

COLORADO
DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
SH 348 DELTA OLATHE MP 0.3-17.059 RURAL RD (STR 348A-001)
SH 348 J-04-X REPLACEMENT BTE (FBR 348A-002)

COVER PAGE

COLORADO
DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
SH 348 DELTA OLATHE MP 0.3-17.059 RURAL RD (STR 348A-001)
SH 348 J-04-X REPLACEMENT BTE (FBR 348A-002)

The 2025 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 of the Standard Specifications and plans.

PROJECT SPECIAL PROVISIONS

<u>Description</u>		<u>Page No.</u>
Cover Page	May 28, 2026	1
Index of Project Special Provisions	May 28, 2026	2 - 3
Index of Standard Special Provisions	May 28, 2026	4 - 5
Notice to Bidders	May 28, 2026	6
Commencement and Completion of Work (Floating Start Date)	May 28, 2026	7
On-the-Job Training Contract Goal	May 28, 2026	8
Revision of Section 102 - Project Plans and Other Data	May 28, 2026	9
Revision of Sections 105, 304, and 703 - Aggregate Base Course	May 28, 2026	10 - 11
Revision of Section 105 - Cooperation Between Contractors	May 28, 2026	12
Revision of Section 105 - Electronic Documents	May 28, 2026	13
Revision of Section 106 - BA and BABA Documents	May 28, 2026	14
Revision of Section 108 - Prosecution and Progress	May 28, 2026	15
Revision of Section 109 - Ticket Collection	May 28, 2026	16
Revision of Section 202 - Reclaimed Asphalt Pavement Millings	May 28, 2026	17
Revision of Section 202 - Removal of Asphalt Mat (Planing)	May 28, 2026	18 - 21
Revision of Section 202 - Removal of Expansion Device	May 28, 2026	22 - 23
Revision of Section 202 - Removal of Pavement Marking	May 28, 2026	24 - 26
Revision of Section 202 - Removal of Structures Coated with Heavy Metal Based Paint	May 28, 2026	27
Revision of Section 203 - Potholing	May 28, 2026	28
Revision of Section 210 - Repair Curb, Curb Ramps, and Sidewalk	May 28, 2026	29
Revision of Section 210 - Valve Box and Manhole Adjustments	May 28, 2026	30 - 31
Revision of Section 211 - Water Control and Dewatering	May 28, 2026	32 - 34

-2-
COLORADO
DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
SH 348 DELTA OLATHE MP 0.3-17.059 RURAL RD (STR 348A-001)
SH 348 J-04-X REPLACEMENT BTE (FBR 348A-002)

PROJECT SPECIAL PROVISIONS

<u>Description</u>		<u>Page No.</u>
Revision of Section 240 - Protection of Migratory Birds Biological Work Performed by the Contractor's Biologist	May 28, 2026	35 - 38
Revision of Section 401 - Roller Pass Study	May 28, 2026	39 - 40
Revision of Sections 401 and 403 - Hot Mix Asphalt (SX)(100), (SX)(75), and (ST)(75)	May 28, 2026	41 - 44
Revision of Section 412 - Concrete Pavement (6 Inch)(Fast Track)	May 28, 2026	45
Revision of Section 506 - Geogrid Reinforcement	May 28, 2026	46 - 48
Revision of Section 518 - Rapid Cure Joint Sealant	May 28, 2026	49 - 50
Revision of Section 603 - Reinforced Concrete Pipe	May 28, 2026	51
Revision of Section 608 - Detectable Warnings	May 28, 2026	52
Revision of Section 614 - Flashing Beacon (Special)	May 28, 2026	53 - 54
Revision of Section 614 - LED Warning Sign System	May 28, 2026	55 - 58
Revision of Section 620 - Field Office and Field Laboratory	May 28, 2026	59 - 61
Revision of Section 626 - Public Information Management (Tier III)	May 28, 2026	62 - 69
Revision of Section 627 - Preformed Thermoplastic Material (Special)	May 28, 2026	70
Revision of Section 630 - Impact Attenuator (Temporary)	May 28, 2026	71 - 72
Revision of Section 630 - Pedestrian Barricade (ADA)	May 28, 2026	73 - 74
Revision of Section 630 - Portable Message Sign Panel	May 28, 2026	75 - 76
Revision of Section 630 - Traffic Signal (Temporary)	May 28, 2026	77 - 78
Revision of Section 630 - Uniformed Traffic Control (CSP)	May 28, 2026	79
Force Account Items	May 28, 2026	80 - 81
Traffic Control Plan - General	May 28, 2026	82 - 87
Utilities	May 28, 2026	88 - 91
Railroad Requirements - Union Pacific Railroad Company	May 28, 2026	92 - 96
Right of Way Restrictions	May 28, 2026	97

COLORADO
DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
SH 348 DELTA OLATHE MP 0.3-17.059 RURAL RD (STR 348A-001)
SH 348 J-04-X REPLACEMENT BTE (FBR 348A-002)
STANDARD SPECIAL PROVISIONS

<u>Description</u>	<u>Date</u>	<u># Pages</u>
Revision of Section 101 - General Provisions	(March 19, 2026)	1
Revision of Section 105 - Project First	(June 11, 2025)	4
Revision of Section 105 - Dispute Resolution, Dispute Review Board and Claims for Unresolved Disputes	(June 11, 2025)	26
Revision of Sections 105 and 106 - Conformity to the Contract of Hot Mix Asphalt (Voids Acceptance)	(July 1, 2025)	13
Revision of Section 106 - Buy America and Build America, Buy America Requirements - Projects Containing \$500,000 or more in Federal-Aid Highway Funding	(September 11, 2025)	1
Revision of Section 106 - Environmental Product Declarations	(June 11, 2025)	11
Revision of Section 107 - Water Quality Control (Under One Acre of Disturbance)	(July 1, 2025)	8
Revision of Section 108 - Liquidated Damages	(July 1, 2025)	1
Revision of Section 109 - Asphalt Cement Cost Adjustment (Asphalt Cement Paid Separately)	(July 1, 2025)	3
Revision of Section 201 - Clearing and Grubbing	(March 19, 2026)	3
Revision of Section 203 - Excavation and Embankment	(March 19, 2026)	1
Revision of Section 207 - Subsoil and Topsoil	(April 1, 2026)	7
Revision of Section 208 - Erosion Control (Under One Acre of Disturbance)	(July 1, 2025)	36
Revision of Section 212 - Soil Amendments, Seeding, and Sodding	(July 1, 2025)	25
Revision of Section 401 - Composition of Mixtures - Voids Acceptance	(July 1, 2025)	1
Revision of Section 401 - Plant Mix Pavements - General (Subsection 401.17)	(July 1, 2025)	4
Revision of Section 401 - Reclaimed Asphalt Pavement	(July 1, 2025)	2
Revision of Section 401 - Safety Edge	(September 11, 2025)	1
Revision of Section 401 - Tolerances for Hot Mix Asphalt (Voids Acceptance)	(July 1, 2025)	1
Revision of Section 601 - Low Strength Evaluation	(March 19, 2026)	2
Revision of Section 601 - Structural Concrete	(September 11, 2025)	1
Revision of Section 627 - Pavement Marking Paint	(July 1, 2025)	15
Revision of Section 630 - TCS Trainee	(March 19, 2026)	2

-2-
COLORADO
DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISIONS
SH 348 DELTA OLATHE MP 0.3-17.059 RURAL RD (STR 348A-001)
SH 348 J-04-X REPLACEMENT BTE (FBR 348A-002)
STANDARD SPECIAL PROVISIONS

<u>Description</u>	<u>Date</u>	<u># Pages</u>
Affirmative Action Requirements Equal Employment Opportunity	(July 1, 2025)	13
Certified Payroll Requirements for Construction Contracts	(July 1, 2025)	1
Minimum Wages, Colorado, U.S. Department of Labor General Decision Number CO20260012, Highway Construction for Alamosa, Archuleta, Chaffee, Conejos, Delta, Dolores, Fremont, Gunnison, Hinsdale, La Plata, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan, and San Miguel counties.	(January 9, 2026)	8
On the Job Training	(July 1, 2025)	6
Railroad Insurance	(July 1, 2025)	2
Required Contract Provisions - Federal-Aid Construction Contracts	(July 1, 2025)	15
Special Construction Requirements, Fire Protection Plan	(July 1, 2025)	2

NOTICE TO BIDDERS

The proposal 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:	Rob Beck	
Resident Engineer:	Nathan Jean	970-210-9578
Project Engineer:	Sean Maloney	
	Cell Phone:	970-317-4176

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.

Questions received from bidders along with CDOT responses will be posted on the CDOT website 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.

COMMENCEMENT AND COMPLETION OF WORK (FLOATING START DATE)

The Contractor shall select the date that contract time begins for this project, subject to the following conditions:

- (a) The earliest date shall be: 2 November 2026
- (b) The latest date shall be: 30 November 2026
- (c) The Contractor shall notify the Engineer, in writing, at least 30 days before the proposed beginning date. If the earlier date, as stated above, follows the award date by less than 30 days, the Contractor's written notice to the engineer shall be at least 10 days before the proposed beginning date.
- (d) The date that contract time begins shall be subject to the Region Transportation Director's approval. A different date may be authorized in writing by the Chief Engineer in the "Notice to Proceed".

The Contractor shall complete all work within 130 working days in accordance with the "Notice to Proceed".

If material stockpiling begins before the beginning date, contract time will not be charged for the stockpiling effort. 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 per Section 109 and 626.

Subsection 108.05 shall include the following:

The Contractor shall complete the following discrete portions of the work (milestones) by the dates specified. A daily charge will be made against the Contractor per Subsection 108.09 for each calendar day that any work remains uncompleted after the date specified.

Milestone No. 1

Completion Date: 19 February 2027

Description: All items related to the removal of structure J-04-X and construction of the new CBC and wingwalls associated with Structure J-04-BC.

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: 640 hours

**REVISION OF SECTION 102
PROJECT PLANS AND OTHER DATA**

Revise Section 102 for the Standard Specifications for this project as follows:

Subsection 102.05 shall include the following:

Supplemental data may be obtained by contacting the Resident Engineer listed in the Notice to Bidders. The supplemental data consists of:

- (a) Google Earth KMZ files
- (b) Geotech Report
- (c) Pipe Selection Memo

The Department does not warrant the supplemental data and this information is not considered to be part of the Contract. If bidders use or modify the supplemental data in preparing a proposal or planning and prosecuting the work, all associated data is used at their own risk, and bidders are responsible for conclusions, deduction, and inferences drawn from the original or modified supplemental data.

Region 3 Lane Closure Strategy is available upon request.

REVISION OF SECTIONS 105, 304, AND 703 AGGREGATE BASE COURSE

Section 105 of the Standard Specifications is hereby revised for this project as follows:

Table 105-03 shall include the following: The F factor for R-value shall be 3. The F factor for fractured faces (percentage of 2 or more fractured faces on material retained on the #4 screen) shall be 3.

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

Subsection 304.02 shall include the following:

Unless otherwise specified, material for shouldering shall be Aggregate Base Course (Class 6) or Aggregate Base Course (Class 7), as shown in the plans, and shall meet the requirements of subsection 703.03.

Subsection 304.04 shall include the following:

The Contractor shall prepare the shoulders prior to placing shouldering material. This shall include mowing existing vegetation, blading back existing material, and leveling rutted areas. The Contractor's method for shoulder preparation shall be subject to the approval of the Engineer. Unless otherwise shown in the plans, preparation of the shoulders shall not be paid for separately but shall be included in the cost of the shouldering material.

Aggregate Base Course used for shouldering shall not be dumped on the asphalt pavement and bladed to the shoulders but shall be dumped on the shoulder by side-dump equipment or other methods approved by the Engineer.

Delete the fourth paragraph of section 304.06 and replace it with the following:

The above compaction and straightedge requirements shall not apply to shoulder gravel.

Prior to delivery to the project, Aggregate Base Course used for shouldering shall be moistened to within 2% of optimum moisture content as determined by AASTHO T180. Additional moisture shall be added as needed to maintain the moisture content within 2% of optimum moisture. Immediately following placement, shoulder gravel shall be wheel rolled at least twice with equipment approved by the Engineer. Skid loaders will not be approved. If the compaction process falls more than one hour behind the placement (dumping) of the material, the Contractor shall cease delivery until the compaction process has caught up. The Engineer may require the Contractor to add additional moisture and/or to roll the material additional passes. This shall not be paid for separately but shall be included in the cost of the Aggregate Base Course. Unless otherwise specified, placement of shoulder gravel shall be completed within one week of the placement of the top lift of hot mix asphalt.

-2-

**REVISION OF SECTIONS 105, 304, AND 703
AGGREGATE BASE COURSE**

Section 703 of the Standard Specifications is hereby revised for this project as follows:

Subsection 703.03 shall include the following:

When tested by the Hveem Stabilometer in accordance with AASHTO T190, aggregate for bases shall meet the minimum R value requirements of Table 703-3A for the classes specified for the project, unless otherwise specified. Unless otherwise specified, the R value requirement shall not apply to ABC Class 7 used for shoulder gravel.

Table 703-3A, Minimum R value for Aggregate Base Course

ABC Class	Class 1	Class 2	Class 3	Class 6	Class 7
Minimum R value	70	65	59	78	60

In addition to the requirements of Table 703-2 and 703-3A, ABC (Class 1) shall have a maximum of 90% passing the $\frac{3}{4}$ inch screen. ABC (Class 6) shall not be used as ABC (Class 1).

For ABC (Class 6), a minimum of 80% by weight of the particles retained on the 4.75 mm (No. 4) sieve shall have at least two fractured faces when tested per Colorado Procedure 45. For ABC (Class 1) and ABC (Class 2), a minimum of 50% by weight of the particles retained on the 4.75 mm (No. 4) sieve shall have at least two fractured faces when tested per Colorado Procedure 45.

Fractured faces testing shall be performed on samples used for testing gradation and at the same frequency as gradation testing. Subject to the Engineer's approval, frequency of fractured faces testing may be reduced to one per three gradation samples if the first three tests and all subsequent tests meet requirements. If any test fails, frequency shall revert to the same frequency as gradation testing for the remainder of the project.

The Contractor shall sample the proposed aggregate base course in the presence of the Engineer or their designee. Sampling methods shall be in accordance with the current edition of the Field Materials Manual.

REVISION OF SECTION 105 COOPERATION BETWEEN CONTRACTORS

Section 105 of the Standard Specifications is hereby revised for this project as follows:

Subsection 105.12 shall include the following:

Other construction agencies may be working in the vicinity of the project. The Contractor shall conduct the work so as not to interfere or hinder the progress or completion of the work being performed by other agencies or Contractors. All traffic conflicts that arise between the needs of the various construction contractors and other agencies shall be brought to the attention of the Engineer. The Project Engineer will decide the method of resolution.

The following projects may be working on US 50 during the 2026 and 2027 construction seasons:

City of Delta Main Street Multimodal Improvements Project
US 50: SH 92 to Meeker St.
Contact: Joe Gillman (Community Development Manager)
Phone: (970) 874-7909

REVISION OF SECTION 105 ELECTRONIC DOCUMENTS

Section 105 of the Standard Specifications is hereby revised for this project as follows:

In Subsection 105.08, delete the first and third sentence, and replace with the following:

Where the specifications require the Contractor to submit or return documents in writing or the format is not specified, an electronic PDF shall be submitted. Optical Character Recognition (OCR) shall be applied to the electronic PDF so the text is searchable.

REVISION OF SECTION 106 BA AND BABA DOCUMENTS

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

Subsection 106.11 shall include the following:

BA and BABA document submittals shall include a cover page with the following information:

- (1) Date
- (2) Project name
- (3) Project number
- (4) Subaccount number
- (5) Pay item number
- (6) Pay item description
- (7) Index of pages and applicable heat numbers

The Contractor is responsible for clearly identifying and delineating all BA and BABA information specific to this project. If provided documents include extraneous details or information for other projects, the Contractor shall precisely highlight the BA and BABA details pertinent to this Contract. Bulk submissions of material information not directly relevant to this specific project will be considered non-compliant.

Each individual BA and BABA document following the cover page shall include the following information in the header and footer:

- (a) Header
 - (1) Project name
 - (2) Project number
 - (3) Subaccount number
 - (4) Pay item number
 - (5) Pay item description
- (b) Footer
 - (1) Page number

REVISION OF SECTION 108 PROSECUTION AND PROGRESS

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

Subsection 108.05 shall include the following:

All businesses shall be provided with access during their normal business hours, unless the Contractor has prior written approval from the business for interruptions in their access.

No work will be allowed on Saturdays or Sundays without the Project Engineer's prior written approval. Request to work weekends shall be made in writing to the Project Engineer by noon on Monday.

Working hours shall be 30 minutes after sunrise to 30 minutes before sunset, unless approved in writing by the Project Engineer.

Delays or impacts to the Contractor due to the requirements of this provision shall not be a basis for an extension of time, additional compensation, or both.

Any denial or revocation of prior approval for traffic-handling requests shall not be the basis for any claim for additional time or compensation.

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

Full closure of both lanes of SH 348 at the existing J-04-X structure will be allowed for the express purpose of replacing the structure, as approved by the Project Engineer. Easter Rd and 5400 Rd are the allowable detour roads for this closure. Full closure of both lanes shall not extend past the completion date listed in Milestone No. 1 of the "Commencement and Completion of work (Floating Start Date)" project special, unless otherwise approved by the Engineer. For all other work, lane closures will only be allowed per the Region 3 Lane Closure Strategy guide.

REVISION OF SECTION 109 TICKET COLLECTION

Section 109 of the Standard Specifications is hereby revised for this project as follows:

Subsection 109.01 shall include the following:

The Contractor shall collect the scale ticket on each load of all items paid by the ton when they are delivered to the project site and ensure that the information required in subsection 109.01 is shown on each ticket.

The scale tickets shall be available on site for CDOT personnel to inspect.

Each day, the Contractor shall provide to the Engineer envelopes that contain the previous day's signed tickets and the following:

1. On each envelope: Project number, date delivered to project, type of material, location placed, daily total, and cumulative total.
2. One of the following:
 - a. Two adding machine tape tabulations of the weight tickets with corresponding totals run and signed by different persons.
 - b. One signed adding machine tape tabulation of the weight tickets that has been checked and signed by a second person and a signed check tape of computer scale tickets that have a cumulative total. These scale tickets must be consecutive and without voids adjustments.
3. A listing of any overweight loads on the envelope, including ticket numbers and amount over legal limit.
4. A comparison of the actual yield for each day's placement to the theoretical yield. Theoretical yield shall be based on actual area paved, the planned thickness, and the actual density of the mixture being placed. Any variance greater than +2.5% shall be indicated on the envelope and a written explanation included.

Each day, the Contractor shall provide a vehicle identification sheet and ensure that the information required in Subsection 109.1 is shown on each sheet.

**REVISION OF SECTION 202
RECLAIMED ASPHALT PAVEMENT MILLINGS**

Revise Section 202 of the Standard Specifications for this project as follows:

Subsection 202.09 shall include the following:

The Contractor shall take possession of the Reclaimed Asphalt Pavement (RAP) millings removed from the existing asphalt mat on this project. All remaining RAP millings, if any, may be used in the project as allowed in the Contract or as approved by the Engineer. Otherwise, they shall become the property of the Contractor and shall be disposed of at the Contractor's expense outside the project limits.

Subsection 202.12 shall include the following:

Unless otherwise specified in the Contract, the disposal and hauling of the RAP millings to other locations, or its use on the project or at other locations 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). The Contractor shall not begin the planing operation until the hot mix asphalt (HMA) mix design has been approved and a Form 43 has been signed by the Engineer. At least one week 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, type, and sizes of planers to be used.
- (2) The width and location of each planing pass. If requested by the Engineer, the Contractor shall include plan sheets showing the milling passes.
- (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.

The QCP shall include at 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 macrotexture requirements.
- (8) Corrective procedures if the milled surface does not meet the transverse or longitudinal surface finish requirements when measured with a 10-foot straightedge.

All planing shall be completed parallel to the travel lanes, unless otherwise directed 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.

-2-

REVISION OF SECTION 202 REMOVAL OF ASPHALT MAT (PLANING)

All planed surfaces shall be swept with a pick-up broom, unless otherwise specified, before being opened to traffic. A sufficient number of pick-up brooms shall be used immediately after planing to remove all planed 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 Contractor shall have at least one backup broom on the project at all times in case one of the operating brooms breaks down. If the backup broom is not also a pick-up broom, the planing operation shall cease when the pick-up broom breaks down and shall not resume until a working pick-up broom is operating on the project.

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 locations directed by the Engineer, in accordance with CP 77, at a stratified random frequency of at least one test per 10,000 square yards and a minimum of once per workday.

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. Work associated with joints and tapering of joints will not be paid for separately but shall be included in the cost of the planing.

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. If the transverse joint is tapered with a planing machine, a butt joint shall be cut into the taper the full depth of the asphalt lift to be placed on the milled surface prior to commencement of resurfacing.

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.

-3-

REVISION OF SECTION 202 REMOVAL OF ASPHALT MAT (PLANING)

Due to variations in the depths and condition of prior treatments of existing pavement, the Contractor should anticipate delamination will occur in some locations. The Contractor shall vary mill depth where necessary to obtain a more consistent surface.

The roadway shall be left in a safe and usable condition at the end of each workday. 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.

Planing shall be completed full width before resurfacing commences, unless otherwise directed by the Engineer. Unless otherwise specified, all milled surfaces to be overlaid with HMA shall have the overlay placed within 7 working days of the date on which the surface was milled. Where there is less than 3 inches of asphalt remaining after the milling, the overlay shall be placed on the day milling is performed. All areas that are not overlaid within the specified working days will be assessed a lane rental fee of \$8,800 per occurrence for each day or fraction thereof. If the Contractor fails to complete the overlay within the specified working days, the Engineer may require the Contractor to stop all other work on the project until the overlay is completed. Any delays due to this action shall be the responsibility of the Contractor and shall be considered non-excusable and non-compensable. In addition, if a milled area has not been overlain within the specified time, patching of distressed or delaminated areas that were not initially apparent and appear after the specified time shall be repaired with full depth patching at the Contractor's expense.

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. Operation with broken or missing teeth will not be allowed. Worn teeth shall be replaced if the planer does not produce a uniform surface.

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.

-4-

**REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT (PLANING)**

Subsection 202.12 shall include the following:

Macrotexture testing, macrotexture corrective actions, planers, brooms, tapers, and all other work necessary to complete the item will not be measured and paid for separately but shall be included in the work. Removal of Asphalt Mat (Planing) shall be paid as the specified depth and shall include varying the mill depth up to one additional inch where necessary to obtain a more consistent surface. The Contractor shall anticipate that delamination may occur and that smoothness and density requirements will not be waived due to delamination of the existing surface.

REVISION OF SECTION 202 REMOVAL OF EXPANSION DEVICE

Revise Section 202 of the Standard Specifications for this project to include the following:

DESCRIPTION

This work shall consist of removing existing bridge expansion devices per these specifications and conforming to the lines and details shown on the plans or as approved by the Engineer.

This work shall include:

- Saw cutting
- Removing concrete
- Removing reinforcing steel as shown in the plans
- Protecting and straightening existing reinforcing steel to remain
- Protecting all utilities within the removal area
- Sandblasting or hand-cleaning reinforcing steel, including epoxy repair
- Containing and disposing of removed materials and debris

CONSTRUCTION REQUIREMENTS

At least 10 working days before beginning removal, the Contractor shall submit a method statement to the Engineer with details of the removal operations, including the means, methods, sequence of removal, tools, and equipment to be used. The Engineer must approve all removal operations, methods, and equipment before the work begins.

Remove the existing concrete as shown on the plans or as directed by the Engineer. The Contractor shall saw cut along the removal limits before removal. Removal operations shall not occur before approval of the Engineer. Unless otherwise specified, the complete concrete sawing shall be to a true line, with a vertical face. Feathered edges will not be acceptable. The depth of the saw cut shall be 3/4-inch minimum.

The Contractor shall take all steps necessary to minimize spalling on the face of the existing concrete adjacent to the removal boundaries. Do not use pneumatic hammers heavier than a nominal 15-pound class for removals adjacent to the removal boundaries. Use hand tools such as hammers and chisels to remove particles of loose, unbonded concrete. Sandblast exposed concrete surfaces within the removal limits to remove all final fractured or loose particles. Any damage caused by the Contractor to any portion of the structure not intended for repair shall be repaired in kind by the Contractor at the Contractor's expense using means and methods approved by the Engineer with no allowance for contract time extension.

-2-

REVISION OF SECTION 202 REMOVAL OF EXPANSION DEVICE

The Contractor shall take all steps necessary to prevent cutting or otherwise damaging reinforcing steel intended to remain in place and all utilities within the removal area. Any reinforcing bars or utilities damaged by the Contractor's operation shall be repaired or replaced in kind at the Contractor's expense using means and methods approved by the Engineer with no allowance for contract time extension. Include containment or protection required to keep debris from falling below the work area in the work cost.

After removing the concrete, straighten all exposed non-epoxy reinforcing steel to remain in place as required and thoroughly cleaned to sound metal by sandblasting. Sandblasting equipment shall be capable of removing rust scale from non-epoxy reinforcing bars. If present, do not sandblast epoxy-coated reinforcing steel; clean it with hand tools. If damaged, repaint the epoxy coating on reinforcing steel with epoxy paint before placing the concrete.

The Contractor is responsible for the disposal of all removed material and debris.

METHOD OF MEASUREMENT

Removal of Expansion Device will be measured by the actual quantity removed and accepted, from face-of-curb to face-of-curb along the joint.

BASIS OF PAYMENT

The accepted quantities of Removal of Expansion Device will be paid at the contract unit price.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Removal of Expansion Device	Linear Foot

Payment for Removal of Expansion Device will be total compensation for all labor, materials, tools, equipment, and incidentals necessary to complete the item, including:

- Saw cutting
- Removing concrete as shown in the plans
- Removing reinforcing steel as shown in the plans
- Sandblasting or hand-cleaning, including epoxy coating repair
- Removing expansion device
- Protecting and straightening existing reinforcing steel to remain
- Protecting all utilities within the removal area
- Containing and disposing of removed materials and debris

REVISION OF SECTION 202 REMOVAL OF PAVEMENT MARKING

The following specifications apply to grinding for Modified Epoxy Pavement Marking [627-00008]

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

Subsection 202.05 shall include the following:

Pavement markings designated for removal and replacement shall be removed to a depth of 40 mils +/- 5 mils.

Pavement markings that are removed by grinding shall be replaced with new epoxy markings the same day unless the markings are designated to be permanently removed by the Engineer. The Contractor shall not perform any more removals than can be applied by the pavement marking truck during the same working day or working period. No lane may be open to traffic with more than one line removed.

The grinding machine shall be capable of adjusting from 4-inch wide passes to 12-inch wide passes. The grinding procedure shall produce a smooth, horizontal surface.

After grinding, all loose dust, dirt, and ground material shall be removed prior to the application of pavement marking material using a vacuum sweeper. Any grinding work that occurs without a vacuum sweeper immediately following the grinding machine picking up the grinding debris will not be paid for. In addition, any grinding work that occurs where not all of the grinding debris is removed prior to application of pavement marking material will not be paid for. Water and a vacuum machine shall be available on site and shall be used to control dust and slurry when directed by the Engineer. This work shall not be measured and paid separately but shall be included in the work.

Subsection 202.12 shall include the following:

Removal of Pavement Marking will be measured as the linear feet of line removed multiplied by the nominal width of the pavement marking.

The following specifications apply to grinding for Preformed Thermoplastic Pavement Marking [627-30407 and 627-30411]:

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

Subsection 202.01 shall include the following:

At all locations where the existing stencil is applied to the surface of the pavement, the existing stencils shall be removed from the hot mix asphalt or concrete pavement by hand or mechanical grinding. The asphalt pavement or concrete pavement shall then be removed to a depth of 90 mils +/- 10 mils to prepare an inlaid area for the new stencil to be installed.

-2-

REVISION OF SECTION 202 REMOVAL OF PAVEMENT MARKING

Subsection 202.05 shall include the following:

For stencils that are already inlaid. The inlaid depth shall be checked to see if it meets the requirements of 90 mils +/- 10 mils. If the inlaid depth is not deep enough, it shall be milled to the required depth of 90 mils +/- 10 mils and paid as Removal of Pavement Marking.

Existing stencils that are not inlaid shall be removed and a grinding machine shall be used to produce a recessed area to a depth of 90 mils +/- 10 mils and paid as Removal of Pavement Marking.

The grinding machine shall be capable of adjusting from 4-inch wide passes to 12-inch wide passes. The grinding procedure shall produce a horizontal, smooth surface to a depth of 90 mils +/- 10 mils or as approved by the Engineer. The procedure shall be capable of grinding a 10-foot straight line with a tolerance of +/- 1 inch. The area of removal shall be a maximum of 1 inch larger than the stencil that is to be applied, with the following exceptions:

- Turn arrows shall be ground with multiple passes to minimize the extra grinding; no rectangular grinds shall be allowed.
- All words shall be one large rectangular grind.

After grinding, all loose dust, dirt, and debris shall be removed prior to application of pavement marking material. All leading edges of stencils shall be beveled at a 45° angle.

On concrete pavement, all loose dust, dirt, and debris shall be removed prior to application of pavement primer and pavement marking material. All leading edges of stencils shall be beveled at a 45° angle.

On hot mix asphalt pavements with a competent chip seal surface, grinding shall not be allowed as determined by the Engineer. Stencils shall be applied directly on the existing, cleaned surface of the chip seal in accordance with the manufacturer's specifications.

Subsection 202.11 shall include the following:

Removal of Pavement Marking will be measured as actual square feet of the new stencil to be installed for lines and symbols. For word stencils, or where additional grinding is required to remove existing stencils that will not be replaced, payment shall be for the square feet of ground area.

-3-

**REVISION OF SECTION 202
REMOVAL OF PAVEMENT MARKING**

Subsection 202.12 shall include the following:

Payment for both types of grinding will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Removal of Pavement Marking	Square Foot

Payment will be full compensation for all work, material, and equipment required to complete the grinding. Removal of material after grinding will not be measured and paid for separately but shall be included in the work.

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

Revise Section 202 of the Standard Specifications 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 paint which may contain lead, other heavy metals, or a combination thereof. Management of paint debris waste shall be accomplished per section 250.

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 per section 250.

REVISION OF SECTION 203 POTHOLING

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

Subsection 203.05(f) 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 Engineer. All potholing methods and locations shall be preapproved by the Engineer. Any potholing that has not been approved by the Engineer shall be at the Contractor's expense.

Subsection 203.11(e) shall include the following:

The Contractor shall be responsible for marking, measuring, and documenting the elevation and offset of all located utilities located during potholing. All utility data shall be submitted to the 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. Payment for potholing will be made after the Contractor submits a report to the Engineer that the documentation of the utility locations was entered into the Pointman System.

Upon completion of documentation of existing utilities, potholes shall be backfilled with round ¼" minus pea gravel. Backfilling of the potholes will also not be measured and paid for separately but shall be included in the cost of the work.

Subsection 203.12 shall include the following:

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

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Potholing	Hour

**REVISION OF SECTION 210
REPAIR CURB, CURB RAMPS, AND SIDEWALK**

Section 210 of the Standard Specifications is hereby revised for this project as follows:

Subsection 210.01 shall include the following:

Curb Ramps: The Contractor is to diamond grind joints and grade breaks with an existing vertical displacement of 1/8-inch to 2-inches. Locations are existing ramp joints between the roadway surface and gutter pan and the ramp grade breaks. If the ramp contains a displacement greater than 2-inches, advise the Engineer before proceeding with repairs.

Completed grinds shall be smooth and sloped back at a maximum of a 7.5% slope and have a visually pleasing appearance as approved by the Engineer.

Sidewalks/Multiuse Trails: Minor repairs for sidewalks and multiuse trails will be addressed in a similar manner. Vertical surface discontinuities shall be 0.5-inch maximum. Vertical surface discontinuities between 0.25-inch and 0.5-inch shall be beveled with a slope not steeper than 50 percent. The bevel shall be applied across the entire vertical surface discontinuity.

Subsection 210.13 shall include the following:

Payment will be made under:

Pay Item

Grinding: Sidewalk and/or Curb Ramp Repair

Pay Unit

Linear Foot

Payment includes all labor, equipment, and materials necessary to complete the work.

REVISION OF SECTION 210 VALVE BOX AND MANHOLE ADJUSTMENTS

Section 210 of the Standard Specifications is hereby revised for this project as follows:

Subsection 210.10 shall include the following:

The Contractor shall notify each utility company (Owner) prior to any construction that will involve the adjustment of its valve boxes, monitoring wells, or manholes.

Each Owner will mark all of its valve boxes, monitoring wells, and manholes that will be involved in the specified construction area.

Prior to commencing construction, the Contractor shall coordinate and conduct, with the Engineer and each Owner, an inspection of all impacted valve boxes, monitoring wells, and manholes. The purpose of this inspection will be to account for all valve boxes, monitoring wells, and manholes involved in the construction and determine their accessibility and condition. The Contractor shall provide traffic control for this inspection and for the final inspection. The Contractor shall coordinate construction with the Owner to allow sufficient time for the Owner to make all necessary repairs to the valve boxes, monitoring wells, and manholes before construction begins in the area of the valve boxes, monitoring wells, and manholes. All parties shall agree on the condition of each valve box, monitoring well, and manhole prior to construction.

The Contractor shall replace all manhole rims, lids, and valve box and monitoring well sections damaged or misplaced during construction with new rims, lids, and sections complying with the requirements of the Owner's specifications. The Contractor shall set each valve box, monitoring well, and/or manhole to be adjusted so that it is $\frac{1}{4}$ -inch to $\frac{1}{2}$ -inch below the finished grade of the paved surface, or to the satisfaction of the Owner. Each valve box shall be set so that it is plumb over the operating nut of the valve.

Prior to final inspection, the Contractor shall thoroughly clean each valve box of all foreign debris such that the operating nut of the valve is fully accessible to operation.

The Contractor shall adjust all manholes that require adjustment with materials conforming to the Owner's specifications.

The Contractor shall prevent tools, concrete, dirt, or debris of any kind from falling into the channel of the existing manhole. The Contractor shall clean or remove any debris from downstream sewer that enters as a result of the Contractor's work.

When the project includes planing prior to resurfacing, the Contractor shall first lower all valve boxes, monitoring wells, and manholes below the surface to be planed and then adjust them up to final grade after the paving operation is complete.

-2-

**REVISION OF SECTION 210
VALVE BOX AND MANHOLE ADJUSTMENTS**

The Contractor shall coordinate and conduct, with the Engineer and each Owner, a final inspection upon completion of construction. This inspection shall assure that all valve boxes, monitoring wells, and manholes are in compliance with these requirements. The Engineer will obtain the Owner's written approval before accepting the work.

Subsection 210.12 shall include the following:

The Contractor will be paid separately for each valve box or manhole adjustment completed. Each adjustment shall include both adjustment up and adjustment down. All work required for cleaning and inspection shall not be paid for separately but shall be included in the adjust pay item.

Pay Item

Adjust Manhole
Adjust Valve Box

Pay Unit

Each
Each

REVISION OF SECTION 211 WATER CONTROL AND DEWATERING

Section 211 is hereby added to the Standard Specifications for this project as follows:

DESCRIPTION

Section 211.01 of the Standard Specifications shall include:

This work consists of controlling and dewatering groundwater, channel flows, stream flows, irrigation flows, and storm flows during construction.

The Contractor shall be responsible for the project and shall take such precautions as may be necessary to construct the project in a dry condition and provide for drainage, dewatering, and control of all surface and subsurface water and shall erect any necessary temporary structures or other facilities at the Contractor's expense. The Contractor is advised that working in a drainage channel/stream subject to intermittent and potentially extensive runoff conditions, such that unless the construction area is properly protected, localized flooding and/or extensive soil erosion may occur.

MATERIALS

Section 211.02 of the Standard Specifications shall include:

On-site materials meeting specifications may be used within the limits of construction to construct temporary dams and berms. Other materials may also be used if desired by the Contractor.

CONSTRUCTION REQUIREMENTS

Section 211.03 of the Standard Specifications shall include:

(a) General

The Contractor is responsible for obtaining a dewatering permit in accordance with Section 107.

The Contractor shall develop and submit a Water Control and Dewatering Plan for approval by the Engineer a minimum of 30 days prior to beginning ground disturbing activities. The plan shall show the phasing of construction, including all methods and devices (indicated in each phase) used to control water and dewatering of excavations. In addition, all temporary control devices shall be shown on these plans.

Flows in the Ironstone Canal are generally not expected in the off season. However, the Contractor shall develop their water control and dewatering plan to account for up to 5 cfs flowrate through the construction area.

For all work, the Contractor shall provide suitable equipment and labor to remove water and shall keep the excavations dewatered so that construction can be carried on under dewatered conditions. Water control shall be accomplished such that no damage is done to adjacent banks or structures.

-2-

REVISION OF SECTION 211 WATER CONTROL AND DEWATERING

The Contractor is responsible for familiarizing themselves with all site conditions that may affect the work including surface water, level of groundwater, and the time of year the work is done. All excavations made as part of dewatering operations shall be backfilled with the same type material as was removed and compacted in accordance with section 203 and Revisions, except where replacement by other material is specified.

At all times outside of performing construction activities, the Contractor shall not leave construction equipment and materials within or near the flow paths of surface water. Damage to the Contractor's equipment and materials will be at the Contractor's expense.

(b) Surface Water Control

Surface water control generally falls into the following categories:

- (1) Normal range of flows along Ironstone Canal expected during the construction period.
- (2) Intermittent flows along the ditches flowing to and within the construction area.
- (3) Local surface runoff and inflows not conveyed by pipelines or culverts.

The Contractor shall coordinate, evaluate, design, construct, and maintain temporary water control conveyance systems. These systems shall not worsen flooding, alter major flow paths, degrade flow characteristics during construction or cause erosion or flooding adjacent to structures. The Contractor is responsible to ensure that the flood risk is not increased as a result of their operations.

The Contractor shall be responsible for diverting the quantity of surface flow around or through the construction area so that the excavation for pipes, riprap, and other project elements remain free of surface water for the time it takes to install these items, and the time required for curing of any grout and concrete. The Contractor is cautioned that the water to be diverted is for erosion control and for general protection of the construction site. It shall be the Contractor's responsibility to determine the quantity of water which shall be diverted to protect their work from damage caused by storm water. All damages and rework related to inadequate or failed water control measures shall be paid by the Contractor.

The Contractor shall, at all times, maintain a flow channel or route for Ironstone Canal and other surface flows at the construction sites. Temporary structures such as pipes, berms, sandbags, pumps, etc. shall be permitted for the control of canal flow, as long as such measures are not a major obstruction to flood flows, do not worsen flooding, or alter historic flow rates.

Fording of the channel shall be in accordance with the 404 permit.

-3-

REVISION OF SECTION 211 WATER CONTROL AND DEWATERING

(c) Groundwater Control

The Contractor shall install adequate measures to maintain sufficient bearing capacity for structures, pipelines, earthwork, and rockwork. Such measures may include, but are not limited to, installation of perimeter sub drains, pumping from drilled holes, or by pumping from sumps excavated below the subgrade elevation. The foundation bearing surfaces are to be kept dewatered and stable until the structures or other types of work are complete and backfilled. Disturbance of foundation subgrade by Contractor operations shall not be considered as originally unsuitable foundation subgrade and shall be repaired at the Contractor's expense.

METHOD OF MEASUREMENT

Section 211.04 of the Standard Specifications shall include:

Water Control: No separate measurement or payment will be made for temporary water control devices. All water control devices required as part of the Contractor's Water Control Plan shall be included in the pay item "Dewatering".

No payment will be made for temporary erosion control devices for which there is not a pay item in the bid schedule. All additional temporary erosion control devices required as part of the Contractor's Water Control plan shall be included in the pay item "Dewatering".

Payment will be made under:

Pay Item
Dewatering

Pay Unit
Lump Sum

**REVISION OF SECTION 240
PROTECTION OF MIGRATORY BIRDS
BIOLOGICAL WORK PERFORMED BY THE CONTRACTOR'S BIOLOGIST**

Add Section 240 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 Contractor shall retain a qualified wildlife biologist for this project. The wildlife biologist shall have a minimum of three years' experience conducting migratory bird surveys and implementing the requirements of the MBTA. The Contractor shall submit documentation of the biologist's education and experience to the Engineer for acceptance. A biologist with less experience may be used by the Contractor subject to the approval of the Engineer based on review of the biologist's qualifications.

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

(a) Vegetation Removal. When possible, vegetation shall be cleared before the time when 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 for active migratory bird nests. The Contractor's wildlife biologist shall also survey for active migratory bird nests within 50 feet outside work limits. Contractor personnel shall enter areas outside CDOT right of way only if a written, signed document granting permission to enter the property has been obtained from the property owner. The Contractor shall document all denials of permission to enter property. 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:

-2-

**REVISION OF SECTION 240
PROTECTION OF MIGRATORY BIRDS
BIOLOGICAL WORK PERFORMED BY THE CONTRACTOR'S BIOLOGIST**

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 shall be conducted by the wildlife biologist within the seven days immediately before the beginning of work in each area of tree and shrub removal or trimming. The survey shall be conducted for each phase of tree and shrub removal or trimming.

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 wildlife 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 a wildlife biologist within the seven days immediately before ground disturbing activities.

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 CDOT biologist. This buffer dimension may be changed if determined appropriate by the CDOT biologist and approved by the Engineer. The 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.

-3-

**REVISION OF SECTION 240
PROTECTION OF MIGRATORY BIRDS
BIOLOGICAL WORK PERFORMED BY THE CONTRACTOR'S BIOLOGIST**

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

- (1) The Contractor shall remove existing nests before April 1. If the Contract is not awarded before 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 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 $\frac{3}{4}$ inch by $\frac{3}{4}$ 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 wildlife biologist and approved by the Engineer. The 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) *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 Wildlife Biologist will be measured by the actual authorized number of hours a wildlife biologist is on site performing the required tasks.

Removal of nests will be measured by the actual number of man-hours spent removing inactive nests just before and during the breeding season, April 1 through August 31. During this period, the Contractor shall submit to the Engineer each week for approval a list of the workers who removed nests and the number of hours each one spent removing nests.

-4-

**REVISION OF SECTION 240
PROTECTION OF MIGRATORY BIRDS
BIOLOGICAL WORK PERFORMED BY THE CONTRACTOR'S BIOLOGIST**

Netting will be measured by the square yard of material placed to keep birds from nesting on the structure. Square yards will be calculated using the length of netting measured where it is attached to the ground and the average height of the netting where it is attached to the structure.

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.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Wildlife Biologist	Hour
Removal of Nests	Hour
Netting	Square Yard

Payment for Wildlife Biologist will be full compensation for all work and materials required to complete the item, including wildlife biologist, wildlife survey, and documentation (record of nest location and protection method)

Payment for Removal of Nests will be full compensation for all work and material required to complete the work.

Payment for netting will be full compensation for all work and material required to complete the item. Overlaps of netting will not be measured and paid for separately but shall be included in the work. Maintenance and replacement, removal, and disposal of netting will not be measured and paid for separately but shall be included in the work.

Clearing and grubbing will be measured and paid for per 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 per Section 202.

Fence (Plastic) will be measured and paid for per Section 607

REVISION OF SECTION 401 ROLLER PASS STUDY

The following revision shall apply to leveling (Grading ST) courses and to thin overlays where the planned mat depth is 1.5 inches or less and there is no underlying treatment such as leveling, milling, or recycling. All other hot mix asphalt shall be subject to all the requirements of Section 401.17 of the Standard Specifications.

Section 401 of the Standard Specifications is hereby revised for this project as follows:

Subsection 401.01 shall include the following:

A course of asphalt where the planned asphalt mat depth is 1.5 inches or less of Grading ST with an overlying mat is referred to as “leveling course” in this specification.

A course of asphalt where the planned asphalt mat depth is 1.5 inches or less and there is no underlying treatment such as leveling, milling, or recycling is referred to as “thin overlay” in this specification.

Subsection 401.17 shall include the following:

For thin overlays, the compaction test section shall be used for obtaining a gauge correction rather than for determining a quality level for density of the CTS. For leveling courses, no compaction test section is required.

For both thin overlays and leveling courses, maximum density shall be obtained in the HMA without “breaking over” or damaging the mat. For the duration of the project, at all times that pavement is being placed the Contractor shall provide a Materials Testing Technician to continually monitor the compaction efforts using a density gauge. The Contractor shall utilize the density gauge testing to ensure that the maximum achievable density is continually achieved. Unless otherwise approved by the Engineer, paving shall not continue for more than one hour without a materials testing technician monitoring the density.

No later than the prepave conference, the Contractor shall submit a plan to the Engineer for compaction and testing of the HMA using continual roller pass studies. The Contractor shall not begin paving until the plan has been approved. The plan shall include, but is not limited to:

1. Name and qualifications of the Materials Testing Technician
2. Method of communication between the Materials Testing Technician and the roller operators
3. A copy of the form to be used to document roller pass. The form shall include the following:
 - a. Number, size, and type of rollers
 - b. Amplitude, frequency, size and speed of vibratory rollers
 - c. Size, speed and tire pressure of rubber tire rollers

-2-

REVISION OF SECTION 401 ROLLER PASS STUDY

- d. Temperature of mixture being compacted, behind the screed and at each roller pass
- e. Roller patterns
- f. Density gauge results after each roller pass

Each day, the Contractor shall submit the completed form to the Engineer. At least two roller pass studies shall be documented and submitted for each half day of paving.

For leveling courses, all material placed using the Roller Pass Study shall have a Pay Factor of 1 for mat density and longitudinal joint density.

For thin overlays, material placed using the Roller Pass Study shall have a Pay Factor of 1 for Mat Density. Testing for longitudinal joint density shall be in accordance with the Standard Specifications. However, the minimum acceptable longitudinal joint density shall be 87% instead of 88%, and there will be no maximum. There will be no incentive for longitudinal joint density, but areas with density of less than the minimum 87% will be subject to a price reduction calculated in accordance with Section 105 of the Standard Specifications.

Failure to meet the above requirements may result in the Engineer directing the paving to be stopped until the Contractor has fully complied with the requirements. Any work delays so caused shall be considered non-excusable and non-compensable.

REVISION OF SECTIONS 401 AND 403 HOT MIX ASPHALT (SX)(100), (SX)(75), AND (ST)(75)

Section 401 of the Standard Specifications is hereby revised for this project as follows:

In Subsection 401.22 under Basis of Payment, delete the fifth paragraph.

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	
Grading		ST	SX
Air Voids, percent at N(des)	CPL 5115	2.0-3.0	3.0-4.0
Lab Compaction (Revolutions) N(des)	CPL 5115	75	75 or 100
Stability, minimum	CPL 5106	28	28
Aggregate retained on the No. 4 sieve with at least 2 Mechanically Induced fractured faces, % minimum	CP 45	70	70
Accelerated Moisture Susceptibility Tensile Strength Ration (Lottman), minimum	CPL 5109 Method B	80	80
Minimum Dry Split Tensile Strength, psi (kPa)	CPL 5109 Method B	30 (205)	30 (205)
Grade of Asphalt Cement, leveling layer		PG 58-28	
Grade of Asphalt Cement, top layer (SX)(100)			PG 76-28
Grade of Asphalt Cement, top layer (SX)(75)			PG 64-28
Voids in the Mineral Aggregate (VMA), % min	CP 48	See TABLE 403-2	
Voids Filled with Asphalt (VFA), %	AI MS-2	70-85	70-85
Dust to Asphalt Ratio	Fine Gradation CP-50	0.60-1.20	0.60-1.20
	Coarse Gradation CP-50	0.80-1.60	0.80-1.60

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

Note: The current version of CPL 5115 is available from the Region Materials Engineer.

Note: Mixes with gradations having less than 40% passing the 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 $\frac{3}{4}$ inch or smaller are considered a coarse gradation if they pass below the maximum density line at the #8 screen.

-2-

**REVISION OF SECTIONS 401 AND 403
HOT MIX ASPHALT (SX)(100), (SX)(75), AND (ST)(75)**

All mix designs shall be run with a gyratory compaction angle of 1.25 degrees and properties must satisfy Table 403-1. The Form 43 will establish construction targets for Asphalt Cement and all mix properties, typically at Air Voids within 1.0 percent of 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 on the Form 43. Historically, typical asphalt cement increases reflected on the Form 43 are up to 0.5 percent. However, the Contractors bidding should anticipate the AC increases typical of their mixes and factor it into their unit price bid. No additional compensation will be considered or paid for any plant modifications, additional personnel or other changes required to produce the HMA as a result of a change to the mix design asphalt cement content.

TABLE 403-2
Minimum Voids in the Mineral Aggregate (VMA)

Nominal Maximum Size * Inches (mm)		***Design Air Voids **		
		2.0%	3.0%	4.0%
1 1/2	(37.5)	11.3	11.5	11.7
1	(25.0)	12.3	12.5	12.7
3/4	(19.0)	13.3	13.5	13.7
1/2	(12.5)	14.3	14.5	14.7
3/8	(9.5)	15.3	15.5	15.7

* The nominal 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.

*** VMA values for production air voids adjustments shall be based on target air voids on the Form 43.

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.

-3-

**REVISION OF SECTIONS 401 AND 403
HOT MIX ASPHALT (SX)(100), (SX)(75), AND (ST)(75)**

CDOT approved Warm Mix Asphalt (WMA) may be allowed on this project in accordance with CP-59. If the Contractor proposes and is allowed by the Engineer to place any pavement at temperatures below those shown in Table 401-3 of the Standard Specifications, WMA shall be required. However, the use of WMA does not change any temperature requirements unless otherwise approved by the Engineer. Unique requirements for WMA design, production and acceptance testing as documented during CDOT WMA approval shall be submitted and approved prior to creation of the Form 43 and before any WMA production on the project.

Any delays to the project due to WMA submittal and review shall be considered within the Contractor's control and will be non-excusable.

For haul times over 1 hour or distances greater than 50 miles from the asphalt plant to the laydown machine, whichever is less, a chemical additive shall be added to extend the asphalt compaction temperature window. The minimum dosage shall be that specified by the manufacturer for use as a compaction aid. A separate mix design will not be required for this use of warm mix asphalt. The additive used shall be an approved product. The Contractor shall notify the Engineer of the product to be used and the dosage prior to use.

A minimum of one percent hydrated lime by mass (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 either Method B or C of CP 41, as determined by the Region Construction and Materials personnel.

Subsection 403.03 shall include the following:

The Contractor shall construct the work such that all 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.

For this project, Hot Mix Asphalt (Patching) shall be placed on the main line SH 348 to allow normal traffic operation upon completion of the pre-cast CBC installation. The total depth shall be a minimum of 4.5 inches or as shown on the typical sections, whichever is more. The Contractor shall be responsible for maintaining the pavement for the duration of the project, until it is removed, and final pavement is placed.

Since the temporary pavement will be placed in the winter, the supplier is expected to have to temporarily open a hot plant for the placement. For this reason, no quality acceptance testing will be performed on the patching, and no incentive or disincentive for quality or for smoothness will be paid. The smoothness shall be checked and corrected in accordance with Section 105.07 (a)(2) of the Standard Special Provisions. Temporary pavement shall be removed prior to placement of the final pavement.

-4-

**REVISION OF SECTIONS 401 AND 403
HOT MIX ASPHALT (SX)(100), (SX)(75), AND (ST)(75)**

If for any reason, project phasing changes such that placement of the temporary pavement occurs between March and December, the temporary pavement pay item will be deleted. The Contractor shall then place final pavement instead of temporary pavement and comply with all requirements to the final pavement.

Subsection 403.05 shall include the following:

Aggregate, warm mix and other additives, hydrated lime, and all other work necessary to complete each Hot Mix Asphalt item will not be paid for separately but shall be included in the unit price bid. Asphalt cement tickets and lime tickets shall be supplied to the Engineer each working day for the previous day's deliveries. Asphalt cement will be measured and paid for separately in accordance with Section 411 except that asphalt cement used in Hot Mix Asphalt (Patching) will not be measured and paid for separately but shall be included in the work. Saw cutting, excavation, compaction, and tack coat to prepare areas to be patched will not be measured and paid for separately but shall be included in the work.

**REVISION OF SECTION 412
CONCRETE PAVEMENT (6 INCH) (FAST TRACK)**

Section 412 of the Standard Specifications is hereby revised for this project as follows:

Subsection 412.01 shall include the following:

Concrete Pavement (6 Inch)(Fast Track) shall be used as designated in the plans.

Delete Subsection 412.03 and replace with the following:

412.03 Classification. Concrete shall conform to the requirements of Class P concrete as specified in Section 601, unless it is fast track concrete pavement, which shall conform to the requirements for Class P concrete as specified in Section 601 with the additional requirements: Concrete Pavement (6 Inch)(Fast Track) used in the construction of Portland Cement Concrete Pavement shall meet the compressive strength requirement of 3000 psi in 24 hours. The Contractor may use admixtures/accelerators per Section 601.05 of the Standard Specifications if proper documentation is provided by the Concrete Mix Design Engineer (Mix Design Engineer of Record) per Section 601.05.

REVISION OF SECTION 506 GEOGRID REINFORCEMENT

Section 506 of the Standard Specifications is hereby revised for this project to include the following:

DESCRIPTION

This work consists of furnishing and installing geogrid reinforcement material in accordance with these specifications and in conformity with the lines and grades shown on the plans or as determined by the Engineer.

MATERIALS

Geogrid shall be a polymer grid structure specifically fabricated for use as soil reinforcement.

Geogrid reinforcement material shall conform to the following:

Physical Properties	Unit	Characteristic Values
Roll Length	Feet	164 to 246
Roll Width	Feet	9.8 to 13.1
Mass per Unit Area	Oz/Sq Yd	6 to 12
Resistance to Installation Damage	%	90*

*Resistance to loss of load capacity or structural integrity when subjugated to mechanical installation stress in crushed stone classified as poorly graded gravel (GP)

Mechanical Properties	Unit	Test Method	Geogrid Requirements	
Aperture Shape	n/a	Observed	Rectangular	Equilateral Triangle
Junction Efficiency	%	ATM D7737 Method A	93	93
Ribs per Junction	n/a	Observed	4	6
Aperture Size (Nominal)	Inch	Calipered	1.0 x 1.3	1.6
Radial Stiffness @ 0.5% Strain	Lb/ft	ASTM D6637	-	15,400
Flexural Rigidity	Mg-cm	ASTM D7748	750,000	-
Tensile Strength	Lb/ft	ASTM D6637	410 x 620	-
Ultimate Tensile Strength	Lb/ft	ASTM D6637	1310 x 1970	-

Notes:

1. Minimum Average Roll Values (MARVs) in accordance with ASTM 4759, unless indicated otherwise.
2. Load transfer capability expressed as percentage of ultimate rib tensile strength in the same direction as the junction test (determined in accordance with ASTM (D6637).
3. Machine Direction (MD) x Cross Machine Direction (XD).
4. Determined by measuring the spacing between sets of parallel ribs (i.e. the "rib pitch") in any direction.

-2-

REVISION OF SECTION 506 GEOGRID REINFORCEMENT

5. ASTM D6637 Method B with a 2-aperture gage length tested in all “rib” and “mid-rib” directions. Radial stiffness is the minimum measured modulus at 0.5% strain for each of the aforementioned directions.

The geogrid reinforcement shall be composed principally of polypropylene or high density polyethylene and shall have rigid openings in a triaxial or biaxial pattern.

The geogrid reinforcement shall contain stabilizers or inhibitors to prevent degradation of properties due to ultraviolet light exposure. The geogrid reinforcement shall be inert to all naturally occurring alkaline and acidic soil conditions.

The manufacturer shall furnish certified test reports from an independent laboratory indicating that the material meets the requirements of the specification.

CONSTRUCTION REQUIREMENTS

Geogrid reinforcement shall be installed in accordance with the following:

- (a) Delivery, Storage, and Handling. Upon delivery, the Contractor shall check the geogrid to assure the proper material has been received. Special care shall be taken in the handling of geogrids manufactured from polypropylene at temperatures at or below 0° F.
- (b) Subgrade Preparation. All trees and brush shall be cleared from the site where the geogrid is to be placed. The subgrade shall then be excavated to the required elevation. Specialized equipment with low ground pressure may be required to complete the excavation. If there is a remaining vegetative mat and the Engineer determines it is necessary to leave it in place to keep near surface soils stabilized, it may be mowed to a height no greater than 2 inches and remain in place, as approved by the Engineer.

The surface of the subgrade shall be relatively smooth and level prior to placement of the geogrid, with depressions or humps greater than 6-inches graded out.

The Engineer may require completion of the excavation from the adjacent existing roadway embankment prior to installation of the geogrid.

- (c) Geogrid Installation. Geogrid shall be laid at the proper elevation and alignment as shown on the plans or as directed by the Engineer. Geogrid shall be oriented such that the roll length runs parallel to the roadway alignment. It shall be rolled out flat and tight with no folds.

Parallel rolls shall be overlapped a minimum of 2 feet. When a new roll is started, a 3-foot overlap shall be made over the end of the previous roll. Care shall be taken to ensure that geogrid sections do not separate at overlaps during construction.

-3-

REVISION OF SECTION 506 GEOGRID REINFORCEMENT

Geogrid material shall be secured to the ground surface by placement of loose fill at the corners and edges or as directed by the Engineer.

- (d) Fill Placement Over Geogrid. Tracked construction equipment shall not operate directly upon the geogrid. A minimum fill thickness of 8-inches will be required prior to operation of tracked vehicles of the geogrid.

Rubber-tire equipment may pass over the geogrid at low speeds, less than 5 mph, if the underlying material is capable of supporting the loads without excessive rutting (more than 4-inches) or causing damage to the mesh. Operators shall avoid sudden braking or sharp turning. If excessive rutting or damage to the geogrid mesh is observed, rubber-tire equipment will no longer be allowed to pass over the geogrid until a minimum fill thickness of 8-inches is in place.

Damage or displaced geogrid shall be replaced at the Contractor's expense.

Fill material shall be back-dumped from trucks riding on top of the reinforced fill and bladed onto the geogrid in such a manner that the fill rolls onto the grid ahead, e.g. by gradually raising the dozer blade while moving forward.

Material placed over the geogrid shall be compacted in accordance with the compaction requirements for embankment for this project or as directed by the Engineer. Care shall be taken to ensure the geogrid reinforcement is not damaged.

METHOD OF MEASUREMENT

Geogrid reinforcement will be measured in place by the square yard of surface area in which geogrid has been placed, completed, and accepted.

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

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Geogrid Reinforcement	Square Yard

Payment will be full compensation for all labor, materials, equipment, and other items necessary and incidental to the completion of the work.

Additional geogrid for overlaps will not be measured and paid for separately but shall be included in the work.

REVISION OF SECTION 518 RAPID CURE JOINT SEALANT

Revise Section 518 of the Standard Specifications for this project as follows:

DESCRIPTION

This work consists of furnishing and installing rapid cure silicone joint sealant at locations designated in the plans or as directed by the Engineer.

MATERIALS

Materials for the silicone joint sealant shall meet the following requirements:

- (a) Joint Backing Material.* Backer rod material shall be extruded, soft type, low density polyethylene, with a skin-like outer texture that does not bond to the silicone sealant.
- (b) Silicone Sealant.* The Silicone Sealant shall be a non-sag, one component, ultra-low modulus elastomeric neutral core rapid cure silicone joint sealant. The Silicone Sealant materials shall be from the list shown on the CDOT Approved Product List (APL), category: Sealant (Joint and Crack), Silicone Joint, Self Levelling, or an approved equal. The Silicone materials shall be stored and applied in accordance with the manufacturer's recommendations but shall not be exposed to ambient temperatures in excess of 125 degrees F or stored in direct sunlight.
- (c) Primer for Silicone Sealant.* The Primer shall be in accordance with the silicone manufacturer's recommendations.

CONSTRUCTION REQUIREMENTS

Joints shall be inspected for proper depth, width, alignment, and preparation recommended in the manufacturer specifications and shall be approved by the Engineer prior to installing sealant material. Sandblasting and cleaning shall be as recommended by the manufacturer and any compressed air used shall be filtered and oil-free.

The joint faces shall be primed with an approved primer in accordance with manufacturer's recommendations. The backer rod shall be installed to the proper depth and the silicone shall be extruded into the joint. The silicone sealant is self-leveling; therefore, the Contractor shall take every precaution to ensure that leaking does not occur.

The Contractor shall provide a qualified representative of the manufacturer on site during the installation of the sealant. The representative shall remain on site until the job is complete. The representative shall be responsible for:

- 1) Advising the Engineer and providing guidance to the Contractor for the correct installation of the material.
- 2) Certifying to the Engineer that the material has been installed correctly.

-2-

**REVISION OF SECTION 518
RAPID CURE JOINT SEALANT**

METHOD OF MEASUREMENT

Rapid cure silicone joint sealant will be measured by actual quantity completed and accepted.

BASIS OF PAYMENT

The accepted quantity of Rapid Cure Silicone Joint Sealant will be paid for at the contract unit price.

Payment will be made under:

Pay Item

Rapid Cure Silicone Joint Sealant

Pay Unit

Linear Foot

Payment for Rapid Cure Silicone Joint Sealant will be full compensation for all labor, materials, tools, equipment, and incidentals required to complete the item including cleaning and sandblasting.

All costs associated with having a manufacturer's representative on site during installation will not be measured and paid for separately but shall be included in the work.

REVISION OF SECTION 603 REINFORCED CONCRETE PIPE

Section 603 of the Standard Specifications is hereby revised for this project as follows:

Subsection 603.02 shall include the following:

Reinforced concrete pipe shall be manufactured from concrete that meets the requirements of sulfate exposure as indicated in the Pipe Selection Memo and the subsequent requirements in section 601.04 of the specifications.

Subsection 603.12 shall include the following:

For the installation of all pipes, all excavation, trenching, bedding, backfill (including flowfill), pavement surfacing, all equipment and labor will not be measured and paid for separately but shall be included in the cost of the pipe.

Pavement surface includes permanent asphalt patching, temporary detour pavement, or an alternative section as approved by the Engineer. ABC (Class 6) will not be accepted as a temporary pavement surface. Flowfill will be required for temporary pavement surfacing as directed by the Engineer if temperatures do not allow for asphalt patching.

Pay Item

18 Inch Reinforced Concrete Pipe (Complete In Place)

24 Inch Reinforced Concrete Pipe (Complete In Place)

Pay Unit

LF

LF

REVISION OF SECTION 608 DETECTABLE WARNINGS

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

Subsection 608.01 shall include the following:

This work includes the installation of detectable warnings on concrete curb ramps as shown on the plans.

Subsection 608.02 shall include the following:

Detectable warnings on curb ramps shall be truncated domes of the dimensions shown on the plans. Truncated domes shall be prefabricated by the manufacturer as a pattern on cast iron plates that are designed to set in wet concrete and shall be one of the products approved for use as detectable warnings listed on CDOT's Approved Products List.

Pavers will not be allowed.

The domes and their underlying surface shall have a discernible contrast of color from the adjacent surface. The contrasting colors shall not be black and white. Truncated dome panel color shall be as approved by the Engineer. Concrete for curb ramp construction shall never be stained or have color added.

Prior to the start of work, the Contractor shall submit appropriate documentation from the manufacturer verifying the contrast has been met, along with a sample plate, to the Engineer for approval.

Subsection 608.03 shall include the following:

(g) Detectable Warnings for curb ramps. Prior to installation of the detectable warning cast iron plates, concrete conforming to subsection 608.02 shall be installed and consolidated as a base for the cast iron plates. The concrete shall be placed to a thickness that will allow the base surface of the cast iron plates to be at the same elevation as the adjacent concrete. The cast iron plates shall be embedded into the plastic concrete in accordance with the manufacturer's specifications.

Subsection 608.06 shall include the following:

Detectable Warnings on new curb ramps, including installation hardware, and all other work and materials necessary for fabrication, transport, and installation will not be measured and paid for separately but shall be included in Concrete Curb Ramp work.

REVISION OF SECTION 614 FLASHING BEACON (SPECIAL)

Section 614 of the Standard Specifications is hereby revised for this project to include the following:

DESCRIPTION

This work consists of furnishing and installing an LED sign ring for LED Warning Systems on sign panels as shown in the plans.

MATERIALS

The Contractor shall supply a Trafficalm LED sign ring with the following components:

- M75-R4848-WR01, K01-48485-001 - 48" Flasher Ring, Stop, Red, with 48" Static Stop Sign

The Contractor may supply alternate equipment that must meet the following requirements and be approved by the Project Engineer.

1. LED FLASHING RING: The static signs as designated on the plans shall be enhanced with an LED sign ring to work with the LED Warning Sign Systems to activate the signs with flashing LED rings. LED Warning Signs System shall use red LEDs for stop signs.
 - a. Each static sign as designated in the plans shall be equipped with a retrofittable LED sign ring.
 - b. Each LED sign ring shall be applied with VHB adhesive tape and/or rivets, and/or self-tapping screws.
 - c. Each LED sign ring shall be fully compliant with the Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD). The LED array color and shape help to convey the sign type to roadway users, both day and night.
 - d. The sign ring shall, through a row of LEDs, convey the outline of the sign. The LEDs shall be evenly spaced on each side of the sign to increase the luminous intensity and conspicuity of each sign. Single LEDs or LED clusters placed in the corners and/or in any midway points between the corners are NOT allowed as they do not fully maintain the shape of the sign, both day and night as mandated by the MUTCD.
 - e. LEDs must form a continuous outline of the sign with no LED more than 2" away from any adjacent LED on the same side of the sign.
 - f. The LED sign ring shall fit within the border of the sign and shall have white retroreflective sheeting on the surface to match the white border of the Stop sign.
 - g. The processor/radar system shall allow user programmable thresholds to activate the LEDs.

-2-

REVISION OF SECTION 614 FLASHING BEACON (SPECIAL)

- h. The triggering of the Flashing LED sign rings shall only be activated by vehicles approaching the detection units within the user defined speed thresholds.
- i. Each LED sign ring shall have all electronics fully hermetically potted and sealed.
- j. Each LED sign ring shall be NEMA 4X rated and able to operate while fully submersed in water.
- k. All LEDs shall be rated for 100,000 hours.
- l. All LEDs shall be wired in strings to activate simultaneously per MUTCD standards and wired in a manner (parallel) that all remaining LEDs continue to flash in the event of failure of an individual LED.
- m. All wire used shall conform to UL 1520 and be insulated and PVC jacketed wire.
- n. A single cable shall connect the LEDs to the power source.
- o. All LED connections shall be hermetically sealed providing protection from exposure to the elements and resisting corrosion by atmospheric chemicals typically encountered in roadside environments.
- p. Each LED shall have a 30-degree UV resistant lens.
- q. Each LED shall be AlInGaP technology and Class 1B ESD protective per the JEDEC Standard.
- r. Each LED shall have a minimum luminous intensity of 4,200 mcd and a maximum luminous intensity of 9,300 mcd.
- s. In the event any single LED should fail, the total light output of the sign ring shall not degrade more than 3% of the maximum brightness when all LEDs are operational.

METHOD OF MEASUREMENT

LED Warning Signs will be measured by the actual number of LED sign rings installed, tested, and accepted. Any hardware not provided, or work necessary to install the sign ring, shall be included in the work and not paid separately.

BASIS OF PAYMENT

The accepted quantities will be paid for at the contract price per unit of measurement for each of the pay items listed below that appear in the bid schedule.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Flashing Beacon (Special)	Each

REVISION OF SECTION 614 LED WARNING SIGN SYSTEM

Section 614 of the Standard Specifications is hereby revised for this project to include the following:

DESCRIPTION

This work consists of installing a Trafficalm system, or Engineer-approved alternative, with solar-powered enhanced LED stop sign warning system and detection capabilities at the intersection of SH 348 and 5400 Road. The system consists of radar detection, solar panel, control cabinet with controller and batteries, mounting hardware, and edge-lit sign. Active vehicle warning indications will be visible in a direct line of sight at distances over 1000 feet during the day and over 1 mile at night. Upon activation by radar detection of an approaching vehicle, the Warning Sign controller shall activate the system and lights shall flash synchronously and then cease operation after a programmable timeout.

MATERIALS

The Contractor shall supply a Trafficalm LED Warning Sign System with the following components:

- M75-SA300-RDR0 - Smart Radar Unit
- M75-SA300-BSC3 - 30 Watt Solar Basic Sign Controller - Stand Alone

The Contractor may supply alternate equipment that must meet the following requirements and be approved by the Project Engineer.

1. SIGN PROCESSORS (CONTROLLERS AND COLLABORATORS). Each LED warning sign system shall have a Controller (processor) that allows for programming and controlling the intelligent LED warning sign system.
 - a. There shall only be one controller for the entire system.
 - b. The controller shall be equipped with algorithms to ensure a vehicle is detected and to trigger the output for the flashing sign rings.
 - c. The detection system shall be field adjustable.
 - d. The rated true detection rate shall be 100% with no missed vehicles.
 - e. The controllers shall be enclosed in a lockable fiberglass enclosure rated NEMA 4X that provides an additional level of protection against corrosion and that will be undamaged by the external formation of ice on the enclosure.
 - f. Each enclosure shall have a photocell for automatic intensity control of the LEDs.
 - g. All electronics in the processor shall be fully potted and hermetically sealed, allowing operations while fully submerged in water.

-2-

REVISION OF SECTION 614 LED WARNING SIGN SYSTEM

- h. The controllers shall be equipped with Wi-Fi communications. For security and power consumption purposes, the Wi-Fi communications shall become active when power is first applied to the controller and remain active for 2 hours. At the end of the 2-hour period, the Wi-Fi communications shall go dormant to deter hacking. Wi-Fi communications shall only be re-energized upon cycling power to the controller and by activation with a remote fob.
 - i. All configuration and programming software shall be hosted on the controller processor and be accessed through the local Wi-Fi connection. No separate software or app shall be required to program the signs.
 - j. The software shall allow the following:
 - i. Adjustable flasher patterns and speeds including unison, 60, 90, or 120 Flashes per minute.
 - ii. Automatic scalable brightness control with separate night and day levels.
 - iii. Setting adjustable speed thresholds for the radar to trigger the LED lights on the signs.
 - k. Controllers and Collaborators shall have wireless mesh net communications and operate on a license-free 2.4 GHz band. The mesh net radios shall have a range of 3000 feet line-of-sight and 1,500 feet non-line-of-sight.
2. SOLAR PANELS AND BATTERY SYSTEMS. Each single LED sign with a controller and radar sensor shall be equipped with solar panels and batteries and sufficiently sized to operate the system for year-round operation.
- a. All batteries shall be advanced absorbent glass mat (AGM) and the battery array shall be a minimum of 13 Amp hours and provide a nominal 12-volt system.
 - b. The battery shall be eco-friendly and shall be acid-free.
 - c. The electrolyte mixture of the battery shall not corrode the electrodes to increase capacity and prolong battery charging cycles.
 - d. All batteries shall be replaceable in the field.
 - e. Batteries shall be a minimum of 13 Ah.
 - f. The battery shall have an operating range of -40 degrees F (-40°C) to +160 degrees F (71°C).
 - g. At minus 40 degrees Celsius (C) or Fahrenheit (F), the discharge ratio of the battery shall be no less than 30% at 0.1 CA.
 - h. The battery shall have high float charging capability, charging with current as low as 0.03 A.
 - i. Solar panels shall be a minimum of 30 watts each.
 - j. Fifty and sixty-watt solar panels that offer more capacity will be compatible with this system and utilized where identified on the project plans.

-3-

REVISION OF SECTION 614 LED WARNING SIGN SYSTEM

3. COLLABORATING RADAR DETECTORS

- a. Doppler radar shall be K-band (24.15 GHz) and operate license-free and be Federal Communications Commission (FCC) compliant.
- b. Radar shall detect vehicles travelling at a minimum of 5 miles per hour, with a maximum speed of 139 mph in 1 mph steps (min 8 KPH, max 223 KPH, in 2 KPH steps).
- c. The typical range of the radar shall be 450 feet with a performance range up to 1000 feet.
- d. All radar electronics shall be fully potted and environmentally sealed in a NEMA 4X enclosure.
- e. Each radar shall be bi-directional with the ability to set the direction of travel of the vehicles to be detected and filter out the vehicles traveling in the opposite direction.

CONSTRUCTION REQUIREMENTS

Installation of the system shall follow all manufacturers' recommendations. The following is an overview of the steps and the general procedure:

1. Affix LED enhancement ring to sign face.
2. Install Controller and Collaborator.
3. Install supporting power supply (solar panel, battery box, AC inverter, etc.).
4. Install Radar high on post.
5. Install sign with LED enhancement ring.
6. Make all connections between devices.
7. Power on the Collaborator.
8. Power on the Controller.
9. Configure the system.
10. Test the system.

TESTING REQUIREMENTS

The Warning Sign System shall be tested per the manufacturers' recommendations.

Testing shall not be considered complete until the Engineer is satisfied that the system performs as intended and has accepted the system.

-4-

REVISION OF SECTION 614 LED WARNING SIGN SYSTEM

METHOD OF MEASUREMENT

LED warning Sign System will be measured by the actual number of warning systems installed, tested, and accepted. A single LED warning Sign System will consist of one controller (or collaborator), solar panel, battery box, AC inverter, and radar. Any hardware not provided, or work necessary to install the system, shall be included in the work and not paid for separately.

BASIS OF PAYMENT

The accepted quantities will be paid for at the contract price per unit of measurement for each of the pay items listed below that appear in the bid schedule.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
LED Warning Sign System (_Signs)	Each

REVISION OF SECTION 620 FIELD OFFICE AND FIELD LABORATORY

Section 620 of the Standard Specifications and Supplemental Specifications is hereby revised for this project as follows:

Delete Subsection 620.02(2) and replace with the following:

The Contractor shall provide a device for the purpose of copying/scanning/printing with the following minimum criteria:

- a) Plain paper, self-feeding machine capable of making at least 30 color copies per minute
- b) Full color printing and copying
- c) Duplexing, collating, sorting, and stapling capability
- d) 2-sided copies/scanning from 1- and 2-sided originals
- e) 8.5 x 11 inch to 11 x 17 inch (with standard intermediate sizes) copies/printing/scanning
- f) A stationary platen capable of copying original individual sheets and bound documents
- g) CDOT PC connectivity
- h) Windows 11 Enterprise 64-bit compatible
- i) Minimum 25 sheet automatic document feeder
- j) A thumb drive connection
- k) One additional toner cartridge for each machine shall be stored on-site at all times, and shall be replaced by the Contractor as directed by the Engineer
- l) All cards, drivers, cabling, and other components required to perform the work

In lieu of an all-in-one device, the Contractor may provide separate devices that fulfill all of the requirements and functionality as listed above. The Contractor shall provide all necessary supplies, USB thumb drive, cords, and a rolling stand. The Contractor shall maintain all furnished equipment in good working condition and shall provide replacement equipment in the event of breakage, damage, or theft within five working days.

Subsection 620.02(3) shall include the following:

Six (6) two-way VHF radios shall also be provided for CDOT personnel and representatives. VHF radios shall have a minimum 5-watts power in Transmit mode in order to provide adequate communications during construction. The radios shall have sufficient range to communicate within the project limits.

-2-

REVISION OF SECTION 620 FIELD OFFICE AND FIELD LABORATORY

Add subsection 620.02(4):

Starlink, Hughes, or sufficient high-speed internet that is stable with minimum 100 Mbps download and 5 Mbps upload, and all associated hardware for service shall be provided to the Field Office and Field Laboratory facilities. Associated hardware includes back up battery/surge protection for DSL modem or wireless base unit; CAT 5e Ethernet cabling to connect multiple CDOT computers to the network equipment; routing equipment as needed. Implementation of this service must be coordinated with Region 3 IT Office. Non-CDOT PCs shall NOT connect to the CDOT equipment.

Subsection 620.02 shall include the following:

Additional equipment listed below shall be provided:

- Wall-mounted smart TV (40 inches or bigger)
- At least 3 large whiteboards
- Jabra (or similar) speakerphones
- One conference table: 96 inches long x 36 inches wide. The top of the table shall be free of all scratches, chips, and dents.
- Chairs: 10 office chairs with rollers. All chairs shall be ergonomically built.
- Trash cans
- Bi-monthly (twice a month) cleaning services shall be provided throughout the duration of the project.
- Cleaning supplies
- Microwave oven
- Working smoke alarm and working carbon monoxide detector
- Properly equipped and maintained first aid kit
- Adjustable height tables
- Adequate artificial lighting to provide an average of 50 candlepower to all work areas in the office.
- Laser range finder
- Digital level

The Contractor shall service, maintain, and carry insurance on the field office and field laboratory and its contents. The Contractor shall provide evidence of the insurance to the Contract Administrator before work commences.

Equipment listed below is no longer required, unless directed otherwise by the Engineer:

- Drafting Table and stools
- Landline phones and fax
- Plan storage (plan rack)

-3-

**REVISION OF SECTION 620
FIELD OFFICE AND FIELD LABORATORY**

Subsection 620.06 shall include the following:

If placed within CDOT right of way, the trailer(s) shall be located outside the clear zone and/or adequately protected with concrete barrier as directed by the Engineer.

Subsection 620.08 shall include the following:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Field Office (Class 2)	Each
Field Laboratory (Class 2)	Each

The Starlink, Hughes, or other available high-speed (IPsec transport) service and copy machine shall not be paid for separately but shall be included in the cost of the item.

The field office and field laboratory shall remain in place 10 working days after final acceptance of the project.

REVISION OF SECTION 626 PUBLIC INFORMATION MANAGEMENT (TIER III)

Revise Section 626 of the Standard Specifications for this project to include the following:

DESCRIPTION

This work consists of providing Public Information Management for the duration of the project. The Contractor shall submit all documentation associated with the Public Information Management item to the Project Engineer. Before approval, the Engineer will coordinate review and approval with the Region Communications Manager (RCM).

This contract (25237) consists of two separate project locations. One project, on CO Highway 348 consists of bridge repairs, and roadway resurfacing from Delta, Mile Point 0, to Olathe, MP 17.5, and on US 50 in Delta from approximately the intersection with CO 92, MP 70.9, to the intersection with Confluence Drive, MP 72.08. The other project (26992) consists of a culvert replacement on SH 348. Anticipated communications issues on this project include:

- Consistent and timely communication is required with local governments (cities and counties) and stakeholders potentially impacted by the project.
- Consistent and timely communication will also be necessary with representatives of known utilities within the project limits, homeowner associations, tourism groups, municipal government entities, and other major organizations or businesses within project limits.
- The keys to a successful project shall be accuracy, timeliness of communications, and full transparency on any setbacks.
- A celebration may be requested by CDOT HQ to highlight the importance of this project.

CONSTRUCTION REQUIREMENTS

(a) *Public Information Manager (PIM)*. The PIM shall perform all activities associated with Public Information Management for this project. In the event the PIM is not available, the Backup PIM shall perform the required activities. The PIM shall not be the Project Superintendent.

Within ten days of the Notice to Proceed date or five days before the Pre-construction Conference, whichever is later, and at least 14 days before the start of PIM work the Contractor shall submit the name, contact information, and resume of the PIM and the Backup PIM to the Engineer. The PIM and Backup PIM shall have a minimum of five years of professional experience in public or media relations, marketing, or other related field and appropriate verbal and written communication skills. Experience in administrative or business office duties is not a related field.

-2-
**REVISION OF SECTION 626
PUBLIC INFORMATION MANAGEMENT
(TIER III)**

(b) Activities of the PIM. The PIM duties are:

- (1) *Project Onboarding/Offboarding Request Form.* The PIM shall complete and update the Project Onboarding/Offboarding Request Form (<https://form.jotform.com/252126954740155>) every month or as requested by the Engineer. The form will assist the PIM and CDOT with tracking required activities and deliverables.
- (2) *On-Call.* The PIM shall be available or on-call each day there is work on the project and shall be available upon the Engineer's request outside of normal working hours. The PIM and the Contractor shall participate with CDOT on all meetings requested by the Engineer.
- (3) *Public Information Office.* The Contractor shall establish a public information office equipped with a telephone, a local telephone number with voicemail, which becomes the Project Hotline, a computer, and an email address. Acceptable locations for the project's public information office include the project office or off-site within the Contractor's office or the PIM's office. The Project Information signs shall include the Project Hotline telephone number. The PIM shall update the Project Hotline telephone message greeting weekly at a minimum and include the project's anticipated completion date and forthcoming activities for the update period. The PIM shall answer calls, listen to voicemail, and check email throughout each day that construction operations are in effect. The PIM, and when necessary, the Engineer, shall respond to all inquiries with a phone call, a voicemail message, or an email within one day. The PIM shall document the contact's name, contact phone number or email address, and the action taken. Within two days of receiving the message, the PIM shall enter message details and follow-up action into the electronic reporting system.
- (4) *Project Meetings.* The PIM shall participate in the weekly project meetings, discuss communication issues, and provide a status on the items in this specification. The PIM shall attend the preconstruction meeting in person and one weekly progress meeting in person per month.

-3-

**REVISION OF SECTION 626
PUBLIC INFORMATION MANAGEMENT
(TIER III)**

(5) *Lane Closure Reporting.*

- (i) *Electronic Reporting System.* Before the Pre-construction Conference and at least 14 days before the project start, the PIM shall submit a request for access to the electronic reporting system through the Project Onboarding/Offboarding Request Form (b.1). At least once per week, the PIM shall enter project information into the electronic reporting system.
 - (ii) *Weekly Lane Closures.* The Superintendent or PIM shall notify the Engineer one week in advance of all planned “no work” periods and planned lane closures. The PIM shall enter the planned weekly lane closures and updates into the electronic reporting system for the upcoming work period, Sunday through Saturday, by Thursday at 12:00 P.M. The Engineer will approve the Lane Closure and Updates by Friday at 3:00 P.M. Each Monday by 12:00 P.M., the PIM shall review www.cotrip.org and verify that the lane closure and update information is accurate. If corrections are necessary, the PIM shall coordinate with the Engineer to make necessary corrections to www.cotrip.org.
 - (iii) *Real-Time Lane Closure Changes.* The Superintendent shall notify the PIM and the Engineer at least 24 hours in advance on approved Lane Closure changes. The Engineer will notify the PIM when the electronic reporting system is available for changes. After completing the changes, the PIM shall notify the Engineer that the changes are ready for review and approval.
- (6) *Public Information Collateral.*** The PIM shall develop a variety of Public Information Collateral to share project information for project milestones such as long-term closures or impactful construction activities. Collateral includes the following:
- (i) *Photographs and Video Recordings.* The PIM shall take digital photographs and video recordings at regular intervals and submit them to the Engineer. The PIM may use a cell phone camera. Photographs and video recordings shall capture a variety of work activities and other areas of work as identified by the Contractor or the Engineer. Public Information Collateral shall include these photographs and video recordings. The PIM shall submit a minimum of two digital photographs or video recordings of the project activities and progress each month. Each photograph and video recording shall include the project

-4-

**REVISION OF SECTION 626
PUBLIC INFORMATION MANAGEMENT
(TIER III)**

- number, project code, date, time, location and station or milepost, and name of the person taking the photograph or video recording.
- (ii) *Maps and Graphics.* The PIM shall develop maps, detour maps, and graphics for use in Public Information Collateral.
 - (iii) *Web Page Updates.* The PIM shall submit information about the project (via a web form <https://www.codot.gov/topcontent/webrequestform> to develop a project webpage. The webpage shall be created and completed so that the online web link can be included in the media release. The information will include the project cost, Contractor name, duration, location, scope, construction phasing work or work schedule, potential traffic impacts, and summary of project benefits. The PIM shall provide a link to the COtrip.org website mapping system's "Construction Layer." The PIM shall visit and perform a weekly quality control check of the website to ensure the site is functioning correctly. The PIM shall provide updates with pertinent changes in schedule information, new photos, contact information, etc.
 - (iv) *Stakeholder List.* The PIM shall submit a Stakeholder List as a component of the Public Information Plan with each stakeholder's name, telephone number, email address, and notes on communication needs for the project.
 - (v) *Public Information Management Contact Sheet.* The PIM shall prepare and update a Public Information Management Contact Sheet with the names and contact information of the individuals pertinent to the project's public information. At a minimum, the Contact Sheet shall include the Resident Engineer, Project Engineer, RCM, CDOT website administrator, the electronic reporting system administrator, PIM, Backup PIM, Contractor Superintendent, and Traffic Control Supervisor. The contact sheet shall include the applicable Traffic Management Centers. (Joint Operations Center-Golden, Joint Operations Area-Eisenhower Johnson Memorial Tunnel, Joint Operations Center-Pueblo, and Joint Operations Center-Hanging Lake Tunnels.) The Public Information Plan shall include the Public Information Management Contact Sheet.
 - (vi) *Traffic Advisories and Project Updates.* The PIM shall develop weekly traffic advisories and project updates developed from the weekly Lane Closure Report, including lane closures and project update information. The CDOT traffic advisories and project updates templates are available in the Project

-5-

**REVISION OF SECTION 626
PUBLIC INFORMATION MANAGEMENT
(TIER III)**

Onboarding/Offboarding Request Form PIM resources. The Engineer will approve traffic advisories and project updates before distribution. The PIM shall email the traffic advisory and project updates to the stakeholder list by Friday of each week to announce the following week's upcoming project activity. The emailed advisory may come from the project email box or an automated distribution platform. A Mailchimp account is available through CDOT.

- (vii) *Media Relations*. At least 14 days before the start of work or a milestone, the PIM shall prepare media releases using the CDOT media release template available in the Project Onboarding/ Offboarding Request Form PIM resources. The PIM shall allow the Engineer at least three days to review and approve the media release before distribution. CDOT will distribute media releases.

CDOT will address all media inquiries and media requests. The PIM shall immediately notify the Engineer of any project and on-site situations involving the media. When the media contacts the PIM or Contractor staff, the PIM shall provide the media the RCM's contact information.

The PIM shall prepare a media release announcing the project, summarizing the project scope, construction phasing, construction activities that affect traffic, the project end date, and a summary of project benefits. The PIM shall develop additional media releases for major construction milestones, traffic control or lane shifts, closures, project completion and as directed by CDOT. The releases shall also include maps or other graphics.

This project requires press releases at the following milestones:

1. Initial press release
2. Significant changes in traffic impacts
3. Project completion

- (viii) *Project Fliers*. The PIM shall develop project fliers using the CDOT project flier template available in the Project Onboarding/Offboarding Request Form PIM resources. The PIM shall submit the draft project flier to the Engineer for review 10 days before the planned distribution and shall distribute the project flier at least 10 days before the Project's start or milestone. The review and approval of the project flier will not exceed five days.

-6-

**REVISION OF SECTION 626
PUBLIC INFORMATION MANAGEMENT
(TIER III)**

This project requires project fliers at the following milestones:

1. Initial project flier
2. Project milestones
3. Significant changes in traffic impacts
4. Project completion

The initial project flier shall provide the project start and end dates, project location, description of work, traffic impacts, scheduled work hours and workdays, the Project Hotline telephone number, email address, web address, project map, photo of the project area, and a construction safety message as defined by CDOT. The PIM shall distribute the initial project flier before construction starts.

Develop the list of recipients via <https://eddm.usps.com/eddm/select-routes.htm>, from county GIS mapping, or other approved method. The PIM shall deliver one approved flier per property owner and each tenant within 1 mile of the project limits. The estimated number of printed fliers is 2,250. The PIM shall distribute an email containing a digital form of the flier to stakeholders identified in the Stakeholder List.

- (ix) Celebration. The PIM shall be prepared to plan and host a project celebration with guidance from the RCM.
- (7) *Public Information Plan.* The PIM shall submit a Public Information Plan (PIP) within five days of the Pre-construction Conference. The PIP shall be specific to the project. The PIP shall include public information strategies for affected road users using the Public Information Collateral, the expected work zone impacts and closure details, commuter alternatives, community, government and business relations, media relations, identification of public information issues, proposed outreach strategies, approach to crisis communications, the Stakeholder List, and the Public Information Management Contact Sheet. The PIM shall update the plan when necessary and as directed by the Engineer. The PIP is a component of subsection 630.10 Transportation Management Plan.
- (8) *Limited English Proficient (LEP) Individuals.* A LEP is an individual for whom English is not their primary language and who has a limited ability to read, write, speak, or understand English. The PIM shall provide language assistance of the Public Information Collateral when the project is located in a community that has greater than five percent LEP individuals. Project-related language assistance includes

-7-

**REVISION OF SECTION 626
PUBLIC INFORMATION MANAGEMENT
(TIER III)**

translation, interpretation services, or communication in a form the LEP person understands. The PIM shall document all measures taken to communicate with LEP persons, record all requests for language assistance, and submit the documentation to the Engineer.

(c) *Response Protocol to CDOT and the Public.* The PIM shall follow Table 626-1 in responding to correspondence from stakeholders and the public:

Table 626-1 - Response Timing

Type	Timing
Project Hotline calls and voice messages	Answer calls and check messages throughout each day. Respond within one day. Enter details into the electronic reporting system within two days.
Email messages	Respond within one day. For high volume situations, respond within two days. Enter details into the electronic reporting system within two days.
Calls from CDOT staff	Respond as soon as possible, and within 24 hours.
Web page inquiries	Respond within one day. For high volume situations, respond within two days.

Method of Measurement

The Engineer will monitor the PIM and all public information services. When the PIM provides acceptable public information services per these specifications, partial payments for the pay item Public Information Services will be made as the work progresses. Failure to provide acceptable public information services will result in a withholding of payment for this item. These partial payments will be made as follows:

Partial payments for public information services will be made once each month as work progresses. The monthly partial payments will be determined by pro-rating the lump sum bid amount by the number of months in the actual construction schedule.

-8-

**REVISION OF SECTION 626
PUBLIC INFORMATION MANAGEMENT
(TIER III)**

Basis of Payment

Pay under:

Pay Item

Public Information Management (Tier III)

Pay Unit

Lump Sum

Payment for Public Information Services will be full compensation for all work, materials, and equipment to provide public information throughout the project per this specification.

Construction Signs will be measured and paid for per Section 630.

**REVISION OF SECTION 627
PREFORMED THERMOPLASTIC MATERIAL (SPECIAL)**

Section 627 of the Standard Specifications is hereby revised for this project as follows:

Subsection 627.09 shall include the following:

Preformed Thermoplastic Pavement Marking stencils have a thickness of 125 mils. Marking shall be able to be applied at ambient and surface temperatures, down to 32°F without any preheating of the pavement, special storage, or preheating or treatment of the material before application. The top surface of the stencils (the same side as the factory applied surface beads) shall have an indicator system for the Contractor and inspector to properly gauge the correct amount of heat to apply during installation. The indicator system shall have a positive visual indication, such as indents closing together when the material has reached the correct installation temperature. The indicator system must also provide a positive, visual indication if the material has not reached the correct installation temperature.

All stencils shall have beads on the surface of the stencil. No reversible stencils will be allowed. Stencil installation shall conform to manufacturer's recommendations.

The Contractor shall be required to provide on-site training prior to installation of the first stencil. The training shall be conducted by an authorized manufacturer representative. All crew members on the work site shall be certified by the stencil manufacturer. The training shall include surface preparation and stencil installation for both hot bituminous pavement and concrete pavement. The training shall be coordinated with, and attended by, the CDOT project Engineer and inspector. All costs associated with providing this training will not be measured and paid for separately but shall be included in the work.

The project Engineer may waive the training requirement if the specific crew members working on the project have extensive experience installing Preformed Thermoplastic Pavement Markings per these specifications. The Contractor must submit a list of the crew members and proof of their prior experience to the project Engineer in order for the training requirement to be waived.

All leading edges of stencils shall be beveled at a 45° angle.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Preformed Thermoplastic Pavement Marking (Xwalk-Stop Line)(Special)	Square Foot
Preformed Thermoplastic Pavement Marking (Word-Symbol)(Special)	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 website. 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 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.

-2-

REVISION OF SECTION 630 IMPACT ATTENUATOR (TEMPORARY)

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.

METHOD OF MEASUREMENT

Impact Attenuator (Temporary) will be measured by the number of attenuators shown on the plans, installed, certified, and accepted.

BASIS OF PAYMENT

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:

<u>Pay Item</u>	<u>Pay Unit</u>
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 630 PEDESTRIAN BARRICADE (ADA)

Section 630 of the Standard Specifications is hereby revised for this project as follows:

Subsection 630.01 shall include the following:

This work consists of the installation of temporary pedestrian barricades that are fully ADA compliant. When used, Pedestrian Barricade (ADA) shall be used to delineate a walkable surface.

Subsection 630.02 shall include the following:

The pedestrian barricade shall conform to MUTCD 6F.71 for pedestrian traffic control. The barricade shall be made of High Density Polyethylene (HDPE) with Ultraviolet (UV) stabilizers, or other approved material. It shall be able to interlock with adjacent barricades of the same product such that it forms a wall or a rail.

The pedestrian barricade shall comply with the crash test requirements contained in MASH Level TL3.

The pedestrian barricade shall have a continuous detectable bottom and top surface to be detectable to users of long canes. The bottom of the barricade shall be no more than 2-inches above the ground. The top of the barricade shall be no lower than 32-inches above the ground. The gap to the bottom barricade may be used for drainage. The barricade shall be reflectorized in accordance with subsection 630.02. No extended bases or protrusions shall extend into the walkway.

The Contractor shall submit manufacturer's documentation confirming that the barricade meets all applicable ADA requirements for barricades or rail.

Subsection 630.13 shall include the following:

Placement of the Pedestrian Barricade (ADA) shall be in accordance with manufacturer recommendations.

The ADA pedestrian barricade may be moved to other locations as shown on the plans or as directed upon completion of use at one location.

Subsection 630.17 shall include the following:

Pedestrian Barricade (ADA) will be measured as the actual linear feet of barricade installed and accepted.

-2-

**REVISION OF SECTION 630
PEDESTRIAN BARRICADE (ADA)**

Subsection 630.18 shall include the following:

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Pedestrian Barricade (ADA)	LF

Movement of the Pedestrian Barricade (ADA) to different locations, when required, will not be measured and paid for separately but shall be included in the work.

REVISION OF SECTION 630 PORTABLE MESSAGE SIGN PANEL

Section 630 of the Standard Specifications is hereby revised for this project as follows:

Subsection 630.01 shall include the following:

This project shall require the mobilization, operation, and maintaining of portable message sign panels. Portable message sign panels will be required to be available for utilization on the project, within 12 hours of the Engineer's request, for the duration of the project. Additional portable message sign panels may be required during the progress of the work. Multiple mobilizations of the sign panels may also be required.

Add subsection 630.031 immediately following subsection 630.03 as follows:

630.031 Portable Message Sign Panel. Portable message sign panel shall be furnished as a device fully self-contained on a portable trailer, capable of being licensed for normal highway travel, and shall include leveling and stabilization jacks. The panel shall display a minimum of three eight-character lines. The panel shall be a dot-matrix type with an LED legend on a flat black background. LED signs shall have a pre-default message that activates before power failure. The sign shall be solar powered with independent back-up battery power. The sign shall be capable of 360 degrees of rotation and shall be able to be elevated to a height of at least five feet above the ground, measured at the bottom of the sign. The sign shall be visible from one-half mile under both day and night conditions. The message shall be legible from a minimum of 750 feet. The sign shall automatically adjust its light source to meet the legibility requirements during the hours of darkness. The sign enclosure shall be weather tight and provide a clear polycarbonate front cover.

Solar powered message signs shall be capable of operating continuously for 10 days without any sun. All instrumentation and controls shall be contained in a lockable enclosure. The sign shall be capable of changing and displaying sign messages and other sign features, such as flash rates, moving arrows, etc.

Each sign shall also conform to the following:

- (1) In addition to the onboard solar power operation with battery backup, each sign shall be capable of operating on a hard wire, 100-110 VAC external power source.
- (2) All electrical wiring, including connectors and switch controls necessary to enable all required sign functions, shall be provided with each sign.
- (3) Each sign shall be furnished with an operating and part manual, wiring diagrams, and troubleshooting guide. The portable message sign shall be capable of maintaining all required operations under Colorado mountain winter weather conditions.
- (4) Each sign shall be furnished with an attached license plate and mounting bracket.
- (5) Each sign shall be wired with a 7-prong male electric plug for brake light wiring system.

-2-

**REVISION OF SECTION 630
PORTABLE MESSAGE SIGN PANEL**

Subsection 630.13 shall include the following:

The portable message sign panel shall be on the project site at least 7 calendar days prior to the start of active roadway construction. Maintenance, storage, operation, relocation to different sites during the project, and all repairs of portable message sign panels shall be the responsibility of the Contractor. No payment for Traffic Control Inspection checks will be made during the 7 days prior to construction start for the portable message sign panels.

Subsection 630.17 shall include the following:

Portable message sign panels will be measured as follows:

By the total number of portable message sign panels used on the project at any one time, as approved by the Engineer, except as noted in the Traffic Control Plan.

Subsection 630.18 shall include the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Portable Message Sign Panel	Each

Prior to obtaining this item, the Contractor shall submit the trade name, model number, and specifications of the portable message sign panels the Contractor intends to use to the project Engineer for approval. ADDCO Manufacturing Co. Inc., American Signal Company, Winko-Matic Signal Company, and Precision Controls Inc. are known to produce a suitable portable message sign panel. The Engineer's decision concerning acceptability of this item shall be final.

REVISION OF SECTION 630 TRAFFIC SIGNAL (TEMPORARY)

Section 630 of the Standard Specifications is hereby revised for this project as follows:

Subsection 630.01 shall include the following:

This work consists of furnishing and installing temporary portable traffic signals to control one lane alternating traffic on SH 348 for bridge and culvert replacement. The work includes all equipment, labor, and materials to install and maintain a complete and operational system that accommodates the variations in traffic flow and removal of installation.

Subsection 630.04 shall include the following:

The Traffic Signal (Temporary) shall consist of portable traffic signals for two approach legs integrated with two driveway signals. The signals shall be capable of radio communication, microwave or video vehicle detection for actuation, hardwire or CDOT approved interconnect method, multiple timing plans, manual operation, and a paging system. The signals shall operate by solar/battery power, or connection to a local power line with a transfer switch connecting the load to the power line when energized and disconnecting from the power line when power fails and connecting to the solar or generator power operation with battery back-up that will provide a minimum of five days of continuous operation. All electrical wiring, including connectors and switch controls necessary to allow all signal functions required by the specification shall be provided with each system. The Contractor shall maintain one operating and parts manual, wiring diagrams, and troubleshooting guide for each system. The portable traffic signal system shall be capable of maintaining operations at a temperature range of -60 degrees Celsius to 200 degrees Celsius.

The Traffic Signal (Temporary) shall be in satisfactory operating condition prior to installation. The Contractor shall demonstrate the satisfactory operating condition by operating the system prior to closing the road to one lane of traffic. The Contractor shall maintain and replace the Traffic Signal (Temporary) if the unit fails to operate satisfactorily to the Engineer and shall be retested until a satisfactorily operating Traffic Signal (Temporary) is obtained and installed. The unit shall be kept in satisfactory operating condition during the duration of its use. The unit shall remain in place or remain available until all the work is completed at each location that requires one-lane operation or as deemed necessary by the Engineer. The Traffic Signal (Temporary) shall include adequate spare parts and a source of replacement components such that the system is in operation continuously.

-2-

**REVISION OF SECTION 630
TRAFFIC SIGNAL (TEMPORARY)**

Subsection 630.10 shall include the following:

(10) MHT's detailing the portable traffic signals for one-lane alternating traffic shall include provisions for the CDOT pre-qualified traffic signal contractor to be onsite during initial operation for each timing plan until traffic is serviced to the satisfaction of the Engineer. The signal systems shall also be checked a minimum of daily for proper operation. Queued vehicles should clear the signal within two (2) cycles. The Contractor shall be on-site during both Friday and Sunday afternoons from 12 pm to 8 pm, or as directed by the Engineer, during the first weekend of one-lane alternating traffic for observation, maintenance and troubleshooting, including timing plan adjustments and queue dissipation by manual override. If issues continue beyond the first weekend, the Contractor shall be on-site as listed above until the issues are resolved to the satisfaction of the Engineer. Two signs (24 inches x 36 inches) shall be placed near each signal that provides a 7-day, 24 hour number that can be called if the signal malfunctions. The Contractor shall respond to the signal malfunctions within 1 hour and arrive on-site within 2 hours of notification.

Flaggers shall control traffic during initial turn on of the signal. The flaggers shall remain on standby for 2 hours after the signal is turned on and operating properly.

Subsection 630.17 shall include the following:

Traffic Signal (Temporary) will be measured and paid for as each and shall include all work necessary to provide and maintain, operate, and troubleshoot a complete and operational system, as described herein, that accommodates the variations in traffic flow.

Payment will be full compensation for all work and materials required to furnish, install, maintain, and remove the Traffic Signal (Temporary), including 24"x36" signs for malfunction notification and required on-site presence by a CDOT pre-qualified traffic signal contractor.

Flagging required for installation of the traffic signal will be measured and paid for separately.

**REVISION OF SECTION 630
UNIFORMED TRAFFIC CONTROL (CSP)**

Section 630 of the Standard Specifications is hereby revised for this project as follows:

Subsection 630.01 shall include the following:

This work includes furnishing a uniformed officer from the Colorado State Patrol (CSP) to perform uniformed traffic control.

Subsection 630.18 shall include the following:

The CSP officer time, CSP vehicle, and CSP agency administrative loading will be paid for by the Department directly to the CSP, based on invoice cost.

Hours of Uniformed Traffic Control that are not pre-approved by the Engineer will not be paid. If the billing is from the CSP to the Department, the unauthorized hours of officer time will be charged to the Contractor by the Department.

Payment will be made under:

Pay Item

F/A Uniformed Traffic Control

Pay Unit

F/A

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.

<u>Force Account Item</u>	<u>Quantity</u>	<u>Estimated Amount</u>
F/A Minor Contract Revisions	F/A	\$297,000*
F/A Fuel Cost Adjustments	F/A	\$75,000
F/A Roadway Smoothness Incentive	F/A	\$256,000
F/A Asphalt Cement Cost Adjustment	F/A	\$37,000
F/A On-The-Job Trainee	F/A	\$6,400
F/A Quality Incentive Payment	F/A	\$311,000
F/A Traffic Control	F/A	\$10,000
F/A Railroad Flagging	F/A	\$12,500
Project First Program	F/A	\$5,000
F/A Erosion Control	F/A	\$5,000
F/A Uniformed Traffic Control	F/A	\$10,000

Descriptions:

F/A Minor Contract Revisions - Consists of minor work authorized and approved by the Engineer, which is not included in the contract plans or specifications, and is necessary to accomplish the scope of work of this contract.

F/A Fuel Cost Adjustments - Adjustments will be made in accordance with subsection 109.06(i).

F/A Roadway Smoothness Incentive - Incentive will be made in accordance with subsection 105.07.

F/A Asphalt Cement Cost Adjustment - Adjustment will be made in accordance with subsection 109.06(j).

F/A On-The-Job Trainee - Cost of maintaining on-the-job pilot training program in accordance with the Standard Special Provision.

-2-

FORCE ACCOUNT ITEMS

F/A Quality Incentive Payment - Quality Incentive Payment will be made in accordance with the Standard Specifications, Section 105, 106, 401, and all applicable Standard Special Specifications.

F/A Traffic Control - This work consists of minor traffic control work authorized and approved by the Engineer which is not included in the Contract drawings or specifications and is necessary to accomplish the scope of work for this Contract. All items shall be pre-approved by the Engineer prior to installation, or they will be no cost to the project.

F/A Railroad Flagging - This work is described in the Project Special Provision, Railroad Requirements, Union Pacific Railroad Company.

Project First Program - Cost of participating in a Project First Program between the Contractor and the Department in accordance with the Standard Special Provision.

F/A Erosion Control - This work consists of minor erosion control work authorized and approved by the Engineer which is not included in the Contract drawings or specifications and is necessary to accomplish the scope of work for this Contract. All items shall be pre-approved by the Engineer prior to installation, or they will be no cost to the project.

F/A Uniformed Traffic Control - This work is described in the Project Special Provision, Revision of Section 630 - Uniformed Traffic Control (CSP).

TRAFFIC CONTROL PLAN - GENERAL

The Contractor shall submit a Traffic Control Plan (TCP) for approval by the Engineer prior to the beginning of any construction. The key elements of the Contractor's method of handling traffic (MHT) are outlined in subsection 630.10.

The components of the Traffic Control Plan for this project are included in the following:

- (1) Subsection 104.04 and Section 630 of the specifications
- (2) Schedule of Construction Traffic Control Devices.
- (3) Detour Details
- (4) Standard Plans S-630-1, Traffic Controls for Highway Construction, Cases 17, 18, 19, 24, 35, 40, 42, and Standard Plans S-630-2.

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 adjacent traffic.

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

Allowable delays, working times, and allowable closures shall be in accordance with Revision of Section 108 - Prosecution and Progress.

The Contractor shall maintain at their own expense that portion of the existing roadway being used to carry traffic so that traffic may readily pass over it.

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

The contract TCP components are not all-inclusive. The Contractor shall submit a detailed TCP for construction to the Engineer for approval prior to the implementation. The Contractor shall submit the detailed TCP at least 3 weeks before start of work for review and approval. The TCP shall meet the requirements of the plans and specifications.

The Engineer may require revisions to the Contractor's TCP or associated MHTs if it is determined that implementation of the plan results in excessive delays to the traveling public. New or revised MHT's shall be submitted at least seven days before implementation, unless otherwise approved by the Engineer.

-2-

TRAFFIC CONTROL PLAN - GENERAL

For the following conditions, the Contractor shall immediately remove his operation from the roadway and not resume until the Engineer gives permission:

- 1) If traffic at any time is backed up for 15 minutes or longer
- 2) If traffic at any time is so adversely affected by the operation that the Engineer determines that the situation is unsafe.

(a) *Lane Closures*

The Contractor shall submit a plan for lane closure to the Engineer for review and approval at least 72 hours in advance of the time the closure is to be implemented.

All lane closure dates and times shall be in accordance with CDOT's Region 3 Lane Closure Strategy (Lane Closure Strategy) for this section of SH 348 and US 50 and be coordinated with adjacent projects.

Lane closures will not be allowed to remain unless being used continuously for the purpose for which they were set-up. If a lane closure is set up for over one hour with no work performed, due to weather, equipment breakdown, failure of scheduled equipment or personnel to arrive as scheduled, or other reasons, the traffic control devices, flagging, pilot car, and traffic control management used during the time not worked shall be at the Contractor's expense. No payment will be made by CDOT for any traffic control items, except for traffic control inspection, on a day that a lane closure is set up and no work is performed.

(b) *Parking*

All available public parking is reserved for the public. Contractor and subcontractor employee personal vehicle parking is prohibited in these locations. Parking of Contractor or subcontractor vehicles or construction equipment in existing public parking space is allowed only in the zones that are closed for construction. Parking of Contractor, subcontractor or employee construction or personal vehicles (or construction equipment) in private, residential, or business parking space is also strictly prohibited. Suitable transportation to the work site for personnel whose vehicles are parked off site shall be provided by the Contractor.

-3-

TRAFFIC CONTROL PLAN - GENERAL

(c) *Pedestrian*

The Contractor shall develop and maintain an MHT for pedestrian circulation. The Contractor shall provide and maintain a safe environment for pedestrians surrounding work zones at all times. The Contractor shall provide and maintain appropriate pedestrian detour signage at each intersection to direct pedestrians. Where a segment of the sidewalk is closed during the construction, a new pathway or the sidewalk on the opposite side of the street shall be maintained with proper signage that marks detour routes for pedestrians. MHT's shall detail all of the pedestrian devices and fence necessary for that operation.

(d) Signalized Intersections

The Contractor shall be responsible for the safe movement of traffic through all signalized intersections within the project limits. In accordance with State Law, flagging shall not override visible traffic control signals, even when traffic signals have been disabled or set to flash mode. Should the Contractor's operations require manual traffic control (flagging) at a signalized intersection, the Contractor shall:

- 1) As approved by the Engineer, coordinate with a uniformed police officer to direct traffic -or- remove the signal from service by covering all signal heads (including pedestrian indicators) to ensure they are not visible to the traveling public.
- 2) In the case that the heads are covered and are not visible, coordinate with the Engineer to determine if the signal should be placed on flash or turned off entirely for the duration it is out of service.
- 3) Develop a specific Method of Handling Traffic (MHT) for each affected intersection.

In addition to the items required for MHT's in section 630 as revised, each TCP submittal shall:

- (1) Address any required oversize load restrictions to ensure the safety of workers and the traveling public.
- (2) Address any detour routes or crossovers.

Oversize Load Restrictions

It is anticipated that oversize loads will need to be accommodated during the construction of this project. The Contractor and the Engineer will coordinate oversize load restrictions that assure the least interference with oversize loads using SH 348 and US 50.

-4-

TRAFFIC CONTROL PLAN - GENERAL

Access Maintenance Plan

Unless otherwise included in the plans or directed by the Engineer, the Contractor shall maintain continuous access to all: roadways, side streets, walkways, alleyways, driveways, and other sidewalks and pathways at all times. Sidewalks shall remain open to pedestrians to the greatest extent practicable. If a sidewalk has to be closed, an alternate access shall be provided with appropriate signage and temporary curb ramps as needed per Standard Plan M-608-1.

At least 7 calendar days prior to beginning work on any business driveway or access, the Contractor shall notify each business of the expected construction schedule.

The Contractor shall develop an Access Maintenance Plan (AMP) in coordination with all affected owners and tenants. A sample form of the AMP shall be developed for this purpose by the Contractor and submitted to the Engineer for review and approval. The AMP shall address any special needs any business or residence has for Americans with Disabilities Act (ADA) access or any other special needs. A place on the AMP form shall address special needs and ADA issues.

The AMP shall detail the effects to the accesses including dates, time and duration, and, if applicable, barricades, fencing, and temporary means of access with all affected owners and tenants in a work area. The AMP shall include the address, the station location, the work periods affected, and show documentation of coordination, including the appropriate property owner signatures and the date of contact. Contact information regarding the companies that make frequent deliveries to the affected business shall be obtained and details of access changes shall be provided to these companies by the Public Information Manager along with other routine public information.

The signed AMP shall be submitted, as part of the corresponding method of handling traffic, to the Engineer for approval one week prior to the start of any work that will affect the signatory properties. If the Contractor is unable to obtain approval and signature, documentation of "good faith efforts" to obtain said approval and signatures shall be submitted.

The Contractor will not be allowed to begin work until the Access Maintenance Plan is accepted. If the Contractor does not have approved AMP forms completed for all accesses with a work area, the Engineer may delay progress of work for the affected accesses. Such delay shall not be the basis for a claim for additional contract time or compensation.

Access to the Engineer's field facilities shall be maintained at all times by the Contractor.

-5-

TRAFFIC CONTROL PLAN - GENERAL

Other Special Traffic Control Requirements

Signs and stands shall not be permitted to be left on sidewalks or landscaped areas overnight. Proper, safe equipment shall be used for setting up and taking down construction traffic control signs and devices.

Equipment shall not be stored within the defined construction clear zone of the currently traveled roadway lanes.

The Contractor shall provide Traffic Control Supervisor(s) (TCS) with at least one year of experience, as accepted by the Engineer. A copy of the certification of the Traffic Control Supervisor(s) shall be provided to the Engineer at least two days prior to the project preconstruction conference.

The Contractor shall provide each flagger, Traffic Control Supervisor, and the Engineer with a minimum 5-watt VHF radio in order to provide adequate communications during construction. The radios shall have sufficient range to communicate a minimum of 5 miles. The MHT submitted by the Contractor shall address radio communications.

Although Traffic Control items such as Variable Message Sign Panels, Traffic Control Management or Traffic Control Inspection, and construction traffic control signs may be required and used prior to the beginning of contract time, no payment will be made for the use of any items prior to the beginning of contract time. All work performed prior to commencement of contract time shall be considered subsidiary to mobilization.

A meeting will be scheduled each working day with the Contractor's superintendent, the Traffic Control Supervisor(s), and the Project Engineer for discussion, submittal, and approval of the MHT(s) for the day's scheduled work. Work that has not been scheduled and requires an MHT that has not been approved shall not be allowed. Work that does not require an MHT may proceed if approved by the Engineer.

The required TCS Diary shall be submitted to the Engineer by 10:00 am the following day, and shall include a listing of all flagging hours, labor hours, and traffic control devices used.

The Contractor will not be permitted to have workers or equipment operating on the paved shoulders adjacent to open lanes without proper traffic control.

All Construction Zone Traffic Control Devices shall be continuously maintained in accordance with Section 630 of the Standard Specifications. The TCS shall establish a set maintenance and cleaning schedule. A copy of the maintenance and cleaning schedule shall be approved by the Engineer.

-6-

TRAFFIC CONTROL PLAN - GENERAL

Truck turn-around locations shall be as approved by the Engineer. All truck turn-around locations adjacent to project limits shall also be included in an MHT. Traffic Control devices and Flagging required for truck turn-around locations will not be paid for separately but shall be included in the work.

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

UTILITIES

Known utilities within the limits of this project are:

UTILITY OWNER	TYPE	CONTACT	PHONE
CDOT	Signals, Electrical, Fiber	Marc Travis Tyler Pottorff	970-683-7534 970-712-4135
BLACK HILLS ENERGY	Gas	Billy Joel	970-258-6901
DEEPLY DIGITAL	Finer	Jonathon Cook	970-497-5813
LUMEN	Fiber Optic	Al Perez	970-589-4536
VARIOUS MEMBER UTILITIES	Utility Notification Center of Colorado		8-1-1 or 800-922-1987

The work described in these plans and specifications requires full cooperation between the Contractor and the utility owners by subsection 105.11 in conducting their respective operations so the utility work can be completed with minimum delay to all parties concerned.

In accordance with C.R.S. 9-1.5-101 et seq. (Excavation Requirements), The Department will certify in the Project plans and specifications what Quality Level (QL) existing known utilities were depicted pursuant to the Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data as developed by the American Society of Civil Engineers (ASCE) CI/ASCE 38 or an analogous successor.

The Contractor shall not be relieved of its responsibility to comply with the requirements set forth therein and shall not rely solely on the Department's plans and specifications when completing its work with respect to existing buried utilities. The Contract will indicate those utility items which are to be relocated or adjusted by the utility owner or which are to be relocated by the Contractor. The Contractor shall consider in the bid proposal, all permanent and temporary utility facilities in their present or relocated positions as shown in the Contract as revealed by site investigation.

Utility delays due to changes which are the responsibility of the Contractor will be considered non-excusable delays. Utility delays beyond the Contractor's control and not due to the fault or negligence of the Contractor shall be documented by the Contractor and tied to the project's critical path schedule to demonstrate a timeline of events leading up to the utility's failure to perform and subsequent delay to the project. This information will be used in determining whether the delay is compensable or non-compensable pursuant to 108.08.

**-2-
UTILITIES**

The Contractor and the Engineer shall meet with all the utility owners at least forty-five (45) days in advance of any construction operations and as often as necessary to coordinate and schedule relocations or adjustments. Coordination with utility owners includes, but is not limited to, providing, and periodically updating, an accurate construction schedule that includes all utility work elements. Additional compensation will not be allowed for foreseeable coordination, inconvenience, or damage sustained due to interference from the utility facility or the removal or relocation operations as indicated in the Contract. Delays shall be dealt with under subsection 108.08. Surveying and/or staking of utility relocations or adjustments to be performed by the owner shall be the responsibility of the owner.

A pre-construction field review shall be completed before starting any construction work. The Contractor shall conduct utility coordination meetings a minimum of weekly to coordinate construction activities with the utility owners. The frequency of the utility coordination meetings may be revised with the prior written consent of the Engineer. The discussion shall include an emergency plan if a utility facility is damaged during construction or if a utility strike occurs including emergency contact information from each provider. Meeting minutes of each contractor-led utility coordination meeting shall be provided to the Engineer.

The Contractor shall provide traffic control for any utility work expected to be coordinated with construction operations as directed by the Engineer. However, traffic control for utility work outside of typical project work hours or outside of project limits shall be the responsibility of the utility owner. The Contractor shall be compensated for traffic control as per the bid items for traffic control as established on this project if the utility work is performed outside of typical project work hours or outside of the project limits.

If a utility owner is not specifically shown below, it is because there are no known conflicts with their facilities. However, the contractor shall be responsible for requesting locates and protecting all existing utilities from damage due to the contractor's operations.

The Contractor shall keep each utility owner advised of any work being done to its facility so that each utility owner can coordinate its inspections for final acceptance of the work with the Engineer. The contractor shall provide written notice to each utility owner, with a copy to the Engineer and the Regional Utility Engineering Manager, immediately prior to each utility work element expected to be coordinated with construction and shall allow the expected number of working days for utilities to complete the necessary work. The number of day's prior notice is noted for each utility owner.

There are possible utility conflicts within the project limits. The Contractor is responsible for protecting all utility facilities within the project limits from damage due to the Contractor's operations. The Contractor shall be responsible for verifying the location and depth of all existing utility lines prior to commencing excavations in the proximity of any utility line.

**-3-
UTILITIES**

If pothole information identifies a conflict, then notification to the utility owner will be required in a timely manner to allow said utility owner the ability to adjust or relocate the facility. Based upon these locates, improvements may need to be adjusted as directed by the Engineer to avoid a utility. Hand digging may be required.

LUMEN (Telephone and Fiber Optic) - Prior Notice: 45 working days

Contractor Responsibilities -

The Contractor shall protect all existing Lumen facilities from damage due to the Contractor's operations. Lumen anticipates having their facilities relocated prior to the start of the Contractor's operations. The Contractor shall coordinate as necessary with Lumen on any issues that may arise during construction.

Utility Company Responsibilities - Prior Notice: 45 working days

Lumen has two facilities within the project limits that are in conflict with the proposed bridge improvement. These conflicts are along SH 348 on the West and East side of the proposed bridge replacement crossing the Ironstone Canal. Lumen plans to relocate both facilities and have these out of the Contractor's way prior to the start of construction.

UNION PACIFIC RAILROAD—Prior Notice: 45 working days

Contractor Responsibilities -

The contractor is to reference the Folder Numbers 804889 for this project when submitting for the Right of Entry Agreement (CROE) with the UPRR. This Folder Number will be issued to the contractor after award.

Contractor shall be responsible for obtaining a Right of Entry Agreement from the Union Pacific Railroad, as specified in the Railroad Requirements that immediately follow these Utility Special Provisions. All costs and fees for entering into "Contractor's Right of Entry Agreement" with the Railroad shall be borne by the Contractor. The Contractor shall comply with all provisions of the Railroad Requirements and those set forth in the Right of Entry Agreement by the Union Pacific Railroad.

The cost of Railroad flagging and/or inspection shall be paid by the Contractor and will be reimbursed to the Contractor by a Force Account item established for this purpose upon submittal of appropriate documentation.

Prior notice shall be given as per the Railroad Requirements and Right of Entry agreement.

Utility Company Responsibilities -

The Union Pacific Railroad will perform work as specified in the Railroad Requirements that follow these Utility Special Provisions or as specified in the Right of Entry Agreement.

**-4-
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, plus the day of notification, prior to commencing excavation operations. Contact the Utility Notification Center of Colorado (UNCC) at 811 or 1-800-922-1987 to have locations of UNCC registered lines marked by member companies. All other underground facilities shall be located by contacting the respective utility company. CDOT locates are requested through the UNCC. Utility service laterals shall also be located prior to beginning and excavation or grading.

The location of utility facilities as shown on the plan and profile sheets was obtained from the best available information by surveying and plotting visible above-ground utility features and locate markings (CI/ASCE 38-22) Quality Level D - Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data). No warranty is made for the adequacy or accuracy of subsurface information provided. Utility service laterals have not been shown and shall be located prior to beginning any excavating or grading work.

Existing utility lines are not shown on the plan sheets. Contractor shall protect in place all overhead utility crossings, light poles, guy anchors, pedestals, pull boxes, and other utility appurtenances from damage due to the Contractor's operations.

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

RAILROAD REQUIREMENTS UNION PACIFIC RAILROAD COMPANY

General

This project includes construction work on the rights-of-way and/or properties of the Union Pacific Railroad (hereinafter called "Railroad") and adjacent to the tracks, wire lines, and other facilities of the Railroad. The Contractor and subcontractors shall cooperate with the officers and authorized representatives of the Railroad and its tenants to the end. The Contractor's work shall be begun, conducted, and completed in such a manner as to cause no interference whatsoever with the safety or the continuous and uninterrupted use and operation of the tracks, wire lines, and other facilities belonging to the Railroad or its tenants.

Contractor Responsibilities:

The Contractor is responsible for following the requirements of the Maintenance Consent Letters (MCLs) and Contractors Endorsement including Exhibits. (Reference REMS Project 804889 for two (2) at-grade crossings along SH 348.

The plans for this project, affecting the Railroad, are subject to approval by the Railroad and changes in plans may be required after award of Contract. Such changes are subject to the approval of the Department, FHWA, and the Railroad.

<u>Railroad MP</u>	<u>DOT Crossing</u>
362.12	253-395X (5 th Street)
372.898	253-418C (Bridge Street)

All costs and associated fees with the MCL shall be borne by the Contractor.

A preconstruction meeting is required before commencing any work on Railroad's properties, the Contractor shall notify:

Richard A. Koerner, PE
Union Pacific Railroad - Public Project Engineering Consultant
Ph: 949-374-4396 | email: rkoerner@olsson.com

For Contractors Endorsement required by Railroad, contact:

Leo Craig
Union Pacific Railroad - Public Project Engineering Consultant
Ph: 817-901-9560 | email: Lcraig@olsson.com

For flagging and inspection services required by Railroad, contact:

Leo Craig
Union Pacific Railroad - Public Project Engineering Consultant
Ph: 817-901-9560 | email: Lcraig@olsson.com

-2-

RAILROAD REQUIREMENTS UNION PACIFIC RAILROAD COMPANY

All notices and correspondence with the Railroad shall contain the project number and location. Conforming copies of such notices and correspondence shall be submitted to the Project Engineer.

Said notices to be given in writing at least ten days in advance of the date on which the Contractor expects to begin such work. Notice shall also be given within ten days following completion and acceptance of such work.

The Contractor shall comply with all rules and regulations prescribed by the Railroad, as to the proper manner of protecting the tracks (and the traffic moving thereon), telephone, telegraph and signal wires, and other property of the Railroad or its tenants at and in the vicinity of the project during the time such work is being performed, and all costs for complying with such rules and regulations shall be borne by the Contractor. The Contractor shall enter into a "Contractor's Right of Entry Agreement" with the Railroad using the latest version thereof provide by the Railroad. All costs and fees for entering the "Contractor's Right of Entry Agreement" with the Railroad shall be borne by the Contractor.

The Railroad may assign the Contractor flagmen for the protection of train operations. All costs for such flagmen shall be as provided in Railroad Flagging herein.

The Contractor shall hold the Railroad harmless and indemnify it from and against any and all loss, damage, claims, demands, causes of action, cost and expenses of whatsoever nature arising out of damage to or destruction of property whatsoever, where such injury, death, damage, or destruction results from any cause due to work done in connection with the construction of the project on or in close proximity to railroad property and shall also release the Railroad from and shall waive any claim for injury or damage to the work under construction or to the property which may result from the construction, maintenance, and operation of railroad tracks, wire lines, pipe lines, and other railroad facilities on said rights-of-way of the Railroad, SAVE AND EXCEPTING any death, damage, or destruction resulting solely from the negligent acts or omissions of the Railroad, its officers, agents, or employees.

RAILROAD INSURANCE

The Contractor shall, at its sole cost and expense, procure and maintain insurance during the course of the Project and until all Project work on the Railroad's property has been completed and the Contractor has removed all equipment and materials from the Railroad's property, and has cleaned and restored the Railroad's property to the Railroad's satisfaction.

The Contractor shall obtain insurance amounts in accordance with the link listed above and/or as determined by the Union Pacific Railroad.

-3-

RAILROAD REQUIREMENTS UNION PACIFIC RAILROAD COMPANY

Pollution Liability Insurance may be required by Union Pacific Railroad. It is the Contractor's responsibility to determine if pollution Liability Insurance is required for this project.

The Contractor shall contact and verify insurance requirements and liability limits on UPRR website and through direct contact with the above listed UPRR contacts prior to submitting their bid for this project.

The Right of Entry Agreement is for all work within the Union Pacific Railroad property with the exception of the drainage pipes and structures.

If any part of the Contract work on Railroad's properties is sublet, similar insurance shall be provided by or in behalf of each subcontractor. All associate premiums and fees associated with adding subcontractors to the CROE shall be borne by the Contractor.

The Contractor shall comply with the requirements of the executed "Contractor's Right of Entry Agreement".

The Contractor is responsible for all fees and notice requirements associate with the MCL and CROE.

The Contractor is responsible for obtaining, scheduling, and paying for all Railroad flagging with the UPRR Track Maintenance Manager.

The Contractor and the Railroad shall agree, in advance, upon methods and procedures covering all construction on Railroad's properties. Such proposals shall be in writing, with a copy to the Project Engineer.

Construction materials or any other temporary obstructions shall not be placed closer than 15 feet from the centerline of tracks and 21'-6" vertically above top of rail, unless otherwise approved by the UPRR.

Upon completion of work, the Contractor shall remove from the premises of Railroads' right-of-way all equipment, surplus materials, and debris leaving such premises in a neat condition satisfactory to the Railroad.

The Contractor shall furnish a UPRR or consultant flagger as determined by the UPRR Manager of Track Maintenance.

RAILROAD FLAGGING

Any work within, or work equipment that could potentially fall within, 25 feet of the centerline of the nearest track rail shall require a Railroad Flagger. The Contractor shall notify the Railroad per the executed agreement with the Railroad to arrange for required flagging services. The Railroad flagger shall provide services for the Railroad only. The

-4-

RAILROAD REQUIREMENTS UNION PACIFIC RAILROAD COMPLANY

Contractor shall be responsible to appropriately notify the Railroad regarding flagging start and end dates for work on the Railroad ROW per the executed agreement. Railroad flagging that occurs as a result of the failure of the Contractor to provide timely notice when flagging will not be required, per the executed agreement, will not be paid for by CDOT but will be the responsibility of the Contractor.

The Contractor shall provide advance notice to the Railroad per the executed agreement when all work on the Railroad ROW is scheduled for completion to provide for termination of Railroad flagger services.

During the period of construction, all flagging and protective services shall be performed strictly in accordance with directives and instruction issued by the Railroad. The Contractor shall confer with the Railroad for the times, locations, and manner of such protective measures. The Contractor shall include the Railroad flaggers in all its regularly scheduled safety meetings. If the Contractor does not comply with the above requirements, the Railroad will post a flagger or flagger, as it deems necessary, for the duration of the project. The Contractor shall not be entitled to any additional compensation if this occurs.

The Railroad utilizes independent consultant services to inspect and verify that any and all work on Railroad ROW is being undertaken in accordance with Railroad safety requirements. Failure to comply with Railroad safety requirements may result in a stop work order.

COST FOR FLAGGING, INSPECTION

For information, the estimated cost of flagging services for this project is \$12,500 (5 working days x \$2,500/day) but is not limited to that figure. To the extent of the actual cost, the Department will reimburse the Contractor for all approved flagging hereunder. The cost of flagging required subsequent to the Contract time expiration date or any approved extension of time shall be borne by the Contractor.

The Railroad will bill the Contractor monthly at the current rates of pay for flagging services furnished and the Contractor shall pay the Railroad within 30 days after receipt of bills. The Department will reimburse the Contractor under the planned force account item "Railroad Flagging".

AUTHORITY OF RAILROAD FLAGGERS AND INSPECTORS

The Railroad flaggers and inspectors shall have the right to direct the Contractor to stop work on, over, or adjacent to Railroad property, if the Railroad in its sole discretion determines that the work being performed is hazardous to Railroad property and/or operations. The Railroad will give immediate notice to CDOT of any work stoppage. The Contractor, working with CDOT, shall be responsible for resolving to the Railroad's

-5-

RAILROAD REQUIREMENTS UNION PACIFIC RAILROAD COMPLANY

satisfaction the problems resulting in the work stoppage. The Contractor shall accommodate any and all requests made by the Railroad that serve the purpose of avoiding hazards to Railroad property and/or operations. Neither the Railroad nor CDOT will have any liability to the Contractor for costs or delays associate with such work stoppage or requirements associate with avoidance or hazardous situations.

UTILITY CROSSINGS

The Railroad is not responsible for Utilities on Railroad ROW. The Contractor shall locate all utilities on Railroad ROW within the immediate vicinity of the work. The Contractor shall certify to the Railroad that all the utilities on Railroad ROW and within the immediate vicinity of the work have been identified and properly located.

Any new or existing utility replacement including drainage and wire lines require separate railroad permits that CDOT is responsible for obtaining and paying for. Please identify those said facilities within the plans and obtain the necessary documentation from CDOT.

UPRR ACCESS TRAINING (UP-PAT)

All Contractor employees, including subcontractors, working within the Railroad's rights-of-way shall be Union Pacific Access Training Certified. Certification can be obtained through the following web site: <https://www.up.com/communities/rail-safety/erailsafe/up-pat>. The Contractor shall verify with the Railroad on proper property access certification requirements that are needed. The Contractor is responsible for setting up proper accounts and payment of associated fees required for certification. The Railroad may require additional Safety Certifications (such as RWP certifications). The Contractor is responsible for all Contractor employees, including subcontractors, working within the Railroad's rights-of-way to have all required certifications.

RIGHT OF WAY RESTRICTIONS

The Contractor is hereby made aware that at the time of bidding on this project, CDOT does not have possession of all necessary Rights of Way to complete portions of this project and has identified the following location as “No Work Areas” until the Restriction Dates shown below. Please reference the Right of Way plans for locations of the parcels.

The Contractor understands that at the time of bidding this project, CDOT does not have possession of all necessary Rights of Way to complete this Project and that construction cannot begin on this project until either possession for all Right of Way parcels are achieved, or FHWA approves and executes a Public Interest Finding form that will allow work to begin on the project with the following parcels designated as “No Work Areas”. Please reference the Right of Way plans for itemized parcels and associated locations.

PROJECT EXEPTIONS					
Parcels	Owner Name	FMV Date	Offer Date	Anticipated Possession Date	Restriction Date
TE-6	American Legion Post 24	03/24/2026	03/31/2026	06/30/2026	07/31/2026
TE-7	Town of Olathe	03/25/2026	03/31/2026	06/30/2026	07/31/2026
TE-8	Town of Olathe (Conveyed by Alpine Bank)	03/25/2026	03/31/2026	06/30/2026	07/31/2026
TE-13	Apollo H&B Holdings, LLC	03/25/2026	03/31/2026	06/30/2026	07/31/2026
PE-15	Sherrie L. Cooper Timothy J. Cooper Shannon C. Cooper Gina R. Witz Donna L. White Rusty D. Church	04/08/2026	04/08/2026	09/30/2026	10/31/2026
PE-16, PE-16A	United States Bureau of Reclamation	NA	NA	09/30/2026	10/31/2026
PE-17	D&B Real Estate, LLC	04/08/2026	04/08/2026	09/30/2026	10/31/2026
PE-18, PE-18A	Last Chance Real Estate, LLC	04/08/2026	04/09/2026	09/30/2026	10/31/2026
TE-19	Lystad Betty Jean	04/08/2026	04/09/2026	06/30/2026	07/31/2026

When bidding, the Contractor is advised that the Contractor shall not enter the Parcels identified above prior to the dates indicated above, unless otherwise directed by the CDOT Engineer.

The Department anticipates no delay toward completion of the project due to the restrictions imposed herein. No additional time or mobilization costs shall be granted to the Contractor for delays associated with not having possession of the above-mentioned locations prior to the dates specified above.

Revision of Section 101 General Provisions

Section 101 of the Standard Specifications is revised for this project as follows:

In Subsection 101.02 Definitions, alphabetically, add the following definition:

Approved Water Source. In Colorado, all water use is managed under the "Prior Appropriation System." This determines:

- who can use the water,
- where the water is diverted from its source,
- how much can be used,
- what can it be used for, and
- when it can be accessed.

This means that ground or surface water cannot be used unless the proper water rights have been legally obtained. Approved sources of water include supplies from the contractor's yard or water that has been purchased or provided with the landowner's permission. Ground or surface water found on or near the project site is not an approved source unless those legal rights have been obtained.

Revision of Section 105 Project First Program

Revise Section 105 of the Standard Specifications as follows:

Replace the following in Subsection 105.10, “Cooperation by the Contractor”, as shown:

Project First Program. Project First is required on all projects with an Engineer’s Estimate of over one million dollars, is optional and is highly recommended for all other projects. The Project First Program shall not take precedence over any other Contract requirement and shall only apply to contracts with the Department.

Project First is a project partnering that focuses on managing risks, facilitating communication, and working together to achieve common goals within the guidelines and parameters established by the Contract. The Project First Program is structured to draw on the strengths of the Contractor and the Department to identify and achieve mutual goals. Project First is a scalable program that supports effective and efficient contract performance and is performed with reciprocal cooperation. The goal is a project completed within budget, on schedule, and per the Contract. The Project Engineer and the Superintendent are the lead representatives to address the issues promptly and at the appropriate level. Executives from both organizations are encouraged to be active supporters and to visit with the Project Teams. The Project First Program includes the Project Team, consisting of the Department and the Contractor, developing tools to identify and manage project risks and facilitate communication. The tools are developed and updated for the project’s duration in formal Workshops and project meetings.

Nothing in this Section or Project First Program waives or extinguishes any defenses, rights, or obligations set forth in the Contract and/or the Contract Documents, or at law in equity, including, but not limited to, any notice and/or disclosure requirements set forth in Sections and/or Subsections 104.02, 104.03, 105.22, 105.23, 105.24, 106.05, 106.06, 108.08(a), and 108.08(d) and/or the Disputes Resolution Process.

Project First Workshops

(a) Workshop Facilitation. All costs related to Project First shall be included in the work and shall not be paid for separately, except for the actual costs for the use

Revision of Section 105 Project First Program

of a third-party workshop facilitator. If the parties mutually agree to use a third-party workshop facilitator, payment will be made for the actual costs incurred. The cost for a workshop facilitator shall be agreed upon before engagement. The Project Team shall equally share the facilitation costs. The Contractor shall contract directly with the third party, and payment will be made per subsection 109.04.

(b) *Initial Workshop.* The Project Team shall conduct an in-person initial workshop before the Preconstruction Conference. The Project Engineer and the Superintendent shall jointly agree on the individuals to invite to the initial workshop. They shall invite the members from their respective teams. The Region Transportation Director or the Program Engineer, the Resident Engineer, the Project Engineer, and other project personnel shall attend the initial workshop. The Contractor owner, executive, or representative, the Superintendent, project supervision personnel, and key subcontractors shall attend the initial workshop. The Engineer and the Superintendent shall jointly determine if other stakeholders shall attend. At the initial workshop, the parties will each discuss their planned approach to the project and develop the Project First Tools.

(c) *Follow-up Workshops and Closeout Workshop.* The Project Team shall conduct follow-up workshops at least once every two months, unless the Project Engineer and the Superintendent jointly determine that the frequency of these meetings can be reduced, and one final closeout workshop. When there are open items on the Project Risk Assessment Tool, workshops shall continue during no-work periods. Workshops are not required during landscape establishment periods. The Project Team shall conduct the closeout workshop before Final Acceptance.

The Resident Engineer, the Project Engineer, the Superintendent, and project supervision personnel shall attend the follow-up workshop and closeout workshop. The Region Transportation Director or Program Engineer, the Contractor owner, executive, or representatives are not required to attend the follow-up workshops and closeout workshop. The subcontractors or stakeholders with open risk items and incomplete work shall attend the follow-up workshop and closeout workshop. The Project Engineer and the Superintendent shall jointly determine if other stakeholders shall attend.

Revision of Section 105 Project First Program

In the follow-up workshops, the parties will update Risk Assessment Tool risks, including adding any new risks and closing completed risks. The parties shall resolve all remaining risks and document lessons learned before or by the closeout workshop. The Project Team should also celebrate the project successes.

Project First Tools

(a) Project Risk Assessment Tool. The Project Team shall develop and update a Project Risk Assessment Tool. This Project Risk Assessment Tool shall support risk identification, analysis, response strategy, monitoring, and control. All parties shall use the Project Risk Assessment Tool to document and manage the project risks. A risk for Project First is an unexpected known event or potential future event that may positively or negatively affect the project costs, schedule, scope, or relationship. The Project Team may modify the Project Risk Assessment Tool to suit the project.

(b) Project First Escalation Ladder. Use the Escalation Ladder to communicate major or repeated concerns to the next person in the supervisory chain. The Escalation Ladder is a list that includes the name, title, and contact information of the individuals in the supervisory chain for the Contractor's project organization and for the Department's project organization. The Contractor and the Department shall keep the Escalation Ladder up to date. The Project Team shall use the Escalation Ladder when the following types of concerns occur to maintain project communication and resolve issues at the lowest level:

- **Bad Faith:** When an individual is knowingly or willingly dishonest, not fulfilling legal or contractual obligations, misleads others, enters into an agreement without the intention or means to fulfill it, and/or violates basic standards of honesty in dealing with others.
- **Administration Performance:** When an individual is not responsive in administrative performance, such as resolving requests for information, developing partial payments, submitting required documentation, delays in progressing issues, and in negotiations. When an individual is unable to or is not competent in performing construction administration duties.
- **Defiance:** When an individual disregards Contract requirements or the direction of the Project Engineer.

Revision of Section 105 Project First Program

- Professionalism: When an individual acts in an unprofessional manner, including disrespectful, vulgar, and/or aggressive behavior.

Project First may be utilized to communicate concerns and issues at the project level prior to the submission of a Dispute as defined pursuant to Subsection 105.22 of the Dispute Resolution Process. Although these concerns may contribute to the issues described in subsection 105.22, they are different and addressed separately. This subsection and the referenced Project First Escalation Ladder shall not be used to circumvent or replace the escalation process detailed in Subsection 105.22 Dispute Resolution. Subsection 105.22 is the Contract escalation process for Issues that may result in Disputes related to items included in but not limited to Subsections 104.02, 104.03, 106.05, 106.06, 108.08(a), and 108.08(d) for merit and quantum as described and detailed in Subsection 105.22.

(c) Project First Charter. The establishment of a Project First charter is optional. A Project First Charter shall not change the legal relationship of the parties to the Contract, nor act as a waiver of, nor supersede the terms of the Contract. If a Project First Charter is developed, the Project Team shall develop the Project First Charter jointly.

Revision of Section 105 Dispute Resolution

Revise Section 105 of the Standard Specifications as follows:

Remove and replace Subsections 105.22, “Dispute Resolution”; 105.23, “Dispute Review Board”; and 105.24, “Claims for Unresolved Disputes”, as follows:

105.22 Dispute Resolution. Subsections 105.22, 105.23, and 105.24 detail the process through which the parties (CDOT and the Contractor) agree to resolve any issue that may result in a Dispute. The process intends to resolve issues early, efficiently, and as close to the project level as possible. Figure 105-1 outlines the process. Specified time frames may be extended by mutual agreement of the Engineer and the Contractor. In these subsections, when a time frame ends on a Saturday, Sunday, or holiday, the time frame shall be extended to the next scheduled workday.

Definitions:

Issue. A disagreement concerning contract price, contract time, interpretation of the Contract, or a combination thereof between the parties at the project level regarding or relating to the Contract. Issues include, but are not limited to, a disagreement resulting from a delay, a change order, another written order, or an oral order from the Project Engineer, including any direction, instruction, interpretation, or determination by the Project Engineer, interpretations of the Contract provisions, plans, or specifications or the existence of alleged differing site conditions.

Dispute. An Issue that the Contractor and CDOT have not been able to resolve, and for which the Contractor submits a written formal notice of Dispute per subsection 105.22(c).

Claim. A Dispute not resolved at the Resident Engineer level or resolved after a DRB recommendation.

Merit. Refers to the right of a Contractor to recover on a Claim or Dispute, irrespective of Quantum, based on the substance, elements, and grounds of that Claim or Dispute.

Quantum. Refers to the quantity or amount of compensation or time (or both), if any, that may be granted to the Contractor when a Dispute or Claim is found to have Merit.

The Contractor shall bring the Issue(s) to the Project Engineer’s attention, in writing, within 15 days of the Contractor being aware of the Issue(s). Written notice must take the form of a stand-alone, non-chain e-mail or letter, addressed and delivered to the Project Engineer. If a Contractor provides written notice outside of the 15-day deadline, it shall be presumed that CDOT suffered prejudice. Where the Contractor

Revision of Section 105 Dispute Resolution

failed to provide the required notice, the failure to provide notice may be treated as a separate and threshold Dispute to be resolved before other related Dispute(s) are submitted, addressed, or resolved.

Disputes from subcontractors, material suppliers, or any other entity not party to the Contract shall be submitted through the Contractor. The review of a pass-through Dispute does not create privity of Contract between CDOT and the subcontractor.

An audit may be performed by the Department for any Dispute or Claim. All audits will be completed within 90 days of the request for an audit, provided the Contractor allows the auditors reasonable and timely access to the Contractor's books and records.

If CDOT does not respond within the specified timelines, the Contractor may advance the Dispute to the next review level in the dispute resolution process.

When the Project Engineer is a Consultant Project Engineer, actions, decisions, and determinations specified as made by the Project Engineer shall be made by the Resident Engineer.

The dispute resolution process set forth in this subsection shall be exhausted in its entirety before initiation of litigation. Failure to comply with the requirements set forth in this subsection, including notice requirements, shall bar either party from any further administrative, equitable, or legal remedies. Subject to the rebuttable presumption of prejudice to CDOT set forth above, if a deadline is missed that does not prejudice either party, further relief shall be allowed.

All written notices of Dispute shall be submitted within 30 days of the date of the Project Engineer's Final Acceptance letter; see subsection 105.21(b).

When a project has a landscape maintenance period, the Project Engineer will grant partial acceptance per subsection 105.21(a). This partial acceptance will be the project acceptance of all the construction work performed before this partial acceptance.

All Disputes and Claims related to the work in which this partial acceptance is granted shall be submitted within 30 days of the Project Engineer's partial acceptance.

Should the Contractor's Dispute use the Total Cost approach for calculating damages, damages will be determined by subtracting the contract amount from the total cost of performance. Should the Contractor's Dispute use the Modified Total Cost approach for calculating damages, if the Contractor's bid was unrealistic in part, or some of its costs were unreasonable or some of its damages were caused by its own errors, those costs and damages will be deducted from the total cost of performance to arrive at the Modified Total Cost. The Total Cost or Modified Total Cost basis for calculating damages shall not be available for any Disputes or Claims seeking damages where the

Revision of Section 105 Dispute Resolution

Contractor could have kept separate cost records at the time the Dispute arose as described in subsection 105.22(a).

(a) *Document Retention.* The Contractor shall keep full and complete records of the costs and additional time incurred for each Dispute for a period of at least three years after the date of final payment or until the Dispute is resolved, whichever is longer. The Contractor, subcontractors, and lower-tier subcontractors shall provide adequate facilities, acceptable to the Project Engineer, for an audit during normal business hours. The Contractor shall permit the Project Engineer or Department auditor to examine and copy those records and all other records required by the Project Engineer to determine the facts or contentions involved in the Dispute. The Contractor shall identify and segregate any documents or information that the Contractor considers particularly sensitive, such as confidential or proprietary information.

Throughout the Dispute, the Contractor and the Project Engineer shall keep complete daily records of extra costs and time incurred, per the following procedures:

1. Daily records shall identify each operation affected, the specific locations where work is affected, and the potential effect to the project's schedule. Such records shall also reflect all labor, material, and equipment applicable to the affected operations.
2. On the first workday of each week following the date of the written notice of Dispute, the Contractor shall provide the Project Engineer with the daily records for the preceding week. If the Contractor's records indicate costs greater than those kept by the Department, the Project Engineer will meet with the Contractor and present CDOT's records to the Contractor at the meeting. The Contractor shall notify the Engineer in writing within three workdays of any inaccuracies noted in, or disagreements with, the Department's records.

(b) *Initial Dispute Resolution Process.* To initiate the Dispute resolution process, the Contractor shall provide a written notice of Dispute to the Project Engineer upon the failure of the Parties to resolve the Issue through negotiation. Disputes will not be considered unless the Contractor has first complied with specified Issue resolution processes such as those specified in subsections 104.02, 106.05, 108.08(a), and 108.08(d).

The Contractor shall supplement the written notice of Dispute within 15 days with a written Request for Equitable Adjustment (REA) providing the following:

- (1) The date of the Dispute.
- (2) The nature of the circumstances that caused the Dispute.

Revision of Section 105 Dispute Resolution

- (3) A detailed explanation of the Dispute, citing specific provisions of the Contract and any basis, legal or factual, that supports the Dispute.
- (4) If any, the estimated Quantum, calculated per the methods set forth in subsection 105.24(b)12, with supporting documentation.
- (5) An analysis of the progress schedule showing the schedule change or disruption, if the Contractor is asserting a schedule change or disruption. This analysis shall meet the requirements of subsection 108.08(d).

The Contractor shall submit as much information on the Quantum and impacts to the Contract time as is reasonably available with the REA and then supplement the REA as additional information becomes available. If the Dispute escalates to the DRB process, neither party shall provide or present to the DRB any Issue or any information that was not contained in the REA and fully submitted in writing to the Project Engineer and Resident Engineer during the subsection 105.22 process.

- (c) *Project Engineer Review.* Within 15 days after receipt of the REA, the Project Engineer will meet with the Contractor to discuss the Merits of the Dispute. Within seven days after this meeting, the Project Engineer will issue a written decision on the Merits of the Dispute.

The Project Engineer will either deny the Merits of the Dispute or notify the Contractor that the Dispute has Merit. This determination will include a summary of the relevant facts, Contract provisions supporting the determination, and an evaluation of all scheduling issues that may be involved.

If the Dispute is determined to have Merit, the Contractor and the Project Engineer will determine the adjustment in payment, schedule, or both within 30 days. When a satisfactory adjustment is determined, it shall be implemented per subsections 106.05, 108.08, 109.04, 109.05, or 109.10, and the Dispute is resolved.

If the Contractor accepts the Project Engineer's denial of the Merits of the Dispute, the Dispute is resolved, and no further action will be taken. If the Contractor does not respond in seven days, it will be assumed he has accepted the denial. If the Contractor rejects the Project Engineer's denial of the Merits of the Dispute or a satisfactory adjustment of payment or schedule cannot be agreed upon within 30 days, the Contractor may further pursue resolution of the Dispute by providing written notice to the Resident Engineer within seven days, according to subsection 105.22(e).

- (d) *Resident Engineer Review.* Within seven days after receipt of the Contractor's written notice to the Resident Engineer of unsatisfactory resolution of the Dispute, the Project Engineer and Resident Engineer will hold at least one meeting (or more than one meeting upon mutual agreement of the parties) with the Contractor.

Revision of Section 105 Dispute Resolution

Meetings shall continue weekly for a period of up to 30 days. Meetings shall include a Contractor's representative with decision authority above the project level to discuss the Dispute. When the Project Engineer is a Consultant and the Resident Engineer rendered the Project Engineer's written decision, the Program Engineer will render the Resident Engineer's written decision. Within 7 days after this meeting, the Resident Engineer will issue a written decision on the Merits of the Dispute.

If these meetings result in the resolution of the Dispute, the resolution will be implemented per subsections 108.08, 109.04, 109.05, or 109.10, and the Dispute is resolved.

If these meetings do not result in a resolution or the participants mutually agree that they have reached an impasse, the Dispute shall be presented to the Dispute Review Board per subsection 105.23.

105.23 Dispute Review Board. A Dispute Review Board (DRB) is an independent third party that will provide specialized expertise in technical areas and the administration of construction contracts. The DRB will assist in and facilitate the timely and equitable resolution of Disputes between CDOT and the Contractor in an effort to avoid animosity and construction delays, and to resolve Disputes as close to the project level as possible. The DRB shall be established and operate as provided and shall serve as an independent and impartial board. A DRB member shall not be called as a witness for future litigation.

There are two types of DRBs: the "On Demand DRB" and the "Standing DRB". The DRB shall be an "On Demand DRB" unless a "Standing DRB" is specified in the Contract. An On Demand DRB may be established at any time during the project to assist with Issue and Dispute resolution and when the Project Engineer initiates a DRB review per subsection 105.23(a). A Standing DRB, when specified in the Contract, shall be established at the beginning of the project.

(a) Initiation of Dispute Review Board Review. When a Dispute has not been resolved per subsection 105.22, the Project Engineer will initiate the DRB review process within five days after the period described in subsection 105.22(e).

(b) Formation of Dispute Review Board. DRBs will be established per the following procedures:

1. CDOT, in conjunction with the Colorado Contractors Association (CCA), will maintain a statewide list of pre-approved DRB candidates experienced in construction processes and the interpretation of contract documents, and the resolution of construction Disputes. Only individuals who have completed training (currently titled DRB Administration and Practice Training) through the Dispute Resolution Board Foundation or otherwise approved by CDOT can be a

Revision of Section 105 Dispute Resolution

DRB member. DRB nominees shall be selected from the list of pre-approved candidates. When a DRB is formed, the parties shall execute the agreement set forth in subsection 105.23(m).

2. If the Dispute has a value of \$250,000 or less, the On Demand DRB shall have one member. The Contractor and CDOT shall select the DRB member and execute the Three-Party Agreement within 30 days of initiating the DRB process. If the parties do not agree on the DRB member, each shall select five candidates. Each party shall numerically rank their list using a scale of one to five, with one being their first choice and five being their last choice. If common candidates are listed, but the parties cannot agree, the common candidate with the lowest combined numerical ranking shall be selected. If there is no common candidate, the lists shall be combined, and each party shall eliminate three candidates from the list. Each party shall then numerically rank the remaining candidates, with Number 1 being the first choice. The candidate with the lowest combined numerical ranking shall be the DRB member. The CDOT Project Engineer will be responsible for having all parties execute the agreement.
3. If the Dispute has a value over \$250,000, the On Demand DRB shall have three members. The Contractor and CDOT shall each select a member, and those two members shall select a third. Once the third member is approved, the three members will nominate one of them to be the Chair and execute the Three-Party Agreement within 45 days of initiating the DRB process.
4. The Standing DRB shall always have three members. The Contractor and CDOT shall each select a member, and those two members shall select a third member. Once the third member is approved, the three members will nominate one of them to be the Chair. The Contractor and CDOT shall submit their proposed Standing DRB members within five days of execution of the Contract. The third member shall be approved before the Pre-construction Conference. The third member shall be selected within 15 days of the execution of the Contract. Before construction starts, the parties shall execute the Three-Party Agreement. The CDOT Project Engineer will be responsible for having all parties execute the agreement. The Project Engineer will invite the Standing DRB members to the Pre-construction and any Project First conferences.
5. DRB members shall not have been involved in the administration of the project under consideration. CDOT and the Contractor shall inform their selected DRB member who the major firms/people are on the project and request their selected DRB member to review the CDOT disclosure requirements and Canon of Ethics and then submit a disclosure statement, which shall also be submitted to the other party. DRB candidates shall complete the DRB Disclosure

Revision of Section 105 Dispute Resolution

Requirements and DRB Nominee Disclosure Form and disclose to the parties the following relationships:

- (1) Prior employment with either party
- (2) Prior or current financial interests or ties to either party
- (3) Prior or current professional relationships with either party
- (4) Anything else that might bring into question the impartiality or independence of the DRB member.
- (5) Before agreeing to serve on a DRB, members shall notify all parties of any other CDOT DRB's they are serving or that they will be participating in another DRB.

If either party objects to the selection of the chair or other DRB members based on the disclosures, or based on information not disclosed, which might bring into question the impartiality, independence, or performance of the potential member, that potential member shall not be placed on the Board.

6. There shall be no ex parte communications with the DRB at any time.
7. The service of a Board member may be terminated only by written agreement of both parties.

(c) If a Board member resigns, is unable to serve, or is terminated, a new Board member shall be selected within 30 days in the same manner as the Board member who was removed was originally selected.

(d) *Additional Responsibilities of the Standing Disputes Review Board*

1. General. No later than 10 days after the Three-Party Agreement has been signed by the Chief Engineer, the DRB will coordinate with the parties on the date and location of the initial DRB meeting.
 - (1) Obtain copies of the Contract documents and the Contractor's schedules for each of the Board members.
 - (2) Agree on the location of future meetings, which shall be reasonably close to the project site.
 - (3) Establish an address and telephone number for each Board member for the purposes of Board business.
2. Regular meetings. Regular meetings of the Board shall be held approximately every 120 to 180 days throughout the life of the Contract, except that this schedule may be modified to suit developments on the job as the work

Revision of Section 105 Dispute Resolution

progresses. Regular meetings shall be attended by representatives of the Contractor and the Department.

3. The Board shall establish an agenda for each meeting, which will cover all items that the Board considers necessary to keep it abreast of the project, such as construction status, schedule, potential problems and solutions, status of past Claims and Disputes, and potential Claims and Disputes. Copies of each agenda shall be submitted to the Contractor and the Department at least seven days before the meeting date. Oral or written presentations or both shall be made by the Contractor and the Department as necessary to give the Board all the data the Board requires to perform its functions. The Board will prepare minutes of each meeting, circulate them to all participants for comments and approval, and issue revised minutes before the next meeting. As a part of each regular meeting, a field inspection trip of all active segments of the work at the project site may be made by the Board, the Contractor, and the Department.

4. Advisory Opinions

- (1) Advisory opinions are typically used soon after the parties find they have a potential Dispute and have conducted preliminary negotiations, but before expenditure of additional resources and hardening their positions. Advisory opinions provide quick insight into the DRB's likely assessment of the Dispute. This process is quick and may be entirely oral, and does not prejudice the opportunity for a DRB hearing.
- (2) Both parties must agree to seek an advisory opinion and notify the chairperson. The procedure for requesting and issuing advisory opinions should be discussed with the DRB at the first meeting with the parties.
- (3) The DRB shall issue a one-page written opinion within 5 days of the hearing.
- (4) The opinion is only advisory and does not require acceptance or rejection by either party. If the Dispute is not resolved and a hearing is held, the oral presentations and advisory opinion are completely disregarded, and the DRB hearing procedure is followed.

- (5) Advisory opinions should be limited to Merit Issues only.

(e) Arranging a Dispute Review Board Hearing. When the Project Engineer initiates the DRB review process, the Project Engineer will:

1. Contact the Contractor and the DRB to coordinate an acceptable hearing date and time. The hearing shall be held at the Resident Engineer's office unless an alternative location is agreed to by both parties. Unless otherwise agreed to by both parties, an On Demand DRB hearing will be held within 30 days after the Three-Party Agreement is signed by the CDOT Chief Engineer. Unless

Revision of Section 105 Dispute Resolution

otherwise agreed to by both parties, a Standing DRB hearing will be held within 30 days after the DRB has been requested per subsection 105.23(a).

2. Ensure DRB members have copies of all documents previously prepared by the Contractor and CDOT pertaining to the Dispute, the DRB request, the Contract documents, and the special provisions at least two weeks before the hearing.

(f) *Pre-Hearing Submittal.* All Pre-hearing Submittals shall include only arguments, supporting documentation, Quantum, and other information as previously submitted in writing and as previously disputed in the formal Dispute process covered in subsections 105.22(b), (c), (d), and (e). All Pre-hearing Submittals planned to be used at the hearing shall be submitted to the other party 35 days before the hearing for review for compliance with this requirement. If either party contends there are new arguments, supporting documents, new Quantum, or any new information in a pre-hearing Submittal, and the other party objects to this information being presented to the DRB, the objecting party shall submit its objections in writing to the other party within 10 days. The parties shall meet within five days to reconcile the objection before the submittal is submitted to the DRB. If the parties cannot reconcile the objection, but the new argument, supporting documentation, new Quantum, or new information does not change either party's position on Merit or Quantum, the information shall be allowed in the Pre-hearing submittal and presented to the DRB. If the parties cannot reconcile the objections within the five days allowed, each party shall submit a one-page brief on their objections, but not the actual information objected to, to the DRB for a decision on the use of the documents. The DRB shall not approve any information simply because it is relevant to the Dispute or referenced during the Dispute. Neither party shall attempt to present anything to the DRB that they did not present to the other party during the Dispute process. The Dispute process shall be delayed while this determination is being made and a new hearing date set, if necessary. Pre-hearing Submittals to the DRB are as follows:

1. **Joint Statement:** At least 20 days before the hearing, the Joint Statement(s) shall be submitted to the DRB. The parties shall make every attempt to agree upon a Joint Statement of the Dispute. If the parties cannot agree on the Joint Statement, each party's independent statement shall be submitted to the DRB. The Joint Statement shall summarize, in a few sentences, the nature of the Dispute(s) and the scope of the desired decision.
2. **Position Paper:** At least 15 days before the hearing, CDOT and the Contractor shall submit by email to the DRB Chairperson their party's Position Paper. The DRB Chairperson shall simultaneously distribute by email the Position Papers to

Revision of Section 105 Dispute Resolution

all parties and other DRB members, if any. The Position Paper shall contain the following:

- (1) The basis and justification for the party's position, with reference to specific contract language and the supporting documents of each element of the Disputes.
 - (2) A list of proposed attendees for the hearing. In the event of any objection by a party, the DRB shall make a final determination as to who attends the hearing.
 - (3) When the scope of the hearing includes Quantum, full cost details will be calculated per the methods set forth in subsection 105.24(b)12. The Scope of the hearing will not include Quantum if CDOT has requested an audit that has not been completed.
3. **Supporting Documents:** At least 15 days before the hearing, each party shall submit a copy of all its supporting documents to the DRB and the other party. Supporting documents include any presentations, visuals, or handouts planned to be used at the hearing. To minimize duplication and repetitiveness, the parties are encouraged to identify a common set of documents that will be referred to by both parties and submit them in a separate package to the DRB at least 20 days before the hearing. Common documents are communications between parties, speed memos, change orders, schedules, request for equitable adjustment, correspondence, and any document used in the subsection 105.22 process. CDOT shall submit the common set of documents to the Board and the Contractor.
4. If relevant to the Dispute and requested by the Board, the Engineer shall provide to the DRB either website links, electronic PDFs, or hard copies of pertinent contract documents such as plans, specifications, and M and S Standards.
- (g) *Pre-Hearing Phone Conference.* A pre-hearing phone conference with all Board members and the parties shall be conducted as soon as a hearing date is established, but no later than 10 days before the hearing. The DRB Chairperson shall explain the specifics of how the hearing will be conducted, including how the two parties will present their information. (Ex. Each party makes a full presentation of their positions, or presentations will be made on a "point by point" basis, with each party making a presentation only on the individual dispute issue before moving onto the next Issue.)

If the pre-hearing position papers and documents have been received by the DRB before the conference call, the Chairperson shall discuss the estimated hours of review and activities for the Disputes (such as time spent evaluating and preparing

Revision of Section 105 Dispute Resolution

a recommendation on specific Issues presented to the DRB). If the pre-hearing position papers and documents have not been received by the Board before the conference call, another conference call will be scheduled during the initial conference call to discuss the estimated hours of review. The Engineer shall coordinate the conference call.

(h) Dispute Review Board Hearing. The DRB shall preside over a hearing. The chairperson shall control the hearing and conduct it as follows:

1. An employee of CDOT presents a brief description of the project and the status of construction on the project.
2. The party that requested the DRB presents the Dispute in detail as supported by previously submitted information and documentation in the pre-hearing position paper. No new information or Disputes will be heard or addressed by the DRB. Rebuttals of the other party's arguments shall not be presented at this time.
3. The other party presents its position in detail as supported by previously submitted information and documentation.
4. The party that requested the DRB presents their rebuttals, followed by the other party's rebuttals.
5. Upon completion of their presentations and rebuttals, both parties and the DRB will be provided the opportunity to exchange questions and answers. Questions from the parties shall be directed to the Chairperson. Attendees may respond only when board members request a response.
6. Employees of each party are responsible for leading presentations at the DRB hearing.
7. Attorneys shall not participate in the hearing unless the DRB specifically addresses an Issue to them or unless agreed to by both parties. Should the parties disagree on attorney participation, the DRB shall decide on what, if any, participation will be permitted. Attorneys representing the parties are permitted to attend the hearing, provided their presence has been noted in the pre-hearing submittal.
8. Either party may use experts only if the expert has previously presented to the other party before the DRB process. A party intending to offer an outside expert's analysis at the hearing shall disclose such intention in the pre-hearing position paper. The expert's name and a general statement of the area of the Dispute that will be covered by his presentation shall be included in the disclosure. The other party may present an outside expert to address or respond to those Issues that may be raised by the disclosing party's outside expert.

Revision of Section 105 Dispute Resolution

9. If both parties approve, the DRB may retain an outside expert. The DRB chairperson shall include the cost of the outside expert in the DRB's regular invoice. CDOT and the Contractor shall equally bear the cost of the services of the outside expert employed by the DRB.
 10. If either party attempts to present an argument, documentation, Quantum, or new information that the other party feels was not in the Pre-hearing submittals, the chairperson shall require the party to demonstrate where in the Pre-hearing submittals the information in question resides.
 11. If either party fails to timely deliver a position paper, the DRB may reschedule the hearing one time. On the final date and time established for the hearing, the DRB shall proceed with the hearing using the information that has been submitted.
 12. If a party fails to appear at the hearing, the DRB shall proceed as if all parties were in attendance.
- (i) *Dispute Review Board Recommendation.* The DRB shall issue a Recommendation per the following procedures:
1. The DRB shall not make a recommendation on the Dispute at the meeting. Before the closure of the hearing, the DRB members and the Contractor and CDOT together will discuss the time needed for analysis and review of the Dispute and the issuance of the DRB's recommendation. The maximum time shall be 30 days unless otherwise agreed to by both parties.
 2. After the meeting has been closed, the DRB shall prepare a written Recommendation signed by each member of the DRB. In the case of a three-member DRB where one member dissents, that member shall prepare a written dissent and sign it. The DRB's recommendation shall include the following:
 - A. A summary of the Issues and factual evidence presented by the Contractor and CDOT concerning the Dispute.
 - B. Recommendations concerning the validity of the Dispute.
 - C. Recommendations concerning the value of the Dispute as to cost impacts if the Dispute is determined to be valid.
 - D. The contractual and factual bases supporting the recommendation(s) made, including an explanation as to why each and every position was accepted or rejected.
 - E. Detailed and supportable calculations that support any recommendation(s).

Revision of Section 105 Dispute Resolution

3. The chairperson shall transmit the signed Recommendation and any supporting documents to both parties.

- (j) *Clarification and Reconsideration of Recommendation.* Either party may request in writing clarification or reconsideration of a decision within 10 days following receipt of the Recommendation. Within 10 days after receiving the request, the DRB shall provide written clarification or reconsideration to both parties.

Requests for clarification or reconsideration shall be submitted in writing simultaneously to the DRB and the other party.

The Board shall not accept requests for reconsideration that amount to a renewal of a prior argument or additional argument based on facts available at the time of the hearing. The Board shall not consider any documents or arguments that have not been made a part of the pre-hearing submittal, other than clarification and data supporting previously submitted documentation.

Only one request for clarification or reconsideration per Dispute from each party will be allowed.

- (k) *Acceptance or Rejection of Recommendation.* CDOT and the Contractor shall submit their written acceptance or rejection of the Recommendation, in whole or in part, concurrently to the other party and the DRB within 14 days after receipt of the Recommendation or following receipt of responses to requests for clarification or reconsideration.

If the parties accept the Recommendation or a discreet part thereof, it will be implemented per subsections 108.08, 109.04, 109.05, or 109.10 and the Dispute is resolved.

If either party rejects the Recommendation in whole or in part, it shall give a written explanation to the other party and the DRB within 14 days after receiving the Recommendation. When the Recommendation is rejected in whole or in part by either party, the other party may either abandon the Dispute or pursue a formal Claim per subsection 105.24.

If either party fails to submit its written acceptance or rejection of the Dispute Board's recommendation, according to these specifications, such failure shall constitute that party's acceptance of the Board's recommendation.

- (l) *Admissibility of Recommendation.* Recommendations of a DRB issued per subsection 105.23 are admissible in subsequent proceedings but shall be prefaced with the following paragraph:

This Recommendation may be taken under consideration with the understanding that:

Revision of Section 105 Dispute Resolution

1. The DRB Recommendation was a proceeding based on presentations by the parties.
2. No fact or expert witnesses presented sworn testimony or were subject to cross-examination.
3. The parties to the DRB were not provided with the right to any discovery, such as the production of documents or depositions.
4. There is no record of the DRB hearing other than the Recommendation.

(m) *Cost and Payments.*

1. General Administrative Costs. The Contractor and the Department shall equally share the entire cost of the following to support the Board's operation:
 - (1) Copies of the Contract and other relevant documentation
 - (2) Meeting space and facilities
 - (3) Secretarial services
 - (4) Telephone
 - (5) Mail
 - (6) Reproduction
 - (7) Filing
2. The Department and the Contractor shall bear the costs and expenses of the DRB equally. Each DRB board member shall be compensated at an agreed rate of \$1,200 per day if time spent on-site per meeting is greater than four hours. Each DRB board member shall be compensated at an agreed rate of \$800 per day if the time spent on-site per meeting is less than or equal to four hours. The time spent traveling to and from each meeting shall be reimbursed at \$50 per hour if the travel distance is more than 50 miles. The agreed daily and travel time rates shall be considered full compensation for on-site time, travel expenses, transportation, lodging, time for travel of more than 50 miles, and incidentals for each day, or portion thereof, that the DRB member is at an authorized DRB meeting. No additional compensation will be made for time spent by DRB members in review and research activities outside the official DRB meetings unless that time (such as time spent evaluating and preparing recommendations on specific Issues presented to the DRB) has been specifically agreed to in advance by the Department and Contractor. Time away from the project that has been specifically agreed to in advance by the parties will be compensated at an agreed rate of \$125 per hour. The agreed amount of \$125 per hour shall include all incidentals. Members serving on more than one DRB, regardless of the number of meetings per day, shall not be paid more than the all-inclusive rate per day or rate per hour for an individual project.

Revision of Section 105 Dispute Resolution

3. Payments to Board Members and General Administrative Costs. Each Board member shall submit an invoice to the Contractor for fees and applicable expenses incurred each month following a month in which the Board members participated in Board functions. Such invoices shall be in the format established by the Contractor and the Department. The Contractor shall submit to the Department copies of all invoices. No markups by the Contractor will be allowed on any DRB costs. The Department will split the cost by authorizing a 50 percent payment on the next progress payment. The Contractor shall make all payments in full to Board members within seven calendar days after receiving payment from the Department for this work.

(m) Dispute Review Board Three Party Agreement.

DISPUTE REVIEW BOARD THREE PARTY AGREEMENT COLORADO PROJECT NUMBER
THIS THREE-PARTY AGREEMENT, made as of the date signed by the Chief Engineer below, by and between: the Colorado Department of Transportation, hereinafter called the "Department"; and _____, hereinafter called the "Contractor"; and _____, _____, _____, and _____. hereinafter called the "Dispute Review Board" or "Board". WHEREAS, the Department is now engaged in the construction of the [Project Name] _____ and WHEREAS, the Contract provides for the establishment of a Board in accordance with subsections 105.22 and 105.23 of the specifications.

Revision of Section 105 Dispute Resolution

NOW, THEREFORE, it is hereby agreed:

ARTICLE I

DESCRIPTION OF WORK AND SERVICES

The Department and the Contractor shall form a Board in accordance with this agreement and the provisions of subsection 105.23.

ARTICLE II

COMMITMENT ON THE PART OF THE PARTIES HERETO

The parties hereto shall faithfully fulfill the requirements of subsection 105.23 and the requirements of this agreement.

ARTICLE III

COMPENSATION

The parties shall share equally in the cost of the Board, including general administrative costs (meeting space and facilities, secretarial services, telephone, mail, reproduction, and filing) and the member's individual fees. Reimbursement of the Contractor's share of the Board expenses for any reason is prohibited.

The Contractor shall make all payments in full to the Board members. The Contractor shall submit to the Department an itemized statement for all such payments, and the Department will split the cost by including a 50 percent payment on the next progress payment. The Contractor and the Department will agree to accept invoiced costs prior to payment by the Contractor.

Board members shall keep all fee records pertaining to this agreement available for inspection by representatives of the Department and the Contractor for a period of three years after the termination of the Board members' services.

Payment to each Board member shall be at the fee rates established in subsection 105.23 and agreed to by each Board member, the Contractor, and the Department. In addition, reimbursement will be made for applicable expenses.

Each Board member shall submit an invoice to the Contractor for fees incurred each month following a month in which the member participated in Board functions. Such invoices shall be in the format established by the Contractor and the Department.

Payments shall be made to each Board member within 60 days after the Contractor and Department have received all the applicable billing data and verified the data submitted by that member. The Contractor shall make payment to the Board member within seven calendar days of receipt of payment from the Department.

DISPUTE REVIEW BOARD

THREE PARTY AGREEMENT PAGE 2

COLORADO PROJECT NUMBER

ARTICLE IV

ASSIGNMENT

Board members shall not assign any of the work to be performed by them under this agreement. Board members shall disclose any conflicts of interest, including but not limited to any dealings

Revision of Section 105 Dispute Resolution

with either party in the previous five years other than serving as a Board member under other contracts.

ARTICLE V

COMMENCEMENT AND TERMINATION OF SERVICES

The commencement of the services of the Board shall be in accordance with subsection 105.23 of the specifications and shall continue until all assigned Disputes under the Contract, which may require the Board's services, have been heard and a Recommendation has been issued by the Board as specified in subsection 105.23. If a Board member is unable to fulfill his responsibilities for reasons specified in subsection 105.23(b)7, he shall be replaced as provided therein, and the Board shall fulfill its responsibilities as though there had been no change.

ARTICLE VI

LEGAL RELATIONS

The parties hereto mutually agree that each Board member in performance of his duties on the Board is acting as an independent contractor and not as an employee of either the Department or the Contractor. Board members will guard their independence and avoid any communication about the substance of the Dispute without both parties being present.

The Board members are absolved of any personal liability arising from the Recommendations of the Board. The parties agree that members of the Dispute review board panel are acting as mediators for purposes of C.R.S. § 13-22-302(4) and, as such, the liability of any Dispute review board member shall be limited to willful and wanton misconduct as provided for in C.R.S. § 13-22-305(6).

Board members shall not be called as witnesses for future litigation.

IN WITNESS HEREOF, the parties hereto have caused this agreement to be executed the day and year written below.

BOARD MEMBER: _____
_____.

BY: _____
_____.

BOARD MEMBER: _____
_____.

BY: _____
_____.

BOARD MEMBER: _____
_____.

BY: _____
_____.

CONTRACTOR: _____
_____.

BY: _____

Revision of Section 105 Dispute Resolution

TITLE: _____
COLORADO DEPARTMENT OF TRANSPORTATION
BY: _____
. DATE: _____,
TITLE: CHIEF ENGINEER

105.24 Claims for Unresolved Disputes. The Contractor may file a Claim only if the Disputes resolution process described in subsections 105.22 and 105.23 has been exhausted without resolution of the Dispute. Other methods of nonbinding Dispute resolution, exclusive of litigation, can be used if agreed to by both parties.

This subsection applies to any unresolved Dispute or set of Disputes between CDOT and the Contractor with an aggregate value of more than \$15,000. Unresolved Disputes with an aggregate value of more than \$15,000 from subcontractors, materials suppliers, or any other entity not a party to the Contract shall be submitted through the Contractor per this subsection as a pass-through Claim. Review of a pass-through Claim does not create privity of Contract between CDOT and any other entity.

Subsections 105.22, 105.23, and 105.24 provide both contractual alternative Dispute resolution processes and constitute remedy-granting provisions pursuant to Colorado Revised Statutes (CRS), which must be exhausted in their entirety.

Litigation proceedings must commence within 180 calendar days of the Chief Engineer's decision, absent a written agreement otherwise by both parties.

The venue for all unresolved Disputes with an aggregate value of \$15,000 or less shall be the County Court for the City and County of Denver.

Non-binding Forms of alternative Dispute resolution, such as Mediation, are available upon mutual agreement of the parties for all Claims submitted per this subsection.

The cost of the non-binding ADR process shall be shared equally by both parties, with each party bearing its own preparation costs. The type of nonbinding ADR process shall be agreed upon by the parties and shall be conducted within the State of Colorado at a mutually acceptable location. Participation in a nonbinding ADR process does not in any way waive the requirement that litigation proceedings must commence within 180 calendar days of the Chief Engineer's decision, absent written agreement otherwise by both parties.

Revision of Section 105 Dispute Resolution

(a) *Notice of Intent to File a Claim.* Within 30 days after rejection of the Dispute Resolution Board's Recommendation issued per subsection 105.23, the Contractor shall provide the Region Transportation Director (RTD) with a written notice of intent to file a Claim. The Contractor shall also send a copy of this notice to the Resident Engineer. For the purpose of this subsection, Region Transportation Director shall mean the Region Transportation Director or the Region Transportation Director's designated representative. CDOT will acknowledge in writing receipt of the Notice of Intent within seven days.

(b) *Claim Package Submission.* Within 60 days after submitting the notice of intent to file a Claim, the Contractor shall submit, to the RTD, five copies of a complete Claim package representing the final position the Contractor wishes to have considered. All Claims shall be in writing and in sufficient detail to enable the RTD to ascertain the basis and amount of the Claim. The Claim package shall include all documents supporting the Claim, regardless of whether such documents were provided previously to CDOT.

If requested by the Contractor, the 60-day period may be extended by the RTD in writing before final acceptance. At a minimum, the following information shall accompany each Claim:

1. A claim certification containing the following language, as appropriate:

A. For a direct Claim by the Contractor:

CONTRACTOR'S CLAIM CERTIFICATION

Under penalty of law for perjury or falsification, the undersigned, _____ (name)
, _____ (title) _____ of _____ (company) _____,
hereby certifies that the Claim of \$ _____ for extra compensation and _____ Days
additional time, made for work on this Contract is true to the best of my knowledge and
belief and supported under the Contract between the parties.

This Claim package contains all available documents that support the Claims made, and I
understand that no additional information, other than for clarification and data supporting
previously submitted documentation, may be presented by me.

Dated _____ /s/ _____

Subscribed and sworn before me this _____ day of _____
_____.

NOTARY PUBLIC

My Commission Expires: _____

Revision of Section 105 Dispute Resolution

B. For a pass-through Claim:

PASS-THROUGH CLAIM CERTIFICATION

Under penalty of law for perjury or falsification, the undersigned, _____ (name),
, (title) _____, of _____ (company)
, hereby certify that the Claim of \$ _____ for extra compensation and _____ Days
additional time, made for work on this Project is true to the best of my knowledge and belief
and supported under the Contract between the parties.

This Claim package contains all available documents that support the claims made and I
understand that no additional information, other than for clarification and data supporting
previously submitted documentation, may be presented by me.

Dated _____ /s/ _____

Subscribed and sworn before me this _____ day of _____ .

NOTARY PUBLIC

My Commission Expires: _____

Dated _____ /s/ _____

The Contractor certifies that this Claim, being passed through to CDOT is passed through in
good faith and is accurate and complete to the best of my knowledge and belief.

Dated _____ /s/ _____

Subscribed and sworn before me this _____ day of _____ .

NOTARY PUBLIC

My Commission Expires: _____

2. A detailed factual statement of the Claim for additional compensation, time, or both, providing all necessary dates, locations, and items of work affected by the Claim. The Contractor's detailed factual statement shall expressly describe the basis of the Claim and factual evidence supporting the Claim. This requirement is not satisfied by simply incorporating into the Claim package other documents that describe the basis of the Claim and supporting factual evidence.
3. The date on which facts were discovered that gave rise to the Claim.
4. The name, title, and activity of all known CDOT, Consultant, and other individuals who may be knowledgeable about facts giving rise to such Claim.
5. The name, title, and activity of all known contractors, subcontractors, suppliers, and other individuals who may be knowledgeable about facts giving rise to such Claim.

Revision of Section 105 Dispute Resolution

6. The specific provisions of the Contract, which support the Claim, and a statement of the reasons why such provisions support the Claim.
7. If the Claim relates to a decision of the Project Engineer, which the Contract leaves to the Project Engineer's discretion, the Contractor shall set out in detail all facts supporting its position relating to the decision of the Project Engineer.
8. The identification of any documents and the substance of all oral communications that support the Claim.
9. Copies of all known documents that support the Claim.
10. The Dispute Review Board Recommendation.
11. If an extension of contract time is sought, the documents required per subsection 108.08(d), along with a statement defining if any liquidated damages should be released, if applicable.
12. If additional compensation beyond the Contract Amount is sought, the exact amount sought and a breakdown of that amount into the following categories:
 - A. These categories represent the only costs that, if applicable, are recoverable by the Contractor. All other costs or categories of costs are not recoverable:
 - (1) Actual wages and benefits, including FICA, paid for additional labor.
 - (2) Costs for additional bond, insurance, and tax.
 - (3) Increased costs for materials.
 - (4) Equipment costs calculated per subsection 109.04(c) for Contractor-owned equipment and based on certified invoice costs for rented equipment.
 - (5) Costs of extended job site overhead (only applies if the Dispute also includes a time extension).
 - (6) Salaried employees assigned to the project (only applies if the Dispute also includes a time extension or if the Dispute required salaried employee(s) to be added to the Project).
 - (7) Claims from subcontractors and suppliers at any level (the same level of detail as specified is required for all such Claims).
 - (8) An additional 16 percent will be added to the total of items (1) through (7) as compensation for items for which no specific allowance is provided, including profit and home office overhead.

Revision of Section 105 Dispute Resolution

- (9) Interest shall be paid per CRS 5-12-102 beginning from the date of the Notice of Intent to File Claim.
- B. In adjustment for the costs as allowed above, the Department will have no liability for the following items of damages or expense:
- (1) Profit in excess of that provided in 12.A.(8) above.
 - (2) Loss of Profit.
 - (3) Additional cost of labor inefficiencies in excess of that provided in A. above.
 - (4) Home office overhead in excess of that provided in A. above.
 - (5) Consequential damages, including but not limited to loss of bonding capacity, loss of bidding opportunities, and insolvency.
 - (6) Indirect costs or expenses of any nature in excess of those provided in A. above.
 - (7) Attorney's fees, Claim preparation fees, and expert fees.
- (c) *Region Transportation Director Decision.* When the Contractor properly files a Claim, the RTD will review the Claim and render a written decision to the Contractor to either affirm or deny the Claim, in whole or in part, per the following procedure.
- The RTD may consolidate all related Claims on a project and issue one decision, provided that consolidation does not extend the time period within which the RTD is to render a decision. Consolidation of unrelated Claims will not be made. Within 15 days of the appeal, either party may submit a written request for a hearing with the RTD or duly authorized Region delegates.
- The RTD will render a written decision to the Contractor within 45 days after the receipt of the Claim package or receipt of the audit, or after the hearing, whichever is later. In rendering the decision, the RTD: (1) will review the information in the Contractor's Claim; (2) will conduct a hearing if requested by either party; and (3) may consider any other information available in rendering a decision.
- The RTD will assemble and maintain a Claim record comprised of all information physically submitted by the Contractor in support of the Claim and all other discoverable information considered by the RTD in reaching a decision. Once the RTD assembles the Claim record, the submission and consideration of additional information, other than for clarification and data supporting previously submitted documentation, at any subsequent level of review by anyone, will not be

Revision of Section 105 Dispute Resolution

permitted.

The RTD will provide a copy of the Claim record and the written decision to the Contractor, describing the information considered by the RTD in reaching a decision and the basis for that decision. If the RTD fails to render a written decision within the 45-day period, or within any extended time period as agreed to by both parties, the Contractor shall either: (1) accept this as a denial of the Claim, or (2) appeal the Claim to the Chief Engineer, as described in this subsection.

If the Contractor accepts the RTD decision, the provisions of the decision shall be implemented per subsections 108.08, 109.04, 109.05, or 109.10, and the Claim is resolved.

If the Contractor disagrees with the RTD decision, the Contractor shall either: (1) accept the RTD decision as final, or (2) file a written appeal to the Chief Engineer within 30 days from the receipt of the RTD decision. The Contractor hereby agrees that if a written appeal is not properly filed, the RTD decision is final.

(d) Chief Engineer Decision. When a Claim is appealed, the RTD will provide the Claim record to the Chief Engineer. Within 15 days of the appeal, either party may submit a written request for a hearing with the Chief Engineer or duly authorized Headquarters delegates. The Chief Engineer or a duly authorized Headquarters delegate will review the Claim and render a decision to affirm, overrule, or modify the RTD decision per the following.

The Chief Engineer will render a written decision within 45 days after receiving the written appeal. The Chief Engineer will not consider any information that was not previously made a part of the Claim record, other than clarification and data supporting previously submitted documentation.

The Contractor shall have 30 days to accept or reject the Chief Engineer's decision. The Contractor shall notify the Chief Engineer of its acceptance or rejection in writing.

If the Contractor accepts the Chief Engineer's decision, the provisions of the decision will be implemented per subsections 108.08, 109.04, 109.05, or 109.10 and the Claim is resolved.

If the Contractor disagrees with the Chief Engineer's decision, the Contractor shall either (1) pursue an alternative Dispute resolution process per this specification or (2) initiate litigation per subsection 105.24(e).

If the Chief Engineer does not issue a decision as required, the Contractor may immediately initiate litigation per subsection 105.24(e).

Revision of Section 105 Dispute Resolution

For the convenience of the parties to the Contract, it is mutually agreed by the parties that any Merit binding or De Novo litigation shall be brought within 180 calendar days from the date of the Chief Engineer's decision. The parties understand and agree that the Contractor's failure to bring suit within the time period provided shall be a complete bar to any such Claims or causes of action.

(e) *De Novo Litigation.* If the Contractor disagrees with the Chief Engineer's decision, the Contractor may initiate de novo litigation to finally resolve the Claim that the Contractor submitted to CDOT. Such litigation shall be strictly limited to those Claims that were previously submitted and decided in the contractual Dispute and Claims processes outlined. This does not preclude the joining in one litigation of multiple Claims from the same project, provided that each claim has gone through the Dispute and Claim process specified in subsections 105.22 through 105.24. The parties may agree, in writing, at any time, to pursue some other form of alternative dispute resolution.

Any offer made by the Contractor or the Department at any stage of the Claims process, as set forth in this subsection, shall be deemed an offer of settlement pursuant to Colorado Rule of Evidence 408 and therefore inadmissible in any litigation.

De novo litigation shall proceed per the Colorado Rules of Civil Procedure, and the proper venue is the Colorado State District Court in and for the City and County of Denver.

Figure 105-1 summarizes the disputes and claims process described in subsections 105.22, 105.23, and 105.24.

Note: If an audit is to be performed, durations in this flowchart are extended accordingly.

Revision of Section 105 Dispute Resolution

Figure 105-1 Disputes and Claims Flowchart

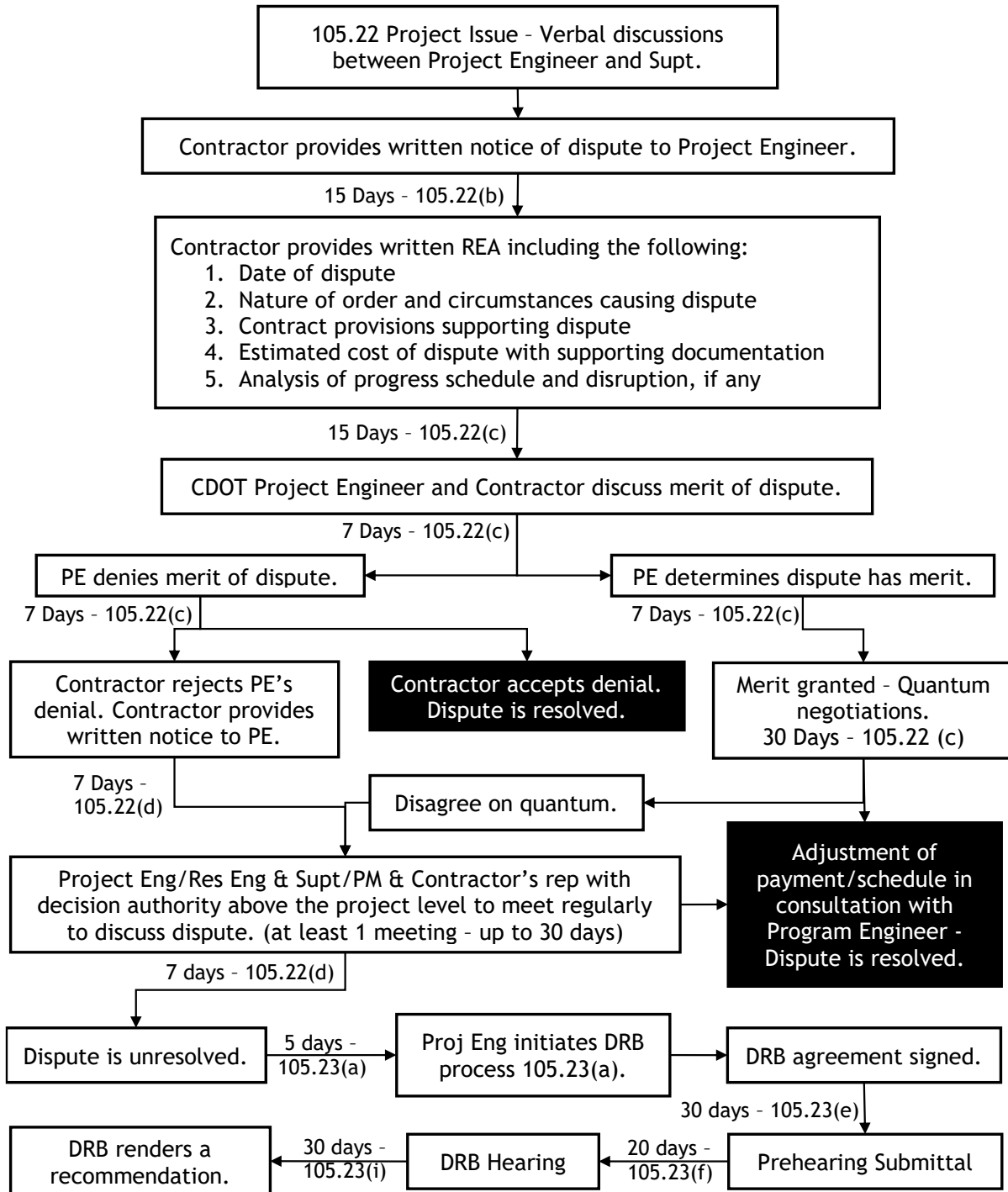
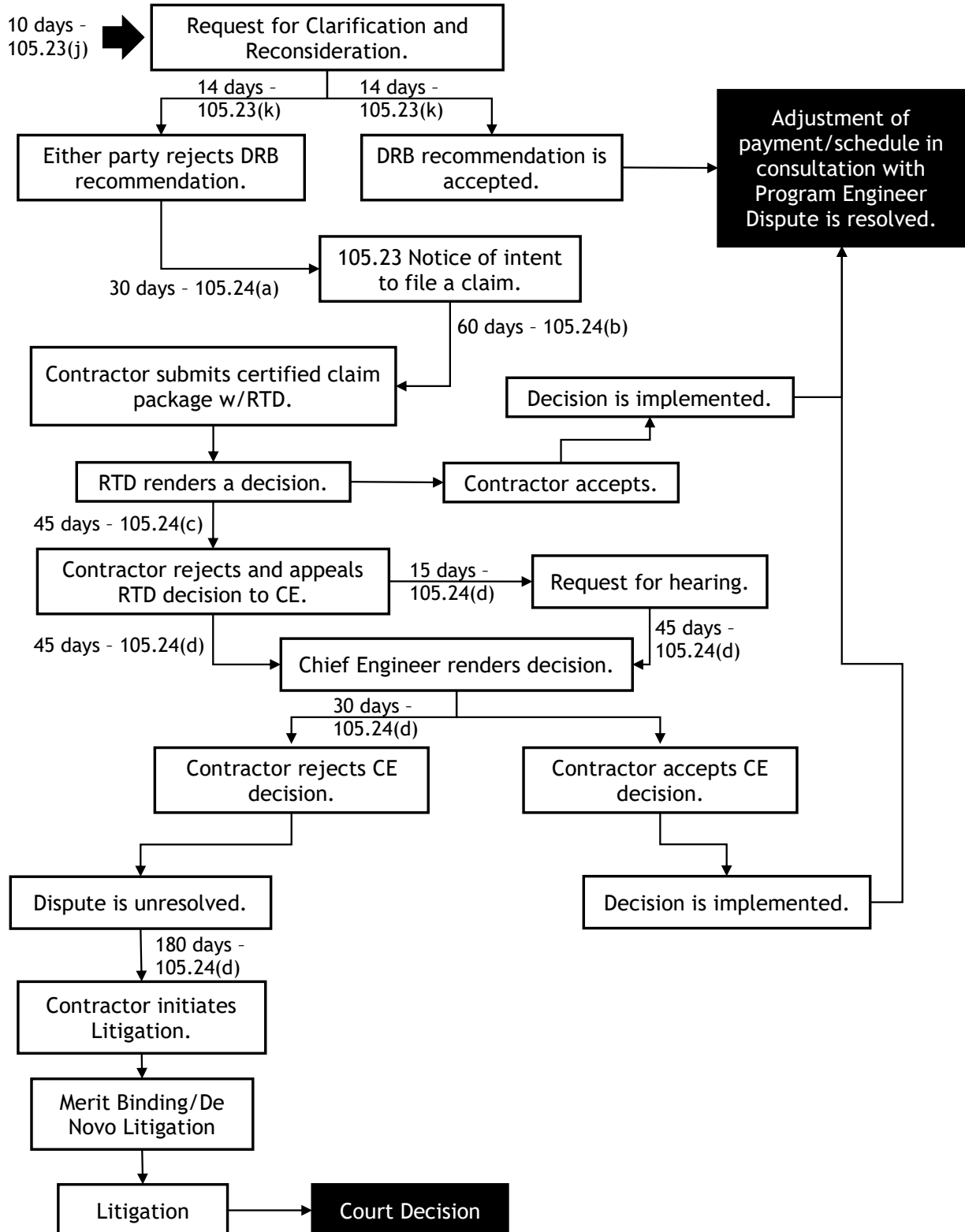


Figure 105-1 continued on next page

Revision of Section 105 Dispute Resolution



**Revision of Sections 105 and 106
Conformity to the Contract of Hot Mix Asphalt
(Voids Acceptance)**

Sections 105 and 106 of the Standard Specifications are hereby revised for this project as follows:

Delete subsection 105.05 and replace with the following:

105.05 Conformity to the Contract of Hot Mix Asphalt. Conformity to the Contract of all Hot Mix Asphalt, Item 403, except Hot Mix Asphalt (Patching) and temporary pavement will be determined by tests and evaluations of elements that include asphalt content, voids in the mineral aggregate, air voids, in-place density, and joint density in accordance with the following:

All work performed and all materials furnished shall conform to the lines, grades, cross sections, dimensions, and material requirements, including tolerances, shown in the Contract.

When the Engineer finds the materials or work furnished, work performed, or the finished product are not in conformity with the Contract and has resulted in an inferior or unsatisfactory product, the work or material shall be removed and replaced or otherwise corrected at the expense of the Contractor.

Materials will be sampled randomly and tested by the Department in accordance with subsection 106.05 and with the applicable procedures contained in the Department's Field Materials Manual. The approximate maximum quantity represented by each sample will be as set forth in subsection 106.05. Additional samples may be selected and tested as set forth in subsection 106.05 at the Engineer's discretion.

A process will consist of either a test value or a series of test values resulting from related tests of an element of the Contractor's work and materials. An element is a material and/or workmanship property that can be tested and evaluated for quality level by the Department approved sampling, testing, and analytical procedures. All materials produced will be assigned to a process of each element being tested and evaluated. A change in process is defined as a change that affects the element involved. For any element, with the exception of the joint density element, a process normally will include all produced materials associated with that element prior to a change in the job mix formula (Form 43). For joint density, a new process will be established for each new layer of pavement or for changes in joint construction. In-place density measurements taken within each compaction test section will be a separate process. The Engineer may separate a process in order to accommodate small quantities or unusual variations.

Evaluation of materials for pay factors (PF) will be done using only the Department's acceptance test results. Each process will have a PF computed in accordance with the requirements of this Section. Test results determined to have sampling or testing errors will not be used.

Except for in-place density measurements taken within a compaction test section, any test

Revision of Sections 105 and 106
Conformity to the Contract of Hot Mix Asphalt
(Voids Acceptance)

result for the asphalt content, in-place density and/or joint density element greater than the distance $2 \times V$ (see Table 105-2) outside the tolerance limits will be designated as a separate process and the quantity it represents will be evaluated in accordance with subsection 105.05(a). An element pay factor less than zero shall be zero. The calculated PF will be used to determine the Incentive/Disincentive Payment (I/DP) for the process in accordance with 105.05(e) Evaluation of Work.

Any test result for the air voids or VMA elements greater than the distance $2 \times V$ (see Table 105-2) outside the tolerance limits will be designated as a separate process and the quantity it represents shall be removed and replaced with specification material at the Contractor's expense.

In the case of in-place density or joint density, the Contractor will be allowed to core the exact location (or immediately adjacent location for joint density) of a test result more than $2 \times V$ outside the tolerance limit. The core must be taken and furnished to the Engineer within eight hours after notification by the Engineer of the test result. The result of this core will be used in lieu of the previous test result. Cores not taken within eight hours after notification by the Engineer will not be used in lieu of the test result. All costs associated with coring will be at the Contractor's expense.

(a) Representing Small Quantities. When it is necessary to represent a process by only one or two test results, PF will be the average of PFs resulting from the following:

If the test result is within the tolerance limits then $PF = 1.00$.

If the test result is above the maximum specified limit, then

$$PF = 1.00 - [0.25(T_0 - T_U)/V]$$

If the test result is below the minimum specified limit, then

$$PF = 1.00 - [0.25(T_L - T_0)/V]$$

Where: PF = pay factor.

V = V factor from Table 105-2.

T_0 = the individual test result.

T_U = upper specification limit.

T_L = lower specification limit.

If the pay factor of any of the above calculations is less than 0.75 for any element, the acceptance of the work will be evaluated according to subsection 105.05(e).

(b) Determining Quality Level. Each process with three or more test results will be evaluated for a quality level (QL) in accordance with Colorado Procedure 71.

(c) Joint Density Element. Joint density will be tested according to subsection 401.17.

(d) Process Pay Factor. Using the calculated QL for the process, compute the PF as follows:

Revision of Sections 105 and 106
Conformity to the Contract of Hot Mix Asphalt
(Voids Acceptance)

The final number of random samples (P_n) in each process will determine the final pay factor. As test values are accumulated for each process, P_n will change accordingly. When the process has *been* completed, the number of random samples it contains will determine the computation of PF, based on Table 105-3 and formula (1) below. When P_n is from 3 to 9, or greater than 200, PF will be computed using the formulas designated in Table 105-3. Where P_n is equal to or greater than 10 and less than 201, PF will be computed by formula (1):

$$PF = \frac{PF_1 + PF_2}{2} + \left[\frac{PF_2 + PF_3}{2} - \frac{PF_1 + PF_2}{2} \right] \cdot \frac{(Pn_2 - Pn_x)}{(Pn_2 - Pn_3)}$$

Formula (1)

Where, when referring to Table 105-3:

- PF_1 = PF determined at the next lowest P_n formula using process QL
- PF_2 = PF determined using the P_n formula shown for the process QL
- PF_3 = PF determined at the next highest P_n formula using process QL
- Pn_2 = the lowest P_n in the spread of values listed for the process P_n formula
- Pn_3 = the lowest P_n in the spread of values listed for the next highest P_n formula
- Pn_x = the actual number of test values in the process

When evaluating the item of Furnish Hot mix asphalt, the PF for the element of In-Place Density shall be 1.0.

Regardless of QL, the maximum PF in relation to P_n is limited in accordance with Table 105-3.

As test results become available, they will be used to calculate QL and PF numbers for each process. The process I/DP's will then be calculated and accumulated for each element and for the item. The test results and the accumulated calculations will be made available to the Contractor upon request.

Numbers from the calculations will be carried to significant figures and rounded according to AASHTO Standard Recommended Practice R-11, Rounding Method.

(e) *Evaluation of Work.* When the PF of a process is 0.75 or greater, the finished quantity of work represented by the process will be accepted at the appropriate pay factor. If the PF for the air voids or VMA elements within *any* process is less than 0.75, the Contractor shall remove and replace the material with specification material at the Contractor's expense. If PF for any other element within any process is less than 0.75, the Engineer may:

1. Require complete removal and replacement with specification material at the Contractor's expense,

or

**Revision of Sections 105 and 106
Conformity to the Contract of Hot Mix Asphalt
(Voids Acceptance)**

2. Where the finished product is found to be capable of performing the intended purpose and the value of the finished product is not affected, permit the Contractor to leave the material in place. If the material is permitted to remain in place, the PF for the process shall not be greater than 0.75. The Region Materials Engineer (RME) will be consulted prior to determining the material will be allowed to remain in place. The RME will also be consulted to assist in determining an appropriate pay factor.

When condition red, as described in subsection 106.05(g), exists for any element, resolution and correction will be in accordance with subsection 106.05(g). Material that the Engineer determines is defective may be isolated and rejected without regard to sampling sequence or location within a process.

If removal and replacement is required because the joint density PF for a process is below 0.75, the Contractor shall remove and replace the full lane width adjacent to and including at least six inches beyond the visible joint line for the entire length of joint representing the process. If the lane removed is adjacent to another joint, that joint shall also be removed to a point six inches beyond the visible joint line. When a single joint density core is more than 2V outside the tolerance limits, the removal and replacement limits shall be identified by coring the failing joint at 25 foot intervals until two successive cores are found to be 1V or less. Below the minimum tolerance limit. If removal and replacement is required, the Contractor shall submit documentation identifying the process to be used to correct the area in question. The process will be approved by the Engineer before commencing the corrective work.

Table 105-2

“W” And “V” Factors for Various Elements

Element	V Factor	W Factor
Asphalt Content	0.20	10
Voids in the Mineral Aggregate	0.60	10
Air Voids	0.60	30
In-place Density	1.10	35
Joint Density	1.60	15

Revision of Sections 105 and 106
Conformity to the Contract of Hot Mix Asphalt
(Voids Acceptance)

Table 105-3
Formulas for Calculating PF Based On PN

Pn	When Pn as shown at left is 3 to 9, or greater than 200, use designated formula below to calculate Pay Factor, PF = ..., when Pn is 10 to 200, use formula (1) above:	Maximum PF
3	$0.31177 + 1.57878 (QL/100) - 0.84862 (QL/100)^2$	1.025
4	$0.27890 + 1.51471 (QL/100) - 0.73553 (QL/100)^2$	1.030
5	$0.25529 + 1.48268 (QL/100) - 0.67759 (QL/100)^2$	1.030
6	$0.19468 + 1.56729 (QL/100) - 0.70239 (QL/100)^2$	1.035
7	$0.16709 + 1.58245 (QL/100) - 0.68705 (QL/100)^2$	1.035
8	$0.16394 + 1.55070 (QL/100) - 0.65270 (QL/100)^2$	1.040
9	$0.11412 + 1.63532 (QL/100) - 0.68786 (QL/100)^2$	1.040
10 to 11	$0.15344 + 1.50104 (QL/100) - 0.58896 (QL/100)^2$	1.045
12 to 14	$0.07278 + 1.64285 (QL/100) - 0.65033 (QL/100)^2$	1.045
15 to 18	$0.07826 + 1.55649 (QL/100) - 0.56616 (QL/100)^2$	1.050
19 to 25	$0.09907 + 1.43088 (QL/100) - 0.45550 (QL/100)^2$	1.050
26 to 37	$0.07373 + 1.41851 (QL/100) - 0.41777 (QL/100)^2$	1.055
38 to 69	$0.10586 + 1.26473 (QL/100) - 0.29660 (QL/100)^2$	1.055
70 to 200	$0.21611 + 0.86111 (QL/100)$	1.060
≥ 201	$0.15221 + 0.92171 (QL/100)$	1.060

(f) Process I/DP Computation.

$$I/DP = (PF - 1)(QR)(UP)(W/100)$$

Where: I/DP= Incentive/Disincentive Payment

PF = Pay Factor

QR = Quantity in Tons of HMA Represented by the Process

UP = Unit Bid Price of Asphalt Mix

W = Element Factor from Table 105-2

When AC is paid for separately UP shall be:

$$UP = [(Ton_{HMA})(UP_{HMA}) + (Ton_{AC})(UP_{AC})]/Ton_{HMA}$$

Revision of Sections 105 and 106
Conformity to the Contract of Hot Mix Asphalt
(Voids Acceptance)

Where: Ton_{HMA} = Tons of Asphalt Mix
 UP_{HMA} = Unit Bid Price of Asphalt Mix
 Ton_{AC} = Tons of Asphalt Cement
 UP_{AC} = Unit Bid Price of Asphalt Cement

For the Joint Density element:

$$UP = UP_{HMA}$$

Where: UP_{HMA} is as defined above.

When AC is paid for separately UP shall be:

$$UP = [(BTon_{HMA})(BUP_{HMA}) + (BTon_{AC})(BUP_{AC})]/BTon_{HMA}$$

Where: $BTon_{HMA}$ = Bid Tons of Asphalt Mix
 BUP_{HMA} = Unit Bid Price of Asphalt Mix
 $BTon_{AC}$ = Bid Tons of Asphalt Cement
 BUP_{AC} = Unit Bid Price of Asphalt Cement

- (g) *Element I/DP.* The I/DP for an element shall be computed by accumulating the process I/DP for that element.
- (h) *I/DP for a Mix Design.* The I/DP for a mix design shall be computed by accumulating the process I/DPs for the asphalt content, voids in the mineral aggregate, air voids, and in-place density elements for that mix design. The accumulated quantities of materials for each element must be the same at the end of I/DP calculations for a mix design.
- (i) *Project I/DP.* The I/DP for the project shall be computed by accumulating the mix design I/DP's and the joint density I/DP's. The accumulated quantities of materials for each element must be the same at the end of I/DP calculations for the project.

Delete subsection 106.05 and replace with the following:

106.05 Sampling and Testing of Hot Mix Asphalt. All HMA, Item 403, except HMA (Patching) and temporary pavement shall be tested in accordance with the following program of process control testing and acceptance testing:

- (a) *Process Control Testing.* The Contractor shall be responsible for process control testing on all elements listed in Table 106-1. Process control testing shall be performed at the expense of the Contractor. The Contractor shall develop a process control plan (PCP) in accordance with the following:
1. **Process Control Plan.** For each element listed in Table 106-1, the PCP must provide adequate details to ensure that the Contractor will perform process control. The Contractor shall submit the PCP to the Engineer at the preconstruction conference.

Revision of Sections 105 and 106
Conformity to the Contract of Hot Mix Asphalt
(Voids Acceptance)

The Contractor shall not start any work on the project until the Engineer has approved the PCP in writing.

- A. Frequency of Tests or Measurements. The PCP shall indicate a random sampling frequency, which shall not be less than that shown in Table 106-1. The process control tests shall be independent of acceptance tests.
 - B. Worksheets, Forms, and Charts. The Contractor shall submit examples of worksheets, test result forms, and test results charts in accordance with CP 12 as part of the PCP.
 - C. Test Result Chart. Each process control test result, the appropriate tonnage and the tolerance limits shall be plotted. For in-place density tests, only results after final compaction shall be shown. The chart shall be posted daily at a location convenient for viewing by the Engineer.
 - D. Quality Level Chart. The Quality Level (QL) for each element used to calculate incentive or disincentive in Table 106-1 and each required sieve size shall be plotted. The QL will be calculated in accordance with the procedure in CP 71 for Determining Quality Level (QL). The QL will be calculated on tests 1 through 3, then tests 1 through 4, then tests 1 through 5, then thereafter the last five consecutive test results. The tonnage of material represented by the last test result shall correspond to the QL. For in-place density tests, only results after final compaction shall be shown. The chart shall be posted daily at a location convenient for viewing by the Engineer.
2. Elements Not Conforming to Process Control. The QL of each discrete group of five test results, beginning with the first group of five test results, shall be a standard for evaluating material not conforming to process control. When the group QL is below 65, the process shall be considered as not conforming to the PCP. In this case, the Contractor shall take immediate action to bring the process back into control. Except where the cause of the problem is readily apparent and corrected without delay, production shall be suspended until the source of the problem is determined and corrected. A written explanation of actions taken to correct control problems shall accompany the test data and be submitted to the Engineer on the day the actions are taken.
 3. Point of Sampling. The material for process control testing shall be sampled by the Contractor using approved procedures. Acceptable procedures are Colorado Procedures, AASHTO and ASTM. The order of precedence is Colorado Procedures, AASHTO procedures and then ASTM procedures. The location where material samples will be taken shall be indicated in the PCP.
 4. Testing Standards. The PCP shall indicate which testing standards will be followed. Acceptable standards are Colorado Procedures, AASHTO and ASTM. The order of precedence is Colorado Procedures, AASHTO procedures and then ASTM procedures.

Revision of Sections 105 and 106
Conformity to the Contract of Hot Mix Asphalt
(Voids Acceptance)

5. **Testing Supervisor Qualifications.** The person responsible for the process control sampling and testing shall be identified in the PCP and be qualified according to the requirements of CP 10
 6. **Technician Qualifications.** Technicians taking samples and performing tests must be qualified according to the requirements of CP 10.
 7. **Testing Equipment.** All of the testing equipment used to conduct process control testing shall conform to the standards specified in the test procedures and be in good working order. Nuclear testing devices used for process control testing of in-place density do not have to be calibrated on the Department's calibration blocks.
 8. **Reporting and Record Keeping.** The Contractor shall report the results of the process control tests to the Engineer in writing at least once per day. The Contractor shall assemble a Process Control (PC) notebook and update it daily. This notebook shall contain all worksheets, test results forms, test results charts and quality level charts for each of the elements listed in Table 106-1. The Contractor shall submit the PC notebook to the Engineer for review once a month on the date agreed to at the Pre-Paving Conference. The PC notebook will be returned to the Contractor within one working day after submittal. The Engineer will notify the Contractor in writing of any deficiencies in the PC notebook, including the failure to submit the notebook on time or an absence of the required reports. Upon the second failure to submit the complete PC notebook on time or with an absence of the required reports, the Engineer will notify the Contractor, and the pay estimate will be withheld until the Contractor submits, in writing, a report detailing the cause for the failure to submit the complete PC notebook on time or the cause for the absence of required reports. The report shall include how the Contractor plans to resolve the failures. Additional failures to submit the PC notebook on time or absent the required reports will result in a delay of the pay estimate until the Contractor has identified and resolved the failure along with revising and resubmitting his PCP to address these issues. Once the Engineer has reviewed and approved the revised PCP the estimate may be paid. Upon submittal of the PC notebook for the semi-final estimate, the PC notebook shall become the property of the Department. The Contractor shall make provisions such that the Engineer can inspect process control work in progress, including PC notebook, sampling, testing, plants, and the Contractor's testing facilities at any time.
- (b) **Acceptance Testing.** Acceptance testing is the responsibility of the Department and shall not be addressed in the PCP. The Department will determine the locations where samples or measurements are to be taken and as designated in Section 403. The maximum quantity of material represented by each test result and the minimum number of test results will be in accordance with Table 106-1. The location or time of sampling will be based on a stratified random procedure as described in CP 75. Acceptance sampling and testing procedures will be in accordance with the Schedule for Minimum Materials Sampling, Testing and Inspection in the Department's Field Materials Manual. Samples for project acceptance testing shall be taken by the Contractor in accordance

Revision of Sections 105 and 106
Conformity to the Contract of Hot Mix Asphalt
(Voids Acceptance)

with the designated method. The samples shall be taken in the presence of the Engineer. Where appropriate, the Contractor shall reduce each sample to the size designated by the Engineer. The Contractor may retain a split of each sample which cannot be included as part of the PCP.

If the Contractor elects to question the Hot Mix Asphalt (HMA) acceptance test results, the steps outlined in CP 17 shall be followed. The results from the CP 17 resolution process shall be binding on both the Department and the Contractor. Requests for CP 17 process for all elements except density shall be submitted in writing to the Engineer within five working days from the date the Contractor receives acceptance test data from the Engineer. The specific element questioned shall be identified in writing. All requests for the CP 17 process for the density element shall be submitted in writing to the Engineer within 24 hours of receiving test data from the Engineer. The Contractor shall choose either the CDOT Materials and Geotechnical Branch or a consultant laboratory not associated with the project to perform the third party testing. The Contractor shall document his choice in writing at the Pre-Paving Conference. If a consultant laboratory is chosen, the CDOT Materials and Geotechnical Branch will determine the consultant that will be used from a pre-established list and ensure there is no conflict of interest. If third party testing is required, the responsibility for the testing expenses shall be assigned in accordance with CP 17. The costs for testing are shown in CP 17, Table 17-2.

All materials being used are subject to inspection and testing at any time prior to, during, or after incorporation into work. Acceptance tests will be made by and at the expense of the Department, except when otherwise provided.

- (c) *Check Testing Program (CTP)*. Prior to or in conjunction with placing the first 500 tons of asphalt pavement, under the direction of the Engineer, a CTP will be conducted between acceptance testing and process control testing programs. The CTP will consist of testing for asphalt content, theoretical maximum specific gravity, voids in the mineral aggregate, air voids, in-place density, and joint density in accordance with CP 13 of the Department's Field Materials Manual. The CTP will be continued until the acceptance and process control test results are within the acceptable limits shown in Table 13-1 of CP 13. For joint density, the initial check test will be a comparison of the seven cores tested by CDOT and the seven cores tested by the Contractor. These are the cores from the compaction test section used for nuclear gauge calibration and test section payment.

During production a split sample check will be conducted at the frequency shown in Table 106-1. Except for joint density, the split samples will be from an acceptance sample obtained in accordance with subsection 106.05(b). The acceptance test result will be compared to the process control test result obtained by the Contractor using the acceptable limits shown in Table 13-1 of CP 13. For joint density, the comparison sample material for testing by the Contractor will be obtained by taking a second core adjacent to the joint density acceptance core. The acceptance test result will be compared to the process control test result obtained by the Contractor using the acceptable limits shown in the above table and following the check testing procedure given in CP 13.

Revision of Sections 105 and 106
Conformity to the Contract of Hot Mix Asphalt
(Voids Acceptance)

If production has been suspended and then resumed, the Engineer may order a CTP between process control and acceptance testing persons to assure the test results are within the acceptable limits shown in Table 13-1 of CP 13. Check test results shall not be included in process control testing. The Region Materials Engineer shall be called upon to resolve differences if a CTP shows unresolved differences beyond the values shown in Table 13-1 of CP 13.

(d) *Stability Verification Testing.* After the mix design has been approved and production commences, the *Department* will perform a minimum of three stability verification tests to verify that the field produced Hot mix asphalt conforms to the approved mix design:

The test frequency shall be one per day unless otherwise directed by the Engineer.

The test results will be evaluated, and the Contractor shall adjust if required in accordance with the following:

1. The minimum value for stability will be the minimum specified in Table 403-1 of the specifications. There will be no tolerance limit.
2. Quality Level. Calculate a QL for stability.

If the QL for stability is less than 65, then production shall be halted, and the Contractor shall submit a written proposal for a mix design revision to the Engineer. The Engineer shall give written approval to the proposed mix design revision before production continues.

After a new or revised mix design is approved, three additional stability tests will be performed on asphalt produced with the new or revised mix design. The test frequency shall be one per day unless altered by the Engineer.

If the stability QL is less than 65, then production shall be halted until a new mix design has been completed and approved using plant produced material or the Contractor shall submit a written proposal for a mix design revision to the Engineer. The Engineer shall give written approval to the proposed mix design revision before production continues.

3. New or Revised Mix Design. Whenever a new or revised mix design is used and production resumes, three additional stability field verification tests shall be performed, and the test results evaluated in accordance with the above requirements. The test frequency shall be one per day unless altered by the Engineer.
4. Field Verification Process Complete. When the field verification process described above is complete and production continues, the sample frequency will revert back to 1/10,000 tons.

(e) *Target Values for VMA.* After the mix design has been approved and production commences, the first three *acceptance* tests for Voids in Mineral Aggregate (VMA) will be analyzed to verify and establish a target value for VMA. The Contractor shall adjust if required in accordance with the following: The target value for VMA will be the average

Revision of Sections 105 and 106
Conformity to the Contract of Hot Mix Asphalt
(Voids Acceptance)

of the first three volumetric field verification test results on project produced hot mix asphalt or the target value specified in Table 403-1 and Table 403-2 of the specifications, whichever is higher. The target value for VMA will be set no lower than 1.0 percent below the VMA target on original Form 43.

Whenever a new or revised mix design is used and production resumes, the next three acceptance tests will be evaluated and a target value for VMA will be established in accordance with the above requirements.

- (f) *Independent Assurance Testing.* Independent assurance testing for Asphalt Content and In-Place Density will be in accordance with the Department's Field Materials Manual. Independent assurance testing for Voids in the Mineral Aggregate and Air Voids will be performed by the Department's Flexible Pavement laboratory on samples sent from the field at a frequency of one per 10 000 tons.
- (g) *Reference Conditions.* Three reference conditions can exist determined by the Moving Quality Level (MQL). The MQL will be calculated in accordance with the procedure in CP 71 for Determining Quality Level (QL). The MQL will be calculated using only acceptance tests. The MQL will be calculated on tests 1 through 3, then tests 1 through 4, then tests 1 through 5, then thereafter on the last five consecutive test results. The MQL will not be used to determine pay factors. The three reference conditions and actions that will be taken are described as follows:
1. Condition green will exist for an element when an MQL of 90 or greater is reached, or maintained, and the past five consecutive test results are within the specification limits.
 2. Condition yellow will exist for all elements at the beginning of production or when a new process is established because of changes in materials or the job-mix formula, following an extended suspension of work, or when the MQL is less than 90 and equal to or greater than 65. Once an element is at condition green, if the MQL falls below 90 or a test result falls outside the specification limits, the condition will revert to yellow or red as appropriate.
 3. Condition red will exist for any element when the MQL is less than 65. The Contractor shall be notified immediately in writing and the process control sampling and testing frequency increased to a minimum rate of 1/250 tons for that element. The process control sampling and testing frequency shall remain at 1/250 tons until the process control QL reaches or exceeds 78. If the QL for the next five process control tests is below 65, production will be suspended.

After condition red exists, a new MQL will be started. Acceptance testing will stay at the frequency shown in Table 106-1. After three acceptance tests, if the MQL is less than 65, production will be suspended. Production will remain suspended until the source of the problem is identified and corrected. Each time production is suspended; corrective actions shall be proposed in writing by the Contractor and approved in writing by the Engineer before production may resume.

Revision of Sections 105 and 106
Conformity to the Contract of Hot Mix Asphalt
(Voids Acceptance)

Upon resuming production, the process control sampling and testing frequency for the elements causing the condition red shall remain at 1/250 tons. If the QL for the next five process control tests is below 65, production will be suspended again.

(h) *Correction Factor*. In determining the air voids and VMA in the materials compacted with the SuperPave Gyratory *Compactor* (SGC), the following correction for bulk specific gravity shall be performed during the CTP:

1. The difference in the average value of bulk specific gravity between the process control testing SGC and acceptance testing SGC will be determined and used as a correction factor for the process control bulk specific gravity.
2. This correction factor shall be used to correlate the process control SGC to the acceptance testing SGC for comparison of air voids and VMA during the CTP and full project production. Values in Table 13-1 of CP 13 apply to SGC comparison after correction factor has been applied.
3. This correction factor shall be applied in correlating the SGC's air voids and VMA test results from process control and acceptance testing to produce comparable data. Any changes in SGC equipment or in the mix design properties, specifically the number of gyrations, asphalt binder grade, aggregate gradation, combination of aggregates, and aggregate sources shall require a new correction factor to be determined under a CTP.

Example: If for the five CTP tests on split samples the process control SGC averages bulk specific gravity of 2.391 and the acceptance SGC averages 2.382, the correction factor would be -0.009 (2.382-2.391) to the process control bulk specific gravities. Each of the five process control CTP bulks would be decreased by 0.009 before CTP result comparison of voids and VMA is made. If the volumetric results satisfy Table 13-1 of CP 13, use corrected bulks to calculate voids and VMA for process control testing program.

If process control and acceptance SGCs are not from the same equipment manufacturer, project-specific material shall be used to perform the CTP and generate the correction factor.

**Revision of Sections 105 and 106
Conformity to the Contract of Hot Mix Asphalt
(Voids Acceptance)**

**Table 106-1
Schedule for Minimum Sampling and Testing**

Element	Process Control	Acceptance ◄	Check (CTP)
Determining Asphalt Content of Hot Bituminous Mixtures	1/500 tons	1/1000 tons*	1/10,000 tons
Theoretical Maximum Specific Gravity	1/1000 tons, minimum 1/day	1/1000 tons, minimum 1/day	1/10,000 tons
Voids in the Mineral Aggregate	1/1000 tons	1/1000 tons*	1/10,000 tons
Air Voids	1/1000 tons	1/1000 tons*	1/10,000 tons
Hveem Stability	1/10,000 tons	1/10,000 tons#	Not applicable.
Resistance to Moisture Damage (Lottman)	1/10,000 tons	According to subsection 401.02	Not applicable.
Gradation	1/10,000 tons	1/10 000 tons#	Not applicable.
Determining Percent Relative Compaction of Bituminous Pavement	1/500 tons*	1/500 tons*	1/5000 tons
Joint Density	1 core/2500 linear feet of joint	1 core/5000 linear feet of joint*	1 core/50,000 linear feet of joint
Aggregate Percent Moisture ►	1/2000 T or 1/Day if less than 2000 T	1/2000 T	Not applicable
Percent Lime ►, ▲	1/Day	Not applicable	Not applicable

Notes for Table 106-1:

* The minimum number of acceptance tests will be at least 5 asphalt content, 5 voids in the mineral aggregate, 5 air voids, 10-in-place density and 5 joint densities for all projects.

For information only. These elements are not used to calculate pay factors.

◄ When unscheduled job mix formula changes are made (Form 43) acceptance of the elements, except for in-place density, will be based on the actual number of samples that have been selected up to that time, even if the number is below the minimum listed in Table 106-1. At the Engineer's discretion, additional random in-place density test may be taken in order to meet scheduled minimums, provided the applicable pavement layer is available for testing under safe conditions. Beginning with the new job mix formula, the quantity it will represent shall be estimated. A revised schedule of acceptance tests will be based on that estimate.

► Not to be used for incentive/disincentive pay. Test according to CP 33 and report results from Form 106, Form 565 or Form 6.

▲ Verified per Contractor's PC Plan.

**Revision of Section 106
Buy America (BA) and Build America Buy America (BABA)
Requirements - Projects with more than \$500,000 in Federal-Aid
Highway Funding**

Section 106 of the Standard Specifications shall be revised as follows:

Delete Section 106.11(a) of the Standard Specifications and replace it with the following:

- (a) *Contractual Documents*. This specification shall be used in conjunction with the applicable version of the Special Notice to Contractors section of the CDOT Field Materials Manual (FMM), and the requirements therein, in effect at the time of bidding.

Delete Section 106.11(d) of the Standard Specifications and replace it with the following:

- d. *Manufactured Products*. Manufactured products used and permanently incorporated shall be produced in the United States. The manufactured product must meet the following:
1. Buy America requirements apply to any steel or iron component of a manufactured product, regardless of the overall composition of the manufactured product.
 2. Final assembly of the manufactured product must have occurred in the United States.

Before the permanent incorporation into the project and before payment for all manufactured products, the Contractor shall obtain a certification from the Manufacturer of the product, who has performed the final assembly of the product, and submit it to the Project Engineer. The certification shall attest that any iron/steel utilized in the manufactured product is compliant with Buy America requirements, and that the final assembly of the product occurred in the United States.

Revision of Section 106 Environmental Product Declarations

Section 106 of the Standard Specifications shall include the following:

106.14 Environmental Product Declarations (EPDs). The Buy Clean Colorado (BCCO) Act (C.R.S. 24-92-118) requires the Colorado Department of Transportation (CDOT) to establish the maximum acceptable Global Warming Potential (GWP) limit for each category of eligible materials that are used in the project. The Contractor shall comply with the following requirements and shall meet the established GWP limits.

(a) Definitions.

1. **Environmental Product Declaration (EPD).** A third-party verified document that summarizes the life cycle assessment (LCA) of a single material and publicly discloses its environmental impacts. EPDs enable comparisons between materials serving the same function but should not be used to compare dissimilar materials (for example, concrete and asphalt). An EPD shall consist of quantified environmental data using predetermined parameters and, where relevant, additional environmental information as defined by the International Organization for Standardization (ISO) (ISO, 2010). The environmental information of an EPD is subdivided into four life cycle stages being the production, construction, use and end-of-life stages. The life cycle stages are divided into modules. An EPD may cover different combinations of modules, in other words, cover different life cycle stages or parts thereof. EPDs covering modules (A1-A3) are referred to as cradle-to-gate EPDs and the associated emissions are often referred to as embodied carbon. Cradle-to-gate EPDs cover the mandatory production stage that includes the following information modules: extraction and upstream production (raw material supply) [A1], transport to factory [A2], and manufacturing [A3] (ISO, 2017). This specification refers to cradle-to-gate EPDs when EPDs are mentioned.

Types of EPDs (Carbon Leadership Forum, 2021)

- (1) **Facility-specific.** An EPD in which the environmental impacts can be attributed to a single manufacturer and manufacturing facility.
 - (2) **Product-specific.** An EPD that represents the impacts for a specific product and manufacturer, potentially across multiple facilities.
 - (3) **Supply-chain-specific.** An EPD that is product-specific and that uses supply chain-specific data in the LCA to model the impacts of key processes upstream in a product's supply chain. For example, cement in concrete or mill-specific production data for steel.
2. **Global Warming Potential (GWP).** A measure of how much energy the emission of 1 ton of a gas will absorb over a given period of time, relative to the emission of 1 ton of carbon dioxide (CO₂) (EPA).

Revision of Section 106 Environmental Product Declarations

3. Greenhouse Gas (GHG). Includes carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃) (C.R.S. 25-7-140).
4. International Organization for Standardization (ISO). An independent, non-governmental, international standard development organization composed of representatives from the national standards organizations of member countries (ISO Membership Manual).
5. Product Category Rule (PCR). A set of specific rules, requirements and guidelines for developing Type III environmental declarations for one or more product categories (ISO 14025).
6. Product Category. A group of products that can fulfill equivalent functions (ISO 14025).
7. Program Operator (PO). A body or bodies that conduct an EPD program. A program operator can be a company or a group of companies, an industrial sector or trade association, public authorities or agencies, or an independent scientific body or other organization (ISO 14025).

(b) *Eligible Material Categories.* Individual bid items requiring EPDs are detailed in Table 106-4. Eligible material categories include the following:

1. Asphalt and Asphalt Mixtures;
2. Cement and Concrete Mixtures;
3. Steel; and
4. Precast Concrete.

(c) *EPD Development Requirements.* The Contractor shall provide Environmental Product Declarations (EPDs) for eligible materials per Table 106-4 to be utilized on the project. EPDs shall meet the requirements listed below and as defined by the relevant ISO standards and material-specific Product Category Rules (PCRs) published by the Program Operators (POs) linked below.

1. Asphalt Mixtures:
 - (1) National Asphalt Pavement Association (NAPA) - PO & PCR Owner
www.asphaltpavement.org/programs/napa-programs/emerald-eco-label

Additional CDOT-specific requirements for developing an asphalt mixture EPD:

- (2) For the “Mix Name” field, use the same “Supplier Mix ID” that corresponds to the submittal of the mix design for CDOT approval.
- (3) For the “Specification Entity” field, enter “CDOT”.

Revision of Section 106 Environmental Product Declarations

- (4) For the “Specification” field, enter mix grading/and or type of asphalt mixture (for example, S, SX, ST, SMA, WMA), followed by the number of gyrations (for example, 75, 100), followed by the binder type of the asphalt mixture (for example, 58-28, 64-22, 76-28). The field should include the following, as an example: SX(100) PG 64-22.
- (5) If known, for the “Customer Number [project/contract]” field, enter the project’s contract ID.
- (6) Indicate if the plant is stationary or portable.
- (7) Asphalt EPDs shall be product- and facility-specific.

2. Cement:

- (1) NSF - PO & PCR Owner

<https://www.nsf.org/nsf-standards/product-category-rules>

Additional CDOT-specific requirements for developing a cement EPD:

- (2) Cement EPDs shall be product- and facility-specific.

3. Concrete Mixtures:

- (1) National Ready Mixed Concrete Association (NRMCA) - PO

<https://www.nrmca.org/association-resources/sustainability/environmental-product-declarations/>

- (2) NSF International - PCR Owner

<https://www.nsf.org/nsf-standards/product-category-rules>.

Additional CDOT-specific Requirements for developing a concrete mixture EPD:

- (3) EPDs shall explicitly list disaggregated results for the A1, A2, and A3 modules.
- (4) For the "Product" field, use the same "Supplier Mix ID" that corresponds to the submittal of the mix design for CDOT approval.
- (5) For the "Description" field, enter "CDOT" followed by the concrete class (for example, Class P, B, D, BZ, etc.). Any additional product details, such as compressive strength (PSI), air entrainment (A/E), or the inclusion of fly ash, etc., can be included if applicable. If applicable to the mix design, include “high early” or “optimized” in the description.
- (6) Include the address of the plant if not listed elsewhere in the EPD.
- (7) Indicate if the plant is stationary or portable.
- (8) Supply-chain specific EPDs including cement manufacturer-specific data shall be utilized in the concrete mixture EPD.
- (9) Concrete EPDs shall be product- and facility-specific.

Additional CDOT-specific requirements for concrete mixture EPD submission to CDOT for Approved Products List (APL) mix design approval:

- (10) Provide the specific plant name and location for the concrete supplier. If

Revision of Section 106 Environmental Product Declarations

this information is not available at the time of submission, report the plant that is most likely to be used.

- (11) Indicate the type of plant (stationary or portable) that will be used to manufacture the submitted mix design.

4. Steel:

- (1) UL Resources - PO & PCR Owner <https://www.ul.com/resources/product-category-rules-pcrs>

- (2) Steel EPDs shall be product- and facility-specific.

5. Precast Concrete:

- (1) NSF / ASTM - PO and PCR Owner
www.nsf.org/nsf-standards/product-category-rules
<https://www.astm.org/standards-and-solutions/certification/environmental-product-declarations/epd-pcr>

- (2) Precast EPDs shall be facility-specific.

- (d) *EPD Submittal Requirements.* The Contractor is responsible for verifying that all required EPDs for eligible materials used on the project have been submitted in accordance with this subsection and 106.14(f) of this specification.

All EPDs submitted shall be published and unredacted. EPD submittal requirements are outlined for each of the eligible material categories below.

1. Asphalt Mixtures:

- (1) EPDs shall be submitted via the EPD Submission Form at least 14 calendar days weeks prior to material placement.

2. Cement:

- (1) EPDs shall be submitted via the EPD Submission Form at least 14 calendar days prior to material placement.

3. Concrete Mixtures:

- (1) For project mix design submission, EPDs shall be submitted via the EPD Submission Form at least 14 calendar days prior to material placement.
(2) For pre-approval, mix design submission shall be accompanied by an EPD per CP 62 of the Field Materials Manual (FMM).

4. Steel:

- (1) EPDs shall be submitted via the EPD Submission Form at least 14 calendar days prior to material placement.

Revision of Section 106 Environmental Product Declarations

5. Precast Concrete:

- (1) EPDs shall be submitted via the EPD Submission Form at least 14 calendar days prior to material placement.

6. The EPD Submission Form is located at the following links or on the CDOT EPD webpage at www.codot.gov/business/designsupport/materials-and-geotechnical/epd

- (1) Jotform EPD Submission Form:

<https://form.jotform.com/251424918039055>

Table 106-4. Eligible Materials / Bid Items Requiring EPD Submittal

Item Number Category	Item Description	Included Item Number/Range #	Interpretation
206	Structure Backfill (Flow-Fill)	206-00065	EPDs for the flow-fill (concrete) design are required.
310	Hydraulic Cement	310-00900	EPDs for cement are required.
403*	Asphalt Mixtures (HMA/SMA/WMA)	403-09210 through 403-37751	If 411 - Asphalt Cement is paid separately, it shall be included in the 403 EPD submittal item.
412*	Portland Cement Concrete Pavement (PCCP)	412-00200 through 412-01500; 412-06060	Separate EPD submittals for concrete, dowel bar, and reinforcing steel items are required. If a prepackaged product is utilized an EPD is not required.
502	Piling	502-08250 through 502-14117	EPDs for steel piles are required.

**Revision of Section 106
Environmental Product Declarations**

Table 106-4 (Continued). Eligible Materials / Bid Items Requiring EPD Submittal

Item Number Category	Item Description	Included Item Number/Range #	Interpretation
503	Drilled Shafts	503-00012 through 503-00200	Separate EPD submittals for concrete and reinforcing steel items are required.
504	Walls	504-04420 through 504-04430	Separate EPD submittals for concrete and reinforcing steel items are required.
507	Slope & Ditch Paving	507-00000 through 507-00105	Separate EPD submittals for concrete and reinforcing steel items are required.
509	Structural Steel	509-00000 through 509-00010	EPDs for structural carbon steel, high-strength low-alloy structural steel, self-weathering tubing, and structural tubing are required.
601*	Concrete (All Classes)	601-01000 through 601-05900	If a prepackaged product is utilized an EPD is not required.
602	Reinforcing Steel	602-00000 through 602-00025	Separate EPD submittals for each mill supplying steel are required.
603	Reinforced Concrete Pipe/End Sections/Culverts	603-01120 through 603-01980; 603-02155 through 603-05172; 603-07150 through 603-07980; 603-70303 through 603-80800	EPDs for Precast Elements (both dry and wet-cast products) are required.

**Revision of Section 106
Environmental Product Declarations**

Table 106-4 (Continued). Eligible Materials / Bid Items Requiring EPD Submittal

Item Number Category	Item Description	Included Item Number/Range #	Interpretation
604	Inlets/Drainage Structures	604-00305 through 604-19515; 604-20000 through 604-39050; 604-50700 through 604-56000	Separate EPD submittals for concrete and reinforcing steel items for cast-in-place elements are required. EPDs for precast elements (finished products) are required.
606	Guardrail & Bridge Rail	606-00910 through 606-00944; 606-10900 through 606-10905	Separate EPD submittals for concrete and reinforcing steel items for cast-in-place elements are required. EPDs for precast elements (finished products) are required.
608	Concrete Sidewalk & Bikeway	608-00000 through 608-00012; 608-00020 through 608-00040; 608-00350 through 608-00500	EPDs for concrete mixtures are required.
608	Bituminous Sidewalk & Bikeway	608-01000 through 608-01500	EPDs for asphalt mixtures are required.
609	Curb & Gutter	609-20000 through 609-71000	EPDs for concrete mixtures are required.

Revision of Section 106 Environmental Product Declarations

Item Number Category	Item Description	Included Item Number/Range #	Interpretation
610	Median Cover Material	610-00010 through 610-00040	EPDs for concrete or asphalt mixtures are required.
618	Prestressed Concrete Structures	618-00142 through 618-06036; 618-10000 through 618-11000	EPDs for finished products are required.
624	Drainage Pipe	624-20006 through 624-62042	EPDs for Precast Elements (both dry and wet-cast) are required.

Install-only items within the listed bid item ranges do not require EPDs.

* Separate EPD required for each mix design, supplier, and plant location.

The EPD Lookup Tool is available on the CDOT EPD webpage should the Contractor elect to use it. This tool may be used to determine the bid items requiring EPDs. The results of this tool do not nullify, void, or alter the EPD requirements per this specification.

(e) *Bid Item Minimum Quantity Limits.* EPD Submittals are required for bid items meeting or exceeding the limits established in Table 106-5. Quantities shall only be those listed in the bid tabs at the time of project award. A white paper detailing the analyses used to develop these limits is published on the CDOT EPD webpage.

The Project Engineer or their designee should calculate the estimated quantity of eligible material in each bid item to determine if minimum quantity limits are exceeded.

For bid items not listed in Table 106-5, but that encompass eligible materials in their construction, the quantity of eligible materials (in other words concrete, steel, HMA, etc.) is to be used when determining if an EPD is required. For example, when constructing a drilled caisson, the quantity of structural concrete and reinforcing steel used in the caisson will need to be determined to see if the 601 (structural concrete) or 602 (reinforcing steel) quantity limits are exceeded. If

Revision of Section 106 Environmental Product Declarations

the total eligible material quantity exceeds the quantity shown below, EPDs are required for each material. Bid item quantities shall be aggregated by Item Number Category per project when evaluating quantity limit requirements.

Table 106-5. Bid Item Minimum Quantity Limits

Item Number Category	Item Description	Minimum Quantity	Unit
206	Structure Backfill (Flow-fill)	50	CY
403	Asphalt Mixtures (HMA/SMA/WMA)	500	Ton
412	Portland Cement Concrete Pavement (PCCP)	1,000	SY
601	Structural Concrete (Each Class)	50	CY
602	Reinforcing Steel	15,000	LB
608	Concrete Sidewalk & Bikeway	250	SY
608	Bituminous Sidewalk & Bikeway	500	Ton
609	Curb & Gutter	1,000	LF
610	Median Cover Material	4,000	SF

(f) *Global Warming Potential (GWP) Limits.* CDOT's benchmarking analysis utilized the current available EPD information to determine its GWP limits as listed in Table 106-6 GWP Limit Values. While the BCCO Act requires that CDOT shall not adjust policy for any eligible material to be less stringent, CDOT may establish subcategories with distinct GWP limits as warranted by technological advancements or changes to background data that leads to statistically significant differences.

If a GWP limit has not been established for a specific eligible material (class, gradation, etc.) used on the project, EPDs are still required to be submitted for all eligible materials as outlined in Table 106-4 Eligible Materials / Bid Items Requiring EPD Submittal. GWP limits for additional classes and materials will be determined as more data is available.

Revision of Section 106 Environmental Product Declarations

Table 106-6. GWP Limit Values

Material	Category	GWP Limit
Concrete Mixtures (kg CO ₂ -eq/m ³) \$, %	Class P	346.2
Concrete Mixtures (kg CO ₂ -eq/m ³) \$, %	Class D	365.1
Concrete Mixtures (kg CO ₂ -eq/m ³) \$, %	Class B	360
Asphalt Mixtures (kg CO ₂ -eq/metric ton) \$, +	S (neat binder)	77
Asphalt Mixtures (kg CO ₂ -eq/metric ton) \$, +	SX (neat binder)	83.4
Asphalt Mixtures (kg CO ₂ -eq/metric ton) \$, +	SX (modified binder)	89
Asphalt Mixtures (kg CO ₂ -eq/metric ton) \$, +	ST (neat binder)	90.4
Steel (kg CO ₂ -eq/metric ton) ^	Reinforcing steel or rebar	915.9

\$ Portable plants are currently exempt from GWP requirements until more data and data consistency is obtained. EPDs are still required as applicable per the project specifications.

% Limits shall apply to all listed concrete classes incorporated into the bid items in Table 106-4.

+ Neat binder includes the following PG grades: PG 58-28 and PG 64-22. Modified binder includes the following PG grades: PG 58-34, PG 64-28, PG 70-28, and PG 76-28.

^ Limits shall apply to all reinforcing steel or rebar incorporated into the bid items in Table 106-4. This is inclusive of coated and non-coated bar.

(g) Exceptions.

If the Contractor cannot provide an eligible material with an EPD meeting the requirements of this specification, an alternate material meeting the requirements shall be proposed. If an alternate material meeting the requirements of this specification is not available, the Contractor shall notify the Project Engineer and provide a written explanation for the project files prior to material placement. The Contractor shall also send this explanation to CDOT_EPD@state.co.us.

This explanation shall include material suppliers and associated plant locations contacted for an alternate material, the material category/categories and associated bid item(s), and the response(s) from the materials supplier(s) contacted describing why an EPD is not available for an eligible material, or why an alternate material meeting the GWP limits on the EPD is not available on a reasonable basis or for a reasonable cost.

Revision of Section 106 Environmental Product Declarations

(h) Project Schedule.

The EPD schedule activities below shall be included as a salient feature in the submitted baseline project schedule and in the weekly meeting updates in accordance with CDOT Specification 108.03. The project schedule update shall specifically detail the following activities:

- (1) Developing EPDs, as applicable;
- (2) Obtaining EPDs, as applicable; and
- (3) Submitting EPDs prior to material placement.

(i) Cost. All costs associated with the development of and submittal of an EPD and any other work associated will not be paid for separately but shall be included in the work.

**Revision of Section 107
Water Quality Control
(Under One Acre of Disturbance)**

Section 107.25 of the Standard Specifications is hereby deleted and replaced as follows:

107.25 Water Quality Control. The project work shall be performed using practices (including but not limited to those listed below) that minimize the pollution of any State waters, including wetlands.

(a) Definitions.

- (1) Areas of Disturbance (AD). Locations where any activity has altered the existing soil cover or topography, including vegetative and non-vegetative activities during construction.
- (2) Construction Site Boundary/Limits of Construction (LOC). The project area defined by the Environmental Clearance document.
- (3) Discharge of Pollutants. One or more pollutants leaving the Limits of Construction (LOC) or entering State waters or other conveyances.
- (4) Limits of Disturbed Area (LDA). Proposed limits of ground disturbance as shown on the Plans.
- (5) Pollutant. Dredged spoil, dirt, slurry, solid waste, incinerator residue, sewage, sewage sludge, garbage, trash, chemical waste, biological nutrient, biological material, radioactive material, heat, wrecked or discarded equipment, rock, sand, or any industrial, municipal, or agricultural waste, as defined in the Colorado Code of Regulations (CCR) [5 CCR 1002-61, 2(76)]
- (6) Pollution. Man-made, man-induced, or natural alteration of the physical, chemical, biological, and radiological integrity of water. [25-8-103 (16), CRS]
- (7) State waters. Defined in Section 101.

(b) Construction Requirements

The Contractor shall comply with the “Colorado Water Quality Control Act” (Title 25, article 8, CRS), the “Protection of Fishing Streams” (Title 33, Article 5, CRS), the “Clean Water Act” (33 USC 1344), regulations promulgated, certifications or permits issued, and to the requirements listed below. In the event of conflicts between these requirements and water quality control laws, rules, or regulations of other Federal, or State agencies, the more restrictive laws, rules, or regulations shall apply.

If the Contractor determines construction of the project will result in a change to

the activities or LDA, the Contractor shall detail the changes in a written report to the Engineer. Upon receipt of the report, the Engineer will coordinate with the Region Planning and Environmental Manager (RPEM) regarding the change. The Engineer, within five days after receipt of the report, will approve or reject in writing the request for change. If approved, the Engineer will detail a course of action including revision of existing permits or obtaining new permits.

If construction activities result in noncompliance of any permit requirement, the project will be suspended and the permitting agency notified, if required. The project will remain suspended until the Engineer receives written approval by the permitting agency.

The Contractor is legally required to obtain all permits associated with project specific water quality activities within, or off the Right of Way, such as borrow pits, concrete or asphalt plant sites, waste disposal sites, or other facilities. It is the Contractor's responsibility to obtain these permits. The Contractor shall consult with the Engineer and contact the Colorado Department of Public Health and Environment (CDPHE) or other appropriate federal, state, or local agency to determine the need for any permit.

The Contractor shall conduct the work in a manner that prevents pollution of any adjacent State waters, as defined in section 101. Erosion control work shall be performed in accordance with Section 208, this subsection, and all other applicable parts of the Contract.

Prior to construction, the Stormwater Management Plan (SWMP) Administrator, identified in Section 208, shall identify and describe all potential pollutant sources, including materials and activities, and evaluate them for the potential to contribute pollutants to stormwater discharges associated with construction activities. The list of potential pollutants shall be continuously updated during construction. At a minimum, each of the following shall be evaluated for the potential for contributing pollutants to stormwater discharges and identified in the SWMP, as described in Section 208:

- (1) All exposed and stored soils.
- (2) Vehicle tracking of sediments.
- (3) Management of contaminated soils.
- (4) Vehicle and equipment maintenance and fueling.
- (5) Outdoor storage activities (building materials, fertilizers, chemicals, etc.).
- (6) Significant dust or particle generating processes.
- (7) Routine maintenance involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc.
- (8) On-site waste management practices (waste piles, dumpsters, etc.).

- (9) Dedicated asphalt and concrete batch plants.
- (10) Concrete truck and equipment washing, including the concrete truck chute and associated fixtures and equipment.
- (11) Concrete placement and finishing tool cleaning.
- (12) Non-industrial waste sources that may be significant, such as worker trash and portable toilets.
- (13) Loading and unloading operations.
- (14) Other areas or procedures where spills could occur.

The SWMP Administrator shall record the location of potential pollutants on the site map, if applicable. Descriptions of the potential pollutants shall be added to the SWMP.

Prior to construction the Contractor shall submit a Spill Response Plan for any petroleum products, chemicals, solvents, or other hazardous materials in use, or in storage, at the work site. See Section 208 for Spill Response Plan requirements. Work shall not be started until the plan has been submitted to and approved by the Engineer.

On site above ground bulk storage containers with a cumulative storage shell capacity greater than 1,320 U.S. gallons, or storage containers having a “reasonable expectation of an oil discharge” to State waters, are subject to the Spill Prevention, Control and Countermeasure Plan (SPCC) Rule. Oil of any type and in any form is covered, including, but not limited to petroleum; fuel oil; sludge; oil refuse; oil mixed with wastes other than dredged spoil. EPA Region 8 is responsible for administering and enforcing the SPCC plan requirements in Colorado. Prior to start of work, the Contractor shall submit a SPCC Form, if applicable, which has been approved by the EPA for the project.

The Contractor shall obtain a Construction Dewatering (CDW) permit from CDPHE anytime uncontaminated groundwater, including groundwater that is commingled with stormwater or surface water, is encountered during construction activities and the groundwater or commingled water needs to be discharged to State waters. If contaminated groundwater is encountered, a Remediation permit may be needed from CDPHE in accordance with Section 250.

Water from dewatering operations shall not be directly discharged into any State waters, unless allowed by a permit. Water from dewatering shall not be discharged into a ditch unless:

1. Written permission is obtained from the owner of the ditch.
2. It is covered in the approved CDW or Remediation Permit that allows the discharge.
3. A copy of this approval is submitted to the Engineer. A copy of the Permit shall be submitted to the Engineer prior to dewatering operations commencing.

Construction Dewatering may be discharged to the ground on projects where CDPHE's Low Risk Guidance Document for Discharges of Uncontaminated Groundwater to Land are met. The conditions of this guidance are:

1. The source of the discharge is solely uncontaminated groundwater or uncontaminated groundwater combined with stormwater and does not contain pollutants in concentrations that exceed water quality standards for groundwater referenced above.
2. Discharges from vaults or similar structures shall not be contaminated. Potential sources of contamination include process materials used, stored, or conveyed in the structures, or introduced surface water runoff from outside environments that may contain oil, grease, and corrosives.
3. The groundwater discharge does not leave the project boundary limits where construction is occurring.
4. Land application is conducted at a rate and location that does not allow for any runoff into State waters or other drainage conveyance systems, including but not limited to streets, curb and gutter, inlets, borrow ditches, open channels, etc.
5. Land application is conducted at a rate that does not allow for any ponding of the groundwater on the surface, unless the ponding is a result of implementing control measures that are designed to reduce velocity flow. If the control measures used result in ponding, the land application shall be done in an area with a constructed containment, such as an excavation or berm area with no outfall. The constructed containment shall prevent the discharge of the ponding water offsite as runoff.
6. A visible sheen is not evident in the discharge.

7. Control measures are implemented to prevent any sediment deposited during land application from being transported by stormwater runoff to surface waters or other conveyances.
8. All control measures used shall be selected, installed, implemented, and maintained according to good engineering, hydrologic, and pollution control practices. The selected control measures shall provide control for all potential pollutant sources associated with the discharge of uncontaminated groundwater to land. The discharge shall be routed in such a way that it will not cause erosion to land surface. Energy dissipation devices designed to protect downstream areas from erosion by reducing the velocity of flow (such as hose attachments, sediment and erosion controls) shall be used when necessary to prevent erosion.

All dewatering operations shall be recorded in the SWMP as follows:

1. The source is identified in the SWMP and updated by the Contractor.
2. The SWMP describes and locates the practices implemented at the site to control stormwater pollution from the dewatering of groundwater or stormwater.
3. The SWMP describes and locates the practices to be used that will ensure that no groundwater from construction dewatering is discharged from the LOC as surface runoff or to surface waters or storm sewers.
4. Groundwater and groundwater combined with stormwater do not contain pollutants in concentrations exceeding the State groundwater standards in Regulations 5 CCR 1002-41 and 42.

If surface waters are diverted around a construction area and no pollutants are introduced during the diversion, a CDW Permit is not required. If the diverted water enters the construction area and contacts pollutant sources (e.g., disturbed soil, concrete washout, etc.), the Contractor shall obtain a CDW permit for the discharge of this water to State waters or to the ground.

At least 15 days prior to commencing dredging or fill operations in a watercourse, the Contractor shall provide written notification to owners or operators of domestic or public water supply intakes or diversion facilities, if these facilities are within 20 miles downstream from the dredging or fill operations. Notification shall also be given to Owners or operators of other intakes or diversions that are located within five miles downstream from the site of the project. Identities of downstream owners

and operators can be obtained from Colorado Division of Water Resources, Office of the State Engineer.

Temporary fill into wetlands or streams shall not be allowed, except as specified in the Contract and permits. If such work is allowed, upon completion of the work all temporary fills shall be removed in their entirety and disposed of in an upland location outside of flood plains unless otherwise specified in the Contract.

Construction operations in waters of the United States as defined in 33 CFR Part 328.3, including wetlands, shall be restricted to areas and activities authorized by the U.S. Army Corps of Engineers as shown in the Contract. Fording waters shall be allowed only as authorized by the U.S. Army Corps of Engineers 404 Permit. Wetland areas outside of the permitted limits of disturbance shall not be used for storage, parking, waste disposal, access, borrow material, or any other construction support activity.

Pollutant byproducts of highway construction, such as concrete, asphalt, solids, sludges, pollutants removed in the course of treatment of wastewater, excavation or excess fill material, and material from sediment traps shall be handled, stockpiled, and disposed of in a manner that prevents entry into State waters, including wetlands. Removal of concrete waste and washout water from mixer trucks, concrete finishing tools, concrete saw, and all concrete material removed in the course of construction operations or cleaning shall be performed in a manner that prevents waste material from entering State waters and shall not leave the site as surface runoff. A minimum of ten days prior to the start of the construction activity, the Contractor shall submit in writing a Method Statement for Containing Pollutant Byproducts to the Engineer for approval.

The use of chemicals such as soil stabilizers, dust palliatives, herbicides, growth inhibitors, fertilizers, deicing salts, etc., shall be in accordance with the manufacturer's recommended application rates, frequency, and instructions.

All materials stored on-site shall be stored in a neat, orderly manner, in their original containers, with the original manufacturer's label. Materials shall not be stored in a location where they may be carried into State waters at any time.

Spill prevention and containment measures conforming to Section 208 shall be used at storage, and equipment fueling and servicing areas to prevent the pollution of any State waters, including wetlands. All spills shall be cleaned up immediately after discovery, or contained until appropriate cleanup methods can be employed. Manufacturer's recommended methods for spill cleanup shall be followed, along with proper disposal methods. When required by the Colorado Water Quality Control Act, Regulation 5 CCR 1002-61, spills shall be reported to the Engineer and CDPHE in writing.

The Contractor shall prevent construction activities from causing grass or brush fires.

The construction activities shall not impair Indian tribal rights, including, but not limited to, water rights, and treaty fishing and hunting rights.

Prior to start of work, the Contractor shall certify in writing to the Engineer that construction equipment has been cleaned prior to initial site arrival. Vehicles and equipment shall be free of soil and debris capable of transporting noxious weed seeds or invasive species onto the site. Additional equipment required for construction shall also be certified prior to being brought onto the project site.

Vehicles which have been certified by the Contractor as having been cleaned prior to arrival on site may be cleaned on site at an approved area where wash water can be properly contained. Vehicles leaving and reentering the project site shall be recertified.

At the end of each day the Contractor shall collect all trash and dispose of it in appropriate containers.

All construction site wastes shall be properly managed to prevent potential pollution of State waters. Construction waste that is considered a pollutant or contaminant shall be collected and disposed of in appropriate containers. This material may be stockpiled on the project when it is contained or protected by an appropriate control measure.

Discharges from the project area shall not cause, have the reasonable potential to cause, or measurably contribute to an exceedance of any applicable water quality standard, including narrative standards for water quality.

Stormwater Construction Permit. A Colorado Discharge Permit System Stormwater Construction Permit (CDPS-SCP) is not required for this project. A CDPS-SCP will be obtained from CDPHE, if any of the following activities apply:

- (1) Construction sites that will disturb one acre or more; or
- (2) Construction sites that are part of a common plan of development or sale; or
- (3) It is specified in the contract; or

Stormwater discharges that are designated by the division as needing a stormwater permit because the discharge:

- 1. Contributes to a violation of a water quality standard; or
- 2. is a significant contributor of pollutants to State waters.

Dewatering, erosion control for dewatering, and disposal of water resulting from dewatering operations, including all costs for permits, will not be measured and paid for separately, but shall be included in the work.

The Contractor shall be liable for any penalty (including monetary fines) applied to the Department caused by the Contractor's noncompliance with any water quality permit or certification. Monetary fines shall be deducted from any money due to the Contractor. If the monetary fine is in excess of all the money due to the Contractor, then the Contractor shall pay to the Department the amount of such excess.

The Contractor shall not receive additional compensation, or time extensions, for any disruption of work or loss of time caused by any actions brought against the Contractor for failure to comply with good Engineering, hydrologic and pollution control practices.

If a spill occurs as a direct result of the Contractor's actions or negligence, the cleanup of such spill shall be performed by the Contractor at the Contractor's expense.

Areas exposed to erosion by fire resulting from the Contractor's operations shall be stabilized in accordance with Section 208 by the Contractor, at the Contractor's expense.

Revision of Section 108 Liquidated Damages

Revise Section 108.09 of the Standard Specifications as follows:

In subsection 108.09 delete the schedule of Liquidated Damages and replace it with the following:

Original Contract Amount (\$)		Liquidated Damages per Calendar Day (\$)
From More Than	To And Including	
0	1,000,000	1,300
1,000,000	2,000,000	2,300
2,000,000	5,000,000	3,100
5,000,000	10,000,000	6,800
10,000,000	25,000,000	8,800
25,000,000	-----	9,700

Revision of Section 109 Asphalt Cement Cost Adjustment (Asphalt Cement Paid Separately)

Revise Section 109 of the Standard Specifications for this project as follows:

Subsection 109.06(j) shall include the following:

- (j) *Asphalt Cement Cost Adjustments.* Contract cost adjustments will be made to reflect increases or decreases in the monthly average price of asphalt cement from the average price for the month preceding the month in which bids were received for the Contract. These cost adjustments are not a change to the contract unit prices bid. When bidding, the Contractor shall specify on the Form 85 whether the cost adjustment will apply to the Contract. After bids are submitted, the Contractor will not be given the opportunity to accept or reject this adjustment. If the Contractor fails to indicate a choice on the Form 85, the cost adjustment will not apply to the Contract. If the asphalt cement cost adjustment is accepted by the Contractor, the adjustment will be made in accordance with the following criteria:

Abbreviations and Terms

1. Estimate Price for asphalt (EP) - Average Asphalt Cement price index for the calendar month prior to the calendar month in which the partial estimate pay period ends.

- (a) On the first Monday of each month, the Department determines the EP using price values from the most recent **Poten & Partners Asphalt Weekly** and the **Argus Americas Asphalt Report**. The Department averages values for the following, eliminating the single highest and single lowest values, before averaging.

The high reported selling price (per ton) of typical non-modified paving grades of asphalt from the **Poten and Partners Asphalt Weekly Monitor**.

Colorado

Colorado Springs Area

Montana

Eastern markets

Western markets

Nebraska

Western markets

New Mexico

Northern

Southern

Utah

Salt Lake City area

Wyoming

Northern markets

Southern markets

The high reported selling price (per ton) of typical non-modified paving grades of asphalt from the **Argus Americas Asphalt Report**.

Denver

Kansas City

Omaha

Salt Lake City

Wyoming

This average value is then averaged with values obtained in the same manner for the previous three weekly reports to establish the EP.

(b) The EP remains in effect until the first Monday of the following month and is used for regular partial estimates closed before the first Monday of the following month.

1. Base Price for asphalt (BP) - Average Asphalt Cement price index for the calendar month prior to the calendar month in which bids are opened.
2. Asphalt cost adjustment (ACCA) - Asphalt Cement Cost Adjustment:
<https://www.codot.gov/business/designsupport/cdot-construction-specifications/2023-construction-specifications/acca>
3. Cost adjustments will be made on a monthly basis subject to the following conditions:
 - A. Adjustment will be based on the pay quantities on the monthly partial pay estimate for the following pay item when measured by the ton:

Item No.	Item	Pay Unit
411	Asphalt Cement (___)*	Ton

*Asphalt Cement used with Hot Mix Asphalt (Patching) is not subject to asphalt cement cost adjustment.

- B. A cost adjustment will be made only when the EP asphalt cement price index varies by more than 10 percent from the BP asphalt cement price index, and only for that portion of the variance in excess of 10 percent. Cost adjustments may be either positive or negative dollar amounts.
- C. The maximum allowable monthly and final price adjustment to the Contractor or rebate to The Department is limited to a (EP/BP) ratio of 1.6 and 0.4, respectively.

D. Asphalt cement cost adjustments will not be made for any partial estimate falling wholly after the expiration of contract time.

E. Adjustment formula:

EP greater than BP:

$$ACCA = (EP - 1.10 BP) (Q)$$

EP less than BP:

$$ACCA = (EP - 0.90 BP) (Q)$$

Where:

BP = Average Asphalt Cement price index for the calendar month prior to the calendar month in which bids are opened

EP = Average Asphalt Cement price index for the calendar month prior to the calendar month in which the partial estimate pay period ends

ACCA = Asphalt Cement Cost Adjustment

Q = Pay quantity in tons shown for the 411 pay items shown above on the monthly estimate. If Reclaimed Asphalt Pavement (RAP), Reclaimed Asphalt Shingles (RAS), or both is used, the tons of Virgin Asphalt Cement added to the mix will be determined by subtracting the percent of asphalt cement in the RAP, RAS, or both from the tons of asphalt cement in the mix as calculated from Revision of Section 401.

Example: Bids are opened on July 16. The BP will be the average of the weekly postings for June 1 through June 30. For an estimate cut-off date selected by the Contractor at the Pre-Construction Conference of the 20th of the month a February estimate will include HMA quantities measured from the 21st of January through the 20th of February, and the EP index used to calculate ACCA will be the average of the weekly prices for January 1 through January 31 as established by CDOT.

- F. Cost adjustment will not be made for the quantity of any item that is left in place at no pay or for material removed and replaced at the Contractor's expense.
- G. Cost adjustments will not be made to items of work added to the Contract by Change Order after the award of the Contract.
- H. The asphalt cement cost adjustment will be the sum of the individual adjustments for each of the pay items shown above. No adjustment will be made for asphalt cement costs on items other than those shown above.
- I. Asphalt cement cost adjustments resulting in an increased payment to the Contractor will be paid for under the planned force account item: Asphalt Cement Cost Adjustment. Asphalt cement cost adjustments resulting in a decreased payment to the Contractor will be deducted from monies owed the Contractor.

Revision of Section 201 Clearing and Grubbing

Section 201 of the Standard Specifications is revised for this project as follows:

Revise subsection 201.01 by adding the definitions as shown:

Definitions:

Duff Layer. The organic surface layer on top of topsoil, composed of plant material, twigs, leaves, needles, and other decayed plant material (duff).

Delete subsection 201.02 and replace it with the following:

201.02 All areas of vegetation, including trees, shrubs, native grass areas, sensitive areas, and other objects to remain will be shown on the plans unless otherwise directed. Protect all trees and vegetation to remain by fencing in these areas as indicated on the plans. The Contractor shall repair or replace all damaged trees, vegetation, and objects designated to remain, as directed and at the Contractor's expense.

Clearing and grubbing shall extend to the limits of disturbance, unless otherwise designated.

Clearing. Within the Limits of Disturbance (LDA), all surface objects, trees, brush, stumps, roots, and other protruding obstructions not designated to remain shall be cleared. Refer to Section 208 for LDA.

- (a) In areas of cut slope rounding and at the tops of backslopes, cut stumps at or below the surface of the final slope line.
- (b) Branches of trees extending over the roadbed shall be trimmed to give a clear height of 20 feet above the roadbed surface. All trimming shall be performed using good tree surgery practices. Sawdust shall be removed after tree trimming services.
- (c) When included in the plans, the duff layer shall be removed and salvaged with the topsoil. Refer to Section 207.

Grubbing. Grub deep enough to remove stumps, roots, burred logs, sod, and other vegetation as follows:

- (a) Grub areas to be excavated, except for cut slope rounding areas, as shown on the plans.
- (b) Grub pits and ditches only to the depth necessary for the excavation.
- (c) Except in areas to be excavated, all holes resulting from the removal of obstructions shall be backfilled with suitable material and compacted per Section 203.

Revision of Section 201 Clearing and Grubbing

(d) The Contract may include grubbing without clearing, to retain the layer of duff with topsoil salvaging.

Disposal. Burning of perishable material will not be permitted without the written approval of the Project Engineer. If permitted, the Contractor shall burn perishable material under constant supervision and in a manner that will not endanger the surrounding vegetation, adjacent property, or objects designated to remain. Burning shall be done per applicable laws and ordinances.

No material or debris shall be disposed of within the project limits without the written permission of the Project Engineer. Material or debris that is disposed of within the project limits shall be buried to a depth of at least 2 feet, and the surface shall be reshaped to match the adjacent ground line. The Contractor shall acquire written permission from property owners for disposal locations outside the limits and in view of the project. Copies of this written agreement shall be furnished to the Project Engineer before the disposal area is used.

All cleared merchantable timber shall be removed from the project and shall become the property of the Contractor. Branches on trees or shrubs shall be removed as directed by the Project Engineer.

In Subsection 201.03, delete the first paragraph and replace it with the following:

201.03 Measurement will be by one of the following methods:

Area Basis. The work to be paid for will be the number of acres acceptably cleared and grubbed, including scalping, within the limits shown on the plans or staked by the Project Engineer.

Basis of Payment

In Subsection 201.04, delete the third paragraph and replace it with the following:

Lump Sum Basis. When the bid schedule contains a lump sum item, the lump sum price so bid price will be paid and shall be full compensation for clearing and grubbing the entire project.

In Subsection 201.04 delete the fourth paragraph and replace it with the

Revision of Section 201 Clearing and Grubbing

following:

Clearing and grubbing beyond the limits designated under this item will be paid for as Extra Work per Section 104.

In Subsection 201.04, add as the second to last paragraph as follows:

Duff removal and salvaging, when included in the Contract, will be paid as part of salvaging Topsoil (Onsite), per Section 207.

Revision to Section 203 Excavation And Embankment

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

In Subsection 203.06, delete the third and fourth paragraphs, and replace them with the following:

All organic matter shall be removed from the existing ground surface where the embankment is to be placed per Section 201. The existing top ground surface will be considered topsoil and shall be removed per Section 207, or per plan, before placement of embankment fill.

The cleared embankment surface shall be completely broken up by plowing or scarifying to a minimum depth of 6 inches or as specified in the Contract, the moisture content increased or reduced as necessary, and compacted to the specified embankment density for the material type present.

In Subsection 203.07 (a), add to the first paragraph, make it the last sentence, as follows:

The Contractor may refrain from compacting the final top lift, not to exceed 12 inches in depth, in areas receiving final seeding per Section 207 unless otherwise noted in the Contract or as directed by the Project Engineer.

Section 207 Subsoil and Topsoil

Section 207 of the Standard Specifications is deleted for this project and replaced with the following:

Description

207.01 The work consists of salvaging onsite and wetland topsoil, stockpiling, maintaining, and placing topsoil. Subsoil preparation, as specified, occurs on areas to be vegetated and precedes all topsoil placement, soil amendment, seeding, and mulching activities. Topsoil (Imported) requires testing and certifications from the Contractor. This also consists of required meetings and administrative activities to control the work.

Materials

207.02 Definitions.

Excessively Wet Soil. Soil is considered excessively wet when a handful of soil squeezed together forms a ball, and when poked with a finger, does not fall apart easily, or when squeezed together, water droplets appear.

Duff Layer. The organic surface layer on topsoil that is composed of plant material, twigs, leaves, and needles, and may contain decayed plant material (duff).

Subsoil. Subsoil is the layer of soil under the topsoil layer. Like topsoil, it is composed of a variable mixture of small particles such as sand, silt, and clay, but lacks organic matter and soil organisms.

Subsoil Preparation. Scarification and ripping, using specialized equipment, is performed on compacted subsoils before replacing the topsoil to increase pore space and improve soil structure for plant growth and infiltration of stormwater.

Topsoil Stockpiles. Topsoil placed in piles or moved into uncompacted berms for temporary storage during construction.

Topsoil (Wetland). Existing, native topsoil that is within delineated wetlands and includes any existing vegetation and plant matter, including roots, rhizomes, and seeds.

207.03 Materials General

(a) **Topsoil (Onsite).** Existing native topsoil, collected from within the LDA. This layer has a defined soil structure and contains decayed organic matter. Salvage, stockpile, and reuse Topsoil (Onsite) for areas receiving landscape stabilization. Salvage Topsoil (Onsite) from areas with higher organic content that will support vegetation establishment. Topsoil (Onsite) shall not be salvaged where 20 percent

or more of vegetative cover consists of weed species as listed in the current State of Colorado Noxious Weed List and County weed lists.

(b) *Topsoil (Imported)*. Is a naturally occurring or commercially produced topsoil obtained from a source outside the project's Limits of Disturbed Area (LDA). Topsoil (Imported) shall be provided if Topsoil (Onsite) cannot be reused as shown on the plans or when material is determined to be insufficient quantity, as determined by the Project Engineer.

Topsoil (Imported) shall be free of the following:

- Majority of subsoils
- Coarse sand and gravel, unless approved by the Project Engineer
- Stiff clay, hard clods, or hardpan soils
- Trash, litter, or refuse
- Invasive or noxious weeds or seeds

Table 207-1
Physical Properties of Topsoil (Imported)

Property	Range	Test Methods
pH (s.u.)	5.6 to 8.3	ASA Mono. #9, Part 2, Method 10-3.2, or TMECC 04.11-A
Electrical Conductivity (EC) (mmhos/cm or ds/m)	< 2	ASA Mono. #9, Part 2, Method 10-3.3
SAR (s.u.)	≤ 10	ASA Mono. #9, Part 2, Method 10-3.4
OM %	<7	Methods of Soil Analysis, Part 3, Method 34
Nitrate (NO ₃ -n, ppm)	< 20	Methods of Soil Analysis, Part 3. Chemical Methods. Ch. 38 Nitrogen - Inorganic Forms
Potassium (K) (ppm)	> 60	ASA Mono. #9, Part 2, Method 13-3.5
Phosphorus (P) (ppm)	≤ 13.0	ASA Mono. #9, Part 2, Method 24-5.4, or other as required based on soil pH

Notes: **SAR** = Sodium adsorption ratio; **OM** = Organic Matter; **s.u.** = standard unit; **ppm** = parts per million; **mmhos/cm** = millimhos per centimeter; **dS/m** = decisiemens per meter

**Table 207-2
Textural Class Analysis**

Texture Class Diameter Range	% Of Total Weight	Average %
Silt (0.002 - 0.05 mm)	15 to 40	27.5
Clay (<0.002 mm)	15 to 30	22.5

Note: Analysis method ASA Mono. #9, Part 1, Method 15-5

Construction Requirements

207.04 Submittals

(a) *Method Statement.* The Contractor shall submit a method statement 10 days before the Environmental Pre-construction Conference, including the equipment and how they will perform the following:

- topsoil stockpile location(s) including delineating Contractor's proposed topsoil locations on plan sheet(s)
- maintenance and erosion control of stockpiles
- wetland topsoil stockpiling, maintenance, and watering
- subsoil preparation method, including rod penetrometer use
- topsoil placement
- removal of clods, sticks, stones, debris, concrete, and asphalt for placed topsoil
- noxious weed treatment plan for topsoil stockpiles and LDA (State of Colorado and County A and B Noxious Weed Lists)

The Contractor shall include topsoil stockpiling, subsoil preparation, and topsoil placement tasks in the Baseline Schedule.

(b) Topsoil (Imported)

1. The Contractor shall submit a Certificate of Compliance (COC) from the commercial supplier for approval per Section 106 before import, which verifies that the source material has been managed per the State of Colorado Noxious Weed Act 35-5.5-115.
2. The Contractor shall submit a Certified Test Report (CTR), dated within 1 year of delivery to the project site, for approval before import, per Section 106. The report shall include a complete Nutrient Analysis for Table 207-1 Physical Properties of Topsoil (Imported), and Table 207-1 Textural Class Analysis for imported topsoil from non-commercial sources, and contain no more than 5 percent rock greater than 3 inches. If the Topsoil (Imported) nutrient analysis is deficient, the material will be rejected.

207.05 Site Pre-vegetation Conference. The Site Pre-vegetation Conference shall occur before the initial subsoil preparation. The Site Pre-vegetation conference shall be attended by the Project Engineer, the Region permanent stabilization subject matter expert, the Contractor's Superintendent, the Contractor's Foreman, and other Contractor's supervisor staff overseeing the subsoil preparation and topsoil application work.

207.06 Topsoil (Onsite) Stripping. Excessively wet or frozen topsoil shall not be moved. Exceptions to these requirements may be approved by the Project Engineer. Topsoil within the LDA shall be salvaged before any ground disturbing activities, and topsoil shall be stockpiled at approved locations. Native vegetation, including duff, shall be collected as part of the salvaging of topsoil, unless specified in the plans or by the Project Engineer to be removed and hauled off-site. All trash and debris shall be removed before moving topsoil for stockpiling, per Section 208.

207.07 Delivery, Storage, and Handling. Topsoil shall not be delivered or placed in excessively wet or frozen conditions. The topsoil stockpiles shall be placed within the LDA unless otherwise approved by the Project Engineer. Topsoil stockpiles shall not be compacted. Topsoil stockpiles placed along the perimeter require a control measure. Stockpile topsoil in a manner to facilitate measurement, to not obstruct natural drainage, and to minimize sediment transport.

All topsoil stockpiles scheduled to remain in place for 14 or more days shall receive temporary stabilization per Section 208. Topsoil shall not be dumped or stored within 15 feet of structures, utilities, walkways, pavements, inlets, environmentally sensitive areas, and tree and shrub driplines within or outside the LDA.

Each topsoil stockpile shall be identified using white pin flags marked legibly with "TOPSOIL". For stockpiles larger than 100 cubic yards or linear stockpiles, pin flags shall be placed at a maximum spacing of every 40 feet.

(a) *Topsoil (Onsite).* Stockpiles shall be treated with herbicide when the Section 217 pay item is included in the plans, per Section 217, or as directed by the Project Engineer.

(b) *Topsoil (Imported).* Import shall not begin until the material has been approved. Topsoil (Imported) shall not be stockpiled on site for longer than 30 days and shall receive temporary stabilization if in place for 14 or more days.

(c) *Topsoil (Wetland).* Wetland topsoil shall be excavated from the project site to a depth of 12 inches or at the locations and depths as shown on the plans. Differing soil depths may be approved by the Project Engineer in coordination with the Region Wetland Specialist or as noted in the plans. Stockpiling wetland topsoil shall not exceed 3 months (not including a winter shutdown) prior to re-application or as shown on plans. Stockpiles shall be kept moist during hot and dry weather from an approved water source, as defined in Section 101.

207.08 Subsoil Preparation. The Contractor shall allow excessively wet subsoils to dry as necessary before beginning subsoil preparation. The Contractor shall fracture the soil uniformly to a depth of 14 inches, or as shown in the plans, without lifting or furrowing the surface excessively. If multiple passes are needed to achieve depth, there shall be a minimum overlap of 12 inches between passes to ensure consistent subsoil preparation. All construction debris and trash shall be removed before and following ripping activities.

Subsoil preparation shall be performed in all areas to be vegetated as called out in the plans. Subsoil preparation shall not be conducted on areas steeper than 3H:1V. Subsoil preparation is not required in utility trenches less than 15 feet wide.

Areas where subsoil preparation has been completed shall be left in a roughened state until topsoil placement. Topsoil shall be placed within 14 days of subsoil preparation, or shall receive temporary stabilization, per Section 208.

Subsoil preparation is not required where aggregate base course or recycled asphalt is used as a shouldering technique, or where the aggregate base course extends into the immediate side slope to provide a stable roadside condition. The distance from the edge of the pavement to where subsoil preparation shall begin is as per plan.

Areas not accessible to heavy equipment shall be decompacted to a depth of 6 inches with a rototiller, appropriate equipment, or hand tools.

207.09 Equipment, Calibration, and Verification. Subsoil preparation equipment shall be able to fracture the soil uniformly without excessively lifting or furrowing the subsoil surface. Once subsoil preparation operations have been completed, the Contractor shall confirm subsoil preparation was achieved using the penetrometer, at a minimum of ten random locations per acre, as selected by the Project Engineer. If this depth cannot be achieved for 80 percent of the locations, the Contractor shall re-rip the area at no additional cost to the Department.

207.10 Topsoil Placement and Distribution. On areas to be vegetated, the Contractor shall place onsite or imported topsoil to a depth of 6 inches, or to the depth shown on the plans. Topsoil shall be placed in a method that does not recompact the subsoil. Topsoil should only be handled when it is dry enough to work without damaging the soil structure. Topsoil shall not be placed if the ground is extremely dry. Once Topsoil is placed, it shall be thoroughly moistened to prevent dust and erosion. Exceptions to these requirements may be approved by the Project Engineer. Remove clods, sticks, stones, debris, concrete, and asphalt more than 3 inches in any dimension from topsoil and remove from the project site.

(a) Topsoil (Onsite). The Contractor shall salvage and stockpile sufficient material to satisfy the revegetation needs of the project. Excess topsoil shall be used onsite in areas to be vegetated or as approved by the Project Engineer.

(b) *Topsoil (Imported)*. Imported topsoil stockpiles shall be placed within seven days of mixing amendments.

(c) *Topsoil (Wetland)*. Wetland topsoil shall only be placed within designated wetland areas as noted in the plans, or as approved by the Project Engineer in coordination with the Region Wetland Specialist.

When placed over riprap, wetland topsoil shall be placed at a minimum depth of 12 inches, or to the depth shown on the plans.

Wetland topsoil shall not be placed below the ordinary high-water mark except as otherwise specified in the plans.

207.11 Avoiding Recompaction and Remedies. Equipment and vehicle traffic on areas to be vegetated shall be limited to the equipment being utilized to place topsoil and any other equipment required for the revegetation work. Areas to be vegetated shall be kept free of trash and debris. After topsoil placement, the area shall be protected from erosion, per Section 208. No material shall be stored in this area. The Contractor shall remove topsoil that is contaminated by other materials during construction activities from the site, dispose of it at a licensed landfill, and replace it with imported topsoil at no additional cost to the Department. Any re-ripping that is necessary due to re-compaction as a result of construction activities is the responsibility of the Contractor.

207.12 Timing of Stabilization. Soil amendments, seeding, and landscape or permanent stabilization mulching, per Section 212, shall be accomplished within four working days of placing the topsoil. If landscape or permanent stabilization control measures cannot be implemented on placed topsoil within four working days, the Contractor shall complete temporary stabilization methods per Section 208, at no additional cost to the Department.

Method of Measurement

207.13 The quantity of Subsoil Preparation shall be measured by the actual volume of material decompacted, based on the measured area and depth designated in the Contract, or through another method approved by the Project Engineer.

The quantities of Topsoil (Onsite, Imported, and Wetland) shall be measured by the actual volume of material placed, based on the measured area and depth designated in the Contract, or through another method approved by the Project Engineer.

Basis of Payment

207.14 The accepted quantities measured will be paid for at the Contract unit price for each of the pay items listed below.

Payment will be made under:

Pay Item	Pay Unit
Topsoil (Onsite)	Cubic Yard
Topsoil (Imported)	Cubic Yard
Topsoil (Wetland)	Cubic Yard
Subsoil Preparation	Square Yard

The Site Pre-vegetation Conference will not be paid for separately but shall be included in the work.

Payment for Subsoil Preparation includes the rod penetrometer and associated verification testing and will not be measured and paid for separately but shall be included in the work.

Payment for Topsoil (Onsite) shall be full compensation for all work necessary to complete the item, including salvaging, stockpiling, stockpile maintenance (including trash and weed mitigation), and final placement of material. Removal of trash and debris prior to stockpiling will be measured and paid per Section 208.

Payment for Topsoil (Imported) work includes furnishing and transporting approved material, stockpiling, distributing, and placing. Topsoil (Imported) shall include all testing and analysis, and amendments to meet Tables 207-1 and 207-2, and will not be measured separately but shall be included in the work.

Topsoil (Wetland) moisture control will not be paid for separately but shall be included in the work.

Noxious and Invasive Weed Management shall be measured and paid for per Section 217.

**Revision of Section 208
Erosion Control
(Under One Acre of Disturbance)**

Delete Section 208 of the Standard Specifications and replace it with the following:

Description

208.01 This work consists of constructing, installing, maintaining, and removing when required, control measures during the life of the Contract to prevent or minimize erosion, sedimentation, and pollution of any State waters as defined Section 101.

Stormwater runoff from all disturbed areas and soil storage areas for which permanent or interim stabilization is not implemented, must flow to at least one control measure to minimize sediment in the discharge. This shall be accomplished through filtering, settling, or straining. The control measure shall be selected, designed, installed, and adequately sized in accordance with good engineering, hydrologic, and pollution control practices. The control measures shall contain or filter flows in order to prevent the bypass of flows without treatment and shall be appropriate for stormwater runoff from disturbed areas and for the expected flow rate, duration, and flow conditions (i.e., sheet or concentrated flow).

The Contractor shall coordinate the construction of temporary control measures with the construction of permanent control measures to assure economical, effective, and continuous erosion and sediment control throughout the construction period.

When a provision of Section 208 or an order by the Engineer requires that an action be immediate or taken immediately, it shall be understood that the Contractor shall at once begin affecting completion of the action and pursue it to completion in a manner acceptable to the Engineer.

Materials

208.02 Erosion control materials are subject to acceptance in accordance with Section 106. Erosion control materials shall be subject to the following approval process:

Material	Approval Process	Notes:
Erosion Bales (Weed Free)	COC	The Contractor shall provide a transit certificate number or a copy of the transit certificate as supplied from the producer.
Silt Fence	COC	
Silt Berm	APL	
Erosion Log (Type 1, Type 2, and Type 3)	COC	
Silt Dikes	COC	
Pre-fabricated Concrete Washout Structures (above ground)	APL	
Pre-fabricated Vehicle Tracking Pad	APL	
Aggregate Bag	COC	
Storm Drain Inlet Protection (Type I, II, and III)	APL	

COC = Certificate of Compliance; APL= Approved Product List

The material for control measures shall conform to the following:

- (a) *Erosion Bales.* Material for erosion bales shall consist of Certified Weed Free hay or straw. The hay or straw shall be certified under the Colorado Department of Agriculture Weed Free Forage Certification Program and inspected as regulated by the Weed Free Forage Act, Title 35, Article 27.5, CRS. Each certified weed free erosion bale shall be identified by blue and orange twine binding the bales.

The Contractor shall not place certified weed free erosion bales or remove their identifying twine until the Engineer has inspected them.

The Contractor may obtain a current list of Colorado Weed Free Forage Crop Producers who have completed certification by contacting the:

Colorado Department of Agriculture, Weed Free Forage Program,
305 Interlocken Pkwy, Broomfield, CO 80021

Contact the Weed Free Forage Coordinator at (303) 869-9038. Also available at www.colorado.gov/ag/csd.

Bales shall be approximately 5 cubic feet of material and weigh at least 35 pounds. Stakes shall be wood and shall be 1.5 inch by 1.5 inch by 30 inch actual.

- (b) *Silt Fence*. Silt fence posts shall be wood with a minimum length of 46 inches. Wood posts shall be 1.5-inch width by 1.5-inch thickness actual dimensions with 1/8-inch tolerance. Geotextile shall be attached to wood posts with three or more staples per post.

Silt fence geotextile shall conform to the following requirements:

Physical Requirements for Silt Fence Geotextiles

Property	Wire Fence Supported Requirements	Self-Supported Requirements Geotextile Elongation <50%	Test Method
Grab Strength, lbs.	90 minimum	124 minimum	ASTM D4632
Permittivity sec-1	0.05	0.05	ASTM D4491
Ultraviolet Stability	Minimum 70% Strength Retained	Minimum 70% Strength Retained	ASTM D4355

Silt Fence (Reinforced). Silt fence posts shall be metal "studded tee" T-post with a minimum length of 66 inches. Metal posts shall be "studded tee" with 0.095-inch minimum wall thickness. Wire fabric reinforcement for the silt fence geotextile shall be a minimum of 14 gauge with a maximum mesh spacing of 6 inches. Geotextile shall be attached to welded wire fabric with ties or nylon cable ties at 12 inches on center at top, middle and bottom wire. Welded wire fabric shall be attached to the post with a minimum three 12-gauge wire ties per post. Vinyl or rubber safety caps shall be installed on all T-post.

- (c) *Temporary Berms*. Temporary berms shall be constructed out of compacted embankment (subsoil) and not out of salvaged topsoil.
- (d) *Temporary Slope Drains*. Temporary slope drains shall consist of fiber mats,

plastic sheets, stone, concrete or asphalt gutters, half round pipe, metal or plastic pipe, wood flume, flexible rubber, or other materials suitable to carry accumulated water down the slopes. Outlet protection riprap shall conform to Section 506. Erosion control geotextile shall be a minimum Class 2, conforming to Section 712.

- (e) *Silt Berm*. Silt berm shall consist of permeable multi-use material consisting of ultraviolet (UV) stabilized high-density polyethylene or other approved material effective in reducing water velocity. Designed and tested system shall be installed on a Turf Reinforcement Mat or Soil Retention Blanket in accordance with Section 216. The segment shall be secured to the ground with either metal or wood stakes. Minimum requirements for securing stakes shall be in accordance with the plans. Dimensions of individual segments shall meet the following criteria:

Width	Height	Weight	Percent Open Area
6 - 11 inches	6 - 10 inches	> 0.25 lbs./sq. ft.	20 - 50%

- (f) *Rock Check Dam*. Rock Check dams shall be constructed of stone. Stone shall meet the requirements of Section 506.
- (g) *Sediment Trap*. In constructing an excavated sediment trap, excavated soil may be used to construct the dam embankment, provided the soil meets the requirements of Section 203. Outlet protection riprap shall be the size specified in the Contract and shall conform to Section 506. Erosion control geotextile shall be a minimum Class 1, conforming to Section 712.
- (h) *Erosion Logs*. Erosion logs shall be one of the following types unless otherwise shown on the plans:

- (1) Erosion Log (Type 1) shall consist of cylinder casings filled with curled aspen wood excelsior with a consistent width of fibers evenly distributed throughout the log. The casing shall be seamless, photo-degradable tube netting. The curled aspen wood excelsior shall be fungus free, resin free, and free of growth or germination inhibiting substances.
- (2) Erosion Log (Type 2) shall consist of cylinder casings filled with Erosion Log (Type 2) Compost in accordance with Section 212. The compost-wood chip blend may be pneumatically shot into a geotextile cylindrical casing or be pre-manufactured. The geotextile casing shall consist of high density polyethylene (HDPE) or polypropylene mesh (knitted, not extruded) with openings of $\frac{1}{8}$ to $\frac{3}{8}$ inch and contain the compost-wood chip material while not limiting water infiltration.
- (3) Erosion Log (Type 3) shall consist of cylinder casings filled with curled aspen wood excelsior with a consistent width of fibers evenly distributed throughout the log. The casing shall be seamless, 100 percent natural fiber cylinder netting (compostable) and shall have minimum dimensions as shown in Table 208-1, based on the diameter of the log shown on the plans. Netting shall be a woven cotton or cellulose base mesh that has an approval to compost certification with a maximum mesh size of 0.075 inches and index values as shown in Table 208-2. The curled aspen wood excelsior shall be fungus free, resin free, and free of growth or germination inhibiting substances.

Natural compostable fiber netting shall not contain any synthetic material woven into the netting such as polypropylene, nylon, polyethylene, or polyester dyes. Oxo-degradable or oxo-biodegradable petrochemical-based fiber shall not be part of the netting material. Burlap netting material shall not be used for Erosion Log (Type 3).

Erosion Log (Type 1, Type 2, and Type 3) shall have minimum dimensions as shown in Table 208-1, based on the specified diameter of the log.

**Table 208-1
Dimensions of Erosion Logs**

Diameter Type 1 & 3 (Inches)	Diameter Type 2 (Inches)	Min. Length (ft)	Max. Length (ft)	Weight (minimum) (pounds/foot)	Stake Dimensions (Inches)
9	8	10	180	1.6	3/4 thickness by 3/4 width by 18 long
12	12	10	180	2.5	1.5 thickness by 1.25 width by 24 long
20	18	10	100	4.0	1.5 thickness by 1.25 width by 30 long

Wood stake acceptable tolerance +/- 1/8 inch.

**Table 208-2
Index Values for Natural Fiber Netting**

Property	Requirement	Test Method
Fabric Tensile Strength	>70 lbs.	ASTM D3822
Biodegradable	100%	ASTM D5988
Mesh Pattern	Rib	

Stakes to secure erosion logs shall consist of pinewood or hardwood.

- (i) *Silt Dikes*. Silt dikes shall be pre-manufactured flexible sediment barrier that will fully rebound when driven over by heavy equipment. Material shall consist of outer geotextile fabric covering closed cell urethane or polyethylene foam core. The geotextile fabric aprons shall extend beyond the foam core a minimum of 8 inches on both sides.

**Table 208-3
Geotextile Requirements**

Property	Requirement	Test Method
Water Flow Rate	100-150 gallons per minute/square foot	ASTM D4491
Grab Breaking Load	200 lbs. minimum in each direction	ASTM D4632
Ultraviolet Degradation	70% of original unexposed grab breaking load after 500 hours	ASTM D4595

Each silt dike segment shall have the following dimensions:

Dimension	Length
Vertical height after installation	>5 inches
Geotextile sleeve section to interlock segments	>8 inches

Silt dike segments shall be anchored down using the minimum requirements shown in Table 208-4.

**Table 208-4
Silt Dike Segment Requirements**

Surface	Nail	Washers
Soil Surface	Installed in 4 inch deep trench with 6 inch nails no more than 4 feet O.C. (on center)	1 inch washers
Hard Surface	1 inch concrete nails no more than 4 feet O.C.	1 inch washers and solvent-free adhesive

- (j) *Concrete Washout Structure.* The Contractor shall construct a washout structure that will contain washout from concrete placement, construction equipment cleaning operations, and residue from cutting, coring, grinding, grooving, and hydro-concrete demolition. Embankment required for the concrete washout structure may be excavated material, provided that this material meets the requirements of Section 203 for embankment. If the bottom of the excavated structure is within 5 feet of anticipated high ground water elevation or the soil does not have adequate buffering capacity to meet water quality standards, an impermeable synthetic liner shall be installed with the minimum properties shown in Table 208-5.

**Table 208-5
Impermeable Synthetic Liner Requirements**

Tested Property	Test Method	Units	Value
Thickness	ASTM D5199	mil	>30 +/- 1.5
Tear Strength	ASTM D1004	lbs.	>8
Low Temperature Impact	ASTM D1790	°F	Pass at -20

(k) *Pre-Fabricated Concrete Washout Structure.* Pre-Fabricated Concrete Washout Structures shall be one of the following types unless otherwise shown on the plans:

- (1) Pre-Fabricated Concrete Washout Structure (Type 1). Type 1 portable bins shall be used only when specified in the Contract. It shall consist of a watertight multi-use container designed to contain liquid concrete washout wastewater, solid residual concrete waste from washout operations, and residue from saw cutting, coring, grinding, grooving, and hydro-concrete demolition. Minimum capacity including freeboard shall be 440 gallons.
- (2) Pre-Fabricated Concrete Washout Structure (Type 2). Type 2 portable bins shall be used only when specified in the Contract. It shall consist of a watertight one-time use container designed to contain liquid concrete washout wastewater, solid residual concrete waste from washout operations, and residue from saw cutting, coring, grinding, grooving, and hydro-concrete demolition. The structure shall have a system to secure to the ground. Minimum capacity including freeboard shall be 50 gallons.

(l) *Vehicle Tracking Pad (VTP).* Aggregate for the vehicle tracking pad shall be crushed natural aggregate with at least two fractured faces that meets the following gradation requirements:

Sieve size	Percent by weight Passing Square Mesh Sieves
75 mm (3 inch)	100
50 mm (2 inch)	0 to 25
19.0 mm (3/4 inch)	0 to 15

Recycled crushed concrete or asphalt shall not be used for vehicle tracking pads.

Erosion control geotextile shall be a minimum Class 2, conforming to Section 712.

Pre-Fabricated or manufactured vehicle tracking pads shall only be used if specified in the Contract. Multi-use pads shall consist of industrial grade materials and shall be designed to minimize sediment leaving the project.

Minimum dimensions of the modular systems shall be:

Width	Length of pad
12 feet	35 feet

To accommodate construction traffic turning radii between the tracking pad and a stabilized surface, additional flared sections of approved pads or aggregate in accordance with this specification shall be used at no additional cost to CDOT.

Weight (min.) (lbs./sq. ft.)	Crush strength (min.) (psi)
8	400

A thin layer of stone, geotextile, or other stable surface may be required to stop rutting under the pad or area where the vehicles mount or dismount the manufactured trackout control device.

- (m) *Aggregate Bag.* Aggregate bags shall consist of crushed stone or recycled rubber filled fabric with the following properties:

Diameter (inches)	Weight (minimum) (pounds per foot)
6-8	6
10	10
12	15

Rubber used in bags shall be clean, 95 percent free of metal and particulates.

Crushed stone contained in the aggregate bags shall conform to Table 703-1 for Coarse Aggregate No. 6.

The aggregate bag shall consist of a woven geotextile fabric with the following properties:

Property	Requirement	Test Method
Grab Tensile Strength	90 lbs. min.	ASTM D4632
Trapezoid Tear Strength	25 lbs. min.	ASTM D4533
Mullen Burst	300 psi	ASTM D3786
Ultraviolet Resistance	70%	ASTM D4355

(n) *Storm Drain Inlet Protection.* Storm drain inlet protection shall consist of aggregate filled fabric with the following dimensions:

Storm Drain Inlet Protection Properties	Protection Type I*	Protection Type II#	Protection Type III ◄
Diameter	4 in.	4 in.	N/A
Minimum Section Length	7 ft.	5 ft.	5 ft.
Apron Insert	---	30 in. or sized to grate	30 in or sized to grate

*Type I protection shall be used with Inlet Type R.

#Type II protection shall be used with Combination Inlet. Option A or B

◄ Type III protection shall be used with Vane Grate Inlet only. Option A or B

Note: Options A and B are shown on Standard Plan M-208-1.

The Storm Drain Inlet Protection (Type I, II and III) shall consist of a woven geotextile fabric with the following properties:

Property	Test Method	Unit	Requirement
Grab tensile strength	ASTM D4632	lbs.	minimum 150X200
Mullen Burst Strength	ASTM D3786	lbs.	400
Trapezoid Tear Strength	ASTM D4533	lbs.	minimum 60X60
Percent Open Area	COE-22125-86	%	≥20
Water Flow Rate	ASTM D4491	gal./min./sq . ft.	≥100
Ultraviolet	ASTM D4355	%	≥70

Property	Test Method	Unit	Requirement
Resistance			

Curb roll for Storm Drain Inlet Protection (Type I and II) shall have a weight >4 pounds per linear foot of device. The device shall be capable of conforming to the shape of the curb. Aggregate contained in the storm drain inlet device shall consist of gravel or crushed stone conforming Table 703-1 for Coarse Aggregate No. 6.

CONSTRUCTION REQUIREMENTS

208.03 Project Review, Schedule, and Erosion Control Management. Prior to construction the Contractor shall implement control measures in accordance with the approved project schedule as described in this section.

At the Pre-Construction Conference, the attendees shall discuss the Stormwater Management Plan (SWMP), maintaining water quality standards, sensitive habitats on-site, wetlands, other vegetation to be protected, and the enforcement mechanisms for not meeting the requirements of this specification.

Prior to beginning construction, the Contractor shall evaluate the project site for storm water draining into or through the site. When such drainage is identified, control measures shall be used if possible to divert stormwater from running on-site and becoming contaminated with sediment or other pollutants. The diversion may be accomplished with a temporary pipe or other conveyance to prevent water contamination or contact with pollutants. Run-on water that cannot be diverted shall be treated as construction runoff and adequate control measures shall be employed.

The SWMP Administrator shall evaluate all non-stormwater coming onto the site, such as springs, seeps, and landscape irrigation return flow. If such flow is identified, control measures shall be used to protect off-site water from becoming contaminated with sediment or other pollutants.

The SWMP Administrator shall review existing inlets and culverts to determine if inlet protection is needed due to water flow patterns. Prior to beginning construction, inlets and culverts needing protection shall be protected and the location of the implemented control measure added to the SWMP site map.

Prior to construction, the Contractor shall implement appropriate control measures for protection of wetlands, sensitive habitat, and existing vegetation from ground disturbance and other pollutant sources, in accordance with the approved project schedule as described in Section 208.

When additional control measures are required and approved by the Engineer, the

Contractor shall implement the additional control measures and the SWMP Administrator shall record and describe them on the SWMP site map. The approved control measures will be measured and paid for in accordance with Section 208.

(a) *Project Review.* The Contractor shall submit modifications to the Contractor's control measures or SWMP in a written proposal to the Engineer. The written proposal shall include the following information:

- (1) Reasons for changing the control measures.
- (2) Diagrams showing details and locations of all proposed changes.
- (3) List of appropriate pay items indicating new and revised quantities.
- (4) Schedules for accomplishing all erosion and sediment control work.
- (5) Effects on certifications caused by the proposed changes.

The Engineer will approve or reject the written proposal in writing within seven days after receipt of the submittal. The Engineer may require additional control measures prior to approving the proposed modifications. Additional modifications and additional control measures will be paid for at the Contract Unit Price for the specific items involved. If no items exist, they will be paid for as extra work in accordance with Section 109.

(b) *Erosion and Sediment Control Activities.* The erosion and sediment control activities shall be included in the weekly meeting update. The project schedule shall specifically indicate the sequence of clearing and grubbing, earthwork operations, and construction of temporary and permanent erosion control features and stabilization. The project schedule shall include erosion and sediment control work for haul roads, borrow pits, storage, asphalt or concrete batch sites, and all areas within the project limits. If during construction the Contractor proposes changes which would affect the Contract's control measures, the Contractor shall propose revised control measures to the Engineer for approval in writing. If necessary, the Contractor shall update proposed sequencing of major activities in the SWMP. Revisions shall not be implemented until the proposed measures have been approved in writing by the Engineer.

(c) *Erosion Control Management (ECM).* Erosion Control Management for this project shall consist of SWMP Administration and Erosion Control Inspection. All ECM staff shall have working knowledge and experience in construction, and shall have successfully completed the Transportation Erosion Control Supervisory Certificate Training (TECS) as provided by the Department. The Superintendent may be permitted to serve in an ECM role, unless otherwise specified in the contract.

1. SWMP Administration. The SWMP shall be maintained by a SWMP Administrator. The name of the SWMP Administrator shall be recorded on the SWMP. The SWMP Administrator shall have full responsibility to maintain and update the SWMP and identify all critical action items needed to maintain water quality standards:

- (1) Complete the SWMP as described in Section 208.
- (2) Participate in the Pre-Construction Conference.
- (3) Attend erosion and sediment control meetings.
- (4) Implement necessary actions to reduce erosion or water quality problems, anticipated or presently existing, resulting from construction activities.
- (5) Ensure that all labor, material, and equipment needed to install, maintain, and remove control measures are available as needed.
- (6) During construction, the SWMP site map shall be updated to reflect current field conditions and include, at a minimum, the following if applicable:
 - (i) Limits of Construction (LOC).
 - (ii) Areas of disturbance (AD), including areas of borrow and fill.
 - (iii) Limits of Disturbance (LDA).
 - (iv) Areas used for storage of construction materials, equipment, soils, or wastes.
 - (v) Location of dedicated asphalt, concrete batch plants, and masonry mixing stations.
 - (vi) Location of construction offices and staging areas.
 - (vii) Location of work access routes during construction.
 - (viii) Location of waste accumulation areas, including areas for liquid, concrete, masonry, and asphalt.
 - (ix) Location of temporary, interim and permanent stabilization.

- (x) Location of outfalls.
 - (xi) Flow arrows that depict stormwater flow directions on-site and runoff direction.
 - (xii) Location of structural and non-structural control measures.
 - (xiii) Location of springs, streams, wetlands, and other State waters, including areas that require pre-existing vegetation be maintained within 50 horizontal feet of a receiving water, unless infeasible.
 - (xiv) Location of stream crossings located within the construction site boundary.
- (7) Start a new site map before the current one becomes illegible. All site maps shall remain as part of the SWMP.
- (8) Install control measures according to Standard Plans M-208-1, M-216-1, and M-615-1.
- (9) Record in the SWMP, the approved Method Statement for Containing Pollutant Byproducts.
- (10) Update the Potential Pollutants list in the SWMP and Spill Response Plan throughout construction.
2. Erosion Control Inspector (ECI).

The SWMP Administrator shall complete the duties of the ECI.

(1) ECI duties shall be as follows:

- (i) Inspect initial placement and adherence to approved SWMP and SWMP site plan control measures
- (ii) Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges.
- (iii) Identify all areas of concern that may impact water quality and, if necessary, implement corrective actions.

- (iv) Ensure all other agency Stormwater and inspection requirements are followed unless a waiver or other agreement has been made.
- (2) The ECI shall immediately report to the Contractor and Engineer the following instances:
 - (i) Noncompliance which may endanger health or the environment, regardless of the cause of the incident.
 - (ii) Spills or discharges which exceeds any water quality standards.
 - (iii) Upset conditions which cause an exceedance of any water quality standards.
- (3) Document spills, leaks, or overflows that result in the discharge of pollutants. The ECI shall record the time and date, weather conditions, reasons for spill, and how it was remediated.
- (d) *Documentation Available on the Project.* The following Contract documents and references shall be made available for reference at the CDOT field office during construction:
 - 1. SWMP. The Engineer will provide an approved SWMP design (includes items (1) through (4) as listed below) at the Pre-construction Conference, which is and shall remain the property of CDOT. The following Contract documents and reports shall be included or kept maintained, (as applicable), and updated in the SWMP under the appropriate items by the SWMP Administrator:
 - (1) SWMP Plan Sheets - Notes, tabulation, site description, sequence of major activities, area of disturbance, existing soil data, existing vegetation percent cover, potential pollutant sources, receiving water, non-stormwater discharges and environmental impacts.
 - (2) SWMP Site Maps and Project Plan Title Sheet, if included in the original contract.
 - (3) Specifications - Standard and project special provisions related to stormwater and erosion control.
 - (4) Standard Plans M-208-1, M-216-1 and M-615-1.
 - (5) Control measure Details not in Standard Plan M-208-1 - project specific non-standard details.

- (6) All Water Quality Audit Reports and Form 105(s) relating to Water Quality, if applicable.
- (7) Spill Response Plan - Reports of reportable spills submitted to CDPHE.
- (8) List and Evaluation of Potential Pollutants - List of potential pollutants as described in Section 107 and approved Method Statement for Containing Pollutant Byproducts.
- (9) Other Correspondence including agreements with other Municipal Separate Storm Sewer System (MS4s), approved deferral request, CDPHE audit documentation.
- (10) TECS Certifications of the SWMP Administrator, kept current through the life of the project.
- (11) Pre-construction Conference - Conference agenda with a certification of understanding for maintaining water quality standards and SWMP. The certification shall be signed by all attendees. A certification shall also be signed by all attendees of meetings held for new subcontractors beginning work on the project that could adversely affect water quality after the Pre-construction Conference has been held, if applicable.
- (12) All Project Environmental Permits - All project environmental permits and associated applications and certifications, including, water quality standards, Senate Bill 40, USACE 404, temporary stream crossings, dewatering, biological opinions, and all other permits applicable to the project, including any separate permits obtained by the Contractor for staging area on private property, asphalt or concrete batch plant, etc.

The Engineer will incorporate the documents and reports available at the time of award. The Contractor shall provide and insert all other documents and reports as they become available during construction.

2. Reference Materials. The following Reference materials shall be used:

- (1) CDOT Erosion Control and Stormwater Quality Guide.
 - (2) CDOT Erosion Control and Stormwater Quality Field Guide.
- (e) *Weekly Meetings*: If applicable, the Contractor shall conduct a weekly meeting with the Engineer and subcontractors to discuss construction activities that could adversely affect water quality, including the following:

- (1) Unresolved issues from observations.
- (2) Requirements of the SWMP.
- (3) Problems that may have arisen in implementing the site specific SWMP or maintaining control measures.
- (4) Control measures that are to be installed, removed, modified, or maintained, and associated SWMP modifications.
- (5) Planned activities that will affect stormwater in order to proactively phase control measures.

208.04 Control Measures for Stormwater. The SWMP Administrator shall modify the SWMP to clearly describe and locate all control measures implemented at the site to control potential sediment discharges.

Vehicle tracking pads shall be used at all vehicle and equipment exit points from the site to prevent sediment exiting the limits of construction (LOC) of the project site. Access shall be provided only at locations approved by the Engineer. The SWMP Administrator shall record vehicle tracking pad locations on the SWMP site map.

New inlets and culverts shall be protected during their construction. Appropriate protection of each culvert and inlet shall be installed immediately. When riprap is called for at the outlet of a culvert, it shall be installed within 24 hours of completion of each pipe. The Contractor shall remove sediment, millings, debris, and other pollutants from within the newly constructed drainage system, prior to use, at the Contractor's expense. All removed sediment shall be disposed of outside the project limits in accordance with all applicable regulations.

Concrete products wasted on the ground during construction including, but not limited to, excess concrete removed from forms, spills, slop, and all other unused concrete are potential pollutants that shall be removed from the site or contained at a pre-approved containment area that has been identified in the SWMP. The concrete shall be picked up and recycled in accordance with 6 CCR 1007-2 (CDPHE Regulations Pertaining to Solid Waste Sites and Facilities) at regular intervals, as needed, or as directed by the Engineer.

- (a) *Unforeseen Conditions.* The Contractor shall design and implement erosion and sediment control measures for correcting conditions unforeseen during the design of the project, or for emergency situations that develop during construction. The Department's Erosion Control and Stormwater Quality Guide shall be used as a reference document for the purpose of designing erosion and sediment control

measures. Measures and methods proposed by the Contractor shall be reviewed and approved in writing by the Engineer prior to installation.

- (b) *Other Agencies.* If CDPHE, US Army Corps of Engineers (USACE), the Environmental Protection Agency (EPA), or a Local Agency reviews the project site and requires additional measures to prevent and control erosion, sediment, or pollutants, the Contractor shall cease and desist activities resulting in pollutant discharge and immediately implement these measures. If the work may negatively affect another MS4, the Contractor shall cease and desist activities resulting in the discharge and shall implement appropriate measures to protect the neighboring MS4, including installing additional measures. Implementation of these additional measures will be paid for at contract unit prices.
- (c) *Work Outside the Right of Way.* Disturbed areas, including staging areas, which are outside CDOT ROW and outside easements acquired by CDOT for construction, are the responsibility of the Contractor.
- (d) *Construction Implementation.* The Contractor shall incorporate control measures into the project as outlined in the accepted schedule.
- (e) *Stabilization.* Once earthwork has started, the Contractor shall maintain erosion control measures until permanent stabilization of the area has been completed and accepted. Clearing, grubbing and slope stabilization measures shall be performed regularly to ensure final stabilization. Failure to properly maintain erosion control and stabilization methods, either through improper phasing or sequencing will require the Contractor to repair or replace sections of earthwork at the Contractor's expense. The Contractor shall schedule and implement the following stabilization measures during the course of the project:
 - 1. *Temporary Stabilization.* At the end of each day, the Contractor shall stabilize disturbed areas by surface roughening, vertical tracking, or a combination thereof. Disturbed areas are locations where actions have been taken to alter the existing vegetation or underlying soil of a site, such as clearing, grading, road bed preparation, soil compaction, and movement and stockpiling of sediment and materials. Designated topsoil distributed on the surface or in stockpiles shall not receive temporary stabilization. Other stabilization measures may be implemented, as approved.
 - 2. *Interim Stabilization.* As soon as it is known with reasonable certainty that work will be temporarily halted for 14 days or more, sediment and material stockpiles and disturbed areas shall be stabilized using one or more of the specified following methods:

- (1) Application of 1.5 tons per acres of mechanically crimped certified weed free hay or straw in combination with an approved organic mulch tackifier.
 - (2) Placement of bonded fiber matrix in accordance with Section 213.
 - (3) Placement of mulching (hydraulic) wood cellulose fiber mulch with tackifier, in accordance with Section 213.
 - (4) Application of spray-on mulch blanket in accordance with Section 213. Magnesium Chloride, Potassium Chloride and Sodium Chloride, or other salt products, shall not be used as a stabilization method.
 - (5) Topsoil stockpiles shall receive interim stabilization in accordance with Section 207, unless specified as a different material than the other disturbed areas on-site.
3. Summer and Winter Stabilization. Summer and winter stabilization is defined as stabilization during months when seeding will not be permitted. As soon as the Contractor knows shutdown is to occur, interim stabilization shall be applied to the disturbed area. Protection of the interim stabilization method is required. Reapplication of interim stabilization may be required as directed.
 4. Permanent Stabilization. Permanent stabilization is defined as the covering of disturbed areas with topsoil, seeding, mulching with tackifier, soil retention coverings, and such non-erodible methods as riprap, road shouldering, etc., or a combination thereof as required by the Contract. Other permanent stabilization techniques may be proposed by the Contractor, in writing, and shall be used when approved in writing by the Engineer. All permanent stabilization requirements shown on the plans shall be completed within four working days of the placement of the topsoil in accordance with Section 207.
 5. Final Stabilization. Final stabilization is achieved when all ground disturbing activities at the site have been completed, and uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels, or equivalent permanent physical erosion reduction methods have been employed.
- (f) *Maintenance.* Erosion and sediment control practices and other protective measures identified in the SWMP as control measures for stormwater pollution prevention shall be maintained in effective operating condition until final acceptance of the project. Control measures shall be continuously maintained in accordance with good engineering, hydrologic, and pollution control practices, including removal of collected sediment when silt depth is 50 percent or more of the effective height of the erosion control device. When possible, the Contractor

shall use equipment with an operator rather than labor alone to remove the sediment.

Maintenance of erosion and sediment control devices shall include replacement of such devices upon the end of their useful service life as recommended by the Contractor and approved by the Engineer. Maintenance of rock check dams and vehicle tracking pads shall be limited to removal and disposal of sediment or addition of aggregate. Damages resulting from failure to maintain control measures shall be repaired at the Contractor's expense.

Site assessments shall be performed to assess the adequacy of control measures at the site and the necessity of changes to those control measures to ensure continued effective performance. Where site assessment results in the determination that new or replacement control measures are necessary, the control measures shall be installed to ensure continuous effectiveness. When identified, control measures shall be maintained, added, modified or replaced as soon as possible, immediately in most cases.

Approved new or replaced control measures will be measured and paid for in accordance with this section. Devices damaged due to the Contractor's negligence shall be replaced at the Contractor's expense.

From the time seeding and mulching work begins until project acceptance the Contractor shall maintain all seeded areas. Damage to seeded areas or to mulch materials shall be immediately restored. If damage is due to Contractor negligence, it shall be restored at the Contractor's expense. Restoration of other damaged areas will be measured and paid for under the appropriate bid item.

Temporary control measures may be removed prior to final acceptance of the project, as determined by the Engineer. If removed, the area in which these control measures were constructed shall be returned to a condition similar to that which existed prior to its disturbance. Removed control measures shall become the property of the Contractor. Maintenance shall be notified of the locations of any control measures left in place.

If the Contractor fails to complete construction within the approved contract time, the Contractor shall continue erosion and sediment control operations at its expense until acceptance of the work.

Sediment removed during maintenance of control measures and material from street sweeping may be used in or on embankment, provided it meets the requirements of Section 203 and is distributed evenly across the embankment.

Whenever sediment collects on the paved surface, the surface shall be cleaned.

Street washing will not be allowed. Storm drain inlet protection shall be in place prior to shoveling, sweeping, or vacuuming. Sweeping shall be completed with a pickup broom or equipment capable of collecting sediment. Sweeping with a kick broom will not be allowed.

Material from pavement saw cutting operations shall be cleaned from the roadway surface during operations using a vacuum. A control measure, such as a berm, shall be placed to contain slurry from joint flushing operations until the residue can be removed from the soil surface. Aggregate bags, erosion logs or other permeable control measures shall not be used. Residue shall not flow into driving lanes. It shall be removed and disposed of in accordance with Section 107. Material containment and removal will not be paid for separately, but shall be included in the work.

208.05 Construction of Control Measures. Control measures shall be constructed in accordance with Standard Plans M-208-1 and M-216-1, and with the following:

- (a) *Seeding, Mulching, Sodding, Soil Retention Blanket.* Seeding, mulching, sodding, and soil retention blanket installation shall be performed in accordance with Sections 212, 213, and 216.
- (b) *Erosion Bales.* The bales shall be anchored securely to the ground with wood stakes. Erosion Bales shall be entrenched 4 inches minimum into the soil, tightly abutted with no gaps, staked, and backfilled around the entire outside perimeter. Erosion Bales cannot be used for Check Dams.
- (c) *Silt Fence.* Silt fence shall be installed in locations as per M standard plans 208-1 and as specified in the Contract.
- (d) *Temporary Berms.* Berms shall be constructed to the dimensions as per M 208-1 standard plans and as shown in the Contract, and sufficiently compacted to prevent erosion or failure. If the berm erodes or fails, it shall be immediately repaired or replaced at the Contractor's expense. Berms must be at least 18 inches tall or high enough to prevent overtopping. Berms must have a minimum of 4 to 6-foot base. Gradient of all receiving area above berm must be less than 2:1, or flatter. Outlets of anticipated flow from captured water behind berms must be designed with additional control measures suitable to control concentrated flow. Maximum drainage area for each outlet must be limited to 2 acres.
- (e) *Temporary Diversion.* Diversions shall be constructed to the dimensions as per M standard plans 208-1 and as shown in the Contract and graded to drain to a designated outlet. The berm shall be sufficiently compacted to prevent erosion or failure. If the diversion erodes or fails, it shall be immediately repaired or replaced at the Contractor's expense.

- (f) *Temporary Slope Drains.* Temporary slope drains shall be installed prior to installation of permanent facilities or growth of adequate ground cover on the slopes. All temporary slope drains shall be securely anchored to the slope. The inlets and outlets of temporary slope drains shall be protected to prevent erosion. Ensure drainage area for every slope drain is smaller than 5 acres. Ensure pipe or channel is properly sized, and for drainage areas larger than 1 acre the pipe size must be designed by an Engineer to ensure the drainage structure can accommodate the runoff resulting from a 2-year, 24-hour storm event. The use of prefabricated flared inlet sections is recommended.
- (g) *Silt Berm.* Prior to installation of silt berms, the Contractor shall prepare the surface of the areas in which the berms are to be installed such that they are free of materials greater than 2 inches in diameter and are suitably smooth for the installation of the silt berms, as approved. See M standard 208-1 for details. Silt berms shall be secured with spikes. The Contractor shall install the silt berm in a manner that will prevent water from going around or under the silt berm. Silt berms shall be installed on top of soil retention blanket or turf reinforcement blanket.
- (h) *Rock Check Dam.* Rock shall be installed at locations shown on the plans. Rock check dams shall conform to the dimensions shown on the plans. The Geotextile Erosion Control shall be Class 2 and conform to the requirements of Section 712, and shall extend up $\frac{2}{3}$ of the riprap height with 6 inch minimum cover over geotextile. Rock Check Dam shall be installed within a ditch sub excavated 6 inches below the flow line. The ends of the rip rap check dam shall be a minimum of 6 inches higher than the center of the check dam. Stone shall meet the requirements of Section 506. Larger rocks with larger void spaces should be used on top. See M standard 208-1 for details.
- (i) *Riprap Outlet Protection.* Geotextile used shall be protected from cutting or tearing. Overlaps between two pieces of geotextile shall be 1-foot minimum. Riprap size shall be in accordance with Section 506 and as shown on the plans.
- (j) *Storm Drain Inlet Protection.* Prior to installation, the Contractor shall sweep the surface of the area in which the storm drain inlet protection devices are to be installed such that the pavement is free of sediment and debris. The ends of the inlet protection Type 1 and Type 2 shall extend a minimum of 1 foot past each end of the inlet.

The Contractor shall remove all accumulated sediment and debris from the surface surrounding all storm drain inlet protection devices after each rain event or as directed. The Contractor shall remove accumulated sediment from each Type II and III containment area when it is more than one third full of sediment, or as

directed.

The Contractor shall protect storm drain facilities adjacent to locations where pavement cutting operations involving wheel cutting, saw cutting, sand blasting, or abrasive water jet blasting are to take place.

- (k) *Sediment Trap*. Sediment traps shall be installed to collect sediment laden water and to minimize the potential of pollutants leaving the project site. Locations shall be in accordance with M standard 208-1 and as shown on the plans or as directed.

Sediment traps shall be constructed prior to disturbance of upslope areas and shall be placed in locations where runoff from disturbed areas can be diverted into the trap.

The area under the embankment shall be cleared, grubbed, and stripped of any vegetation and roots.

Fill material for the embankment shall be free of roots or other vegetation, organic material, large stones, and other objectionable material.

Sediment shall be removed from the trap when it has accumulated to one half of the wet storage depth of the trap and shall be disposed of in accordance with Section 208.

- (l) *Erosion Logs*. Erosion logs shall be embedded 2 inches into the soil. Stakes shall be embedded so that the top of the stake does not extend past the top erosion log more than 2 inches, at the discretion of the Engineer, a shallower stake depth may be permitted if adverse site conditions are encountered, e.g. rock or frozen ground.

The Contractor shall maintain the erosion logs during construction to prevent sediment from passing over or under the logs. See M standard 208-1 for details.

- (m) *Silt Dikes*. Prior to installation of silt dikes, the Contractor shall prepare the surface of the areas in which the silt dikes are to be installed such that they are free of materials greater than two inches in diameter and are suitably smooth for the installation of the silt dikes, as approved by the Engineer.

- (n) *Concrete Washout Structure*. The concrete washout structure shall meet or exceed the dimensions shown on the plans. Work on this structure shall not begin until written acceptance of location is provided by the Engineer. See M standard 208-1 for details.

Control measures designed for concrete washout waste shall be implemented. If

the bottom of the excavated structure is within 5 feet of anticipated high ground water elevation or the soil does not have adequate buffering capacity to meet water quality standards, an impermeable synthetic liner shall be installed with the minimum properties shown in Table 208-5 or use a prefabricated washout.

The following requirements shall be met:

- (1) The structure shall contain all washout water.
 - (2) Stormwater shall not carry wastes from washout and disposal locations.
 - (3) The site shall be located a minimum of 50 horizontal feet away from State waters and shall meet all requirements for containment and disposal as defined in Section 107.
 - (4) The site shall be signed as "Concrete Washout".
 - (5) The site shall be accessible to appropriate vehicles.
 - (6) Freeboard capacity shall be included in the structure design to reasonably ensure the structure will not overtop during or because of a precipitation event.
 - (7) The Contractor shall prevent tracking of washout material out of the washout structure.
 - (8) Solvents, flocculants, and acid shall not be added to wash water.
 - (9) The structure shall be surrounded on three sides by a compacted berm.
 - (10) The structure shall be fenced with orange plastic construction fencing conforming to Section 607, to provide a barrier to construction equipment and to aid in identification of the concrete washout area.
 - (11) Concrete waste, liquid and solid, shall not exceed $\frac{2}{3}$ the storage capacity of the washout structure.
 - (12) A concrete washout sign shall have letters at least 3 inches high and conform to Section 630.
- (o) *Pre-fabricated concrete washout structures (Type 1 and Type 2).* Structures and sites shall meet the following requirements:
- (1) Structure shall contain all washout water. If bins are determined to be leaking,

the Contractor shall replace the bin on-site and clean up the spilled material and dispose of it properly.

- (2) Structure shall be located a minimum of 50 horizontal feet away from State waters, and shall be confined so that no potential pollutants will enter State waters and other sensitive areas as defined in the Contract. Locations shall be as approved by the Engineer. The pre-fabricated structure shall be signed as "Concrete Washout". Sign can be on portable bin.
- (3) The site shall be accessible to appropriate vehicles.
- (4) Washout bins shall be covered with a tarp tied down to the structure or staked to the ground when a storm event is anticipated.
- (5) Solvents, flocculants, and acid shall not be added to wash water.
- (6) Concrete waste, liquid and solid, shall not exceed $\frac{2}{3}$ the storage capacity of the washout structure.
- (7) Prefabricated structures cannot be moved when they contain liquid, unless otherwise approved.
- (8) The concrete washout structure shall be installed and ready for use prior to concrete placement operations.
- (9) Washout areas shall be checked and maintained as required. On-site permanent disposal of concrete washout waste is not allowed.

All liquid and solid wastes, including contaminated sediment and soils generated from concrete washout shall be hauled away from the site and disposed of properly at the Contractor's expense.

Delivery to the site shall not occur until written acceptance is provided by the Engineer for both the product and the concrete waste disposal facility.

- (p) *Vehicle Tracking Pad (VTP)*. Vehicle tracking pads shall be constructed to the minimum dimensions shown in the Contract, unless otherwise directed by the Engineer. Construction of approved vehicle tracking pads shall be completed before any disturbance of the area.

The Contractor shall maintain each vehicle tracking pad during the entire time that it is in use for the project. The vehicle tracking pad shall be removed at the completion of the project unless otherwise directed by the Engineer. Additional aggregate may be required for maintenance and will be paid for under Pay Item,

Maintenance Aggregate (Vehicle Tracking Pad).

(q) *Detention Pond*. Permanent detention ponds shown on the construction plans may be used as temporary control measures if all the following conditions are met:

- (1) The pond is designated as a construction control measure in the SWMP.
- (2) The pond outfall and outlet are designed and implemented for use as a control measure during construction in accordance with good engineering, hydrologic, and pollution control practices. The stormwater discharges from the outfall shall not cause degradation or pollution of State waters, and shall have control measures, as appropriate.
- (3) All silt shall be removed and the pond returned to the design grade and contour prior to project acceptance.

(r) *Aggregate Bag*. Aggregate bags shall be placed on a stable surface, consisting of hardscape or compacted gravel. If approved by the Engineer, the aggregate bag may be placed on compacted dirt areas, where bags conform to the surface and can effectively minimize sediment transport. Aggregate bags can be used on frozen ground when other control measures cannot be trenched or staked, but only until the ground is capable of being trenched and staked. Aggregate bags shall not be placed in concentrated flow areas, other than gutter pans. Aggregate bags shall be placed to conform to the surface without gaps to ensure that discharge water does not cause erosion. See M standard 208-1 for details.

(s) *Surface roughening*. Surface roughening creates horizontal grooves along the contour of the slope. Roughening may be accomplished by furrowing, scarifying, ripping, or disking the soil surface to create a 2 to 4-inch minimum variation in soil surface.

(t) *Vertical Tracking*. Vertical tracking involves driving a tracked vehicle up and down the soil surface and creating horizontal grooves and ridges along the contour of the slope. Sandy soils or soils that are primarily rock need not be tracked.

208.06 Materials Handling and Spill Prevention. The SWMP Administrator shall clearly describe and record on the SWMP, all practices implemented at the site to minimize impacts from procedures or significant material that could contribute pollutants to runoff. Areas or procedures where potential spills can occur shall have a Spill Response Plan in place as specified in Section 107 or Section 208. Construction equipment, fuels, lubricants, and other petroleum distillates shall not be stored or stockpiled within 50 horizontal feet of any State waters or more if the Contractor determines necessary. Equipment fueling and servicing shall occur only within approved designated areas.

- (a) *Bulk storage structures.* Bulk storage structures for petroleum products and other chemicals shall have impervious secondary containment or equivalent adequate protection so as to contain all spills and prevent any spilled material from entering State waters. Secondary containment shall be capable of containing the combined volume of all the storage containers plus at least 10 percent freeboard. For secondary containment that is used and may result in accumulation of stormwater within the containment, a plan shall be implemented to properly manage and dispose of all accumulated stormwater which is deemed to be contaminated (e.g., has an unusual odor or sheen).
- (b) *Lubricant Leaks.* The Contractor shall inspect equipment, vehicles, and repair areas daily to ensure petroleum, oils, and lubricants (POL) are not leaking onto the soil or pavement. Absorbent material or containers approved by the Engineer shall be used to prevent leaking POL from reaching the soil or pavement. The Contractor shall have onsite approved absorbent material or containers of sufficient capacity to contain any POL leak that can reasonably be foreseen. The Contractor shall inform all Spill Response Coordinators in accordance with the Spill Response Plan if unforeseen leakage is encountered. All materials resulting from POL leakage control and cleanup shall become the property of the Contractor and shall be removed from the site. Control, cleanup, and removal of by-products resulting from POL leaks shall be performed at the Contractor's expense.
- (c) *Spill Response Plan.* A Spill Response Plan shall be developed and implemented to establish operating procedures for handling potential pollutants and preventing spills.

The Response Plan shall contain the following information:

- (1) Identification and contact information of each Spill Response Coordinators.
- (2) Locations of areas on the project site where equipment fueling and servicing operations are permitted.
- (3) Location of cleanup kits.
- (4) Quantities of chemicals and locations stored on site.
- (5) Label system for chemicals and Safety Data Sheets (SDS) for products.
- (6) Clean up procedures to be implemented in the event of a spill that does not enter State waters or ground water.
- (7) Procedures for spills of any size that enter surface waters or ground water, or

have the potential to do so. CDOT's Erosion Control and Stormwater Quality Guide contains spill notification contacts and phone numbers required in the Spill Response Plan.

(8) A summary of the employee training provided.

Information in items (1) through (8) shall be updated in the SWMP when they change.

208.07 Stockpile Management. Material stockpiles shall be located 50 horizontal feet away from State waters, and shall be confined so that no potential pollutants will enter State waters and other sensitive areas as defined in the Contract. Locations shall be approved by the Engineer.

Erodible stockpiles (including topsoil) shall be contained with acceptable control measures at the toe (or within 20 feet of the toe) throughout construction. Control measures shall be approved by the Engineer. The SWMP Administrator shall describe, detail, and record the sediment control devices on the SWMP.

208.08 Limits of Disturbance. The Contractor shall limit construction activities to those areas within the limits of disturbance shown on the plans and cross-sections. Construction activities, in addition to the Contract work, shall include the on-site parking of vehicles or equipment, on-site staging, on-site batch plants, haul roads or work access, and all other activities which would disturb existing soil conditions. Staging areas within the LDA shall be as approved by the Engineer. Construction activities beyond the limits of disturbance due to Contractor negligence shall be restored to the original condition by the Contractor at the Contractor's expense. The SWMP Administrator shall tabulate additional disturbances not identified in the SWMP. If the disturbance at any time exceeds 1 acre (including as part of a common plan of development), the Contractor will need to apply for a Colorado Discharge Permit System- Stormwater Construction Permit (CDPS-SCP) and comply with all of CDOT's over one acre specifications.

The Contractor shall pursue stabilization of all disturbances to completion.

208.09 Regulatory Mechanism for Water Quality. Failure to implement the Stormwater Management Plan is a violation of the Colorado Water Quality Control Act. Penalties may be assessed to the Contractor by the appropriate agencies. All fines assessed to the Department for the Contractor's failure to implement the SWMP will be deducted from monies due the Contractor.

The Contractor shall be subject to liquidated damages for incidents of failure to perform erosion control as required by the Contract. Liquidated damages will be applied for failure to comply with these specifications, including the following:

- (1) Failure of the Contractor to implement necessary actions required by the Engineer as required by this section.
- (2) Failure to construct or implement erosion control or spill containment measures required by the Contract, or failure to construct or implement them in accordance with the Contractor's schedule.
- (3) Failure to stabilize disturbed areas as required by this section.
- (4) Failure to replace or perform maintenance on an erosion control feature after notice from the Engineer to replace or perform maintenance as required by this section.
- (5) Failure to remove and dispose of sediment from control measures as required.
- (6) Failure to install and properly utilize a concrete washout structure for containing washout from concrete placement operations.
- (7) Failure to perform permanent stabilization as required by this section.
- (8) Failure to prevent discharges not composed entirely of stormwater from leaving the construction site.
- (9) Failure to provide the survey of Permanent Water Quality features when required on the project in accordance with this section.

The Engineer will immediately notify the Contractor of each incident of failure to perform erosion control in accordance with any water quality standards, specifications, including items (1) through (9) above by issuing a Form 105. Correction shall be made as soon as possible, immediately in most cases, but no later than 48 hours from the date of notification to correct the failure. The Contractor will be charged liquidated damages in the amount of \$970 for each day after the 48-hour period has expired that one or more of the incidents of failure to perform the requirements for each Form 105 remains uncorrected. Liquidated damages will begin at Midnight of the date on which the 48 hours has expired.

This deduction will not be considered a penalty, but will be considered liquidated damages based on estimated additional construction engineering costs. The liquidated damages will accumulate, for each cumulative day that one or more of the incidents remain uncorrected. The number of days for which liquidated damages are assessed will be cumulative for the duration of the project; that is: the damages for a particular day will be added to the total number of days for which liquidated damages are accumulated on the project. The liquidated damages will be deducted from any monies due the Contractor.

If all other failures are not corrected within 48 hours after liquidated damages have begun to be assessed, the Engineer will issue a Stop Work Order in accordance with Section 105. Work shall not resume until the Engineer has approved a written corrective action plan submitted by the Contractor that includes measures to prevent future violations and a schedule for implementation.

If the Contractor requires more than 96 hours to perform the corrective work from the date on the Form 105, the Contractor shall submit a request for deferment. The deferment request shall be in writing and shall include the specific failure, temporary measures until final correction is made, the methodology which will be employed to make the correction, and interim milestones to completing the work. The Region Water Pollution Control Manager (RWPCM), Engineer, the SWMP Administrator, and the Contractor shall concur on this deferral and set a proposed date of completion. If approved, the Contractor shall complete the corrective measures by Midnight of the proposed completion date. If corrective work is not corrected by the completion date the Engineer will issue a Stop Work Order. Liquidated Damages will apply retroactively back to the 48 hours after the Form 105 date of notification. Liquidated Damages will be assessed until the corrective work has been completed and accepted.

Deferment of work to correct failures to perform erosion control will not affect the Contractor's other contractual responsibilities, notifications for other non-compliance, nor the final completion date of the project. Liquidated Damages for other non-compliance notifications will continue to apply during the deferment period in addition to liquidated damages associated with the deferment.

Based on the submittal date of the approved deferment, Liquidated Damages and a Stop Work Order may not be mandated to the Contractor.

Disagreements regarding the suggested corrective action for a control measure compliance issue between the Project Engineer, SWMP Administrator, and Superintendent, shall be discussed with the Resident Engineer and Region Water Pollution Control Manager. If after the discussions, the Project Engineer and the Contractor are still in disagreement and the Contractor believes that additional compensation is owed, the Contractor shall follow the decision of the Project Engineer, keep track of the costs and negotiate further with the Project Engineer. If after pursuing the issue, the Contractor is unable to reach an agreement with the Project Engineer, then the Contractor can follow the dispute process outlined in Section 105.

If the Contractor's corrective action plan and schedule are not submitted and approved within 96 hours of the initial notice, the Engineer will issue a Stop Work Order and have an on-site meeting with the Superintendent, SWMP Administrator, and the Superintendent's supervisor. This meeting will also be attended by the Resident Engineer, the Region Water Pollution Control Manager, and the Region Program Engineer. This meeting will identify and document needed corrective actions and a schedule for completion. If after the meeting, the unacceptable work

is not remedied within the schedule as agreed to in the meeting, the Engineer will take action to effect compliance with the Contract and these specifications by utilizing CDOT Maintenance personnel or other non-Contractor forces and deduct the cost from any monies due or to become due to the Contractor pursuant to Section 105. Delays due to these Stop Work Orders shall be considered non-excusable. The Stop Work Order shall be in place until the project is in compliance.

If the Contractor remains non-responsive to requirements of the on-site meeting, the Engineer will start default or Contract termination procedures in accordance with Section 108. CDOT will proceed with corrective or disciplinary action in accordance with the Rules for Prequalification, Debarment, Bidding and Work on Transportation, Road, Highway and Bridge Public Projects.

When a failure meets any one of the following conditions, the Engineer will immediately issue a Stop Work Order in accordance with Section 105 irrespective of any other available remedy:

- (1) It may endanger health or the environment.
- (2) It consists of a spill or discharge of hazardous substances or oil which may cause pollution of the waters of the state.
- (3) It consists of a discharge which may cause a violation of water quality standards.

208 Items to Be Completed Prior to Requesting Partial Acceptance of Water Quality Work.

- (a) *Reclamation of Washout Areas.* After concrete operations are complete, washout areas shall be reclaimed in accordance with this section at the Contractor's expense.
- (b) *Survey.* When Permanent Water Quality (PWQ) control measures are required on the project and once built, the Contractor shall survey the control measures to confirm that the PWQ control measures conform to the configuration, grade, and volume shown on the plans. The survey shall conform to Section 625. The results of the survey shall be submitted in accordance with CDOT's Survey Manual (AutoCAD to GIS and TMOSS Codes), or GIS with attribute tables, showing both designed and final elevations and configurations. Paper versions of the drawings shall be submitted with the stamp and seal of the Contractor's Surveyor.

PWQ control measures that do not meet the Contract requirements will be identified in writing by the Engineer, and shall be repaired or replaced at the Contractor's expense. Correction surveys shall be performed at the Contractor's expense to confirm the locations, dimensions, and volume certification (for water

quality capture volume structures only) of each PWQ control measure. The Engineer, CDOT Hydraulics Engineer for the region, Headquarters Permanent Water Quality Manager, and Headquarters Maintenance staff will perform a walkthrough of the PWQ control measures to confirm conformance to material requirements, locations, and dimensions. Before the walkthrough, the Contractor shall provide the corrected survey to the Engineer, Regional, and Headquarters Permanent Water Quality Managers.

- (c) *Locations of Temporary Control Measures.* The Engineer will identify locations where modification, cleaning, or removal of temporary control measures are required and will provide these in writing to the Contractor. Upon completion of work required, the SWMP Administrator shall modify the SWMP to provide an accurate depiction of control measures to remain on the project site.

All punch list and walkthrough items shall be completed and approved by the Engineer and Maintenance.

Method of Measurement

208.11 Erosion Control Management on projects having less than one acre of total disturbed area will not be measured and paid for separately but shall be included in the work, unless otherwise specified in the contract (bid schedule). If contracted, ECM work will be measured as the actual number of days of ECM work performed, regardless of the number of personnel required for SWMP Administration and Erosion Control Inspection, including erosion control inspections, documentation, meeting participation, SWMP Administration, and the preparation of the SWMP. If the combined hours of SWMP Administration and Erosion Control Inspection is four hours or less in a day, the work will be measured as ½ day. If the combined hours of SWMP Administration and Erosion Control Inspection is more than four hours in a day, the work will be measured as one day. Total combined hours of ECM work exceeding eight hours in a day will still be paid as one day.

Erosion bales and rock check dams will be measured by the actual number installed and accepted.

Silt fence, silt berms, erosion logs, aggregate bags, silt dikes, temporary berms, temporary diversions, and temporary slope drains, will be measured by the actual number of linear feet that are installed and accepted. Measured length will not include required overlap.

Concrete washout structure will be measured by the actual number of structures that are installed and accepted.

Pre-fabricated concrete washout structures will be measured by the actual number of

structures delivered to the site. It shall not include structures moved on-site.

Storm drain inlet protection will be measured by linear foot or actual number of devices that are installed and accepted.

Sediment trap quantities will be measured by the actual number installed and accepted.

Removal of trash that is not generated by construction activities will be measured by the actual number of hours that Contractor workers actively remove trash from the project. Each week the Contractor shall submit to the Engineer a list of workers and the hours spent collecting such trash.

Removal of accumulated sediment from traps, basins, areas adjacent to silt fences and erosion bales, and other clean out excavation of accumulated sediment, and the disposal of such sediment, will be measured by the number of hours that equipment, labor, or both are used for sediment removal.

Vehicle tracking pads will be measured by the actual number constructed and accepted.

Additional aggregate required for maintaining vehicle tracking pads will be measured as the actual number of cubic yards installed and accepted.

Pre-fabricated vehicle tracking pads will be measured by the actual number of pads delivered to the site and set up to the minimum dimensions. It shall not include pads moved on-site.

Basis of Payment

208.12 Control measures will be paid for at the Contract unit price for each of the items listed below that appear in the contract. Erosion Control management (ECM) duties on projects having less than one acre of total disturbed area will not be measured and paid for separately but shall be included in the work, unless otherwise specified in the contract.

Payment will be made under:

Pay Item	Pay Unit
Aggregate Bag	Linear Foot
Concrete Washout Structure	Each
Erosion Bales (Weed Free)	Each
Erosion Control Management	Day (If in the contract)
Erosion Log (Type 1) (____ Inch)	Linear Foot
Erosion Log (Type 2) (____Inch)	Linear Foot
Erosion Log (Type 3) (____Inch)	Linear Foot
Pre-Fabricated Concrete Washout Structure (Type 1)	Each
Pre-Fabricated Concrete Washout Structure (Type 2)	Each
Pre-Fabricated Vehicle Tracking Pad	Each
Maintenance Aggregate (Vehicle Tracking Pad)	Cubic Yard
Removal and Disposal of Sediment (Equipment)	Hour
Removal and Disposal of Sediment (Labor)	Hour
Removal of Trash	Hour
Rock Check Dam	Each
Sediment Basin	Each
Sediment Trap	Each
Silt Berm	Linear Foot
Silt Dike	Linear Foot
Silt Fence	Linear Foot
Silt Fence (Reinforced)	Linear Foot
Storm Drain Inlet Protection (Type__)	Linear Foot
Storm Drain Inlet Protection (Type__)	Each
Sweeping (Sediment Removal)	Hour
Temporary Berm	Linear Foot
Temporary Diversion	Linear Foot
Temporary Slope Drain	Linear Foot
Vehicle Tracking Pad	Each

Modifications to the SWMP due to construction errors or survey errors by the Contractor shall be made at the Contractor's expense.

Surface roughening and vertical tracking (temporary stabilization) will not be measured and paid for separately but shall be included in the work. Payment for each control measure item will be full compensation for all work and materials required to furnish, install, maintain, and remove the control measure when directed.

Payment for Removal and Disposal of Sediment (Equipment) will be full compensation for use of the equipment, including the operator. Payment for Removal and Disposal of Sediment (Labor) will be full compensation for use of the labor.

Payment for concrete washout structure, whether constructed or prefabricated, will be full compensation for all work and materials required to install, maintain, and remove the item. Maintenance and relocation, as required, of these structures throughout the duration of the project will not be measured and paid for separately, but shall be included in the work.

Silt berm spikes and wood spikes will not be measured and paid for separately, but shall be included in the work. When required, soil retention blankets will be measured and paid for in accordance with Section 216.

Compost and wood stakes for Erosion Log (Type 2) will not be measured and paid for separately, but shall be included in the work.

Spray-on mulch blankets required by the Contract, including those used in both interim and final stabilization, will be measured and paid for in accordance with Section 213.

Payment for storm drain inlet protection will be full compensation for all work, materials, and equipment required to complete the item, including surface preparation, maintenance throughout the project, and removal upon completion of the work. Aggregate will not be measured and paid for separately, but shall be included in the work.

Sweeping, when used as a control measure as shown in the Contract, will be measured by the number of hours that a pickup broom or equipment capable of collecting sediment, authorized by the Engineer, is used to remove sediment from the roadway or other paved surfaces. Each week the Contractor shall submit to the Engineer a statement detailing the type of sweeping equipment used and the number of hours it was used to pick up sediment. The operator will not be measured and paid for separately, but shall be included in the work.

Stakes, anchors, connections, geotextile, riprap, and tie downs used for temporary slope drains will not be measured and paid for separately, but shall be included in the work.

Payment for vehicle tracking pad will be full compensation for all work, materials and equipment required to construct, maintain, and remove the entrance upon completion of the work. Aggregate and geotextile will not be measured and paid for separately, but shall be included in the work. If additional aggregate for maintenance of vehicle tracking pads is required, it will be measured by the cubic yard in accordance with Section 304 and will be paid for under this Section as Maintenance Aggregate (Vehicle Tracking Pad).

Seeding, sod, mulching, soil retention blanket, and riprap will be measured and paid for in accordance with Sections 212, 213, 216, and 506.

All work and materials required to perform the permanent control measure survey and furnish the electronic files shall be included in the original unit price bid for surveying. Surveying will be measured and paid for in accordance with Section 625.

Payment will be made for control measures replaced as approved by the Engineer. Temporary erosion and sediment control measures required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or ordered by the Engineer or for the Contractor's convenience, shall be performed at the Contractor's expense. If the Contractor fails to complete construction within the contract time, payment will not be made for Section 208 pay items for the period of time after expiration of the contract time. These items shall be provided at the Contractor's expense.

Revision of Section 212 Soil Amendments, Seeding, and Sodding

Delete Section 212 of the Standard Specifications for this project and replace it with the following:

Description

212.01 This work consists of application of fertilizer, soil amendments, seedbed preparation, and placing seed and sod.

Substitutions from this specification will not be allowed unless submitted in writing to the Engineer and approved by the Region or Headquarters Landscape Architect.

Materials

212.02 Seed, Fertilizers, Soil Conditioners, Mycorrhizae, Elemental Sulfur, and Sod.

(a) *Seed.* Seed shall be delivered to the project site in sealed bags tagged by a registered seed supplier conforming to the requirements of the Colorado Seed Act, CRS 35-27-111(1). Seed used on the project shall not be in the Contractor's possession for more than 30 days from the date of pickup or delivery on the seed vendors packing slip. Bags which have been opened or damaged before Engineer inspection will be rejected. The State required legal tags shall remain on the bag until opened and the seed is placed in either the drill or hydraulic seeders in the presence of the Engineer. The Engineer shall remove all tags after seed has been planted. Each seed tag shall clearly show the following:

- (1) Name and address of the supplier
- (2) Botanical and common name for each species
- (3) Lot numbers
- (4) Percent by weight of inert ingredients
- (5) Guaranteed percentage of purity and germination
- (6) Pounds of Pure Live Seed (PLS) of each seed species
- (7) Total net weight in pounds of PLS in the sealed bag
- (8) Calendar month and year of test date

2

Seeds shall be free from all noxious weed seeds per Colorado Seed Act (CRS 35-17) prohibited noxious weed seed list.

Weed seed content shall not exceed the requirements in part 7.2 of the Colorado Department of Agriculture's Seed Act Rules and Regulations.

Seed which has become wet, moldy, or damaged in transit or in storage will not be accepted.

Seed and seed labels shall conform to all current State regulations and to the testing provisions of the Association of Official Seed Analysis. Computations for quantity of seed required on the project shall include the percent of purity and percent of germination.

The Contractor shall store seed under dry conditions, at temperatures between 35°F to 90°F, under low humidity and out of direct sunlight. The Contractor shall provide the location of where seed is stored and access to stored seed locations to the Engineer. Seed stored by the Contractor for longer than 30 days will be rejected.

(b) *Organic Fertilizer.* Fertilizer derived directly from plant or animal sources shall conform to Colorado Revised Fertilizer Rules 8 CCR 1202-4. Fertilizer shall be uniform in composition and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's name, address, and nutrient analysis. Fertilizer bags (containers) which arrive at the project site opened, damaged, or lacking a label will be rejected. The Contractor shall only use bulk shipments such as tote bags or super sacks that have a manufacturer's original label and sealed at the manufacturing facility. Fertilizer which becomes caked or damaged will not be accepted. Fertilizer shall be stored according to manufacturer's recommendations in a dry area where the fertilizer will not be damaged.

Organic fertilizer formulation being submitted for use must be registered with the Colorado Department of Agriculture.

Verification tests may be conducted by CDOT on grab samples of organic fertilizer delivered to the site to determine the reliability of bag label analysis and for ingredients which are injurious to plants. If a product of any supplier is found to consistently deviate from the bag level analysis, the acceptance of that product will be discontinued. Copies of the failing test reports will be furnished to the Colorado State Board of Agriculture for appropriate action under the "Colorado Fertilizer Law".

Fertilizer shall be supplied in one of the following physical forms:

- (1) A dry free-flowing granular fertilizer, suitable for application by agricultural fertilizer spreader.
- (2) A homogeneous pellet, suitable for application by agricultural fertilizer spreader. Pellet size shall be 2-3 mm. Smaller may be allowed when Seeding (Native) Hydraulic is shown on the plans.

3

- (3) A soluble form that will permit complete suspension of insoluble particles in water, suitable for application by power sprayer.

The application rate of the organic fertilizer shall be either as high or low nitrogen (N) fertilizer as shown on the plans.

High N organic fertilizer chemical analysis shall conform to Table 212-1.

**Table 212-1
Chemical Analysis for High N Fertilizer**

Ingredient	Range	Test Method
Nitrogen (N) (%)	6 - 10	AOAC Official Method 993.13 Nitrogen (Total) in Fertilizers Combustion Method
Phosphorus (P) (%)	1 - 8	AOAC Official Method 960.03 Phosphorus (Available) in Fertilizers
Potassium (K) (%)	1 - 8	AOAC Official Method 983.02 Potassium in Fertilizers

Low N organic fertilizer chemical analysis shall conform to Table 212-2.

**Table 212-2
Chemical Analysis for Low N Fertilizer**

Ingredient	Range	Test Method
Nitrogen (N) (%)	2 - 5	AOAC Official Method 993.13 Nitrogen (Total) in Fertilizers Combustion Method
Phosphorus (P) (%)	3 - 8	AOAC Official Method 960.03 Phosphorus (Available) in Fertilizers
Potassium (K) (%)	1 - 8	AOAC Official Method 983.02 Potassium in Fertilizers

Organic fertilizers shall conform to Table 212-3.

Table 212-3
Organic Fertilizer Properties

Criteria	Range
Moisture content by weight	< 6%

(c) *Compost (Mechanically Applied)*. Compost shall be suitable for use in Erosion Log (Type 2) and permanent seeding applications. Compost shall not contain visible refuse, other physical contaminants, or substances considered harmful to plant growth. Compost shall be used per all applicable EPA 40 CFR 503 standards for Class A biosolids including the time and temperature standards. Materials that have been treated with chemical preservatives as a compost feedstock will not be permitted.

The Contractor shall provide material that has been aerobically composted in a commercial facility. Compost shall be from a producer that participates in the United States Composting Council's (USCC) Seal of Testing Assurance (STA) program. The Department will only accept STA approved compost that is tested per the USCC Test Methods for Examining of Composting and Compost (TMECC) manual.

Verification tests may be conducted by CDOT on grab samples of compost delivered to the site to determine the gradation and physical properties. Testing may be done for indication of ingredients which are injurious to plants. Sampling procedures will follow the STA 02.01 Field Sampling of Compost Materials and 02.01-B Selection of Sampling Locations for Windrows and Piles. If a product is found to consistently deviate from the gradation and property analysis, the acceptance of that product will be discontinued. Copies of the failing test reports will be furnished to the USCC.

Compost for permanent seeding soil conditioner locations onsite and application rates shall be as shown on the plans.

Organic matter in compost shall be no more than 2 inches in length.

Compost (Mechanically Applied) for permanent seeding shall meet the gradation and physical properties as shown in Table 212-4 and Table 212-5. The Contractor shall provide a written explanation for compost tested parameters not within the acceptable requirements for review and consideration.

The Contractor shall provide documentation from the composting facility confirming that the material has been tested per USCC TMECC.

Table 212-4
Gradation for Permanent Seeding Compost
(Test Method TMECC 02.02-B,
“Sample Sieving for Aggregate Size Classification”)

Sieve Size	Minimum, Percent Passing	Maximum, Percent Passing
25.0 mm (1")	100	
19.0 mm (3/4")	90	100
6.25 mm (1/4")	70	100

Note: Compost shall be from a producer that participates in the USCC STA program.

**Table 212-5
Properties for Permanent Seeding Compost**

Compost Parameters	Reported as	Requirements	Test Method
pH	pH units	6.0 - 8.5	TMECC 04.11-A
Soluble Salts (Electrical Conductivity)	dS/m (mmhos/cm)	< 5.0	TMECC 04.10-A
Moisture Content	%, wet weight basis	25% - 50%	TMECC 03.09-A
Organic Matter Content	%, dry weight basis	20% - 50%	TMECC 05.07-A
Organic Matter Content	pounds per cubic yard	>240	
Carbon to Nitrogen Ratio (C:N)		< 15:1	
Manufactured Inert Contamination (Plastic, concrete, ceramics, metal)	%, dry weight basis	< 1%	TMECC 03.08-A
Stability (respirometry)	mg CO ₂ -C per g TS per day mg CO ₂ -C per g OM per day	8 or below	TMECC 05.08-B
Select Pathogens and weed free	(PASS/FAIL) Limits: Salmonella < 3 MPN/4 grams of TS, or Coliform Bacteria < 1000 MPN/gram	Pass	TMECC 07.01-B Fecal Coliforms, or 07.02 Salmonella
Trace Metals	(PASS/FAIL) Limits (mg kg ⁻¹ , dw basis): Arsenic (As) 41, Cadmium (Cd) 39, Copper (Cu)1500, Lead (Pb) 300, Mercury (Hg) 17, Nickel (Ni) 420, Selenium (Se) 100, Zinc (Zn) 2800	Pass	TMECC 04.06

Use the STA Lab bulk density lb/cu ft as received, multiplied by organic matter % as received, multiplied by 27 to calculate pounds per cubic yard of organic matter.

7

1. Compost for Erosion Log (Type 2) shall meet the gradation and physical properties as shown in Table 212-6 and Table 212-7.

Table 212-6
Gradation for Erosion Log (Type 2) Compost
(Using Test Method TMECC 02.02-B,
“Sample Sieving for Aggregate Size Classification”)

Sieve Size	Percent Passing, Minimum	Percent Passing, Maximum
75.0 mm (3")	100	
25.0 mm (1")	90	100
9.5 mm (3/8")	10	50

Note: Organic matter for erosion log compost shall be no more than 4 inches in length. Compost shall be from a producer that participates in the USCC STA program.

Table 212-7
Properties for Erosion Log (Type 2) Compost

Compost Parameters	Reported as	Requirements	Test Method
pH	pH units	6.0 - 8.5	TMECC 04.11-A
Soluble Salts (Electrical Conductivity)	dS/m (mmhos/cm)	< 5.0	TMECC 04.10-A
Moisture Content	%, wet weight basis	< 60%	TMECC 03.09-A
Organic Matter Content	%, dry weight basis	25% - 100%	TMECC 05.07-A
Manufactured Inert Contamination (plastic, concrete, ceramics, metal)	%, dry weight basis	< 0.5%	TMECC 03.08-A
Stability (respirometry)	mg CO ₂ -C per g TS per day mg CO ₂ -C per g OM per day	N/A	TMECC 05.08-B
Select Pathogens and weed free	(PASS/FAIL) Limits: Salmonella < 3 MPN/4 grams of TS, or Coliform Bacteria < 1000 MPN/gram	Pass	TMECC 07.01-B Fecal Coliforms, or 07.02 Salmonella
Trace Metals	(PASS/FAIL) Limits (mg kg ⁻¹ , dw basis): Arsenic (As) 41, Cadmium (Cd) 39, Copper (Cu)1500, Lead (Pb) 300, Mercury (Hg) 17, Nickel (Ni) 420, Selenium (Se) 100, Zinc (Zn) 2800	Pass	TMECC 04.06

(d) *Biotic Soil Amendments (Hydraulically Applied)*. Soil amendments shall be a combination of natural fibers, growth stimulants, and other biologically active material designed to improve seed germination and vegetation establishment as shown in Table 212-8. Biotic soil amendments shall be pre-packaged in ultraviolet and weather resistant packaging and labeled from the manufacturer. Bags (containers) which arrive at the project site opened, damaged, or lacking a label will be rejected. Bulk shipments such as tote bags will be rejected. Biotic soil amendments shall be stored in locations not exceeding 80 °F. Acceptance of material shall be subject to the requirements of the Department's Approved Product List (APL).

The application rate of the biotic soil amendments shall be per the rates shown on the

plans. Use of mulch tackifier (Plantago Insularis or pre-gelatinized corn starch polymer) shall be per Section 213. It shall be used as a wetting agent at a rate of 30 pounds per acre. Biotic soil amendments shall provide a continuous and uniform cover and shall consist of one of the components in Table 212-8 and all of the performance and physical properties in Table 212-9.

**Table 212-8
Required Percentage Ranges of Biotic Soil Amendments**

Components	Units	Requirement
Professional grade sphagnum peat moss, professional grade reed sedge peat moss or compost that meets the Seal of Testing Assurance Program of the US Composting Council	%, dry weight basis	> 41%
Mechanically processed straw consisting of weed free agricultural straw, flexible flax fiber or rice hulls	%, dry weight basis	< 57%

**Table 212-9
Performance and Physical Requirements of Biotic Soil Amendments**

Parameters	Reported as	Requirement	Test Method
pH	pH units	5.0 - 7.5	ASTM D1293
Moisture Content	%, wet weight basis	10% - 50%	ASTM D 2974
Organic matter content	%, dry weight basis	> 85%	ASTM D586
Carbon Nitrogen Ratio	Ratio C:N	< 38:1	ASTM E1508
Manufactured inert contamination	%, dry weight basis	< 1.0%	
Acute Toxicity	(Pass/Fail)	Pass (non-toxic)	ASTM E729-96(2014) or EPA Method 2021.0 or EPA Method 2002.0
Vegetative Minimum		> 400%	ASTM 7322

The Contractor shall provide a CTR with independent laboratory analysis for the required parameters per subsection 106.13.

(e) *Humate*. The Contractor shall provide a screened dry granular form of organic humic and fulvic acid substance. Humate shall be pre-packaged and labeled from the

10

manufacturer. Bags (containers) which arrive at the project site opened, damaged, or lacking label will be rejected. The Contractor shall only use bulk shipments such as tote bags or super sacks that have a manufacture's original label and sealed at the manufacturing facility. Humate shall be stored in locations not exceeding 80°F. Humate shall be provided per the rates shown on the plans. Product shall conform to the parameters in Table 212-10 and Table 212-11.

Table 212-10
Screened Size Requirements for Humate

Seeding Method	Reported as	Requirement
Seeding (Native) Drill, Hydraulic and Broadcast	inches	< 1/4

**Table 212-11
Performance and Physical Requirements of Humate**

Parameters	Reported as	Requirement	Test Method
Organic Matter	%, dry weight basis	>70%	
Fines (material that is finer than the No. 200 (75-µm) sieve)	%, dry weight basis	<2%	ASTM D7928
pH	pH units	3.0 - 4.5	ASTM D1293
Acute Toxicity	Pass / Fail	Non Toxic	ASTM 7101 or EPA Method 2021 or 2002
Humic and Fulvic Acids	%, dry weight basis	> 70%	A & L Western method; total alkali extractable
Carbon Content	%, dry weight basis	40% - 50%	
Moisture Content	%, dry weight basis	< 20%	
Heavy Metal / Ash Content	%, dry weight basis	< 15%	

The Contractor shall provide a CTR with independent laboratory analysis for the required parameters per subsection 106.13.

12

(f) *Mycorrhizae*. Mycorrhizae shall arrive onsite in original and undamaged packaging. Handling of this material shall follow manufacturer's safety recommendations. Mycorrhizae shall be stored onsite in such a way as to avoid exposure to direct sunlight for more than four hours and to prevent package temperatures to rise above 85 °F. The endo mycorrhizal inoculum shall provide at least 60,000 propagules per pound and shall contain all of the following species and conform to the parameters in Table 212-12:

- (1) *Glomus intraradices* (a.k.a. *Rhizophagus intraradices*)
- (2) *Glomus mosseae* (a.k.a. *Funneliformis mosseae*)
- (3) *Glomus aggregatum* (a.k.a. *rhizophagus aggregatus*)
- (4) *Glomus etunicatum* (a.k.a. *Claroideoglomus etunicatum*)

Table 212-12
Physical Requirements of Endo Mycorrhizae

Parameters	Reported as	Requirement	Test Method
Acute Toxicity	Pass or Fail	Non Toxic	ASTM 7101 or EPA Method 2021 or 2002

The Contractor shall provide a CTR with independent laboratory analysis for the required parameters per subsection 106.13.

The following rates shall be used for Seeding Methods:

- (1) For Seeding (Native) Drill, the mycorrhizae product shall be provided as a dry free-flowing granular material, suitable for application by agricultural drill seeder. Application rate shall be 8 pounds per acre.
- (2) For Seeding (Native) Hydraulic, the mycorrhizae product shall be provided as a fine granular (< 2 mm) or powdered form (particle size less than 300 microns) that will permit complete suspension and used with hydro-seeder equipment. Application rate shall be 20 pounds per acre.
- (3) For Seeding (Native) Broadcast, the mycorrhizae product shall be provided as a dry free-flowing granular material, suitable for application by fertilizer spreader. Application rate shall be 20 pounds per acre.

13

- (g) *Elemental Sulfur*. The Contractor shall provide a free-flowing granular material consistent in size suitable for application by agricultural spreader and conform to the parameters in Table 212-13. Elemental sulfur shall arrive onsite in original and undamaged packaging.

Table 212-13
Physical Requirements of Elemental Sulfur

Parameters	Reported as	Requirement
Guaranteed Analysis of Elemental Sulfur (S)	%	> 90
Bulk Density	Lb per cu. ft.	> 75

- (h) *Sod*. Sod shall be nursery grown and 99 percent weed free. Species shall be as shown on the plans. The 1 percent allowable weeds shall not include undesirable perennial or annual grasses or plants defined as noxious by current State statute or county noxious weed list. Soil thickness of sod cuts shall not be less than $\frac{3}{4}$ inch or more than 1 inch. Sod shall be cut in uniform strips with minimum dimensions of 18 inches in width and 48 inches in length. The Contractor shall submit a sample of the sod proposed for use, which shall serve as a standard if approved. Sod furnished, whether in place or not, that is not up to the standard of the sample will be rejected. CDOT will reject all sod that was cut more than 72 hours before installation.

Each load of sod shall be accompanied by a certificate from the grower stating the type of sod and the date and time of cutting. The Contractor shall submit the certificate to the Engineer before application of the sod. Only sod that is accompanied by the certificate from the grower will be accepted and paid for.

Construction Requirements

212.03 Submittals. The Contractor shall provide the name and contact information of the seeding contractor 30 days before start of seeding work. The Contractor shall provide two copies of items (1) - (14) listed below to the Pre-vegetation Conference per Section 207. When the Contractor provides resubmittals to meet Contract requirements, the Region or Headquarters Landscape Architect shall be copied on all correspondence.

- (1) Written confirmation from the registered seed supplier, on the Contractor's letterhead, that the Contract specified seed has been secured. No substitutions of the contract specified seed will be permitted unless evidence is submitted, from one of the registered seed suppliers that the Contract specified seed is not available and will not become available during the anticipated construction period.

14

- (2) Seed vendor's "seed dealer" endorsement.
- (3) A copy of each seed species germination report of analysis that verifies the lot has been tested by a recognized laboratory for seed testing within 13 months before the date of seeding.
- (4) A copy of each seed species purity laboratory report of analysis that verifies that the lot has been tested by a recognized laboratory for seed testing. The report shall list all identified species, seed count, and date of test.
- (5) Manufacturer's documentation stating that the fertilizer meets the Contract requirements.
- (6) Organic fertilizer documentation showing manufacturer and chemical analysis.
- (7) Permit issued from CDPHE confirming that the vendor can produce or sell compost per House Bill (HB) 1181.
- (8) Documentation from the compost manufacturer that it is a participating member of in the U.S. Composting Council's Seal of Testing Assurance Program (STA).
- (9) Results of compost testing on an STA Compost Technical Data Sheet confirming all required test methods are met using the STA Program.
- (10) Sample of physical compost (at least one cubic foot of material).
- (11) Manufacturer's documentation confirming that biotic soil amendment meets the required physical and performance criteria based on independent testing by the manufacturer.
- (12) Manufacturer's documentation confirming that humate meets the required physical and performance criteria based on independent testing by the manufacture.
- (13) Manufacturer's documentation confirming that mycorrhizae meet the physical criteria based on independent testing and that the minimum required species is provided.
- (14) Pictures and descriptions of seeding equipment proposed to be used on the project. Based on the seeding methods required at a minimum this should include the drill seeder, hydraulic seeder, cultipacker or seed bed roller implements.
- (15) Instructions and documentation on how seeders will be calibrated onsite, per subsection 212.05(a).

212.04 Seeding Seasons. Seeding in areas that are unirrigated shall be restricted according to the parameters in Table 212-14.

15

**Table 212-14
Seeding Seasons**

Areas other than the Western Slope

Zone	Spring Seeding	Fall Seeding
Below 6000'	Spring thaw to June 1	September 15 until consistent ground freeze
6000' - 7000'	Spring thaw to June 1	September 1 until consistent ground freeze
7000' - 8000'	Spring thaw to July 15	August 1 until consistent ground freeze
Above 8000'	Spring thaw to consistent ground freeze	

Western Slope

Zone	Spring Seeding	Fall Seeding
Below 6000'	Spring thaw to May 1	August 1 until consistent ground freeze
6000' - 7000'	Spring thaw to June 15	September 1 until consistent ground freeze
Above 7000'	Spring thaw to consistent ground freeze	

- (1) "Spring thaw" is the earliest date in a new calendar year in which seed can be buried 1/2 inch into the surface soil (topsoil) through normal drill seeding methods.
- (2) "Consistent ground freeze" is the time during the fall months in which the surface soil (topsoil), due to freeze conditions, prevents burying the seed 1/2 inch through normal drill seeding operations. Seed shall not be sown, drilled, or planted when the surface soil or topsoil is in a frozen or crusted state.

Seeding accomplished outside the time periods listed above will be allowed only when the Contractor's request is approved by the Engineer in writing, with coordination from the Region Landscape Architect. If requested by the Contractor, the Contractor must agree to perform the following work at no cost to the Department: reseed, remulch, and repair areas which fail to produce species indicated in the Contract.

If seeding is ordered by the Engineer outside the time periods listed above, the cost to repair areas that fail to produce species will be paid for by the Department.

212.05 Native Seeding Methods. Areas to be seeded shall be installed per SWMP Permanent Stabilization Plan.

All amendments and seeding shall be applied based on the seeding method and rates specified on the plans.

The Contractor shall complete the Amendments Verification Prerequisite for each of the seeding methods described herein. This shall be done by completing a Seed and Amendment Quantities Worksheet for each work area. This worksheet shall have a list of all amendments and the seed labels for each of the areas to be worked on. The State required legal tags shall remain on the bag until opened and the seed placed in either the drill or hydraulic seeders in the presence of the Engineer. Seeding work shall not begin until written approval of the worksheet has been received from the Engineer.

In determining the weight of seed required for each work area, the Contractor shall use the Pure Live Seed (PLS) weight shown on each bag of seed. Calculations based on net weight will not be accepted.

The Contractor shall submit a proposed Permanent Stabilization Phasing Plan to the Engineer before the Pre-revegetation Conference for approval showing how the SWMP Permanent Stabilization Plans will be implemented to minimize traffic loading damage to subgrade soil prepared and seeded areas. The proposed sequencing shall consider and identify strategies and site management control measures to protect seeded areas from foot, vehicle, and other disturbances. The strategic planning of the permanent seeding and mulch shall consider all other phasing of construction activities including traffic management and utility work. Areas damaged due to the Contractor's failing to protect the seeded areas shall be repaired at no cost to the Department. Seeded areas damaged due to circumstances beyond the Contractor's control shall be repaired and reseeded as ordered. Payment for corrective work, when ordered, shall be at the Contract prices shown and per subsection 109.04.

The following seeding application methods shall not be implemented during winds which are consistently higher than 20 MPH, or when the ground is frozen, excessively wet, or otherwise untillable. The Engineer may test to see if the moisture level in the soil is acceptable to work the soil by performing a Soil Plasticity Test as described in the Construction Manual. Multiple seeding operations shall be anticipated, based on acceptable seeding conditions. The seeding methods to be implemented shall be one or more of the following, as shown on the plans:

(a) Seeding (Native) Drill.

1. Fertilizer, Compost, Humates and Elemental Sulfur. The Contractor shall uniformly apply compost and elemental sulfur on the surface of the topsoil using an agricultural spreader at the rate of application specified on the plans. All competitive, non-native vegetation shall be uprooted and hauled offsite before spreading amendments. Before starting incorporation of compost and elemental sulfur, the Contractor shall receive written acceptance from the Engineer on the Seed and Amendment Quantities Worksheet. Verification Prerequisite for this method also requires documentation on the Permanent Stabilization SWMP Site Maps with the approved areas outlined, signed, and dated by the Engineer to track progress. If SWMP Site Maps are not included in the Contract, the Contractor shall use the Contract grading or roadway plan sheets.

Once the Quantities Verification Prerequisite is completed for an area, the Contractor shall homogenously incorporate the compost and elemental sulfur into the top 6 inches of topsoil. Tillage of the amendments shall be completed using a disc and harrow, field cultivator, vibra-shank, or other method suitable to site conditions. For small areas tillage shall be completed using rotary tillers. No measurable depth of organic amendment shall be present on the surface.

The shanks on the back of a grader or dozer shall not be used for tillage. Tillage may take multiple passes to achieve the desired harmonious incorporation. If multiple passes are required, the Contractor shall cross till the soil with the second pass occurring at a 30-degree angle to the first pass. On slope areas, all tillage shall be parallel to the contour. For project that will utilize aggregate or recycled asphalt shouldering material amendments, tillage is not required under shouldering material. Projects seeding up to the edge of pavement, tillage is not required for first 12 inches from the edge of pavement.

Once incorporation of compost and elemental sulfur is approved, the Contractor shall uniformly apply fertilizer and humates on the surface of the topsoil using an agricultural spreader, as shown in the Contract documents.

2. Seedbed Preparation. Amended topsoil shall be cultivated to a firm but friable seedbed using cultipacker or seed bed roller implements. Crusted hard soils shall be broken up and all areas shall be free of clods, sticks, stones, debris, concrete, and asphalt in excess of 4 inches in any dimension per Section 207. Areas shall be left in a rough and uncompacted condition with a surface variance of 2 to 4 inches.
3. Seed and Mycorrhizae. Before seeding, the finished grade of the soil shall be 1 inch below the top of all curbs, junction and valve boxes, walks, drives and other structures. Seeding shall be done within two days of seedbed preparation efforts (tilling or scarifying). If a rain event occurs that compacts or erodes the seedbed before performing seeding, the seedbed shall be re-prepared as directed by the Engineer.

18

Areas shall be seeded by mechanical power drawn drills suitable for area soils, topography, and size followed by packer wheels. Mechanical power drawn drills shall have furrow openers and depth bands set to maintain a planting depth of at least 1/4 inch and not more than 1/2 inch and shall be set to space the rows not more than 8 inches apart. Seeding equipment shall have a double disk opener, seed box agitator, and seed metering device.

The seeder shall be calibrated by collecting seed from a single drop tube in the presence of the Engineer based on the following procedure. The Contractor shall provide the tape measure, scale, collection cup, and seed bag with complete label from the supplier. The Contractor may submit an alternative method for approval at the site Pre-vegetation Conference.

- A. Measure the total width (W) of the drill seeder in feet.
- B. Count the number of drill rows (N) on the seeder.
- C. On drill seeders that the tire drives the seeding mechanism, measure the tire circumference (C) in feet.
- D. Calculate the number of rotations the tire will complete per acre using the following equation:
 - A = one acre or 43,560 square feet (SF)
 - A / W = feet (F) the drill seeder needs to travel for each acre
 - F / C = number of rotations (R) of the tire per acre
- E. Reduce the amount of tire rotations by one tenth.
 - .90R = # Tire rotations to calibrate seeder (RCS)
- F. Find the seeding rate (LBS PLS / Acre) on the Stormwater Management Plan.
- G. Using the information from the seed tag, convert the PLS seed rate to a bulk seeding rate using the following equations:
 - % PLS = (% purity (in decimal form) from seed label) x (% germination (in decimal form) from seed label)
 - (LBS PLS / Acre) from the SWMP / % PLS = Required bulk seed per acre in LBS
- H. Reduce the required bulk seed per acre based on the number of seeder tubes.
 - Required bulk seed per acre / N = Weight in LBS of bulk seed from one tube
- I. Reduce the required bulk seed rate from the tube by one tenth.
 - 0.90 x Weight of bulk seed from one tube = Collected bulk seed weight (CBS) in LBS
- J. Set the drill seeder to the correct seeding rate using the manufacturer's recommendation.
- K. With the collection cup under one tube and the driving wheel jacked up, rotate the tire the RCS number of times. Use the value stem to count the rotations.
- L. Using the scale, weigh the seed in the collection cup.
- M. Adjust the drill calibration until the weight of bulk seed in the collection cup equals the CBS in LBS.

19

Drill seeders shall be recalibrated every time the drill is mobilized onsite. The Contractor shall submit a written statement that the equipment is calibrated and shall provide the correct depth based on conditions before seeding actions are initiated. The Contractor shall continuously monitor equipment to ensure that it is providing a uniform seed application.

If mycorrhizae are called for on the plans, the granules shall be included with the seed in the drill seeder such that the mycorrhizae are placed at or below the seed.

The distance between furrows produced using the drill shall not be more than 8 inches. If rows on the drill exceed 8 inches, the Contractor shall drill the areas twice (if achievable at 30-degree angles to each other) at no additional cost to the Department.

After seeding, the furrows that were created by the drill shall be maintained in place. Construction traffic, other than what is needed to mulch the areas, shall not be permitted on the areas completed.

Permanent stabilization mulching shall be accomplished within 24 hours of drill seeding.

(b) Seeding (Native) Hydraulic.

This method utilizes water as the carrying agent and mixes biotic soil amendments, seed, organic fertilizer, humates, mycorrhizae and elemental sulfur into a single slurry for hydraulic application. The Contractor shall furnish and place combined slurry with a hydro-seeder that will maintain a continuous agitation and apply homogenous mixture through a spray nozzle. The pump shall produce enough pressure to maintain a continuous, non-fluctuating spray that will reach the extremities of the seeding area. Water tanks shall have a means of measuring volume in the tank. Seed shall be added to the slurry onsite, no more than 60 minutes before starting application. Slurry shall be applied from a minimum of two opposing directions to achieve complete soil coverage.

The application of the single slurry shall be applied within four hours of adding Mycorrhizae.

The Contractor shall prevent seed, fertilizer, and mulch from falling or drifting onto areas occupied by rock base, rock shoulders, plant beds, or other areas where grass is detrimental. The Contractor shall remove material that falls on plants, roadways, gravel shoulders, structures, and other surfaces where material is not specified.

- A. *Seedbed Preparation.* All areas shall be loosened to at least 6 inches, leaving the surface in rough condition with a surface variance of 6 to 8 inches. On steep slopes, tillage shall be accomplished with appropriate equipment as the slope is constructed. Soil areas shall be tilled to produce loose and friable surfaces with crusted hard soils broken up. All slopes shall be free of clods, sticks, stones, debris, concrete, asphalt and all other materials in excess of 4 inches in any dimension. All competitive, non-

20

native vegetation shall be uprooted and hauled offsite before spreading amendments. Under no circumstances shall the ground surface be smooth and compacted.

- B. *Biotic Soil Amendment, Fertilizer, Humate, Mycorrhizae and Seed*. The Contractor shall assemble all materials for proposed areas to hydro-seed and review quantities with area of coverage with the Engineer as the Quantities Verification Prerequisite for this method. Before mixing in the tank, the Contractor shall receive written acceptance from the Engineer on the Seed and Amendment Quantities Worksheet that the correct quantities are onsite. This quantities verification prerequisite also requires documentation on the Permanent Stabilization SWMP Site Maps with the approved areas outlined, signed, and dated by the Engineer to track progress. If SWMP Site Maps were not included in the Contract, grading or roadway plan sheets shall be used. For the verification process, the Contractor shall provide the Engineer with all documentation for materials in unopened packaging.

After the Quantities Verification Prerequisite has been approved, the hydro-seeder shall be filled with water to 1/3 of its required volume. Following this, water and biotic soil amendments shall be added to the hydro-seeder at a consistent rate. The ratio of water to Biotic Soil Amendments shall be per manufacturer's recommendations. Fertilizer, humates and mycorrhizae shall then be added until the tank has reached 3/4 of its required volume. The tank shall then be filled with water to the required volume. Uniform slurries shall be agitated or mixed for a minimum of ten minutes after all water and materials are in the tank.

Hydraulic seeding equipment shall include a pump capable of being operated at 100 gallons per minute and at 100 pounds per square inch pressure. The equipment shall have a nozzle adaptable to hydraulic seeding requirements. Storage tanks shall have a means of estimating the volume used or remaining in the tank.

Seed shall be added to the slurry onsite no more than 60 minutes before starting application. The Contractor shall increase the Seed Plan rates (LBS PLS / Acre) as shown on the plans by 1.5 times at no additional cost to the Department. The Contractor may be required to apply slurry using multiple hoses to ensure uniform application to all areas of the site. Coverage rates shall be based on the volume of material in the tank, as verified by the Engineer. Areas of lighter applications (covering more area than what is calculated) will require additional application, as directed.

An appropriate curing period shall be per manufacturer's recommendations and shall consider forecasted weather conditions.

Permanent stabilization mulching shall be accomplished within 24 hours of hydraulic application of native seed.

(c) Seeding (Native) Broadcast.

This method utilizes hand equipment to broadcast spread amendments and seed over

prepared seedbeds.

- A. *Fertilizing, Compost, Humate and Elemental Sulfur*. The Contractor shall uniformly apply compost and elemental sulfur on the surface of the placed topsoil using an agricultural spreader at the rate of application specified on the plans. All competitive non-native vegetation shall be uprooted and hauled offsite before spreading amendments. Before starting incorporation, the Contractor shall receive written acceptance from the Engineer on the Seed and Amendment Quantities Worksheet that the correct quantities will be applied. The Quantities Verification Prerequisite for this method also requires documentation on the Permanent Stabilization SWMP Site Maps with the approved areas outlined, signed, and dated by the Engineer to track progress. If SWMP Site Maps are not included in the Contract, the grading or roadway plan sheets shall be used.

Once the Quantities Verification Prerequisite is completed for an area, the Contractor shall homogenously incorporate the Compost into the top 6 inches of soil. Tillage of the amendments shall be completed using appropriate tools depending on the size of the area to be worked. Contractor shall use hand tillers or approved small space implements.

Once incorporation of compost and elemental sulfur is approved, the Contractor shall uniformly apply organic fertilizer and humates on the surface of the topsoil using an agricultural spreader.

- B. *Seedbed Preparation*. Amended topsoil shall be cultivated to a firm but friable seedbed using tractor implements. Crusted hard soils shall be broken up and all areas shall be free of clods, sticks, stones, debris, concrete, and asphalt in excess of 4 inches in any dimension per Section 207. Areas shall be left in a rough condition with a surface variance of 2 to 4 inches. Under no circumstances shall the ground surface be smooth and compacted.
- C. *Seed and Mycorrhizae*. Before seeding, the finished grade of the soil shall be 1 inch below the top of all curbs, junction and valve boxes, walks, drives and other structures. Seeding shall be accomplished within two days of seedbed preparation efforts (tilling or scarifying) to make additional seedbed preparation unnecessary. If a rain event occurs that compacts or erodes the seedbed before performing seeding, the seedbed shall be re-prepared as directed.

22

Areas shall be seeded by broadcast-type seeders (cyclone or approved mechanical seeders). The Contractor shall increase the Seed Plan rates (LBS PLS / Acre) as shown on the plans by 1.5 times at no additional cost to the Department.

After seeding, mycorrhizae shall be evenly hand-distributed across the area. Seed and mycorrhizae shall be covered by hand raking and covering with $\frac{1}{4}$ to $\frac{1}{2}$ inch of topsoil. To ensure seeds have a firm contact with the soil the Contractor shall use a heavy roller as approved in the Site Pre-vegetation Conference. Mycorrhizae shall not be exposed to sunlight for more than four hours. Using equipment with continuous cleat tracks (cat-tracking) to cover seed is not permitted.

Permanent stabilization mulching shall be accomplished within 24 hours of broadcast seed application of native seed.

212.06 Seeding (Temporary). Areas of topsoil shall be seeded with annual grasses per SWMP Interim Site Maps or as directed by the Engineer.

Seeding may take place at any time during the year as long as the ground is not covered in snow and topsoil is not frozen. Topsoil may be placed in a stockpile or distributed on-grade after receiving subgrade soil preparation.

Interim stabilization for areas that receive temporary seeding shall be per subsection 208.04(e)2. Seed shall not be included with interim hydraulic mulch applications.

The Contractor shall wait to amend topsoil until the area is ready for permanent seeding with native seed mix shown on the SWMP. The Contractor shall use either the drill, hydraulic, or broadcast method of seeding. Seeding rates (LBS PLS / Acre) shall be increased by 1.5 times for hydraulic and broadcast methods at no additional cost to the Department.

Seed shall meet the requirements of 212.02(a) and shall be selected from Table 212-1 based on the application time.

**Table 212-15
Temporary Seed Mixes**

Common Name	Botanical Name	Application Time	Seeding Rates (LBS PLS / Acre)	Planting Depth (inches)
Oats	Avena sativa	October 1 - May 1	35	1 - 2
Foxtail Millet	Setaria italica	May 2 - September 30	30	1/2 - 3/4

The Contractor shall restrict motorized vehicle and foot traffic from areas that have received temporary seeding.

212.07 Seeding (Lawn). Lawn grass seeding shall be accomplished in the seeding seasons

23

per subsection 212.03.

(a) *Fertilizing and Soil Conditioning.* The first application of fertilizer, soil conditioner, or both shall be incorporated into the soil immediately before seeding, and shall consist of a soil conditioner, commercial fertilizer, or both as designated in the Contract. Fertilizer called for on the plans shall be worked into the top 4 inches of soil at the rate specified in the Contract. Biological nutrient, culture, or humate based material called for on the plans shall be applied in a uniform application onto the soil service. Organic amendments shall be applied uniformly over the soil surface and incorporated into the top 6 inches of soil.

The second application of fertilizer shall consist of a fertilizer having an available nutrient analysis of 20-10-5 applied at the rate of 100 pounds per acre. It shall be uniformly broadcast over the seeded area three weeks after germination or emergence. The area shall then be thoroughly soaked with water to a depth of 1 inch.

Fertilizer shall not be applied when the application will damage the new lawn.

(b) *Seedbed Preparation.* In preparation of seeding lawn grass, irregularities in the ground surface, except the saucers for trees and shrubs, shall be removed. Measures shall be taken to prevent the formation of low places and pockets where water will stand.

Immediately before seeding, the ground surface shall be tilled or hand worked into an even and loose seedbed to a depth of 6 inches, free of clods, sticks, stones, debris, concrete, and asphalt in excess of 2 inches in any dimension and brought to the desired line and grade.

(c) *Seeding.* Seed shall be drilled with mechanical landscape type drills. Broadcast type seeders or hydraulic seeding will be permitted only on small areas not accessible to drills. Seed shall not be drilled or broadcast during windy weather or when the ground is frozen or untillable.

212.08 Sodding.

(a) *Fertilizing and Soil Conditioning.* Before laying sod, the 4 inches of subsoil underlying the sod shall be treated by tilling in fertilizer, compost, or humates as specified on the plans. Amendments shall be applied uniformly over the soil surface and incorporated into the top 6 inches of soil.

After laying the sod, it shall be fertilized with a fertilizer having a nutrient analysis of 20-10-5 at the rate of 200 pounds per acre. Fertilizer shall not be applied when the application will damage the sod.

(b) *Soil Preparation.* Before sodding, the ground shall be tilled or hand worked into an even and loose sod bed to a depth of 6 inches, and irregularities in the ground surface shall be removed. Sticks, stones, debris, clods, asphalt, concrete, and other material more than 2 inches in any dimension shall be removed. Depressions or variances from a smooth grade

24

shall be corrected. Areas to be sodded shall be smooth before sodding occurs.

(c) *Sodding*. Sod shall be placed by staggering joints with all edges touching. On slopes, the sod shall run approximately parallel to the slope contours. Where the sod abuts a drop inlet, the subgrade shall be adjusted so that the sod shall be 1-½ inches below the top of the inlet.

Within one hour after the sod is placed and fertilized it shall be watered. After watering, the sod shall be permitted to dry to the point where it is still wet enough for effective rolling. The Contractor shall roll the sod in two directions with a lawn roller capable of applying between 50 - 80 pounds per square inch of surface pressure to eliminate air pockets.

Method of Measurement

212.09 The quantities of lawn seeding, and the three native seeding types will not be measured but shall be the quantities designated in the Contract, except that measurements will be made for revisions requested by the Engineer, or for discrepancies of plus or minus five percent of the total quantity designated in the Contract.

The quantity of sod will be by the actual number of square feet, including soil preparation, water, fertilizer, and sod, completed and accepted.

Organic Fertilizer, Compost (Mechanically Applied), Humates, Mycorrhizae soil amendments for Seeding (Native) methods drill, hydraulic, and broadcast will be measured by the actual quantity of material applied and accepted.

Measurement for acres will be by slope distances.

Basis of Payment

212.10 The accepted quantities of lawn seeding, native seeding, soil conditioning, and sod will be paid for at the contract unit price for each of the pay items listed below that appear in the bid schedule. Rejected seed that has been stored longer than 30 days shall be re-ordered at the expense of the Contractor.

25

Payment will be made under:

Pay Item	Pay Unit
Organic Fertilizer	Pound
Compost (Mechanically Applied)	Cubic Yard
Biotic Soil Amendments (Hydraulic Applied)	Pound
Humate	Pound
Mycorrhizae	Pound
Elemental Sulfur	Pound
Seeding (Native) Drill	Acre
Seeding (Native) Hydraulic	Acre
Seeding (Native) Broadcast	Acre
Seeding (Wetland) Drill	Acre
Seeding (Wetland) Hydraulic	Acre
Seeding (Wetland) Broadcast	Acre
Seeding (Temporary)	Acre
Seeding (Lawn)	Acre
Sod	Square Foot

Topsoil preparation including incorporating and applying amendments, seedbed preparation, water, and seed mix (LBS PLS / Acre) will not be measured and paid for separately but shall be included in the work.

Calibrating, adjusting, or readjusting seeding or fertilizing equipment will not be measured and paid for separately but shall be included in the work.

No additional cost will be accepted for approved substitution of specified seed mix.

No payment will be made for areas seeded using one of the seeding methods without receiving signed Seed and Amendment Quantities Worksheet from the Engineer.

Additional seedbed preparation before seeding to correct compaction or erosion from storm events will not be measured and paid for separately but shall be included in the work.

Additional mobilizations as needed to complete seeding within allowed seeding seasons will not be measured and paid for separately but shall be included in the work.

Removal of all competitive, non-native vegetation before spreading amendments will not be measured and paid for separately but shall be included in the work.

Revision of Section 401 Composition of Mixtures - Voids Acceptance

Section 401 of the Standard Specifications is hereby revised for this project as follows:

Subsection 401.02(a) shall include the following:

On projects with voids acceptance of hot mix asphalt, mix designs based on a theoretical rejection of baghouse fines may be used when necessary to meet CDOT mix design requirements if the following additional requirements are met. Written approval for use of theoretical rejection of baghouse fines mixture design shall be obtained before production of project material.

- (1) Price adjustment for the hot mix asphalt shall be made based on voids acceptance criteria as prescribed in the latest version of the Standard Special Provision, Revision of Sections 105 and 106, Conformity to the Contract of Hot Mix Asphalt (Voids Acceptance). All costs associated with theoretical rejection of baghouse fines mix design, production, and acceptance shall be at the Contractor's expense. The Contractor shall submit a separate Quality Control (QC) plan for handling the rejection of baghouse fines. The plan shall identify the plan, equipment, and procedures that will be used for the rejection of baghouse fines. The plan shall include detailed information on baghouse control systems and actual data demonstrating consistent system functionality. The QC plan shall be approved in writing before production.
- (2) The Contractor shall demonstrate that the material can be produced per one of the two procedures listed below. The Contractor shall supply project aggregate material for use in establishing acceptance testing equipment correction factors. Aggregate samples that have been produced according to CP-L 5117 to represent plant-produced material shall be provided by the mix design lab.
 - (i) The Contractor shall produce a minimum of 3000 tons of material. This material shall be placed on non-thru lanes or offsite in locations approved by the Engineer. A minimum of 3 samples will be tested for AC content, air voids and VMA. QL's for each element will be determined per the contract documents. If the QL is equal to or greater than 65 for VMA and Asphalt Cement Content and the QL for the element of air voids is equal to or greater than 70, full production may commence. This material may be considered a separate process, and price adjustment will be per subsection 105.05; or,
 - (ii) The Contractor shall construct a 500-ton test strip on the main line on the project. Tonnage other than 500 tons may be produced only if approved. Three samples in the last 200 tons will be tested for volumetric properties. After construction of the test section, production shall be halted until the testing is complete and element QL's are calculated. If the QL is equal to or greater than 65 for VMA and Asphalt Cement Content and the QL for the element of air voids is equal to or greater than 70, full production may commence. If the TQL is less than 65 or the QL for the element of air voids is less than 70, the material shall be removed and replaced at the Contractor's expense.

Revision Of Section 401 Plant Mix Pavements - General

Section 401 of the Standard Specifications shall be revised as follows:

Delete Subsection 401.17 of the Standard Specifications and replace with the following:

401.17 Compaction. The hot mix asphalt shall be compacted by rolling. Both steel wheel and pneumatic tire rollers will be required. The number, weight, and type of rollers furnished shall be sufficient to obtain the required density while the mixture is in a workable condition. Compaction shall begin immediately after the mixture is placed and be continuous until the required density is obtained. When the mixture contains unmodified asphalt cement (PG 58-28 or PG 64-22) or modified (PG 58-34), and the surface temperature falls below 185 °F, further compaction effort shall not be applied unless approved, provided the Contractor can demonstrate that there is no damage to the finished mat. If the mixture contains modified asphalt cement (PG 76-28, PG 70-28 or PG 64-28) and the surface temperature falls below 230 °F, further compaction effort shall not be applied unless approved, provided the Contractor can demonstrate that there is no damage to the finished mat.

Warm Mix Asphalt compaction requirements shall conform to CP 59.

All roller marks shall be removed with the finish rolling. Use of vibratory rollers with the vibrator on will not be permitted during surface course final rolling and will not be permitted on any rolling on bridge decks covered with waterproofing membrane.

SMA shall be compacted to a density of 93 to 98 percent of the daily theoretical maximum specific gravity, determined according to CP 51. All other HMA shall be compacted to a density of 92 to 98 percent of the daily theoretical maximum specific gravity, determined according to CP 51. If more than one theoretical maximum specific gravity test is taken in a day, the average of the theoretical maximum specific gravity results will be used to determine the percent compaction. Field density determinations will be made per CP 44 or 81.

The longitudinal joints shall be compacted to a density of 90 to 98 percent of the theoretical maximum specific gravity. The theoretical maximum specific gravity used to determine the joint density will be the average of the daily theoretical maximum specific gravities for the material that was placed on either side of the joint. Density (percent relative compaction) will be determined per CP 44.

The Contractor shall obtain one 6-inch diameter core at a random location within each longitudinal joint sampling section for determination of the joint density. The Contractor shall mark and drill the cores at the location directed by the Engineer and

in the presence of the Engineer. The Engineer will take possession of the cores for testing. The Contractor may take additional cores at his own expense. Coring locations shall be centered on the visible line where the joint between the two adjacent lifts abuts the surface. The center of all joint cores shall be within 1 inch of this visible joint line. Core holes shall be repaired by the Contractor using materials and methods approved by the Engineer. PC and OA joint coring shall be completed within five calendar days of joint construction.

Longitudinal joint coring applies to all pavement layers. When constructing joints in an echelon paving process, the joints shall be clearly marked to ensure consistent coring location. In small areas, such as intersections, where the Engineer prescribes paving and phasing methods, the Engineer may temporarily waive the requirement for joint density testing.

Incentive or disincentive payment determined for joint density per subsection 105.05 will apply to the HMA on each side of the joint. If a layer of pavement has joints constructed on both sides, incentive or disincentive payment for each of those joints will apply to one half of the pavement between the joints.

Along forms, curbs, headers, walls, and all other places not accessible to the rollers, the mixture shall be thoroughly compacted with mechanical tampers.

Any mixture that becomes loose and broken, mixed with dirt, or is in any way defective, shall be immediately removed and replaced with fresh hot mixture, and compacted to conform to the surrounding area.

The Contractor shall construct a compaction pavement test section (CTS) for each job mix where 2,000 or more tons are required for the project. The CTS will be used to evaluate the number of rollers and the most effective combination of rollers and rolling patterns for achieving the specified densities. Factors to be considered include, but are not limited to, the following:

- (1) Number, size, and type of rollers.
- (2) Amplitude, frequency, size and speed of vibratory rollers.
- (3) Size, speed, and tire pressure of rubber tire rollers.
- (4) Temperature of mixture being compacted.
- (5) Roller patterns.

The CTS shall be constructed according to the following procedures:

The CTS shall be constructed to provide the nominal layer thickness specified. The first 500 tons of hot mix asphalt on the project location shall constitute the CTS. The production and placement rates of the CTS shall closely approximate the anticipated production and placement rates for the remainder of the Contract.

Compaction of the CTS shall commence immediately after the hot mix asphalt has been spread and shall be continuous and uniform over the entire CTS. For the CTS, compaction shall continue until no discernible increase in density is obtained by additional compactive efforts. All compaction shall be completed before the surface temperature of the mixture drops below 185 °F.

Approved types of rollers shall be used to achieve the specified density. The Contractor shall determine what methods and procedures are to be used for the compaction operation. The compaction methods and procedures shall be used uniformly over the entire last 200 tons. The Contractor shall record the following information and a copy of this data shall be furnished to the Engineer.

- (1) Type, size, amplitude, frequency, and speed of roller.
- (2) Tire pressure for rubber tire rollers, and whether the pass for vibratory rollers is vibratory or static.
- (3) Surface temperature of mixture behind the laydown machine and subsequent temperatures and densities after each roller pass.
- (4) Sequence and distance from laydown machine for each roller, and number of passes of each roller to obtain specified density.

Two sets of random cores shall be taken within the last 200 tons of the CTS. Each set shall consist of seven random cores. The Engineer will determine the coring locations using a stratified random sampling process. The locations of these cores will be such that one set can serve as a duplicate of the other. One set of these cores shall be immediately submitted to the Engineer. This set will be used for determining acceptance of the CTS and determining density correction factors for nuclear density equipment. Densities of the random samples will be determined by cores according to CP 44. Density correction factors for nuclear density equipment will be determined according to CP 81. Coring shall be performed under CDOT observation. Coring will not be measured and paid for separately but shall be included in the work. For SMA, a CTS is not used. The Contractor shall follow the requirements for the demonstration control strip per the Revision of Section 403, Stone Matrix Asphalt Pavement.

The CTS meets requirements if the Quality Level of the random samples is greater than or equal to 75. The Quality Level will be determined according to CP 71. Once constructed and accepted, the CTS shall remain in place and become part of the hot mix asphalt on the project.

When the Quality level is less than 75 the Contractor shall construct an additional test section, utilizing different rollers, or roller positions, or roller patterns as required. A written proposal detailing the changes in methods and procedures that will be used to obtain density is to be submitted to the Engineer for review before constructing the additional test section.

If the Quality Level of a CTS is less than 75 and greater than or equal to 44, the Engineer may accept the material at a reduced price per Section 105.

If the Quality Level of a CTS is less than 44, the Engineer may:

- (1) Require complete removal and replacement with specification material at the Contractor's expense.
- (2) Where the finished product is found to be capable of performing the intended purpose and the value of the finished product is not affected, as determined by the Engineer, permit the Contractor to leave the material in place with a pay factor, but not more than 75 percent of the bid price.

Each CTS shall be 500 tons. If in-place densities of the CTS, as determined by nuclear density equipment before determining density of the cores, meet the CTS density requirements, the Contractor may begin production paving and continue to place hot mix asphalt pavement under the following conditions:

- (1) The period during which the Contractor continues to pave without test results from cores shall not exceed one workday.
- (2) Construction proceeds at the Contractor's risk. If correlation with the cores reveals that the densities do not meet the CTS requirements, the hot mix asphalt pavement placed subsequently will be subject to price reduction or removal and replacement.

After production paving work has begun, a new CTS shall be required for different layers of pavement, unless otherwise approved by the Engineer. Each additional CTS shall be constructed and documented as specified herein, and shall be sampled, tested, and accepted or rejected as described herein.

All additional costs associated with construction of the CTS shall be at the Contractor's expense. The hot mix asphalt placed in the CTS will be paid for per subsection 401.22, at the contract price for the hot mix asphalt.

If the Contractor requests changes to the roller pattern that was established during the CTS, the Contractor must perform a Roller Pass Study to demonstrate that the specified density is obtained with the new roller pattern before proceeding with the paving operation with Engineer Approval.

Revision of Section 401 Reclaimed Asphalt Pavement

Revise Section 401 of the Standard Specifications for this project as follows:

Subsection 401.02(b) shall include the following:

Reclaimed Asphalt Pavement (RAP) is allowed in hot mix asphalt (HMA) up to a maximum binder replacement of 23 percent for all lifts, provided all specifications for HMA are met. Fine Aggregate Angularity requirements shall apply only to the virgin fraction of the fine aggregate. The RAP shall not contain clay balls, vegetable matter, or other deleterious substances, and must meet the uniformity requirements as outlined below.

HMA Project Verification Testing for asphalt content and gradation will be performed at the frequencies listed in the Field Materials Manual per CP-L 5120.

The Contractor shall have an approved mix design for the amount of RAP to be used. The AC content of the RAP utilized in the Contractor RAP mix design shall be the average AC content determined per 1B or 1C, below, or alternatively, a minimum of five samples of the Contractors RAP stockpile may be sampled and the average AC content of the RAP be determined using AASHTO T-164, Method A or B, or per 1C below. The Contractor shall determine the total binder replaced by the binder in the RAP pursuant to the following equation:

$$\text{Total Binder Replaced} = (A \times B) \times 100/E$$

Where:

A = RAP % Binder Content *

B = RAP % in Mix *

E = Total Effective Binder Content *

* In decimal format (2% is 0.02)

The Total Binder Replaced by the binder in the RAP shall not exceed 23 percent of the effective binder content of either the mix design or the produced mix.

The use of RAP shall be controlled per subsections 105.05 and 106.05. If the Contractor elects to use RAP, the following additional conditions shall apply:

1. The Contractor shall have an approved Process Control (PC) Plan that details how the RAP will be processed and controlled. The PC plan shall address the following:
 - A. RAP Processing Techniques. This requires a schematic diagram and narrative that explains the processing (crushing, screening, and rejecting) and stockpile operation for this specific project.
 - B. Control of RAP Asphalt Binder Content (AASHTO T-164, Method A or B). RAP Asphalt Binder Content may also be determined per CP-L 5120, provided a RAP AC content correction factor is determined through correlation testing with AASHTO T-164, Method A or B. The correction factor shall be determined by performing correlation testing on the first five samples of the RAP AC content, then at a frequency of one for every five AC content tests thereafter. The correction factor shall be determined by calculating the average difference in AC content between CP-L 5120 and AASHTO T-164, Method A or B, and applying the correction to the AC content determined per CP-L 5120 :

Frequency: 1/1000 tons of processed RAP material (minimum five tests)

- C. Alternative Control of RAP Binder Content. The Contractor may propose a RAP asphalt content correction factor to be used in conjunction with CP-L 5120. The proposed CP-L 5120 RAP asphalt content correction factor shall be used with all RAP asphalt contents tested for the mixture design and quality control sampling and testing. The methodology of the proposed CP-L 5120 RAP asphalt content correction factor shall be outlined in detail in the approved RAP PC Plan. At a minimum, the proposed CP-L 5120 correction factor shall identify the principal source locations of the RAP aggregate, gradation of the material tested, and specific ignition oven serial number used in all the RAP asphalt content testing. The RAP source locations, material gradation, and specific equipment used shall substantiate the CP-L 5120 asphalt content correction factor used for the testing. The substantiation must be from data gathered from historical information or specific asphalt content correction data obtained from tests performed on similar virgin aggregate sources, virgin material gradations, and the specific equipment used.

- D. Control of RAP Gradation (CP31 or AASHTO T-30):

Frequency: 1/1000 tons of processed RAP material (minimum three tests)

- E. Process Control Charts shall be maintained for binder content and each screen listed in subsection 401.02(b), during addition of any RAP material to the stockpile. The Contractor shall maintain separate control charts for each RAP stockpile. The control charts shall be displayed and shall be made available, along with RAP AC extraction testing laboratory reports, to the Engineer upon request.

2. The processed RAP must be 100 percent passing the 31.5 mm (1 1/4 inch) sieve. The aggregate obtained from the processed RAP shall be 100 percent passing the 25.0 mm (1 inch) sieve. The aggregate and binder obtained from the processed RAP shall be uniform in all the measured parameters per the following:

Uniformity*

Parameter	Standard Deviation
Binder Content	0.5
Percent Passing 19 mm (3/4")	4.0
Percent Passing 12.5 mm (1/2")	4.0
Percent Passing 9.5 mm (3/8")	4.0
Percent Passing 4.75 mm (#4)	4.0
Percent Passing 2.36 mm (#8)	4.0
Percent Passing 600 µm (#30)	3.0
Percent Passing 75 µm (#200)	1.5

*Uniformity is the Maximum allowable Standard Deviation of test results of processed RAP.

3. If RAP millings generated are incorporated in the same project, per CPL 5145 the Contractor shall pave with a virgin mix design until sufficient amount of processed RAP has been stockpiled and tested to allow full production of a RAP HMA mix.

Revision Of Section 401 SafetyEdge_{SM} for Pavement

Revise Section 401 of the Standard Specifications as follows:

Subsection 401.01 shall include the following, at the end of the second paragraph:
This work consists of one or more courses of asphalt mixture constructed on a prepared foundation per these specifications and the specific requirements of the type under contract, and in conformity with the lines, grades, thicknesses, and typical cross sections shown on the plans or established, including a beveled SafetyEdge_{SM}.

Subsection 401.02 shall include the following, before Table 401-2:

HMA for safety edge treatment must comply with Section 403, Hot Mix Asphalt, of the Standard Specifications.

Materials used in constructing the SafetyEdge_{SM} shall match the adjacent roadway material requirements.

In subsection 401.10, replace the third sentence within the fourth paragraph as shown below:

The system shall provide a sloped SafetyEdge_{SM} as per M-400-1, SafetyEdge_{SM} for Pavement.

In subsection 401.10, include the following after the fifth paragraph:

Provide a SafetyEdge_{SM} as per M-400-1, SafetyEdge_{SM} for Pavement, or as shown on the plans.

In subsection 401.21, add the following after the first sentence:

Full compensation for constructing the SafetyEdge_{SM} treatments is included in the contract price for the type of HMA designated. Site preparation and/or grading required to receive the SafetyEdge_{SM} treatment shall be paid per M-400-1, Note 8.

Full compensation to furnish, place, and compact shoulder or embankment material to the top of the SafetyEdge_{SM} is included in the contract price for the type of shoulder backing material designated or as equipment hours.

Full-depth sawing to remove integrally placed SafetyEdge_{SM} where not required, or construction of formed “box-out” to prevent placement during paving, is incidental to the contract.

No additional compensation will be allowed.

**Revision of Section 401
Tolerances for Hot Mix Asphalt (Voids Acceptance)**

Section 401 of the Standard Specifications is hereby revised for this project as follows:

In subsection 401.02(b) delete Table 401-1, including the footnotes, and replace with the following:

**Table 401-1
Tolerances for Hot Mix Asphalt**

Element	Tolerance
Asphalt Cement Content	$\pm 0.3 \%$
Voids in the Mineral Aggregate (VMA)	$\pm 1.2 \%$
Air Voids	$\pm 1.2 \%$

Revision of Section 601 Low Strength Evaluation

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

In Subsection 601.17 (c), in the first paragraph add as the last sentence, as follows:

If the compressive strength of more than one cylinder differs from the average of the three-cylinder set by more than 10 percent, all three cylinders will be used to determine the compressive strength.

Delete Subsection 601.17 (c) 1., and replace it with the following:

1. The Engineer will notify the Contractor in writing that CDOT will core the structure. The location of the coring will be directed by the Engineer. Coring and testing will be performed at the expense of the Department regardless of the result. Cores will be taken and tested per AASHTO T24 between 28 days and 45 days after concrete placement. Cores will be a minimum of 4 inches in diameter unless otherwise approved by the Engineer. A minimum of three cores in a two-square-foot area will be obtained for locations of the structure that are suspect. If a single core has a compressive strength 10 percent or more below the average of the three-core set, that core will be discarded, and the average will be determined using the compressive strengths of the remaining two cores. If two individual cores have a compressive strength 10 percent or more below the average of the three-core set, all core results will be discarded, and the structure will be re-cored. If the average core compressive strength is greater than or equal to 85 percent of the specified 28-day compressive strength, the concrete represented by the cores will be accepted.

Revision of Section 601 Low Strength Evaluation

In Subsection 601.17 (f), delete the last paragraph, and replace it with the following:

The Contractor may choose at their own expense to core the structure represented by the maturity meter, as approved by the Project Engineer. Cores shall be obtained and tested according to CP 65. Cores shall be a minimum of 4 inches in diameter. A minimum of three cores in a two-square-foot area shall be obtained. If a single core has a compressive strength 10 percent or more below the average of the three-core set, that core will be discarded, and the average will be determined using the compressive strengths of the remaining two cores. If two individual cores have a compressive strength 10 percent or more below the average of the three-core set, all core results will be discarded, and the structure shall be re-cored. The average compressive strength of the cores shall achieve the specified compressive strength of the structure. A structure may only be cored and evaluated once for removing forms, removing falsework, backfilling against structures, or loading the structure.

Revision of Section 601 Structural Concrete

Revise Section 601, Structural Concrete, of the Standard Specifications as follows:

Revise Section 601.08 as follows:

601.08: Air Content Adjustment. When a batch of concrete delivered to the project does not conform to the minimum specified air content, an air-entraining admixture listed on the approved mix design may be added per subsection 601.17. After the admixture is added, the concrete shall be re-mixed for a minimum of 20 revolutions of the mixer drum at mixing speed. The concrete shall then be re-tested by PC.

Section 627 Pavement Marking

Revise Section 627 by removing and replacing the existing Section 627 of the Standard Specifications with the following:

Description

627.01 This work consists of furnishing and applying pavement marking, and furnishing, installing, and removing temporary pavement marking per these specifications, the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), the Colorado supplement thereto, and in conformity to the lines, dimensions, patterns, locations and details shown on the plans or established.

Materials

627.02 Materials shall conform to the requirements of the following subsections:

Material Requirements	Subsection
Paint	708.05
Glass Beads	713.08
Modified Epoxy Pavement Marking Material	713.17
Thermoplastic Marking Material	713.12
Pavement Primer	708.07
Preformed Plastic Pavement Marking Material	713.13
Pavement Marking Tape	713.15
Pavement Marking Tape (Removable)	713.16
Raised Pavement Marker	713.18
Preformed Thermoplastic Pavement Marking Material	713.14
Methyl Methacrylate Pavement Marking Material	713.19

Construction Requirements

627.03 General. All pavement markings shall be placed per the following requirements. When the term “full compliance” is used, it means the pavement markings shall meet the requirements of Standard Plan S-627-1.

- (a) *Pavement Marking Plan.* When pavement-marking location details are not provided in the Contract, the Contractor shall submit a layout of existing conditions to the Project Engineer for approval. The approved layout is to be used as the final pavement-marking plan.
- (b) *Roadways Closed to Traffic During Construction.* Full-compliance final markings shall be in place before opening the roadway to traffic.
Pavement markings on detour routes shall be full-compliance markings.
- (c) *Roadways Constructed Under Traffic.* Full compliance final pavement markings shall be placed within two weeks after final surfacing is completed. Full compliance pavement markings shall also be placed on any roadways opened to traffic when the project pavement work is discontinued for more than two weeks.
- (d) *Temporary Pavement Markings.* Temporary pavement markings and control points for the installation of those pavement markings for roadways that are being constructed under traffic shall be installed as follows:

1. When one roadway of a normally physically divided highway is closed, and a crossover is constructed, full-compliance pavement markings shall be placed along the tapers and through the median crossovers to the two-way traffic section. Pavement markings through the two-way traffic section shall be as shown on the plans.

All temporary paved roadways shall have full-compliance centerline, lane line, and edge line markings before they are open for traffic.

Upon removal, markings applied to a final surface shall not leave a scar that conflicts with permanent markings.

2. The following criteria apply to all construction on roadways open to traffic other than (d)1. above:

Full-compliance centerline, lane line, and edge line temporary markings shall be in place at the end of each workday.

No-passing zone restrictions shall be identified by full compliance no-passing zone markings. No-passing zone markings shall be in place daily.

Temporary pavement stencils (SCHOOL, RR Xing, etc.) are not required unless specified in the plans.

Temporary pavement markings shall be installed according to the manufacturer's recommendations in such a way that the markings adequately follow the desired alignment.

3. Control Points consisting of 4-inch by 1-foot marks at 40-foot intervals may be placed as guide markers for the installation of temporary or final pavement markings. Raised flexible pavement markers may be substituted for these marks. Control points shall not be used as a substitute for any required marking.

(e) Pavement Marking for Seal Coats (Section 409).

1. Raised flexible pavement markers, suitable for use on seal coats, shall be installed as follows:

No-passing zones shall be marked with two markers placed side-by-side at 40-foot intervals throughout the zone.

Passing zones shall be marked with one marker at 40-foot centers. Closer spacing shall be used on curves, as deemed appropriate.

Raised flexible pavement markers, installed on 40-foot centers, may also be used to mark lane lines through multi-lane roadway sections. Auxiliary lanes and shoulder lines may be marked with flexible markers on 80-foot centers or as appropriate.

2. Full-compliance final pavement markings shall be placed within one week of completion of the seal coat project.

(f) Procedures for Items Paid by the Gallon

Either of the following methods are acceptable unless otherwise specified by the Project Engineer.

1. **Method #1 - Use of Data Logging System (DLS)**

Equipment: The Contractor shall use a "Skip-line by SPEC-RITE" Data Logger System (DLS) or equivalent DLS equipment as approved by the Project Engineer.

Calibration: Pavement marking vehicles using a Data Logging System (DLS) shall be calibrated at intervals no longer than 12 months. Calibration requirements and allowable tolerances will be determined by the equipment manufacturer. Prior to the installation of materials paid by the gallon, a copy of the most recent certification report for each DLS equipment system used shall be submitted to the Project Engineer.

Verification: A verification test section may be conducted at any time during production at the discretion of the Project Engineer. The verification test shall be performed according to Method #2 and the pavement marking shall be at least 1 mile (5,280 feet) in length, and shall be a width of four, six or eight inches. If the test section cannot be performed as a result of limitations, then method #2 shall be used to verify quantities for payment. If the calibration application rate cannot be verified, then method #2 shall be used to verify quantities for payment.

2. **Method #2 - Performing Tank Stabs and Field Measurement**

Tank stab measurements shall be used to verify the application rate by calculating the volume of material used over the corresponding application (square foot) area. Tank stab measurements shall be performed by the Contractor at the beginning and end of the pavement marking installation with the pavement marking vehicle parked at the same location and direction of travel for each measurement. Tank stab measurements shall be taken to the top of the fluid level from a fixed point. These measurements will be visually observed and recorded before the pavement marking operations begin, at the end of the pavement marking operations, and before and after each tank is replenished. The difference in the height of the fluid level corresponds to the volume of material used per the manufacturer's tank conversion chart. Measurements will be recorded to the nearest 1/4 inch.

Plural component materials, such as modified epoxy pavement markings, are applied as a combination of resins and catalysts from separate tanks. Tank stabs shall be recorded for each tank and the volumes combined to determine the total volume, in gallons, applied. Pavement markings shall be field measured to determine the total area of material installed. The tank stab and field measurements will be used to verify the application rate is within the rate specified by the contract.

627.04 Pavement Marking with Low Temperature Acrylic Paint and High Build Acrylic

Paint. Striping shall be applied on asphalt or portland cement concrete pavements when the air and pavement temperatures are as follows: for high-build waterborne paint, at least 45 °F and expected to remain 45 °F or above for at least 24 hours; for low temperature waterborne paint, at least 35 °F and expected to remain 35 °F or above for at least 24 hours. The pavement surface shall be dry and clean, and free of all latent materials, per the manufacturer's recommendations. Weather conditions shall be conducive to satisfactory results. Glass beads shall be applied into the paint by means of a low pressure, gravity drop bead applicator.

The Contractor shall use equipment that meets the following requirements, as approved:

(1) Equipment shall permit traffic to pass safely within the limits of the roadway surface and

shoulder while operating.

- (2) Equipment shall be designed for placement of both solid and broken line pavement markings with a reasonably clean-edged pavement marking of the width and location as shown on the contract and no overspray on the road surface.
- (3) Equipment shall have a glass bead dispenser directly behind and synchronized with the paint applicator. Each applicator shall have individual control and automatic skip control that will paint a strip with a gap as shown in the Contract.
- (4) The equipment may be equipped with a heat exchanger to heat the paint to reduce drying time.
- (5) The operation shall include a trailing vehicle equipped with a flashing arrow board.

The Contractor shall prevent traffic from crossing a wet pavement marking. Pavement markings that have been marred or picked up by traffic before they have dried shall be repaired at the Contractor's expense. Removal of paint material from vehicles that encountered wet paint shall be at the Contractor's expense.

The water-based paint pavement markings shall fall within the following minimum and maximum ranges:

**Table 627-1
Application Rates and Tolerances for Pavement Markings**

Description	Units	Pavement Marking Paint Low Temp	Pavement Marking Paint High Build	Pavement Marking Paint High Build (Temporary)
Alignment (Lateral Deviation)	Inches	< 2.0	< 2.0	< 2.0
Application Rate	Sq Ft/Gallon	89-94	67-70	100-105
Thickness	Mil	17.5 ± 0.5	23.5 ± 0.5	15.5 ± 0.5
Width	Inches	Per Plans ± 0.25	Per Plans ± 0.25	Per Plans ± 0.25
No Tack Dry Time @ 77° F	Minutes	5-10	7-12	5-10
Glass Bead Application Rate	Lbs, Gallon	7+	9+	5+

- (6) High Build (Temporary) shall only be used for temporary pavement marking applications. Equipment shall have a bead dispenser directly behind, synchronized with the paint applicator and shall be capable of painting a clean-edged pavement marking of the designated width plus or minus 1/4 inch with no overspray on the road surface. For centerlines and lane lines, an automatic skip control shall be used. Machines having multiple applicators shall be used for centerlines with "no passing zones." In areas where machines are not practical, suitable hand-operated equipment shall be used as directed by the Project Engineer. Pavement markings shall be protected until dry.

627.05 Modified Epoxy Pavement Marking. The modified epoxy pavement-marking compound shall be applied with equipment that will precisely meter the two components in the ratio given in subsection 713.17(a). The equipment shall automatically shut off or warn the operator if one component is not being mixed. The equipment shall produce the required amount of heat at the mixing head and gun tip to provide and maintain the temperatures specified.

Before mixing, the individual components A and B shall each be heated to a temperature of 80 to 140 °F. After mixing, the application temperature for the combined material at the gun tip shall be 80 to 140 °F. The 140 °F upper limit is the maximum temperature under any circumstances.

Both pavement and air temperatures shall be at least 35 °F at the time of modified epoxy pavement marking application.

The surface areas of new portland cement concrete pavement and decks that are to receive markings shall be waterblasted before placement of the modified epoxy pavement marking. The amount of waterblasting shall be sufficient to remove all dirt, laitance, and curing compound residue.

The surface areas of new asphalt pavement, existing asphalt pavement, and existing concrete pavement that are to receive markings shall be cleaned with a high-pressure air blast to remove loose material before placement of the modified epoxy pavement marking. Should any pavement become dirty, from tracked mud etc. as determined by the Project Engineer, it shall be cleaned before the placement of the modified epoxy pavement marking.

When recommended by the modified epoxy manufacturer, a high-pressure water blast integrated into the gun carriage shall be used to clean the pavement surface before modified epoxy pavement marking application. The water blast shall be followed by a high- pressure air blast to remove all residual water, leaving only a damp surface.

Modified epoxy pavement marking shall be applied to the road surface according to the modified epoxy manufacturer's recommended methods at the application rate or coverage shown below. Glass beads shall be applied into the modified epoxy pavement marking by means of a low pressure, gravity drop bead applicator.

Modified epoxy pavement markings and beads shall be applied within the following limits:

**Table 627-2
Application Rates and Tolerances for Modified Epoxy Pavement Marking**

Description	Units	Modified Epoxy Pavement Marking
Alignment (Lateral Deviation)	Inches	< 2.0
Application Rate	Sq Ft/Gallon	85 - 90
Thickness	Mil	18.5 ± 0.5
Width	Inches	Per Plans ± 0.25
No Tack Dry Time @ 77° F	Minutes	5 - 7
Glass Bead Application Rate	Lbs per Gallon	23+

627.06 Thermoplastic Pavement Marking.

(a) *Equipment-General.* The material shall be applied to the pavement by an extrusion method where one side of the shaping die is the pavement and the other three sides are contained by or are part of suitable equipment for heating, mixing, and controlling the flow of the material.

The equipment shall be constructed to provide continuous mixing and agitation of the material. Conveying parts of the equipment between the main material reservoir and the shaping die shall be so constructed as to prevent accumulation and clogging. All parts of the equipment that come in contact with the material shall be easily accessible and exposable for cleaning and maintenance.

All mixing and conveying parts up to and including the shaping die, shall maintain the material at the plastic temperature.

The equipment shall be so constructed as to assure continuous uniformity in the dimensions of the pavement marking. The applicator shall provide a means for cleanly cutting off square pavement marking ends and shall provide a method of applying "skip" lines. The use of pans, aprons or similar appliances that the die overruns will not be permitted under this specification.

Glass beads for the surface of the completed pavement marking shall be applied by an automatic bead dispenser attached to the applicator in such manner that the beads are dispensed almost instantly upon the completed line. The bead dispenser shall be equipped with an automatic cutoff control synchronized with the cutoff of the thermoplastic material.

The equipment shall be so constructed as to provide for varying die widths to produce varying widths of traffic markings.

The equipment shall be designed to permit agitation of the material to prevent scorching, discoloration or excessive high temperatures of any part of the material.

A special kettle shall be provided for melting and heating the composition. The kettle shall be equipped with an automatic thermostatic control device so that heating can be done by controlled heat transfer liquid rather than direct flame.

The applicator and kettle shall be so equipped and arranged as to satisfy the requirements of the National Fire Underwriters.

The equipment shall be so equipped as to permit preheating of the pavement immediately before application of the material.

The applicator shall be mobile and maneuverable to the extent that straight lines can be followed, and normal curves can be made in a true arc.

(b) *Types of Equipment.*

1. **Portable Applicator.** The portable applicator shall be a device typically used for painting crosswalk lines, stop bars, short lane lines and short centerlines. The applicator shall be easily maneuverable and capable of being propelled by the operator.

2. **Mobile Applicator.** The mobile applicator shall contain equipment to provide for automatic installation of skip lines in any combination of line and skip up to 40 feet. The mobile applicator shall be moved in conjunction with the melting and heating kettles in such a manner as to provide continuous highway operation of the kettles and the mobile applicator as an integral unit.
 3. **Epoxy Primer Equipment.** The epoxy primer application shall be accomplished using equipment having the following features:
 - A. The main storage tank shall be equipped with a visible gauge that will allow the Project Engineer to readily ascertain the rate of application.
 - B. The main storage tank shall be equipped with a heating device that will maintain the epoxy at a constant efficient temperature.
 - C. The spray nozzle and epoxy spray shall be protected from the action of wind to ensure placement where needed.
 4. **Cleaning Equipment.** Equipment must be provided to ensure removal of laitance, dust, debris, paint and other foreign matter from the road surface immediately before the installation of the composition, or immediately before the application of primer.
- (c) *Application.* The pavement marking shall be applied to the pavement to either the right or left of the application unit, dependent upon roadway lane being used. The unit shall not occupy more than one lane of roadway while operating.

The finished lines shall have well defined edges and be free of waviness. All of the equipment necessary to the preheating and application of the material shall be so designed that the temperature of the material can be controlled within the limits necessary to its pourability for good application.

At the time of installation of thermoplastic materials, the pavement shall be clean, dry, and free of laitance, oil, dirt, grease, paint or other foreign contaminants. Pavement and ambient temperatures shall be at least 50 °F.

An epoxy resin primer conforming to subsection 708.07 shall be applied to all pavement surfaces before the application of the thermoplastic pavement marking.

The marking material shall not be applied until the epoxy resin primer reaches the tacky stage, approximately 15 minutes under normal conditions. An infrared heating device may be employed to shorten the curing time of the epoxy.

To ensure the best possible adhesion, the marking material as specified, shall be installed at the manufacturer's recommended temperature.

The minimum thickness of thermoplastic lines as viewed from a lateral cross section shall not be less than 3/32 inch at the edges, or less than 1/8 inch at the center. Measurements shall be taken as an average throughout any 36-inch section of the line. The material, when formed into traffic pavement markings, must be readily renewable by placing an overlay of new material directly over an old line of compatible material. Such new material shall bond itself to the old line in such a manner that no splitting or separation takes place.

Glass beads shall be applied to the thermoplastic pavement marking by means of a low pressure, gravity drop bead applicator at a rate of 10 pounds per 100 square feet, minimum.

627.07 Methyl Methacrylate Pavement Marking. Methyl methacrylate pavement marking shall be installed per manufacturer's recommendations. The Contractor shall use installation equipment, materials, equipment technicians and operators recommended by the manufacturer.

Methyl methacrylate pavement markings shall be applied to the road surface according to the manufacturer's recommended methods at 60-mil minimum thickness. Glass beads shall be applied using a double drop bead application system. The first bead applicator shall apply glass beads at the rate of 3.2 pounds per square yard (10 pounds per gallon) minimum, and 1.9 pounds per square yard (6 pounds per gallon) minimum for the second bead applicator.

Methyl methacrylate pavement marking, and beads shall be applied within the following limits:

Table 627-3

**Application Rates and Tolerances for
Methyl Methacrylate Pavement Marking**

Description	Units	Methyl Methacrylate Pavement Marking
Alignment (Lateral Deviation)	Inches	< 2.0
Application Rate	Sq Ft per Gallon	26 - 28
Thickness	Mil	60 ± 2.0
Width	Inches	Per Plans ± 0.25
No Tack Dry Time @ 77 °F	Minutes	< 15
Glass Bead Application Rate	Lbs per Gallon	1 st Application = 10+ 2 nd Application = 6+

627.08 Preformed Plastic Pavement Marking. This retroreflective preformed plastic strip shall be suitable for application on asphaltic or portland cement concrete pavement. The strip shall be applied at the locations called for on the plans or as directed.

If recommended by the manufacturer, an epoxy resin primer conforming to subsection 708.07 shall be applied to all pavement surfaces before the application of the preformed plastic pavement marking.

The surface of the pavement shall be clean, free of loose foreign material, dry and have no moisture for a minimum of 48 hours before application of the markings.

The air and surface temperature shall be a minimum 40 °F or as recommended by the manufacturer.

The marking strip as applied shall be in good appearance, free of cracks and the edges shall be true and straight.

The preformed plastic pavement marking shall be Type I, Type II, or Type III as shown on the plans.

Before beginning installation operations, the Contractor shall submit to the Project Engineer instructions from the performed plastic pavement manufacturer detailing surface preparation, grooving requirements and material application. The instructions shall include the following:

- (1) Equipment Requirements.
- (2) Approved Work Methods and Procedures.
- (3) Material Application Temperature Requirements.
- (4) Ambient Air and Surface temperature Requirements.
- (5) Weather Limitations.
- (6) Special Precautions.
- (7) Any other requirements necessary for successful installation and satisfactory performance of the material.

The Contractor shall secure from the manufacturer all warranties and guarantees with respect to materials, workmanship, performance, or combination thereof, and shall include these warranties and guarantees with the Certification of Compliance.

Materials supplied without installation instructions or with incomplete instructions will not be accepted for use.

Unless otherwise shown on the plans, typical pavement markings shall conform to the shapes and sizes as shown on Standard Plan S-627-1.

The Contractor shall make all arrangements to have a manufacturer-trained installer of the manufacturer's products on-site during the placement of preformed plastic pavement marking to ensure proper installation. A minimum of two weeks before the placement of the preformed plastic pavement marking, the Contractor shall submit written documentation of the installer's qualifications and training in the installation of preformed plastic pavement marking. Upon completion of the work, the Contractor shall obtain and submit to the Project Engineer written documentation from the manufacturer-trained installer certifying that the product was installed in full compliance with this specification and manufacturer's recommendations.

The preformed plastic pavement marking shall be inlaid on new and existing pavements as shown in the Contract. The material shall be usable for patching worn areas of the same type according to the manufacturer's recommendations.

The Contractor shall not perform wet cutting of pavement unless otherwise directed. Application and removal of temporary pavement marking associated with wet cutting of pavement shall be at the Contractor's expense.

The preformed plastic pavement marking shall conform to pavement contours by the action of traffic, and shall be applicable on new, dense, and open graded asphalt wearing courses during the paving operations according to the manufacturer's recommendations. After application, the markings shall be immediately ready for traffic.

(a) *Inlaid Preformed Plastic Pavement Marking.* The grooved width for inlaid preformed plastic pavement marking is called for in the Contract. The grooved width shall be the pavement marking width plus 1 inch, with a tolerance of plus or minus 1/4 inch. The depth of the grooves shall be 130 mils plus or minus 5 mils. Groove position shall be a minimum of 2 inches from the edge of the pavement marking to the longitudinal pavement joint.

Grooving shall not be performed on bridge decks with Polyester Polymer Concrete Overlays.

The bottom of the groove shall have a smooth, flat finished surface. The spacers between blade cuts shall be such that there will be less than a 10-mil rise in the finished groove between the blades.

Grooves shall be clean, dry and free of laitance, oil, dirt, grease, paint or other foreign contaminants. The Contractor shall prevent traffic from traversing the grooves, and re-clean grooves, as necessary, before application of the preformed plastic pavement markings.

(b) *Reserved.*

627.09 Preformed Thermoplastic Pavement Marking. The markings shall consist of a resilient white or yellow thermoplastic product with glass beads uniformly distributed throughout the entire cross-sectional area. Legends and symbols shall be capable of being affixed to bituminous pavements by heating.

The markings shall conform to pavement contours, breaks and faults through the action of traffic at normal pavement temperatures. The material shall have resealing characteristics with the capability of fusing with itself and previously applied thermoplastic markings under normal use.

The preformed thermoplastic markings shall be packaged in a protective plastic film with cardboard stiffeners where necessary to prevent damage in transit. The carton in that the material is packed shall be clearly labeled for ease of identification.

(a) *Application.* Application temperature shall be as recommended by the manufacturer. The pavement and air temperature shall be as recommended by the manufacturer at the time of application. The materials shall be applied using a heating method recommended by the manufacturer. The Contractor shall provide the Project Engineer a copy of the manufacturer's installation recommendations before beginning the work. The pavement shall be clean, dry and free from debris. The preformed thermoplastic markings may be installed on top of existing thermoplastic markings after all loose material has been removed. The preformed thermoplastic markings shall not be installed on top of existing preformed plastic pavement markings without first removing the existing markings to a depth that ensures removal of the adhesive backing of the preformed plastic. It shall not be installed on top of pavement marking paint without first removing the paint.

(b) *Equipment.* The Contractor shall use a heating method specifically recommended by the manufacturer for the installation of preformed thermoplastic markings.

627.10 Pavement Marking Tape. Retroreflective tape shall be suitable for temporary use on asphaltic or portland cement concrete pavements. The tape shall be applied at the locations shown on the plans or as directed. The tape shall conform to subsection 713.15.

The surface that the tape is applied shall be clean, dry and free of dirt, oils and grease. The tape shall be pressed down immediately after application, until it adheres properly and conforms to the surface. Temporary marking tape sections longer than 1 foot shall be removed before placement of the final pavement course. All tape shall be removed on sections where tape conflicts with revised traffic lanes before opening of new lanes to traffic.

Pavement marking tape (removable) shall be installed per the manufacturer's recommendations and maintained throughout the required construction phase at no additional cost to the Department.

627.11 Raised Pavement Markers. Raised pavement markers (temporary) shall be installed on centerlines, edge lines, and lane lines where specified in the Contract. Single markers shall be installed at 5-foot intervals for solid lines. A group of four markers at 3-foot spacings and at 40-foot intervals shall be installed for skip lines.

Markers supplementing lines shall be installed at the spacing shown on the plans. Raised pavement markers (temporary) shall be installed per the manufacturer's recommendations and shall be maintained throughout the required construction phase at the Contractor's expense.

Method of Measurement

627.12 The types of pavement marking described will be measured by the following units, complete-in-place and accepted.

Pavement marking paint will be measured by the number of gallons used. Procedures Method #1 or Method #2 will be used to determine the quantities for pavement markings paid by the gallon. The material used in excess of the application rate specified, will not be paid.

Modified epoxy pavement marking, polyurea, and methyl methacrylate pavement marking will be measured by the total number of gallons of components A (pigment/resin) and B (hardener/catalyst) combined to achieve the application requirements as specified. Procedures Method #1 or Method #2 will be used to determine the quantities for pavement markings paid by the gallon. The material used in excess of the application rate specified, will not be paid.

Thermoplastic pavement marking, preformed thermoplastic pavement marking, and preformed plastic pavement marking will be measured by the square foot. The unmarked spaces between markings will not be included in the overall measurement.

The amount of pavement marking tape to be measured will be the linear feet of the specified width tape applied. Gaps in marking will not be measured for payment.

Raised pavement marker (temporary) will be measured as a unit in place and shall include all adhesive necessary for installation. Removal of the raised pavement marker shall be included in the work.

Pavement word and symbol markings, transverse and longitudinal crosswalk lines, and stop lines will not be measured, but shall be the quantities, in square feet, designated in the Contract; except measurements will be made for revisions requested by the Project Engineer. The unmarked spaces within these markings will not be included in the measurement.

Basis of Payment

627.13 The accepted quantities will be paid for at the contract price per unit of measurement for each of the pay items listed below that appear in the bid schedule.

Payment will be made under:

Pay Item	Pay Unit
Pavement Marking Paint	Gallon
Pavement Marking Paint (High Build)	Gallon
Pavement Marking Paint (High Build)(Temporary)	Gallon
Pavement Marking Paint (Low Temperature)	Gallon
Modified Epoxy Pavement Marking	Gallon
Methyl Methacrylate Pavement Marking	Gallon
Thermoplastic Pavement Marking	Square Foot
Preformed Plastic Pavement Marking (Type __) (Inlaid)	Square Foot
Preformed Plastic Pavement Marking (Word-Symbol) (Type I) (Inlaid)	Square Foot
Preformed Plastic Pavement Marking (Xwalk-Stop Line) (Type I) (Inlaid)	Square Foot
___Inch Pavement Marking Tape	Linear Foot
Pavement Marking Tape (Removable) Linear	Foot
Raised Pavement Marker (Temporary)	Each
Pavement Marking Paint (Word-Symbol)	Square Foot
Pavement Marking Paint (Xwalk-Stop Line)	Square Foot
Thermoplastic Pavement Marking (Word-Symbol)	Square Foot
Thermoplastic Pavement Marking (Xwalk-Stop Line)	Square Foot
Preformed Thermoplastic Pavement Marking	Square Foot
Preformed Thermoplastic Pavement Marking (Word-Symbol)	Square Foot
Preformed Thermoplastic Pavement Marking (Xwalk-Stop Line)	Square Foot

Waterblasting will not be measured and paid for separately but shall be included in the work.

Glass beads and cleaning with high-pressure water blast or air blast shall be included in the cost of the work.

Calibration and the verification of DLS equipment will not be measured and paid for separately but shall be included in the work.

Each authorized application of temporary pavement marking will be measured and paid for at the contract unit price for the type of material used.

Control points and Contractor pavement marking plans will not be measured and paid for separately but shall be included in the work.

All costs associated with having the Preformed Plastic Pavement Marking manufacturer-trained installer on-site and providing the documentation will not be measured and paid for separately but shall be included in the work.

627.13

THIS PAGE INTENTIONALLY LEFT BLANK

Revision to Section 630 Traffic Control Management

Section 630 of the Standard Specifications is revised for this project as follows:

In Subsection 630.11 delete the sixth and-seventh paragraph and replace them with the following:

Each designated TCS shall have a TCS Trainee assigned to them to assist in their duties at all times as a TCS/TCS trainee pair. The TCS trainee shall have a current flagger certification from an authorized entity. The TCS Trainee shall not be allowed to give breaks to other flaggers, unless approved by the Engineer. The TCS Trainee shall not act as a flagger except in an emergency or in relief for short periods of no more than 15 minutes per hour for scheduled flagger breaks and not concurrently if the TCS is giving a break.

The duties of the TCS Trainee in assisting a TCS shall be limited to:

- Assisting in TCS duties 1, 3, 5, 6, 7, 8, and 9 listed above.
- Assisting in revising and implementing each required MHT, per the traffic control plan.
- Performing as a spotter for the TCS.

The TCS Trainee cannot perform any other TCS duties and cannot assist without a TCS present.

In Subsection 630.17, delete the 6th paragraph and replace it with the following:

The quantity to be measured for Traffic Control Management will be the number of authorized 24-hour days of active TCM performed by the TCS/TCS Trainee pair or another representative certified as a work site traffic control supervisor. Payment will be made for one day of Traffic Control Management regardless of the number of TCSs required to adequately control the work. An authorized 24-hour day of TCM is each calendar day active traffic control occurs per an approved MHT. This includes activities such as flagging operations, pilot car operations, and setting up or removal of construction zones, shoulder closures, lane closures or detours.

Revision to Section 630 Traffic Control Management

In Subsection 630.17 delete the 8th paragraph and replace it with the following:

The quantity to be measured for Traffic Control Inspection will be the number of authorized 24-hour days of traffic control inspection (TCI) performed by the TCS/TCS Trainee pair or another representative certified as a worksite traffic control supervisor. An authorized 24-hour day of TCI is each calendar day that traffic control devices, as shown in the MHT that are in use, masked, or turned away from traffic on the project, and the only traffic control activity is the inspection of traffic control devices. Maintenance and inspection of traffic control devices that are left in place during non-working hours, including configurations such as lane closures, temporary channelization or detours, are paid for by authorized 24-hour day of TCI.

AFFIRMATIVE ACTION REQUIREMENTS EQUAL EMPLOYMENT OPPORTUNITY

A. AFFIRMATIVE ACTION REQUIREMENTS

Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246)

1. The Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area are as follows:

Goals and Timetable for Minority Utilization

Timetable - Until Further Notice			
Economic Area	Standard Metropolitan Statistical Area (SMSA)	Counties Involved	Goal
157 (Denver)	2080 Denver-Boulder	Adams, Arapahoe, Boulder, Denver, Douglas, Gilpin, Jefferson.....	13.8%
	2670 Fort Collins	Larimer.....	6.9%
	3060 Greeley	Weld.....	13.1%
	Non SMSA Counties	Cheyenne, Clear Creek, Elbert, Grand, Kit Carson, Logan, Morgan, Park, Phillips, Sedgwick, Summit, Washington & Yuma.....	12.8%
158 (Colo. Spgs. - Pueblo)	1720 Colorado Springs	El Paso, Teller.....	10.9%
	6560 Pueblo	Pueblo.....	27.5%
	Non SMSA Counties	Alamosa, Baca, Bent, Chaffee, Conejos, Costilla, Crowley, Custer, Fremont, Huerfano, Kiowa, Lake, Las Animas, Lincoln, Mineral, Otero, Prowers, Rio Grande, Saguache.....	19.0%
159 (Grand Junction)	Non SMSA	Archuleta, Delta, Dolores, Eagle, Garfield, Gunnison, Hinsdale, La Plata, Mesa, Moffat, Montezuma, Montrose, Ouray, Pitkin, Rio Blanco, Routt, San Juan, San Miguel	10.2%
156 (Cheyenne - Casper WY)	Non SMSA	Jackson County, Colorado.....	7.5%
GOALS AND TIMETABLES FOR FEMALE UTILIZATION			
Until Further Notice.....			6.9% --
Statewide			

2

**AFFIRMATIVE ACTION REQUIREMENTS
EQUAL EMPLOYMENT OPPORTUNITY**

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.
4. As used in this specification, and in the contract resulting from this solicitation, the "covered area" is the county or counties shown on the Invitation for Bids and on the plans. In cases where the work is in two or more counties covered by differing percentage goals, the highest percentage will govern.

AFFIRMATIVE ACTION REQUIREMENTS EQUAL EMPLOYMENT OPPORTUNITY

B. STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS

Standard Federal Equal Employment Opportunity Construction Contract Specifications
(Executive Order 11246)

1. As used in these Specifications:
 - a. “Covered area” means the geographical area described in the solicitation from which this contract resulted;
 - b. “Director” means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
 - c. “Employer identification number” means the Federal Social Security number used on the Employer’s Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
 - d. “Minority” includes;
 - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required

AFFIRMATIVE ACTION REQUIREMENTS EQUAL EMPLOYMENT OPPORTUNITY

to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractor toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any office of Federal Contract Compliance Programs Office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.
5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following;
 - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with

**AFFIRMATIVE ACTION REQUIREMENTS
EQUAL EMPLOYMENT OPPORTUNITY**

specific attention to minority or female individuals working at such sites or in such facilities.

- b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its union have employment opportunities available, and maintain a record of the organization's responses.
- c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source of community organization and of what action was taken with respect to each individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.
- d. Provide immediate written notification to the Director when the union with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
- e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.
- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc., by specific review of the policy with all management personnel and with all minority and female employees at least once a year, and by posting the Contractor's EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

**AFFIRMATIVE ACTION REQUIREMENTS
EQUAL EMPLOYMENT OPPORTUNITY**

- g. Review, at least annually, the Contractor's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc. such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
- n. Ensure that all facilities and Contractor's activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

**AFFIRMATIVE ACTION REQUIREMENTS
EQUAL EMPLOYMENT OPPORTUNITY**

- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
 - p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligation.
- 8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goal and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
- 9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
- 10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.
- 11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
- 12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

AFFIRMATIVE ACTION REQUIREMENTS EQUAL EMPLOYMENT OPPORTUNITY

- 13 The Contractor in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form, however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

C. SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES.

1. General.

- a. Equal employment opportunity requirements not to discriminate and to take affirmative action to assure equal employment opportunity as required by Executive Order 11246 and Executive Order 11375 are set forth in Required Contract. Provisions (Form FHWA 1273 or 1316, as appropriate) and these Special Provisions which are imposed pursuant to Section 140 of Title 23, U.S.C., as established by Section 22 of the Federal-Aid highway Act of 1968. The requirements set forth in these Special Provisions shall constitute the specific affirmative action requirements for project activities under this contract and supplement the equal employment opportunity requirements set forth in the Required Contract provisions.
- b. The Contractor will work with the State highway agencies and the Federal Government in carrying out equal employment opportunity obligations and in their review of his/her activities under the contract.
- c. The Contractor and all his/her subcontractors holding subcontracts not including material suppliers, of \$10,000 or more, will comply with the following minimum specific requirement activities of equal employment opportunity: (The equal

AFFIRMATIVE ACTION REQUIREMENTS EQUAL EMPLOYMENT OPPORTUNITY

employment opportunity requirements of Executive Order 11246, as set forth in Volume 6, Chapter 4, Section 1, Subsection 1 of the Federal-Aid Highway Program Manual, are applicable to material suppliers as well as contractors and subcontractors.) The Contractor will include these requirements in every subcontract of \$10,000 or more with such modification of language as is necessary to make them binding on the subcontractor.

2. *Equal Employment Opportunity Policy.* The Contractor will accept as his operating policy the following statement which is designed to further the provision of equal employment opportunity to all persons without regard to their race, color, religion, sex, or national origin, and to promote the full realization of equal employment opportunity through a positive continuing program;

It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, or national origin. Such action shall include; employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training.

3. *Equal Employment Opportunity Officer.* The Contractor will designate and make known to the State highway agency contracting officers and equal employment opportunity officer (herein after referred to as the EEO Officer) who will have the responsibility for an must be capable of effectively administering and promoting an active contractor program of equal employment opportunity and who must be assigned adequate authority and responsibility to do so.

4. *Dissemination of Policy.*

- a. All members of the Contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the Contractor's equal employment opportunity policy and contractual responsibilities to provide equal employment opportunity in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum;

- (1) Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the Contractor's equal employment opportunity policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.
- (2) All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer or other knowledgeable company official,

AFFIRMATIVE ACTION REQUIREMENTS EQUAL EMPLOYMENT OPPORTUNITY

covering all major aspects of the Contractor's equal employment opportunity obligations within thirty days following their reporting for duty with the Contractor.

- (3) All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer or appropriate company official in the Contractor's procedures for locating and hiring minority group employees.
- b. In order to make the Contractor's equal employment opportunity policy known to all employees, prospective employees and potential sources of employees, i.e., schools, employment agencies, labor unions (where appropriate), college placement officers, etc., the Contractor will take the following actions:
 - (1) Notices and posters setting forth the Contractor's equal employment opportunity policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
 - (2) The Contractor's equal employment opportunity policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

5. Recruitment.

- a. When advertising for employees, the Contractor will include in all advertisements for employees the notation; "An Equal Opportunity Employer." All such advertisements will be published in newspapers or other publications having a large circulation among minority groups in the area from which the project work force would normally be derived.
- b. The Contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants, including, but not limited to, State employment agencies, schools, colleges and minority group organizations. To meet this requirement, the Contractor will, through his EEO Officer, identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the Contractor for employment consideration.

In the event the Contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the Contractor's compliance with equal employment opportunity contract provisions. (The U.S. Department of Labor has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the Contractor to do the same, such implementation violates Executive Order 11246, as amended.)

- c. The Contractor will encourage his present employees to refer minority group applicants for employment by posting appropriate notices or bulletins in areas accessible to all such employees. In addition, information and procedures with regard to referring minority group applicants will be discussed with employees.

6. Personnel Actions. Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken

**AFFIRMATIVE ACTION REQUIREMENTS
EQUAL EMPLOYMENT OPPORTUNITY**

without regard to race, color, religion, sex, or national origin. The following procedures shall be followed;

- a. The Contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.
- b. The Contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.
- c. The Contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the Contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.
- d. The Contractor will promptly investigate all complaints of alleged discrimination made to the Contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the Contractor will inform every complainant of all of his avenues of appeal.

7. Training and Promotion.

- a. The Contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.
- b. Consistent with the Contractor's work force requirements and as permissible under Federal and State regulations, the Contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.
- c. The Contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.
- d. The Contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

**AFFIRMATIVE ACTION REQUIREMENTS
EQUAL EMPLOYMENT OPPORTUNITY**

8. *Unions.* If the Contractor relies in whole or in part upon unions as a source of employees, the Contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women with the unions, and to effect referrals by such unions of minority and female employees. Actions by the Contractor either directly or thorough a contractor's association acting as agent will include the procedures set forth below:
- a. The Contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.
 - b. The Contractor will use best efforts to incorporate an equal employment opportunity clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, or national origin.
 - c. The Contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the Contractor, the Contractor shall so certify to the State highway department and shall set forth what efforts have been made to obtain such information.
 - d. In the event the union is unable to provide the Contractor with a reasonable flow of minority and women referrals within he time limit set forth in the collective bargaining agreement, the Contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex or national origin; making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The U.S. Department of Labor has held that it shall be no excuse that the union with which the Contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the Contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such Contractor shall immediately notify the State highway agency.
9. *Subcontracting.*
- a. The Contractor will use his best efforts to solicit bids from and to utilize minority group subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of minority-owned construction firms from State highway agency personnel.
 - b. The Contractor will use his best efforts to ensure subcontractor compliance with their equal employment opportunity obligations.

**AFFIRMATIVE ACTION REQUIREMENTS
EQUAL EMPLOYMENT OPPORTUNITY**

10. *Records and Reports.*

- a. The Contractor will keep such records as are necessary to determine compliance with the Contractor's equal employment opportunity obligations. The records kept by the Contractor will be designed to indicate:
 - (1) The number of minority and nonminority group members and women employed in each work classification on the project.
 - (2) The Progress and efforts being made in cooperation with unions to increase employment opportunities for minorities and women (applicable only to contractors who rely in whole or in part on unions as a source of their work force).
 - (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees, and
 - (4) The progress and efforts being made in securing the services of minority group subcontractors or subcontractors with meaningful minority and female representation among their employees.
- b. All such records must be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the State highway agency and the Federal Highway Administration.
- c. The Contractors will submit an annual report to the State highway agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form PR 1391.

July 1, 2025

1

CERTIFIED PAYROLL REQUIREMENTS FOR CONSTRUCTION CONTRACTS

All applicable contractors subject to Davis-Bacon and Related Acts (DBRA) requirements shall submit all payrolls weekly (at least every seven days), related to Form FHWA 1273, *Required Contract Provisions for Federal-Aid Construction Contracts*, and the Colorado Senate Bill 19-196. The Contractor, all subcontractors, and applicable suppliers required to submit certified payrolls shall follow all DBRA requirements, including sections 5.5, 3.5, and 3.6 of the 29 CFR. Contractors shall upload a completed Contractor Fringe Benefit Statement (CFBS) into LCPtracker at least once per project, utilizing the following web link:

<https://prod-cdn.lcptracker.net/login/login>

The CFBS shall include benefit details for employees who perform work on the project. The CFBS shall provide an overview of the bona fide benefits provided by the employer. If a contractor's fringe benefits change during the project's life, a revised CFBS shall be submitted to reflect the changes accurately. Note other deductions by type and amount. Attach required supporting documentation in the LCPtracker system. Contractors, subcontractors, and applicable suppliers shall establish and utilize a process that allows all employees to verify the number of hours and classifications submitted to pay wages and benefits.

The Contractor, subcontractors, and applicable suppliers shall submit payrolls directly into LCPtracker for approval by the Contractor. The prime approver for the Contractor shall approve or reject payrolls within seven days after submission into LCPtracker.

Decision Nos. CO20260012 dated January 9, 2026, supersedes Decision Nos. CO20250012 dated December 12, 2025.		<u>Modifications</u>			<u>ID</u>
		<u>MOD Number</u>	<u>Date</u>	<u>Page Number(s)</u>	
When work within a project is located in two or more counties and the minimum wages and fringe benefits are different for one or more job classifications, the higher minimum wages and fringe benefits shall apply throughout the project.					
General Decision No. CO20260012 applies to the following counties: Alamosa, Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Fremont, Gunnison, Hinsdale, La Plata, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan, and San Miguel counties.					
General Decision No. CO20260012					
The wage and fringe benefits listed below reflect collectively bargained rates.					
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod	
1491	CARPENTER (Excludes Form Work)	33.11	12.17		
	POWER EQUIPMENT OPERATOR:				
	Drill Rig Caisson				
1492	Smaller than Watson 2500 and similar	35.41	15.20		
1493	Watson 2500 similar or larger	35.41	15.20		
	Mechanic				
1494	La Plata County	35.58	15.20		
General Decision No. CO20260012					
The wage and fringe benefits listed below do not reflect collectively bargained rates.					
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod	
	CARPENTER:				
	Form Work Only				
1495	Alamosa, Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Fremont, Gunnison, Hinsdale, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	18.57	5.38		
1496	La Plata	18.60	5.38		
	CEMENT MASON/CONCRETE FINISHER:				
1497	Alamosa, Archuleta, Conejos, Custer, Delta, Dolores, Fremont, Gunnison, Hinsdale, Mineral, Montezuma, Ouray, Rio Grande, Saguache, San Juan, San Miguel	17.67	2.85		

General Decision No. CO20260012				
The wage and fringe benefits listed below do not reflect collectively bargained rates.				
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
	CEMENT MASON/CONCRETE FINISHER (con't.):			
1498	Chaffee	15.55	2.85	
1499	La Plata	18.99	2.85	
1500	Montrose	16.95	2.85	
1501	ELECTRICIAN	28.06	8.76	
1502	GUARDRAIL INSTALLER	12.78	3.31	
	HIGHWAY/PARKING LOT STRIPING:			
1503	Truck Driver (Line Striping Truck)	14.60	3.49	
1504	Painter	12.90	3.07	
	IRONWORKER:			
1505	Reinforcing (Excludes Guardrail Installation)	16.94	6.77	
1506	Structural (Excludes Guardrail Installation)	16.76	6.01	
	LABORER:			
	Asphalt Raker			
1507	Alamosa	17.53	3.75	
1508	Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Fremont, Gunnison, Hinsdale, San Juan, San Miguel	16.43	3.42	
1509	La Plata	15.38	3.12	
	Common or General			
1510	Alamosa, Chaffee, Montezuma, Montrose	12.44	3.53	
1511	Archuleta, Conejos, Custer, Delta, Dolores, Gunnison, Hinsdale, Ouray, Rio Grande, Saguache, San Miguel	13.70	3.53	
1512	Fremont	15.19	3.00	
1513	La Plata	14.07	3.53	
1514	Mineral	14.84	3.53	
1515	San Juan	13.73	3.53	
1516	Concrete Saw (Hand Held)	16.00	6.14	

General Decision No. CO20260012				
The wage and fringe benefits listed below do not reflect collectively bargained rates.				
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
	LABORER (con't):			
	Landscape and Irrigation			
1517	Alamosa, Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Fremont, Gunnison, Hinsdale, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	14.02	3.16	
1518	La Plata	13.54	3.16	
	Mason Tender - Cement/Concrete			
1519	Alamosa, Archuleta, Conejos, Custer, Delta, Dolores, Fremont, Gunnison, Hinsdale, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	14.59	3.10	
1520	Chaffee	12.44	3.10	
1521	La Plata	15.67	3.10	
	Traffic Control			
1522	Flagger	9.42	3.21	
1523	Sets Up/Moves Barrels, Cones, Installs signs, Arrow Boards and Place Stationary Flags, (Excludes Flaggers)	12.39	3.20	
1524	PAINTER (Spray Only)	17.54	3.52	
	POWER EQUIPMENT OPERATOR:			
	Asphalt Laydown			
1525	Alamosa, La Plata	22.67	8.72	
1526	Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Fremont, Gunnison, Hinsdale, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	23.13	8.64	
1527	Asphalt Paver	22.67	8.72	
1528	Asphalt Plant	17.23	4.07	
	Asphalt Roller			
1529	Alamosa	21.67	8.22	
1530	Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Fremont, Gunnison, Hinsdale, Mineral, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	22.77	8.36	
1531	La Plata	22.68	7.30	
1532	Montezuma	22.67	8.72	
1533	Asphalt Spreader	22.67	8.72	

General Decision No. CO20260012				
The wage and fringe benefits listed below do not reflect collectively bargained rates.				
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
	POWER EQUIPMENT OPERATOR (con't):			
	Backhoe/Trackhoe			
1534	Alamosa	21.03	3.75	
1535	Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Fremont, Gunnison, Hinsdale, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	19.75	3.75	
1536	La Plata	19.79	5.13	
1537	Mineral	19.17	5.53	
1538	Montezuma	16.42	4.42	
	Bobcat/Skid Loader			
1539	Alamosa, Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Fremont, Gunnison, Hinsdale, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	18.20	4.54	
1540	La Plata	19.98	4.88	
1541	Mineral	17.94	4.62	
	Broom/Sweeper			
1542	Alamosa	20.67	9.22	
1543	Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Fremont, Gunnison, Hinsdale, La Plata, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	21.70	9.22	
	Bulldozer			
1544	Alamosa, Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Gunnison, Hinsdale, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	23.28	9.22	
1545	Fremont	23.67	9.22	
1546	La Plata	23.57	8.72	
1547	Chipper	22.04	8.26	
	Crane			
1548	Alamosa, Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Fremont, Gunnison, Hinsdale, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	25.01	8.22	
1549	La Plata	25.21	8.22	

General Decision No. CO20260012				
The wage and fringe benefits listed below do not reflect collectively bargained rates.				
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
	POWER EQUIPMENT OPERATOR (con't.):			
1550	Drill	20.84	2.66	
1551	Forklift	18.30	5.01	
1552	Grade Checker	23.91	7.89	
	Grader/Blade			
1553	Alamosa, Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Gunnison, Hinsdale, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	16.39	4.20	
1554	Fremont	19.68	3.37	
1555	La Plata	19.83	4.20	
1556	Guardrail/Post Driver	16.07	4.41	
	Loader (Front End)			
1557	Alamosa, Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Gunnison, Hinsdale, Mineral, Montrose, Ouray, Rio Grande, Saguache, San Juan	23.38	8.22	
1558	Fremont	23.67	9.22	
1559	La Plata	23.36	7.09	
1560	Montezuma	22.82	8.72	
1561	San Miguel	23.82	9.22	
	Mechanic			
1562	Alamosa, Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Gunnison, Hinsdale, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	16.74	4.20	
1563	Fremont	18.79	3.51	
	Oiler			
1564	Alamosa, Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Gunnison, Hinsdale, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan,	22.97	7.88	
1565	Fremont	22.97	8.56	
1566	La Plata	24.08	5.49	
1567	San Miguel	22.97	9.22	

General Decision No. CO20260012				
The wage and fringe benefits listed below do not reflect collectively bargained rates.				
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
	POWER EQUIPMENT OPERATOR (con't.):			
	Roller/Compactor (Dirt and Grade Compaction)			
1568	Alamosa, Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Gunnison, Hinsdale, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	19.24	4.96	
1569	Fremont	16.52	5.28	
1570	La Plata	18.33	2.98	
1571	Rotomill	16.28	4.41	
1572	Scraper	17.62	2.96	
	Screed			
1573	Alamosa	20.33	6.81	
1574	Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Fremont, Gunnison, Hinsdale, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	19.58	4.96	
1575	La Plata	17.86	2.75	
1576	Tractor	15.08	2.95	
	TRAFFIC SIGNALIZATION:			
1577	Groundsman	17.04	2.28	
	TRUCK DRIVER:			
	Distributor			
1578	Alamosa	18.40	4.51	
1579	Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Fremont, Gunnison, Hinsdale, La Plata, Mineral, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	17.62	5.27	
1580	Montezuma	15.80	5.27	

General Decision No. CO20260012				
The wage and fringe benefits listed below do not reflect collectively bargained rates.				
Code	Classification	Basic Hourly Rate	Fringe Benefits	Last Mod
	TRUCK DRIVER (con't.):			
	Dump Truck			
1581	Alamosa	14.15	3.83	
1582	Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Gunnison, Hinsdale, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	16.56	4.03	
1583	Fremont	16.55	4.34	
1584	La Plata	16.90	3.83	
1585	Mineral	16.97	4.61	
1586	Lowboy Truck	17.25	5.84	
1587	Mechanic	17.79	3.51	
1588	Multi-Purpose Specialty & Hoisting Truck	14.60	3.49	
	Pickup and Pilot Car			
1589	Alamosa, Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Fremont, Gunnison, Hinsdale, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	14.04	3.49	
1590	La Plata	15.47	3.49	
	Semi Truck			
1591	Alamosa, Archuleta, Chaffee, Gunnison, Mineral, Montezuma, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	19.42	5.41	
1592	Conejos, Custer, Delta, Dolores, Fremont, Hinsdale, La Plata	17.25	5.41	
	Water Truck			
1593	Alamosa	17.58	3.75	
1594	Archuleta, Chaffee, Conejos, Custer, Delta, Dolores, Gunnison, Hinsdale, Mineral, Montrose, Ouray, Rio Grande, Saguache, San Juan, San Miguel	16.75	3.04	
1595	Fremont	16.15	3.14	
1596	La Plata	17.67	3.43	
1597	Montezuma	14.88	2.07	

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

Wage Determination Appeals Process

1) Has there been an initial decision in the matter? This can be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to: davisbaconinfo@dol.gov, or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to: BCWD-Office@dol.gov, or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to: dba.reconsideration@dol.gov, or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

End of General Decision No. CO2026 0012

On The Job Training

This On-the-Job Training (OJT) special provision is an implementation of 23 U.S.C, 140(a), a federal requirement to provide equal opportunity and training on federal-aid construction projects. The Contractor shall meet the requirements of the FHWA 1273 for all apprentices and trainees. For additional guidance, please look at the OJT Contractor Manual.

1. Goal Setting

CDOT will set OJT goals for every federally-assisted project. Goals for the projects will be set based on the criteria that is outlined in the 23 CFR Part 230, Appendix B to Subpart (A):

- A. Availability of minorities, women, and disadvantaged persons for training;
- B. The potential for effective training;
- C. Duration of the contract;
- D. Dollar value of the contract;
- E. Total normal workforce that the average bidder could be expected to use;
- F. Geographic location;
- G. Type of work;
- H. The need for journey-level workers in the area;
- I. Recognition of the state's goal;
- J. A satisfactory ratio of trainees to journeymen expected to be on the workforce.

The number of required training hours will be identified in the Contract. The following chart provides guidelines based on contract value, but the required number of hours will be determined by CDOT after consideration of the aforementioned variables.

Contract dollar value	Training hours to be provided on the project
Up to 1 million	0
>1 - 2 million	320
>2 - 4 million	640
>4 - 6 million	1280
>6 - 8 million	1600
>8 - 12 million	1920
>12 - 16 million	2240
>16 - 20 million	2560
For each increment of \$5 million, over \$20 million	1280

2 On The Job Training

2. Training Plan Options

CDOT accepts the following training programs:

- A. CDOT's pre-approved classifications utilization program (PAC-UP);
- B. A registered U.S. Department of Labor training program or apprenticeship program;
- C. Approved programs through workforce centers and through specific groups like Colorado Contractors Association (CCA) and Western Colorado Contractors Association (WCCA);
- D. A Contractor specific plan approved by CDOT and the Federal Highway Administration (FHWA).

The minimum length and type of training for each skilled craft shall be as established in the training program selected by the Contractor.

When one or more approved plans are chosen, the Contractor shall submit the OJT Contractor Commitment to Meet OJT Requirements, CDOT Form 1337 to the Engineer. Additional pre-approved training programs and/or additional apprentices/trainees may be utilized at any point throughout the project. The plan option(s) that the Contractor chooses will be effective for the duration of the project.

3. Journey-Level Worker to Apprentice/Trainee Ratio

The OJT goal requirement shall be met through approved trainee(s)/apprentice(s) working on the CDOT project under the supervision of a journey-level worker. For the CDOT Pre-Approved Classification Training Programs (PAC-UP), the apprentice/trainee ratio to journey-level worker shall not exceed a one to one ratio for all classifications, and the Contractor shall not exceed 25 percent of the workforce as trainees/apprentices at any time. Furthermore, it is at CDOT's discretion that a stricter ratio guideline may be imposed as outlined in the specific training classification. For all other approved programs, the apprentice/trainee ratio shall be as outlined in the specific program. When apprentices/trainees are on the job without proper supervision as outlined above, they shall be paid full Davis-Bacon wages.

4. Trainee Selection

Two components must be considered when choosing a trainee:

- A. The intent of this program is for Contractors to recruit and train entry-level individuals or individuals who will be working within new classifications and guide them toward journey-level status in that specific classification. A trainee will not be approved in any classification for which they have already obtained journey-level status.
- B. Another intent of the OJT program is the primary consideration for the Contractor to use minorities, women, and disadvantaged persons to fulfill the trainee roles, and as such, the Contractor shall make every effort to enroll such individuals in the program by using "systematic and direct recruitment through public and private sources."

On The Job Training

The consideration to include women and minorities is based on the regulation; however, it will not be used to systematically deny any one person or group from the opportunity to be a part of the OJT program. CDOT may reject non-minority male trainees for entry into the program if it is determined that a Contractor failed to make sufficient good faith efforts (GFE) to hire minorities or female trainees and/or the Contractor failed to document or submit evidence of its GFE to do so. CDOT will consider a Contractor's documentation of all GFE on a case-by-case basis and will take into account the items listed in the goal setting section of this specification. For more information, please see Section 11 of this specification.

5. OJT Apprentice/Trainee Approval

As a condition of the OJT program, the Contractor will:

- A. Notify all employees at the start of employment and at a minimum of at least once per year regarding the available training programs, positions, and eligibility requirements. The Contractor shall document that this information was conveyed to and received by employees.
- B. Provide each trainee with a copy of his or her enrollment form (if applicable) and the training program within a month of starting the chosen plan.

The OJT submittals (CDOT Form 1337, Contractor Commitment to Meet OJT Requirements; CDOT Form 832, Trainee Status and Evaluation; CDOT Form 838, OJT apprentice/trainee Record) shall be filled out completely and approved or rejected by CDOT. If the apprentice/trainee is working within the proposed classification before approval is granted, full Davis-Bacon prevailing wages shall be paid to the individual. The Regional Civil Rights Office must approve the CDOT Form 838 prior to any of the hours counting toward the OJT goal. If there is a CDOT delay that is completely outside of the Contractor's responsibility for approval of the apprentices/trainees, and if approval is ultimately granted, the date that will be utilized will be ten business days after the date that the CDOT Form 838 was submitted.

The Contractor shall retain full responsibility for meeting the training requirements imposed by this special provision.

6. Eligible Work Activities that Count Toward the Training Goal

The work hours that are completed on the site of work and per the training documents for approved apprentices/trainees in approved classifications and programs will apply toward the project goal. Hours for work performed outside the individual's approved training classification will not count toward the project OJT goal and the individual shall be paid full applicable prevailing wage.

Job shadowing can apply toward the project goal if it is written into the specific training plan. If the Contractor is using CDOT's PAC-UP training program, job shadowing can apply toward the project goal when the approved employee is performing within the "Observation" component of the plan (hours vary by classification). Non-CDOT project hours will not be accepted toward the project goal.

Although US DOL apprenticeship programs can use the reduced wages for any CDOT job (with or without an OJT goal) with approval, none of these "additional" hours may be

On The Job Training

banked or included for use as part of the required special provisions on any project other than that for which it was approved.

The Contractor may count OJT hours accomplished by a subcontractor with an approved plan. The subcontractor's trainee or apprentice, who is enrolled in any of the approved OJT programs and is contributing toward meeting a project's OJT goal hours, can count toward the project's OJT goal to satisfy the requirement of this specification. A subcontractor who chooses to participate in meeting the OJT goal shall follow the same process as the Contractor in terms of approving apprentices/trainees, submitting forms, etc. The Contractor retains the full responsibility for meeting the training requirements imposed by this special provision.

7. Contractor Training and Trainee Monitoring

The Contractor's representative (supervisor, manager, or other designee) will evaluate progress for the apprentice/trainee monthly and will provide a copy to the apprentice/trainee of the submitted CDOT Form 832 within 30 calendar days. This evaluation will include documentation of the apprentice/trainee's performance including what was done well and what needs to be improved. The Contractor training and monitoring will be evaluated through CDOT's use of the CDOT Form 200 Interview.

8. Wages

The Contractor may pay apprentice/trainee wages at a reduced rate for those that are in an approved program according to the following guidelines:

US DOL Apprenticeship Programs

Rates (at minimum) will be paid according to the scaled adjustments for a registered US DOL Apprentice. Fringe benefits (either in cash and/or bona fide benefits in lieu of cash) will be paid in full and as outlined by the bargained agreement. If fringe benefits are not mentioned as part of a bargained agreement or if there is no collectively bargained agreement, full fringe benefits will be paid as outlined through the US DOL wage decision. Approved US DOL apprenticeship programs can use the reduced wages for any CDOT project.

If the project does not have a training goal and the Contractor is seeking to pay apprenticeship rates as part of a registered US DOL Apprenticeship Program, the following documentation is required to ensure wages are being paid correctly: apprenticeship program registration, OA (formerly BAT) certificates, and collective bargaining agreement including the wage sheet.

Other Approved Programs

For all other OJT wage reductions, reduced percentages are allowed for the project if there is a goal greater than zero as outlined in the 23 CFR Appendix B to Subpart A of Part 230 (as described in this section), in the collectively bargained agreement, or as outlined in the specific plans. If the Contractor chooses to pay the trainee rates, the reduced percentage shall be based only on the base rate of pay. Fringe benefits shall be paid at 100 percent of the journey-level wage. If the apprentice/trainee is working

5

On The Job Training

within the proposed classification before approval is granted, full Davis-Bacon prevailing wages shall be paid to the apprentice/trainee.

The minimum trainee wage (base and fringe) shall be no less than \$13.00 per hour.

Trainees shall be paid at minimum:

First half of the training period -- at least 60 percent of the appropriate minimum journey-level rate

Third quarter of the training period - at least 75 percent of the appropriate minimum journey-level rate

Last quarter of the training period -- at least 90 percent of the appropriate minimum journey-level rate

9. Contractor Reporting

The Contractor shall keep all data associated with the trainees and the project for a period of at least three years from the closing date of the Contract.

10. Reimbursement to Contractors

For the purposes of reimbursement, the Contractor will have satisfied its responsibilities under this specification if CDOT has determined that it has fulfilled the acceptable number of training hours. Contractors will be reimbursed at a rate of \$10.00 per hour per (approved) trainee for all OJT hours worked in approved classifications up to the project goal.

The Contractor will be reimbursed for no more than the amount outlined in the OJT Force Account budget.

11. OJT Good Faith Efforts (GFE)

CDOT recognizes two explanations of good faith efforts: (1) The Contractor will be required to prove an effort has been made to achieve a diversified workforce, but it has not yet been accomplished, or (2) The attempt has been made to meet the number of required OJT hours by using approved trainees or apprentices in approved classification(s) utilizing approved plans, but the Contractor cannot meet the required number of hours. In either case, a GFE will be required, and the Region Civil Rights Office will make the determination.

- A. If the Contractor does not meet its OJT project goal with the inclusion of some female and/or minority trainees, the Contractor may be requested to produce documentation of adequate good faith efforts taken to fill that position with a minority or female applicant. Good faith efforts are designed to achieve equal opportunity through positive, assertive, and continuous result-oriented measures. Good faith efforts should be taken as hiring opportunities arise.
- B. If the Contractor does not meet its OJT project goal, the Contractor may submit a CDOT Form 1336, Waiver Request for Contract's OJT Hours. On the form, the Contractor shall outline and submit all good faith efforts made when it is believed that the required number of training hours will not be met. If GFE is not demonstrated and approved, The Contractor will be subject to payment reductions outlined in the Disincentive Section.

On The Job Training

If a good faith effort has been denied by CDOT, the Contractor may ask for reconsideration by the Region Civil Rights Manager and the Resident Engineer for the region where work is being performed. Additionally, if requested by the Contractor, the Region Civil Rights Office and the Project Engineer will meet with the Contractor to discuss the Contractor's initial Good Faith Effort determination.

12. Disincentive

A failure to provide the required training without the demonstration and approval of GFE to meet the project OJT goal may result in the Region Civil Rights Office assigning the following disincentive: A sum representing the total number of hours not met in the contract shall be multiplied by the journey worker hourly wages plus fringe benefits [(hours not met) x (dollar per hour + fringe benefits) = disincentive amount].

In order to obtain the disincentive amount, the journey worker wages will be figured using the prevailing wages for the classifications outlined on the CDOT Form 1337. If a single classification is noted on the submitted CDOT Form 1337, then that one wage will be used to figure the monetary amount owed. If multiple classifications are used, then the journey worker wages of all classifications will be used to determine an average wage rate. If the Contractor does not submit any documentation toward the OJT goal, the disincentive rate will be calculated at \$30.00 per hour. CDOT will provide the Contractor a written notice at the final acceptance stage of the project informing them of the noncompliance with this specification which will include a calculation of the disincentive(s) to be assessed.

Railroad Insurance

The Contractor shall carry insurance of the following kinds and amounts:

A. CONTRACTOR'S PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE.

The Contractor shall furnish evidence to the Department that with respect to the operations the Contractor performs, the Contractor carries Contractor's Public Liability Insurance providing for a limit of not less than One Million Dollars (\$1,000,000.00) for all damages arising out of bodily injuries to or death of one person and subject to that limit for each person, a total limit of Two Million Dollars (\$2,000,000.00) for all damages arising out of bodily injuries to or death of two or more persons in any one occurrence; and Contractor's Property Damage Liability Insurance providing for a limit of not less than One Million Dollars (\$1,000,000.00) for all damages arising out of injury to or destruction of property in any one occurrence and subject to that limit per occurrence, a total (or aggregate) limit of Two Million Dollars (\$2,000,000.00) for all damages arising out of injury to or destruction of property during the policy period.

If any part of the work affecting railroad property or facilities is sublet, similar insurance shall be provided by or in behalf of the subcontractor(s) involved.

B. CONTRACTOR'S PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE.

The Contractor shall furnish evidence to the Department that with respect to the operations performed for the Contractor by subcontractors, the Contractor carries in its own behalf Contractor's Protective Public Liability Insurance providing for a limit of not less than One Million Dollars (\$1,000,000.00) for all damages arising out of bodily injuries to or death of one person and subject to that limit for each person a total limit of Two Million Dollars (\$2,000,000.00) for all damages arising out of bodily injuries to or death of two or more persons in any one occurrence; and Contractor's Protective Property Damage Liability Insurance providing for a limit of not less than One Million Dollars (\$1,000,000.00) for all damages arising out of injury to or destruction of property in any one occurrence, and subject to that limit per occurrence, a total (or aggregate) limit of Two Million Dollars (\$2,000,000.00) for all damages arising out of injury to or destruction of property during the policy period.

C. RAILROAD'S PROTECTIVE LIABILITY AND PROPERTY DAMAGE INSURANCE.

In addition to the above, the Contractor shall furnish evidence to the Department that with respect to the operations the Contractor or any of its subcontractors perform, the Contractor has provided for and in behalf of the Railroad Company, and each Railroad Company when more than one is involved, Railroad Protective Public Liability and Property Damage Insurance providing for a combined single limit of Two Million Dollars (\$2,000,000.00) per occurrence with an aggregate limit of six Million Dollars (\$6,000,000.00) applying separately for each annual period for:

1. All damages arising out of bodily injuries to or death of one or more persons.

Railroad Insurance

2. All damages arising out of injury to or destruction of property.

D. GENERAL.

Said policy or policies of insurance shall be deemed to comply with the requirements of this Special Provision if each of said policies contains a properly completed and executed "Railroad Protective Liability Form", reference copies of which are available from the Agreements Engineer of the Colorado Department of Transportation, 2829 W. Howard Pl., Denver, CO 80204.

Certificates of insurance required under A. and B. above, and policy or policies of Insurance required under C. above shall be furnished to the Department's Agreements Engineer for transmittal to the Railroad Company's Insurance Department.

The insurance hereinbefore specified shall be carried until all work required to be performed under the terms of the Contract is satisfactorily completed as evidenced by the formal acceptance of the Department. The Railroad Company shall be furnished with the original of each policy carried in its behalf.

July 1, 2025

**Required Contract Provisions
Federal-Aid Construction Contracts**

Attached is Form FHWA 1273 titled *Required Contract Provisions Federal-Aid Construction Contracts*. As described in Section I. General, the provisions of Form FHWA 1273 apply to all work performed under the Contract and are to be included in all subcontracts with the following modification:

For TAP (Transportation Alternatives Program) funded Recreational Trails projects, Section I (4) regarding convict labor and all of Section IV of the FHWA 1273 do not apply.

Required Contract Provisions Federal-Aid Construction Contracts

- I. General
- II. Nondiscrimination
- III. Non-segregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag Vessels:

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work

performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide

sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants /

Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials

and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway

Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act ([29 CFR part 3](#))), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act ([40 U.S.C. 3141\(2\)\(B\)](#)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH-1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in [29 CFR part 1](#), a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(ii) The classification is used in the area by the construction industry; and

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is used in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division

under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

d. *Fringe benefits not expressed as an hourly rate.* Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901](#)–3907.

3. Records and certified payrolls (29 CFR 5.5)

a. Basic record requirements (1) Length of record retention. All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) Information required. Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) Additional records relating to fringe benefits. Whenever the Secretary of Labor has found under paragraph 1.e. of this section that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

(4) Additional records relating to apprenticeship. Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. Certified payroll requirements (1) Frequency and method of submission. The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting

agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) Information required. The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division website at <https://www.dol.gov/sites/dolgov/files/WHDL/legacy/files/wh347.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) Statement of Compliance. Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in [29 CFR part 3](#); and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

(4) Use of Optional Form WH-347. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.

(5) *Signature.* The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification.* The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under [18 U.S.C. 1001](#) and [31 U.S.C. 3729](#).

(7) *Length of certified payroll retention.* The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents.* The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers.* The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements.* If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under [29 CFR part 6](#) any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures.* Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address

of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices (1) Rate of pay.* Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits.* Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio.* The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates.* Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity.* The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and [29 CFR part 30](#).

c. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 29 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeyworkers shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility. a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, [18 U.S.C. 1001](#).

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#); or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#).

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or

mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

* \$31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901](#)–3907.

4. **Subcontracts.** The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the

event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. **Anti-retaliation.** It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;

- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
- (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and

health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

3. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contractor). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

* * * * *

4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or

cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS
PREFERENCE FOR APPALACHIAN DEVELOPMENT
HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS
ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)**
This provision is applicable to all Federal-aid projects funded
under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

Special Construction Requirements Fire Protection Plan

- (a) *Fire Protection Plan.* Prior to start of work, the Contractor shall submit a Fire Control Plan in writing to the Engineer for approval. The plan shall include the following:
- (1) The name and contact information of a Fire Control Coordinator who shall be assigned to the project.
 - (2) A list of numbers to call in case of a fire, including 911 (or the equivalent in the area).
 - (3) A complete list, including storage locations, of all tools and equipment the Contractor will use in the event of a fire within project limits.
 - (4) Methods that will be employed if a fire is encountered or started during construction activities within the project limits.
 - (5) Specific fire prevention precautions, and the required firefighting equipment, for every activity which has the potential for starting a fire. At a minimum the plan shall address prevention planning related to use of heavy equipment, vehicles, hand tools, storage and parking areas.
 - (6) Specific precautions for fueling operations.
 - (7) Provisions for field safety meetings. The Contractor shall conduct field safety meetings (also known as toolbox or tailgate meetings) at least once per week. The Contractor shall encourage participation by all persons working at the project site. Participants shall discuss specific fire prevention precautions for construction activities.
- (b) *Equipment and Procedures.*
- (1) Fire Boxes. Fire boxes shall contain tools and equipment that shall be used exclusively for controlling or suppressing fires which occur due to construction activities on project sites. Each fire box shall contain, as a minimum, the following:
 - (1) five round-pointed shovels,
 - (2) two double-bitted axes,
 - (3) three pulaskis or mattocks, and
 - (4) two backpack pumps
 - (2) Welding. If welding at field locations is required, the welding shall be done at a location where all flammable material has been cleared away for a distance of 16 feet around the area.

2

**Special Construction Requirements
Fire Protection Plan**

- (3) Spark Arrestors. All diesel and gasoline powered engines, both mobile and stationary, shall be equipped with serviceable spark arrestors.
 - (4) Power Saws. Each gasoline power saw shall be provided with a spark screen and a muffler in good condition. Spill-proof metal safety cans shall be used for refueling.
 - (5) Storage and Parking Areas. Batch plant areas, equipment service areas, parking areas, gas and oil drum storage areas, and explosive storage areas shall be cleared of all flammable materials for a distance of 50 feet. Small stationary engine sites shall be cleared of all flammable material for distance of 17 feet. Other mitigation methods may be used as approved by the Engineer.
- (c) *Fire Control Coordinator Responsibilities.* The Fire Control Coordinator shall:
- (1) Implement the Fire Control Plan.
 - (2) Monitor, manage, and adjust the Fire Control Plan as needed as construction work progresses.
 - (3) Document in a letter to the Engineer changes to the Fire Control Plan.
 - (4) Immediately contact firefighting authorities when a fire is started due to construction activities within project limits.
 - (5) Coordinate fire control and suppression activities until authorities arrive, including the evacuation of staff.
 - (6) When the Fire Control Coordinator cannot be on the project site, he shall designate a person who is on site to serve as the Fire Control Coordinator. The Fire Control Coordinator, or his designee, shall be on site at all times that work is being performed.
- (d) *Costs.* All costs associated with the preparation and implementation of the Plan and compliance with all fire protection provisions and requirements will not be measured and paid for separately, but shall be included in the work.