

LOAD FACTORS:

| | | | |
|----------------------------|-------------|------|------|
| DESIGN LOAD RATING FACTORS | LIMIT STATE | γDC | γDW |
| | STRENGTH I | 1.25 | 1.50 |
| | SERVICE II | 1.00 | 1.00 |

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE II LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.

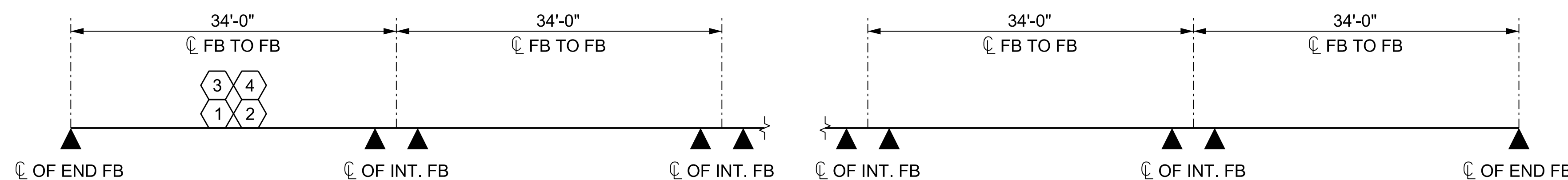
FB = FLOORBEAM

COMMENTS:

- HL-93 IS CONTROLLED BY THE DESIGN TANDEM FOR MOMENT AND THE DESIGN TRUCK FOR SHEAR.
- NOTE THAT THE STRINGER FATIGUE I STRESS IS BELOW THE INFINITE FATIGUE THRESHOLD.
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|-------------------------------|-------------------------------|
| # | CONTROLLING LOAD RATING |
| 1 | DESIGN LOAD RATING (HL-93) |
| 2 | DESIGN LOAD RATING (HS-20) |
| 3 | LEGAL LOAD RATING ** |
| 4 | EMERGENCY VEHICLE LOAD RATING |
| ** SEE CHART FOR VEHICLE TYPE | |
| STRINGER LOCATION | |
| I - INTERIOR STRINGER | |
| EL - EXTERIOR LEFT STRINGER | |
| ER - EXTERIOR RIGHT STRINGER | |

| LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR STEEL STRINGERS | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----------------------------------|-------------------|-----------------------------|-----------------------------|---------------|--------------------------|---------------------------|---------------|------|-----------------|-------------------------------------|---------------------------|---------------|------|-----------------|-------------------------------------|--------------------------|---------------------------|---------------|------|-----------------|----------------|-------------------------------------|---|
| LOAD TYPE | VEHICLE | WEIGHT (W) (TONS) | CONTROLLING LOAD RATING (#) | MINIMUM RATING FACTORS (RF) | TONS = W x RF | STRENGTH I LIMIT STATE | | | | | | | | | | SERVICE II LIMIT STATE | | | | | | COMMENT NUMBER | | |
| | | | | | | MOMENT | | | | | SHEAR | | | | | MOMENT | | | | | | | | |
| | | | | | | LIVE-LOAD FACTORS (γ 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 (γ LL) | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | | DISTANCE FROM LEFT END OF SPAN (ft) | |
| DESIGN LOAD | HL-93 (INVENTORY) | N/A | 1 | 1.33 | - | 1.75 | 0.433 | 1.33 | 1 | I | 17 | 0.6 | 2.10 | 1 | I | 0 | 1.30 | 0.433 | 1.43 | 1 | I | 17 | 1 | |
| | HL-93 (OPERATING) | N/A | | 1.72 | - | 1.35 | 0.433 | 1.72 | 1 | I | 17 | 0.6 | 2.72 | 1 | I | 0 | N/A | - | - | - | - | - | - | 1 |
| | HS-20 (INVENTORY) | 36.000 | 2 | 1.72 | 62.1 | 1.75 | 0.433 | 1.72 | 1 | I | 17 | 0.6 | 2.42 | 1 | I | 0 | 1.30 | 0.433 | 1.86 | 1 | I | 17 | | |
| | HS-20 (OPERATING) | 36.000 | | 2.24 | 80.5 | 1.35 | 0.433 | 2.24 | 1 | I | 17 | 0.6 | 3.14 | 1 | I | 0 | N/A | - | - | - | - | - | - | |
| LEGAL LOAD | SINGLE VEHICLE (SV) | SNSH | | 3.26 | 44.0 | 1.40 | 0.433 | 3.78 | 1 | I | 17 | 0.6 | 6.35 | 1 | I | 0 | 1.30 | 0.433 | 3.26 | 1 | I | 17 | | |
| | | SNGARBS2 | 20.000 | | 2.72 | 54.5 | 1.40 | 0.433 | 3.16 | 1 | I | 17 | 0.6 | 4.77 | 1 | I | 0 | 1.30 | 0.433 | 2.72 | 1 | I | 17 | |
| | | SNAGRIS2 | 22.000 | | 2.71 | 59.5 | 1.40 | 0.433 | 3.14 | 1 | I | 17 | 0.6 | 4.53 | 1 | I | 0 | 1.30 | 0.433 | 2.71 | 1 | I | 17 | |
| | | SNCOTTS3 | 27.250 | | 1.65 | 44.9 | 1.40 | 0.433 | 1.91 | 1 | I | 17 | 0.6 | 3.21 | 1 | I | 0 | 1.30 | 0.433 | 1.65 | 1 | I | 17 | |
| | | SNAGGRS4 | 34.925 | | 1.50 | 52.5 | 1.40 | 0.433 | 1.75 | 1 | I | 17 | 0.6 | 2.83 | 1 | I | 0 | 1.30 | 0.433 | 1.50 | 1 | I | 17 | |
| | | SNS5A | 35.550 | | 1.47 | 52.4 | 1.40 | 0.433 | 1.71 | 1 | I | 17 | 0.6 | 2.97 | 1 | I | 0 | 1.30 | 0.433 | 1.47 | 1 | I | 17 | |
| | | SNS6A | 39.950 | | 1.42 | 56.6 | 1.40 | 0.433 | 1.64 | 1 | I | 17 | 0.6 | 2.80 | 1 | I | 0 | 1.30 | 0.433 | 1.42 | 1 | I | 17 | |
| | | SNS7B | 42.000 | 3 | 1.35 | 56.8 | 1.40 | 0.433 | 1.57 | 1 | I | 17 | 0.6 | 2.86 | 1 | I | 0 | 1.30 | 0.433 | 1.35 | 1 | I | 17 | |
| | TRUCK TRACTOR SEMI-TRAILER (TTST) | TNAGRIT3 | 33.000 | | 1.76 | 58.0 | 1.40 | 0.433 | 2.04 | 1 | I | 17 | 0.6 | 3.26 | 1 | I | 0 | 1.30 | 0.433 | 1.76 | 1 | I | 17 | |
| | | TNT4A | 33.075 | | 1.75 | 58.0 | 1.40 | 0.433 | 2.04 | 1 | I | 17 | 0.6 | 3.09 | 1 | I | 0 | 1.30 | 0.433 | 1.75 | 1 | I | 17 | |
| | | TNT6A | 41.600 | | 1.53 | 63.6 | 1.40 | 0.433 | 1.77 | 1 | I | 17 | 0.6 | 3.05 | 1 | I | 0 | 1.30 | 0.433 | 1.53 | 1 | I | 17 | |
| | | TNT7A | 42.000 | | 1.55 | 65.3 | 1.40 | 0.433 | 1.80 | 1 | I | 17 | 0.6 | 2.80 | 1 | I | 0 | 1.30 | 0.433 | 1.55 | 1 | I | 17 | |
| | | TNT7B | 42.000 | | 1.55 | 65.0 | 1.40 | 0.433 | 1.80 | 1 | I | 17 | 0.6 | 2.72 | 1 | I | 0 | 1.30 | 0.433 | 1.55 | 1 | I | 17 | |
| | | TNAGRIT4 | 43.000 | | 1.54 | 66.2 | 1.40 | 0.433 | 1.79 | 1 | I | 17 | 0.6 | 2.60 | 1 | I | 0 | 1.30 | 0.433 | 1.54 | 1 | I | 17 | |
| | | TNAGT5A | 45.000 | | 1.46 | 65.6 | 1.40 | 0.433 | 1.69 | 1 | I | 17 | 0.6 | 2.73 | 1 | I | 0 | 1.30 | 0.433 | 1.46 | 1 | I | 17 | |
| | | TNAGT5B | 45.000 | | 1.39 | 62.4 | 1.40 | 0.433 | 1.61 | 1 | I | 17 | 0.6 | 2.46 | 1 | I | 0 | 1.30 | 0.433 | 1.39 | 1 | I | 17 | |
| FATIGUE | HL-93 (INVENTORY) | γLL=0.75 | | 1.05 | - | - | 0.361 | 1.05 | 1 | I | 17 | - | - | - | - | - | - | - | - | - | - | - | 2 | |
| EMERGENCY VEHICLE (EV) | EV2 | 28.750 | | 2.45 | 70.5 | 1.30 | 0.433 | 2.45 | 1 | I | 17 | 0.6 | 3.63 | 1 | I | 0 | - | - | - | - | - | - | | |
| | EV3 | 43.000 | 4 | 1.62 | 69.5 | 1.30 | 0.433 | 1.62 | 1 | I | 17 | 0.6 | 2.47 | 1 | I | 0 | - | - | - | - | - | - | | |

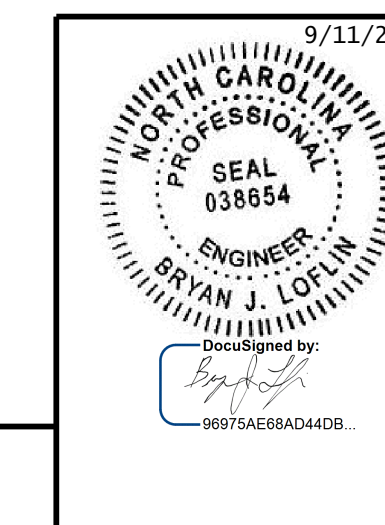


LRFR SUMMARY

PROJECT NO. 15BPR.102.3
 NEW HANOVER COUNTY
 BRIDGE NO. 640013

9/11/2023 401.013.15BPR.102.3.M.LLRFR.T.dgn

DESIGNED BY: A. DUTTA DATE: AUG 2023
 DRAWN BY: R. JOHNSON DATE: AUG 2023
 CHECKED BY: B. LOFLIN DATE: AUG 2023
 DESIGN ENGINEER OF RECORD: B. LOFLIN DATE: SEP 2023



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|----------------------------------|-----|-------|-----|-----|-------|
| STATE OF NORTH CAROLINA | | | | | |
| DEPARTMENT OF TRANSPORTATION | | | | | |
| RALEIGH | | | | | |
| STANDARD | | | | | |
| LRFR SUMMARY FOR STEEL STRINGERS | | | | | |
| (NON-INTERSTATE TRAFFIC) | | | | | |
| REVISIONS | | | | | |
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |
| SHEET NO. S-7 | | | | | |
| TOTAL SHEETS 21 | | | | | |

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED