

LOAD AND RESISTANCE FACTOR RATING (LRFR) 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 | | | | | | | | |
| | | | | | | LIVE-LOAD FACTORS (LL) | 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) | LIVE-LOAD FACTORS (LL) | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (ft) | |
| DESIGN LOAD RATING | HL-93 (INVENTORY) | N/A | ① | 1.19 | -- | 1.75 | 0.72 | 1.62 | D | EL | 46.40 | 0.88 | 1.19 | D | I | 8.70 | 0.80 | 0.72 | 1.35 | D | I | 46.40 | 1 | |
| | HL-93 (OPERATING) | N/A | | 1.58 | -- | 1.35 | 0.72 | 2.10 | D | EL | 46.40 | 0.88 | 1.58 | D | I | 84.00 | N/A | -- | -- | -- | -- | -- | 1,2 | |
| | HS-20 (INVENTORY) | 36.000 | ② | 1.61 | 57.96 | 1.75 | 0.72 | 2.22 | D | EL | 46.40 | 0.88 | 1.61 | D | I | 84.00 | 0.80 | 0.72 | 1.86 | D | I | 46.40 | 1 | |
| | HS-20 (OPERATING) | 36.000 | | 2.12 | 76.32 | 1.35 | 0.72 | 2.88 | D | EL | 46.40 | 0.88 | 2.12 | D | I | 84.00 | N/A | -- | -- | -- | -- | -- | 1,2 | |
| LEGAL LOAD RATING | SINGLE VEHICLE (SV) | SNSH | 13.500 | | 4.37 | 59.00 | 1.40 | 0.72 | 6.52 | D | EL | 46.40 | 0.88 | 5.17 | D | I | 84.00 | 0.80 | 0.72 | 4.37 | D | I | 46.40 | 1 |
| | | SNGARBS2 | 20.000 | | 3.18 | 63.60 | 1.40 | 0.72 | 4.75 | D | EL | 46.40 | 0.88 | 3.59 | D | I | 84.00 | 0.80 | 0.72 | 3.18 | D | I | 46.40 | 1 |
| | | SNAGRIS2 | 22.000 | | 2.98 | 65.56 | 1.40 | 0.72 | 4.45 | D | EL | 46.40 | 0.88 | 3.31 | D | I | 84.00 | 0.80 | 0.72 | 2.98 | D | I | 46.40 | 1 |
| | | SNCOTTS3 | 27.250 | | 2.17 | 59.13 | 1.40 | 0.72 | 3.24 | D | EL | 46.40 | 0.88 | 2.51 | D | I | 84.00 | 0.80 | 0.72 | 2.17 | D | I | 46.40 | 1 |
| | | SNAGGRS4 | 34.925 | | 1.78 | 62.17 | 1.40 | 0.72 | 2.67 | D | EL | 46.40 | 0.88 | 2.04 | D | I | 84.00 | 0.80 | 0.72 | 1.78 | D | I | 46.40 | 1 |
| | | SNS5A | 35.550 | | 1.75 | 62.21 | 1.40 | 0.72 | 2.61 | D | EL | 46.40 | 0.88 | 2.05 | D | I | 84.00 | 0.80 | 0.72 | 1.75 | D | I | 46.40 | 1 |
| | | SNS6A | 39.950 | | 1.59 | 63.52 | 1.40 | 0.72 | 2.38 | D | EL | 46.40 | 0.88 | 1.85 | D | I | 8.70 | 0.80 | 0.72 | 1.59 | D | I | 46.40 | 1 |
| | | SNS7B | 42.000 | | 1.51 | 63.42 | 1.40 | 0.72 | 2.26 | D | EL | 46.40 | 0.88 | 1.80 | D | I | 84.00 | 0.80 | 0.72 | 1.51 | D | I | 46.40 | 1 |
| | TRUCK TRACTOR SEMI-TRAILER (TST) | TNAGRIT3 | 33.000 | | 1.94 | 64.02 | 1.40 | 0.72 | 2.89 | D | EL | 46.40 | 0.88 | 2.23 | D | I | 8.70 | 0.80 | 0.72 | 1.94 | D | I | 46.40 | 1 |
| | | TNT4A | 33.075 | | 1.94 | 64.17 | 1.40 | 0.72 | 2.90 | D | EL | 46.40 | 0.88 | 2.18 | D | I | 8.70 | 0.80 | 0.72 | 1.94 | D | I | 46.40 | 1 |
| | | TNT6A | 41.600 | | 1.58 | 65.73 | 1.40 | 0.72 | 2.36 | D | EL | 46.40 | 0.88 | 1.89 | D | I | 84.00 | 0.80 | 0.72 | 1.58 | D | I | 46.40 | 1 |
| | | TNT7A | 42.000 | | 1.58 | 66.36 | 1.40 | 0.72 | 2.36 | D | EL | 46.40 | 0.88 | 1.86 | D | I | 8.70 | 0.80 | 0.72 | 1.58 | D | I | 46.40 | 1 |
| | | TNT7B | 42.000 | | 1.62 | 68.04 | 1.40 | 0.72 | 2.42 | D | EL | 46.40 | 0.88 | 1.76 | D | I | 84.00 | 0.80 | 0.72 | 1.62 | D | I | 46.40 | 1 |
| | | TNAGRIT4 | 43.000 | | 1.55 | 66.65 | 1.40 | 0.72 | 2.32 | D | EL | 46.40 | 0.88 | 1.71 | D | I | 84.00 | 0.80 | 0.72 | 1.55 | D | I | 46.40 | 1 |
| TNAGT5A | 45.000 | | 1.47 | 66.15 | 1.40 | 0.72 | 2.19 | D | EL | 46.40 | 0.88 | 1.68 | D | I | 8.70 | 0.80 | 0.72 | 1.47 | D | I | 46.40 | 1 | | |
| TNAGT5B | 45.000 | | ③ | 1.45 | 65.25 | 1.40 | 0.72 | 2.17 | D | EL | 46.40 | 0.88 | 1.62 | D | I | 84.00 | 0.80 | 0.72 | 1.45 | D | I | 46.40 | 1 | |

LOAD FACTORS:

| DESIGN LOAD RATING FACTORS | LIMIT STATE | γ_{DC} | γ_{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. ALL DISTANCES ARE MEASURED FROM THE CENTERLINE OF BEARING AT THE LEFT END OF THE SPAN.
2. SERVICE III LIMIT STATE NOT APPLICABLE AT THE OPERATIONAL LEVEL.
3. SPANS A & M ARE SIMILAR.
4. SPANS B, C, D, E, F, G, H, I, J, K & L ARE SIMILAR.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

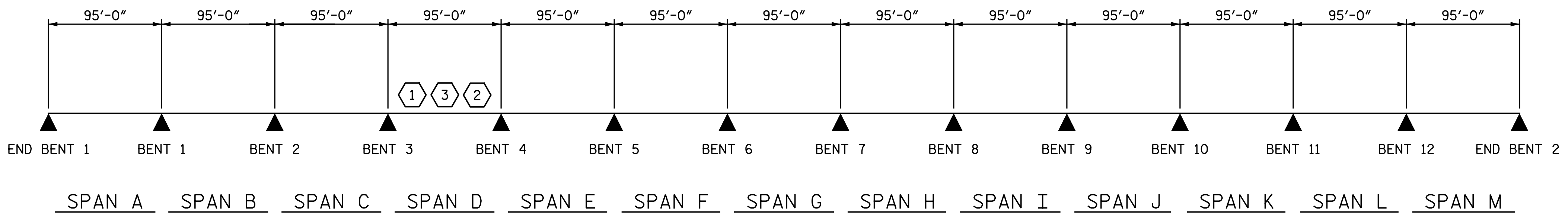
② DESIGN LOAD RATING (HS-20)

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. R-2514D
JONES COUNTY
STATION: 389+47.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**LRFR SUMMARY FOR
PRESTRESSED
CONCRETE GIRDERS
(NON-INTERSTATE TRAFFIC)
LEFT LANE**

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | SHEET NO. |
| 1 | | | 3 | | | 507-6 |
| 2 | | | 4 | | | TOTAL SHEETS 68 |

DocuSigned by:
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5/8/2015

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DWG. 6 OF 68