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# LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CORED SLAB UNIT

| 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) | 1.431 | -- | 1.75 | 0.285 | 1.64 | 50' | EL | 24.49 | 0.631 | **1.41** | 50' | I | **44.49** | 0.80 | 0.285 | 2.06 | 50' | EL | 24.49 | |
| | | HL-93(Opr) | N/A | -- | 1.829 | -- | 1.35 | 0.285 | 2.13 | 50' | EL | 24.49 | 0.631 | 2.07 | 50' | I | 44.49 | N/A | -- | -- | -- | -- | -- | |
| | | HS-20(Inv) | 36.000 | (2) | 2.035 | 73.260 | 1.75 | 0.285 | **2.04** | 50' | EL | **24.49** | 0.631 | 1.84 | 50' | I | 44.49 | 0.80 | 0.285 | 2.55 | 50' | EL | 24.49 | |
| | | HS-20(Opr) | 36.000 | -- | 2.605 | 93.780 | 1.35 | 0.285 | 2.64 | 50' | EL | 24.49 | 0.631 | 2.52 | 50' | I | 44.49 | N/A | -- | -- | -- | -- | -- | |
| LEGAL LOAD RATING | SV | SNSH | 13.500 | -- | 5.178 | 69.903 | 1.4 | 0.285 | 5.19 | 50' | EL | 24.49 | 0.631 | 5.58 | 50' | I | 44.49 | 0.80 | 0.285 | 5.20 | 50' | EL | 24.49 | |
| | | SNGARBS2 | 20.000 | -- | 4.089 | 81.780 | 1.4 | 0.285 | 4.10 | 50' | EL | 24.49 | 0.631 | 4.04 | 50' | I | 44.49 | 0.80 | 0.285 | 4.11 | 50' | EL | 24.49 | |
| | | SNAGRIS2 | 22.000 | -- | 3.968 | 87.296 | 1.4 | 0.285 | 3.97 | 50' | EL | 19.49 | 0.631 | 3.79 | 50' | I | 44.49 | 0.80 | 0.285 | 3.99 | 50' | EL | 19.49 | |
| | | SNCOTTS3 | 27.250 | -- | 2.583 | 70.387 | 1.4 | 0.285 | 2.59 | 50' | EL | 24.49 | 0.631 | 2.71 | 50' | I | 44.49 | 0.80 | 0.285 | 2.59 | 50' | EL | 24.49 | |
| | | SNAGGRS4 | 34.925 | -- | 2.246 | 78.442 | 1.4 | 0.285 | 2.25 | 50' | EL | 24.49 | 0.631 | 2.33 | 50' | I | 44.49 | 0.80 | 0.285 | 2.25 | 50' | EL | 24.49 | |
| | | SNS5A | 35.550 | -- | 2.189 | 77.819 | 1.4 | 0.285 | 2.19 | 50' | EL | 24.49 | 0.631 | 2.40 | 50' | I | 44.49 | 0.80 | 0.285 | 2.20 | 50' | EL | 24.49 | |
| | | SNS6A | 39.950 | -- | 2.048 | 81.818 | 1.4 | 0.285 | 2.05 | 50' | EL | 24.49 | 0.631 | 2.22 | 50' | I | 44.49 | 0.80 | 0.285 | 2.06 | 50' | EL | 24.49 | |
| | | SNS7B | 42.000 | -- | 1.951 | 81.942 | 1.4 | 0.285 | 1.95 | 50' | EL | 24.49 | 0.631 | 2.19 | 50' | I | 44.49 | 0.80 | 0.285 | 1.96 | 50' | EL | 24.49 | |
| | TTST | TNAGRIT3 | 33.000 | -- | 2.508 | 82.764 | 1.4 | 0.285 | 2.51 | 50' | EL | 24.49 | 0.631 | 2.63 | 50' | I | 44.49 | 0.80 | 0.285 | 2.52 | 50' | EL | 24.49 | |
| | | TNT4A | 33.075 | -- | 2.534 | 83.812 | 1.4 | 0.285 | 2.54 | 50' | EL | 24.49 | 0.631 | 2.53 | 50' | I | 44.49 | 0.80 | 0.285 | 2.54 | 50' | EL | 24.49 | |
| | | TNT6A | 41.600 | -- | 2.111 | 87.818 | 1.4 | 0.285 | 2.11 | 50' | EL | 24.49 | 0.631 | 2.44 | 50' | I | 44.49 | 0.80 | 0.285 | 2.12 | 50' | EL | 24.49 | |
| | | TNT7A | 42.000 | -- | 2.143 | 90.006 | 1.4 | 0.285 | 2.14 | 50' | EL | 24.49 | 0.631 | 2.25 | 50' | I | 44.49 | 0.80 | 0.285 | 2.15 | 50' | EL | 24.49 | |
| | | TNT7B | 42.000 | -- | 2.134 | 89.628 | 1.4 | 0.285 | 2.23 | 50' | EL | 24.49 | 0.631 | 2.12 | 50' | I | 44.49 | 0.80 | 0.285 | 2.24 | 50' | EL | 24.49 | |
| | | TNAGRIT4 | 43.000 | -- | 2.031 | 87.333 | 1.4 | 0.285 | 2.12 | 50' | EL | 24.49 | 0.631 | 2.01 | 50' | I | 44.49 | 0.80 | 0.285 | 2.12 | 50' | EL | 24.49 | |
| | | TNAGT5A | 45.000 | -- | 1.977 | 88.965 | 1.4 | 0.285 | 1.98 | 50' | EL | 24.49 | 0.631 | 2.06 | 50' | I | 44.49 | 0.80 | 0.285 | 1.99 | 50' | EL | 24.49 | |
| | | TNAGT5B | 45.000 | (3) | 1.889 | 85.005 | 1.4 | 0.285 | 1.94 | 50' | EL | 24.49 | 0.631 | **1.86** | 50' | I | **44.49** | 0.80 | 0.285 | 1.95 | 50' | EL | 24.49 | |

## 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)

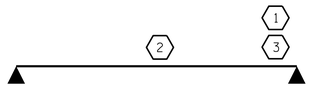
(2) DESIGN LOAD RATING (HS-20)

(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-5550
TRANSYLVANIA COUNTY
STATION: 13+04.00 -L-

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CDM Smith
CDM SMITH
5400 Glenwood Avenue, Suite 400
Raleigh, NC 27612-3228
NC COA No. F-1255

DRAWN BY : VDK DATE : 1/18
CHECKED BY : THF DATE : 5/18
DESIGN ENGINEER : VDK DATE : 6/18

DWG. No.

NORTH CAROLINA PROFESSIONAL SEAL 16301 ENGINEER TING-HSIUNG FANG
Ting Fang
60E43C0AEA60462...
11/10/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LRFR SUMMARY FOR 50' CORED SLAB UNIT 80° SKEW
SPAN A
(NON-INTERSTATE TRAFFIC)

| REVISIONS | | | | | | SHEET NO. |
|---|---|---|---|---|---|---|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-04 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 15 |

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