# LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

| LEVEL | | VEHICLE | WEIGHT (W) (TONS) | CONTROLLING LOAD RATING | MINIMUM RATING FACTORS (RF) | TONS = W X RF | STRENGTH I LIMIT STATE | | | | | | | | | | | SERVICE III LIMIT STATE | | | | | | COMMENT NUMBER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | MOMENT | | | | | SHEAR | | | | | | MOMENT | | | | | |
| | | | | | | | LIVELOAD FACTORS | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (ft) | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (ft) | LIVELOAD FACTORS | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (ft) | |
| DESIGN LOAD RATING | | HL-93(Inv) | N/A | 1 | 1.126 | -- | 1.75 | 0.267 | 1.49 | A | EL | 44.224 | 0.584 | 1.15 | A | EL | 8.845 | 0.80 | 0.267 | 1.13 | A | EL | 44.224 | |
| | | HL-93(Opr) | N/A | -- | 1.488 | -- | 1.35 | 0.267 | 1.94 | A | EL | 44.224 | 0.584 | 1.49 | A | EL | 8.845 | N/A | -- | -- | -- | -- | -- | |
| | | HS-20(Inv) | 36.000 | 2 | 1.491 | 53.666 | 1.75 | 0.267 | 2.03 | A | EL | 44.224 | 0.584 | 1.49 | A | EL | 8.845 | 0.80 | 0.267 | 1.53 | A | EL | 44.224 | |
| | | HS-20(Opr) | 36.000 | -- | 1.932 | 69.567 | 1.35 | 0.267 | 2.63 | A | EL | 44.224 | 0.584 | 1.93 | A | EL | 8.845 | N/A | -- | -- | -- | -- | -- | |
| LEGAL LOAD RATING | SV | SNSH | 13.500 | -- | 3.573 | 48.237 | 1.4 | 0.267 | 5.92 | A | EL | 44.224 | 0.584 | 4.53 | A | EL | 8.845 | 0.80 | 0.267 | 3.57 | A | EL | 44.224 | |
| | | SNGARBS2 | 20.000 | -- | 2.611 | 52.229 | 1.4 | 0.267 | 4.33 | A | EL | 44.224 | 0.584 | 3.19 | A | EL | 8.845 | 0.80 | 0.267 | 2.61 | A | EL | 44.224 | |
| | | SNAGRIS2 | 22.000 | -- | 2.452 | 53.948 | 1.4 | 0.267 | 4.07 | A | EL | 44.224 | 0.584 | 2.95 | A | EL | 8.845 | 0.80 | 0.267 | 2.45 | A | EL | 44.224 | |
| | | SNCOTTS3 | 27.250 | -- | 1.777 | 48.412 | 1.4 | 0.267 | 2.95 | A | EL | 44.224 | 0.584 | 2.26 | A | EL | 8.845 | 0.80 | 0.267 | 1.78 | A | EL | 44.224 | |
| | | SNAGGRS4 | 34.925 | -- | 1.465 | 51.163 | 1.4 | 0.267 | 2.43 | A | EL | 44.224 | 0.584 | 1.85 | A | EL | 8.845 | 0.80 | 0.267 | 1.46 | A | EL | 44.224 | |
| | | SNS5A | 35.550 | -- | 1.434 | 50.974 | 1.4 | 0.267 | 2.38 | A | EL | 44.224 | 0.584 | 1.87 | A | EL | 8.845 | 0.80 | 0.267 | 1.43 | A | EL | 44.224 | |
| | | SNS6A | 39.950 | -- | 1.307 | 52.234 | 1.4 | 0.267 | 2.17 | A | EL | 44.224 | 0.584 | 1.69 | A | EL | 8.845 | 0.80 | 0.267 | 1.31 | A | EL | 44.224 | |
| | | SNS7B | 42.000 | -- | 1.245 | 52.283 | 1.4 | 0.267 | 2.06 | A | EL | 44.224 | 0.584 | 1.65 | A | EL | 8.845 | 0.80 | 0.267 | 1.24 | A | EL | 44.224 | |
| | TTST | TNAGRIT3 | 33.000 | -- | 1.592 | 52.537 | 1.4 | 0.267 | 2.64 | A | EL | 44.224 | 0.584 | 2.02 | A | EL | 8.845 | 0.80 | 0.267 | 1.59 | A | EL | 44.224 | |
| | | TNT4A | 33.075 | -- | 1.597 | 52.815 | 1.4 | 0.267 | 2.65 | A | EL | 44.224 | 0.584 | 1.98 | A | EL | 8.845 | 0.80 | 0.267 | 1.60 | A | EL | 44.224 | |
| | | TNT6A | 41.600 | -- | 1.298 | 53.997 | 1.4 | 0.267 | 2.15 | A | EL | 44.224 | 0.584 | 1.74 | A | EL | 8.845 | 0.80 | 0.267 | 1.30 | A | EL | 44.224 | |
| | | TNT7A | 42.000 | -- | 1.3 | 54.619 | 1.4 | 0.267 | 2.16 | A | EL | 44.224 | 0.584 | 1.71 | A | EL | 8.845 | 0.80 | 0.267 | 1.30 | A | EL | 44.224 | |
| | | TNT7B | 42.000 | -- | 1.335 | 56.09 | 1.4 | 0.267 | 2.21 | A | EL | 44.224 | 0.584 | 1.62 | A | EL | 8.845 | 0.80 | 0.267 | 1.34 | A | EL | 44.224 | |
| | | TNAGRIT4 | 43.000 | -- | 1.278 | 54.943 | 1.4 | 0.267 | 2.12 | A | EL | 44.224 | 0.584 | 1.57 | A | EL | 8.845 | 0.80 | 0.267 | 1.28 | A | EL | 44.224 | |
| | | TNAGT5A | 45.000 | -- | 1.208 | 54.37 | 1.4 | 0.267 | 2 | A | EL | 44.224 | 0.584 | 1.55 | A | EL | 8.845 | 0.80 | 0.267 | 1.21 | A | EL | 44.224 | |
| | | TNAGT5B | 45.000 | 3 | 1.197 | 53.852 | 1.4 | 0.267 | 1.98 | A | EL | 44.224 | 0.584 | 1.5 | A | EL | 8.845 | 0.80 | 0.267 | 1.20 | A | EL | 44.224 | |

## LOAD FACTORS:

| | LIMIT STATE | $\gamma_{DC}$ | $\gamma_{DW}$ |
|---|---|---|---|
| DESIGN LOAD RATING FACTORS | STRENGTH I | 1.25 | 1.50 |
| | SERVICE III | 1.00 | 1.00 |

## NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

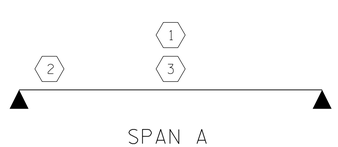
## CONTROLLING LOAD RATING

1. DESIGN LOAD RATING (HL-93)
2. DESIGN LOAD RATING (HS-20)
3. LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

## GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER




LRFR SUMMARY

PROJECT NO. 17BP.5.R.56

WARREN COUNTY

STATION: 15+60.00 -L-

SHEET 3 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 11725 ENGINEER DAVID R. RUGGLES

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED


STEWART
Firm License No. C-1051
421 Fayetteville St,
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 90' BOX BEAM UNIT 75° SKEW & 105° SKEW (NON-INTERSTATE TRAFFIC)

| REVISIONS | | | | | | SHEET NO. |
|---|---|---|---|---|---|---|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-3 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 21 |

ASSEMBLED BY : H.ASSFOURA DATE : 11/14
CHECKED BY : P.JACOB DATE : 11/14
DRAWN BY : TMG 11/11
CHECKED BY : AAC 11/11

3/8/2016
...\400_003_17BP5R56_SMU_LRFR03.dgn
USER:jloftus

STD. NO. 33LRFR1_75&105S_90L