	44.69	1.40	2.53	1	BOTTOM SLAB	11.72	2.23	1	BOTTOM SLAB	11.64	
		SNAGRIS2	22.000		2.03	44.59	1.40	2.35	1	BOTTOM SLAB	11.72	2.03	1	BOTTOM SLAB	11.64	
		SNCOTTS3	27.250		1.29	35.13	1.40	1.66	1	TOP SLAB	5.07	1.29	1	TOP SLAB	11.34	
		SNAGGRS4	34.925		1.28	44.82	1.40	1.44	1	BOTTOM SLAB	11.72	1.28	1	BOTTOM SLAB	11.64	
		SNS5A	35.550		1.26	44.85	1.40	1.41	1	BOTTOM SLAB	11.72	1.26	1	BOTTOM SLAB	11.64	
		SNS6A	39.950		1.26	50.23	1.40	1.40	1	BOTTOM SLAB	11.72	1.26	1	BOTTOM SLAB	11.64	
		SNS7B	42.000		1.18	49.61	1.40	1.37	1	BOTTOM SLAB	11.72	1.18	1	BOTTOM SLAB	11.64	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.36	45.00	1.40	1.59	1	BOTTOM SLAB	11.72	1.36	1	BOTTOM SLAB	11.64	
		TNT4A	33.075		1.35	44.77	1.40	1.53	1	BOTTOM SLAB	11.72	1.35	1	BOTTOM SLAB	11.64	
		TNT6A	41.600		1.24	51.60	1.40	1.49	1	BOTTOM SLAB	11.72	1.24	1	BOTTOM SLAB	11.64	
		TNT7A	42.000		1.18	49.77	1.40	1.39	1	BOTTOM SLAB	11.72	1.18	1	BOTTOM SLAB	11.64	
		TNT7B	42.000		1.29	54.28	1.40	1.44	1	BOTTOM SLAB	11.72	1.29	1	BOTTOM SLAB	11.64	
		TNAGRIT4	43.000	3	1.04	44.93	1.40	1.20	1	BOTTOM SLAB	11.72	1.04	1	BOTTOM SLAB	11.64	
TNAGT5A	45.000		1.16	52.32	1.40	1.34	1	BOTTOM SLAB	11.72	1.16	1	BOTTOM SLAB	11.64			
TNAGT5B	45.000		1.07	48.10	1.40	1.24	1	BOTTOM SLAB	11.72	1.07	1	BOTTOM SLAB	11.64			



LRFR SUMMARY
(LOOKING DOWNSTREAM)

PROJECT NO. B-5243
UNION COUNTY
STATION: 19+67.20 -L-

SHEET 2 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:
1			3		
2			4		
TOTAL SHEETS					6

ASSEMBLED BY : D.BOULWARE	DATE : 2/3/15
CHECKED BY : P.S.ADKINS	DATE : 3/2/15
DRAWN BY : WMC	7/11
CHECKED BY : GM	7/11
REV. 10/1/11	MAA/GM
DESIGN ENGINEER OF RECORD:	
J.P.MCCARTHA	DATE : 8/4/15