NOTICE

This is a project special provision that revises or modifies CDOT’s *Standard Specifications for Road and Bridge Construction*. It has gone through a formal review and approval process and has been issued by CDOT’s Construction Engineering Services Branch with formal instructions for its use on CDOT construction projects. It is to be used as written without change. Do not use modified versions of this special provision on CDOT construction projects, and do not use this special provision on CDOT projects in a manner other than that specified in the instructions unless such use is first approved by CDOT’s Standards and Specifications Unit. The instructions for use on CDOT construction projects appear below.

Other agencies which use the *Standard Specifications for Road and Bridge Construction* to administer construction projects may use this special provision as appropriate and at their own risk.

**Instructions for use on CDOT construction projects:**

Use this standard special provision on all projects with bridge removal operations. Use the 107 standard special provision, Safety Critical Work, with this specification at all times.

Revise Section 202 of the Standard Specifications as follows:

Subsection 202.01 shall include the following:

This work consists of removal of the existing bridge(s) at the locations shown in the plans. Bridge removal shall consist of the complete removal of all superstructure and substructure elements including caissons and piling to a depth of at least two (2) feet below finished grade unless otherwise shown on the plans.Time limitations for the work shall be as shown in the contract and/or plans.

Subsection 202.02 shall include the following:

Perform the removal of the existing bridges in accordance with the requirements in this specification and Standard Specification 107.06. The Construction Plan requirements shown in Revision of Section 107-Performance of Safety Critical Work shall be included in the Bridge Removal Plan.

When removal operations are located over or in proximity to a railroad or any live water way, additional coordination including potential incident emergency/risk management notifications with the railroad or other agency (United States Army Corps of Engineers (USACE), US Fish and Wildlife Service, US Forest Service, etc.) shall be required.

The Contractor shall submit a bridge removal plan to the Engineer for review and acceptance at least 2 weeks prior to the Pre-removal Conference. This Plan shall detail procedures, sequences, and all features required to perform the removal in a safe and controlled manner**.** The Bridge Removal Plan shall be prepared by the Contractor’s Engineer and contain the Seal of a Professional Engineer registered in the State of Colorado. The Contractor’s Engineer shall stamp and sign the Bridge Removal Plan “Approved for Construction”. Submit the Bridge Removal Plan to the Engineer of Record, the corresponding CDOT Region Bridge Unit Leader and the Engineer for review and concurrence with general specification compliance, but it will not be approved. Submit comments from the referenced reviewers of the Bridge Removal Plan in writing to the Contractor within seven calendar days from receipt of the planand prior to the Pre-removal Conference**.** Acceptance of the Bridge Removal Plan will be contingent upon the Contractor adequately addressing all written comments to the satisfaction of the Engineer.

The Bridge Removal Plan shall provide complete details of the bridge removal process, including:

1. The removal sequence corresponding to the construction phasing shown on the plans, including calculations and analysis of the Contractor’s removal equipment as related to loading capacity and any crane bearing during the removal operations. Sequence of operation shall include a detailed schedule that complies with the working hour limitations.
2. Equipment descriptions including size, number, type, capacity, backup/standby need, and location of equipment during removal operations.
3. Roles, responsibilities, and positioning of all CDOT project management, construction supervision, and critical workers during removal activities. Include instructions for communicating and managing a ‘safe-all stop’ scenario in this section, if unexpected hazards are discovered during the activity.
4. Shoring that exceeds 5 feet in height, all falsework and bracing. Shoring design shall follow the AASHTO Guide Design Specifications for Bridge Temporary Works, or other design standard as approved by the Engineer.
5. Shoring construction, including verification and proof testing shall be in accordance with Section 206. Shoring will not be measured and paid for separately, but shall be included in the cost of item 202 – Removal of Bridge, unless otherwise provided on the plans or as directed by the Engineer.
6. Details, locations, and types of protective coverings to be used. The protective covering shall prevent materials, equipment, and debris from falling onto the property below. When removal operations are located over or in proximity to a live waterway, railroad, or pedestrian/bicycle path, additional width of protective covering sufficient to protect these facilities shall be required. Include detailed methods of protection of the existing roadway facilities, including measures to assure that people, property, utilities, and improvements will not be endangered. Consider a catastrophic, unplanned failure of the structure during demolition as worst-case scenario.
7. Detailed methods for protection of live waterways including minimization of turbidity and sedimentation, and protection of existing wetlands.
8. Detailed methods for mitigation of fugitive dust resulting from the demolition.
9. Details for dismantling, removing, loading, and hauling steel elements.
10. Locations of railroad tracks, roadways, utilities (overhead and underground), structures or facilities located within the area of the bridge removal operations.
11. Detailed methods of fire suppression.
12. Methods of Handling Traffic, including bicycles and pedestrians, in a safe and controlled manner.
13. Details for managing project communications, media, and on-looking public during demolition as needed.
14. Contingency planning for unexpected weather.
15. Details for emergency and post-incident management in a catastrophic failure or other serious incident or worker injury.

The Contractor’s Engineer shall be responsible forthe stability of the existing “in service” structure for any deviation from the bridge removal limits shown on the construction phasing plans. The Contractor is also responsible for the protection of any portion of the structure to remain in place for later phases, including protection from the Contractor’s construction activities.

Use the more stringent criteria of the design guidelines, when a temporary works or demolition guideline is provided by a railroad or local agency

Hold a Pre-removal Conference at least seven days prior to the beginning of removal of the bridge. The Engineer, Staff Bridge, the Contractor, the subcontractor performing the removal(s), the Contractor’s Engineer, the Traffic Control Supervisor (TCS), and CDOT/Project Communications Staff shall attend the Pre-removal Conference. Finalize the Bridge Removal Plan at this Conference. Record meeting minutes and the attendance list.

The Contractor’s Engineer shall seal items (1) and (4) listed above in the final Bridge Removal Plan. Demonstrate with adequate calculations that the loads and impact of the Contractor’s demolition equipment do not impose detrimental effects on the stability of the structure remaining after the end of each phase of removal. Review these calculations before traffic is allowed to resume in its normal configuration.

The final Bridge Removal Plan shall be stamped “Approved for Construction” and sealed by the Contractor’s Engineer. The Contractor shall address all written comments from the Engineer and submit a final Bridge Removal Plan to the Engineer. The Contractor shall not begin the removal operations without the Engineer’s writtenacceptance of the final Bridge Removal Plan.

Submittal of the final Bridge Removal Plan to the Engineer, and field inspection performed by the Engineer, will in no way relieve the Contractor and the Contractor’s Engineer of full responsibility for the removal plan and procedures.

Work within Railroad right-of-way shall be in accordance with Section 107. For bridge removal over railroads, including overhead wires, tunnels and underground facilities, approval of the bridge removal plans will be contingent upon the drawings being satisfactory to the railroad company involved.

TheContractor’s Engineer shall be onsite during safety critical removal operations considered to have a high degree of safety risk. At or before the Pre-removal Conference, the Contractor and the Engineer shall agree if the Bridge removal operations are of high safety risk. Document said agreement in writing. The Contractor’s Engineer shall inspect and provide written approval of each phase of the removal operations corresponding to the construction phasing shown on the plans prior to allowing vehicles or pedestrians on, below, or adjacent to the structure. The Contractor’s Engineer shall certify in writing that the falsework, bracing, and shoring conform to the details of the final Bridge Removal Plan. Submit a copy of the certification to the Engineer. If any part of the adjacent structure designated to remain in place is damaged during removal operations, the Contractor’s Engineer shall perform a full and complete engineering evaluation of the structure and submit a written report to the Engineer. This evaluation, as well as any additional costs to stabilize the structure due to or resulting from the Contractor’s actions or inactions, shall be borne solely by the Contractor. Do not permit further work involving the bridge until the report and any subsequent remedial stability measures are complete and satisfactory to the Engineer and Staff Bridge.

The Contractor shall have all necessary workers, materials, and equipment at the site prior to closing any lanes to traffic to accommodate bridge removal operations. Pursue work promptly and without interruption until reopening the roadway to traffic.

Removal of hazardous material shall be in accordance with Section 250.

The Contractor shall take all necessary steps to avoid contaminating state waters, in accordance with subsection 107.25.

If an unplanned event occurs or the bridge removal operation deviate from the submitted Bridge Removal Plan, the bridge removal operations shall immediately cease. Perform all necessary work to ensure worksite safety. The Contractor shall submit to the Engineer the procedure or operation proposed by the Contractor’s Engineer to correct or remedy the occurrence of this unplanned event or to revise the final Bridge Removal Plan. The Contractor’s Engineer shall submit a written report to the Engineer within 24 hours of the event summarizing the details of the event and the procedure for correction. The Engineer shall review the information submitted regarding the unplanned event and provide written acceptance of the corrective action or remedy procedure prior to resuming operations.

Before removal of the protective covering, the Contractor shall clean the protective covering of all debris and fine material.

The Engineer may suspend bridge removal for the following reasons:

1. Final Bridge Removal Plan has not been submitted, or written acceptance has not been provided by the Engineer to begin the removal.
2. The Contractor is not proceeding in accordance with the final Bridge Removal Plan, procedures, or sequence.
3. The Contractor’s Engineer is not onsite to conduct inspection for the written approval of the work.
4. Safety precautions are deemed to be inadequate.
5. Existing neighboring facilities are damaged because of bridge removal.

Suspension of bridge removal operations shall in no way relieve the Contractor of their responsibility under the terms of the Contract. A suspension ordered as a direct result of (1) through (5) above, shall be considered a non-excusable delay. Bridge removal operations shall not resume until modifications have been made to correct the conditions that resulted in the suspension, as approved in writing by the Engineer.

The Contractor shall notify all emergency response agencies of the proposed removal work and any detours a minimum of three days in advance of the work. This shall include the Colorado State Patrol, local Police Department, local Fire Department, all local ambulance services, and the Sheriff’s Department, as appropriate.

All required traffic control devices, nighttime flagging stations, barricades and VMS signs shall be in place, with detours in operation, prior to the beginning of removal operations each day. Night work shall conform to the requirements of the MUTCD, Parts 1, 5, and 6.

Prior to reopening the roadway to public traffic, remove all debris, protective pads, materials, and devices and sweep the roadways clean. The Contractor shall install any restriping necessary to achieve full compliance pavement markings prior to reopening. All costs related to pavement marking replacement shall be included in the work.

Do not use explosives for removal work without the written approval of the Engineer.

Removal shall include the superstructure, the substructure, which includes the piers, abutments and wingwalls, the bridge rail, and any approach slabs and sleeper slabs.

During removal of the substructure, take it down to at least 2 feet below the natural existing or future ground surface at the lowest point of interface with the abutment, unless otherwise approved by the Engineer. Holes resulting from substructure removal shall be backfilled with Structure Backfill (Class 2) to the adjacent existing grades.

All other materials removed from the existing structure shall become the property of the Contractor and shall be properly disposed of offsite at the Contractor’s expense, unless otherwise stated on the plans.

The Contractor shall not damage the existing structures, facilities, and surrounding roadways during the removal operations. Repair damage that occurs immediately, at the Contractor’s expense.

Subsection 202.03 shall include the following:

Protect and remove all brass bridge plaques prior to demolition of the bridge. Deliver plaques to the Region Environmental group or Staff Bridge.

In Subsection 202.08: Replace the first paragraph with:

Unless otherwise directed, remove the substructures of removed structures to 2 feet below the natural stream bottom and remove those parts outside of the stream down 2 feet below natural ground or finished surface. Remove such portions of existing structures, which lie wholly or in part within the limits of a new structure, as necessary to accommodate the construction of the proposed structure.

In Subsection 202.12 include the following:

Make payment under:

**Pay Item Unit**

Removal of Bridge Each

Payment for Removal of Bridge will be full compensation for all labor and materials required to complete the work, including, preparation and implementation of the Bridge Removal Plan, Engineering work, inspection, equipment, debris handling and disposal, salvaging, handling and storage of salvable materials, handling and disposal of all hazardous materials and disposal of non-salvable materials.

Lighting required for nighttime operations will not be measured and paid for separately, but shall be included in the work.