



LRFR BRIDGE LOAD RATING SUMMARY

Version 1.0

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| SECTION 1 - GENERAL BRIDGE DATA | | | | | |
|---|------------------------------------|----------------------------------|---------------------------------------|---|---|
| (8) Asset ID 04367 | | Route Type Interstate | | (27) Year Built 1964 | (90) Date of Inspection 11/2019 |
| (9) Bridge Location 2 MI SE OF SEVEN OAKS | | (7) Facility Carried I-20 | | (6) Feature Intersected/Route Crossing STOOP CREEK | |
| (49) Length 34 ft. | (11) Milepost 62.880 | (2) District 1 | (3) County LEXINGTON | (22) Owner SCDOT | (418) Conditions During Rating (NBI Item 58, NBI Item 59, NBI Item 60) 7 |
| (43, 44, 45, & 46) Bridge Description 3 Span RCCulvert | | | (31) Design Load H-20 | (108) Existing Wearing Surface Type & Depth NOT APPLICABLE | |
| Rating Program & Version BrR 6.8.4 - AASHTO Engine | | Rating Program & Version N/A | | Rating Method LRFR | AASHTO Reference MBE 3rd Edition, w/ 2019 Interims |
| (58) Deck N N/A (NBI) | (59) Superstructure N N/A (NBI) | (60) Substructure N N/A (NBI) | (62) Culvert 7 Minor Deterioration | (113) Scour Critical 8 Stable Above Footing | |

| SECTION 2 - INVENTORY AND OPERATING LOAD RATINGS | | | | | |
|--|--------------|--------------------|----------------------|-------------------------|---------------|
| Rating Vehicle | Rating Level | Controlling Member | Controlling Location | Controlling Limit State | Rating Factor |
| HL-93 Truck + Lane | Inventory | Top Slab 2 | 1.2 | Flexure | 3.081 |
| HL-93 Truck Train + Lane (90%) | Inventory | - | - | - | - |
| HL-93 Tandem + Lane | Inventory | Top Slab 2 | 1.2 | Flexure | 3.471 |
| HL-93 Truck + Lane | Operating | Top Slab 2 | 1.2 | Flexure | 3.994 |
| HL-93 Truck Train + Lane (90%) | Operating | - | - | - | - |
| HL-93 Tandem + Lane | Operating | Top Slab 2 | 1.2 | Flexure | 4.500 |

| This LRFR Load Rating is based on: | | |
|--|--|--|
| <input checked="" type="checkbox"/> Design Plans | <input type="checkbox"/> Design Plans & Approved Shop Drawings | <input type="checkbox"/> Other (Please explain in Remarks) |
| <input type="checkbox"/> As-Built Plans | | |
| SECTION 3 - BRIDGE LOAD RATING SUMMARY | | |
| Controlling Legal Truck | Load Posting Required? If Yes, complete Signing/Posting Form. | Controlling Legal Load Rating Factor |
| EV3 | No | 3.871 |

| SECTION 4 - REMARKS & SIGN/SEAL | | |
|---|---|--|
| Load Rating Engineer | Quality Control Engineer | <input type="checkbox"/> Structure is part of QA sample set. Quality Assurance Engineer |
| Name: Salome Uwizerimana | Name: T. Brian Query | Name: |
| Company/Title: STV Inc./ Engineering Specialist | Company/Title: STV Inc./Project Manager | Company/Title: |
| Date: 2/19/2020 | Date: 3/11/2020 | Date: |
| Remarks: 1. As -let plans 32.443 were used for the rating. 2. Condition factor of 1.00 was used based on inspection report dated 11/2019. 3. Fill depth of 10' per inspection report dated 11/2019. 4. Due to limitations in the AASHTO BrR program for entering rebar that is bent along its length, rebar "A" was broken into segments and placed on the corresponding face of the top and bottom slab. Lengths given were the true horizontal length plus the horizontal portion of the slanted length. The slanted length was assumed to be sufficient to develop the reinforcement member, and the rating model was modeled accordingly. 5. Based on the November 2019 Inspection report, there is no measurable deterioration to warrant a deteriorated structure model in BrR. | | |

| The ADTT value listed below is to be used to establish Legal and Permit γ_{LL} factors. | | | | | | | |
|--|-------------------|-------------------------|-----------------------------------|----------------------|-------------------------|---------------|---------------|
| SECTION 5A - LEGAL & PERMIT RATINGS - AASHTO Legal Trucks | | | | | | | |
| (30) ADT Year 2017 | (29) ADT 83700 | (109) Truck % ADT 12 | ADTT (ADT x Truck % ADT) 10044 | | | | |
| Rating Vehicle | Rating Level | Weight (Tons) | Controlling Member | Controlling Location | Controlling Limit State | Rating Factor | Rating (Tons) |
| Modified AASHTO SC - Type 3 | Legal | 25 | Top Slab 2 | 1.2 | Flexure | 4.377 | 109 |
| Modified AASHTO SC - Type 3S2 | Legal | 36.6 | Top Slab 2 | 1.2 | Flexure | 4.297 | 157 |
| AASHTO - Type 3-3 | Legal | 40 | Top Slab 2 | 1.2 | Flexure | 5.211 | 208 |
| Lane Type Loading (Neg. M only) | Legal | 40 | - | - | - | - | N/A |
| Lane Type Loading (Span > 200 ft) | Legal | 40 | - | - | - | - | N/A |
| Modified AASHTO SC - Type 3 | Permit | 25 | Top Slab 2 | 1.2 | Flexure | 6.253 | 156 |
| Modified AASHTO SC - Type 3S2 | Permit | 36.6 | Top Slab 2 | 1.2 | Flexure | 6.139 | 224 |
| AASHTO - Type 3-3 | Permit | 40 | Top Slab 2 | 1.2 | Flexure | 7.444 | 297 |
| Lane Type Loading (Neg. M only) | Permit | 40 | - | - | - | - | N/A |
| Lane Type Loading (Span > 200 ft) | Permit | 40 | - | - | - | - | N/A |



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| (8) Asset ID 04367 | | Route Type Interstate | | (27) Year Built 1964 | | (90) Date of Inspection 11/2019 | | (411) Date Rated 3/13/2020 | |
| (9) Bridge Location 2 MI SE OF SEVEN OAKS | | | (7) Facility Carried I-20 | | | (6) Feature Intersected/Route Crossing STOOP CREEK | | | |
| (49) Length 34 ft. | (11) Milepost 62.880 | (2) District 1 | (3) County LEXINGTON | | (22) Owner SCDOT | (418) Conditions During Rating (NBI Item 58, NBI Item 59, NBI Item 60) 7 | | | |
| (43, 44, 45, & 46) Bridge Description 3 Span RCCulvert | | | | (31) Design Load H-20 | | (108) Existing Wearing Surface Type & Depth NOT APPLICABLE | | | |
| Rating Program & Version BrR 6.8.4 - AASHTO Engine | | | Rating Program & Version N/A | | | Rating Method LRFR | | AASHTO Reference MBE 3rd Edition, w/ 2019 Interims | |
| (58) Deck N N/A (NBI) | | (59) Superstructure N N/A (NBI) | | (60) Substructure N N/A (NBI) | | (62) Culvert 7 Minor Deterioration | | (113) Scour Critical 8 Stable Above Footing | |

| SECTION 5B - LEGAL RATINGS - SC Specialized Hauling Vehicles (SHV) - Legal on Non-Interstate Only (Permit on Interstate) | | | | | | | |
|--|--------------|---------------|--------------------|----------------------|-------------------------|---------------|---------------|
| Rating Vehicle | Rating Level | Weight (Tons) | Controlling Member | Controlling Location | Controlling Limit State | Rating Factor | Rating (Tons) |
| SC-SHV1A | Legal | 32.5 | Top Slab 2 | 1.2 | Flexure | 3.674 | 119 |
| SC-SHV1B | Legal | 35 | Top Slab 2 | 1.2 | Flexure | 3.412 | 119 |
| SC-SHV2A | Legal | 33 | Top Slab 2 | 1.2 | Flexure | 3.875 | 127 |
| SC-SHV2B | Legal | 40 | Top Slab 2 | 1.2 | Flexure | 3.197 | 127 |
| SC-SHV3A | Legal | 42.5 | Top Slab 2 | 1.2 | Flexure | 3.884 | 165 |
| SC-SHV3B | Legal | 45 | Top Slab 2 | 1.2 | Flexure | 3.682 | 165 |

| SECTION 5C - LEGAL RATINGS - Two Miscellaneous SHV & AASHTO SHV | | | | | | | |
|---|--------------|---------------|--------------------|----------------------|-------------------------|---------------|---------------|
| Rating Vehicle | Rating Level | Weight (Tons) | Controlling Member | Controlling Location | Controlling Limit State | Rating Factor | Rating (Tons) |
| SC Representative School Bus | Legal | 17.525 | Top Slab 2 | 1.2 | Flexure | 5.103 | 89 |
| SC-SU2 | Legal | 20 | Top Slab 2 | 1.2 | Flexure | 5.198 | 103 |
| SU4 | Legal | 27 | Top Slab 2 | 1.2 | Flexure | 4.736 | 127 |
| SU5 | Legal | 31 | Top Slab 2 | 1.2 | Flexure | 4.649 | 144 |
| SU6 | Legal | 34.75 | Top Slab 2 | 1.2 | Flexure | 4.630 | 160 |
| SU7 | Legal | 38.75 | Top Slab 2 | 1.2 | Flexure | 4.586 | 177 |

| SECTION 5D - LEGAL RATINGS - Emergency Vehicles (EV) | | | | | | | |
|--|--------------|---------------|--------------------|----------------------|-------------------------|---------------|---------------|
| Rating Vehicle | Rating Level | Weight (Tons) | Controlling Member | Controlling Location | Controlling Limit State | Rating Factor | Rating (Tons) |
| EV2 | Legal | 28.75 | Top Slab 2 | 1.2 | Flexure | 5.273 | 151 |
| EV3 | Legal | 43 | Top Slab 2 | 1.2 | Flexure | 3.871 | 166 |

| SECTION 6 - PERMIT RATINGS - Specialized Hauling Vehicles (SHV), Standard Permit Vehicles & Typical Cranes | | | | | | | |
|--|--------------|---------------|--------------------|----------------------|-------------------------|---------------|---------------|
| Rating Vehicle | Rating Level | Weight (Tons) | Controlling Member | Controlling Location | Controlling Limit State | Rating Factor | Rating (Tons) |
| SC-SHV1A | Permit | 32.5 | Top Slab 2 | 1.2 | Flexure | 5.249 | 170 |
| SC-SHV1B | Permit | 35 | Top Slab 2 | 1.2 | Flexure | 4.874 | 170 |
| SC-SHV2A | Permit | 33 | Top Slab 2 | 1.2 | Flexure | 5.535 | 182 |
| SC-SHV2B | Permit | 40 | Top Slab 2 | 1.2 | Flexure | 4.567 | 182 |
| SC-SHV3A | Permit | 42.5 | Top Slab 2 | 1.2 | Flexure | 5.549 | 235 |
| SC-SHV3B | Permit | 45 | Top Slab 2 | 1.2 | Flexure | 5.261 | 236 |
| SC Representative School Bus | Permit | 17.525 | Top Slab 2 | 1.2 | Flexure | 7.290 | 127 |
| SC-SU2 | Permit | 20 | Top Slab 2 | 1.2 | Flexure | 7.425 | 148 |
| SU4 | Permit | 27 | Top Slab 2 | 1.2 | Flexure | 6.765 | 182 |
| SU5 | Permit | 31 | Top Slab 2 | 1.2 | Flexure | 6.641 | 205 |
| SU6 | Permit | 34.75 | Top Slab 2 | 1.2 | Flexure | 6.614 | 229 |
| SU7 | Permit | 38.75 | Top Slab 2 | 1.2 | Flexure | 6.551 | 253 |
| SC - 100k | Permit | 50 | Top Slab 2 | 1.2 | Flexure | 5.047 | 252 |
| SC - 120k | Permit | 60 | Top Slab 2 | 1.2 | Flexure | 4.341 | 260 |
| SC - 130k | Permit | 65 | Top Slab 2 | 1.2 | Flexure | 4.330 | 281 |
| SC Crane #544726 | Permit | 80 | Top Slab 2 | 1.2 | Flexure | 4.295 | 343 |
| SC Crane #527568 | Permit | 88.85 | Top Slab 2 | 1.2 | Flexure | 4.464 | 396 |

Remarks: