

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

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)	RATING FACTOR	BOX NO.	MOMENT				SHEAR				
									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	8.18	--	1.75	8.18	1	BOTTOM CORNER WALL	6.39	8.77	1	EXTERIOR WALL	5.85			
	HL-93 (OPERATING)	N/A		10.60	--	1.35	10.60	1	BOTTOM CORNER WALL	6.39	11.37	1	EXTERIOR WALL	5.85			
	HS-20 (INVENTORY)	36.000	②	8.18	294.43	1.75	8.18	1	BOTTOM CORNER WALL	6.39	8.77	1	EXTERIOR WALL	5.85			
	HS-20 (OPERATING)	36.000		10.60	381.67	1.35	10.60	1	BOTTOM CORNER WALL	6.39	11.37	1	EXTERIOR WALL	5.85			
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500	③	10.22	138.02	1.40	10.22	1	BOTTOM CORNER WALL	6.39	10.96	1	EXTERIOR WALL	5.85		
		SNGARBS2	20.000		10.22	204.47	1.40	10.22	1	BOTTOM CORNER WALL	6.39	10.96	1	EXTERIOR WALL	5.85		
		SNAGRIS2	22.000		10.22	224.91	1.40	10.22	1	BOTTOM CORNER WALL	6.39	10.96	1	EXTERIOR WALL	5.85		
		SNCOTTS3	27.250		10.22	278.59	1.40	10.22	1	BOTTOM CORNER WALL	6.39	10.96	1	EXTERIOR WALL	5.85		
		SNAGGRS4	34.925		10.22	357.05	1.40	10.22	1	BOTTOM CORNER WALL	6.39	10.96	1	EXTERIOR WALL	5.85		
		SNS5A	35.550		10.22	363.44	1.40	10.22	1	BOTTOM CORNER WALL	6.39	10.96	1	EXTERIOR WALL	5.85		
		SNS6A	39.950		10.22	408.43	1.40	10.22	1	BOTTOM CORNER WALL	6.39	10.96	1	EXTERIOR WALL	5.85		
		SNS7B	42.000		10.22	429.38	1.40	10.22	1	BOTTOM CORNER WALL	6.39	10.96	1	EXTERIOR WALL	5.85		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		10.22	337.37	1.40	10.22	1	BOTTOM CORNER WALL	6.39	10.96	1	EXTERIOR WALL	5.85		
		TNT4A	33.075		10.22	338.14	1.40	10.22	1	BOTTOM CORNER WALL	6.39	10.96	1	EXTERIOR WALL	5.85		
		TNT6A	41.600		10.22	425.29	1.40	10.22	1	BOTTOM CORNER WALL	6.39	10.96	1	EXTERIOR WALL	5.85		
		TNT7A	42.000		10.22	429.38	1.40	10.22	1	BOTTOM CORNER WALL	6.39	10.96	1	EXTERIOR WALL	5.85		
		TNT7B	42.000		10.22	429.38	1.40	10.22	1	BOTTOM CORNER WALL	6.39	10.96	1	EXTERIOR WALL	5.85		
		TNAGRIT4	43.000		10.22	439.61	1.40	10.22	1	BOTTOM CORNER WALL	6.39	10.96	1	EXTERIOR WALL	5.85		
TNAGT5A	45.000		10.22	460.05	1.40	10.22	1	BOTTOM CORNER WALL	6.39	10.96	1	EXTERIOR WALL	5.85				
TNAGT5B	45.000		10.22	460.05	1.40	10.22	1	BOTTOM CORNER WALL	6.39	10.96	1	EXTERIOR WALL	5.85				

LOAD FACTORS:

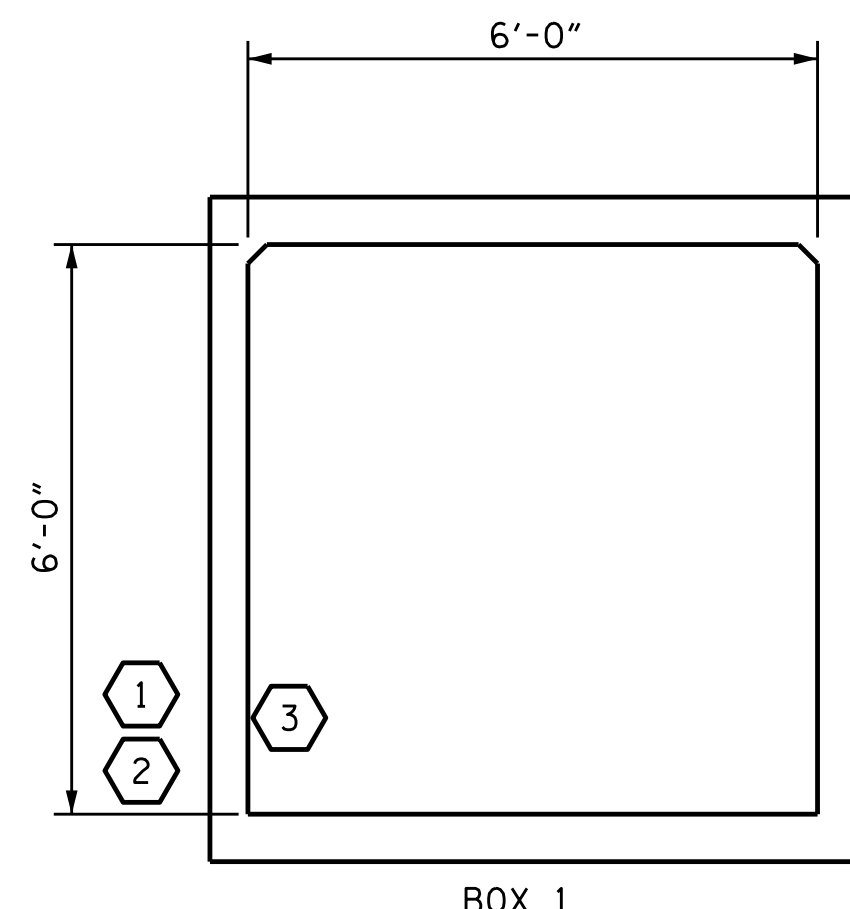
DESIGN LOAD RATING FACTORS

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.

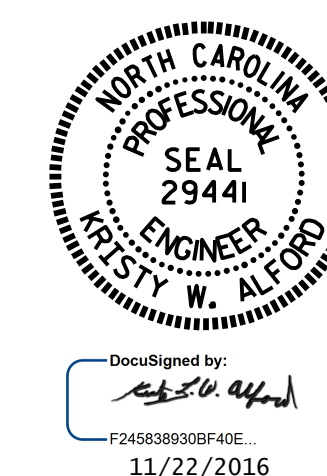
③	CONTROLLING LOAD RATING
①	DESIGN LOAD RATING (HL-93)
②	DESIGN LOAD RATING (HS-20)
③	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	



LRFR SUMMARY

(LOOKING DOWNSTREAM)

PROJECT NO. R-3826
MARTIN COUNTY
 STATION: 132+51.00 -L-



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

ASSEMBLED BY : A.K.PATEL	DATE : 6/18/14
CHECKED BY : D.G.ELY	DATE : 7/1/14
DESIGN ENGINEER OF RECORD: A.K.PATEL	DATE : 6/18/14
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-5
1			3			TOTAL SHEETS
2			4			5