# 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 | 2.08 | -- | 1.75 | 0.278 | 2.43 | 60' | EL | 29.5 | 0.702 | **2.08** | 60' | I | 5.9 | 0.80 | 0.278 | 2.81 | 60' | EL | 29.5 | |
| | | HL-93(Opr) | N/A | -- | 2.73 | -- | 1.35 | 0.278 | 3.15 | 60' | EL | 29.5 | 0.702 | 2.73 | 60' | I | 5.9 | N/A | -- | -- | -- | -- | -- | |
| | | HS-20(Inv) | 36.000 | 2 | 2.56 | 92.16 | 1.75 | 0.278 | 3.08 | 60' | EL | 29.5 | 0.702 | **2.56** | 60' | I | 5.9 | 0.80 | 0.278 | 3.56 | 60' | EL | 29.5 | |
| | | HS-20(Opr) | 36.000 | -- | 3.32 | 119.52 | 1.35 | 0.278 | 3.99 | 60' | EL | 29.5 | 0.702 | 3.32 | 60' | I | 5.9 | N/A | -- | -- | -- | -- | -- | |
| LEGAL LOAD RATING | SV | SNSH | 13.500 | -- | 7.39 | 99.77 | 1.40 | 0.278 | 8.29 | 60' | EL | 29.5 | 0.702 | 7.39 | 60' | I | 5.9 | 0.80 | 0.278 | 7.67 | 60' | EL | 29.5 | |
| | | SNGARBS2 | 20.000 | -- | 5.32 | 106.40 | 1.40 | 0.278 | 6.35 | 60' | EL | 29.5 | 0.702 | 5.32 | 60' | I | 5.9 | 0.80 | 0.278 | 5.87 | 60' | EL | 29.5 | |
| | | SNAGRIS2 | 22.000 | -- | 4.97 | 109.34 | 1.40 | 0.278 | 6.08 | 60' | EL | 29.5 | 0.702 | 4.97 | 60' | I | 5.9 | 0.80 | 0.278 | 5.63 | 60' | EL | 29.5 | |
| | | SNCOTTS3 | 27.250 | -- | 3.70 | 100.83 | 1.40 | 0.278 | 4.13 | 60' | EL | 29.5 | 0.702 | 3.70 | 60' | I | 5.9 | 0.80 | 0.278 | 3.82 | 60' | EL | 29.5 | |
| | | SNAGGRS4 | 34.925 | -- | 3.12 | 108.97 | 1.40 | 0.278 | 3.52 | 60' | EL | 29.5 | 0.702 | 3.12 | 60' | I | 5.9 | 0.80 | 0.278 | 3.25 | 60' | EL | 29.5 | |
| | | SNS5A | 35.550 | -- | 3.17 | 112.69 | 1.40 | 0.278 | 3.43 | 60' | EL | 29.5 | 0.702 | 3.17 | 60' | I | 5.9 | 0.80 | 0.278 | 3.17 | 60' | EL | 29.5 | |
| | | SNS6A | 39.950 | -- | 2.91 | 116.25 | 1.40 | 0.278 | 3.18 | 60' | EL | 29.5 | 0.702 | 2.91 | 60' | I | 5.9 | 0.80 | 0.278 | 2.94 | 60' | EL | 29.5 | |
| | | SNS7B | 42.000 | -- | 2.80 | 117.60 | 1.40 | 0.278 | 3.03 | 60' | EL | 29.5 | 0.702 | 2.89 | 60' | I | 5.9 | 0.80 | 0.278 | 2.80 | 60' | EL | 29.5 | |
| | TTST | TNAGRIT3 | 33.000 | -- | 3.44 | 113.52 | 1.40 | 0.278 | 3.88 | 60' | EL | 29.5 | 0.702 | 3.44 | 60' | I | 5.9 | 0.80 | 0.278 | 3.59 | 60' | EL | 29.5 | |
| | | TNT4A | 33.075 | -- | 3.35 | 110.80 | 1.40 | 0.278 | 3.91 | 60' | EL | 29.5 | 0.702 | 3.35 | 60' | I | 5.9 | 0.80 | 0.278 | 3.61 | 60' | EL | 29.5 | |
| | | TNT6A | 41.600 | -- | 2.98 | 123.97 | 1.40 | 0.278 | 3.22 | 60' | EL | 29.5 | 0.702 | 3.14 | 60' | I | 5.9 | 0.80 | 0.278 | 2.98 | 60' | EL | 29.5 | |
| | | TNT7A | 42.000 | -- | 2.99 | 125.58 | 1.40 | 0.278 | 3.25 | 60' | EL | 29.5 | 0.702 | 2.99 | 60' | I | 5.9 | 0.80 | 0.278 | 3.01 | 60' | EL | 29.5 | |
| | | TNT7B | 42.000 | -- | 2.80 | 117.60 | 1.40 | 0.278 | 3.40 | 60' | EL | 29.5 | 0.702 | 2.80 | 60' | I | 5.9 | 0.80 | 0.278 | 3.14 | 60' | EL | 29.5 | |
| | | TNAGRIT4 | 43.000 | -- | 2.71 | 116.53 | 1.40 | 0.278 | 3.21 | 60' | EL | 29.5 | 0.702 | 2.71 | 60' | I | 5.9 | 0.80 | 0.278 | 2.97 | 60' | EL | 29.5 | |
| | | TNAGT5A | 45.000 | -- | 2.73 | 122.85 | 1.40 | 0.278 | 3.01 | 60' | EL | 29.5 | 0.702 | 2.73 | 60' | I | 5.9 | 0.80 | 0.278 | 2.79 | 60' | EL | 29.5 | |
| | | TNAGT5B | 45.000 | 3 | 2.58 | 116.10 | 1.40 | 0.278 | 2.97 | 60' | EL | 29.5 | 0.702 | **2.58** | 60' | I | 5.9 | 0.80 | 0.278 | 2.74 | 60' | EL | 29.5 | |

## 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.

## 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

PROJECT NO. B-5601
WASHINGTON COUNTY
STATION: 16+35.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 24939 ENGINEER BYRON E. ATKINSON
10/17/2017

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**


MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LRFR SUMMARY FOR 60' CORED SLAB UNIT 105° SKEW
(NON-INTERSTATE TRAFFIC)

| REVISIONS | | | | | | |
|---|---|---|---|---|---|---|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | |
| 2 | | | 4 | | | |

SHEET NO. S-5
TOTAL SHEETS 31

| | | | |
|---|---|---|---|
| DRAWN BY : | B.E. LANNING | DATE : | 12/16 |
| CHECKED BY : | B.E. ATKINSON | DATE : | 01/17 |
| DESIGN ENGINEER OF RECORD : | B.E. ATKINSON | DATE : | 08/17 |


10/17/2017
11:43:14 AM
User: blanning
Filename: P:\NC Bridges\MI6003_VHB_Div. 1 Br. Repl. (4 Bridges)\MI6003.02_Washington 11.B-5601\B-5601\Structures\401_009_B5601_SMU_LRFR1.dgn