

ITEM 770
GUARD FENCE REPAIR

770.1. Description. Repair guard fence elements, posts, terminal anchor sections, single guard fence terminals, and other appurtenances.

770.2. Materials. Furnish the following materials, unless otherwise shown on the plans:

- rail elements, posts, blockouts, fittings, and anchor concrete meeting Item 540, “Metal Beam Guard Fence”;
- single Guardrail Terminal, in accordance with Item 544, “Guard Rail End Treatments”;
- steel posts with base plates or terminal anchor posts to match original design, meeting ASTM A 36 or better;
- paint as required;
- concrete for structural repair, in accordance with Item 429, “Concrete Structure Repair”;
- grout meeting the requirements of Item 421, “Hydraulic Cement Concrete”; and
- backfill material as approved.

770.3. Work Methods. Replace guard fence, including thrie beam, curb, and transitions, in accordance with Item 540, “Metal Beam Guard Fence,” and as shown on the plans or as directed. Work requests are made on a callout basis. Begin physical work within 72 hr. of notification, unless otherwise shown on the plans. Replace end treatments in accordance with Item 544, “Guardrail End Treatments,” and as shown on the plans or as directed. Weld in accordance with Item 448, “Structural Field Welding.” Repair concrete in accordance with Item 429, “Concrete Structure Repair.” Remove guard fence in accordance with Item 542, “Removing Metal Beam Guard Fence.” Replace rail and posts removed during the same workday, unless otherwise approved.

- Protect unattached rail elements left overnight, as approved.
 - Cover or fill postholes at the end of each day.
 - Place rail to a smooth line and grade, with posts plumb to the correct height, in accordance with the plans.
 - Remove salvageable rail elements in original lengths. Remove fittings from posts and rail elements. Deliver salvageable materials to a designated stockpile site and neatly stack as directed. Reuse salvageable materials in the repair as approved.
 - Dispose of debris and damaged components in accordance with all federal, state, and local regulations.
- A. Repair of Rail Element.** Remove and replace rail elements as directed. Bolt rail elements end to end and lap in the direction of traffic in the lane adjacent to the guard fence. Provide prefabricated curved rail when needed. Field-drill, punch, or use other approved methods to create holes for special details. Tighten nuts. Replace bridge end connection when required, in accordance with Item 540, “Metal Beam Guard Fence.”
- B. Removal and Replacement of Timber or Steel Post.** Replace posts as directed. Dispose of any concrete removed. Drill new post holes as needed. Clean postholes free of loose dirt and debris, and thoroughly compact bottom of hole to the correct elevation for placement of post. Place post to the correct alignment, elevation, and plumb. Backfill with select material by thoroughly tamping in 4-in. layers. Concrete foundations will not be replaced unless directed. When replacing posts in riprap, use grout to fill space between riprap and posts.
- C. Realignment of Posts.** Realign existing posts to a smooth line and grade.
- D. Repair of Terminal Anchor Post.** Repair the steel anchor post by straightening or welding to the existing post above the concrete foundation.
- E. Replacing Terminal Anchor Posts.** Remove and replace damaged anchor posts with foundation or install new anchor posts with foundation. Remove anchor and clean existing holes or drill new holes, as approved.

- F. Removal of Guardrail End Treatment and Replacement with Single Guardrail Terminal (SGT).** Remove damaged guard fence end treatment and replace with complete new SGT.
- G. Repair of SGT.** Remove damaged SGT components and replace with new components. Salvage and reuse components as approved.
- H. Repair of Steel Post with Base Plate.** Replace damaged steel posts with base plates. Drill anchor holes and install new bolts or weld new anchor bolts to existing bolts as directed. Field-weld in accordance with Item 448, "Structural Field Welding," or shop-weld in accordance with Item 441, "Steel Structures." Repair damaged galvanized coating in accordance with Section 445.3.D, "Repairs."

770.4. Measurement. This Item will be measured as follows:

- A. Repair of Rail Element (W-Beam, Thrie-Beam, or Thrie-Beam Transition to W-Beam).** By the foot along the face of the rail from center to center of the slotted hole at each end of the rail elements repaired, including the terminal anchor section, but excluding the first 2 rail elements of the single guardrail terminal section.
- B. Removal and Replacement of Timber or Steel Posts without Concrete Foundation.** By each post replaced.
- C. Removal and Replacement of Timber or Steel Posts with Concrete Foundation.** By each post replaced.
- D. Realignment of Posts.** By each post realigned.
- E. Repair of Terminal Anchor Posts.** By each post repaired.
- F. Replacement of Terminal Anchor Posts.** By each post replaced.
- G. Removal of Guardrail End Treatment and Replacement with SGT.** By each SGT.
- H. Replacement of SGT Impact Head.** By each head.
- I. Replacement of SGT Rail.** By the foot from center to center of posts.
- J. Replacement of Single Guardrail Terminal Post.** By each post replaced.
- K. Replacing Steel Blockouts with Wood Blockouts.** By each blockout replaced.
- L. Repair of Steel Post with Base Plate.** By each post repaired.

770.5. Payment. The work performed and the materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for: "Repair Rail Element (W-Beam)," "Repair Rail Element (Thrie-Beam)," "Repair Rail Element (Thrie-Beam Transition to W-Beam)," "Remove and Replace Timber or Steel Post Without Concrete Foundation," "Remove and Replace Timber or Steel Post with Concrete Foundation," "Realign Posts," "Repair of Terminal Anchor Posts," "Replace Terminal Anchor Posts," "Remove Guardrail End Treatment and Replace with SGT," "Replace Single Guardrail Terminal Impact Head," "Replace Single Guardrail Terminal Rail," "Replace Single Guardrail Terminal Post," "Replacing Steel Blockouts with Wood Blockouts," and "Repair Steel Post with Base Plate."

This price is full compensation for repairing rail and for furnishing equipment, materials, labor, tools, and incidentals. Realignment of existing rail without removing will not be paid for directly but will be considered subsidiary to realigning posts. Replacement of concrete riprap around posts, removal and replacement of curbs, and bridge end connection will not be paid for directly, but will be considered subsidiary to the various bid items. Concrete repair will be paid for in accordance with pertinent Items. Payment for repair of steel posts with base plate includes work performed above the concrete foundation.