COLORADO DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
FEDERAL AID PROJECT NO. FBR 090A-007
CONSTRUCTION PROJECT CODE NO. 20817

The 2011 Standard Specifications for Road and Bridge Construction controls construction of this project. The following special provisions supplement or modify the Standard Specifications and take precedence over the Standard Specifications and plans.

PROJECT SPECIAL PROVISIONS

STANDARD SPECIAL PROVISIONS

	Date	#Pages
Revision of Sections 101 and 630 - Construction Zone Traffic Control	(April 30, 2015)	2
Revision of Section 102 - Contents of Proposal Forms	(April 9, 2015)	1
Revision of Section 103 – Escrow of Proposal Documentation	(May 5, 2011)	2
Revision of Section 105 – Construction Surveying	(July 31, 2014)	1
Revision of Section 105 – Disputes and Claims for Contract Adjustments	(October 29, 2015)	33
Revision of Section 105 – Hot Mix Asphalt Pavement Smoothness	(May 8, 2014)	9
Revision of Section 105 – Violation of Working Time Limitation	(February 3, 2011)	1
Revision of Sections 105 and 106 – Conformity to the Contract of Hot Mix Asphalt (Less than 5000 Tons)	(January 15, 2015)	8
Revision of Section 106 - Buy America Requirements	(November 6, 2014)	1
Revision of Section 106 – Certificates of Compliance and Certified Test Reports	(February 3, 2011)	1
Revision of Section 106 – Material Sources	(October 31, 2013)	1
Revision of Section 106 – Supplier List	(January 30, 2014)	1
Revision of Sections 106, 627 and 713 - Glass Beads for Pavement Marking	(February 8, 2013)	2
Revision of Section 107 – Contractor Obtained Stormwater Construction Permit	(July 31, 2014)	1
Revision of Section 107 – Project Payrolls	(May 2, 2013)	1
Revision of Section 107 - Responsibility for Damage Claims, Insurance Types, and Coverage Limits	(February 3, 2011)	1
Revision of Section 107 – Warning Lights for Work Vehicles and Equipment	(January 30, 2014)	1
Revision of Section 108 - Delay and Extension of Contract Time	(April 30, 2015)	2
Revision of Section 108 – Liquidated Damages	(October 29, 2015)	1
Revision of Section 108 – Notice to Proceed	(July 31, 2014)	1
Revision of Section 108 – Project Schedule	(July 31, 2014)	6
Revision of Section 108 – Subletting of Contract	(January 31, 2013)	1
Revision of Section 108 – Payment Schedule (Single Fiscal Year)	(April 30, 2015)	1
Revision of Section 109 – Asphalt Cement Cost Adjustment (Asphalt Cement Included in the Work)	(August 3, 2015)	2
Revision of Section 109 - Compensation for Compensable Delays	(May 5, 2011)	1
Revision of Section 109 – Fuel Cost Adjustment	(February 3, 2011)	2
Revision of Section 109 – Measurement of Quantities	(February 3, 2011)	1
Revision of Section 109 – Measurement of Water	(January 06, 2012)	1
Revision of Section 109 – Prompt Payment	(January 31, 2013)	1
Revision of Section 109 – Scales	(October 29, 2015)	1
Revision of Sections 203, 206, 304 and 613 - Compaction	(July 19, 2012)	2
Revision of Section 206 – Imported Material for Structure Backfill	(July 19, 2012)	2

Revision of Section 206 – Structure Backfill (Flow-Fill)	(April 26, 2012)	2
Revision of Section 206 – Structure Backfill at Bridge Abutments	(January 30, 2014)	1
Revision of Section 208 - Erosion Control Supervisor	(April 30, 2015)	1
Revision of Section 208 – Erosion Log	(January 31, 2013)	1
Revision of Section 212 – Seed	(April 26, 2012)	1
Revision of Section 213 – Mulching	(January 31, 2013)	4
Revision of Section 216 – Soil Retention Covering	(July 16, 2015)	6
Revision of Section 250 – Environmental, Health and Safety Management	(January 15, 2015)	14
Revision of Section 401 – Compaction of Hot Mix Asphalt	(April 26, 2012)	1
Revision of Section 401 – Compaction Pavement Test Section (CTS)	(July 19, 2012)	1
Revision of Section 401 – Composition of Mixtures – Voids Acceptance	(February 3, 2011)	1
Revision of Section 401 – Plant Mix Pavements	(February 3, 2011)	1
Revision of Section 401 – Temperature Segregation	(February 3, 2011)	1
Revision of Section 401 – Tolerances for Hot Mix Asphalt (Voids Acceptance)	(January 06, 2012)	1
Revision of Section 401 and 412 – Safety Edge	(May 2, 2013)	2
Revision of Sections 412, 601, and 711 - Liquid Membrane-Forming Compounds for Curing Concrete	(May 5, 2011)	1
Revision of Section 512 – Bearing Device Testing	(November 6, 2014)	1
Revision of Section 601 – Concrete Batching	(February 3, 2011)	1
Revision of Section 601 – Concrete Finishing	(February 3, 2011)	1
Revision of Section 601 – Concrete Slump Acceptance	(October 29, 2015)	1
Revision of Section 601 - QC Testing Requirements for Structural Concrete	(May 8, 2014)	1
Revision of Section 601 - Structural Concrete Strength Acceptance	(April 30, 2015)	1
Revision of Section 601 and 701 – Cements and Pozzolans	(November 6, 2014)	4
Revision of Section 612 – Delineators	(February 3, 2011)	1
Revision of Section 618 – Prestressed Concrete	(April 26, 2012)	24
Revision of Section 627 and 708 – Pavement Marking Paint	(January 31, 2013)	2
Revision of Section 630 – Retroreflective Sign Sheeting	(May 8, 2014)	1
Revision of Section 702 – Bituminous Materials	(October 29, 2015)	11
Revision of Section 703 - Aggregate for Bases (Without RAP)	(October 31, 2013)	1
Revision of Section 703 – Aggregate for Hot Mix Asphalt	(November 1, 2012)	2
Revision of Section 703 – Concrete Aggregate	(July 28, 2011)	1
Revision of Section 712 – Geotextiles	(November 1, 2012)	2
Revision of Section 712 – Water for Mixing or Curing Concrete	(February 3, 2011)	1
Revision of Section 713 - Epoxy Pavement Marking	(January 15, 2015)	2
Revision of Section 713 – Reflectors for Delineators and Median Barrier	(May 2, 2013)	1
Revision of Section 713 – Sign Panel Backgrounds	(November 6, 2014)	1
Affirmative Action Requirements – Equal Employment Opportunity	(February 3, 2011)	10
Disadvantaged Business Enterprise (DBE) Requirements	(Dec. 26, 2013)	9
FASTER Monthly Employment Report	(May 2, 2013)	1
Minimum Wages, Colorado, U.S. Department of Labor General Decision Number CO160022, Highway Construction for Alamosa, Archuleta,	(January 8, 2016)	9

Chaffee, Conejos, Custer, Delta, Dolores, Fremont, Gunnison, Hinsdale, La Plata, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan, and San Miguel counties.		
On the Job Training	(July 29, 2011)	3
Partnering Program	(February 3, 2011)	1
Required Contract Provisions – Federal-Aid Construction Contracts	(October 31, 2013)	14
Special Construction Requirements, Fire Protection Plan	(November 1, 2012)	2

FEDERAL AID PROJECT NO. FBR 090A-007
CONSTRUCTION PROJECT CODE NO. 20817 June 16, 2016

NOTICE TO BIDDERS

The proposal guaranty shall be a certified check, cashier's check, or bid bond in the amount of 5 percent of the Contractor's total bid.

Pursuant to subsections 102.04 and 102.05, it is recommended that bidders on this project review the work site and plan details with an authorized Department representative. Prospective bidders shall contact one of the following listed authorized Department representatives at least 12 hours in advance of the time they wish to go over the project.

Program Engineer -	Ed Archuleta 3803 North Main Avenue Durango, CO 81301 Office Phone:	 970-385-1436
Resident Engineer -	David Valentinelli 1205 West Avenue, Box C Alamosa, CO 81101 Office Phone:	 719-589-4251
Project Engineer -	Jennifer Allison 3803 North Main Avenue Durango, CO 81301 Office Phone: *Email: *email is the preferred method of contact while under advertisement.	 970-385-8373 Jennifer.Allison@state.co.us

The above referenced individuals are the only representatives of the Department with authority to provide any information, clarification, or interpretation regarding the plans, specifications, and any other contract documents or requirements.

A mandatory pre bid conference will be held on June xx, 2016 beginning at 0:00 am at the Durango Residency: 3803 N. Main Avenue, Suite 300, Durango, CO 81301. Bids will be accepted only from pre-qualified bidders who attend the mandatory pre-bid conference.

Questions received from bidders along with CDOT responses will be posted on the CDOT web site listed below as they become available.

http://www.coloradodot.info/business/bidding/future-bidding-opportunities

If the bidder has a question or requests clarification that involves the bidder's innovative or proprietary means and methods, phasing, scheduling, or other aspects of construction of the project, the Project Engineer will direct the bidder to contact the Resident Engineer directly to address the question or clarification. The Resident Engineer will keep the bidder’s innovation confidential and will not share this information with other bidders.

The Resident Engineer will determine whether questions are innovative or proprietary in nature. If the Resident Engineer determines that a question does not warrant confidentiality, the bidder may withdraw the question. If the bidder withdraws the question, the Resident Engineer will not answer the question and the question will not be documented on the CDOT web site. If the bidder does not withdraw the question, the question will be answered, and both the question and CDOT answer will be posted on the web site. If the Resident Engineer agrees that a question warrants confidentiality, the Resident Engineer will answer the question, and keep both question and answer confidential. CDOT will keep a record of both question and answer in their confidential file.

All questions shall be directed to the CDOT contacts listed above no later than 7:00 A.M. Monday of the week of bid opening. Final questions and answers will be posted no later than Tuesday morning of bid opening week.

Questions and answers shall be used for reference only and shall not be considered part of the Contract.

DISADVANTAGED BUSINESS ENTERPRISE (DBE) CONTRACT GOAL

This is a federally-assisted construction project. As described in the CDOT DBE Standard Special Provision, the Bidder shall make good faith efforts to meet the following contract goal:

XX Percent DBE participation.

COMMENCEMENT AND COMPLETION OF WORK

The Contractor shall commence work under the Contract on or before the 15th day following Contract execution or the 30th day following the date of award, whichever comes later, unless such time for beginning the work is changed by the Chief Engineer in the "Notice to Proceed." It is anticipated that the Contractor will prepare and submit required documentation to procure construction materials prior to the commencement of site work.

The Contractor shall complete all work within 200 Working days in accordance with the "Notice to Proceed."

Stockpiling of materials before the beginning date is subject to the Engineer's approval. If such approval is given, stockpiled material will be paid for in accordance with Sections 109 and 626.

Section 108 of the Standard Specifications is hereby revised for this project as follows:

Subsection 108.03 shall include the following:

The Contractor's progress schedule shall be a Critical Path Method (CPM).

Salient features to be shown on the Contractor's CPM Schedule are:

(1) Notice to Proceed
(2) Working and Shop Drawings
(3) Material Orders
(4) Mobilization
(5) Erosion and Sediment Control
(6) Water Control System Installation
(7) Construction Surveying
(8) Utility Work Elements (per Part 1 of the Utility Specification)
(9) Clearing\Grubbing
(10) Removal of Bridge (K-01-C)
(11) Disassembly, Loading, Hauling and Delivery of Salvaged Materials
(12) Earthwork
(13) Pile Driving (Sheet & H-Pile)
(14) Riprap Installation
(15) Precast Abutment Installation
(16) Precast Girder Installation
(17) Precast End Diaphragm and Precast Curtain Wall Installation
(18) Precast Bridge Deck Installation and Post-Tensioning
(19) HMA Pavement
(20) Traffic Switch
(21) Detour Removal including Temporary Acrow Bridge
(22) Final Grading
(23) Revegetation and Restoration
(24) Punch List

Critical project schedule elements and coordination that will be shown on the Contractor's CPM Schedule include:

(1) Migratory bird breeding season, April 1 to August 31

ON THE JOB TRAINING CONTRACT GOAL

The Department has determined that On the Job Training shall be provided to trainees with the goal of developing full journey workers in the types of trade or classification involved. The contract goal for On the Job Trainees working in an approved training plan in this Contract has been established as follows:

Minimum number of total On the Job Training required XX hours

REVISION OF SECTION 102
PROJECT PLANS AND OTHER DATA

Section 102 of the Standard Specifications is hereby revised for this project as follows:

Subsection 102.05 shall include the following:

The following information will be available for review in the southeast building of the CDOT Headquarters Complex, 4201 East Arkansas Avenue, Denver, Colorado 8022 until the date set for opening of bids:

Project Plan Set and Project Special Provisions
Earthwork Calculations and Quantities
Structure Inspection Reports and limited as-built drawings for Structure No. K-01-C
As-built Plans for detour project
Geotechnical Investigation Report
Hydrology and Hydraulics Report

The Bid Plans Room will provide an area where contractors can review any available data. This material may be taken out of the Bid Plans Room area by either: (1) purchase of the material at the current reproduction price or, (2) deposit of cash or check (payable to: Colorado Department of Transportation) equal to the purchase price. The deposit will be refunded if the material is returned by 4:30 p.m. on the second full working day after obtaining the material. If not returned within that time, the deposit will be forfeited. .

After the proposals have been opened, the low responsible bidder may obtain from CDOT's Printing and Visual Communications Center, 4201 East Arkansas Avenue, Denver, Colorado 8022, at no cost: 15 sets of plans and special provisions; and if available, one set of full-size cross sections, one set of full-size major structure plan sheets, and one set of computer output data. If the low bidder has not picked up the plans and other available data by 4:30 p.m. on the second Friday after bid opening, they will be sent to the Resident Engineer in charge of the project. Additional sets of plans and other available data may be purchased on a cash sale basis from CDOT's Visual Communication Center at current reproduction prices. Subcontractors and suppliers may obtain plans and other date from the successful bidder or they may purchase copies on a cash sale basis from the Visual Communication Center at current reproduction prices.

REVISION OF SECTION 106
CONFORMITY TO THE CONTRACT OF HOT MIX ASPHALT

Section 106 of the Standard Special Provisions is hereby revised for this project as follows:

Subsection 106.05 shall include the following:

For this project, Contractor process control testing of hot mix asphalt is mandatory.

REVISION OF SECTION 107
PERFORMANCE OF SAFETY CRITICAL WORK

Section 107 of the Standard Specifications is hereby revised as follows:

Add subsection 107.061 immediately following subsection 107.06 as follows:

107.061 Performance of Safety Critical Work. The following work elements are considered safety critical work for this project:

(1) Overhead girder erection
(2) Overhead precast element erection including deck panels and precast substructure elements
(3) Overhead structure construction
(4) Removal of bridge (K-01-C)
(5) Removal of bridge (temporary detour bridge)
(6) Work being completed near overhead lines
(7) Temporary works including falsework, shoring that exceeds 5 feet in height, and cofferdams
(8) Work requiring the use of cranes or other heavy lifting equipment to remove a bridge, set a girder, set a precast element, support/stabilize substructure construction or make overhead repairs. This includes special provisions for Removal of Bridge or Removal of Bridge (Special). This includes construction activities in which construction materials are being lifted that may fall onto active traffic lanes.
(9) Excavation and embankment adjacent to the roadway
(10) Work operations such as sheet pile driving, H-Pile driving and jack hammering, which may create vibration and cause debris to fall into traffic.

The Contractor shall submit, for record purposes only, an initial detailed construction plan that addresses safe construction of each of the safety critical elements. When the specifications already require an erection plan or a bridge removal plan, it shall be included as a part of this plan. The detailed construction plan shall be submitted two weeks prior to the safety critical element conference described below. The construction plan shall be stamped "Approved for Construction" and signed by the Contractor. The construction plan will not be approved by the Engineer.

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REVISION OF SECTION 107
PERFORMANCE OF SAFETY CRITICAL WORK

The Construction Plan shall include the following:

(1) Safety Critical Element for which the plan is being prepared and submitted.
(2) Contractor or subcontractor responsible for the plan preparation and the work.
(3) Schedule, procedures, equipment, and sequence of operations, that comply with the working hour limitations
(4) Temporary works required: falsework, bracing, shoring, etc.
(5) Additional actions that will be taken to ensure that the work will be performed safely.
(6) Names and qualifications of workers who will be in responsible charge of the work:
   A. Years of experience performing similar work
   B. Training taken in performing similar work
   C. Certifications earned in performing similar work
(7) Names and qualifications of workers operating cranes or other lifting equipment
   A. Years of experience performing similar work
   B. Training taken in performing similar work
   C. Certifications earned in performing similar work
(8) The construction plan shall address how the Contractor will handle contingencies such as:
   A. Unplanned events (storms, traffic accidents, etc.)
   B. Structural elements that don't fit or line up
   C. Work that cannot be completed in time for the roadway to be reopened to traffic
   D. Replacement of workers who don't perform the work safely
   E. Equipment failure
   F. Other potential difficulties inherent in the type of work being performed
(9) Name and qualifications of Contractor's person designated to determine and notify the Engineer in writing when it is safe to open a route to traffic after it has been closed for safety critical work.
(10) Erection plan or bridge removal plan when submitted as required elsewhere by the specifications. Plan requirements that overlap with above requirements may be submitted only once.

A safety critical element conference shall be held two weeks prior to beginning construction on each safety critical element. The Engineer, the Contractor, the safety critical element subcontractors, and the Contractor's Engineer shall attend the conference. Required pre-erection conferences or bridge removal conferences may be included as a part of this conference.

After the safety critical element conference, and prior to beginning work on the safety critical element, the Contractor shall submit a final construction plan to the Engineer for record purposes only. The Contractor's Engineer shall sign and seal temporary works, such as falsework, shoring etc., related to construction plans for the safety critical elements. The final construction plan shall be stamped "Approved for Construction" and signed by the Contractor.

The Contractor shall perform safety critical work only when the Engineer is on the project site. The Contractor's Engineer shall be on site to inspect and provide written approval of safety critical work for which he provided signed and sealed construction details. Unless otherwise directed or approved, the Contractor's Engineer need not be on site during the actual performance of safety critical work, but shall be present to conduct inspection for written approval of the safety critical work.

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REVISION OF SECTION 107
PERFORMANCE OF SAFETY CRITICAL WORK

When ordered by the Engineer, the Contractor shall immediately stop safety critical work that is being performed in an unsafe manner or will result in an unsafe situation for the traveling public. Prior to stopping work, the Contractor shall make the situation safe for work stoppage. The Contractor shall submit an acceptable plan to correct the unsafe process before the Engineer will authorize resumption of the work.

When ordered by the Engineer, the Contractor shall remove workers from the project that are performing the safety critical work in a manner that creates an unsafe situation for the public in accordance with subsection 108.05.

Should an unplanned event occur or the safety critical operation deviate from the submitted plan, the Contractor shall immediately cease operations on the safety critical element, except for performing any work necessary to ensure worksite safety, and provide proper protection of the work and the traveling public. If the Contractor intends to modify the submitted plan, he shall submit a revised plan to the Engineer prior to resuming operations.

All costs associated with the preparation and implementation of each safety critical element construction plan will not be measured and paid for separately, but shall be included in the work.

Nothing in the section shall be construed to relieve the Contractor from ultimate liability for unsafe or negligent acts or to be a waiver of the Colorado Governmental Immunity Act on behalf of the Department.

REVISION OF SECTION 107
PROTECTION OF EXISTING VEGETATION

Section 107 of the Standard Specifications is hereby revised for this project as follows:

Subsection 107.12 shall include the following:

The Contractor shall save all existing vegetation (including trees, shrubs, ground covers, grasses, wetlands & riparian) in the project area, except for that vegetation which must be removed to accommodate construction of the project per the plans. Specific areas of vegetation to be protected shall be as directed by the Engineer and shall be protected by using orange Fence (Plastic). Fencing for trees shall be installed at the drip line of the tree or as approved by the Engineer. Equipment shall not be installed or material stockpiled within 15 feet of existing trees to remain, except as specifically shown on the plans.

The Contractor shall perform all the work in such a manner that the least environmental damage will result. All questionable areas or items shall be brought to the attention of the Engineer for approval prior to removal or any damaging activity. The Contractor shall promptly report any vegetation damaged or scarred during construction to the Engineer for assessment of damages. Damaged or destroyed fenced vegetation shall be replaced at the expense of the Contractor. Vegetation of replaceable size shall be replaced at the Contractor's expense.

If the fence is knocked down or destroyed by the Contractor, the Engineer will suspend the work, wholly or in part, until the fence is repaired to the Engineer's satisfaction at the Contractor's expense. Time lost due to such suspension will not be considered a basis for adjustment of time charges, but will be charged as contract time.

REVISION OF SECTION 108
LIMITATION OF OPERATIONS

Section 108 of the Standard Specifications is hereby revised for this project as follows:

Subsection 108.08 shall include the following:

Work hours shall be between the hours of 7:00 AM and 6:00 PM Monday through Saturday unless otherwise approved by the Engineer. All work performed by the Contractor or any of the Contractor's agents during a working day shall be accomplished within these pre-established working hours. Neither the Contractor nor any of the Contractor's agents shall work during times outside of the daily working hours without written approval of the Engineer. Requests for changes in working hours shall be submitted to the Engineer in writing at least 48 hours before the proposed change in working hours would take effect. Working outside these times will not be allowed unless necessary due to weather restrictions or to comply with safety requirements or as specified by the plans and approved by the Engineer.

The Contractor shall not anticipate working holidays as defined in section 108.08. See Standard Specification 101.36 for recognized holidays.

REVISION OF SECTION 108
SPECIALTY ITEMS

Section 108 of the Standard Specifications is hereby revised for this project as follows:

Subsection 108.01 shall include the following:

The following items are designated as "Specialty Items" for this project:

Specialty Items

(1) Steel Sheet Piling
(2) Precast Concrete Abutment
(3) Precast Concrete Deck Panels, Curtain Walls, and End Diaphragms
(4) Bridge Removals

REVISION OF SECTION 202
REMOVAL AND TRIMMING OF TREES

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Subsection 202.01 shall include the following:

This work includes the removal, disposal, & trimming of trees 4 inches or greater in diameter, as measured 24 inches above the existing ground as shown on the plan. This work also includes the removal, trimming, and the disposal of the waste of the trees as shown on the plans and as directed by the Engineer. This work includes the preservation from injury or defacement of all vegetation and objects designated to remain.

The Engineer in cooperation with the Contractor's surveyor will establish environmental limits. All trees, shrubs, plants, grasses, and other vegetative materials shall remain, except as designated by the Engineer. (See Revision of Section 107 – Protection of Existing Vegetation.) If it appears that the completion of construction may cause damage to the branches of any tree, the Contractor shall prune trees to facilitate construction.

Subsection 202.02 shall include the following:

Prior to beginning any wall, bridge or roadway construction, removal, trimming, and pruning of encroaching vegetation, the Contractor shall be responsible to schedule and participate in a walkthrough of the site with the Contractor, the Engineer and the CDOT Landscape Architect to mark/tag trees, to be removed and or trimmed. Trees to be transplanted and vegetation to be protected will also be marked during this walk through. Once all directed clearing, trimming, and pruning is completed and accepted, no additional clearing, trimming, cutting, or pruning will be allowed unless approved, in writing, by the Engineer.

The Contractor shall submit for approval, a method statement and pruning schedule to the Engineer.

Access for the removal or pruning of trees will be extremely limited. The Contractor shall obtain any local permits necessary for pruning or removal of all trees not in the right-of-way. Trees shall be felled at the risk of the Contractor. Strict limits of disturbance will be defined and shall be adhered to. If damage or destruction occurs outside of the pre-established limits, the provisions of "Revision of Section 107-Protection of Existing Vegetation" will be enforced.

Where construction brings about a need to sever roots, roots shall be pruned. If tree roots larger than two (2) inches in diameter of trees scheduled only for trimming are encountered with digging or trenching, they should be tunneled. The Contractor shall physically inspect and hand excavate around root zones to determine damage and health of tree. The Contractor shall not tear the roots out. Removal of two (2) inches or larger diameter roots encountered during construction will not be allowed. If damage or destruction occurs on trees scheduled only for trimming, the provisions of "Revision of Section 107-Protection of Existing Vegetation" will be enforced.

REVISION OF SECTION 202
REMOVAL AND TRIMMING OF TREES

Branches on trees or shrubs shall be removed as directed by the Engineer. All trimming shall be done by skilled workmen. All work shall be done according to the following requirements:

(1) Trimming and Pruning shall be done with proper, sharp, clean tools in such a manner as to preserve the natural character of the tree.
(2) All final cuts shall leave no projections on or off the branch and shall not be cut so close as to eliminate the branch collar.
(3) To avoid bark stripping, all branches 50 mm (2 inches) in diameter and larger shall be cut using the 3-cut method. These branches shall be lowered to the ground by proper ropes.
(4) Tools used on trees known or found to be diseased, shall be disinfected with alcohol before they are used on other trees.
(5) Branches which are weak or dead shall be removed. Structural weaknesses, decayed trunk or branches, or split crotches shall be reported to the Engineer.
(6) When trimming, cutting back or topping trees, the Contractor shall use the drop-crotch method and avoid trimming or cutting back to small suckers. Smaller limbs and twigs shall be removed in such a manner so as to leave the foliage pattern evenly distributed.
(7) When reducing size (cut back or topping) not more than one third of the total area shall be reduced at a single operation.
(8) Climbing spikes shall not be used on trees not scheduled for removal.
(9) Remove man-made structures including wires and cables from existing tree.
(10) Make smooth cuts on any severed tree roots greater than 2 inches diameter. Do not rip or tear, by excavation equipment, roots of trees to remain.
(11) Fertilizers, insect sprays, or other chemicals shall not be applied before or during root or branch pruning processes.

All brush, branches, limbs, and foliage smaller than 3 inches in diameter shall be chipped into mulch and removed/hauled away from the site or stockpiled at a designated site. The trunks and limbs 3 inches and larger shall be cut into less than 6 foot lengths and hauled away or stockpiled at a designated site. Stumps shall be left no higher than 1 foot above the ground surface and shall not be removed when within the areas to be excavated. In lawn areas, stumps shall be left at a depth of 12 inches below the proposed finished grade surface. In paved areas, stumps shall be left at a depth of 36 inches below finish grade. Tree stumps designated on the plans for removal shall be cut so that they are 1 foot below the ground surface and the majority of the stump removed. When trees being cut off are outside the excavation limits, the stumps shall be removed by grinding to 1 foot below the surface cut so that no more than 3 inches remains above the ground surface. Stump removal areas shall be filled with existing soil. Chemicals which will harm future landscapes, above stumps, may not be applied to aid in stump removal. Removals or mulch shall become the property of the Contractor.

REVISION OF SECTION 202
REMOVAL AND TRIMMING OF TREES

Subsection 202.11 shall include the following:

Removal and disposal of trees will not be measured separately for payment. The removal of all trees and shrubs shall be included in 201 Clearing and Grubbing.

Subsection 202.12 shall include the following:

Removal, disposal and trimming of all trees and shrubs will not be paid for separately, but shall be included in the cost of 201 Clearing and Grubbing.

Trimming, chipping and hauling chipping, stockpiling mulch, and hauling and stockpiling trunks and limbs will not be paid for separately but shall be included in the cost of 201 Clearing and Grubbing.

REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Subsection 202.01 shall include the following:

This work includes removal and disposal of existing asphalt mat within the project limits as shown on the plans or at locations directed by the Engineer.

In Subsection 202.02 delete the seventh paragraph and replace with the following:

The existing asphalt mat which varies in thickness shall be removed in a manner that minimizes contamination of the removed mat with underlying material. The removed mat shall become the property of the Contractor and shall be either disposed of outside the project site, or used in one or more of the following ways:

1. Used in embankment construction in accordance with subsection 203.06 and with advance written approval by Region 5 Materials and the Engineer.
2. Placed in bottom of fills as approved by the Engineer.
3. Placed in the subgrade soft spots as directed by the Engineer.

Additional processing of asphalt mat shall be required before reuse on the project location as directed by the Engineer.

Subsection 202.11 shall include the following:

The removal of the existing asphalt mat will be measured by the square yard of mat removed to the required depth and accepted.

Subsection 202.12 shall include the following:

Payment will be made under:

Pay Item	**Pay Unit**
Removal of Asphalt Mat	Square Yard

Unless otherwise specified in the Contract, the disposal of the asphalt mat or its use in other locations on the project will not be measured and paid for separately, but shall be included in the work.

REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT (PLANING)

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Delete subsection 202.09, and replace it with the following:

202.09 Removal of Asphalt Mat (Planing). Prior to beginning planing operations, the Contractor shall submit a planing plan and a Quality Control Plan (QCP) for approval by the Engineer.

The planing plan shall include at a minimum:

(1) The number, types and sizes of planers to be used.
(2) The width and location of each planing pass.
(3) The number and types of brooms to be used and their locations with respect to the planers.
(4) The proposed method for planing and wedging around existing structures such as manholes, valve boxes, and inlets.
(5) The longitudinal and transverse typical sections for tie-ins at the end of the day.
(6) If requested by the Engineer, a plan sheet showing the milling passes.

The QCP shall include as a minimum:

(1) The schedule for replacing the cutting teeth.
(2) The daily preventive maintenance schedule and checklist.
(3) Proposed use of automatic grade controls.
(4) The surface testing schedule for smoothness.
(5) The process for filling distressed areas.
(6) The schedule for testing macrotexture of the milled surface.
(7) Corrective procedures if the milled surface does not meet the minimum macrotexture specification.
(8) Corrective procedures if the milled surface does not meet the minimum transverse or longitudinal surface finish when measured with a 10 foot straightedge.

The Contractor shall not start the planing operation until the hot mix asphalt (HMA) mix design has been approved and a Form 43 has been signed by the Engineer.

The existing pavement shall be milled to the cross-slope as shown on the plans, and shall have a surface finish that does not vary longitudinally or transversely more than 3/8 inch from a 10 foot straightedge. A 10 foot straightedge shall be supplied by the Contractor.

All milled surfaces shall be broomed with a pick-up broom, unless otherwise specified, before being opened to traffic. A sufficient number of brooms shall be used immediately after planing to remove all milled material remaining in the roadway.

If the Contractor fails to adequately clean the roadway, work shall cease until the Engineer has approved the Contractor’s revised written proposal to adequately clean the roadway.

The milled surface shall have a macrotexture equal to or less than 0.170 inches for single-lift overlays and 0.215 inches for multiple-lift overlays as tested in accordance with CP 77. Milled surfaces that do not meet these criteria shall require corrective action in accordance with the QCP. The Contractor shall be responsible for testing the macrotexture of the milled surface at the location directed by the Engineer in accordance with CP 77 at a stratified random frequency of one test per 10,000 square yards or a minimum of once per work day.

REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT (PLANING)

At the completion of each day's work, longitudinal vertical edges greater than 1 inch shall be tapered. No transverse vertical edges will be allowed. Longitudinal milled surface tie-ins to existing pavement shall be tapered to not less than a 3:1 slope, transverse milled surface tie-ins to existing pavement shall be tapered to not less than a 50:1 slope. Transverse tapered joints may be tapered with the planing machine, a temporary asphalt ramp, or other methods approved by the Engineer. No longitudinal joint between the milled and existing surfaces shall fall between 1 to 5 feet of any lane line.

If the transverse joint is tapered with a temporary asphalt ramp, the milled surface at the joint shall be constructed as a butt joint the full depth of the lift of asphalt to be placed on the milled surface. The Contractor shall be responsible for maintaining this asphalt ramp until all corresponding HMA is placed. All work associated with this joint will not be paid for separately, but shall be included in the cost of planing.

If the transverse joint is tapered with a planing machine, a butt joint shall be cut into the taper the full depth of the lift of asphalt to be placed on the milled surface prior to commencement of resurfacing. All work associated with this joint will not be paid for separately, but shall be included in the cost of planing.

Other approved transverse joint tapers shall be maintained at the expense of the Contractor, and at a minimum shall incorporate a butt joint the full depth of the lift of asphalt to be placed on the milled surface prior to commencement of resurfacing.

Distressed or irregular areas identified in the planed surface by the Engineer shall be patched.

The roadway shall be left in a safe and usable condition at the end of each work day. The Contractor shall take appropriate measures to ensure that the milled surface does not trap or hold water. All required pavement markings removed by the planing shall be restored before the roadway is opened to traffic.

All milled surfaces to be overlaid with HMA shall be covered with new asphalt within XX working days.

All planing shall be completed full width and parallel to the travel lanes before resurfacing commences unless otherwise directed by the Engineer.

All material generated by the planing operation shall become the property of the Contractor unless otherwise noted in the Contract.

REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT (PLANING)

Add subsection 202.091 immediately following subsection 202.09 as follows:

202.091 Equipment. Each planer shall conform to the following:

The planer shall have sufficient power, traction and stability to maintain an accurate depth of cut. The propulsion and guidance system of the planer shall be maintained in such condition that the planer may be operated to straight and true lines.

The planer shall be capable of operating with automatic grade controls (contact or non-contact) on both sides of the machine using a 30 foot averaging system or other approved grade control systems. The use of such controls shall be described in the Contractor's QCP.

The planer shall be capable of picking up the removed material in a single operation. A self-loading conveyor shall be an integral part of the planer. Windrows will not be allowed.

Subsection 202.12 shall include the following:

Macrotexture testing, macrotexture corrective actions, planers, brooms and all other work necessary to complete the item will not be measured and paid for separately, but shall be included in the work.

Payment will be made under:

Pay Item	**Pay Unit**
Removal of Asphalt Mat (Planing)	Square Yard

REVISION OF SECTION 202
REMOVAL OF BRIDGE

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Subsection 202.01 shall include the following:

This work consists of removal of the existing bridge (K-01-C) on State Highway 90 over the Dolores River. Bridge removal shall consist of the complete removal of all superstructure, substructure and foundation elements as shown on the plans.

The existing steel truss superstructure is considered a historic property and will be salvaged for future use. The existing substructure will be removed and disposed of.

The structural steel components of the bridge are coated with a paint which may contain lead, other heavy metals or a combination thereof. The Contractor shall safeguard these materials until such materials are either disposed of or unloaded at the final destination. Management of paint debris waste shall be accomplished in accordance with Section 250.

The temporary detour bridge and supporting substructure including mechanically reinforced soil is located directly adjacent to existing bridge (K-01-C). The detour is to remain in place until the proposed bridge (K-01-L) is constructed.

Subsection 202.02 shall include the following:

The removal of the existing bridge shall be performed in a safe manner.

The Contractor shall comply with the USACE Section 404 Permit and SB 40 Certification requirements. The Contractor is responsible to obtain and pay any applicable fees for a demolition permit from the Colorado Department of Public Health and Environment (CDPHE) for the existing bridge (K-01-C). Also refer to Section 250 and the Environmental Permits..

The Contractor shall submit a Bridge Removal Plan to the Engineer, for record purposes only, at least 20 working days prior to the proposed start of removal operations. 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 stamped “Approved for Construction” and signed by the Contractor. The Bridge Removal Plan will not be approved by the Engineer.

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

(1) The removal sequence, including staging of 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, and location of equipment during removal operations.
(3) Shoring that exceeds 5 feet in height, all falsework and bracing.
(4) Details, locations and types of protective coverings to be used. The protective covering shall prevent any materials, equipment or debris from falling onto the property below. When removal operations are located over or in proximity to any live waterway, trail or path, additional width of protective covering sufficient to protect these facilities shall be required.

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REVISION OF SECTION 202
REMOVAL OF BRIDGE

(5) Detailed methods for protection of the existing roadway facilities, including measures to assure that people, property, utilities, and improvements will not be endangered.
(6) Detailed methods for protection of live waterways including minimization of turbidity and sedimentation, and protection of existing wetlands.
(7) Detailed methods for mitigation of fugitive dust resulting from the demolition.
(8) Details for removing, disassembling, inventorying, tagging, loading, hauling and unloading the steel truss superstructure elements to be salvaged.
(9) Detailed methods for removing the steel piling in the abutments and wingwalls.
(10) Methods of Handling Traffic, including bicycles and pedestrians, in a safe and controlled manner.

A Pre-Removal Conference shall be held at least seven days prior to the beginning of removal of the bridge. The Engineer, the Contractor, the removal subcontractor, the Contractor's Engineer, and the Traffic Control Supervisor (TCS) shall attend the Pre-Removal Conference. The Bridge Removal Plan shall be finalized at this Conference.

The Contractor's Engineer shall sign and seal (1), (3) and (4) listed above in the final Bridge Removal Plan. Calculations shall be adequate to demonstrate the stability of the structure remaining after the end of each stage of removal, before traffic is allowed to resume in its normal configuration. For protective covers, calculations shall include assumed dead load and live load values.

The final Bridge Removal Plan shall be stamped "Approved for Construction" and signed by the Contractor. The Contractor shall submit a final Bridge Removal Plan to the Engineer prior to bridge removal for record purposes only. The Contractor shall not begin the removal process without the Engineer's written authorization.

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.

Adequately sized crane(s) shall be required to dismantle the existing concrete bridge deck, and lift and remove the existing steel truss in one complete assembly. A crane picking diagram shall be included with the Bridge Removal Plan. Demolition of the existing deck shall consist of saw cutting the deck and removing it is large pieces. The use of a hydraulic hammer will not be allowed.

Unless otherwise directed, the Contractor's Engineer need not be on site when bridge removal operations are in progress, but shall be present to conduct daily inspection for written approval of the work. The Contractor's Engineer shall inspect and provide written approval of each phase of the removal 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. A copy of the certification shall be submitted to the Engineer.

The Contractor's Engineer shall inspect the bridge removal site and report in writing on a daily basis the progress of the operation and the status of the remaining structure. A copy of this daily report shall be available at the site of the work at all times, and a copy of the previous day's inspection report shall submitted to the Engineer daily.

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REVISION OF SECTION 202
REMOVAL OF 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. While the lanes are closed to public traffic, work shall be pursued promptly and without interruption until the roadway is reopened to traffic.

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

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

Should an unplanned event occur or the bridge removal operation deviate from the submitted bridge removal plan, the bridge removal operations shall immediately cease after performing any work necessary 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 shall submit his Engineer's report in writing, within 24 hours of the event, summarizing the details of the event and the procedure for correction.

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

Bridge removal may be suspended by the Engineer for the following reasons:

(1) Final Bridge Removal Plan has not been submitted, or written authorization 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 on site to conduct inspection for the written approval of the work.
(4) Safety precautions are deemed to be inadequate.
(5) Existing neighboring facilities are damaged as a result of bridge removal.

Suspension of bridge removal operations shall in no way relieve the Contractor of his responsibility under the terms of the Contract. 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 24 hours in advance of 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, night time 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, all debris, protective pads, materials, and devices shall be removed and the roadways swept clean.

Existing structures, facilities, and surrounding roadways shall not be damaged by the removal operations. Damage that does occur shall be repaired immediately at the Contractor's expense.

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REVISION OF SECTION 202
REMOVAL OF BRIDGE

Explosives shall not be used for removal work without the written approval of the Engineer.

In advance of removing the steel truss superstructure, the existing concrete deck and any abandoned utilities attached to the bridge shall be removed and disposed of.

Removal of the steel truss superstructure shall include removal, disassembly, inventorying, tagging, loading, delivery, and unloading of the steel truss superstructure at a predetermined location. This includes the bearings and steel railing.

The entire removal operation through unloading of the salvaged members shall be performed in a matter that does not damage any of the elements to be salvaged. Any damage to the elements to be salvaged shall be repaired at the Contractor's expense.

The steel truss superstructure, which has riveted connections, shall be totally disassembled down to individual truss members, individual transverse/portal bracing members, and individual floor beam, stringer and diaphragm members. The steel railing shall also be disassembled. No drilling, cutting, torching or welding of members of the superstructure will be permitted. The Contractor shall dispose of the rivets.

As part of the Bridge Removal Plan, the Contractor shall include an Inventory Plan that depicts how the Contractor will accurately inventory, document the condition, and tag all of the steel truss superstructure members so that the superstructure can be reassembled at a later date. At minimum, the Inventory plan shall consist of means and methods of establishing field notes, taking photographs, and tagging the members with wire tags. Stamping and painting of the members will not be permitted. In advance of the bridge removal, a LiDAR survey will be provided to the Contractor by CDOT to aid in the disassembly, inventory and tagging process.

Subsection 202.08 shall be modified to replace the first paragraph with the following:

The substructure, which consists of abutments and wingwalls including steel piles, steel bracing and wood lagging, shall be completely removed and disposed of. The steel piles shall be removed in a manner that minimizes ground disturbance below elevation 5012.00. All materials removed as part of the substructure removal shall become the property of the Contractor and shall be properly disposed of offsite at the Contractor's expense, unless otherwise stated in the plans.

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REVISION OF SECTION 202
REMOVAL OF BRIDGE

Subsection 202.12 shall include the following:

Payment will be made under:

Pay Item	**Unit**
Removal of Bridge	Each

Payment for Removal of Bridge will be full compensation for all labor, equipment, materials and incidentals required to complete the work including but not limited to preparation and implementation of the Bridge Removal Plan, inspection, debris handling and disposal, hazardous material handling and disposal, handling of disposable and non-salvable materials, and disassembling, inventorying, tagging, loading, hauling and unloading the steel truss superstructure elements to be salvaged. Management of paint debris waste and other hazardous materials will be measured and paid for in accordance with Section 250.

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

REVISION OF SECTION 202
REMOVAL OF BRIDGE (SPECIAL)

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Subsection 202.01 shall include the following:

This work consists of the removal of the temporary detour bridge on State Highway 90 over the Dolores River. Removal of the temporary detour bridge shall include removal, disassembly, inventorying, loading, delivery to and unloading of the panel truss bridge components at a CDOT facility. Furnishing of new replacement or spare parts as shown on the plans and as specified herein shall also be included.

The existing temporary detour bridge consists of panel truss bridge components manufactured by Acrow Corporation of America (Acrow).

All components of the panel truss bridge are owned by the State of Colorado.

The panel truss bridge has a single 12 foot lane and is 160 feet in length configured in a TSR2 design. The 6 plan sheets prepared by Acrow are included in the project plan set for information only. The estimated weight of the panel truss bridge primary components as provided by Acrow are as follows:

(1) The bridge frame (without decking installed) weighs approximately 575. Tons. It is not possible or safe to reduce the frame weight further by removing any bracing.

(2) The deck installed weight, which is the total weight including epoxy-aggregate coating, is approximately 86.5 tons.

(3) The thrie beam guardrail weight approximately 2.5 tons.

The Contractor shall contact Acrow during the project's bid preparation in order to gain a complete understanding of the scope of work, materials and equipment that will be required to complete the work. The point of contact for Acrow is Tom Pinder. His contact information is 303-279-9088, 303-888-5477 (cell) and tpinder@acrow.com.

Subsection 202.02 shall include the following:

The Contractor shall ensure that an Acrow representative is on site to oversee the truss panel bridge removal and disassembly, and to assist in identifying and inventorying the truss panel bridge components. The determination of the Acrow representative shall occur through Tom Pinder of Acrow.

Removal of the panel truss bridge may consist of lifting the entire bridge with adequate carnage or by using the cantilever launch method with or without crane assistance. If the cantilever launch method is used, the Contractor shall rent from Acrow the additional required components including but not limited to launch and landing rollers, reinforcing chords, and launching links required for this method of removal. Regardless of the method of removal selected, the Contractor shall coordinate the method of removal with an Acrow representative and strictly follow all recommendations provided by Acrow for accomplishing this work. Temporary materials, tools, rigging, dunnage, etc. that are required for the removal, disassembly, loading, delivery and unloading the panel truss bridge are the responsibility of the Contractor.

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REVISION OF SECTION 202
REMOVAL OF BRIDGE (SPECIAL)

Prior to removal, the Contractor, Engineer and an Acrow representative shall inspect the panel truss bridge and submit an inventory of damaged parts to the Engineer. Upon completion of delivery of the designated CDOT facility, the Contractor shall provide a complete parts inventory of the panel truss bridge to the Engineer. Delivery requires unloading and stowing parts as recommended by Acrow or otherwise as required by the Engineer. The inventory shall incorporate the manufacturer's part numbers and description. The inventory shall designate damaged parts. The Contractor shall furnish new parts acceptable to Acrow for the replacement of damaged and normal wear parts or additional spare parts as required by the Engineer. The Contractor shall be reimbursed the actual F.O.B. cost delivered to the designated CDOT facility for all new parts furnished, excluding parts required due to damage from the Contractor's operations. The thrie beam guard rail assembly shall be subject to the inventory and new replacement parts criteria and reimbursement herein. Damaged parts or other salvage herein shall remain the property of the State of Colorado.

The truss bridge components shall be delivered to the CDOT maintenance yard in XXXXXXX, Colorado. The address is XXXXXXX. The contract person for coordination of delivery and unloading is XXXXXXX.

All work shall be completed in accordance with the Acrow erection drawings contained in the contract drawings.

The removal of the temporary detour bridge shall be performed in a safe manner.

The Contractor shall submit a Bridge Removal Plan to the Engineer, for record purposes only, at least 20 working days prior to the proposed start of removal operations. 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 stamped "Approved for Construction" and signed by the Contractor. The Bridge Removal Plan will not be approved by the Engineer
.
The Bridge Removal Plan shall provide complete details of the bridge removal process, including:

(1) The removal sequence, including staging of 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, and location of equipment during removal operations.

(3) Detailed methods for protection of the existing roadway facilities, including measures to assure that people, property, utilities, and improvements will not be endangered.

(4) Detailed methods for protection of live waterways.

(5) Details for dismantling, removing, loading, and hauling panel truss bridge elements.

(6) Methods of handling traffic, including bicycles and pedestrians, in a safe and controlled manner.

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REVISION OF SECTION 202
REMOVAL OF BRIDGE (SPECIAL)

A Pre-Removal Conference shall be held at least seven days prior to the beginning of removal of the bridge. The Engineer, the Contractor, the removal subcontractor, the Acrow representative and the Traffic Control Supervisor (TCS) shall attend the Pre-Removal Conference. The Bridge Removal Plan shall be finalized at this Conference. The final Bridge Removal Plan shall be stamped "Approved for Construction" and signed by the Contractor. The Contractor shall submit a final Bridge Removal Plan to the Engineer prior to bridge removal for record purposes only. The Contractor shall not begin the removal process without the Engineer's written authorization.

Submittal of the final Bridge Removal Plan to the Engineer, and field inspection performed by the Engineer, will in no way relieve the Contractor of full responsibility for the removal plan and procedures.
The Contractor's designated representative and an Acrow representative shall be present at all times when bridge removal operations are in progress.

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. While the lanes are closed to public traffic, work shall be pursued promptly and without interruption until the roadway is reopened to traffic.

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

Should an unplanned event occur or the bridge removal operation deviate from the submitted bridge removal plan, the bridge removal operations shall immediately cease after performing any work necessary to ensure worksite safety. The Contractor shall submit to the Engineer, the procedure or operation proposed by the Contractor to correct or remedy the occurrence of this unplanned event or to revise the final Bridge Removal Plan. The Contractor shall submit his Engineer's report in writing, within 24 hours of the event, summarizing the details of the event and the procedure for correction.

If protective covering has been utilized to protection live waterways, the Contractor shall clean the protective covering of all debris and fine material before removing.

Bridge removal may be suspended by the Engineer for the following reasons:

(1) Final Bridge Removal Plan has not been submitted, or written authorization 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 representative and Acrow representative are not on site during removal operations.

(4) Safety precautions are deemed to be inadequate.

(5) Existing neighboring facilities are damaged as a result of bridge removal.

Suspension of bridge removal operations shall in no way relieve the Contractor of his responsibility under the terms of the Contract. 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.

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REVISION OF SECTION 202
REMOVAL OF BRIDGE (SPECIAL)

The Contractor shall notify all emergency response agencies of the proposed removal work and any detours 24 hours in advance of 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, night time 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, all debris, protective pads, materials, and devices shall be removed and the roadways swept clean.

Removal shall include only the Acrow panel truss bridge. The removal of substructure elements is not included.

Existing structures, facilities, and surrounding roadways shall not be damaged by the removal operations. Damage that does occur shall be repaired immediately at the Contractor's expense.

Subsection 202.12 shall include the following:

The accepted quantity of work will be paid for at the contract unit price upon completion of the work. Incremental payments shall not be made.

Payment will be made under:

Pay Item	**Unit**
Removal of Bridge (Special)	Each

Payment for Removal of Bridge (Special) will be full compensation for all labor, equipment, materials and incidentals required to complete the work including preparation and implementation of the Bridge Removal Plan, inspection and inventorying, removal, disassembly, handling, loading, delivery and unloading.

All costs associated with Acrow coordination and utilization of their personnel will not be paid for separately but shall be included in the work.

All equipment, including equipment rented from Acrow, will not be paid for separately but shall be included in the work.

Removal of the thrie beam guardrail shall not be paid for separately but shall be included in the work.

REVISION OF SECTION 202
REMOVAL OF STRUCTURES (SPECIAL)

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Subsection 202.01 shall include the following:

This work consists of the removal and disposal of the existing concrete abutments supporting the Acrow panel bridge and the existing mechanically reinforced soil constructed under Project No. STR 090A-005 and located adjacent to proposed Structure No. K-01-L.

Subsection 202.02 shall include the following:

Removal shall not occur until after the Acrow panel bridge has been removed, disassembled and taken away from the project site.

The bottom limits of removal of the existing mechanically reinforced soil directly adjacent to the proposed sheet pile walls on Structure No. K-01-L shall not be lower than the bottom of the proposed riprap protection or 2 feet below finished grade.

In Subsection 202.08, delete the first sentence of the first paragraph and replace with the following:

The existing mechanically reinforced soil shall be removed down to a depth of 2 feet below finished grade.

Subsection 202.11 shall include the following:

Removal of Structure (Special) will not be measured but will be paid for on a lump sum basis.

Subsection 202.12 shall include the following:

Payment will be made under:

Pay Item	**Unit**
Removal of Structure (Special)	Lump Sum

Payment for Removal of Structure (Special) will be full compensation for all labor, equipment and materials required to complete the work including removal, excavation and subsequent backfill, and disposal of materials removed.

REVISION OF SECTION 202
REMOVAL OF STRUCTURES
COATED WITH HEAVY-METAL BASED PAINT

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Subsection 202.01 shall include the following:

This work consists of the removal of a structure or components of a structure coated with a paint which may contain lead, other heavy metals, or a combination thereof. Management of paint debris waste shall be accomplished in accordance with Section 250.

Subsection 202.03 shall be replaced with the following:

The entire steel superstructure, including the bearing assemblies, shall be salvaged. This excludes the steel components of the substructure and the rivets removed as part of dissassembling the superstructure The salvageable matererials shall be disassembled, hauled to, and unloaded at the destination identified in Section 202, Removal of Bridge. The Contractor shall safeguard all bridge materials that are required to be salvaged and shall be responsible for the expense of repairing or replacing damaged or missing material until the salvageable material is unloaded at the defined destination.

Subsection 202.12 shall include the following:

Payment for removal of structures, or portions thereof, coated with heavy-metal based paint will be full compensation for all work necessary to complete the item. Paint debris waste management and disposal will be measured and paid for in accordance with Section 250.

REVISION OF SECTION 202
REMOVAL OF DETOUR

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Subsection 202.01 shall include the following:

This work includes removal and return to the Department of all existing traffic control devices used on the current detour to include sign panels, posts, drums, barricades, and temporary traffic signal.

Subsection 202.06 shall be replaced with the following:

Prior to commencing work, the Contractor shall inventory all temporary traffic control devices used for the existing detour and provide the Engineer with the list. After final acceptance, the Contractor shall remove all original traffic control devices and return to a location to be specified by the Department. Any traffic control devices supplied by the Contractor shall remain property of the Contractor upon completion of the project. Pavement removal, grading, and other items pertaining to the detour roadway prism shall be paid for under other items.

Subsection 202.12 shall include the following:

Pay Item	**Pay Unit**
Removal of Detour	Lump Sum

REVISION OF SECTION 203
EMBANKMENT MATERIAL

Section 203 of the Standard Specifications is hereby revised for this project as follows:

In subsection 203.03(a), first paragraph, after the second sentence add the following:

Embankment material placed within 3 vertical feet of the bottom of the sub-base material shall have a R Value of at least 68 when tested by the Hveem Stabilometer. Material below the 3 foot zone shall have an R Value of at least 20.

REVISION OF SECTION 203
POTHOLING

Section 203 of the Standard Specifications is hereby revised for this project as follows:

Subsection 203. 05(g) shall include the following:

Potholing excavation work shall be performed utilizing hydrovac equipment capable of reaching the required depths necessary to expose buried utility lines located throughout the project. The truck shall be capable of containing a sufficient amount of water needed for the work activity as well as any slurry generated for disposal at a location to be determined by the Contractor. Slurry will not be disposed of within the highway right-of-way unless approved by the project engineer.

Subsection 203.13(e) shall include the following:

Potholing will be measured by the total number of hours that the hydrovac equipment is actually used on site as directed by the project engineer. Time spent moving from one pothole location to another will be included in the number of hours worked. However, time spent mobilizing to the project site, disposing of slurry, and taking on water shall not be measured and paid for separately, but shall be included in the cost of the work.

Contractor shall be responsible for marking, measuring and documenting the elevation and offset of all located utilities during potholing. All utility locate data shall be submitted to the Project Engineer no later than one working day after the utility has been located. Measuring, recording and documenting of utility locations shall not be measured and paid for separately but shall be included in the cost of the work.

Upon completion of documentation of existing utilities, potholes shall be backfilled with suitable material and compacted to the density of the surrounding soils. Backfilling of the potholes will also not be measured and paid for separately but shall be included in the cost of the work.

Subsection 203.14 shall include the following:

The accepted quantities will be paid for at the contract unit price per hour.

Payment will be made under:

Pay Item	**Pay Unit**
Potholing	Hour

REVISION OF SECTION 208
WATER CONTROL

Section 208 of the Standard Specifications is hereby revised for this project as follows:

Subsection 208.01 shall include the following:

Water control consists of controlling groundwater, tributary stormwater in-flow and stream flows during construction. Water control also consists of minimizing sediment entrainment in river flow originating from construction activity.

The Contractor shall submit a Stormwater Management Plan (SWMP) and a Water Control Plan. The Water Control Plan, which shall be submitted to the Engineer one week prior to the Pre-Construction Conference, shall include the following:

(1) Details regarding the siting, installation, operation, maintenance and removal of Water Control systems.
(2) Details regarding location, height, and type of construction of any temporary accesses and Water Control system including dams, pumps, diversions, or flow rerouting schemes.
(3) Details regarding construction access.
(4) A schedule documenting the planned construction and removal of Water Control system. This shall be included in the Contractor's CPM schedule as listed in the Commencement and Completion of Work.

See the General Notes, Environmental General Notes, and Standard Specification 107.25 for further requirements.

Subsection 208.02 shall include the following:

(n) *Water Control*. Stream construction access, dams, or diversions shall be constructed with clean material (e.g., barrier, clean rock, sheet piling, plastic sheeting, or sandbags) to protect water quality. Dams and diversions shall be durable enough to withstand expected high flows. Onsite materials within the limits of construction may also be used to construct temporary dams and berms as long as appropriate sediment control is achieved and maintained. The Contractor may be required by the Engineer, at no additional cost to the Owner, to provide additional protection of water control facilities, if in the opinion of the Engineer, existing control appears inadequate or is not in conformance with the SWMP or Water Control Plan. In no instance shall any dams, berms, dikes, or diversion channels be left unprotected.

Subsection 208.03 shall include the following:

The Dolores River and adjacent wetlands are Waters of the U.S. under the jurisdiction of the U.S. Army Corps of Engineers. If there are any impacts beyond those shown on the plans and in the permit, the Engineer shall be contacted immediately and all work shall stop. The Contractor is responsible for the stability of all work elements, temporary and permanent, for all phases of the project, including during and above High Water and for all flow conditions. All Contractor activities must be constructed to withstand high flows and must not restrict or impede the passage of flows.

During all flows, the Contractor must maintain an open channel for the river. Contractor is responsible to comply with all applicable permits and regulations regarding any work performed in the river channel. The riverbed and banks shall be protected during all phases of construction, during all construction and project operations, and restored to current conditions unless noted otherwise in the plans. Cost to protect and restore the river shall not be paid for separately but shall be included in the cost of the work. Any work in the river shall follow all applicable permits and federal, state, and local requirements and regulations.

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REVISION OF SECTION 208
WATER CONTROL

For all excavation, the Contractor shall provide suitable equipment and labor to remove water, and he shall keep the excavation dewatered so that riprap and bridge work can be carried on under dewatered conditions where required by the Contract Drawings and Specifications. Water control shall be accomplished in such a way that no damage is done to the adjacent banks.

Temporary access consisting of berms and dams are allowed as an aid to controlling water in work areas. The design, placement and safety of temporary access is entirely the Contractor's responsibility.

All excavations made as part of dewatering operations shall be backfilled with native fill or filter bedding material and compacted to 95 percent of maximum density (AASHTO T-99).

If a Construction Dewatering Permit is needed: In accordance with permit procedures, Contractor shall fill out and submit a monthly Discharge Monitoring Report (DMR) to CDPHE for the life of the permit. Copies of monthly submittals shall be provided to CDOT Environmental Project Manager Tony Cady at 3803 N. Main Avenue, Suite 300, Durango, CO, (970)-385-1430.

STORM FLOWS: The Contractor shall conduct operations in such a manner that storm waters may proceed uninterrupted along their drainage courses. The Contractor shall investigate the risk arising from such waters and plan the work accordingly. Contractors operations shall not restrict any flows of the river or cause any backwater conditions. Any damage done during storm flows to temporary, existing, complete or partially completed structures resulting from the Contractors operation shall be repaired at the Contractors expense.

SEDIMENT CONTROL: The Contractor shall minimize sediment entrainment within the river flow and the diversion channels through use of protected control structures. Such protection shall consist of, but not necessarily be limited to, geotextiles fabrics, riprap, and conduits.

In no instance shall construction activities or equipment be allowed to work in flowing water during recognized spawning seasons or any other time not approved by the Engineer. See Commencement and Completion of Work for additional information.

HAZARDOUS MATERIALS: In no instance shall oil or other hazardous materials be allowed to enter any flowing or contained water in or adjacent to the project site or tributary areas. No hazardous materials shall be stored in the river channel at any time.

MATERIAL AND EQUIPMENT STORAGE: Contractor is responsible for all material and equipment at the project site. At no time and under no circumstance shall any equipment or material be stored in the river channel or between top of banks. No equipment or material is to be stored in the river channel overnight unless approved by the Engineer. All material not installed and all equipment other than pumps to maintain water control shall be removed from the channel beyond the top of banks at the end of each workday unless approved by the Engineer.

Subsection 208.11 shall include the following:

Water Control will not be measured but paid as lump sum.

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REVISION OF SECTION 208
WATER CONTROL

Subsection 208.12 shall include the following:

Payment will be made under:

Pay Item	**Pay Unit**
Water Control	Lump Sum

Payment will be full compensation for all work required for the planning, siting, installation, operation, maintenance and removal of systems implemented for Water Control, including design and preparation of the water control plan, reports, all labor, equipment, materials and incidentals. This includes temporary access into the river, including all measures implemented to protect the work, protect and restore the streambed, and minimize sediment entrainment in the river, including but not limited to temporary shoring, diversion berms (earthen, sheet pile or other), earthwork, temporary low flow crossings, geotextile fabrics, riprap, dewatering wells, pumps, associated grading, and all work associated with temporary wetland vegetation protection and cleanup.

Any additional cost due to noncompliance with the permit as a result of the Contractor's negligence shall be borne by the Contractor.

REVISION OF SECTION 240
PROTECTION OF MIGRATORY BIRDS
BIOLOGICAL WORK PERFORMED BY THE CDOT BIOLOGIST

Section 240 is hereby added to the Standard Specifications for this project as follows:

DESCRIPTION

240.01 This work consists of protecting migratory birds during construction.

MATERIALS AND CONSTRUCTION REQUIREMENTS

240.02 The Contractor shall schedule clearing and grubbing operations and work on structures to avoid taking (pursue, hunt, take, capture or kill; attempt to take, capture, kill or possess) migratory birds protected by the Migratory Bird Treaty Act (MBTA).

The CDOT biologist shall record the location of each protected nest, bird species, the protection method used, and the date installed. A copy of these records will be submitted to the Engineer.

(a) *Vegetation Removal.* When possible, vegetation shall be cleared prior to the time active nests are present. Vegetation removal activities shall be timed to avoid the migratory bird breeding season which begins on April 1 and runs to August 31. All areas scheduled for clearing and grubbing between April 1 and August 31 shall first be surveyed within the work limits by a CDOT biologist for active migratory bird nests. The CDOT biologist will also survey for active migratory bird nests within 50 feet outside of the work limits. Project personnel shall enter areas outside CDOT right of way only if a Form 730, *Permission to Enter Property*, has been signed by the property owner. The Contractor shall avoid all active migratory bird nests. The Contractor shall avoid the area within 50 feet of the active nests or the area within the distance recommended by the biologist until all nests within that area have become inactive. Inactive nest removal and other necessary measures shall be incorporated into the work as follows:

1. *Tree and Shrub Removal or Trimming.* Tree and shrub removal or trimming shall occur before April 1 or after August 31 if possible. If tree and shrub removal or trimming will occur between April 1 and August 31, a survey for active nests will be conducted by the CDOT biologist within the seven days immediately prior to the beginning of work in each area or phase of tree and shrub removal or trimming. The Contractor shall notify the Engineer at least ten working days in advance of the need for the CDOT biologist to perform the survey.

   If an active nest containing eggs or young birds is found, the tree or shrub containing the active nest shall remain undisturbed and protected until the nest becomes inactive. The nest shall be protected by placing fence (plastic) a minimum distance of 50 feet from each nest to be undisturbed. This buffer dimension may be changed if determined appropriate by the CDOT biologist and approved by the Engineer. Work shall not proceed within the fenced buffer area until the young have fledged or the nests have become inactive. If the fence is knocked down or destroyed by the Contractor, the Engineer will suspend the work, wholly or in part, until the fence is satisfactorily repaired at the Contractor's expense. Time lost due to such suspension will not be considered a basis for adjustment of time charges, but will be charged as contract time.

2. *Grasses and Other Vegetation Management*. Due to the potential for encountering ground nesting birds' habitat, if work occurs between April 1 and August 31, the area shall be surveyed by the CDOT biologist within the seven days immediately prior to ground disturbing activities. The Contractor shall notify the Engineer at least ten working days in advance of the need for the CDOT biologist to perform the survey

The undisturbed ground cover to 50 feet beyond the planned disturbance, or to the right of way line, whichever is less, shall be maintained at a height of 6 inches or less beginning April 1 and continuing until August 31 or until the end of ground disturbance work, whichever comes first.

If birds establish a nest within the survey area, an appropriate buffer of 50 feet will be established around the nest by the Contractor. This buffer dimension may be changed if determined appropriate by the Contractor and approved by the Engineer. The Bridge Contractor shall install fence (plastic) at the perimeter of the buffer. Work shall not proceed within the buffer until the young have fledged or the nests have become inactive.

If the fence is knocked down or destroyed by the Contractor, the Engineer will suspend the work, wholly or in part, until the fence is satisfactorily repaired at the Contractor's expense. Time lost due to such suspension will not be considered a basis for adjustment of time charges, but will be charged as contract time.

(b) *Work on structures*. The Bridge Contractor shall prosecute work on structures in a manner that does not result in a taking of migratory birds protected by the MBTA. The Bridge Contractor shall not prosecute the work on structures during the primary breeding season, April 1 through August 31, unless he takes the following actions have been coordinated with the CDOT Biologist:

(1) The Bridge Contractor shall remove existing nests prior to April 1. If the Bridge Contract is not awarded prior to April 1 and CDOT has removed existing nests, then the monitoring of nest building shall become the Contractor's responsibility upon Notice to Proceed.

(2) During the time that the birds are trying to build or occupy their nests, between April 1 and August 31, the Contractor shall monitor the structures at least once every three days for any nesting activity.

(3) If the birds have started to build any nests, they shall be removed by the CDOT Biologist before the nest is completed. Water shall not be used to remove the nests if nests are located within 50 feet of any surface waters.

(4) Installation of netting may be used to prevent nest building. The netting shall be monitored and repaired or replaced as needed. Netting shall consist of a mesh with openings that are ¾ inch by ¾ inch or less.

If an active nest becomes established, i.e., there are eggs or young in the nest, all work that could result in abandonment or destruction of the nest shall be avoided until the young have fledged or the nest is unoccupied as determined by the CDOT Biologist and approved by the Engineer. The Bridge Contractor shall prevent construction activity from displacing birds after they have laid their eggs and before the young have fledged.

If the project continues into the following spring, this cycle shall be repeated. When work on the structure is complete, the Contractor shall remove and properly dispose of netting used on the structure.

(c) *Bald Eagle Activity*. The CDOT Biologist will conduct dusk and dawn surveys of Bald Eagle roosts within seven days prior to the start of any construction during the winter season, November 15 to March 15. If a Bald Eagle roost is identified, construction activity shall not proceed within 0.25 mile of active nocturnal roost sites between November 15 and March 15.

(d) *Raptor Nesting Activity*. The CDOT Biologist will conduct raptor nest surveys within 0.5 mile of the construction site seven days prior to the start of construction if construction occurs within the February 15-August 31 raptor nesting season. This survey can be done with binoculars. If construction activities are located within the CPW recommended buffer zone for specific raptors, "NO WORK" zones shall be established according to the CPW standards or by the CDOT Wildlife Biologist in consultation with the CPW around active sites during construction. The "NO WORK" zone shall be marked with either fencing or signing. Work shall not proceed within a "NO WORK" zone until the CDOT Biologist has determined that the young have fledged or the nest is unoccupied.

REVISION OF SECTION 240
PROTECTION OF MIGRATORY BIRDS
BIOLOGICAL WORK PERFORMED BY A CDOT BIOLOGIST

(e) *Taking of a Migratory Bird.* The taking of a migratory bird shall be reported to the Engineer. The Contractor shall be responsible for all penalties levied by the U. S. Fish and Wildlife Service (USFWS) for the taking of a migratory bird.

METHOD OF MEASUREMENT

240.03 Clearing and grubbing will be measured and paid for in accordance with Section 201. Mowing will not be measured and paid for separately, but shall be included in the work. Removal and trimming of trees will be measured and paid for in accordance with Section 202.

Fence needed to protect migratory birds and nests will be measured and paid for in accordance with Section 607.

BASIS OF PAYMENT

240.04 The accepted quantities measured as provided above will be paid for at the contract unit price for each of the pay items listed below that appear in the bid schedule.

Bridge Contractor coordination with the CDOT Biologist shall be included in the cost of the work.

No additional Section 240 pay items are included as work will be performed by the CDOT Biologist and no nest removal or netting are anticipated due to Project scheduling outside the migratory bird nesting season.

REVISION OF SECTION 250
ENVIRONMENTAL, HEALTH AND SAFETY MANAGEMENT

TO BE FILLED IN

REVISION OF SECTION 304
AGGREGATE BASE COURSE

Section 304 of the Standard Specifications is hereby revised for this project as follows:

Subsection 304.02 shall include the following:

Materials for the base course shall be Aggregate Base Course (Class 2) and Aggregate Base Course (Class 6) as shown in subsection 703.03

The aggregate base course (Class 2) must meet the gradation requirements and have a resistance value of at least 70 and tested by the Hveem Stabilometer method.

The aggregate base course (Class 6) must meet the gradation requirements and have a resistance value of at least 78 and tested by the Hveem Stabilometer method.

Basis of Payment

Subsection 304.08 shall include the following:

Payment will be made under the following:

Pay Item	**Pay Unit**
Aggregate Base Course (Class 2)	Ton
Aggregate Base Course (Class 6)	Ton

REVISION OF SECTION 403
HOT MIX ASPHALT

Section 403 of the Standard Specifications is hereby revised for this project as follows:

Subsection 403.02 shall include the following:

The design mix for hot mix asphalt shall conform to the following:

Table 403-1

Property	Test Method	Value For Grading					
				SX(75)			
Air Voids, percent at: N (design)	CPL 5115			3.5 – 4.5			
Lab Compaction (Revolutions): N (design)	CPL 5115			75			
Stability, minimum	CPL 5106			28			
Aggregate Retained on the 4.75 mm (No. 4) Sieve for S, SX and SG, and on the 2.36mm (No. 8) Sieve for ST and SF with at least 2 Mechanically Induced fractured faces, % minimum*	CP 45			60			
Accelerated Moisture Susceptibility Tensile Strength Ratio (Lottman), minimum	CPL 5109 Method B			80			
Minimum Dry Split Tensile Strength, kPa (psi)	CPL 5109 Method B			205 (30)			
Grade of Asphalt Cement, Top Layer				PG 64-22			
Grade of Asphalt Cement, Layers below Top				PG 64-22			
Voids in the Mineral Aggregate (VMA) % minimum	CP 48			See Table 403-2			
Voids Filled with Asphalt (VFA), %	AI MS-2			65-80			
Dust to Asphalt Ratio Fine Gradation Coarse Gradation	CP 50			0.6 – 1.2 0.8 – 1.6			

Table 403-1

Property	Test Method	Value For Grading					
				SX(75)			

Note: AI MS-2 = Asphalt Institute Manual Series 2

Note: Mixes with gradations having less than 40% passing the 4.75 mm (No. 4) sieve shall be approached with caution because of constructability problems.

Note: Gradations for mixes with a nominal maximum aggregate size of one-inch or larger are considered a coarse gradation if they pass below the maximum density line at the #4 screen.
Gradations for mixes with a nominal maximum aggregate size of 3/4" to 3/8" are considered a coarse gradation if they pass below the maximum density line at the #8 screen.
Gradations for mixes with a nominal maximum aggregate size of #4 or smaller are considered a coarse gradation if they pass below the maximum density line at the #16 screen.

*Fractured face requirements for SF may be waived by RME depending on project conditions.

REVISION OF SECTION 403
HOT MIX ASPHALT

All mix designs shall be run with a gyratory compaction angle of 1.25 degrees and properties must satisfy Table 403-1. Form 43 will establish construction targets for Asphalt Cement and all mix properties at Air Voids up to 1.0 percent below the mix design optimum. CDOT will establish the production asphalt cement and volumetric targets based on the Contractor's mix design and the relationships shown between the hot mix asphalt mixture volumetric properties and asphalt cement contents on the Form 429. CDOT may select a different AC content other than the one shown at optimum on the Contractor's mix design in order to establish the production targets as contained on the Form 43. Historically, Air Voids adjustments typically result in asphalt cement increases from 0.1 to 0.5 percent. Contractors bidding the project should anticipate this change and factor it into their unit price bid.

Table 403-2

	Minimum Voids in the Mineral Aggregate (VMA)			
Nominal Maximum Size*, mm (inches)	***Design Air Voids **			
	3.5%	**4.0%**	**4.5%**	**5.0%**
37.5 (1½)	11.6	11.7	11.8	N/A
25.0 (1)	12.6	12.7	12.8	
19.0 (¾)	13.6	13.7	13.8	
12.5 (½)	14.6	14.7	14.8	
9.5 (⅜)	15.6	15.7	15.8	
4.75 (No. 4)	16.6	16.7	16.8	16.9
	* The Nominal Maximum Size is defined as one sieve larger than the first sieve to retain more than 10%. ** Interpolate specified VMA values for design air voids between those listed. *** Extrapolate specified VMA values for production air voids beyond those listed.			

The Contractor shall prepare a quality control plan outlining the steps taken to minimize segregation of HMA. This plan shall be submitted to the Engineer and approved prior to beginning the paving operations. When the Engineer determines that segregation is unacceptable, the paving shall stop and the cause of segregation shall be corrected before paving operations will be allowed to resume.

The hot mix asphalt shall not contain any reclaimed asphalt pavement.

REVISION OF SECTION 403
HOT MIX ASPHALT

Hot mix asphalt for patching shall conform to the graduation requirements for Hot Mix Asphalt (Grading SX).

A minimum of 1 percent hydrated lime by weight of the combined aggregate shall be added to the aggregate for all hot mix asphalt.

Acceptance samples shall be taken at the location specified in Method B of CP-41..

Subsection 403.03 shall include the following:

The Contractor shall construct the work such that all the roadway pavement placed prior to the time paving operations end for the year, shall be completed to the full thickness required by the plans. The Contractor's Progress Schedule shall show the methods to be used to comply with this requirement.

Delete subsection 403.05 and replace with the following:

403.05 The accepted quantities of hot mix asphalt will be paid for in accordance with subsection 401.22, at the contract unit price per ton for the bituminous mixture.

Payment will be made under:

Pay Item	**Pay Unit**
Hot Mix Asphalt (Grading SX)(75)(PG 64-22)	Ton

Aggregate, asphalt recycling agent, asphalt cement, additives, hydrated lime, and all other work and materials necessary to complete each hot mix asphalt item will not be paid for separately, but shall be included in the unit price bid. When the pay item includes the PG binder grade, any change to the submitted mix design optimum asphalt cement content to establish production targets on the Form 43 will not be measured and paid for separately, but shall be included in the work. No additional compensation will be considered or paid for any additional asphalt cement, plant modifications and additional personnel required to produce the HMA as a result in a change to the mix design asphalt cement content.

Historically, typical asphalt cement increases reflected on the Form 43 are from 0.1 to 0.5 percent. However, the Contractor should anticipate the AC increases typical of his mixes. Contractors bidding the project should anticipate this change and factor it into their unit price bid.

When the pay item does not include the PG binder grade, asphalt cement will be measured and paid for in accordance with Section 411. Asphalt cement used in Hot Mix Asphalt (Patching) will not be measured and paid for separately, but shall be included in the work.

Excavation, preparation, and tack coat of areas to be patched will not be measured and paid for separately, but shall be included in the work.

REVISION OF SECTIONS 420 AND 712
GEOGRID PAVEMENT REINFORCEMENT

Sections 420 and 712 of the Standard Specifications are hereby revised for this project as follows:

Subsection 420.01 shall include the following:

This work includes furnishing and installing asphalt reinforcement geogrid material in accordance with these specifications and in conformity with the lines and details shown on the plans or established.

Subsection 420.02 shall include the following:

The asphalt reinforcement geogrid material used with hot mix asphalt (HMA) pavement shall conform to the requirements of Table 712-9 in subsection 712.08 (f).

Asphalt reinforcement geogrid rolls shall be furnished with suitable wrapping to protect against moisture and extended ultraviolet exposure prior to placement. Each roll shall be tagged or labeled with the name of the product and manufacturer. All rolls shall be tagged or labeled with width, length, and unique roll number for quality tracking purposes. The tag or label shall be securely fastened to the outside of the roll. Rolls shall be stored vertically in a manner which protects them from the elements. If stored outdoors, they shall be stored vertically and protected from direct sunlight, chemicals, moisture, mud, dirt and debris. Special care shall be taken in the handling of asphalt reinforcement geogrid material when the air temperatures are at or below 0 °F.

The Contractor shall submit a Certificate of Compliance from the manufacturer for each lot of material furnished in accordance with subsection 106.12 including all data necessary to verify conformance with Table 712-9 and with this specification prior to placing reinforcement grid.

Delete subsection 420.04 and replace with the following:

Asphalt reinforcement geogrid material damaged before or during placement of overlying HMA shall be replaced or repaired in accordance with the requirements of this section and to the satisfaction of the Engineer, at the Contractor’s expense.

The Contractor shall have a qualified manufacturer’s representative present during installation of the asphalt reinforcement geogrid material to give any technical assistance needed for this work.

The Contractor shall not begin placing the asphalt reinforcement geogrid material until the remedial work for surface irregularities in the HMA, potholes, or crack filling has been completed and approved by the Engineer.

The HMA surface shall be dry and mechanically cleaned by sweeping or vacuuming and be free from any vegetation, sand, dirt, water, gravel and other contaminants immediately prior to placing the asphalt reinforcement geogrid material using a self-propelled power broom or vacuum.

The asphalt reinforcement geogrid material shall be placed only on properly prepared surfaces when both the air and surface temperatures are between 40 °F and 140 °F and when the Engineer determines that the weather conditions permit the material to be properly placed.

The asphalt reinforcement geogrid material shall be oriented such that the roll length runs parallel to the roadway alignment and placed by mechanical means or by hand using sufficient pressure to eliminated ripples. Ripples shall be smoothed out prior to placement of HMA. Cutting the geogrid may be done on tight radii to prevent ripples.

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REVISION OF SECTIONS 420 AND 712
GEOGRID PAVEMENT REINFORCEMENT

Placement of geogrid around corners will require cutting of asphalt reinforcement geogrid material and overlapping to ensure that rippling of the material does not occur. Overlaps shall be at least 12 inches for the transverse joints and at least 6 inch for the longitudinal joints, or as shown on the plans. The Contractor shall ensure that asphalt reinforcement geogrid material sections do not separate at the overlaps during construction. Geogrid used within the roadway base will be wrapped at the face of the end abutment diaphragm, as shown on the plans.

After placement, self-adhesive glue shall be activated by rolling with a rubber coated drum roller or a pneumatic tire roller until properly adhered. Tires shall be cleaned regularly during rolling operations with an approved asphalt cleaning agent.

After activating the self-adhesive glue, the adhesion of the asphalt reinforcement geogrid material to the underlying HMA shall be tested by the Contractor. The tester shall insert the hook of a calibrated spring balance under the center of the mesh and pull upwards in a constant motion until the mesh starts to pull away from the surface. To pass the test a minimum of 20 pounds of pull shall be exerted and less than 12 inches shall be pulled free in any direction. The Contractor shall not place HMA over the asphalt reinforcement geogrid material until an acceptable adhesion is achieved. The adhesion test shall be performed at a minimum of one test per 1200 SF of surface area. All adhesion testing shall be at the Contractor's expense.

After rolling, undiluted tack coat shall be applied at the rate of 0.05 gallons per square yard of surface area, unless otherwise directed by the Engineer. Acceptable tack coat materials include hot asphalt cement binder, cationic emulsion CRS-2P, or as described in Section 407. The Contractor shall ensure the tack coat has broken prior to placement of the HMA over the asphalt reinforcement geogrid material.

Any damaged sections shall be repaired to the satisfaction of the Engineer, at the Contractor's expense.

Subsection 420.09 shall include the following:

Asphalt reinforcement geogrid will be measured by the square yard of surface area covered, completed and accepted. Additional material for overlaps will not be measured and paid for separately, but shall be included in the work. Tack coat will be measured and paid for in accordance with Section 411.

Subsection 420.10 shall include the following:

The accepted quantities will be paid for at the contract unit price per square yard.

Payment will be made under:

Pay Item	**Pay Unit**
Geogrid Pavement Reinforcement	Square Yard

Payment will be full compensation for all labor, materials, equipment, sweeping, adhesion testing, and other items necessary and incidental to the completion of the work. Additional material for overlaps will not be measured and paid for, but shall be included in the work.

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REVISION OF SECTIONS 420 AND 712
GEOGRID PAVEMENT REINFORCEMENT

Add subsection 712.08(f) as follows:

(f) *Geogrid Pavement Reinforcement.* The asphalt reinforcement geogrid shall be composed principally of elastomeric polymer with a pressure sensitive adhesive backing. The asphalt reinforcement geogrid shall contain stabilizers or inhibitors to prevent degradation of properties due to ultraviolet light exposure. The asphalt reinforcement geogrid material shall meet or exceed the properties shown in Table 712-9.

Table 712-9
PHYSICAL REQUIREMENTS FOR ASPHALT REINFORCEMENT GEOGRID

Property	Requirements	Test Method
Aperture Size (inches), min	0.75	
Mass/Unit Area, min	16 oz./yd^3	ASTM D 5361, Method D
Tensile Strength, min CMD: MD:	 1120 lbs./in 560 lbs./in	ASTM D 6637, Method A
Tensile Strength @ 2% Strain, min	400 lbs./in	ASTM D 6637, Method A
Elongation at Break, max	<3%	ASTM D 6637
Melting Point, min	450 °F	ASTM D 279

REVISION OF SECTION 502
PILING

Section 502 of the Standard Specifications is hereby revised for this project as follows:

In Subsection 502.05, delete the second paragraph and replace with the following:

Piles shall be driven such that the top of pile after driving is within 3 inches of the position shown on the Contract Plans.

Subsection 502.06 shall include the following:

One test pile is required to confirm that drilling holes to facilitate pile driving is not required.

Subsection 502.12 shall include the following:

Piling will be measured by the linear foot, completed and accepted. Measurement shall be from the pile tip to the pile cutoff.

Subsection 502.13 shall include the following:

The accepted quantities will be paid for at the contract unit price per linear foot.

Payment will be made under:

Pay Item	**Pay Unit**
Steel Piling (HP 14x89)	Linear Foot

Payment for Steel Piling (HP 14x89) will be full compensation for all labor, equipment, materials and incidentals required to complete the work. The test pile will not be measured and paid for separately but will be measured and paid for at the same contract unit price.

REVISION OF SECTION 506
RIPRAP

Section 506 of the Standard Specifications is hereby revised for this project as follows:

Section 506.05 shall include the following:

Payment for riprap shall include but is not limited to excavation for riprap and embankment material for filling existing voids; subgrade preparation, furnishing and placing riprap and filling voids of riprap as specified; and disposal of excess excavated material. Payment shall be made at the contract unit price for riprap and shall include full compensation for all labor, equipment, materials, transportation, and all other appurtenant items to complete the work.

Pay Item	**Pay Unit**
Riprap (18 inch)	Cubic Yard

REVISION OF SECTION 515
CONCRETE SEALER (CALCIUM NITRITE)

Section 515 of the Standard Specifications is hereby revised for this project as follows:

Subsection 515.01 shall include the following:

This work consists of applying a penetrating corrosion inhibitor to finished surfaces of new concrete curb as shown on the plans. The corrosion inhibitor shall be placed under the direction of a manufacturer's representative in accordance with the manufacturer's instructions and as described herein.

Subsection 515.03 shall include the following:

The corrosion inhibitor shall consist of calcium nitrite and liquid carriers or penetrating vehicles. The corrosion inhibitor shall conform to AASHTO M194, except for the requirements in tables 1, and 2, and sections 11 through 17. The corrosion inhibitor shall be one on the approved products list of the Division. If there are no approved products on the list, the corrosion inhibitor shall be a product approved by the Engineer.

Subsection 515.05 (a) shall include the following:

Prior to the application of the corrosion inhibitor, surfaces to be treated shall be cleaned by air, sand, or water blasting and flushed with water until all material and contaminants which may interfere with the inhibitor's penetration have been removed.

Subsection 515.05 (b) shall include the following:

The corrosion inhibitor shall be applied when the surface to be treated has been dry for at least 24 hours and above a temperature of 40F, or within a more restrictive temperature range if recommended by the manufacturer.

Subsection 515.05 (c) shall include the following:

After the exposed surfaces have been prepared and allowed to dry, coats of corrosion inhibitor shall be applied in accordance with the manufacturer's recommendations. Each coat shall be evenly applied. Each application shall be allowed to dry prior to making the next application. Exposed surfaces shall be protected from precipitation and heavy dew during and after the application of the penetrating inhibitor. The Contractor shall follow all manufacturer’s recommendations, including penetration time, prior to completing the work.

Enough coats shall be applied so that each square yard of treated surface shall have absorbed 0.12 lb. of calcium nitrite or organic inhibiting agent.

Subsection 515.06 shall include the following:

Concrete sealer will be measured for by the number of square yards of concrete surface covered.

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REVISION OF SECTION 515
CONCRETE SEALER (CALCIUM NITRITE)

Subsection 515.07 Basis of Payment, shall include the following:

The accepted quantity of concrete sealer will be paid for at the contract unit price per square yard complete in place. Payment will be made under:

Pay Item	**Pay Unit**
Concrete Sealer (Calcium Nitrite)	Square Yard

Payment will be full compensation for all work and materials required to complete the item including preparation, furnishing and applying the coats of penetrating corrosion inhibitor.

REVISION OF SECTION 518
WATERSTOPS

Section 518 of the Standard Specifications is hereby revised for this project as follows:

In subsection 518.2, delete the first paragraph and replace with the following:

Waterstops for the Bridge Rail Type 10M curbs shall consist of a self-adhering, flexible, coiled strip of butyl rubber and expandable bentonite clay waterproofing joint compound meeting the requirements of CCW MIRASTOP or an approved equal.

Subsection 518.07 shall include the following:

Waterstops shall be installed in accordance with manufacturer's recommendations.

Subsections 518.12 and 518.13 shall be replaced with the following:

Waterstop materials and installation will not be measured and paid for separately, but shall be included in the work.

REVISION OF SECTION 601
PRECAST CONCRETE UNIT

Section 601 of the Standard Specifications is hereby revised for this project as follows:

Subsection 601.01 shall be revised to the following:

This work consists of fabricating, furnishing, erecting and installing precast concrete members in accordance with Section 601 of the Standard Specifications, the details shown on the plans, and the requirements of the Contract.

This work includes the furnishing and installation of all appurtenant items necessary for the particular systems to be used, including but not limited to connectors and associated grouting.

The use of cast-in-place concrete is not an acceptable alternative for precast concrete units.

Delete Subsection 601.10 and replace with the following:

601.10 Precast Concrete Unit

Fabrication, construction, shipping and installation of precast concrete units shall conform to the requirements of the plans and CDOT Standard Special Provision, Revision of Section 618 – Prestressed Concrete. Dimensional tolerances shall be as shown on the plans.

Precast concrete units shall be fabricated by a Precast/Prestressed Concrete Institute (PCI) certified concrete precaster in accordance with the Quality Control Plan (QCP). The on-site field casting of precast concrete units will not be allowed. The precast concrete units shall not be shipped to the project site until the concrete meets or exceeds the required strength shown on the plans.

A single shop drawing package that includes all three pay items noted in Subsection 601.20 shall be submitted to the Engineer for review. The shop drawings shall contain the endorsed seal of a Professional Engineer registered in the State of Colorado. The shop drawings shall include the following:

(1) All unit dimensions

(2) Reinforcing sizes, lengths, shapes, spacings, clearances, etc.

(3) Location and description of anchors, plates, pipes, lifting devices, and other appurtenant items.

(4) Construction sequencing including means and methods for leveling, stabilizing and erecting the three pay items noted in Subsection 601.20.

Subsection 601.19 shall include the following:

Precast Concrete Units will be measured by the complete unit including connectors and all appurtenant items necessary for installation.

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REVISION OF SECTION 601
PRECAST CONCRETE UNIT

Subsection 601.20 shall include the following:

The accepted quantities will be paid for at the contract unit price for each of the pay items listed below that appear in the bid schedule. Except as otherwise indicated on the plans or in the special provisions, all appurtenant items including connectors and associated grouting will not be measured and paid for separately but shall be included in the work. Class D Concrete required to connect the Precast Concrete Abutment Cap to the H-Piles will not be measured and paid for separately but shall be included in the work.

Pay Item	**Pay Unit**
Precast Concrete Curtain Wall	Each
Precast Concrete Abutment Cap	Each
Precast Concrete End Diaphragm	Each

REVISION OF SECTIONS 602 AND 709
REINFORCING STEEL (HIGH PERFORMANCE)

Sections 602 and 709 of the Standard Specifications are hereby revised for this project as follows:

Subsection 602.01 shall include the following:

This work includes furnishing and placing Reinforcing Steel (High Performance) in accordance with these specifications and in conformity with the plans.

Subsection 602.02 shall include the following:

Reinforcing Steel (High Performance) bars shall be uncoated, deformed, low-carbon, chromium, steel bars and shall meet the requirements of Subsection 709.01.

Subsection 602.05 shall include the following:

Bending of Reinforcing Steel (High Performance) bars shall be in accordance with the associated ASTM specification contained in Subsection 709.01.

Subsection 602.08 shall include the following:

Reinforcing Steel (High Performance) bars used on the project shall not be paid for separately, but shall be included in the cost of Precast Concrete Deck Panel (8.5 Inch).

Subsection 709.01 shall include the following:

Uncoated, Deformed, Low-carbon, Chromium, Steel Bars for Concrete Reinforcement	ASTM A1035/A1035M

Reinforcing Steel (High Performance) bars shall be alloy Type CM and furnished as Grade 100.

REVISION OF SECTION 618
PRECAST CONCRETE DECK PANEL WITH POST-TENSIONING (8.5 INCH)

Section 618 of the Standard Specifications is hereby revised for this project as follows:

Subsection 618.01 shall be revised to the following:

This work consists of fabricating, furnishing, erecting and installing precast concrete deck panels in accordance with Section 618 of the Standard Specifications, the details shown on the plans, and the requirements of the Contract.

This work includes the furnishing and installation of all appurtenant items necessary for the particular prestressing systems to be used, including but not limited to ducts, connectors, anchorage assemblies, and grout used for grouting of keyways, grouting of blockouts, and pressure grouting of ducts.

The use of cast-in-place concrete is not an acceptable alternative for precast concrete deck panels.

Subsection 618.07 (c) shall include the following:

The grouting of all grout voids including girder haunches, blockouts and keyways shall be included in the written grouting plan and shall be discussed at the meeting to review the post-tensioning and grouting procedures.

Subsection 618.09 (b) shall include the following:

Grout for girder haunches, blockouts and keyways shall be a flowable grout that allows the keyways, blockouts, and girder haunches to be successfully grouted without voids.

Subsection 618.09 (d) shall include the following:

Precast concrete deck panels shall be cured prior to post-tensioning until the average strength meets or exceeds f'_c.

Grouting of keyways shall occur prior to post-tensioning operations. Grouting of blockouts and girder haunches shall occur after post-tensioning is complete and ducts have been grouted.

Girders, keyways and blockouts shall be cleaned and free of debris before grouting. Bonding surfaces shall be free from laitance, dirt, dust, paint, grease, oil or any other contaminants. Surfaces shall be saturated surface dry prior to receiving structural non-shrink grout. Grout shall be mixed and placed in keyways, blockouts, and girder haunches in accordance with the manufacturer's recommendations. Keyway grout shall be placed in a continuous operation across the entire keyway. Grout shall be finished flush or a maximum of 1/8 inch above adjacent panels in keyways and blockouts. Grout in girder haunches shall be placed in a continuous operation within a panel. Grout in blockouts can be placed as part of haunch grout placement. Grout in keyways, blockouts, and girder haunches shall be free of voids. Grout shall be cured in accordance with manufacturer's recommendations. Post-tensioning of the precast concrete deck panels shall not occur until the shear key grout has attained a compressive strength of 1,500 psi or a higher value if required by the manufacturer. Post-tensioning shall occur as soon as the grout has attained required strength with a preference of within 72 hours of placing grout. Superimposed dead loads or live loads to the precast concrete deck panels shall not be applied until the grout in the girder haunches and blockouts has attained a compressive strength of 1,500 psi or a higher value if required by the manufacturer.

Grouting of post-tensioning ducts shall be in accordance with Section 618 of the Standard Specifications and the manufacturer's recommendations.

REVISION OF SECTION 618
PRECAST CONCRETE DECK PANEL WITH POST-TENSIONING (8.5 INCH)

For any grouting operation, any leaking of grout or bleeding of grout residue shall be cleaned within 3 hours to prevent staining.

In Subsection 618.12 (a), delete the first sentence of the first paragraph and replace with the following:

Members shall be uniformly cured for a minimum of 14 days and until at least two representative product test specimens achieve an average strength that meets or exceeds 0.7 f'_c.

Subsection 618.14 (b) shall include the following:

Dimensional tolerances of the panels shall be as shown on the plans.

Subsection 618.14 (c) shall include the following:

The leveling devices shown on the plans shall be adjusted to bring panels to the elevations shown on the plans. The torque in each device shall be within 15 percent of all leveling devices on the panel to provide proper distribution of panel weight to supporting girders. Shifting of the precast concrete deck panels shall be prevented during the placement of all the deck panels after the proper grade is achieved. During post-tensioning operations, the panels shall be restricted from shifting transversely but shall be free to slide longitudinally on the girders.

Following the completion of all grouting operations, the leveling devices shall be backed out ¼ turn and cut flush with the bottom of the leveling device recess. The recess shall be filled with grout.

The acceptability of the surface smoothness of the precast concrete deck panels after all leveling, grouting and post-tensioning operations are complete shall be in accordance with Section 601.15 (f) of the Standard Specifications. Grinding shall not occur until the grout design strength is achieved.

Subsection 618.16 shall include the following:

Precast Concrete Deck Panel with Post-Tensioning (8.5 Inch) will be measured by the area in square feet including all appurtenant items necessary for installation.

Subsection 618.17 shall include the following:

The accepted quantities will be paid for at the contract unit price for the pay item listed below that appear in the bid schedule. Except as otherwise indicated on the plans or in the special provisions, all connecting devices, prestressing steel, post-tensioning and associated grouting for ducts, blockouts and keyways will not be measured and paid for separately but shall be included in the work.

Pay Item	**Pay Unit**
Precast Concrete Deck Panel with Post-Tensioning (8.5 Inch)	Square Foot

REVISION OF SECTION 630
IMPACT ATTENUATOR (TEMPORARY)

Section 630 of the Standard Specifications is hereby revised for this project to include the following:

DESCRIPTION

This work consists of furnishing, installing, certifying, moving, repairing, maintaining, and removing temporary impact attenuators in accordance with these specifications and in conformity with the lines and details shown on the plans or established.

MATERIALS

Each impact attenuator shall be selected from the Crash Cushion and End Treatment Application Chart as listed in the *Safety Selection Guide* on the CDOT Design and Construction Project Support web site. Impact attenuators shall conform to the requirements of the manufacturer and be capable of bi-directional shielding of the objects detailed and located on the plans. Filler materials shall be treated according to the manufacturer's recommendations to prevent freezing to a temperature of -50 °F.

If the posted speed limits of the construction zone are 45 miles per hour or less, the impact attenuator shall comply with the crash test requirements contained in NCHRP Report 350 (only applicable for impact attenuators developed prior to 2011) or MASH (acceptable for all impact attenuators), TL-2. For posted speed limits in the construction zone greater than 45 miles per hour, the attenuator shall meet the requirements of TL-3.

CONSTRUCTION REQUIREMENTS

If sand barrel arrays are used, the Contractor shall paint, with white epoxy paint, an outline and the weight of each barrel on the pavement prior to final placement. All numbers shall be a minimum of 6 inches high. Barrel type shall be one of those listed in the *Safety Selection Guide*.

The site shall be prepared to receive the impact attenuator by filling, excavating, smoothing, constructing the paved foundation pad, installing approved transition and anchoring, and all other work necessary for the proper installation of the attenuator.

The impact attenuator shall be fabricated and installed in accordance with the manufacturer's recommendations. The Contractor shall provide a copy of the manufacturer’s installation instructions and parts list to the Engineer prior to installation of the device. Each installation shall be supervised and certified as correct upon completion by a representative of the device manufacturer or by an employee of the Contractor who is a certified installer. The certified installer shall have completed device training and shall be registered with the manufacturer as a certified installer. The Contractor shall submit all appropriate documentation to validate that the certified installer has completed device training and has been registered with the manufacturer as a certified installer.

REVISION OF SECTION 630
IMPACT ATTENUATOR (TEMPORARY)

METHOD OF MEASUREMENT

Impact Attenuator (Temporary) will be measured by the number of attenuators shown on the plans, installed, certified, and accepted; or the actual number of authorized 24-hour periods that the attenuator is used.

BASIS OF PAYMENT

If the pay unit is "day" there will be no incremental payment for the device. If the pay unit is "each" the item will be paid incrementally in accordance with subsection 630.16.

The accepted quantities will be paid for at the contract unit price for the pay item listed below:

Payment will be made under:

Pay Item	**Pay Unit**
Impact Attenuator (Temporary)	Each

Payment will be full compensation for all work and materials required to furnish, install, certify, move, repair, maintain, and remove the impact attenuator. Site preparation, foundation pad, epoxy painting, and all necessary hardware including anchors and transitions will not be paid for separately, but shall be included in the work.

REVISION OF SECTION 631
ALTERNATE BRIDGE DESIGN & CONSTRUCTION

Section 631 is hereby added to the Standard Specifications for this project as follows:

DESCRIPTION

631.01 All bidders on this project have the option of submitting a bid for the design and construction of an alternate bridge superstructure ("alternate bridge") for Structure K-01-L in lieu of submitting a bid for the construction of the default design as detailed in the plans, and herein referred to as the "default bridge".

Bidders are not required to submit a bid for an alternate bridge; rather, it is an option, at their sole discretion.

Value Engineering Change Proposals, as described in Section 104.07, will not be accepted for Structures K-01-L.

Bidders are hereby notified that CDOT will consider all submitted bids for the default bridge and for the alternate bridge together, and that CDOT will award to the low responsible and responsive bidder regardless of the particular type of bridge (default or alternate) bid by that bidder.

CDOT reserves the right, in its sole discretion, to reject the Contractor's alternate bridge design based upon deficiencies, irregularities or technicalities in considering and evaluating an alternate bridge.

The alternate bridge type that is acceptable to CDOT under this Project Special Provision, and for which CDOT will consider a bid, is the prestressed concrete deck bulb tee girder.

The alternate bridge shall have a bridge length that is the same as the default bridge.

Experimental or demonstration-type design concepts, products, structures, or elements that have not been pre-approved by CDOT, in writing, for general use will not be permitted in the alternate bridge design. No other alternate bridge types will be considered by CDOT. Any bids submitted for alternate bridge types other than the type described above will be automatically rejected and will not be considered.

An alternate bridge submitted by a bidder must be equivalent to the default bridge. To be considered "equivalent", the alternate bridge:

(1) Must comply with all applicable design and construction requirements of this Project Special Provision; and provide the roadway section widths, span arrangement, aesthetic and safety features, live load capacity, horizontal and vertical alignment, minimum lateral and vertical clearances, as described herein and as shown on the Plans for the default design; and

(2) Must include all work and materials to design and construct foundations, sheet pile walls, abutments, and superstructure with all appurtenances, as described herein and as shown on the Plans for the default bridge.

Bids for an alternate bridge must strictly comply with all terms and conditions of this Special Provision in order to be considered "responsive" and eligible for award.

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REVISION OF SECTION 631
ALTERNATE BRIDGE DESIGN & CONSTRUCTION

DESIGN

631.02 General. CDOT has not provided designs for the alternate bridge. Therefore, if a bidder elects to submit a bid for the alternate bridge, the bid must include both the cost of design and construction of the alternate bridge, and that bidder must provide a complete design for the alternate bridge ("alternate design").

The alternate design must be accomplished under the direct supervision and responsible charge of a Professional Engineer registered in the State of Colorado; and who is hereafter referred to as the Contractor's Professional Engineer.

631.03 Minimum Qualifications for the Contractor's Professional Engineer. The Contractor's Professional Engineer shall have minimum qualifications as follows:

(1) The Contractor's Professional Engineer shall have been in responsible charge of the design of the type of alternate structure being proposed within the past ten years, and shall provide to CDOT examples and references for projects successfully completed by the Contractor's Professional Engineer which are similar in nature, and which include the type of structure being proposed for the alternate bridge, as reference.

(2) The Contractor's Professional Engineer may be a professional engineer employed by the Contractor, or a consulting engineer under contract to the Contractor. If the Contractor's Professional Engineer is not an employee of the Contractor, then the Contractor's Professional Engineer shall be employed by a firm which is pre-qualified by the CDOT for bridge design. The Contractor may utilize more than one person or firm to provide these services.

(3) The Contractor's Professional Engineer, or his employer, shall have Professional Liability insurance in an amount not less than $1,000,000; and provide to the Engineer a certificate of insurance attesting to this coverage at the time of the Preliminary Design Submittal.

631.04 Alternative Design.

(1) *Preliminary Design Submittal.* If a bidder, who elects to submit a bid for the alternate bridge, is the apparent low responsible bidder, that bidder shall provide a preliminary alternate design and associated documents to the Resident Engineer (David Valentinelli, CDOT Region 5, 3803 North Main Ave, Suite 200, Durango Colorado 81301) for preliminary review and acceptance by CDOT within 10 calendar days of bid opening. The preliminary design submittal shall have the endorsement seal and signature of the Contractor's Professional Engineer, registered in the State of Colorado, who will be responsible for the alternate bridge design. At a minimum, this preliminary submittal shall include:

1. Preliminary design calculations, demonstrating the conformance of the alternate design with these specifications.

2. Preliminary design and construction schedule.

3. Preliminary drawings. At a minimum, the preliminary drawings shall include a general layout and elevation for the entire structure; typical superstructure section; sheet pile wall geometry; abutment type and geometry including curtain walls and diaphragms; and erection scheme. The drawings shall be consistent with the plan format shown for the default bridge. Two hard copies of reproducible drawings shall be submitted.
4. Resume and qualifications of the Contractor's Professional Engineer who will be responsible for the design of the alternate bridge, along with required insurance certificate(s).
5. Outline or draft of the Contractor's Quality Control Plan for the alternate bridge, as required by Section 631.15.

(2) *Compensation for Preliminary Design.* Bidders will not be compensated by CDOT for any design required to prepare a bid that includes an alternate design. Bidders who will have performed design work before award, but who do not get the award, for any reason, will have performed that work solely at their own cost and that design work will not be reimbursed by CDOT. Compensation to any alternate design work by the successful bidder shall be included in the bid.

(3) *Preliminary Design Approval.* If CDOT does not approve/accept the preliminary design within 15 calendar days of bid opening (10 calendar days for bidder submittal, plus 5 calendar days for CDOT review), that bid will be rejected. If CDOT requests additional information regarding the alternate bridge and/or the alternate design, the approval time period, may be extended at the discretion of CDOT.

Any delay in the bidder's submittal or CDOT's review and approval of a proposed alternate design, or a revision thereto, shall not extend the contract time.

(4) *Design Criteria.* The Contractor shall ensure that the alternate design meets all applicable design criteria for strength and serviceability, as described herein and as defined by the Contract Documents. The Contractor shall use the Plans for the default design, the Design Requirements in subsection 631.08, and the Design and construction specifications in subsection 631.09, for the design criteria.

(5) *Alternate Designs Predicated on Errors & Omissions.* Alternate designs predicated on errors or omissions in the Contract will be rejected. If any such error, omission or discrepancy is discovered, the Contractor shall notify the Engineer immediately. Failure to notify the Engineer will constitute a waiver of all claims for misunderstandings, ambiguities, or other situations resulting from error, omission, or discrepancy.

(6) *Resulting Changes to Other Project Elements.* Any changes or impacts to other project elements as a result of the alternate design, such as, but not limited to: retaining walls, roadway, drainage, utilities, environmental clearances and permits, phasing, and traffic control, shall be the responsibility of the Contractor; and the cost of such changes or impacts shall be included in the alternate design cost.

(7) *Claims for Design Errors.* Claims by the Contractor for design errors made by the Contractor's Professional Engineer will not be allowed for any portion of alternate design.

(8) *Use of Default Bridge Design, Details and Plan Sheets for the Alternate Bridge.* The Contractor's Professional Engineer shall take full responsibility for default bridge design elements, details or plan sheets utilized in the Alternate Bridge design or plans.

(9) *Independent Design Check.* The alternate design shall include an independent design check, as required by Section 19 of the CDOT Bridge Design Manual, by a professional engineer who did not participate in the design work being checked. The professional engineer conducting the design check shall possess the same qualifications as listed in subsections 631.02 and 631.03 for the Contractor's Professional Engineer.

631.05 Alternate Bridge Plans.

(1) *Plan Format.* The Contractor shall submit complete original hardcopy plans in 11"x17" format, along with electronic files for the alternate design entirely in MicroStation format utilizing CDOT's latest CAD configuration; as well as in Adobe Acrobat (PDF) format; plan changes shall be submitted in the same media. All linked and referenced files shall be included.

(2) *Structure Number.* An alternate bridge design structure shall be identified by the same structure number as the default bridge.

(3) *Contractor Signature.* Alternate bridge design drawings shall include the Contractor's signature in ink, the date signed, a business name, business address, and the note: "These drawings (Bxxx-Byyy) which supersede drawings (ABwww-ABzzz) were approved (insert date) in the title block.

(4) *Contractor's Professional Engineer Endorsement.* The record plans for the alternate bridge design drawings shall bear the seal, signature and date of the Contractor's Professional Engineer.

631.06 Submittals.

(1) *Final Plans and Quantity/Cost Breakdown.* The Contractor shall submit the final plans and an itemized quantity and cost break down, to the Engineer in accordance with the preliminary design and construction schedule. Final bridge geometry, including project coordinates and dead load deflections, shall be included in the alternate field plans.

Final plans shall include details for all bridge superstructure, substructure and foundation elements; and for other project elements changed due to the alternate bridge design and construction.

(2) *Calculations for Alternate Bridge.* The final package for submittal shall include complete design calculations, quantity calculations, independent design check calculation, quantity check calculations, and the bridge rating. All calculations (design, quantities, and check calculation) shall be submitted on CD in Adobe Acrobat (PDF) format.

The bridge rating shall be completed and submitted in accordance with CDOT's Bridge Rating Manual.

(3) *Calculations for Other Project Elements.* The final package for submittal shall include complete design calculations and quantity calculations for other project elements that were changed due to the Alternate Bridge Design and Construction.

(4) *Falsework*. Submittals for falsework shall be in accordance with Section 601.11.

(5) *Girder Erection*. Submittals for pre-cast concrete members shall be in accordance with Standard Special Provision 618 Erection of Pre-Cast Concrete members.

(6) *Record Plan Set for Alternate Bridge and Other Project Elements.* The Contractor shall submit two record plan sets in 8 ½ "x14" format; two hardcopy plan sets and shop drawings in 11"x17", with complete design notes, design check notes and computations to the Engineer one week prior to starting construction and fabrication of girders for the alternate bridge. The design notes and computations shall document the conclusions reached during the development of the construction plans. The plans and design computations will be reviewed by CDOT for completeness and spot check conformance with the Contract Document requirements only.

All designs, plans, specifications and details of the alternate design plans, as well as the completeness and accuracy of those plans, are the Contractor's sole responsibility. Designs and computations that are not in compliance with Design Requirements, in Section 631.08 below, shall be corrected by the Contractor and resubmitted. The record plans shall be sealed, in accordance with the bylaws and rules of procedure of the Colorado State Board of Registration for Professional Engineers and Professional Land Surveyors, by the Contractor's Professional Engineer who was in responsible charge of the design and preparation of the plans.

631.07 Design Computations.

(1) *Design Computation Set.* The complete set of design computations for the alternate bridge design shall include both substructure and superstructure and all appurtenances required.

(2) *Design Check Computation Set.* The complete set of independent design check computations for the alternate bridge design shall include both substructure and superstructure and all appurtenances required.

(3) *Engineering Identification.* The design and independent design check computations shall clearly identify the firm and individuals who performed the computations. The plans for the alternate bridge shall show the names of the design firm, designer and detailer in the title block; and each plan sheet shall bear a completed initial block in the left margin, as shown in the CDOT Bridge Manual, for the persons who performed the design, detail, and quantity functions.

(4) *Discrepancies Between Design and Design Check Computations.* Discrepancies between the design and the design check shall be resolved by the Contractor and all corrections shall be reflected in the design computations.

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REVISION OF SECTION 631
ALTERNATE BRIDGE DESIGN & CONSTRUCTION

In the event of a conflict or difference in interpretation of the design criteria, standards, or specifications that cannot be resolved, the decision of the Engineer shall be final.

(5) *Structure Rating.* The structure shall be rated in accordance with the CDOT Bridge Rating Manual, the AASHTO Manual for Bridge Evaluation, 2nd Edition - 2011, and subsection 3.2 of the CDOT Bridge Design Manual.

631.08 Design Requirements.

(1) *General.* The Contract Documents and the CDOT Standard Specifications for construction, including the Department's standard special provisions, along with Project Special Provisions, as applicable, shall apply to the design and construction of the alternate bridge.

(2) *Live Load.* The structure shall be designed for an HL-93 live load, with permit vehicle combinations as specified by the AASHTO specifications and the CDOT Bridge Design Manual.

(3) *Foundations.* The foundation design shall be consistent with the recommendations provided in the subsurface exploration and geotechnical recommendations. In lieu of those recommendations, the Contractor may provide a foundation analysis by an independent geotechnical consultant. Costs for an independent foundation analysis shall be borne by the Contractor.

(4) *Minimum Design Requirements.* The alternate bridge design shall, at a minimum, comply with the following design requirements and criteria:

1. The superstructure shall be a constant depth.
2. A single consistent girder type, the prestressed concrete deck bulb tee, shall be used throughout the structure. Use of multiple types of girders is not allowed.
3. The top flange of the girders shall have a minimum depth of 8 inches. The top flange shall be designed and constructed such that the top half of the top flange can be readily removed in the future. The girders shall be connected in longitudinal direction using an industry proven method that will prevent reflective cracking through the asphalt overlay.
4. Maintain aesthetic intent and continuity of the default bridge.
5. Horizontal and vertical alignment, and cross slope of the roadway surface finished grade shall be the same as the default bridge. Abutment bearing seat elevations shall not be lowered.
6. The number of spans shall remain the same as the default design.
7. The location of the sheet pile walls and abutments relative to the river shall be maintained. Minor variation in the sheet pile wall width (length parallel to the river) is permitted.
8. Upon completion of construction, the horizontal and vertical clearances as provided in the default design shall be maintained.

9. Construction clearance envelopes for roadways below the structure, as shown on the plans, shall be maintained.
10. In accordance with the CDOT Bridge Design Manual, inspection and maintenance access shall be provided for the alternate bridge.
11. Provide for and accommodate all electrical design elements and utility attachments for the alternate bridge as shown or specified in the Contract Documents for the default design.
12. Earthquake restraints for the alternate bridge shall be provided in accordance with the AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014.
13. Bearings and bridge rail of the alternate bridge shall be in accordance with the Contract Documents for the default design, and CDOT Staff Bridge Design Manual and Staff Bridge Design Worksheets.
14. Cast-in-place concrete shall not be used for any portion of the alternative bridge except for the Bridge Rail Type 10M. Precast concrete shall be used for abutments, curtain/cheek walls and backwalls/end diaphragms.
15. Lightweight concrete shall not be used for any portion of the alternate bridge.
16. The texture finish of the alternate bridge shall be as shown on the Plans for the default design.

631.09 Design and Construction Specifications. The following specifications shall be applicable to the design and construction of an alternate bridge. Unless noted otherwise, the most current edition, with applicable interims, shall be used;

(1) CDOT 2011 Standard Specification for Road and Bridge Construction, including all applicable Standard Special Provisions

(2) CDOT Project Special Provisions

(3) American Association of State Highway and Transportation Official (AASHTO) LRFD Bridge Design Specifications 7th Edition

(4) Guidelines for Design for Constructability, AASHTO/NSBA Steel Bridge Collaboration, G12.1

(5) Colorado Department of Transportation M & S Standards

(6) Colorado Department of Transportation Bridge Design Manual

(7) Colorado Department of Transportation Bridge Rating Manual

(8) CDOT Staff Bridge Design Worksheets

(9) CDOT Bridge Detailing Manual

(10) CDOT Staff Bridge Technical Memorandums

(11) ANSI/AASHTO/AWS Bridge Welding Code

(12) Colorado Department of Transportation (CDOT) Field Materials Manual

(13) CDOT Survey Manual

(14) MUTCD, latest edition

(15) CDOT Cost Estimates Item Book

(16) CDOT Cost Estimates Cost Data

(17) CDOT Procedural Directive 508.1 Professional Engineer's Stamp

(18) Subsurface Exploration and Geotechnical Recommendations as listed in Revision of Section 102 Project Plans and Other Data.

631.10 Qualifications, Requirements and Responsibilities of the Contractor's Professional Engineer.

(1) *Qualifications.* The alternate design shall be accomplished under the direct supervision and responsible charge of a Professional Engineer registered in the State of Colorado; and who is hereafter referred to as the Contractor's Professional Engineer.

The Contractor's Professional Engineer shall meet the minimum requirements of Section 631.03.

If there is any change in the Contractor's Professional Engineer, after award of the Contract, the Contractor shall submit to the Engineer for review and acceptance the replacement personnel qualifications at least 30 calendar days prior to beginning construction or changing personnel. Construction shall not begin, or continue, until the Engineer has reviewed and accepted the proposed change in qualified personnel.

Acceptance by CDOT or the Engineer of the Contractor's Professional Engineer proposed for the project shall in no way relieve the Contractor of full responsibility for the work of all design and construction personnel and full compliance with the Contract Documents.

(2) *Services to be Provided.* The Contractor's Professional Engineer shall be responsible for carrying out all engineering services required to design the alternate bridge in accordance with this specification and the Contract Documents.

The Contractor's Professional Engineer shall be responsible for observing and monitoring the Contractor's work, as necessary, during construction of the alternate bridge to ensure conformance with the alternate bridge design and design intent; and to ensure the requirements of the Contract Documents are being met for all aspects of the work for which the Contractor's Professional Engineer is responsible.

(3) *Availability.* The Contractor's Professional Engineer, or a designated representative shall be available on-site and/or by telephone as deemed necessary by the Engineer.

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ALTERNATE BRIDGE DESIGN & CONSTRUCTION

(4) *Authority.* The Contractor shall authorize the Contractor's Professional Engineer to stop or suspend construction operations and / or work for which the Contractor's Professional Engineer is responsible, if in the opinion of the Contractor's Professional Engineer, the alternate bridge is not being constructed in conformance with the alternate design or the Contract Documents. The Engineer shall be notified in writing by the Contractor of any work stoppage or suspension authorized by the Contractor's Professional Engineer. Such work shall not re-commence until the Contractor's Professional Engineer agrees and certifies in writing that the work deficiency has been remedied / corrected.

QUALITY CONTROL / QUALITY ASSURANCE

631.11 Quality Control - Quality Assurance Responsibility Quality control and quality assurance responsibilities shall be in accordance with the following table:

	Quality Control	*Quality Assurance*
Alternate Bridge	Contractor	CDOT

631.12 Quality Control

(1) *Alternate Bridge*. Quality Control for all alternate bridge elements is the responsibility of the Contractor. The Contractor shall perform all quality control sampling, testing, and inspection during all phases of the work at a rate sufficient to assure that the work conforms to the contract requirements.

(2) *Quality Control Documentation.* The Contractor shall maintain current records of quality control operation activities, and tests performed for the alternate bridge, including the work of vendors and subcontractors. These records shall be in the form shown in the Quality Control Plan. Documentation of aspects of the QC process for which the Contractor is responsible shall be kept by the Contractor and submitted to the Engineer and to the Contractor's Professional Engineer on a weekly basis.

631.13 Quality Control Standards. Except as amended herein, all sampling, testing, inspection and acceptance of materials shall conform to the following standards:

(1) Colorado Department of Transportation Standard Specifications for Road and Bridge Construction, 2011, including project Standard Special Provisions and Project Special Provisions, as applicable.
(2) CDOT Field Material Manual, latest edition
(3) AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing, latest edition.
(4) AASHTO/AWS Structural Welding Code D1.1, latest edition.
(5) AASHTO/AWS Bridge Welding Code D1.5, latest edition.

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631.14 Quality Control Personnel.

(1) *Qualification.* The Contractor shall provide qualified personnel for sampling, testing and inspection of materials and construction activities. The Contractor shall ensure that qualifications are maintained during the course of sampling, testing and inspection. The Engineer's continued acceptance of Contractor personnel qualifications over the course of the project is subject to satisfactory results from periodic independent assurance evaluations.

(2) *Conformance to Contract Documents.* Personnel and laboratories performing sampling and testing of materials shall conform to the requirements of the Contract Documents, and the applicable standards as listed above.

(3) *Personnel.* The Contractor shall have at least one person qualified to perform quality control on the project during all times that work is being performed. Qualifications for QC personnel shall, as a minimum, consist of ACI Level I certification and AWS QC1 certification.

All Quality Control personnel shall be dedicated to the QC process and shall not be utilized in any other capacity. They shall have sufficient independence to be focused on quality alone, without regard to schedule and budget, and shall have the authority to stop unsatisfactory work until quality has been improved such that the requirements of the Contract Documents and the Contractor's Quality Control Plan have been met to the satisfaction of the QC personnel and the Engineer.

(4) *Minimum Documentation by QC Personnel*. As a minimum, each Quality Control person shall fully document each day's QC activities by filling out a daily inspection report and submitting a copy to the Engineer or his representative. This report shall become part of the documentation described below.

631.15 Quality Control Plan (QCP).

(1) *General.* For all materials and construction operations included in the Contract, the Contractor shall submit to the Engineer a QCP prepared in accordance with the requirements of this specification and the Contract Documents. No materials shall be incorporated into the project or construction operations commenced prior to the Engineer's written approval of the Quality Control Plan.

(2) *QCP Submittal.* The Contractor shall submit the QCP to the Engineer for review and approval within 30 days following Award. The Engineer will review the QCP and respond to the Contractor within 30 calendar days following receipt of the QCP. The Contractor's QC personnel shall work diligently with the Engineer to correct any deficiencies in the QCP as noted by the Engineer.

(3) *Contractor Compliance with the QCP.* If, at any time, the Contractor is not in compliance with any portion the Contract Documents or the approved QCP, affected portions of the work may be disapproved. The Contractor shall cease work of the affected operation(s) and submit a revision to the Engineer for approval. The Engineer will review the revision and respond within seven (7) calendar days of receipt. Work may continue on operations that are still in compliance with the Contract Documents and the approved sections of the QCP.

(4) *QCP Guidelines.* The QCP shall include all construction operations and materials, both on site and at off-site production facilities. The QCP shall be sufficient to ensure that the requirements of the Contract Documents are being met for all aspects of the work.

The following guidelines shall be used for development of the QCP:

1. Personnel.
   A. *Qualifications.* Submit a list of technicians that will be performing sampling, testing and inspection, with resumes and their qualifications, for both field and laboratory testing. Include employed and subcontracted technicians. Submitted personnel shall be dedicated to quality control and shall not be used for any other construction operations.

   B. *Level of Responsibility and Authority*. Identify the primary QC contact for the Engineer. Identify roles, responsibilities and authority of various personnel involved in the quality control process.

2. Documentation.
   A. *Types of Documentation.* Submit what specific documentation, including quality control charts, qualification / accreditation records, inspection reports, mill certifications, test results and other pertinent / supporting documents, will be kept by the Contractor to verify that the QCP has been properly implemented and followed throughout the project. Include method of documentation of test results.

   B. *Submittals to Engineer.* Copies of all documentation as identified in the QCP shall be submitted to the Engineer on a weekly basis. Documentation shall be in a clear, orderly, and in a neat manner acceptable to the Engineer.

3. Materials.
   A. Source. Identify the sources of materials.

   B. Certification. Describe methods for verifying compliance of certification with the specifications.

   C. Disposition of Failing Materials. Describe the system for controlling non-conforming materials, including procedures for identification, isolation and disposition.

4. Storage Facilities for Materials.

   A. *Protection from Environment.* Describe means, measures, and methods for protecting all materials from environmental conditions (rain, snow, temperature, etc.) while in storage.

   B. *Integrity of Materials.* Describe means, measures, and methods for preventing segregation, contamination and degradation.

   C. *Material Identification.* Describe methods of identifying individual materials. Where applicable, submit a site plan showing the locations of various materials.

5. Construction and Testing Equipment.

   A. *Calibration.* Describe calibration frequencies, maintenance schedule and procedures for all construction and testing equipment.

6. Construction Operations.

   A. *Substructure Construction.* Describe means, measures and methods for control of substructure construction operations, including location, plumbness, dimensional requirements, and field welding, and reinforcing placement requirements.

   B. *Superstructure Construction.* Describe means, measures and methods for control of superstructure construction operations including, but not limited to: dimensional requirements, reinforcing placement, concrete cover, post-tensioning duct and hardware placement and stressing operations.

7. Plant Requirements.

   A. *Plant Identification and Certification.* Provide the mailing address, physical address including county, telephone and fax numbers, E-mail address, primary contact at the plant, responsible person in charge, Owner information and other information as required. Plant certifications, if applicable, shall be provided.

   B. *Process Control System.* Describe the methods and measures established to ensure Contract compliance for the produced materials. These methods and measures shall include, but are not limited to, inspection schedule, sampling and testing, maintenance schedule, etc.

   C. *Loading and Shipping Control.* Describe the methods and measures for preventing segregation, contamination and degradation as applicable during loading and shipping operations. Describe the methods and measures for keeping elements within allowable stresses and preventing damage as applicable during loading and shipping. Describe the methods established for materials to be in compliance with the Project Specifications at the point of use.

8. Manufactured Product.

   A. *Manufacturing / Fabrication.* Describe the methods and identify the type of equipment used in the manufacture and / or fabrication of the products.

   B. *Storage.* When storage of the produced materials is required at the plant or the construction site, describe the methods and duration of storage. Include measures and methods as applicable for preventing segregation, contamination and degradation during storage. Include measures and methods as applicable for protection from environmental conditions and the controlling of deformations and stresses.

   C. *Transportation.* Describe the method of delivery from the point of production / storage to the point of placement. Include methods for keeping elements within allowable stresses and preventing damage as applicable during loading and shipping. Describe the methods established for materials to be in compliance with the Contract Documents at the point of use.

   D. *Placement.* Describe the methods and identify the type of equipment used to incorporate the product into the project. Describe the methods to control geometry, stresses and prevent damage during placement and erection.

   E. *Identification and Disposition of Failing Materials.* Describe the methods and measures for identifying and controlling the failing materials. Include preventive and corrective measures. Describe disposition of failing materials.

9. Damaged Materials.

   A. *Criteria for Damaged Material.* Describe criteria for determining if damaged materials, components and products may be repaired, or shall be disposed.

   B. *Repair, Restoration of Damage Material.* Describe methods for repairing damaged materials, components and products as applicable. Describe restoration/correction criteria for damaged or flawed materials, components and products that are to be repaired to such extent that they will conform to the requirements of the Contract Documents.

10. Testing Laboratories

    A. *Identification of Testing Laboratories.* Identify all laboratories performing testing and include certification documentation. All testing shall be performed by qualified laboratories and/or equipment in accordance with the Contract Documents and the applicable standards listed above.

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631.16 Testing Equipment.

(1) *General.* The Contractor shall furnish and maintain, throughout the project, the equipment necessary to implement the QCP. All equipment shall be in good condition and calibrated in accordance with applicable ASTM specifications and the requirements specified herein. Backup testing equipment shall be kept on-site at all times and be kept in good condition and calibrated as above.

(2) *Concrete Cylinder Curing and Testing.* The Contractor shall furnish and maintain, throughout the required work, facilities suitable for curing and testing concrete test cylinders.

631.17 Non-Conformance. If, at any time, any construction operation or material is found not to be in conformance with the Contract Documents, or the Contractor's QCP, all non-conforming work shall cease immediately. The Contractor's Quality Control personnel shall develop and submit a Non-Conformance Report to the Engineer. The report shall detail the specific nature and causes of the non-conformance, as well as the means and methods that will be undertaken to bring the non-conforming work, or materials back into conformance with the Contract Documents and the Contractor's Quality Control Plan. The Engineer will review the report and proposed corrective procedures within five (5) working days of receipt. Work that was found to be non-conforming may not continue until the Engineer has approved the Non-Conformance Report. An approval of the report by the Engineer in no way relieves the Contractor from conforming to the Contract Documents and the Contractor's Quality Control Plan for all future work, regardless of whether or not the approved corrective procedures are successful.

MATERIALS

631.18 General. All materials used in the construction of an alternate bridge structure must meet the requirements of subsection 631.08 and 631.09. Materials that do not meet these requirements are subject to rejection or price adjustment.

CONSTRUCTION

631.19 General, Survey and Traffic Control.

(1) *General*. Construction of the alternate bridge shall strictly conform to the applicable sections of the Standard specifications.

(2) *Survey.* Construction survey for the alternate bridge shall be in accordance with Section 625, as revised for this project.

(3) *Traffic Control.* Traffic control for the alternate bridge shall conform to the intent of the Traffic Control Plans and Specifications included in the Contract. Any changes required to construct any alternate bridge shall be approved by the Engineer and included in the Lump Sum cost of the alternate bridge.

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631.20 Contractor's Responsibility. The presence of the Contractor's Professional Engineer, or his designated staff, on the project shall in no way act to relieve the Contractor of the full responsibility for: conformance of the work to the requirements of the contract documents; the structural adequacy of the erection scheme he chooses; or the safety of workers or the general public.

631.21 Record Documents. The Contractor shall provide CDOT with copies of the as-constructed plans, shop drawings, and working drawings for the alternate bridge for informational purposes and for archiving. The as-constructed plans shall include complete original hardcopy plans in 11"x17" format, along with electronic files entirely in MicroStation format utilizing CDOT's latest CAD configuration; as well as in Adobe Acrobat (PDF) format. All linked and referenced files shall be included.

METHOD OF MEASUREMENT

631.22 The alternate bridge design and construction will not be measured, but will be paid for on a lump sum basis, and will include all work and materials required to design and construct the alternate bridge.

The work will include, without limitation: design calculations and documentation, the independent design and detail check, bridge rating, preparation of plans, details, and drawings as required to fabricate and construct the alternate bridge, including, but not limited to, construction of the superstructure, foundations, abutments, railings and appurtenances, other project elements required to construct the alternate bridge; and the record documents (as-constructed plans, shop drawings, and working drawings).

All discrepancies in quantities for the alternate bridge design will be the Contractor's sole responsibility and will not be adjusted.

The completed structure shall include, as applicable but not limited to, the following items, which will not be measured separately, but will be included in the bid price for Item 631, Alternate Bridge Design and Construction:

Structure Excavation, Structure Backfill (Class 1), Hot Mix Asphalt (Grading SX), Geogrid Pavement Reinforcement, Steel Sheet Piling (Type II), Pile Tips, Steel Piling, Bearing Devices, Waterproofing (Membrane), Concrete Sealer (Calcium Nitrate), Precast Wall Segments, Precast Concrete Abutment Caps, Precast Concrete End Diaphragms, Bridge Rail Type 10M, 2 Inch Electrical Conduit, Prestressed Concrete Deck Bulb Tee Girders, and all other work and materials necessary to complete the structure.

By submitting a bid for Alternate Bridge Design and Construction, the Contractor agrees to accept the amount of that bid, as a lump sum basis, for the complete and satisfactory performance of the work.

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BASIS OF PAYMENT

631.23 The accepted quantities for construction of the alternate bridge will be paid for at the contract lump sum bid as follows:

Payment will be made under:

Pay Item	**Pay Unit**
Alternate Bridge Design & Construction	Lump Sum

631.24 Lump Sum Basis.

The lump sum bid price shall be full compensation for the cost of all the work, materials, tools, equipment, and incidentals required to complete the design and construction of the alternate bridge.

The work shall include design, independent design check, bridge rating, and plan preparation for the alternate bridge.

Supplemental survey and foundation investigation work required by the Contractor for the alternate bridge shall be included in the work.

The Contractor's construction oversight; the cost of preparing and implementing the Quality Control Plan; and all costs associated / required for Quality Control personnel, equipment, sampling, testing, inspections and documentation of the alternate bridge superstructure shall be included in the work.

Any design or construction costs resulting from changes or impacts to other project elements as a result of the alternate bridge design and construction, which were not required by the default bridge, such as, but not limited to: roadway, drainage, utilities, environmental clearances and permits, phasing, and traffic control, shall be the sole responsibility of the Contractor; and the cost of such changes or impacts shall be included in the alternate bridge lump sum cost.

The Engineer will determine partial payment for the construction of the alternate bridge and include the partial payment on the monthly pay estimate.

Partial Payment and Price Reduction: The Contractor shall furnish an itemized quantity and cost break down of the Lump Sum bid to the Engineer prior to commencement of construction. The Contractor's itemized quantity and cost break down shall reference the CDOT item numbers as provided in the CDOT Item Code Book.

The Engineer will review the Contractor's itemized quantity and cost break down to determine its trueness and reasonableness by using CDOT cost estimate data. The Contractor's approved itemized quantity and cost break down shall be used as a basis for calculating monthly partial payments and price adjustments for materials that do not meet specifications.

No adjustment will be made for differences in preliminary estimated quantities and final quantities.

FORCE ACCOUNT ITEMS

DESCRIPTION

This special provision contains the Department's estimate for force account items included in the Contract. The estimated amounts marked with an asterisk will be added to the total bid to determine the amount of the performance and payment bonds. Force Account work shall be performed as directed by the Engineer.

BASIS OF PAYMENT

Payment will be made in accordance with subsection 109.04. Payment will constitute full compensation for all work necessary to complete the item.

Force account work valued at $5,000 or less, that must be performed by a licensed journeyman in order to comply with federal, state, or local codes, may be paid for after receipt of an itemized statement endorsed by the Contractor.

Force Account Item	Quantity	Estimated Amount
F/A Minor Contract Revisions	F.A.	$ ♦*
F/A On the Job Trainee	Hour	$♦
F/A Partnering Program	F.A.	$
F/A Fuel Cost Adjustment	F.A.	$ ♦
F/A Asphalt Cement Cost Adjustment	F.A	$ ♦
F/A Conformity to the Contract of Hot Mix Asphalt	F.A.	$
F/A Furnish and Install Electrical Service	F.A.	$ ♦
F/A Erosion Control	F.A.	$ ♦
F/A Environmental Health and Safety Management	F.A	$

Minor Contract Revisions: This work consists of minor work authorized and approved by the Engineer which is not included in the contract drawings or specifications and which is necessary to accomplish the scope of work on this contract.

On the Job Trainee: Payment for on-the-job trainee used on the project. This provides an incentive payment for the Contractor's utilization of trainees who are enrolled in an approved training program.

Partnering Program: This Force Account is to profide funds for the Partnering Program.

Fuel Cost Adjustment: This Force Account is to provide funds should the Contractor choose to accept the Fuel Cost Adjustment.

Asphalt Cement Cost Adjustment: Asphalt Cement Cost Adjustment will be in accordance with Revision of Section 109 – Asphalt Cement Cost Adjustment (Asphalt Cement Included in the Work).

Furnish & Install Electrical Service – This work shall consist of all cost charges from the power service provider, and all necessary materials, labor, and coordination required to maintain existing or establish new power sources required for permanent operation of equipment as shown in the plans.

Erosion Control: This Force Account is to pay for any other erosion control items the ECS will need during the duration of this project. All items shall be pre-approved by the Engineer prior to installation or they will be at no cost to the project.

Environmental Health and Safety Management: This Force Account is to pay for additional costs related to removal, sample collection, analytical testing, containerization, transportation, and disposal or treatment of contaminated groundwater if found during dewatering procedures.

TRAFFIC CONTROL PLAN - GENERAL

The key elements of the Contractor's method of handling traffic (MHT) are outlined in subsection 630.10(a).

The components of the TCP for this project are included in the following:

(1) Subsection 104.04 and Section 630 of the specifications.
(2) Standard Plan S-630-1.
(3) Schedule of Construction Traffic Control Devices.
(4) Signing Plans.

Unless otherwise approved by the Engineer, the Contractor’s equipment shall follow normal and legal traffic movements. The Contractor’s ingress and egress of the work area shall be accomplished with as little disruption to traffic as possible. Traffic control devices shall be removed by picking up the devices in a reverse sequence to that used for installation. This may require moving backwards through the work zone. When located behind barrier or at other locations shown on approved traffic control plans, equipment may operate in a direction opposite to adjacent traffic.

CDOT may have entered into operating agreements with one or more law enforcement organizations for cooperative activities. Under such agreements, at the sole discretion of CDOT, law enforcement personnel may enter the work zone for enforcement purposes and may participate in the Contractor’s traffic control activities. The responsibility under the Contract for all traffic control resides with the Contractor and any such participation by law enforcement personnel in Contractor traffic control activities will be referenced in either the Special Provisions or General Notes of the plans depending on whether the Contractor is to hire local law enforcement or if CDOT is contracting with Colorado State Patrol for uniformed traffic control. Nothing in this Contract is intended to create an entitlement, on the part of the Contractor, to the services or participation of the law enforcement organization.

Special Traffic Control Plan requirements for this project are as follows:

During the construction of this project, traffic shall use the present traveled detour roadway unless otherwise identified on the plans or approved by the Engineer.

Existing traffic control devices already on site will be maintained by CDOT and inspected daily by the Contractor. If any devices do not comply with the exiting TCP the Contractor shall notify the Engineer so CDOT Maintenance Forces can be mobilized. Additional traffic control devices placed by the Contractor shall not conflict with devices already in place.

Traffic Control Devices tabulated in the plans shall be placed at the direction of the Engineer as required.

The Contractor shall not have construction equipment or materials in the lanes open to traffic at any time, unless approved by the Engineer.

During the resurfacing work, only one lane may be closed to traffic at any time unless approved by the Engineer. Traffic shall not be delayed for more than 30 minutes or as directed by the Engineer.

Failure to comply with the working hour requirements shall result in price reductions per Standard Special Specification “Revision of Section 105” Violation of Working Time Limitations.

At least one week prior to starting construction, the Contractor shall notify the Engineer of the date the Contractor intends to start construction.

All costs incidental to the foregoing requirements shall be included in the original contract prices for the project.

UTILITIES

UTILITY	CONTACT/EMAIL	PHONE/CELL
San Migual Power Association 170 W. 10th Ave. Nucla, CO 81424	Marvin Walisky Marvin@smpa.com	(970) 864-7311 (ext. 117) (970) 428-2038 (cell)
United State Bureau of Reclamation (Brine water line) Western Colorado Area Office Paradox Valley Unit Bedrock, CO	Andrew Nicholas Anicolas@usbr.gov	(970) 859-7214 (970) 417-6481 (cell)
Nucla Naturita Telephone Co. 421 Main St. Nucla, CO 81424	Kevin Tomlinson Kent@nntc.bz	(970) 864-7335 (970) 428-0257 (cell)
Ladner's Red Rock Ranch, LLC (Domestic water line) 415 Palmer St. Delta CO 81416	James Williams	(970) 216-1018 (cell)
Henry (Hank) and Janet Pennington (Domestic water line) Box 5580 Chiniah AK 99615-5570	Henry Pennington Hankpennington3@gmail.com	(907) 486-2893

The work described in these plans and specifications may require coordination between the Contractor and the utility companies in accordance with subsection 105.11 of the Standard Specifications in conducting their respective operations as necessary.

The work listed below shall be performed by the Contractor in accordance with the plans and specifications, and as directed by the Engineer. The Contractor shall keep each utility company advised of any work being done to its facility, so that the utility company can coordinate its inspections for final acceptance of the work with the Engineer.

FOR:

All Utility Companies
The Contractor will contact each utility company a minimum of two (2) business days, unless otherwise noted, prior to working in the utility company's area so that the utility company can provide an inspector and/or complete any necessary adjustments or relocations.

If a need for utility work by either the Contractor or a Utility Company arises, the Following shall apply:

The Contractor shall be responsible for coordinating the adjustment of utilities on this project. The Contractor shall keep each utility company advised of any work being performed in the vicinity of their facilities so that each utility company can coordinate any needed locates, adjustments or inspections. The Contractor shall provide the appropriate utility company ample notice, but not less than two (2) working days, prior to commencing activities in the vicinity of their facilities. If needed, or as directed by the Project Engineer, the Contractor may provide traffic control for the utility work to be coordinated with the project's construction, in accordance with an approved Method of Handling Traffic (MHT). Any additional work performed by the Contractor on behalf of the impacted utility company shall be paid by the utility company requiring the work, unless otherwise provided herein, or agreed to in writing by the Project Engineer.

UTILITIES

It is the intent of this project to protect the existing utilities in place during construction operations. The Contractor shall be responsible for verifying the location of all utilities in close proximity to any required work for the purpose of identifying conflicts not otherwise addressed in the plans and specifications. Payment for this work will be by contract bid item – Potholing. To the extent practicable, the contractor shall be required to work around and protect existing utilities in place for the purpose of maintaining service. The Contractor is advised to take the necessary precautions when performing its work so as to avoid damaging any utilities. Close coordination with the utility owners will be required in making a determination of whether or not existing facilities can be protected in place. In the event a utility cannot be protected in place and relocation is required, it shall be the Contractor's responsibility for coordinating the relocation work with the impacted utility. Any required relocation work will be performed by the impacted utility at no cost to the project unless otherwise provided herein.

San Miguel Power Association (SMPA):

Nucla Naturita Telephone (NNTC):

USBR Paradox Valley Unit (Brine water lines):

Ladner's Red Rock Ranch (water line):

Pennington (water line):

The work listed below will be performed by the utility owners or their agents

San Miguel Power Association (SMPA):

Nucla Naturita Telephone Company (NNTC):

United States Bureau of Reclamation (USBR) Paradox Valley Unit (Brine water lines):

Ladner's Red Rock Ranch (water line):

Pennington (water line):

UTILITIES

GENERAL:

The Contractor shall comply with Article 1.5 of Title 9, CRS ("Excavation Requirements") when excavation or grading is planned in the area of underground utility facilities. The Contractor shall notify all affected utilities at least two (2) business days prior to commencing such operations. The Contractor shall contact the Utility Notification Center of Colorado (UNCC) to have locations of UNCC registered lines marked by member companies. Calls originating within the Denver metro area must use telephone number 534-6700; calls originating outside the Denver area must use 1-800-922-1987. All other underground facilities shall be located by contacting the respective company or owner. Utility service laterals shall also be located prior to beginning any excavating or grading.

The location of utility facilities as shown on the plan and profile sheets was obtained from the best available information. No warranty is made for the adequacy or accuracy of subsurface information provided. The contractor shall cooperate with the utility owners in their relocation operations as provided in subsection 105.11 of the Standard Specifications for Road and Bridge Construction. No guarantee is made that utility conflicts will be resolved prior to construction activities and any delays resulting from utility relocation work shall be dealt with in accordance with subsection 108.08 of the Standard Specifications for Road and Bridge Construction as amended.

All costs incidental to the foregoing requirements will not be paid for separately but shall be included in the work.