

**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 (VLL)	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	1.04	--	1.75	1.33	1	BOTTOM SLAB	10.79	1.04	1	TOP SLAB	10.38		
	HL-93 (OPERATING)	N/A		1.34	--	1.35	1.72	1	BOTTOM SLAB	10.79	1.34	1	TOP SLAB	10.38		
	HS-20 (INVENTORY)	36.000	2	1.05	37.82	1.75	1.33	1	BOTTOM SLAB	10.79	1.05	1	BOTTOM SLAB	10.70		
	HS-20 (OPERATING)	36.000		1.36	49.03	1.35	1.72	1	BOTTOM SLAB	10.79	1.36	1	BOTTOM SLAB	10.70		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.34	31.58	1.40	3.64	1	BOTTOM SLAB	10.79	2.34	1	TOP SLAB	10.38	
		SNGARBS2	20.000		2.10	42.03	1.40	2.60	1	BOTTOM SLAB	10.79	2.10	1	BOTTOM SLAB	10.70	
		SNAGRIS2	22.000		1.92	42.14	1.40	2.41	1	BOTTOM SLAB	10.79	1.92	1	BOTTOM SLAB	10.70	
		SNCOTTS3	27.250		1.30	35.35	1.40	1.81	1	BOTTOM SLAB	10.79	1.30	1	TOP SLAB	10.38	
		SNAGGRS4	34.925		1.21	42.19	1.40	1.49	1	BOTTOM SLAB	10.79	1.21	1	BOTTOM SLAB	10.70	
		SNS5A	35.550		1.22	43.25	1.40	1.49	1	BOTTOM SLAB	10.79	1.22	1	BOTTOM SLAB	10.70	
		SNS6A	39.950		1.19	47.60	1.40	1.50	1	BOTTOM SLAB	10.79	1.19	1	BOTTOM SLAB	10.70	
		SNS7B	42.000		1.11	46.82	1.40	1.43	1	BOTTOM SLAB	10.79	1.11	1	BOTTOM SLAB	10.70	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.28	42.38	1.40	1.64	1	BOTTOM SLAB	10.79	1.28	1	BOTTOM SLAB	10.70	
		TNT4A	33.075		1.43	47.19	1.40	1.75	1	BOTTOM SLAB	10.79	1.43	1	BOTTOM SLAB	10.70	
		TNT6A	41.600		1.20	49.91	1.40	1.60	1	BOTTOM SLAB	10.79	1.20	1	BOTTOM SLAB	10.70	
		TNT7A	42.000		1.15	48.38	1.40	1.49	1	BOTTOM SLAB	10.79	1.15	1	BOTTOM SLAB	10.70	
		TNT7B	42.000		1.26	52.76	1.40	1.53	1	BOTTOM SLAB	10.79	1.26	1	BOTTOM SLAB	10.70	
		TNAGRIT4	43.000		1.13	48.56	1.40	1.42	1	BOTTOM SLAB	10.79	1.13	1	BOTTOM SLAB	10.70	
TNAGT5A	45.000		1.10	49.38	1.40	1.38	1	BOTTOM SLAB	10.79	1.10	1	BOTTOM SLAB	10.70			
TNAGT5B	45.000		3	1.00	45.22	1.40	1.28	1	BOTTOM SLAB	10.79	1.00	1	BOTTOM SLAB	10.70		

LOAD FACTORS:

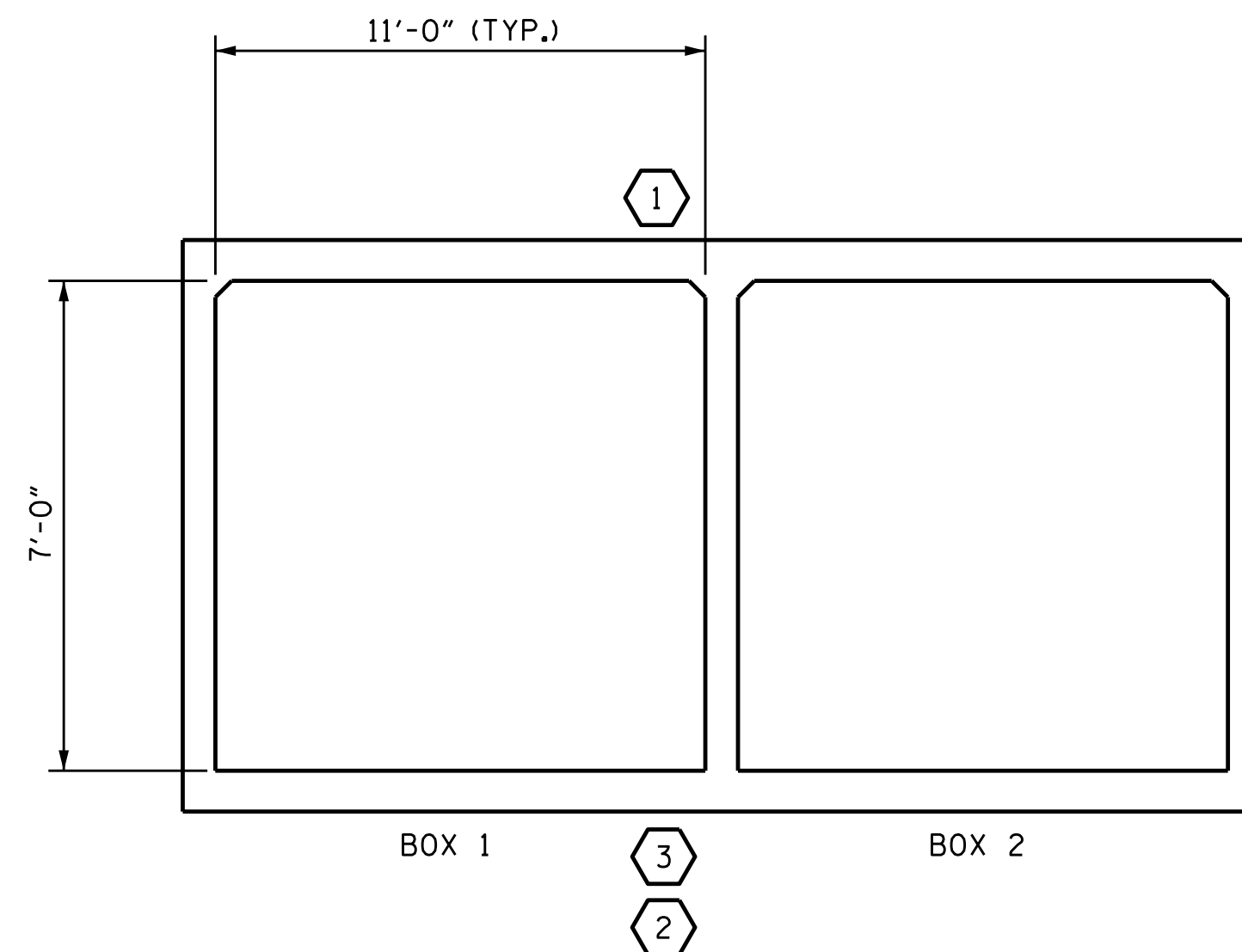
DESIGN LOAD RATING FACTORS

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	



LRFR SUMMARY

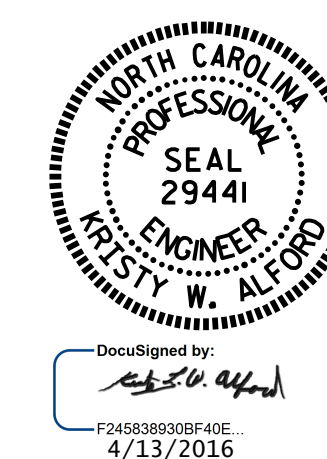
(LOOKING DOWNSTREAM)

PROJECT NO. B-5121/B-5317

WAKE COUNTY

STATION: 15+13.11 -Y1-

SHEET 2 OF 10



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

ASSEMBLED BY : T.L. AVERETTE	DATE : 10/15
CHECKED BY : J.P. ADAMS	DATE : 12/15
DRAWN BY : WMC	7/11
CHECKED BY : GM	7/11
REV. 10/1/11	MAA/GM

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-2
1			3			TOTAL SHEETS
2			4			10