

SECTION 024020
RAILROAD TRACKS (S-130)

1. SCOPE - This section covers furnishing all labor, materials, tools, equipment and services required for the rehabilitation of the railroad tracks as specified herein and called for on the plans, including placing ballast, setting ties, laying and aligning track to grade required to complete the project.

2. GENERAL - All construction and installation not noted herein or on the drawings shall conform to American Railway Engineering Association (AREA) specifications or Union Pacific Technical Specifications for Industrial Track.

3. MATERIALS

Top Ballast shall be hard rock crushed to suitable size; crushed blast furnace or properly processed open-hearth slag; or crushed gravel with sufficient angular physical properties to prevent rolling. The top ballast shall meet the following gradation requirements:

Sieve Opening	Passing
12 Inch	100%
1 Inch	90 - 100%
3/4 Inch	40 - 75%
1/2 Inch	15 - 35%
3/8 Inch	0 - 15%
No. 4	0 - 5%

Ties shall be new creosote-treated oak ties, sawed top, bottom and sides, and minimum size 7" thick x 9" wide x 8'-6" long. These cross ties shall be in accordance with AREA specifications for Cross ties, latest revision. The treatment shall be empty-cell process with eight pounds per cubic foot retention, in accordance with AREA specifications for Treatment, latest revision. Creosote shall be 40-60 creosote-coal tar solution in accordance with AREA specifications for Preservatives. No substitutes unless approved by the Engineer.

Switch Ties shall be new creosote-treated oak ties in accordance with AREA specifications for Switch Ties, latest revision. Treatment shall be same as above for Cross Ties. Dimensions shall be in accordance with AREA Plan 912-58. No substitutes unless approved by Engineer.

Guard Rails shall be 5" x 5" hardwood or yellow pine; treatment shall be same as above for Cross-Ties.

Tie Plugs shall be in accordance with AREA specification for Tie Plugs, latest revision.

Tie Plates shall be standard, single or double-shoulder, properly sized to fit the rail section used. Tie plates may be either new or used; if new they shall be AREA standard; if used, they shall be in good condition, free from excessive corrosion. Use double tie plates for guard rails.

Spikes shall be new spikes 5/8" square x 6" long in accordance with AREA specifications for High-Carbon Steel Track Spikes, latest revision.

Rails shall be new 90# ARA-A relay rails. Relay rail shall be in good condition, free from bends, broken flanges, flow, flat spots, end batter, and wheel burns. Cut off battered or defective ends, square and re-drill bolt holes as required. Rails, if necessary, will be cut with a saw during installation and repair or track. No oxygen-acetylene cutting of rails will be permitted.

Angle Bars will be four-hole new or used. Angle bars shall fit the rail section used and shall be in good condition, straight, and free from excessive corrosion.

Track Bolts shall be new 1" heat-treated carbon-steel track bolts and nuts in accordance with AREA specifications for heat-treated carbon-steel and alloy-steel track bolts, and carbon-steel nuts, latest revision.

Spring Washers shall be steel in accordance with AREA specifications for Spring Washers, latest edition.

Rail Anchors shall be new steel rail anchors, "Improved Fair," or approved equal.

Turnouts - Frogs, if required, shall be sized to match or as shown on drawings and shall be bolted-rigid frogs conforming to AREA Plan 323-55. Frogs shall be complete, including a full set of twin hook tie plates. Switches shall be 16'-16" long split-switch, conforming to AREA Plan 112-55. Switches shall be complete, including full set of slide and heel plates, heel blocks, and switch rods.

Two 11' guard rails shall be used at each frog. Guard rails shall conform to AREA Plan 504-55, except shall be furnished complete with guard rail plates and adjustable guard rail clamps.

All turnout dimensions shall conform to AREA Plan 910-41 unless noted otherwise on the drawing.

Switch-stands shall be automatic safety switch stands, Ramapo No. 20-C, or an approved equal.

Bumping Post - Buda Bumping Post #20 or approved equal.

Rail Clips - Rail clips used to anchor the rails through the buildings shall be L.B. Foster #106.

Gauge Rods shall be 13" diameter adjustable gauge rods, either new or used. If used, they shall be straight, the threads good, and free from excessive corrosion.

4. CONSTRUCTION - Cross ties shall be laid on 21" centers at right angles to the rail with one end lined uniformly. Ties must be laid with the heart side down. The bottom of the rail, the tie plate, and the bearing surface of the tie shall be cleaned before rail is laid. Switch ties shall be spaced and sized in accordance with AREA Plan 912-58.

Track shall be fully tie-plated. Tie plates must be applied in a workmanlike manner, at the time the rail is laid, with the shoulder in contact with the field side of the rail base for the entire length of the shoulder.

Metal, fiber, or wood shims must be used to provide the proper opening between the rails, and thermometer used to determine the thickness of shims to be used in accordance with the standards of the AREA. All shims must be removed to within 12 rail lengths of the laying; after completion, all shims must be removed.

Necessary gauging at joints, centers, and quarters must be done at the time rail is laid to maintain gauge recommended by the AREA. Do not remove gauge until spikes are driven home.

All joints shall be fully bolted and rail drilled where necessary. Spring washers shall be used on all bolts. Burning of bolt holes will not be allowed. All bolts must be tight.

All rail joints must be staggered and shorter rail lengths used to maintain the proper stagger or curves. On tangent track, or on curves less than three degrees, rail shall be spiked with not less than two spikes per tie plate. On curves three degrees and over, four spikes shall be used per tie plate.

All spikes shall be started and driven vertically and square with the rail and so driven as to allow 1/8" to 3/16" space between the underside of the head of the spike and the top of the base of the rail. In no case shall the spike be over driven, or straightened while being driven. No spikes shall be driven against the ends of joint bars.

Tie plugs shall be used to fill all spike holes.

Rail anchors shall be applied at the rate of eight anchors per 39' rail length. The anchors shall be placed approximately uniformly along the rail length and boxed around the same tie on opposite rails to resist movement in both directions.

Gauge rods shall be applied at the rate of five per 39' rail on all curves of ten degrees or over.

Switches must be left in proper adjustment and oiled, special care being given to the bending of the stock rail.

The preliminary surfacing gang shall follow the unloading of ballast as closely as practical. In using jacks, they must be placed close enough together to prevent undue bending of the rail or strain on the joints. Both rails must be raised at one time and as nearly uniformly as possible. The track shall be so lifted that after a period of not less than three days after the last lift, it will be necessary to give it a final lift of not less than one inch nor more than two inches to bring it to the grade of the stakes. All ties that are pulled loose shall be replaced in proper position. Ballast shall be well packed and tamped from a point 15" inside of each rail on both sides of the tie to the ends of the ties.

When the track has been raised to within one or two inches of the final grade and properly compacted by traffic, a finishing lift shall be made and the track brought to a true surface.

All track shall have a minimum of 12" of top ballast below the bottom of the ties.

The Contractor is to understand that any work not specifically mentioned in this specification, but which is necessary for the proper carrying out of the intent thereof, shall be required and applied.

5. MEASUREMENT AND PAYMENT

Unless indicated otherwise in the Proposal, Track Resurfacing and Track Reconstruction shall be measured by the linear foot of tracks, measured along the centerline of the tracks. Measurement shall include, but not be limited to, all labor, materials, equipment, and incidentals required to restore the track to the required section, with the exception of those items specifically itemized in the proposal.