

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

LOAD TYPE	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING Ⓝ	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE								COMMENT NUMBER	
						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	HL-93 (INVENTORY)	N/A	Ⓝ1		--	1.75									
	HL-93 (OPERATING)	N/A			--	1.35									
	HS-20 (INVENTORY)	36.000	Ⓝ2			1.75									
	HS-20 (OPERATING)	36.000				1.35									
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500			1.40									
		SNGARBS2	20.000			1.40									
		SNAGRIS2	22.000			1.40									
		SNCOTTS3	27.250			1.40									
		SNAGGRS4	34.925			1.40									
		SNS5A	35.550			1.40									
		SNS6A	39.950			1.40									
	SNS7B	42.000			1.40										
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000				1.40								
		TNT4A	33.075				1.40								
		TNT6A	41.600				1.40								
		TNT7A	42.000				1.40								
		TNT7B	42.000				1.40								
		TNAGRIT4	43.000				1.40								
TNAGT5A		45.000				1.40									
TNAGT5B	45.000				1.40										
EMERGENCY VEHICLE (EV)	EV2	28.750				1.30									
	EV3	43.000				1.30									

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	--

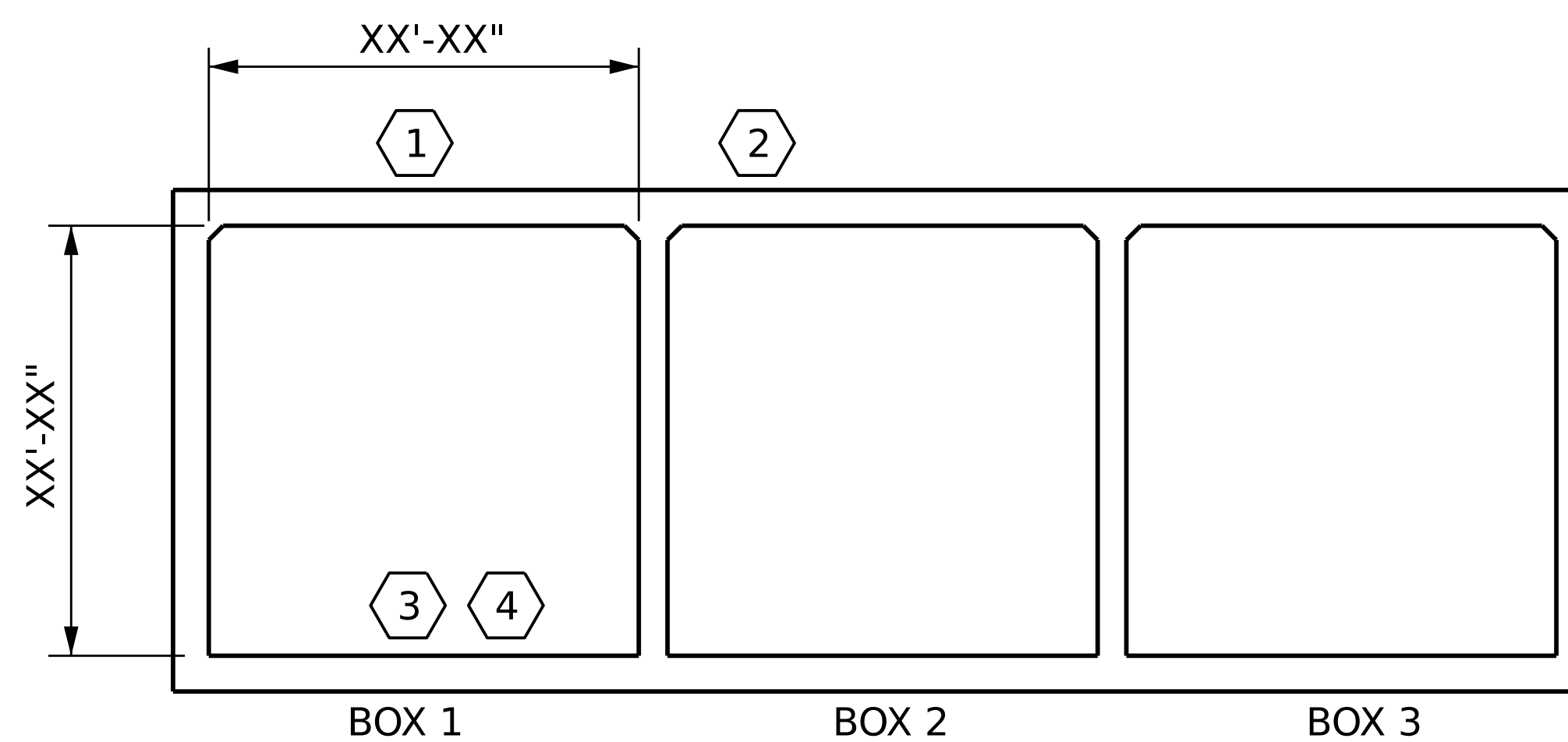
NOTES:

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATES.

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	



LRFR SUMMARY
(LOOKING DOWNSTREAM)

PROJECT NO. _____

_____ COUNTY

STATION: _____

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

ASSEMBLED BY :	DATE :
CHECKED BY :	DATE :
DRAWN BY : WMC	REV. 10/1/11 MAA/GM
CHECKED BY : GM	REV. 12/17 MAA/THC
	REV. 04/23 BNB/AAI

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

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