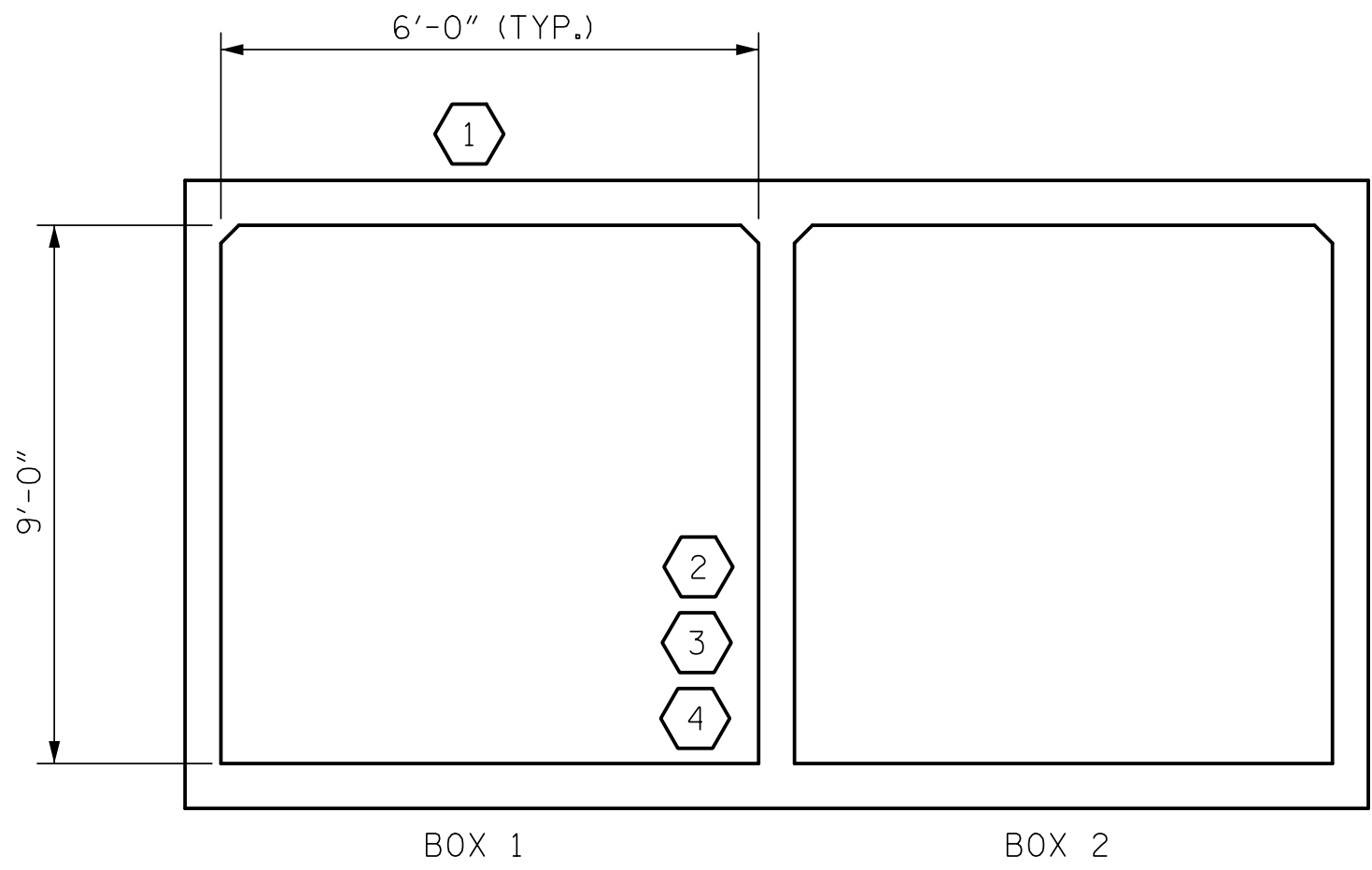


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LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS															
LEVEL	VEHICLE	WEIGHT (W) (TONS)	⬡# CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W × RF	STRENGTH I LIMIT STATE									COMMENT NUMBER
						γ_{LL} LIVE-LOAD FACTORS	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	1.28	--	1.75	1.28	1	TOP SLAB	3.33	1.40	1	TOP SLAB	5.83	
	HL-93 (OPERATING)	N/A		1.66	--	1.35	1.66	1	TOP SLAB	3.33	1.82	1	TOP SLAB	5.83	
	HS-20 (INVENTORY)	36.000	⬡2	1.39	50.04	1.75	1.39	1	BOTT. SLAB	6.00	1.63	1	TOP SLAB	5.83	
	HS-20 (OPERATING)	36.000		1.80	64.80	1.35	1.80	1	BOTT. SLAB	6.00	2.12	1	TOP SLAB	5.83	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH		2.33	31.46	1.40	2.33	1	TOP SLAB	3.33	2.44	1	TOP SLAB	0.87	
		SNGARBS2		2.18	43.60	1.40	2.18	1	TOP SLAB	3.33	2.31	1	TOP SLAB	0.87	
		SNAGRIS2		2.33	51.26	1.40	2.33	1	TOP SLAB	3.33	2.44	1	TOP SLAB	0.87	
		SNCOTTS3		1.66	45.24	1.40	1.66	1	BOTT. SLAB	6.00	1.96	1	TOP SLAB	5.83	
		SNAGGRS4		1.68	58.67	1.40	1.68	1	BOTT. SLAB	6.00	2.27	1	BOTT. SLAB	5.79	
		SNS5A		1.89	67.19	1.40	1.89	1	BOTT. SLAB	6.00	2.53	1	BOTT. SLAB	5.79	
		SNS6A		1.64	65.52	1.40	1.64	1	BOTT. SLAB	6.00	2.23	1	TOP SLAB	5.83	
		SNS7B	⬡3	1.63	68.46	1.40	1.63	1	BOTT. SLAB	6.00	2.19	1	TOP SLAB	5.83	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3		2.05	67.65	1.40	2.05	1	BOTT. SLAB	6.00	2.44	1	TOP SLAB	0.87	
		TNT4A		1.94	64.17	1.40	1.94	1	BOTT. SLAB	6.00	2.32	1	TOP SLAB	5.83	
		TNT6A		1.77	73.63	1.40	1.77	1	BOTT. SLAB	6.00	2.24	1	TOP SLAB	5.83	
		TNT7A		1.90	79.80	1.40	1.90	1	BOTT. SLAB	6.00	2.29	1	TOP SLAB	5.83	
		TNT7B		1.66	69.72	1.40	1.66	1	BOTT. SLAB	6.00	2.20	1	TOP SLAB	5.83	
		TNAGRIT4		1.90	81.70	1.40	1.90	1	BOTT. SLAB	6.00	2.30	1	TOP SLAB	5.83	
		TNAGT5A		1.90	85.50	1.40	1.90	1	BOTT. SLAB	6.00	2.30	1	TOP SLAB	5.83	
		TNAGT5B		1.91	85.95	1.40	1.91	1	BOTT. SLAB	6.00	2.30	1	TOP SLAB	5.83	
EMERGENCY VEHICLE (EV)	EV2	28.750		1.64	47.15	1.30	1.64	1	TOP SLAB	3.33	1.82	1	TOP SLAB	5.83	
	EV3	43.000	⬡4	1.45	62.35	1.30	1.45	1	BOTT. SLAB	6.00	1.70	1	TOP SLAB	5.83	



LRFR SUMMARY
(LOOKING DOWNSTREAM)

ASSEMBLED BY :	STM	DATE :	07/23
CHECKED BY :	MGC	DATE :	11/23
DRAWN BY :	WMC	7/II	REV. 10/1/II
CHECKED BY :	GM	7/II	REV. 12/1/II
			MAA/GM
			BNB/AAI

11/23/2023
X:\NCDOT\NR-5739\Structures\Str. #3 (324 + 27.00 -L-)\Final Plans\DGNs\413.001.R-5739_SMU.C3-3.dgn
User:ZSmith

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.

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

PROJECT NO. R-5739
NORTHAMPTON COUNTY
STATION: 324+27.00 -L-

SHEET 3 OF 10

7/23/2025

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

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

REVISIONS						SHEET NO. C3-3 TOTAL SHEETS 10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

STR. #3 STD. NO. LRFR5