

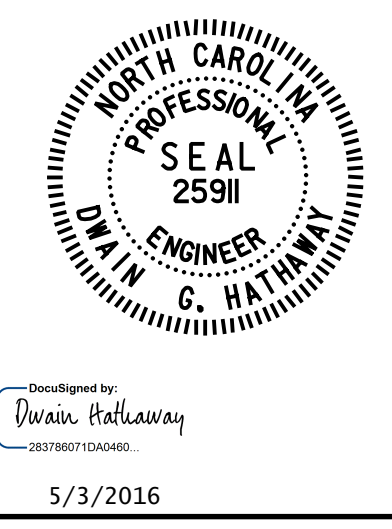
# STRUCTURAL STEEL NOTES

1. SPECIFICATIONS: AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (A.R.E.M.A.) MANUAL FOR RAILWAY ENGINEERING, 2014 EDITION.  
 CURRENT CSX TRANSPORTATION CRITERIA FOR OPEN DECK RAILROAD BRIDGES.  
 CURRENT NORFOLK SOUTHERN RAILWAY GUIDELINES FOR DESIGN OF GRADE SEPARATION STRUCTURES.
2. LIVE LOADS: COOPER E-80 WITHOUT HAMMER BLOW WITH FULL DESIGN IMPACT AS PER A.R.E.M.A.
3. STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH CSX TRANSPORTATION "SPECIFICATIONS FOR STRUCTURAL STEEL".
4. STRUCTURAL STEEL: ALL STRUCTURAL STEEL FOR FRACTURE CRITICAL MEMBERS (FCM) SHALL BE ASTM A709, GRADE 50F2, Fy = 50,000 PSI. NON-FRACTURE CRITICAL MEMBERS SHALL BE ASTM A709, GRADE 50T2. BEARING ASSEMBLIES SHALL BE ASTM A709 GRADE 50T2. ALL STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF THE PROJECT SPECIAL PROVISION FOR STRUCTURAL STEEL FOR RAILROAD BRIDGES AND THE FOLLOWING REQUIREMENTS:
  1. THE MATERIAL SUPPLIED SHALL BE OTHER THAN RIMMED OR CAPPED STEEL.
  2. THE MATERIAL SUPPLIED SHALL BE SILCON-KILLED, FINE GRAIN PRACTICE.
  3. CERTAIN ELEMENTS OF THE STRUCTURE ARE NOTED AS "FRACTURE CRITICAL MEMBERS" (FCM) AND SHALL MEET THE REQUIREMENTS FOR "FRACTURE CONTROL PLAN FOR FRACTURE CRITICAL MEMBERS" OF SECTION 1.14, CHAPTER 15 OF THE A.R.E.M.A. MANUAL. THE IMPACT REQUIREMENTS FOR FRACTURE CRITICAL MEMBERS SHALL BE REQUIRED FOR ZONE 2 SERVICE TEMPERATURE. TEST RESULTS SHALL BE FURNISHED TO THE ENGINEER AND RAILROAD FOR THEIR USE.
  4. ANCHOR BOLTS FOR BEARING DEVICES SHALL CONFORM TO ASTM F1554 GRADE 55. ANCHOR BOLTS, NUT, AND PLATE WASHERS SHALL BE MECHANICALLY GALVANIZED IN ACCORDANCE WITH AASHTO M298.
5. ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL UNLESS OTHERWISE NOTED.
6. STRUCTURAL STEEL SHALL BE PAINTED IN ACCORDANCE WITH CSX TRANSPORTATION "SPECIFICATIONS FOR PAINTING STRUCTURAL STEEL".
7. BEARING STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.
8. FABRICATION: THE FABRICATOR SHALL BE CERTIFIED IN THE SIMPLE SPAN STEEL BRIDGE CATEGORY, UNDER THE AISC QUALITY CERTIFICATION PROGRAM.
9. FABRICATION OF ALL STEEL MEMBERS SHALL BE ACCORDING TO THE A.R.E.M.A. MANUAL FOR RAILWAY ENGINEERING, CHAPTER 15, PART 3 - FABRICATION.
10. MILL TEST REPORTS: CSX TRANSPORTATION AND NORFOLK SOUTHERN RAILWAY SHALL BE FURNISHED COPIES OF MILL TEST REPORTS FOR ALL MATERIALS EXCEPT MISCELLANEOUS PLATES AND SHAPES. REPORTS SHALL INDICATE COMPLIANCE WITH ALL SPECIFIED REQUIREMENTS.
11. INSPECTION: SHOP INSPECTION BY CSX TRANSPORTATION OR ITS AUTHORIZED AGENT.
12. SHOP DRAWINGS: SHOP DRAWINGS SHALL BE APPROVED BY THE CHIEF-ENGINEER BRIDGES, CSX TRANSPORTATION, JACKSONVILLE, FL.
13. HOLES: OPEN HOLES AS NOTED.
14. BOLTED CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER, ASTM A325, TYPE 1 HIGH STRENGTH BOLTS WITH HARDENED WASHERS IN ACCORDANCE WITH A.R.E.M.A. SPECIFICATIONS USING THE TURN OF THE NUT METHOD. DIRECT TENSION INDICATORS SHALL NOT BE USED.
15. HIGH STRENGTH BOLTS, NUTS & WASHERS: ASTM DESIGNATION A325. ALL HIGH STRENGTH BOLTS, NUTS & WASHERS SHALL BE MECHANICALLY GALVANIZED. HOT-DIPPED GALVANIZED BOLTS WILL NOT BE ALLOWED.
16. ANCHOR BOLTS: SHALL BE 1 1/4" Ø IN ACCORDANCE WITH A.R.E.M.A. SPECIFICATIONS AND SHALL BE GROUTED IN FORMED HOLES AFTER GIRDERS ARE ERECTED.
17. BEARING PADS SHALL BE USED WHENEVER STEEL MASONRY PLATE, OR OTHER STEEL BEARING PLATE, BEARS ON CONCRETE. PADS SHALL BE PREFORMED FABRIC BEARING PADS, 1/2" THICK, 31 PLY. PREFORMED FABRIC BEARING PADS SHALL BE SHOCK PAD (MIL-C-882C SPECIFICATIONS) STYLE NO. 15175 AS MANUFACTURED BY ALERT MANUFACTURING AND SUPPLY COMPANY, CHICAGO, ILLINOIS, OR FABREEKA PADS AS MANUFACTURED BY FABREEKA PRODUCTS COMPANY, BOSTON, MASSACHUSETTS, OR SORBTEX PADS AS MANUFACTURED BY VOSS ENGINEERING, INC., CHICAGO, ILLINOIS, OR APPROVED EQUAL.
18. NO CAMBER FOR GIRDERS REQUIRED, TURN NATURAL MILL CAMBER UP.

PROJECT NO. U-3308  
DURHAM COUNTY  
 STATION: 24+55.20 -LALT-  
13+22.18 -CSXN-

cmayhew 5/3/2016 9:37:05 AM  
 File Name: Y:\Projects\NCDOT\U-3308\Structures\Drawings\Final\404\_015\_U3308\_SML\_SSN.dgn

DRAWN BY : C. E. MAYHEW DATE : 3-13-13  
 CHECKED BY : S. A. DENNEY DATE : 2-26-14



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 STRUCTURAL STEEL  
 NOTES

|                                    |  |  |  |  |  |  |  |
|------------------------------------|--|--|--|--|--|--|--|
| <b>Michael Baker INTERNATIONAL</b> |  | Michael Baker Engineering<br>8000 Regency Parkway, Suite 600<br>Cary, North Carolina 27618<br>NC License No.: F-1084 |  | REVISIONS<br>NO. BY: DATE: NO. BY: DATE: |  |  | SHEET NO.<br>S4-15<br>TOTAL SHEETS<br>68 |
| 1                                  |  |  |  | 3  |  |  |  |
| 2                                  |  |  |  | 4  |  |  |  |