# 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 | 1.055 | -- | 1.75 | 0.275 | 1.23 | 55′ | EL | 27 | 0.523 | 1.23 | 55′ | EL | 5.4 | 0.80 | 0.275 | **1.05** | 55′ | EL | **27** | |
| | | HL-93(Opr) | N/A | -- | 1.591 | -- | 1.35 | 0.275 | 1.59 | 55′ | EL | 27 | 0.523 | 1.59 | 55′ | EL | 5.4 | N/A | -- | -- | -- | -- | -- | |
| | | HS-20(Inv) | 36.000 | 2 | 1.322 | 47.585 | 1.75 | 0.275 | 1.54 | 55′ | EL | 27 | 0.523 | 1.47 | 55′ | EL | 5.4 | 0.80 | 0.275 | **1.32** | 55′ | EL | **27** | |
| | | HS-20(Opr) | 36.000 | -- | 1.9 | 68.396 | 1.35 | 0.275 | 1.99 | 55′ | EL | 27 | 0.523 | 1.9 | 55′ | EL | 5.4 | N/A | -- | -- | -- | -- | -- | |
| LEGAL LOAD RATING | SV | SNSH | 13.500 | -- | 2.776 | 37.476 | 1.4 | 0.275 | 4.04 | 55′ | EL | 27 | 0.523 | 4.17 | 55′ | EL | 5.4 | 0.80 | 0.275 | 2.78 | 55′ | EL | 27 | |
| | | SNGARBS2 | 20.000 | -- | 2.155 | 43.095 | 1.4 | 0.275 | 3.14 | 55′ | EL | 27 | 0.523 | 3.02 | 55′ | EL | 5.4 | 0.80 | 0.275 | 2.15 | 55′ | EL | 27 | |
| | | SNAGRIS2 | 22.000 | -- | 2.079 | 45.734 | 1.4 | 0.275 | 3.03 | 55′ | EL | 27 | 0.523 | 2.83 | 55′ | EL | 5.4 | 0.80 | 0.275 | 2.08 | 55′ | EL | 27 | |
| | | SNCOTTS3 | 27.250 | -- | 1.384 | 37.708 | 1.4 | 0.275 | 2.01 | 55′ | EL | 27 | 0.523 | 2.09 | 55′ | EL | 5.4 | 0.80 | 0.275 | 1.38 | 55′ | EL | 27 | |
| | | SNAGGRS4 | 34.925 | -- | 1.189 | 41.527 | 1.4 | 0.275 | 1.73 | 55′ | EL | 27 | 0.523 | 1.77 | 55′ | EL | 5.4 | 0.80 | 0.275 | 1.19 | 55′ | EL | 27 | |
| | | SNS5A | 35.550 | -- | 1.16 | 41.255 | 1.4 | 0.275 | 1.69 | 55′ | EL | 27 | 0.523 | 1.82 | 55′ | EL | 5.4 | 0.80 | 0.275 | 1.16 | 55′ | EL | 27 | |
| | | SNS6A | 39.950 | -- | 1.079 | 43.102 | 1.4 | 0.275 | 1.57 | 55′ | EL | 27 | 0.523 | 1.68 | 55′ | EL | 5.4 | 0.80 | 0.275 | 1.08 | 55′ | EL | 27 | |
| | | SNS7B | 42.000 | -- | 1.028 | 43.175 | 1.4 | 0.275 | 1.5 | 55′ | EL | 27 | 0.523 | 1.67 | 55′ | EL | 5.4 | 0.80 | 0.275 | 1.03 | 55′ | EL | 27 | |
| | TTST | TNAGRIT3 | 33.000 | -- | 1.32 | 43.556 | 1.4 | 0.275 | 1.92 | 55′ | EL | 27 | 0.523 | 1.98 | 55′ | EL | 5.4 | 0.80 | 0.275 | 1.32 | 55′ | EL | 27 | |
| | | TNT4A | 33.075 | -- | 1.33 | 43.979 | 1.4 | 0.275 | 1.94 | 55′ | EL | 27 | 0.523 | 1.91 | 55′ | EL | 5.4 | 0.80 | 0.275 | 1.33 | 55′ | EL | 27 | |
| | | TNT6A | 41.600 | -- | 1.101 | 45.811 | 1.4 | 0.275 | 1.6 | 55′ | EL | 27 | 0.523 | 1.83 | 55′ | EL | 5.4 | 0.80 | 0.275 | 1.10 | 55′ | EL | 27 | |
| | | TNT7A | 42.000 | -- | 1.114 | 46.804 | 1.4 | 0.275 | 1.62 | 55′ | EL | 27 | 0.523 | 1.71 | 55′ | EL | 5.4 | 0.80 | 0.275 | 1.11 | 55′ | EL | 27 | |
| | | TNT7B | 42.000 | -- | 1.163 | 48.848 | 1.4 | 0.275 | 1.69 | 55′ | EL | 27 | 0.523 | 1.62 | 55′ | EL | 5.4 | 0.80 | 0.275 | 1.16 | 55′ | EL | 27 | |
| | | TNAGRIT4 | 43.000 | -- | 1.101 | 47.33 | 1.4 | 0.275 | 1.6 | 55′ | EL | 27 | 0.523 | 1.56 | 55′ | EL | 5.4 | 0.80 | 0.275 | 1.10 | 55′ | EL | 27 | |
| | | TNAGT5A | 45.000 | -- | 1.031 | 46.405 | 1.4 | 0.275 | 1.5 | 55′ | EL | 27 | 0.523 | 1.58 | 55′ | EL | 5.4 | 0.80 | 0.275 | 1.03 | 55′ | EL | 27 | |
| | | TNAGT5B | 45.000 | 3 | 1.013 | 45.582 | 1.4 | 0.275 | 1.47 | 55′ | EL | 27 | 0.523 | 1.48 | 55′ | EL | 5.4 | 0.80 | 0.275 | **1.01** | 55′ | EL | **27** | |

## 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)

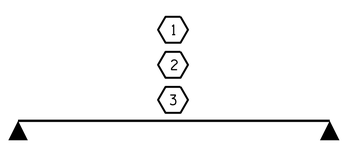
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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




LRFR SUMMARY

FOR SPAN 'A'

PROJECT NO. B-4681

WILSON COUNTY

STATION: 16+12.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 55′ CORED SLAB UNIT 90° SKEW (NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL SEAL 21271 ENGINEER GREGORY W. DICKEY

DocuSigned by: Greg Dickey 2/19/2015
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| REVISIONS | | | | | | SHEET NO. |
|---|---|---|---|---|---|---|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-4 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 15 |

ASSEMBLED BY : A.K. PATEL DATE : 06/2014
CHECKED BY : P.N. HOLDER DATE : 06/2014

DRAWN BY : CVC 6/10
CHECKED BY : DNS 6/10

18-FEB-2015 13:36
Y:\Structures\Plans\FinalPlans\B-4681_SD_CS.dgn
emurray

STD. NO. 21LRFR1_90S_55L