

Project Special Provisions  
Norfolk Southern Specification

## PROTECTION OF RAILWAY INTEREST

### 1. AUTHORITY OF RAILROAD ENGINEER AND DEPARTMENT ENGINEER:

The authorized representative of the Railroad Company, hereinafter referred to as Railroad Engineer, shall have final authority in all matters affecting the safe maintenance of Railroad traffic of Railroad Company including the adequacy of the foundations and structures supporting the Railroad tracks.

The authorized representative of the Department, hereinafter referred to as the Engineer, shall have authority over all other matters as prescribed herein and in the Project Specifications.

### 2. NOTICE OF STARTING WORK:

- A. The contractor shall not commence any work on railroad rights-of-way until the contractor has complied with the following conditions:
- a. Given the Railroad written notice, with copy to the Engineer who has been designated to be in charge of the work, at least ten days in advance of the date the contractor proposes to begin work on Railroad rights-of-way.  
Notice to be given to:  
  
Office of Chief Engineer  
Bridges & Structures  
Norfolk Southern Corporation  
99 Spring Street, SW  
Atlanta, Georgia 30303
  - b. Obtained written authorization from the Railroad to begin work on Railroad rights-of-way, such authorization to include an outline of specific conditions with which the contractor must comply.
  - c. Obtained written approval from the Railroad of Railroad Protective Insurance Liability coverage as required by paragraph 14 herein.
  - d. Furnished a schedule for all work within the Railroad rights-of-way as required by paragraph 7,B.1.
- B. The Railroad's written authorization to proceed with the work shall include the names, addresses, and telephone numbers of the Railroad's representatives who are to be notified as hereinafter required. Where more than one representative is designated, the area of responsibility of each representative shall be specified.

3. INTERFERENCE WITH RAILROAD OPERATIONS:

- A. The Contractor shall so arrange and conduct the work that there will be no interference with Railroad operations, including train, signal, telephone and telegraphic services, or damage to the property of the Railroad Company or to poles, wires, and other facilities of tenants on the rights-of-way of the Railroad Company. Whenever work is liable to affect the operations or safety of trains, the method of doing such work shall first be submitted to the Railroad Engineer for approval, but such approval shall not relieve the Contractor from liability. Any work to be performed by the Contractor that requires flagging service or inspection service shall be deferred by the Contractor until the flagging service or inspection service required by the Railroad is available at the job site.
- B. Whenever work within Railroad rights-of-way is of such a nature that impediment to Railroad operations such as use of runaround tracks or necessity for reduced speed is unavoidable, the Contractor shall schedule and conduct construction operations so that such impediment is reduced to the absolute minimum.
- C. Should conditions arising from, or in connection with the work, require that immediate and unusual provisions be made to protect operations and property of the Railroad, the Contractor shall make such provisions. If in the judgment of the Railroad Engineer, or in the Railroad Engineer's absence, the Engineer, determine such provisions are insufficient, either may require or provide such provisions as deemed necessary. In any event, such unusual provisions shall be at the Contractor's expense and without cost to the Railroad or the Department.

4. TRACK CLEARANCES:

- A. The minimum track clearances to be maintained by the Contractor are shown on the Project Plans. However, before undertaking any work within Railroad right-of-way, or before placing any obstruction over any track, the Contractor shall:
  - 1. Notify the Railroad's representative at least 72 hours in advance of the work.
  - 2. Receive assurance from the Railroad's representative that arrangements have been made for flagging service as may be necessary.
  - 3. Receive permission from the Railroad's representative to proceed with the work.
  - 4. Ascertain that the Engineer has received copies of notice to the Railroad and of the Railroad's response thereto.

5. CONSTRUCTION PROCEDURES:

A. General:

Construction work and operations by the Contractor on Railroad property shall be:

1. Subject to the inspection and approval of the Railroad.
2. In accord with all of the Railroad's written specific conditions.
3. In accord with the Railroad's general rules, regulations and requirements including those relating to safety, fall protection and personal protective equipment.
4. In accord with these Special Provisions.

B. Excavation:

The subgrade of an operated track shall be maintained with edge of beam at least 14'-0" from centerline of track and not more than 24-inches below top of rail. Contractor will not be required to make existing section meet this specification if substandard, in which case existing section will be maintained.

C. Excavation for Structures:

The Contractor will be required to take special precaution and care in connection with excavating and shoring pits, and in driving piles or sheeting for footings adjacent to tracks to provide adequate lateral support for the tracks and the loads which they carry, without disturbance of track alignment and surface, and to avoid obstructing track clearances with working equipment, tools or other material. All plans and calculations for shoring shall be prepared and signed by a Registered Professional Engineer. The Registered Professional Engineer will be responsible for the accuracy for all controlling dimensions as well as the selection of soil design values that accurately reflect the actual field conditions. The procedure for doing such work, including the need of and plans and calculations for shoring, shall first be approved by the Engineer and the Railroad Engineer, but such approval shall not relieve the Contractor from liability

D. Demolition, Erection, Hoisting

1. Railroad tracks and other railroad property must be protected from damage during the procedure.
2. The Contractor is required to submit a plan showing the location of cranes, horizontally and vertically, operating radii, with delivery or disposal

locations shown. The location of all tracks and other railroad facilities as well as all obstructions such as wire lines, poles, adjacent structures, etc. must also be shown.

3. Crane rating sheets showing cranes to be adequate for 150% of the actual weight of the pick. A complete set of crane charts, including crane, counterweight, and boom nomenclature is to be submitted.
4. Plans and computations showing the weight of the pick must be submitted. Calculations shall be made from plans of the existing and/or proposed structure showing complete and sufficient details with supporting data for the demolition or erection of the structure. If plans do not exist, lifting weights must be calculated from field measurements. The field measurements are to be made under the supervision of the Registered Professional Engineer submitting the procedure and calculations.
5. A data sheet must be submitted listing the types, size, and arrangements of all rigging and connection equipment.
6. A complete procedure is to be submitted, including the order of lifts, time required for each lift, and any repositioning or re-hitching of the crane or cranes.
7. All erection or demolition plans, procedures, data sheets, etc. submitted must be prepared, signed and sealed by a Registered Professional Engineer.
8. The Railroad's representative must be present at the site during the entire demolition and erection procedure period.
9. All procedures, plans and calculations shall first be approved by the Engineer and the Railroad Engineer, but such approval does not relieve the Contractor from liability.

E. Blasting:

1. The Contractor shall obtain advance approval of the Railroad Engineer and the Engineer for use of explosives on or adjacent to Railroad property. The request for permission to use explosives shall include a detailed blasting plan. If permission for use of explosives is granted, the Contractor will be required to comply with the following:
  - (a) Blasting shall be done with light charges under the direct supervision of a responsible officer or employee of the Contractor and a licensed blaster.

- (b) Electric detonating fuses shall not be used because of the possibility of premature explosions resulting from operation of two-way radios.
- (c) No blasting shall be done without the presence of an authorized representative of the Railroad. At least 72 hours advance notice to the person designated in the Railroad's notice of authorization to proceed (see paragraph 2B) will be required to arrange for the presence of an authorized Railroad representative and such flagging as the Railroad may require.
- (d) Have at the job site adequate equipment, labor and materials and allow sufficient time to clean up debris resulting from the blasting without delay to trains, as well as correcting at his expense any track misalignment or other damage to Railroad property resulting from the blasting as directed by the Railway's authorized representative. If his actions result in delay of trains, the Contractor shall bear the entire cost thereof.

2. The Railroad representative will:

- (a) Advise the Contractor of the amount of track time available for the blasting operation and clean up.
- (b) Have the authority to order discontinuance of blasting if, in his opinion, blasting is too hazardous or is not in accord with these special

F. Maintenance of Railroad Facilities:

- 1. The Contractor will be required to maintain all ditches and drainage structures free of silt or other obstructions that may result from construction operations and provide and maintain any erosion control measures as required. The Contractor will promptly repair eroded areas within Railroad rights-of-way and repair any other damage to the property of the Railroad or its tenants.
- 2. All such maintenance and repair of damages due to the Contractor's operations shall be done at the Contractor's expense.

G. Storage of Materials and Equipment:

Materials and equipment shall not be stored where they will interfere with Railroad operations, nor on the rights-of-way of the Railroad Company without first having obtained permission from the Railroad Engineer, and such permission will be with the understanding that the Railroad Company will not be liable for

damage to such material and equipment from any cause and that the Railroad Engineer may move or require the Contractor to move, at the Contractor's expense, such material and equipment.

All grading or construction machinery that is left parked near the track unattended by a watchman shall be effectively immobilized so that it cannot be moved by unauthorized persons. The Contractor shall protect, defend, indemnify and save Railroad, and any associated, controlled or affiliated corporation, harmless from and against all losses, costs, expenses, claim or liability for loss or damage to property or the loss of life or personal injury, arising out of or incident to the Contractor's failure to immobilize grading or construction machinery.

H. Cleanup:

Upon completion of the work, the Contractor shall remove from within the limits of the Railroad rights-of-way, all machinery, equipment, surplus materials, falsework, rubbish or temporary buildings of the Contractor, and leave said rights-of-way in a neat condition satisfactory to the Chief Engineer of the Railroad or his authorized representative.

6. DAMAGES:

- A. The Contractor shall assume all liability for any and all damages to his work, employees, servants, equipment and materials caused by Railroad traffic.
- B. Any cost incurred by the Railroad for repairing damages to its property or to property of its tenants, caused by or resulting from the operations of the Contractor, shall be paid directly to the Railroad by the Contractor.

7. FLAGGING SERVICES:

Any work to be performed by the Contractor requiring flagging service shall be deferred by the Contractor until the flagging protection required by the Railroad is available at the job site. It will take approximately 45 days from the date the railroad receives notification of award from the N. C. Department of Transportation to provide flag protection for this project.

A. When Required:

Under the terms of the agreement between the Department and the Railroad, the Railroad has sole authority to determine the need for flagging required to protect its operations. In general, the requirements of such services will be whenever the Contractor's personnel or equipment are or are likely to be, working on the Railroad's right-of-way, or across, over, adjacent to, or under a track, or when such work has disturbed or is likely to disturb a railroad structure or the railroad roadbed or surface and alignment of any track to such extent that the movement of

trains must be controlled by flagging.

Normally, the Railroad will assign one flagman to a project; but in some cases, more than one may be necessary, such as yard limits where three (3) flagmen may be required. However, if the Contractor works within distances that violate instructions given by the Railroad's authorized representative or performs work that has not been scheduled with the Railroad's authorized representative, a flagman or flagmen may be required full time until the project has been completed.

**B. Scheduling and Notification:**

1. The Contractor's work requiring railroad flagging should be scheduled to limit the presence of a flagman at the site to a maximum of 50 hours per week. The Contractor shall receive Railroad approval of work schedules requiring a flagman's presence in excess of 40 hours per week.
2. Not later than the time that approval is initially requested to begin work on Railroad right-of-way, Contractor shall furnish to the Railroad and the Department a schedule for all work required to complete the portion of the project within Railroad right-of-way and arrange for a job site meeting between the Contractor, the Department, and the Railroad's authorized representative. Flagman or Flagmen may not be provided until the job site meeting has been conducted and the Contractor's work scheduled.
3. The Contractor, through the Engineer, will be required to give the Railroad representative at least 10 working days of advance written notice of intent to begin work within Railroad right-of-way in accordance with this special provision. Once begun, when such work is then suspended at any time, or for any reason, the Contractor, through the Engineer, will be required to give the Railroad representative at least 3 working days of advance notice before resuming work on Railroad right-of-way. Such notices shall include sufficient details of the proposed work to enable the Railroad representative to determine if flagging will be required. If such notice is in writing, the Contractor shall furnish the Engineer a copy; if notice is given verbally, it shall be confirmed in writing with copy to the Engineer. If flagging is required, no work shall be undertaken until the flagman, or flagmen is present at the job site. It may take up to 30 days to obtain flagging initially from the Railroad. When flagging begins, the flagman is usually assigned by the Railroad to work at the project site on a continual basis until no longer needed and cannot be called for on a spot basis. If flagging becomes unnecessary and is suspended, it may take up to 30 days to again obtain from the Railroad. Due to Railroad labor agreements, it is necessary to give 5 working days notice before flagging service may be discontinued and responsibility for payment stopped.

4. If, after the flagman is assigned to the project site, an emergency arises that requires the flagman's presence elsewhere, then the Contractor shall delay work on Railroad right-of-way until such time as the flagman is again available. Any additional costs resulting from such delay shall be borne by the Contractor and not the Department or Railroad.

C. Payment:

1. The Department will be responsible for paying the Railroad directly for any and all costs of flagging which may be required to accomplish the construction.
2. The estimated cost of flagging is \$425 per day based on a 10hour work day. This cost includes the base pay for the flagman, overhead, and includes an estimated \$50 per diem charge for travel expenses, meals and lodging. The charge to the Department by the Railroad will be the actual cost based on the rate of pay for the Railroad's employees who are available for flagging service at the time the service is required.
3. Work by a flagman in excess of 8 hours per day or 40 hours per week, but not more than 12 hours a day will result in overtime pay at 1 and 1/2 times the appropriate rate. Work by a flagman in excess of 12 hours per day will result in overtime at 2 times the appropriate rate. If work is performed on a holiday, the flagging rate is 2 and 1/2 times the normal rate.
4. Railroad work involved in preparing and handling bills will also be charged to the Department. Charges to the Department by the Railroad shall be in accordance with applicable provisions of Subchapter B, Part 140, Subpart I and Subchapter G, Part 646, Subpart B of the Federal-Aid Policy Guide issued by the Federal Highway Administration on December 9, 1991, including all current amendments. Flagging costs are subject to change. The above estimates of flagging costs are provided for information only and are not binding in any way.

D. Verification:

1. The Railroad flagman assigned to the project will notify or make an attempt to notify the Engineer upon arrival at the job site on the first day (or as soon thereafter as possible) that flagging services begin and on the last day that he performs such services for each separate period that services are provided. The Engineer will document such notification in the project records. The Engineer will also sign the flagman's diary showing daily time spent and activity at the project site, when requested.

8. HAUL ACROSS RAILROAD:

- A. Where the plans show or imply that materials of any nature must be hauled across the Railroad, unless the plans clearly show that the Department has included arrangements for such haul in its agreement with the Railroad, the Contractor will be required to make all necessary arrangements with the Railroad regarding means of transporting such materials across the Railroad. The Contractor will be required to bear all costs incidental to such crossings whether services are performed by the contractor's own forces or by Railroad personnel.
- B. No crossing, including those arranged for by the Department, may be established for use of the Contractor for transporting materials or equipment across the track or tracks of the Railroad unless specific authority for its installation, maintenance, necessary watching and flagging thereof and removal has been obtained, and until a private crossing agreement has been executed between the Contractor and Railroad.

9. WORK FOR THE BENEFIT OF THE CONTRACTOR:

- A. All temporary or permanent changes in wire lines or other facilities which are considered necessary to the project are shown on the plans; included in the force account agreement between the Department and the Railroad or will be covered by appropriate revisions to same which will be initiated and approved by the Department and/or the Railroad.
- B. Should the Contractor desire any changes in addition to the above, then the Contractor shall make separate arrangements with the Railroad for same to be accomplished at the Contractor's expense.

10. COOPERATION AND DELAYS:

- A. It shall be the Contractor's responsibility to arrange a schedule with the Railroad for accomplishing stage construction involving work by the Railroad or tenants of the Railroad. In arranging the schedule the contractor shall ascertain, from the Railroad, the lead tie required for assembling crews and materials and shall make due allowance therefore.
- B. No charge or claim of the Contractor against either the Department or the Railroad Company will be allowed for hindrance or delay on account of railway traffic; any work done by the Railway Company or other delay incident to or necessary for safe maintenance of railway traffic or for any delays due to compliance with these special provisions.

11. TRAINMAN'S WALKWAYS:

Along the outer side of each exterior track of multiple operated track, and on each side of single operated track, an unobstructed continuous space suitable for trainman's use in walking along trains, extending to a line not less than 10 feet from centerline of track,

shall be maintained. Any temporary impediments to walkways and track drainage encroachments or obstructions allowed during work hours while Railway's protective service is provided shall be removed before the close of each work day. If there is any excavation near the walkway, a handrail, with 10'-0" minimum clearance from centerline of track, shall be placed.

12. GUIDELINES FOR PERSONNEL ON RAILROAD RIGHT-OF-WAY:

- A. All persons shall wear hard hats. Appropriate eye and hearing protection must be used. Working in shorts is prohibited. Shirts must cover shoulders, back and abdomen. Working in tennis or jogging shoes, sandals, boots with high heels, cowboy and other slip-on type boots is prohibited. Hard-sole, lace-up footwear, zippered boots or boots cinched up with straps which fit snugly about the ankle are adequate. Safety boots are strongly recommended.
- B. No one is allowed within 25' of the centerline of track without specific authorization from the flagman.
- C. All persons working near track while train is passing are to lookout for dragging bands, chains and protruding or shifted cargo.
- D. No one is allowed to cross tracks without specific authorization from the flagman.
- E. All welders and cutting torches working within 25' of track must stop when train is passing.
- F. No steel tape or chain will be allowed to cross or touch rails without permission.

13. GUIDELINES EQUIPMENT ON RAILROAD RIGHT-OF-WAY:

- A. No crane or boom equipment will be allowed to set up to work or park within boom distance plus 15' of centerline of track without specific permission from railroad official and flagman.
- B. No crane or boom equipment will be allowed to foul track or lift a load over the track without flag protection and track time.
- C. All employees will stay with their machines when crane or boom equipment is pointed toward track.
- D. All cranes and boom equipment under load will stop work while train is passing (including pile driving).
- E. Swinging loads must be secured to prevent movement while train is passing.

- F. No loads will be suspended above a moving train.
- G. No equipment will be allowed within 25' of centerline of track without specific authorization of the flagman.
- H. Trucks, tractors or any equipment will not touch ballast line without specific permission from railroad official and flagman.
- I. No equipment or load movement within 25' or above a standing train or railroad equipment without specific authorization of the flagman.
- J. All operating equipment within 25' of track must halt operations when a train is passing. All other operating equipment may be halted by the flagman if the flagman views the operation to be dangerous to the passing train.
- K. All equipment, loads and cables are prohibited from touching rails.
- L. While clearing and grubbing, no vegetation will be removed from railroad embankment with heavy equipment without specific permission from the Railroad Engineer and flagman.
- M. No equipment or materials will be parked or stored on Railroad's property unless specific authorization is granted from the Railroad Engineer.
- N. All unattended equipment that is left parked on Railroad property shall be effectively immobilized so that it cannot be moved by unauthorized persons.
- O. All cranes and boom equipment will be turned away from track after each work day or whenever unattended by an operator.

14. INSURANCE:

- A. In addition to any other forms of insurance or bonds required under the terms of the contract and specifications, the Prime Contractor will be required to carry insurance of the following kinds and amounts:
  1. Commercial General Liability Insurance having a combined single limit of not less than \$2,000,000 per occurrence for all loss, damage, cost and expense, including attorneys' fees, arising out of bodily injury liability and property damage liability during the policy period. Said policy shall include "explosion, collapse, and underground hazard" ("XCU") coverage, shall be endorsed to name Railroad specified in item A.2 below as an additional insured, and shall include a severability of interests provision.
  2. Railroad Protective Liability Insurance having a combined single limit of not less than \$2,000,000 each occurrence and \$6,000,000 in the aggregate

applying separately to each annual period. If the project involves track over which passenger trains operate, the insurance limits required are not less than a combined single limit of \$5,000,000 each occurrence and \$10,000,000 in the aggregate applying separately to each annual period. Said policy shall provide coverage for all loss, damage or expense arising from bodily injury and property damage liability, and physical damage to property attributed to acts or omissions at the job site. The standards for the Railroad Protective Liability Insurance are as follows: The insurer must be rated A- or better by A.M. Best Company, Inc. The policy must be written using one of the following combinations of Insurance Services Office ("ISO") Railroad Protective Liability Insurance Form Numbers: CG 00 35 01 96 and CG 28 31 10 93; or CG 00 35 07 98 and CG 28 31 07 98.

The named insured shall read:

[Name of railroad that owns the track]; and  
Norfolk Southern Railway Company  
Three Commercial Place  
Norfolk, Virginia 23510-2191  
Attn: D. W. Fries, Director Risk Management

The description of operations must appear on the Declarations, must match the project description in this agreement, and must include the appropriate Department project and contract identification numbers.

The job location must appear on the Declarations and must include the city, state and appropriate highway name/number. The name and address of the prime contractor must appear on the Declarations.

The name and address of the Department must be identified on the Declarations as the "Involved Governmental Authority or Other Contracting Party."

Other endorsements/forms that will be accepted are: Broad Form Nuclear Exclusion – Form IL 00 21 30-day Advance Notice of Non-renewal or cancellation Required State Cancellation Endorsement Quick Reference or Index Form CL/IL 240

Endorsements/forms that are NOT acceptable are: Any Pollution Exclusion Endorsement except CG 28 31 Any Punitive or Exemplary Damages Exclusion Known injury or Damage Exclusion form CG 00 59 Any Common Policy Conditions form Any other endorsement/form not specifically authorized in item no. 2.h above.

- B. If any part of the work is sublet, similar insurance, and evidence thereof as specified in A.1 above, shall be provided by or on behalf of the subcontractor to cover its operations on Railroad's right of way.

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- C. Prior to entry on Railroad right-of-way, the original Railroad Protective Liability Insurance Policy shall be submitted by the Prime Contractor to the Department at the address below for its review and transmittal to the Railroad. In addition, certificates of insurance evidencing the Prime Contractor's and any subcontractors' Commercial General Liability Insurance shall be issued to the Railroad and the Department at the addresses below, and forwarded to the Department for its review and transmittal to the Railroad. The certificates of insurance shall state that the insurance coverage will not be suspended, voided, canceled, or reduced in coverage or limits without (30) days advance written notice to Railroad and the Department. No work will be permitted by Railroad on its right-of-way until it has reviewed and approved the evidence of insurance required herein.

DEPARTMENT:  
Division of Highways  
Dept. of Transportation  
c/o State Railroad Agent  
Corporation  
1555 Mail Service Center  
Raleigh, NC 27699-1555

RAILROAD:  
Mr. D. W. Fries, ARM  
Risk Manager  
Norfolk Southern  
  
Three Commercial Place  
Norfolk, VA 23510-2191

15. FAILURE TO COMPLY:

In the event the Contractor violates or fails to comply with any of the requirements of these Special Provisions:

- A. The Railroad Engineer may require that the Contractor vacate Railroad property.
- B. The Engineer may withhold all monies due the Contractor on monthly statements. Any such orders shall remain in effect until the Contractor has remedied the situation to the satisfaction of the Railroad Engineer and the Engineer.

16. PAYMENT FOR COST OF COMPLIANCE:

No separate payment will be made for any extra cost incurred on account of compliance with these special provisions. All such costs shall be included in prices bid for other items of the work as specified in the payment items.

Office of Chief Engineer  
Bridges & Structures  
Norfolk Southern Corporation  
Atlanta, GA 30303

**Train Data:**

Number of Trains - 40  
Number of Tracks - 2  
Speed - 79 mph  
Type - Passenger/Freight

## Project Special Provisions

Norfolk Southern Specification

# STRUCTURAL STEEL

### I. STRUCTURAL STEEL

#### A. Scope

These specifications shall cover the furnishing, fabrication, preparation, assembly, welding, painting, and erection of all structural steel shown on the plans.

#### B. General Specifications

Except as otherwise specified hereinafter, the current AREMA Specification, Chapter 15, Steel Structures, apply to all work.

#### C. Structural Steel

##### 1. Fracture Critical Members

- a. All fracture critical members are identified on the plans.
- b. All fracture critical members will be fabricated in accordance with the Fracture Control Plan stated in the AREMA Specifications, Chapter 15, Section 1.14.
- c. Fabricator shall be certified under the AISC Quality Certification Program as follows:
  - Welded Plate Girders, Category III
  - Rolled Beam Bridges, Category I.
- d. Structural Steel shall meet the current requirements of the A.S.T.M. Specifications for Structural Steel, Designation A-709, Grade 50, (345) S84-F2, S91, S93.

S84-F2	(Fracture Critical - Charpy Test Zone 2)
S91	(Fine Austenitic Grain Size)
S93	(Limitation on Weld Repairs)

Except as noted in the AREMA Fracture Control Plans.

##### 2. Non-Fracture Critical Members

- a. All primary members or components requiring improved notch toughness are identified on the plans.
- b. Fabricator shall be certified under the AISC Quality Certification Program as follows:

Welded Plate Girders	Category III
Rolled Beam Bridges	Category I

- c. Structural steel shapes and plates used as primary members or components shall meet the current requirements of the A.S.T.M. Specifications for Structural Steel, Designation A-709, Grade 50, (345) S83-T2, S91.

S83-T2	(Non-Fracture Critical - Charpy Test Zone 2)
S91	(Fine Austenitic Grain Size)

3. Other Structural Steel

- a. It is preferred that the Fabricator be certified under the AISC Quality Certification Program, Category I.
- b. All structural steel shall meet the current requirements of the Specification for A.S.T.M. A-709, Grade 50, unless specified otherwise in these specifications or on the plans.

D. Other Materials

- 1. High strength bolts shall meet the current requirements of the A.S.T.M. Specifications for High Strength Bolts for Structural Steel Joints, Designation A 325-97.
- 2. Anchor bolts shall be threaded rods with heavy hex nut meeting the current requirements of ASTM specification for fasteners, Designation A-307-97.
- 3. Welding electrodes for arc welding shall meet the current requirements of the Specifications for mild steel arc-welding electrodes Series E70, AWS 5.1, Low Hydrogen Classification for SMAW and AWS 5.17 for SAW.
- 4. Prefomed fabric bearing pads shall be Shock Pad Style No. 15175 as manufactured by Alert Manufacturing and Supply Company, Chicago, Illinois, or FABREEKA Pads as manufactured by Fabreeka Products Company, 1190 Adams Street, Boston, Massachusetts, or SORBTEX Pads as manufactured by Voss Engineering, Inc., Chicago, Illinois, or approved equal.

E. Welding Processes

Only submerged arc welding (SAW) or shielded metal arc welding (SMAW) may be used. No other process will be allowed.

F. Bolted Connections

Permanent bolted connections using High Strength Bolts shall be installed and tightened using the Turn-of-the-Nut Method.

G. Paint

All steel preparation and painting shall be in accordance with Norfolk Southern Corporation Paint Specifications.

H. Shop Drawings

1. The Contractor's attention is called to the requirements for shop drawings, Chapter 15, Article 1.1.2 Shop Drawings, AREMA Specifications.
2. The Contractor shall furnish three (3) complete sets of detailed shop drawings to the Company for approval prior to starting fabrication. Unchecked drawings shall not be submitted for approval. After approval of shop drawings, the Contractor shall supply the Company with one set of reproducible of the approved drawings.
3. The rejection of or the procedure for the correction of shop drawings will not be considered as cause for delay.
4. Approval by the Engineer of the shop drawings shall not relieve the Contractor from furnishing material of proper dimensions, quantity, and quality, nor will such approval relieve the Contractor from the responsibility for errors of any sort in the shop drawings.
5. Original drawings or photographic reproducible on mylar, or equivalent film, shall be furnished at the completion of the Contract in accordance with Chapter 15, Article 1.1.3, AREMA specifications. Reproducible made by the diazo process are not acceptable.

The plans shall be sent to:

Chief Engineer - Bridges & Structures  
Norfolk Southern Corporation  
99 Spring Street, SW  
Atlanta, GA 30303

**I. SHOP INSPECTION & TESTING**

1. The Company may arrange for inspection by an independent inspection firm under a separate contract. This inspection will be in addition to the Fabricator's Quality Control Program.
2. The Fabricator shall notify the Company and its inspector of the scheduled date for beginning fabrication and shall not begin fabrication until the Company's Inspector is present.
3. The Fabricator shall furnish copies of certified mill inspection reports to the Company for all structural steel requiring improved notch toughness.
4. The Fabricator shall meet the requirements of the AREMA Fracture Control Plan described in Chapter 15, Section 1.14 for all members and components designated as fracture critical.
5. Welding inspection shall verify that all welds and welding procedures meet the requirements of the American Welding Society (A.W.S.) Bridge Welding Code, D1.5, dated 2002.
6. All welds shall be inspected visually and by use of nondestructive testing. All nondestructive testing shall be performed by the Fabricator and witnessed by the Company's Inspector.
7. Witnessing of weld inspection shall be done in a timely manner without disruption of normal shop operations. Copies of all weld inspections and nondestructive testing reports shall be furnished to the Company.
8. The Fabricator shall perform the following weld inspection and testing:
  - a. All transverse tension groove welds in FCM members, when allowed by the Engineer, shall be RT and UT tested 100%. In non-FCM components of FCM's all transverse groove welds shall be RT or UT tested 100%.
  - b. All flange to web welds shall be tested on both sides as follows:
    1. Top flange to web welds will be UT tested 100% over 10% of the length from each end and the remaining length of weld will be UT tested 10%.
    2. Bottom flange to web welds will be UT tested 100% .

- c. All flange to web fillet welds, when allowed by the Engineer, are to be magnetic particle tested 100%.
- d. Ten percent (10%) of all welds not mentioned above shall be magnetic particle tested.