

**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)	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	1.07	--	1.75	1.17	1	TOP SLAB	5.33	1.07	1	TOP SLAB	0.84		
	HL-93 (OPERATING)	N/A		1.39	--	1.35	1.52	1	TOP SLAB	5.33	1.39	1	TOP SLAB	0.84		
	HS-20 (INVENTORY)	36.000	2	1.60	57.67	1.75	1.60	1	BOT CORNER WALL	9.53	1.62	1	TOP SLAB	0.84		
	HS-20 (OPERATING)	36.000		2.08	74.76	1.35	2.08	1	BOT CORNER WALL	9.53	2.11	1	TOP SLAB	0.84		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH		2.27	30.66	1.40	2.27	1	BOT CORNER WALL	9.53	2.94	1	TOP SLAB	0.84		
		SNGARBS2	20.000		2.23	44.61	1.40	2.23	1	BOT CORNER WALL	9.53	2.74	1	TOP SLAB	0.84	
		SNAGRIS2	22.000		2.27	49.96	1.40	2.27	1	BOT CORNER WALL	9.53	2.94	1	TOP SLAB	0.84	
		SNCOTTS3	27.250	3	1.34	36.45	1.40	1.47	1	TOP SLAB	5.33	1.34	1	TOP SLAB	0.84	
		SNAGGRS4	34.925		1.44	50.40	1.40	1.51	1	TOP SLAB	5.33	1.44	1	TOP SLAB	0.84	
		SNS5A	35.550		1.48	52.69	1.40	1.56	1	TOP SLAB	5.33	1.48	1	TOP SLAB	0.84	
		SNS6A	39.950		1.48	59.21	1.40	1.56	1	TOP SLAB	5.33	1.48	1	TOP SLAB	0.84	
		SNS7B	42.000		1.48	62.25	1.40	1.56	1	TOP SLAB	5.33	1.48	1	TOP SLAB	0.84	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.12	69.89	1.40	2.12	1	BOT CORNER WALL	9.53	2.25	1	TOP SLAB	0.84	
		TNT4A	33.075		1.60	52.83	1.40	1.75	1	TOP SLAB	5.33	1.60	1	TOP SLAB	0.84	
		TNT6A	41.600		1.46	60.56	1.40	1.51	1	TOP SLAB	5.33	1.46	1	TOP SLAB	9.82	
		TNT7A	42.000		1.54	64.57	1.40	1.66	1	TOP SLAB	5.33	1.54	1	TOP SLAB	9.82	
		TNT7B	42.000		1.48	62.25	1.40	1.56	1	TOP SLAB	5.33	1.48	1	TOP SLAB	9.82	
		TNAGRIT4	43.000		1.52	65.50	1.40	1.67	1	TOP SLAB	5.33	1.52	1	TOP SLAB	0.84	
TNAGT5A	45.000		1.55	69.84	1.40	1.71	1	TOP SLAB	5.33	1.55	1	TOP SLAB	0.84			
TNAGT5B	45.000		1.60	71.87	1.40	1.75	1	TOP SLAB	5.33	1.60	1	TOP SLAB	0.84			

LOAD FACTORS

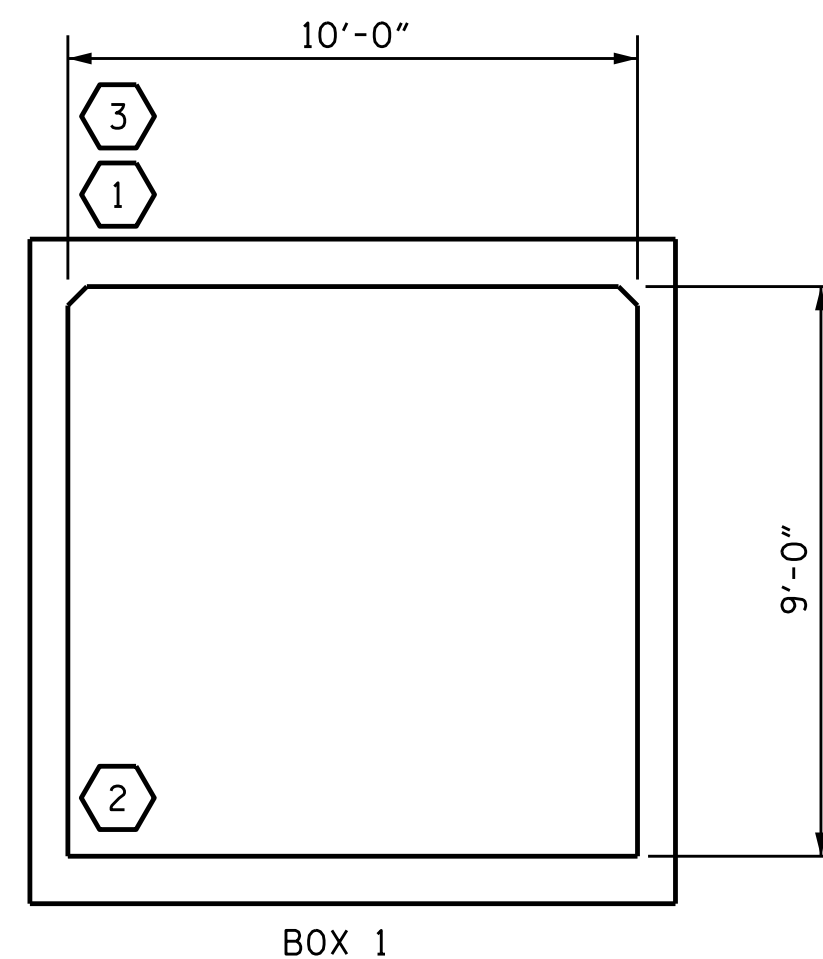
DESIGN LOAD RATING FACTORS

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.

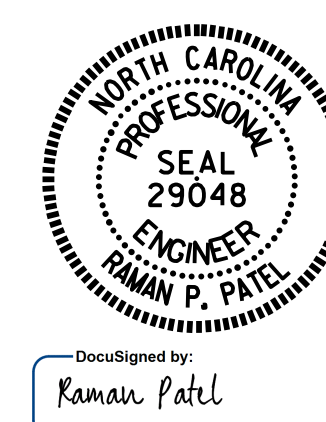
#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93)
2	DESIGN LOAD RATING (HS-20)
3	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	



LRFR SUMMARY
(LOOKING DOWNSTREAM)

PROJECT NO. U-3440
CABARRUS COUNTY
STATION: 40+60.90 -L-

SHEET 2 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**STANDARD
LRFR SUMMARY FOR
REINFORCED CONCRETE
BOX CULVERTS**

(NON-INTERSTATE TRAFFIC)

ASSEMBLED BY : N.D'ALUIO	DATE : 2/16/16
CHECKED BY : R. P. PATEL	DATE : 5/3/16
DRAWN BY : WMC 7/11	REV. 10/1/11
CHECKED BY : GM 7/11	MAA/GM
DESIGN ENGINEER OF RECORD:	
R. P. PATEL	DATE : 5/25/16

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C1-2
1			3			TOTAL SHEETS
2			4			5