STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES. PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

February 9, 2010

Addendum No. 1
RE: Contract ID: C202402
WBS# 38927.3.1
Lenoir County (U-2928B)
Railroad Line from the NCRR to the Global Transpark

February 16, 2010 Letting

To Whom It May Concern:

Reference is made to the plans and proposal form recently furnished to you on this project.

The following revisions have been made to the plans:

Sheet No. RR-31 has been revised to correct type of rail used. Please void Sheet No. RR-31 in your plans and staple the revised Sheet No. RR-31 thereto.

Sheet No. GN-02 has been revised. The sheet descriptions for Sheet Nos. UC-40 through UC-46 have been revised and the reference to Sheet No. UC-47 has been deleted. Please void Sheet No. GN-02 in Volumes 1 and 2 of your plans and staple the revised Sheet No. GN-02 thereto.

Sheet Nos. EC-02A, RD-13, UO-9, and RS-079 have been added. Please insert new sheets EC-02A, RD-13, UO-9, and RS-079 into your plans.

The following revisions have been made to the proposal form:

On Page No. 26, the project special provision entitled "FAA REQUIREMENTS" has been added. Also on Page 26-A the project special provision "NOTE TO CONTRACTOR" has been added. Please void Page No. 26 in your proposal and staple the revised Page Nos. 26 and 26-A thereto.

On Page No. 87, the project special provision entitled "SPECIAL STILLING BASIN" (Description) has been revised. Please void Page No. 87 in your proposal and staple the revised Page No. 87 thereto.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
CONTRACT STANDARDS AND DEVELOPMENT UNIT
1591 MAIL SERVICE CENTER
RALEIGH NC 27699-1591

TELEPHONE: 919-250-4128
FAX: 919-250-4119

WEBSITE: WWW.NCDOT.ORG

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC

On Page No. 121, the project special provision entitled "RAILROAD REQUIREMENTS" has been revised. Please void Page Nos. 121 through 127 in your proposal and staple the revised Page Nos. 121 through 127 thereto.

On Page No. 134, the project special provision entitled "CONTINUOUSLY WELDED RAIL" (1.1 DESCRIPTION and 1.2 SUBMITTALS) has been revised. Please void Page Nos. 134 through 136 in your proposal and staple the revised Page Nos. 134 through 136 thereto.

On Page No. 139, the project special provision entitled "WOOD CROSS TIES AND WOOD SWITCH TIES" (2.4 DIMENSIONS) has been revised. Please void Page No. 139 in your proposal and staple the revised Page No. 139 thereto.

On Page No. 141, the project special provision entitled "OTHER TRACK MATERIALS" (2.2 TIE PLATES, 2.5 JOINT BARS,BOLTS AND NUTS, 2.6 COMPROMISE JOINTS, 2.7 BONDED INSULATED JOINT PLUG RAILS, 2.9 FLANGEWAY LUBRICATOR and 4.2 BONDED INSULATED JOINT PLUG RAILS) has been revised. Please void Page Nos. 141 through 143 in your proposal and staple the revised Page Nos. 141 through 143 thereto.

On Page No. 146, the project special provision entitled "NO. 10 TURNOUTS" (2.5 ADDITIONAL RAIL AND OTM, see articles A1 and C2) has been revised. Please void Page No. 146 in your proposal and staple the revised Page No. 146 thereto.

On Page No. 148, the project special provision entitled "NO. 10 TURNOUTS" (4.1 NO. 10 TURNOUTS) has been revised. Please void Page No. 148 in your proposal and staple the revised Page No. 148 thereto.

On Page No. 151, the project special provision entitled "GRADE CROSSINGS" (3.1 GRADE CROSSING INSTALLATION, 4.1 FULL DEPTH CONCRETE PRE-CAST GRADE CROSSINGS and 4.2 RUBBER RAIL SEAL GRADE CROSSINGS) has been revised. Please void Page No. 151 in your proposal and staple the revised Page No. 151 thereto.

On Page No. 154, the project special provision entitled "BALLASTED TRACK CONSTRUCTION" (3.3 PLACEMENT OF INITIAL BALLAST, 3.7 INSTALLATION OF RAIL and 3.8 INSTALLATION OF RAIL JOINTS) has been revised. Please void Page Nos. 154 through 156 in your proposal and staple the revised Page Nos. 154 through 156 thereto.

On Page No. 159, the project special provision entitled "BALLASTED TRACK CONSTRUCTION" (4.4 SPOT TIES) has been revised. Please void Page No. 159 in your proposal and staple the revised Page No. 159 thereto.

On Page No. 161, the project special provision entitled "SPECIAL TRACKWORK CONSTRUCTION" (4.1 NO. 10 TURNOUTS) has been revised. Please void Page No. 161 in your proposal and staple the revised Page No. 161 thereto.

On Page No. 2 of the item sheets, by copy of this addendum, the following pay items are hereby deleted:

- "29-0720000000-E-310 24" Bituminous Coated CS Pipe Culverts, Type B 0.064 Thick" (Quantity = 180 LF)

- "30-0732000000-E-310 36" Bituminous Coated CS Pipe Culverts, Type B 0.079 Thick" (Quantity = 753 LF)

- "31-0738000000-E-310 42" Bituminous Coated CS Pipe Culverts, Type B 0.109 Thick" (Quantity = 252 LF)

- "32-0744000000-E-310 48" Bituminous Coated CS Pipe Culverts, Type B 0.109 Thick" (Quantity = 56 LF)

- "33-0762000000-E-310 66" Bituminous Coated CS Pipe Culverts, Type B 0.138 Thick" (Quantity = 52 LF)

On Page No. 3 of the item sheets, by copy of this addendum, the following pay item is hereby deleted:

- "34-0768000000-E-310 72" Bituminous Coated CS Pipe Culverts, Type B 0.138" Thick (Quantity = 140 LF)"

On Page No. 4 of the item sheets, by copy of this addendum, the following pay item is hereby deleted:

- "67-3642000000-E-876 Rip Rap, Class A" (Quantity = 1600 TON)"

On Page No. 6 of the item sheets, by copy of this addendum, the following pay item is hereby deleted:

- "85-3884000000-N-SP Furnish and Install Spot Ties" (Quantity = 50 EA)"

Also, on Page No. 4 of the Item Sheets, by copy of this addendum the quantities for following line items have been revised:

- "65-3628000000-E-876 Rip Rap, Class I" has been decreased from 810 TON to 310 TON.

- "68-3649000000-E-876 Rip Rap, Class B" has been decreased from 580 TON to 220 TON.

On Page No. 5 of the Item Sheets, by copy of this addendum the quantities for following line items have been revised:

- "74-3880000000-E-SP Construct Track , Wood Ties, 136RE CC" has been decreased from 29,023 TF to 28993 TF.

- "75-3880000000-E-SP Construct Track , Wood Ties, 136RE Prem" has been increased from 4268 TF to 4428 TF.

- "76-3880000000-E-SP Final Surface & Align Track" has been increased from 29,533 TF to 34530 TF.

- "77-3880000000-E-SP Stress Relieve/Destress Rail" has been increased from 33,381 TF to 33,421 TF.

On Page No. 9 of the Item Sheets, by copy of this addendum the quantities for following line items have been revised:

- "152-6006000000-E-1610 Stone for Erosion Control, Class A" has been increased from 20 TON to 1620 TON

- "153-6009000000-E-1610 Stone for Erosion Control, Class B" has been increased from 4 TON to 350 TON.

Also, on Page No. 2 of the item sheets, by copy of this addendum, the following new pay items are hereby added:

- "29-0684000000-E-310 24" Bituminous Coated CS Pipe Culverts, Type B 0.079 Thick" (Quantity = 180 LF).

- "30-0684000000-E-310 36" Bituminous Coated CS Pipe Culverts, Type B 0.109 Thick" (Quantity = 753 LF)

- "31-0684000000-E-310 42" Bituminous Coated CS Pipe Culverts, Type B 0.138 Thick" (Quantity = 252 LF)

- "32-0684000000-E-310 48" Bituminous Coated CS Pipe Culverts, Type B 0.138 Thick" (Quantity = 56 LF)

- "33-0684000000-E-310 66" Bituminous Coated CS Pipe Culverts, Type B 0.168 Thick" (Quantity = 52 LF)

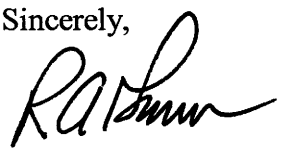
Also, on Page No. 3 of the item sheets, by copy of this addendum, the following new pay item is hereby added:

- "34-0684000000-E-310 72" Bituminous Coated CS Pipe Culverts, Type B 0.168 Thick" (Quantity = 140 LF)

The Contractor's bid must include these new pay items. The contract will be prepared accordingly.

The Expedite EBS file has been updated to reflect this revision. Please download the Expedite Addendum file for this project and follow the instructions for applying the addendum. Bid Express will not accept your bid unless the addendum has been applied.

Sincerely,



R. A. Garris, PE
Contract Officer

RAG/jjr
Attachments

cc: Mr. J.G Nance, PE
Mr. Ron Hancock, PE
Mr. C. E. Lassiter, Jr., PE
Ms. D. M. Barbour, PE
Mr. Art McMillan, PE
Mr. J.V. Barbour, PE
Mr. Jay Bennett, PE
Mr. Paul C. Worley, CPM
Project File (2)
Ms. G. R. Perfetti, PE
Mr. R. E. Davenport, Jr., PE
Mr. Ronnie Higgins
Mr. Larry Strickland
Ms. Norma Smith
Ms. Jaci Kincaid
Ms. Lori Strickland
Ms. Penny Higgins

functioning of a wetland. Visible sedimentation will be considered an indication of possible adverse impacts on wetland use.

The Engineer will perform independent turbidity tests on a random basis. These results will be maintained in a log within the project records. Records will include, at a minimum, turbidity test results, time, date and name of sampler. Should the Department's test results exceed those of the Contractor's test results, an immediate test shall be performed jointly with the results superseding the previous test results of both the Department and the Contractor.

The Contractor shall use the *NCDOT Turbidity Reduction Options for Borrow Pits Matrix,* available at http://www.ncdot.org/doh/preconstruct/ps/contracts/letting.html to plan, design, construct, and maintain BMPs to address water quality standards. Tier I Methods include stilling basins which are standard compensatory BMPs. Other Tier I methods are noncompensatory and shall be used when needed to meet the stream turbidity standards. Tier II Methods are also noncompensatory and are options that may be needed for protection of rare or unique resources or where special environmental conditions exist at the site which have led to additional requirements being placed in the DWQ's 401 Certifications and approval letters, Isolated Wetland Permits, Riparian Buffer Authorization or a DOT Reclamation Plan's Environmental Assessment for the specific site. Should the Contractor exhaust all Tier I Methods on a site exclusive of rare or unique resources or special environmental conditions, Tier II Methods may be required by regulators on a case by case basis per supplemental agreement.

The Contractor may use cation exchange capacity (CEC) values from proposed site borings to plan and develop the bid for the project. CEC values exceeding 15 milliequivalents per 100 grams of soil may indicate a high potential for turbidity and should be avoided when dewatering into surface water is proposed.

No additional compensation for monitoring borrow pit discharge will be paid.

FAA REQUIREMENTS: **(SPECIAL)**

This project lies underneath airspace for the Kinston Regional Jetport and within the Lenoir County Part 77 Height Overlay Zone District. Obstructions to airspace are a serious consideration. The Contractor is notified that certain FAA provisions apply.

The Contractor will contact the Kinston Regional Airport – Airport Manager **prior to** commencement of the construction work to assist in determining what if any obstructions (permanent or temporary) will occur in the Kinston Regional Jetport airspace. Generally the Contractor shall not use any means or measure which will cause a temporary obstruction (such as cranes and soil or equipment stockpiles) whereby any component of the construction has not been evaluated and approved by the FAA. Before extending/raising any crane for the first time at each usage site, the Contractor shall verify crane setup (with regard to elevations) with the Airport and obtain approval to extend/raise the trestle or boom.

At all times while on site, all cranes, equipment, or temporary stockpiles taller than 50-feet in height shall be coordinated with the airport to determine if further evaluation is necessary. If the airport determines that an evaluation is necessary it will be performed utilizing FAA form SF 7460-1, "Notice of Proposed Construction or Alteration"

When submitting FAA form SF 7460-1, "Notice of Proposed Construction or Alteration". Pertinent information about the construction and appropriate attachments showing the type and location of the construction must also be submitted.

Supplemental information needed for the FAA review include the following items:

- Scaled drawing showing location of construction in relation to nearest runways. This may be a marked up-Airport Layout Plan or Terminal Area sheet.
- Perpendicular distance of the proposed construction to the nearest runway centerlines.
- Distance along centerline (actual or extended) from runway end to the perpendicular intercept point
- Ground Elevation at the site of the proposed construction
- Height of the proposed construction including antennas or other appurtenances
- Accurate geodetic coordinates conforming to NAD 83
- Sketches, drawings, etc. showing the type of construction or alteration being proposed

The FAA Advisory Circular 70/7460-2k states that notification is to be submitted **at least 30 days prior construction**. Given the time required to conduct an aeronautical study, we recommend a 45-60 day advance notification to accommodate the extensive review process and allow timely issuance of the FAA determination letter.

FAA form SF 7460-1, "Notice of Proposed Construction or Alteration" can be found at the following site.

https://oeaaa.faa.gov/oeaaa/external/portal.jsp

Contact information for questions regarding the obstruction evaluation process can be addressed to the following contacts.

Kinston Regional Jetport - Airport Manager – (252) 522 - 4929

NCDOT – Division of Aviation – Manager of Airport Development - (919) 840-0112

Federal Aviation Administration Atlanta Airports District Office - (404) 305-7150

Unless otherwise approved in writing by NCDOT, the Contractor shall not locate any component of a borrow pit within 10,000 feet of the end of any runway at Kinston Regional Jetport.

The Contractor shall be responsible for meeting all conditions required by the FAA for the temporary works and equipment.

All costs incurred by the Contractor in complying with all FAA and Kinston Regional Jetport requirements shall be included in the prices bid for the various pay items and no additional payment will be made

NOTE TO CONTRACTOR:

NCDOT Erosion Control Standard drawings supersede NCDENR details in all conflicts.

The above requirements apply to the stream channels being constructed at the following stations:

Approx. Main Sta. 52+40 (Lt.)
Approx. Main Sta. 53+40 (Rt.)
Approx. Main Sta. 191+70 (Lt.)
Approx. Main Sta. 192+20 (Rt.)

ACCESS AND HAUL ROADS:

At the end of each working day, the Contractor shall install or re-establish temporary diversions or earth berms across access/haul roads to direct runoff into sediment devices. Silt fence sections that are temporarily removed shall be reinstalled across access/haul roads at the end of each working day.

SPECIAL STILLING BASIN:

Description

This work consists of furnishing, placing, and removing special stilling basin(s) as directed. The special stilling basin may be used to filter pumped water during construction of drilled piers, footing excavation, and/or culvert construction. The special stilling basin may also be used for sediment storage at the outlet of temporary slope drain pipe(s).

Materials

Refer to Division 10

Item	Section
Filter Fabric for Drainage, Type 2	1056
Sediment Control Stone	1005

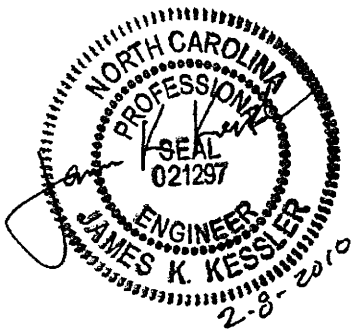
The filter fabric and sediment control stone shall be clean and shall not contain debris.

The special stilling basin shall be a water permeable fabric bag that traps sand, silt, and fines as sediment-laden water is pumped into it, or as runoff flows into it through the temporary slope drain pipe(s).

The special stilling basin shall be a bag constructed to a minimum size of 10' x 15' made from a nonwoven fabric. It shall have a sewn-in 8" (maximum) spout for receiving pump discharge. The bag seams shall be sewn with a double needle machine using a high strength thread. The seams shall have a minimum wide width strength as follows:

Test Method	Minimum Specifications
ASTM D-4884	60 lb/in

The fabric used to construct the bag shall be stabilized to provide resistance to ultra-violet degradation and meet the following specifications for flow rates, strength, and permeability:



PROJECT SPECIAL PROVISIONS (PSP)
RAILROAD REQUIREMENTS

SAFETY REQUIREMENTS:

This work is to be conducted partially on or in close proximity to operating railroad tracks. The Contractor shall comply with the following Special Provisions when working on North Carolina Railroad Company (NCRR) Property.

The Contractor shall ensure that his entire work force, including employees, agents and subcontractors, comply fully with all applicable FRA RAILROAD WORKPLACE SAFETY Rules, 49 C.F.R. PART 214.

Particular attention is directed to the requirements for fall protection, protective footwear, protective head gear (hard hats) and eye and face protection equipment (safety goggles or safety eyeglasses).

Particular attention is also directed to the requirements of the NORFOLK SOUTHERN ROADWAY WORKER PROTECTION PROGRAM (hereinafter referred to as "Program"), as required by FRA RAILROAD WORKPLACE SAFETY Rules, 49 C.F.R. PART 214. (A copy of the Program Manual, along referenced Operations Division Bulletins, will be provided to the Contractor when the Contract is awarded). The Contractor must, at all times, maintain, at the job site, a copy of the Program Manual, along with referenced Operations Division Bulletins.

It will be the responsibility of the Contractor to ensure that all of his employees, agents and subcontractors have been properly trained in all applicable provisions of the Program. Particular attention must be paid to the provisions regarding the Roadway Worker In Charge (R.W.I.C.), and following instructions of the R.W.I.C. Each Worker must know, at all times, who is the designated R.W.I.C.

Norfolk Southern Railway (NSR) does NOT provide Program training for Contractor employees, agents and subcontractors. As detailed above, this is the sole responsibility of the Contractor. As information, The American Railway Engineering and Maintenance of Way Association (AREMA) has, from time to time, provided Railway Worker Protection Training Seminars for Contractors. For information regarding training through AREMA, you may contact Ms. Kathy Hemming at (301)459-3200, Extension 703. In addition, some private training organizations also provide this training.

The Contractor must, at all times, maintain documentation that all employees, agents and subcontractors have been properly trained in the Program, and fully understand their responsibility regarding their safety, and the safety of their co-workers. The documentation must be available, at all times, for inspection by the Company, or FRA Inspector.

SECURITY REQUIREMENTS

All employees of the Contractor who are working on NCRR property must have received security training and must wear an E-RailSafe ID badge while on NCRR property. The Contractor can obtain E-RailSafe ID badges for its employees by going to the web page www.e-railsafe.com.

INTERFERENCE WITH RAILROAD TRAFFIC

General traffic patterns, including anticipated daily work windows, will be discussed at the pre-bid site meeting. The Contractor is expected to ask sufficient questions to gain an understanding of rail operations prior to planning and submitting a bid for the work.

The Contractor shall conduct his operations so as to minimize interference with rail traffic. The Contractor shall not proceed with any portion of the work on NCRR property until he has obtained specific authority and directions from the proper representative of the Company and has the approval of the Engineer. If the Contractor fails to comply with the above and performs his work in a manner that causes unreasonable delays to the train operations of Norfolk Southern Corporation (NSR), he shall be liable for any additional operating costs incurred by NSR for such delays and shall reimburse the NSR upon receipt of bills thereafter.

Whenever work is liable to affect the operations or safety of trains, the method of doing such work shall be first submitted to NSR for approval, but such approval shall not relieve the Contractor from liability. Any work to be performed by the Contractor which requires flagging or inspection services shall be deferred by the Contractor until the flagging or inspection services are provided by NSR.

Whenever work with the NCRR right-of-way is of such a nature that impediment to NSR operations is unavoidable, the Contractor shall schedule and conduct his operations so that such impediment is reduced to the absolute minimum.

Should conditions arising from, or in connection with the work, require that immediate and unusual provisions be made to protect operations and property of NSR and NCRR, the Contractor shall make such provisions. If in the judgment of NSR or NCRR 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 NCDOT, NSR or NCRR.

No claim by the Contractor against NCDOT or NSR will be allowed for hindrance or delay caused by Railway traffic; any work done by NSR or other delay incident to or necessary for safe maintenance of railwaiy traffic or for any delays due to compliance with these special provisions. Any cost incurred by the NSR for repairing damaged roads, tracks or other facilities resulting from the operations of the Contractor shall be paid by the Contractor to the NSR.

The Contractor shall assume all responsibility for any and all damages to his work, men, and equipment caused by the operations of NSR and the Company.

The authorized representative of Norfolk Southern shall have final authority in all matters affecting the safe maintenance of railroad traffic of NSR including the adequacy of the foundations and structures supporting the railroad tracks.

NOTICE OF STARTING WORK

The Contractor shall not commence any work on the NCRR right-of-way until the following conditions are met:

1. Written notice has been provided to Norfolk Southern at least ten days in advance of the start date of proposed construction on NCRR right-of-way. Notice shall be provided to:

   Office of Chief Engineer
   Bridges and Structures
   Norfolk Southern Corporation
   1200 Peachtree Street NE
   Internal box #142
   Atlanta, GA 30309

2. Written approval has been obtained from NS of the Contractor's Railroad Protective Liability Insurance as required herein. It should be noted that NSR does not accept notation of Railroad Protective insurance on a certificate of liability insurance form or binders as NSR must have the full original countersigned policy. Further, please note that mere receipt of the policy is not the only issue

but the policy must also be reviewed by NSR for compliance. It typically takes a minimum of 30 to 45 days for NSR to review the insurance policy.

3. Obtained railroad flagging services as required herein.
4. Obtained written authorization from NSR for the Contractor to begin work on the NCRR right-of-way. Such authorization shall also include and outline of specific conditions with which the Contractor must comply.
5. A schedule for work on the NCRR right-of-way has been furnished to NSR.

Norfolk Southern's written authorization to proceed with work on the NCRR right-of-way shall include the manes, addresses, and telephone numbers of the NSR 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 as specified.

OBSTRUCTING TRACKS

The track must remain in service for regular rail traffic at all times except as described herein and major track outages as outlined herein.

The Contractor will not be permitted to transport material or equipment across or between the North Carolina Railroad tracks except when authorized by NSR.

When the Contractor desires to occupy any space above the top of rail within the horizontal distance of ten (10) feet either side of the centerline of track measured at right angles to the track centerline, it will be necessary that he obtain permission from the Track Supervisor, or his representative, at least twenty four (24) hours in advance of such occupancy. If, in the judgment of the NS, flagmen are required, they will be furnished at the Contractor's expense.

The Contractor shall require his employees, agents, or sub-contractors to comply with any and all instructions or warnings of the NS flagman as to clearance for the passage of trains.

All scaffolding and/or any other projections used the Contractor's operations shall at all times be maintained at a clearance from the NCR track(s) as approved by the Company.

The Contractor shall indemnify and save harmless the Company from and against any and all liability for personal injury (including death) and/or property damage to whomsoever or whatsoever occurring arising directly or indirectly from the Contractor's failure to comply with the aforesaid notice requirement.

Before undertaking any work within the NCRR right-of-way or before placing any obstruction over any track, the Contractor shall:

1. Notify the NSR representative at least 72 hours in advance of the work.
2. Receive assurance from the NSR representative that arrangements have been made for flagging service as may be necessary.
3. Receive permission from the NSR representative to proceed with the work.
4. Ascertain that NCDOT has received copies of the Contractor's notice to NSR and NSR's response thereto.

CONSTRUCTION PROCEDURES

Construction work and operations by the Contractor on NCRR right-of-way shall be:

1. Subject to inspection and approval of NSR.
2. In accordance with NSR's written outline of specific conditions.
3. In accordance with NSR's generals rules, regulations and requirements including thos related to safety, fall protection and personal protective equipment.

The subgrade of an operated track shall be maintained with edge of berm at least 10' 0" from centerline of track and not more than 24 inches below top of rail. Contractor shall not be required to make existing section meet this specification if substandard, in which case existing section will be maintained. Additionally, NSR may require installation fo orange construction safety fencing for protection of work area.

STORAGE OF MATERIALS AND EQUIPMENT

Materials and equipment shall not be stored where they will interfere with NSR operations, nor on the right of way of NCRR, without having first obtained permission from NSR. Such permission will be with the understanding that NSR will not be liable for damage to such material and equipment from any cause, and that NSR 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 NSR 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.

CLEANUP

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

DAMAGES

The Contactor shall assume all liability for any and all damages to his work, employees, servants, equipment and materials caused by railroad traffic.

Any cost incurred by NSR 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 NSR by the Contractor.

FLAGGING

Flagging services will not be provided until the contractor's insurance has been reviewed and approved by NSR.

It shall be the responsibility of the Contractor to submit specific requests to NSR's contact to arrange for any flagging that may be the required for the Construction Project. The NSR contact to arrange flagging is Gregg Cody, Division Engineer, Greenville, SC (telephone 864-255-4245).

Any work on NCRR right of way or property or any work that could affect NSR/NCRR facilities or property may require flagging. NSR shall have the sole authority to determine the extent of flagging needed during any activity on the Construction Project. In general, the requirements of such services will be whenever the Contactor's personnel or equipment are, or are likely to be, working on the NCRR 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.

If the Contractor works within distances that violate instructions given by NSR's authorized representative, a flagman or flagmen may be required full time until all work on the NCRR right-of-way has been completed.

NSR will furnish flagging personnel at the expense of the Contractor and will endeavor to do so within ten (10) working days notice. No delay to the Contractor will be claimed against the NSR or NCDOT if qualified flagging personnel are not available within this period.

Contractor's personnel shall be required to obey the instructions of NSR flagging personnel and shall not perform any activity requiring flagging unless NSR flagging personnel are present.

Scheduling and Notification

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 NSR approval of work schedules requiring a flagman's presence in excess of 40 hours per week.

No later that the time that approval is initially requested to begin work on NCRR right-of-way, the Contractor shall furnish to NSR and NCDOT a schedule for all work required to complete the portion of the project within the NCRR right-of-way and arrange for a job site meeting between NSR, NCDOT and the Contractor. Flagmen may not be provided until the job site meeting has been conducted and the Contractor's work scheduled.

The Contractor will be required to give NSR at least 10 working days of advance written notice of intent to begin work within the NCRR right-of-way in accordance with this special provision. Once begun, if any of the Contractor's activities requiring flagging services are temporarily suspended, the contractor shall be required to give NSR's Division Engineer or his authorized representative at least three (3) days' notice before any proposed date to resume such work. If flagging is required, no work shall be undertaken until the flagman is present at the site. No delay to the Construction Project will be claimed against NSR or NCDOT if qualified flagging personnel are no longer available within the three (3) day period.

It may take up to thirty (30) days to obtain flagging initially from NSR. When flagging begins, the flagman is usually assigned by NSR 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 for NSR. Due to NSR labor agreements, it is necessary to give 5 working days notice before flagging services may be discontinued and responsibility for payment stopped.

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

No delay will be charged to NSR or NCDOT in the event that flagging services are unavailable when requested by the Contractor, nor will delay be charged to NSR or NCDOT when flagging personnel are pulled from Construction Project activity for any reason deemed necessary by NSR.

Measurement and Payment

The need for flagging will be determined by NSR. For estimating purposes, thirty (30) Man Days will be used.

The estimated cost of flagging is current rate per day based upon a 10 hour work day. This cost includes the base pay for the flagman, overhead, and includes a per diem charge to travel expenses, meals and lodging. The charge to the Contractor by NSR shall be the actual cost based upon this rate o pay for NSR's employees who are available for flagging service at the time the service is required.

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 a 1 ½ times the appropriate rate. Work by a flagman in excess of 12 hours per day will result in overtime of 2 times the appropriate rate. If work is to be performed on a holiday, the flagging rate is 2 ½ times the appropriate rate.

NSR work involved in preparing and handling bills will also be charged to the Contractor.

Flagging costs are subject to change.

Railroad flagman will be measured and paid for at the contract price per man day. Such prices and payment will be full compensation for all work covered by this provision including but not limited to furnishing labor and all incidentals necessary to complete the work.

Payment will be made under:

Pay Item	**Pay Unit**
Generic Trackwork Item (MD)	Man Day
Railroad Flagging	

TRACK OUTAGES

Track Windows. The Contractor is expected to carry out the work with the minimum possible disruption of rail traffic. It may be necessary for Contractor to adjust his working hours or work week to best fit track availability. Rail traffic patterns are subject to change, therefore details regarding train movements and anticipated track windows will be provided at the pre-bid meeting to insure up to date information.

Extended Track Outages (4 hours or longer). The tie-in segments of the work may require longer track outages than can be provided on a routine, daily basis. The number and duration of these major outages will be determined by the construction methods selected by the Contractor.

HAUL ACROSS RAILROAD

The Contractor will be required to make all necessary arrangements with NSR regarding means of transporting materials across the railroad. The Contractor will be required to bear all costs incidental to such crossings whether services are performed by his own forces of by NSR personnel.

No crossing may be established for use of the Contractor for transporting materials or equipment across the tracks of the railroad unless specific authority for its installation, maintenance, necessary watching and flagging thereof and removal, until a temporary crossing agreement has been executed between the Contractor and NSR. The approval process for an agreement normally takes 90 days.

TRAINMANS WALKWAYS

Along the outer side of each exterior track of multiple operated track, and on each side of singe operated track, an unobstructed continuous space 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 encroachment or obstructions allowed during work hours while NSR's protective service is provided shall be removed before the close of each work day. If there is an excavation near the

walkway, a handrail with 10' 0" minimum clearance from centerline of the track shall be placed and must conform to AREMA and /or FRA standards.

GUIDELINES FOR PERSONNEL ON RAILROAD RIGHT-OF-WAY

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 or other slip-on type boots is prohibited. Hard sole, lace up footwear, zippered boots or boots clinched up with straps which fit snugly about the ankle are adequate. Wearing of safety boots is strongly recommended. In the vicinity of at-grade crossing, it is strongly recommended that reflective vests be worn.

No one is allowed within 25' of the centerline of track without specific authorization from the flagman.

All persons working near track while train is passing are to lookout for dragging bands, chains and protruding or shifted cargo.

No one is allowed to cross tracks without specific authorization from the flagman.

All welders and cutting torches working within 25' of track must stop when train is passing.

No steel tape or chain will be allowed to cross or touch rails without permission.

GUIDELINES FOR EQUIPMENT ON RAILROAD RIGHT-OF-WAY

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 NSR official and flagman.

No crane or boom equipment will be allowed to foul track or lift a load over the track without flag protection and track time.

All employees will stay with their machines when crane or boom equipment is pointed toward track.

All cranes and boom equipment under load will stop work while train is passing (including pile driving).

Swinging loads must be secured to prevent movement while train is passing.

No loads will be suspended above a moving train.

No equipment will be allowed within 25' of centerline of track without specific authorization of the flagman.

Trucks, tractors or any equipment will not touch ballast line without specific permission from NSR official of flagman.

No equipment or load movement within 25' or above a standing train or railroad equipment without specific permission of the flagman.

All operating equipment within 25' of track must halt operations when an 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.

All equipment, loads and cables are prohibited from touching rails.

While clearing and grubbing, no vegetation will be removed from railroad embankment with heavy equipment without specific permission from NSR and flagman.

No equipment or materials will be parked on stored on NSRR right-of-way unless specific authorization is granted from NSR.

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All unattended equipment that is left parked on NCRR right-of-way shall be effectively immobilized sl that it cannot be moved by unauthorized person.

All cranes and boom equipment will be turned away from track after each work day o whenever unattended by and operator.

PROTECTION OF RAILWAY INTEREST

INSURANCE: **State Project: U-2928B** **County: Lenoir**

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 provide coverage conforming to the requirements of the Federal-Aid Policy Guide outlined under 23 CFR 646A for all work to be performed on Railroad right(s) of way by carrying insurance of the following kinds and amounts:

1. CONTRACTOR'S COMMERCIAL GENERAL LIABILITY INSURANCE:

   The Contractor shall furnish an original and one copy of the certificate of insurance and one certified copy of the policy to the Department as evidence that, with respect to the operations he performs on railroad right of way, he carries regular 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.c. below as an additional insured, and shall include a severability of interests provision.

2. RAILROAD PROTECTIVE LIABILITY INSURANCE:

   The Contractor shall furnish to the Department an original and one duplicate of the 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:

   a. The insurer must be rated A- or better by A.M. Best Company, Inc.

   b. The policy must be written using one of the following combinations of Insurance Services Office ("ISO") Railroad Protective Liability Insurance Form Numbers:

      (1) CG 00 35 01 96 and CG 28 31 10 93; or
      (2) CG 00 35 07 98 and CG 28 31 07 98; or
      (3) CG 00 35 10 01; or
      (4) CG 00 35 12 04.

   c. The named insured shall read:

      Norfolk Southern Railway Company
      Three Commercial Place
      Norfolk, Virginia 23510-2191
      Attn: Director Risk Management

d. 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 Description and Designation shall read: All Construction within the Railroad's right of way located along the Global Transpark Lead Track in Kinston, North Carolina (Lenoir County).

e. The job location must appear on the Declarations and must include the city, state, and appropriate highway name/number.

f. The name and address of the prime contractor must appear on the Declarations.

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

h. Other endorsements/forms that will be accepted are:

(1) Broad Form Nuclear Exclusion – Form IL 00 21
(2) 30-day Advance Notice of Non-renewal or cancellation
(3) 60- day written notice be given the Department prior to cancellation or change
(4) Quick Reference or Index Form CL/IL 240

i. Endorsements/forms that are NOT acceptable are:

(1) Any Pollution Exclusion Endorsement except CG 28 31
(2) Any Punitive or Exemplary Damages Exclusion
(3) Known injury or Damage Exclusion form CG 00 59
(4) Any Common Policy Conditions form
(5) 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. As an alternative, the Prime Contractor may provide insurance for the subcontractor by means of separate and individual policies.

C. Prior to entry on Railroad right-of-way, the original and one duplicate copy of the 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 Commercial General Liability Insurance shall be issued to the Railroad and the Department at the addresses below, and one certified copy of the Prime Contractor's policy is to be forwarded to the Department for its review and transmittal to the Railroad. All policies and 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:	RAILROAD:
Department of Transportation Rail Division C/O Mr. David Hinnant, State Railroad Agent 1556 Mail Service Center Raleigh, NC 27699-1556	Director, Risk Management Norfolk Southern Railway Company Three Commercial Place Norfolk, Virginia 23510-2191

D. The insurance required herein shall not limit the obligations of Department or its Contractors under the terms of this agreement.

E. All insurance herein before specified shall be carried until the final inspection and acceptance of the project, or that portion of the project within railroad right of way, by the Department or, in the case of subcontractors, until the Contractor furnishes a letter to the Engineer stating that the subcontractor has completed his subcontracted work within railroad right of way to the satisfaction of the Contractor and that the Contractor will accomplish any additional work necessary on railroad right of way with his own forces. It is understood that the amounts specified are minimum amounts and that the Contractor may carry insurance in larger amounts if he so desires. As to "aggregate limits", if the insurer establishes loss reserves equal to or in excess of the aggregate limit specified in any of the required insurance policies, Contractor shall immediately notify the Department of Transportation and shall cease all operations until the aggregate limit is reinstated. If the insurer establishes loss reserves equal to or in excess of one/half of the aggregate limit, Contractor shall arrange to restore the aggregate limit to at least the minimum amount stated in these requirements. Any insurance policies and certificates taken out and furnished due to these requirements shall be approved by the Department and the Railroad Company as to form and amount prior to beginning work on railroad right of way.

FAILURE TO COMPLY:

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

(1) The Railroad Engineer may require that the Contractor vacate Railroad property.

(2) 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.

PAYMENT FOR COST OF COMPLIANCE:

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

RAILROAD SITE DATA:

The following information is provided as a convenience to the Contractor. This information is subject to change and the Contractor should contact the Railroad to verify the accuracy. Since this information is shown as a convenience to the Contractor but is subject to change, the Contractor shall have no claims whatsoever against either the Railroad or the Department of Transportation for any delays or additional costs incurred based on changes in this information.

Number of tracks	-	1
Number of trains per day	-	4
Maximum speed of trains	-	40

NORFOLK SOUTHERN CONSTRUCTION

A portion of the work on the NCRR corridor will be performed by NSR as indicated below. This work is subject to the terms of a construction agreement between North Carolina Department of Transportation, Norfolk Southern Railway Company and North Carolina Railroad Company. The Contractor shall be responsible for coordinating his work with NSR. The ability of NSR to complete the work indicated below and make a track connection between the NSR Main Track and the NCGTP Connecting Track

available to the contractor for delivery of materials and on-track equipment is dependent upon the completion of grading, earthwork and other work items by the Contractor in a timely manner. NSR will have the turnouts installed and the track constructed to the derail on the west leg of the wye two months after the Contactor has completed his work and NSR has accepted the roadbed for track construction. NSR will have the turnouts installed, the track constructed to the derail on the east leg of the wye and revision of warning devices at Hillcrest Road completed six months after the Contactor has completed his work and NSR has accepted the roadbed for track construction. The Contractor shall complete the roadbed within the NCRR right of way and make it available to NSR for the construction of their portion of the trackwork as described in this agreement no later than March 1, 2011.

NORFOLK SOUTHERN TRACK CONSTRUCTION

Norfolk Southern Railway (NSR) will perform certain items of track construction as shown on the Contract Plans. NSR will perform the following:

- Furnish and install the No. 10 turnout at the connection of the West Wye track to the NCRR Main Track (West Wye PS Station 9+93.77 = NCRR Main Track PS Station 1000+00.00).
- Furnish and install the No. 10 turnout at the connection of the East Wye track to the NCRR Main Track (East Wye PS Station 7+57.11 = NCRR Main Track PS Station 1017+95.87).
- Remove existing main track as required for the installation of the No. 10 turnouts.
- Surface and line NCRR Main Track.
- Furnish and install spot ties in NCRR Main Track.
- Construct West Wye Track from the No. 10 turnout on NCRR Main Track to the double switch point derail (West Wye Station 11+05 ± to 11+77 ±). NS will furnish and install **stone ballast,** running rail, wood ties, and other track material. Contractor will be responsible for all other work at this location including, but not limited to, clearing and grubbing, grading and earthwork, sedimentation erosion control, preparing subgrade and furnishing and installing sub-ballast.
- Furnish and install the double switch point derail at West Wye PS Station 12+16.69. Contractor will be responsible for all other work at this location including, but not limited to, clearing and grubbing, grading and earthwork, sedimentation erosion control, preparing subgrade and furnishing and installing sub-ballast.
- Construct East Wye Track from the No. 10 turnout on NCRR Main Track to the double switch point derail (East Wye Station 8+69 ± to 10+96 ±). NS will furnish and install stone ballast, running rail, wood ties, and other track material. Contractor will be responsible for all other work at this location including, but not limited to, clearing and grubbing, grading and earthwork, sedimentation erosion control, preparing subgrade and furnishing and installing sub-ballast.
- Furnish and install the double switch point derail at East Wye PS Station 11+36.38. Contractor will be responsible for all other work at this location including, but not limited to, clearing and grubbing, grading and earthwork, sedimentation erosion control, preparing subgrade and furnishing and installing sub-ballast.
- Furnish and install the rubber rail seal grade crossing at Hill crest Road for the East Wye Track. NS will be responsible only for the track and rubber rail seal. Contractor will be responsible for all other work at this location including, but not limited to, clearing and grubbing, grading and earthwork, sedimentation erosion control, preparing subgrade, furnishing and installing sub-ballast and all roadway work.

NORFOLK SOUTHERN SIGNAL CONSTRUCTION

Norfolk Southern Railway (NSR) will perform certain items of signal construction as shown on the Contract Plans. NSR will perform the following:

- Furnish and install the grade crossing warning devices at the Hillcrest Road at-grade crossing. Contractor will be responsible for all other work at this location including, but not limited to, clearing and grubbing, grading and earthwork, and sedimentation erosion control.

A. Manufacturing of rails in standard rail lengths, including inspection and testing.
B. Fabricating rails into continuously welded strings. The contractor may either deliver welded rail strings to the site or fabricate rails into strings at the site.
C. Shipping and delivery of CWR to the job site.
D. All track included in the project (East Wye Track, West Wye Track, Main Track, Siding Track, Track A and Track B) shall be constructed with continuously welded rail (CWR).

1.2 SUBMITTALS - Submit the following information:

A. Material test results and submittals as stipulated in the AREMA Manual and herein.
B. Continuously welded rail weld test results.
C. Submit a schedule of lengths of CWR strings and the location of each string in the finished track. Include schedule of CWR lengths and CWR string designation system.
D. Drawings and specifications of the proposed equipment, materials, methods and procedures to be used for the electric flash butt welding process for joining of rail. Include layouts of the welding line showing locations of welding components.
E. Procedure for transportation of CWR to work site, proposed off-load locations and timing, stockpiling and handling procedures.
F. Qualifications of welding supervisor demonstrating flash butt welding experience of no less than 3 years.
G. If the Contractor elects to fabricate welded rail strings on-site using a portable welding facility the following shall be submitted prior to fabrication in addition to the other submittals required by this specification:
   1. Location(s) of proposed facility.
   2. Proposed hours of operation.
   3. Description of equipment used and details of set-up configuration.
   4. Other detailed information as may be required by the engineer that fully describes the process.

   Location of proposed on-site welding facility and the hours of operation are subject to review and approval of the engineer.

1.3 QUALITY ASSURANCE

A. Comply with the latest edition and addenda of the following provisions, codes, specifications, standards, and recommended practices, except as otherwise indicated:
   1. AREMA American Railway Engineering and Maintenance of Way Association, Manual for Railway Engineering
   2. AWS American Welding Society
   3. ASTM American Society for Testing and Materials
B. Load, transport, unload, store, and handle CWR in a manner which will prevent damage to the CWR. Submit procedures, and equipment for loading, unloading, handling and storing rail.
C. Assign responsibility to the welding supervisor for ensuring that welding equipment is in proper operating condition, during the entire period in which rail welding is taking place.
D. Test all electric flash butt production welds on the welding line. Remove defective electric welds and reweld the rails at the flash butt welding plant location. Do not leave defective welds for later field welding.
E. Take special care to prevent damage to all surrounding facilities when moving CWR strings Do not damage other completed or partially completed facilities and

structures including but not limited to pavements, pavement bases, geotextiles, drainage structures, light poles, fire hydrants, utilities, traffic signals, traffic devices, and buildings.

F. Do not place or store CWR on the completed railroad sub-grade until it has been approved by the Engineer.

1.4 PERSONNEL QUALIFICATIONS

A. Employ a welding supervisor with a minimum of three years experience in flash butt welding.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Rail shall be new 136RE section, meeting requirements of AREMA Manual, Chapter 4, Part 2, Manufacture of Rail, Specifications Section 2.1, "Specifications for Steel Rails", and Part 4, Maintenance of Rail. Only one rail section shall be supplied for the project. Multiple rail sections are not permitted.

B. The standard length of rail to be welded into strings shall be 80 feet in accordance with AREMA Manual, Chapter 4, Part 2, Section 2.1.1 - Length.

C. Rail for tangent track and for curves less than seven (7) degrees shall be new 136RE section standard strength, with minimum Brinell Hardness Number of 300.

D. Rail for curves greater than or equal to seven (7) degrees shall be new 136RE high strength rail, with minimum Brinell Hardness Number of 352.

E. All rail within the limits of special trackwork construction shall be new 136RE high strength rail, with minimum Brinell Hardness Number of 352.

PART 3 - EXECUTION

3.1 GENERAL

A. Rails shall be fabricated into strings using the flash butt welding method. The Contractor may either deliver welded rail strings to the site or fabricate rails into strings at the site.

B. Flash butt welding and testing of rail to the current AREMA Manual, Chapter 4, Part 3, Section 3.12, Specifications for Fabrication of Continuous Welded Rail, unless otherwise specified herein.

C. Weld CWR strings to minimum delivered lengths at work site of 1200 feet unless otherwise approved by the Engineer.

D. Cut out and reweld rejected welds with a minimum of 19 feet - 6 inches plugs, at no additional cost.

E. Bolt holes are not permitted except for insulated joints.

3.2 WELDING EQUIPMENT

A. Use welding machine which is capable of automatically recording pertinent data including pre-heating impulses, flashing time, upset current, time and platen travel during flashing, and capable of testing the welds during production using the ultrasonic testing method or the dry powder method of magnetic particle inspection.

B. Maintain welding equipment in good working order at all times.

3.3 RAIL BENDING AND STRAIGHTENING

A. Alignment tolerances for straightened rails shall be as specified in AREMA Manual, Chapter 4.

B. Cut back any rail sections that cannot be straightened a sufficient distance to achieve the specified tolerances.

C. If straightened rail does not meet specification tolerance in two passes through the straightener, cut the rail out of the string.

3.4 RAIL CUTTING AND PREPARATION OF ENDS

A. Saw cut or abrasive disc-cut rail ends square and clean by means of accepted equipment.

B. Torch cutting of rail is prohibited.

C. Prepare the head and base of rails prior to welding by removing mill scale down to bright metal for a length of approximately six inches from the welding end.

D. Remove all burrs from the rail end area where the welding current carrying electrodes contact the head and base of the rail.

E. Holes are not permitted in the rail, except as approved by the Engineer.

3.5 ELECTRIC FLASH BUTT WELDING

A. Fabricate CWR strings so that the branding of all individual rail section appears on the field side of installed track.

B. Align rails in the welding machine on the head of the rail. Align rails vertically at the head so as to provide for a flat running surface, with any difference in the height of the rails only occurring in the base. Align rails for horizontal alignment so that any difference in the widths of heads of rails is divided equally on both sides of the rail.

C. Forge all electric flash butt welds to point of refusal to further plastic deformation and to have a minimum upset of 0.5 inches, with 0.625 inches as standard.

D. Ensure that the upset cylinder does not bottom-out during the upset portion of the weld cycle.

E. Post weld straightening may be permitted if performed before the surface temperature of the weld falls below 500 degrees Fahrenheit.

F. Quenching the weld metal is not permitted.

3.6 FINISHING

A. Pre-flash jagged, notched or badly mismatched end faces to an even or mated condition before setting up rails for preheating and final flashing, to assure that the entire surfaces of the rail ends are uniformly flashing immediately preceding upsetting.

B. Perform all heavy grinding used during the finishing process on the hot metal immediately following welding, to prevent metallurgical damage.

C. Finish rails to eliminate cracks visible to the unaided eye.

D. Eliminate notches created by offset conditions or twisted rails by grinding to blend variations.

E. Remove all fins on the weld due to grinding drag prior to final inspection.

3.7 TOLERANCES IN ELECTRIC FLASH BUTT WELDS

A. Tolerances shall be as set forth in the AREMA Manual, Chapter 4, Part 3, Section 3.12, Specifications for Fabrication of Continuous Welded Rail.

3.8 RECORDS FOR ELECTRIC BLASH BUTT WELDING

A. Submit the following records to the Engineer documenting the production of each CWR string:

1. CWR string designation number and station location in the field.
2. Heat numbers of the first and last pieces of rail in the string.
3. Heat numbers on each side of any weld which has been cut out and rewelded.
4. A small sketch or graph indicating the current flow during the production of each weld.
5. Test reports of the production welds.

3.9 CWR STRING MARKINGS

A. Mark each completed string with the appropriate CWR string designation indicated in the schedule of CWR strings.

milled and brought to the treatment facility for seasoning as quickly as possible, to avoid wood fiber infection.

B. All ties shall be straight, well sawn on four sides, cut square at the ends, have top and bottom parallel and have bark completely removed. Ties shall be within the dimensional tolerances specified in AREMA. Ties shall be free from the following defects:

1. Decay - Ties that show decay of any nature and ties that show strain from being left in the log too long will be rejected. "Blue stain" is not decay and is permissible in any wood.
2. Holes - Ties will be rejected if a large hole, or numerous holes with the net effect of a large hole, is present. A large hole is one exceeding 1/2 inch in diameter and 3 inches deep within the RBA*, or more than one-fourth the width of the surface on which it appears and 3 inches deep outside the RBA.
3. Knots - Ties with a large knot, or numerous knots with the net effect of a large knot within the RBA will be rejected. A large knot is one whose average diameter is greater than one-fourth the width of the surface on which it appears.
4. Shake - Shake greater than one-third the width of the tie will be cause for rejection of the tie.
5. Split - A tie will be rejected if a split exceeds 5 inches long or 1/2 inch wide.
6. Slanting Grain - A tie will be rejected if a slant in grain in excess of 1:15 is present, except in the case of woods with interlocking grain.
7. Wane - Excessive wane (more than 1" and as further specified in AREMA) will be cause for rejection of the tie.

* RBA - Rail Bearing Area – the area of the tie between 20 inches and 40 inches from its middle.

2.4 DIMENSIONS

A. Crossties shall be 8'-6" long 7" grade crossties in accordance with the requirements of AREMA Manual for Railway Engineering Part3, Section 3.1.1.3.1 Dimensions. Ties shall be 7 inches by 9 inches in cross section with a maximum of 1" wane in the top rail bearing area. A maximum of 20% of the ties may be square sawn 7 inches by 8 inches with no wane in the rail bearing areas.

B. Switch ties shall be 7 inches by 9 inches with no wane allowed and shall be in lengths and quantities as shown on AREA Plan No. 912-02 – BILLS OF SWITCH TIES FOR TURNOUTS AND CROSSOVERS, (Table A) for a number 10 turnout with straight switches.

C. The lengths and thicknesses specified are minimum dimensions. Ties over one inch wider or thicker or over three inches longer, at any point, than the specified dimensions will be rejected.

2.5 INSPECTION AND TREATMENT

A. General

1. All cross ties and switch ties must have certification from an Independent Certified Inspector that each piece furnished was inspected as and when indicated below. Such certification is a condition of but will not constitute final acceptance of the material. Final acceptance will occur after inspection by the Designer at the point of delivery.

B. Inspection Prior to Seasoning

1. Green ties must have been inspected at the time of delivery to seasoning area.

PART 4 - MEASUREMENT AND PAYMENT

4.1 WOOD CROSS TIES AND WOOD SWITCH TIES

A. Wood cross ties and wood switch ties will not be separately measured nor paid. Wood cross ties and wood switch ties will be incidental to the items of work into which they are incorporated. See BALLASTED TRACK CONSTRUCTION and SPECIAL TRACKWORK CONSTRUCTION for applicable payment items.

OTHER TRACK MATERIALS (OTM)

PART 1 – GENERAL

1.1 DESCRIPTION - This section specifies the material requirements for other track materials (OTM) including tie plates, cut spikes, joint bars, insulated joints, bolts, rail anchors, rail flangeway lubricators and bumping posts to be furnished and installed in accordance with the Contract Drawings.

1.2 SUBMITTALS - Submit the following information:

A. Supplier's certification that the material delivered to the site is in compliance with the Specifications.

B. All test results and submittals stipulated in the AREMA Manual for Railway Engineering and Portfolio of Trackwork Plans.

C. Samples of materials specified under this section as requested by the Engineer.

D. Submit shop drawings and product data for track work items not specifically defined by the Contract Drawings.

1.3 APPLICABLE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA)

1.4 QUALITY ASSURANCE

A. All OTM shall be standardized throughout the project. Mixing and matching of different materials from different suppliers will not be permitted.

B. Testing and inspection shall conform to AREMA Manual.

C. Material not meeting the Specifications shall not be used in the work.

PART 2 – PRODUCTS

2.1 GENERAL

A. All material provided by the Contractor shall be new as specified.

2.2 TIE PLATES

A. New tie plates shall be manufactured to the requirements of the AREMA Manual for Railway Engineering, Chapter 5, Part 1, Section 1.1, Tie Plates - Specifications for Steel Tie Plates.

B. Tie plates to be used with cut spike fasteners shall be 14 inch size AREMA Figure 5-1-8, Plan No. 12, Punching A. Tie plates shall be double shoulder, canted with cant of 1:40.

2.3 CUT SPIKES

A. New track cut spikes shall be new 5/8 inch, 6" under head, with reinforced throat in accordance with AREMA Manual Volume 1, Chapter 5, Part 2, Track Spikes.

2.4 RAIL ANCHORS

A. Rail anchors shall be manufactured to the requirements of AREMA Manual for Railway Engineering, Chapter 5, Part 7 Rail Anchors. Rail anchors shall be new one piece drive on anchors designed to be applied either manually or with standard anchor machines.

B. All rail anchors supplied for this contract shall be of the same type and form one manufacturer.

2.5 JOINT BARS, BOLTS AND NUTS

A. Joint bars, bolts and nuts shall be used for the temporary joining of CWR rail sections only. All permanent joints shall be welded. Joint bars shall be new or good relay and conform to material specifications of the AREMA Manual for Railway Engineering, Chapter 4, Part 3 - Joining of Rail, Section 3.4 - Specifications for Quenched Carbon-Steel Joint Bars, Microalloyed Joint Bars and Forged Compromise Joint Bars.

B. All joint bars shall be 6 hole, 36 inches in length.

C. All track bolts and nuts shall be new and conform to the material specifications of the AREMA Manual for Railway Engineering, Chapter 4, Part 3 – Joining of Rail, Section 3.5, Specifications for Heat-Treated Carbon Steel Track Bolts, and Carbon-Steel Nuts.

D. All spring washers shall be new and conform to the material specifications of the AREMA Manual for Railway Engineering, Chapter 4, Part 3 – Joining of Rail, Section 3.6, Specifications for Spring Washers.

2.6 COMPROMISE JOINTS

A. Compromise joints shall be welded in accordance with the requirements of THERMITE FIELD RAIL WELDING of these Special Provisions.

2.7 BONDED INSULATED JOINT PLUG RAILS

A. Contractor shall furnish all bonded insulated joint plug rails which shall be prefabricated, adhesive bonded type. Prefabricated bonded insulated joint plug rails shall be new and conform to the requirements of AREMA Manual for Railway Engineering, Chapter 4, Part 3 – Joining of Rail, Section 3.8 – Specifications for Bonded Insulation Rail Joints.

B. Joint bars shall be six hole, 36 inch.

C. Fastenings shall be 1 inch diameter A-490 bolts. Rails shall be drilled to accommodate bolts and insulated sleeves. High pressure end posts shall be 1/4 inch thickness.

D. Rail for bonded insulated joints shall be new 136RE high strength rail with minimum Brinell Hardness Number of 352.

D. Insulated joint plug rails shall be a minimum of 19 feet long.

E. Insulated joints shall be suspended between two adjacent ties. Tie plates must not be located within four inches of the rail gap of an insulated joint. Insure that the rails are electrically isolated from one side of the joint to the other after assembly and installation of insulated joint.

2.8 BUMPING POSTS

A. Bumping posts shall be a WD type compatible with general freight rail operations at the ends of long industrial tracks.

B. The bumping post shall be designed for use with the rail section where it is to be installed.

B. Bumping posts shall be furnished with middle rails.

C. Bumping post shall be furnished with a shock free head.

A. The flangeway lubricator shall be a mechanical wayside lubricator, including a ramp assembly, wiping bar, all fittings and fastenings, and a grease tank. The lubricator shall be similar to Portec Model MC-3, or equal as approved by the Engineer.

B. The flangeway lubricator shall be installed at the locations indicated on the Contract Drawings. Install and adjust the lubricator in accordance with the Manufacturer's recommendations.

C. The flangeway lubricator shall be designed and installed to lubricate both rails in both directions of travel.

2.10 SLIDING BLOCK DERAIL

A Sliding block derails shall be designed to operate on and off the rail in a sliding motion. Derails shall be single handed type and must be sized to fit the rail section.

B. Derails shall be thrown with an operating stand. The operating stand shall be furnished with a target.

C. Derails shall be furnished complete including derail, operating rods, operating stands, targets and long timbers.

D. Sliding block derails shall be installed in accordance with the manufacturer's instructions and requirements.

PART 3 – EXECUTION

3.1 GENERAL

A. Other track materials shall be installed in accordance with the reference specifications.

PART 4 - MEASUREMENT AND PAYMENT

4.1 OTHER TRACK MATERIAL

A. Tie plates; cut spikes; rail anchors; joint bars, bolts and nuts; and compromise joints will not be separately measured nor paid. These materials will be incidental to the items of work into which they are incorporated. See BALLASTED TRACK CONSTRUCTION and SPECIAL TRACKWORK CONSTRUCTION for applicable payment items.

4.2 BONDED INSULATED JOINT PLUG RAILS

A. Bonded insulated joint plug rails will be measured and paid for at the contract unit price each. Such prices and payment will be full compensation for all work covered by this provision including but not limited to furnishing, installing and all incidentals necessary to complete the work.

B. Thermite welds are not included in the payment item for Bonded Insulated Joint Plug Rails. Thermite welds are measured and paid under the Bid Item for General Trackwork Item (EA), Furnish & Install Field Welds.

C. Payment will be made under:

Pay Item	Pay Unit
General Trackwork Item (EA) Furnish & Install Ins. Joint Plug Rails	Each

4.3 BUMPING POST

A. Bumping post will be measured and paid for at the contract unit price each. Such prices and payment will be full compensation for all work covered by this provision including but not limited to furnishing, installing and all incidentals necessary to complete the work.

2.4 FROGS

A. Frogs shall be rail bound manganese steel frogs with guard rails.

B. Frogs, hook twin plates, and frog guard rails furnished shall consist of the following components and conform in basic design to the following AREMA plans and specifications:

1. AREMA Plan No. 600B-03 – Point and Flangeway Dimensions for Manganese Frogs and Crossings
1. AREMA Plan No. 621-03 – Data and Sections for Rail Bound Manganese Steel Frogs for Rails 112 LB. and Heavier Heavy Wall.
2. AREMA Plan no. 623-03 – No. 9, No. 10 and No. 11 Rail Bound. Manganese Steel Frogs for Rails 112 Lb. and Heavier Heavy Wall.
3. AREMA PLAN 241-03 - Details and Typical Applications of Hook Twin Tie Plates.
4. AREMA Plan No. 502-03 - Setting for Guard Rails Tee Rail Design. Guard rails shall be 13' 0" long.
5. Guard Rails for Rail Bound Manganese Steel Frog may be either hook flange type or one piece design per AREMA Plan No. 510-01 Manganese Steel One Piece Guard Rail.

2.5 ADDITIONAL RAIL AND OTM

A. Rail

1. All rails supplied shall be new 136RE high strength rail, with minimum Brinell Hardness Number of 352. Rail layout shall be as indicated on AREMA Plan No. 921-02 - Location of Joints for Turnouts with Curved Split Switches (Type "S") and to fit the tie schedule indicated in 2.2 C above.
2. Rails and metals supplied, shall complete the turnouts, and shall extend to or beyond the limits of the tie layouts as shown in tables on AREMA Plan No. 912-02 – Bills of Switch Ties for Turnouts and Crossovers.

B. OTM

1. All joints, bolts/nuts and washers, canted double shouldered tie plates, and hook twin tie plates, shall be supplied for the installation of rails, switch points, and frogs over the timber layout as shown in AREMA PLAN 912-02 - Bills of Switch Ties for Turnouts and Crossovers.
2. Rail Joints
   a. Joint bars shall be new and conform to material specifications of the AREMA Manual for Railway Engineering, Chapter 4, Part 3 - Joining of Rail, Section 3.4 - Specifications for Quenched Carbon-Steel Joint Bars, Microalloyed Joint Bars and Forged Compromise Joint Bars.
   b. All joint bars shall be 6 hole, 36 inches in length.

C. TIE PLATES

1. New tie plates shall be manufactured to the requirements of the AREMA Manual for Railway Engineering, Chapter 5, Part 1, Section 1.1, Tie Plates - Specifications for Steel Tie Plates.
2. Tie plates to be used with cut spike fasteners shall be 14 inch size AREMA Figure 5-1-8, Plan No. 12, Punching A. Tie plates shall be double shoulder, canted with cant of 1:40.

D. FASTENERS

1. All track bolts and nuts shall be new and conform to the material specifications

PART 4 - MEASUREMENT AND PAYMENT

4.1 NO. 10 TURNOUTS

A. No. 10 turnouts will be measured and paid for at the contract unit price each. Such prices and payment will be full compensation for all work covered by this provision including but not limited to furnishing, installing and all incidentals necessary to complete the work.

B. Thermite welds are not included in the payment item for No. 10 Turnouts. Thermite welds are measured and paid under the Bid Item for General Trackwork Item (EA), Furnish & Install Field Welds.

C. Payment will be made under:

Pay Item	Pay Unit
General Trackwork Item (EA) Furnish & Install No. 10 Turnout	Each

DOUBLE SWITCH POINT DERAILS

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section specifies the furnishing and shipment of two (2) double switch point derails.

1.2 APPLICABLE STANDARDS

A. American Railway Engineering and Maintenance-of-Way Association (AREMA)

1.3 SUBMITTALS

A. Submit the following to the Engineer for approval.

1. Shop drawing plans for 16' – 6" Double Switch Point Derail indicating the switch tie layout and the lengths of all switch ties.
2. Catalog cuts and details of switch stand, operating rod, switch stand target and ergonomic operating handle.

1.4 INSPECTION / ACCEPTANCE

A. Material will not be accepted until unloaded and inspected at the Project Site. The Engineer will make a close examination of all materials after being unloaded at the Project Site. Any turnout item that is not in strict compliance with these specifications will be rejected. Contractor shall remove and replace the rejected material at no additional cost to the Owner.

PART 2 - PRODUCTS

2.1 GENERAL

A. Double split switch point derail material shall be 136RE new rail. Derails shall include all components for an operable derail. The derail components shall conform in basic design to the following AREMA Manual of Railway Engineering plans and specifications referenced herein, as applicable.

2.2 SWITCH

A. Switch components shall generally conform to AREMA Plan No. 111-08 – 16'-6" Straight Split Switch with Uniform Risers. Hand Throw Insulated Switch with Adjustable Rail Braces.

B. Supplier shall fit all switch points to stock rails, install heel blocks and bolts and band together with two steel straps and ship components combined and assembled. Switch points shall mate properly to stock rails. Switch points provided shall conform in basic design to AREMA Plan 221-00 Detail 5100. Heel Joint Assemblies and Stops shall conform in basic design as shown on Plan 221-00. Stock rails shall be 39 feet long.

2.3 GEOTEXTILE FABRIC

A. Geotextile fabric shall be in accordance with the requirement of AREMA Manual for Railway Engineering, Chapter 1, Part 10. The physical properties of goetextile fabric shall meet the requirements for Extra heavy Weight fabric as shown in Table 1-10-2.

PART 3- EXECUTION

3.1 GRADE CROSSING INSTALLATION

A. Construct road crossings to the alignment and limits shown on the Contract Drawings.

B. Install the proprietary type road crossing in accordance with the manufacturer's recommendations.

C. Prior to installing the crossing surface, the track shall be brought to a true grade and shall be shaped and compacted.

D. Geotextile fabric shall be placed as indicated on the Contract Drawings. Geotextile shall be placed between the subgrade and sub-ballast through the grade crossing area. The geotextile fabric shall be placed 100 feet from the centerline of roadway on both sides except for Harvey parkway where the distance shall be 150 feet.

E. All tie plates within the limits of grade crossing construction shall have a minimum of 4 spikes.

PART 4 - MEASUREMENT AND PAYMENT

4.1 FULL DEPTH CONCRETE PRE-CAST GRADE CROSSINGS

A. Full depth concrete grade crossings will be measured and paid for at the contract unit price per lineal foot of track. Such prices and payment will be full compensation for all work covered by this provision including but not limited to furnishing, installing and all incidentals necessary to complete the work.

B.. Track within the limits of the crossing shall not be included in the pay item for Furnish and Install Concrete Grade Crossing but shall be measured and paid as specified in BALLASTED TRACK CONSTRUCTION.

C. Payment will be made under:

Pay Item	Pay Unit
Generic Trackwork Item (LF) Furnish and Install Concrete Grade Crossing	Lineal Foot

4.2 RUBBER RAIL SEAL GRADE CROSSINGS

A. Rubber rail seal grade crossings will be measured and paid for at the contract unit price per lineal foot of track. Such prices and payment will be full compensation for all work covered by this provision including but not limited to furnishing, installing and all incidentals necessary to complete the work.

B. Track within the limits of the crossing shall not be included in the pay item for Rubber/Asphalt Grade Crossing but shall be measured and paid as specified in BALLASTED TRACK CONSTRUCTION.

C. Payment will be made under:

Pay Item	Pay Unit
Generic Trackwork Item (LF) Furnish and Install Rubber/Asphalt Grade Crossing	Lineal Foot

BALLASTED TRACK CONSTRUCTION

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section specifies new ballasted track construction using new materials.

B. This section also specifies work on existing tracks to permit the installation of new No. 10 turnouts. This work includes spot tie replacement and surfacing and lining of existing track.

C. The Contractor shall furnish all materials for the construction of ballasted track.

C. Field testing for density control of fill and sub-grade materials shall be made in accordance with the requirements of AASHTO T 191 and T 205 or by use of a portable nuclear density testing device with field test locations selected by the Engineer. Testing shall not relieve the contactor of the responsibility for ensuring that the work is done in accordance with these Specifications.

D. Contractor may increase the depths of successive fill layers beyond the depths specified is Section 3.2 if tests, performed at his expense, determine that the specified densities can be obtained for the increased layer's depths.

E. Moisture content of the soil shall be controlled as necessary to obtain the specified densities based upon the optimum moisture content of each material. Water shall be added to the soil, when, in the opinion of the Engineer, additional moisture may be necessary to obtain the specified density. Soil that is too wet shall be allowed to dry or be worked by plowing, disking, harrowing or other means to dry the material to a workable moisture content.

F. In the event that a specified density is not obtained, the Engineer may order additional rolling, watering or drying of the soil as necessary to obtain the specified density. Fill layers not meeting a specified density after additional working shall be removed and new material shall be placed and compacted to the specified density at no additional cost to NCDOT.

3.3 PLACEMENT OF INITIAL BALLAST

A. Ballast shall not be distributed until the sub-grade has been completed and accepted by the Engineer and the sub-ballast has been placed, compacted and accepted by the Engineer.

B. Distribute and compact no more than four inch layers of ballast at a time, uniformly over the finished sub-grade prior to tie distribution.

C. Deliver ballast at a rate no faster than can be incorporated into the Work, maintaining a proper interval of operations, and at such times as to permit inspection by the Engineer.

D. Unload ballast in position for use with a minimum of redistribution and dressing.

E. Shape stone ballast to a true section conforming to the ballast section shown on Contract Drawings.

F. Thoroughly compact ballast until stones are firmly interlocked and surface is true and unyielding. Compact each lift with not less than four passes of a roller or a vibratory compactor subject to the following requirements:

1. Compact by rolling using either a self-propelled, three-wheel, two axle roller of such weight that will provide compression under the rear wheels of not less than 350 pounds per linear inch of tread; or using a two or three-wheel tandem roller having a weight per inch of drive roll of not less than 350 pounds, and every part of the surface receiving compression from the drive wheels.
2. Compact by vibration using vibration compactors of either the roller or pad type. Dynamic force for either type shall not be less than 20,000 pounds and the frequency range shall be 1100 to 1500 vpm. Use machines equipped with a governor that can be set and locked to control rate of impulse.

G. Top surface of initial layers of ballast shall be smooth, flat and uniformly compacted prior to distributing ties.

H. The initial layer of ballast shall be a minimum of 4 inches thick and shall extend a distance of a minimum of one foot beyond the end of ties.

3.4 DISTRIBUTING AND SPACING WOOD CROSS TIES

A. Distribute and space ties on initial layer of ballast. Space ties at design spacing of 19½" inches on center.

B. Place timber ties so that heartwood is down. Do not adze ties.

C. Handle treated ties in a manner to avoid breaking and bruising. Do not throw ties from cars or trucks onto rails or rocks.

D. Place ties normal to centerline of track unless shown otherwise on Contract Drawings.

E. Space and align ties prior to rail installation.

F. In placing or spacing treated ties, handle only with tongs or lining bars. Do not use chisels, forks, mauls, picks, punches, shovels, or sledges for moving ties or placing them in position beneath rails.

G. Distribute ties in proper position for use without further handling.

H. Remove ties damaged as result of improper handling by the Contractor and rejected by the Designer and replace with undamaged ties at no additional cost to the Owner.

3.5 TIE PLATES

A. Timber cross ties shall have tie plates installed under each rail.

B. Prior to installation of tie plates, clean contact surfaces to allow flat bearing of the tie plate on the tie and canted bearing of the rail on the tie plate.

C. Locate centerline of tie plates on 8 feet 6 inch ties so that the line side of the tie is 18 1/2 inches from outer edge of base of rail. Tie plate shall be centered on the cross tie under rail.

D. Locate tie plates on longitudinal centerline of each tie and place square to centerline of rail so that outside shoulder of plate bears fully against rail base. Place plate with the downward cant toward center of track.

E. Secure rail in proper relation to tie end before securing opposite rail.

F. Use line rail as reference in securing opposite rail to proper gauge.

3.6 CUT SPIKES

A. Start and drive spikes vertically and square with rail. Drive spikes straight.

B. Spikes shall be set and driven with long side of head toward rail.

C. Spiking pattern for shall be as shown on the Contract Drawings.

D. Gauge of track shall be within tolerances specified in Article 1.3 herein.

E. Straightening spikes will not be permitted. Spikes bent during driving shall be withdrawn and replacement spikes driven at no additional cost to the Owner.

F. Under no circumstances shall gauge be adjusted by striking rail, lags, spikes, or plate edge after it is fixed to tie.

G. Seat rail properly between tie plate shoulders, with outside base of rail tight against outside plate shoulder.

3.7 INSTALLATION OF RAIL

A. Install and joint rail with end gap adjustment per AREMA Chapter 5, Part 5.1.4. Table 5-5-2.

B. Install rail in such a manner that damage to ties or OTM is avoided, and ties are not dislodged from their proper position.

C. Rail joints in track shall have a minimum stagger of 12 feet.

D. Running rail for all tracks shall be continuously welded rail. Rail shall be welded as specified herein in accordance with the requirement for CONTINUOUSLY WELDED RAIL and THERMITE FIELD RAIL WELDING. Holes may be drilled

in the ends of CWR strings for the temporary connection of rail strings during construction. Rail drilling shall be in accordance with the requirements of AREMA Chapter 4. End holes shall not be drilled. No holes shall be burned under any circumstances.

3.8 INSTALLATION OF RAIL JOINTS

Standard rail joints and compromise joints shall be welded in accordance with the requirements of THERMITE FIELD RAIL WELDING of these Special Provisions.

3.9 TIE PLUGS

A. Install treated tie plugs in holes where spikes have been pulled from ties.

B. Drive plugs into tie to refusal and cut plug flush with top of tie, using an adze, before installing tie plates.

3.10 RAIL ALIGNMENT

A. Construct track conforming to alignment and profile data shown on Contract Drawings.

B. Alignment is based on centerline of track equidistant between gauge sides of running rails.

C. For tangent track, profile refers to top of rail in final position. For curved track, profile refers to top of inner (low) rail in final position.

3.11 REALIGN EXISTING TRACK

A. Existing track shall be aligned to permit the installation of new No. 10 turnouts.

B. Cross ties that fall out of track during realigning operations shall be replaced with new cross ties as specified herein.

3.12 SURFACING AND ALIGNING

A. Ballasting

1. Following assembly of track, unload ballast in tie cribs and shoulders of track structure.
2. Unload ballast in quantities that will fill tie cribs and provide ballast for the initial track raise with surplus to continue to hold track after initial raise.
3. Prior to dumping ballast in track, ties shall be spaced as specified and shall be square with rails.
4. Contractor shall re-space and straighten ties to meet specifications herein before stone is distributed.
5. The Contractor shall distribute the stone ballast for tamping the track and for restoring the ballast section.
6. The Contractor shall avoid pulling sod, vegetation, and other foreign material onto the track structure or shoulders for purpose of tamping or dressing the ballast section. Any sod, vegetation or foreign matter inadvertently pulled in shall be removed by the Contractor prior to tamping at no additional cost to the Authority.
7. Clean the trackway area of all debris and standing water prior to placing of ballast. Do not place ballast on frozen subgrade or subbase.
8. Deliver ballast at a rate no faster than can be incorporated into the Work.
9. To the extent practicable, unload ballast in position for use with a minimum of redistribution and dressing.

B. Tamping

1. Tamp ballast with 16 tool, squeeze-vibratory type, power tamping equipment capable of tamping track and turnouts. Control of power tamper shall ensure maximum compaction of ballast uniformly along track. The Authority's Consultant will determine tamping variables, including rate of advance, number of passes, number of insertions per tie (if more than two are required), length and

4.2 CONSTRUCT WOOD TIE TRACK WITH 136 RE PREMIUM RAIL

A. The construction of wood tie track with 136 lb. premium rail will be measured and paid for at the contract unit price per track foot. Such prices and payment will be full compensation for all work covered by this provision including but not limited to furnishing, installing and all incidentals necessary to complete the work.

B. Payment will be made under:

Pay Item	**Pay Unit**
Generic Trackwork Item (TF) Construct Track, Wood Ties, 136RE, Premium	Track Foot

4.3 FINAL SURFACING AND ALIGNING

A. Final surfacing and aligning of track will be measured and paid for at the contract unit price per track foot. Such prices and payment will be full compensation for all work covered by this provision including but not limited to furnishing, installing and all incidentals necessary to complete the work.

B. Payment will be made under:

Pay Item	**Pay Unit**
Generic Trackwork Item (TF) Final Surface & Align Track	Track Foot

4.4 SPOT TIES

A. Spot ties installed in newly constructed track will not be separately measured nor paid but will be incidental to the items of work into which they are incorporated.

4.5 STRESS RELIEVE / DESTRESS RAIL

A. Stress relieving and distressing rail will be measured and paid for at the contract unit price per track foot. Such prices and payment will be full compensation for all work covered by this provision including but not limited to furnishing, installing and all incidentals necessary to complete the work.

B. Payment will be made under:

Pay Item	**Pay Unit**
Generic Trackwork Item (TF) Stress relieve / Destress Rail	Track Foot

SPECIAL TRACKWORK CONSTRUCTION

PART 1 - GENERAL

1.1 DESCRIPTION

A. This Section specifies the following:

1. Installing complete, fully operational ballasted No. 10 turnouts.
2. Installing double switch point derails.

3.2 SWITCH OPERATING MECHANISM

A. Install switch operating mechanism with operating rod and switch position indicator. After installation, lubricate and adjust to provide proper switch throw with point tight against the stock rails in both normal and reverse directions.

B. Coordinate installation requirements with switch stand manufacturer.

C. Place switch stand on side of turnout indicated on Contract Drawings.

3.3 SURFACING AND ALIGNING

A. Surface, tamp, anchor and align special trackwork as specified herein and Ballasted Railroad Track Construction.

B. Tamp ballast under both sides of each tie directly under each running rail for a distance of 18 inches on both sides of the rail.

C. Bring the top of the ballast section to within 1 inch below the base of the rail throughout the special trackwork.

D. Conform the width and slope of the ballast shoulders to the sections indicated.

E. In areas of special trackwork where standard rail mounted power tamping equipment cannot be used, use hand held power tamping equipment.

3.4 FINAL ALIGNMENT

A. The final surface and alignment of the special trackwork shall be within the tolerances specified in Ballasted Railroad Track Construction.

B. After final surfacing and aligning, dress the ballast to conform to the ballast sections indicated in the Contract Drawings.

C. In the event that sub-grade outside the toe of the slope is fouled or disturbed as a result of the Contractor's operations, re-slope those portions of the sub-grade at no additional cost to NCDOT.

3.5 JOINTS

A. All rail joints in special trackwork shall have all holes bolted.

3.6 LUBRICATION

A. Switch plates shall be given a film of dry graphite switch plate lubricant on all sliding contact surfaces in accordance with the AREMA Specifications for Special Trackwork.

PART 4 - MEASUREMENT AND PAYMENT

4.1 NO. 10 TURNOUTS

A. No. 10 turnouts will be measured and paid for at the contract unit price each. Such prices and payment will be full compensation for all work covered by this provision including but not limited to furnishing, installing and all incidentals necessary to complete the work.

B. Thermite welds are not included in the payment item for No. 10 Turnouts. Thermite welds are measured and paid under the Bid Item for General Trackwork Item (EA), Furnish & Install Field Welds.

C. Payment will be made under:

Pay Item	Pay Unit
General Trackwork Item (EA) Furnish & Install No. 10 Turnout	Each

4.2 DOUBLE SWITCH POINT DERAILS

A. Double switch point derails will be measured and paid for at the contract unit price each. Such prices and payment will be full compensation for all work covered by