# 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | LIVELOAD FACTORS | MOMENT | | | | | SHEAR | | | | | LIVELOAD FACTORS | MOMENT | | | | | |
| | | | | | | | | 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) | | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (ft) | |
| DESIGN LOAD RATING | | HL-93(Inv) | N/A | 1 | 1.11 | -- | 1.75 | 0.879 | 1.45 | C | I | 15.530 | 0.858 | 1.11 | C | I | 9.318 | 0.80 | 0.78 | 1.55 | B | EL | 33.667 | |
| | | HL-93(Opr) | N/A | -- | 1.44 | -- | 1.35 | 0.879 | 1.88 | C | I | 15.530 | 0.858 | 1.44 | C | I | 9.318 | N/A | -- | -- | -- | -- | -- | |
| | | HS-20(Inv) | 36.000 | 2 | 1.30 | 46.858 | 1.75 | 0.879 | 1.99 | C | I | 9.318 | 0.858 | 1.30 | A | I | 23.648 | 0.80 | 0.78 | 2.07 | B | EL | 33.667 | |
| | | HS-20(Opr) | 36.000 | -- | 1.69 | 60.742 | 1.35 | 0.879 | 2.58 | C | I | 9.318 | 0.858 | 1.69 | A | I | 23.648 | N/A | -- | -- | -- | -- | -- | |
| LEGAL LOAD RATING | SV | SNSH | 13.500 | -- | 3.02 | 40.804 | 1.4 | 0.879 | 4.19 | C | I | 15.530 | 0.858 | 3.02 | C | I | 9.318 | 0.80 | 0.78 | 4.61 | B | EL | 33.667 | |
| | | SNGARBS2 | 20.000 | -- | 2.43 | 48.496 | 1.4 | 0.879 | 3.60 | C | I | 12.424 | 0.858 | 2.42 | A | I | 23.648 | 0.80 | 0.78 | 3.47 | B | EL | 33.667 | |
| | | SNAGRIS2 | 22.000 | -- | 2.37 | 52.064 | 1.4 | 0.879 | 3.61 | C | I | 9.318 | 0.858 | 2.37 | A | I | 23.648 | 0.80 | 0.78 | 3.30 | B | EL | 33.667 | |
| | | SNCOTTS3 | 27.250 | -- | 1.54 | 41.855 | 1.4 | 0.879 | 2.10 | C | I | 15.530 | 0.858 | 1.54 | C | I | 9.318 | 0.80 | 0.78 | 2.29 | B | EL | 33.667 | |
| | | SNAGGRS4 | 34.925 | -- | 1.47 | 51.438 | 1.4 | 0.879 | 1.99 | C | I | 15.530 | 0.858 | 1.47 | A | I | 23.648 | 0.80 | 0.78 | 1.93 | B | EL | 33.667 | |
| | | SNS5A | 35.550 | -- | 1.57 | 55.700 | 1.4 | 0.879 | 1.93 | C | I | 15.530 | 0.858 | 1.57 | A | I | 23.648 | 0.80 | 0.78 | 1.89 | B | EL | 33.667 | |
| | | SNS6A | 39.950 | -- | 1.50 | 59.725 | 1.4 | 0.879 | 1.84 | C | I | 15.530 | 0.858 | 1.49 | A | I | 23.648 | 0.80 | 0.78 | 1.74 | B | EL | 33.667 | |
| | | SNS7B | 42.000 | -- | 1.51 | 63.442 | 1.4 | 0.879 | 1.77 | C | I | 15.530 | 0.858 | 1.51 | A | I | 23.648 | 0.80 | 0.78 | 1.65 | B | EL | 33.667 | |
| | TTST | TNAGRIT3 | 33.000 | -- | 1.79 | 59.173 | 1.4 | 0.879 | 2.33 | C | I | 15.530 | 0.858 | 1.79 | A | I | 23.648 | 0.80 | 0.78 | 2.12 | B | EL | 33.667 | |
| | | TNT4A | 33.075 | -- | 1.64 | 54.221 | 1.4 | 0.879 | 2.26 | C | I | 15.530 | 0.858 | 1.64 | A | I | 23.648 | 0.80 | 0.78 | 2.13 | B | EL | 33.667 | |
| | | TNT6A | 41.600 | -- | 1.55 | 64.505 | 1.4 | 0.879 | 2.02 | C | I | 15.530 | 0.858 | 1.55 | A | I | 23.648 | 0.80 | 0.78 | 1.74 | B | EL | 33.667 | |
| | | TNT7A | 42.000 | -- | 1.54 | 64.607 | 1.4 | 0.879 | 2.09 | C | I | 15.530 | 0.858 | 1.54 | A | I | 23.648 | 0.80 | 0.78 | 1.76 | B | EL | 33.667 | |
| | | TNT7B | 42.000 | -- | 1.49 | 62.354 | 1.4 | 0.879 | 2.01 | C | I | 15.530 | 0.858 | 1.48 | A | I | 23.648 | 0.80 | 0.78 | 1.82 | B | EL | 33.667 | |
| | | TNAGRIT4 | 43.000 | -- | 1.47 | 63.186 | 1.4 | 0.879 | 2.06 | C | I | 15.530 | 0.858 | 1.47 | A | I | 23.648 | 0.80 | 0.78 | 1.73 | B | EL | 33.667 | |
| | | TNAGT5A | 45.000 | -- | 1.52 | 68.221 | 1.4 | 0.879 | 1.97 | C | I | 15.530 | 0.858 | 1.52 | A | I | 23.648 | 0.80 | 0.78 | 1.63 | B | EL | 33.667 | |
| | | TNAGT5B | 45.000 | 3 | 1.36 | 61.307 | 1.4 | 0.879 | 1.89 | C | I | 15.530 | 0.858 | 1.36 | A | I | 23.648 | 0.80 | 0.78 | 1.61 | B | EL | 33.667 | |

## LOAD FACTORS:

| DESIGN LOAD RATING FACTORS | LIMIT STATE | $\gamma_{DC}$ | $\gamma_{DW}$ |
|---|---|---|---|
| | 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.

## COMMENTS:

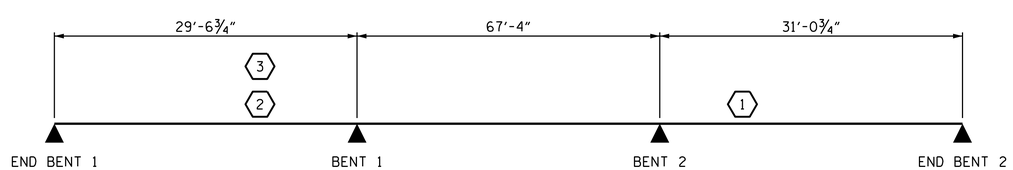
1.
2.
3.
4.

### # 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

DIMENSIONS SHOWN ARE BEARING TO BEARING

PROJECT NO. B-4983
BURKE COUNTY
STATION: 13+52.95 -L

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS
(NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER WALTER MARSHALL G. CHECK, JR.
DocuSigned by: Marshall G. Check, Jr.
6549D6EBAA3B405...
4/25/2014

| REVISIONS | | | | | | | | SHEET NO. |
|---|---|---|---|---|---|---|---|---|
| NO. | BY: | DATE: | NO. | BY: | DATE: | | | S-4 |
| 1 | | | 3 | | | | | TOTAL SHEETS |
| 2 | | | 4 | | | | | 36 |

STD. NO. LRFR1

| | |
|---|---|
| ASSEMBLED BY : M.A. LEBLANC | DATE : 1/14 |
| CHECKED BY : B.N. GRADY | DATE : 2/14 |
| DRAWN BY : MAA 1/08 | REV. 11/12/08RR MAA/GM |
| CHECKED BY : GM/DI 2/08 | REV. 10/1/11 MAA/GM |

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