

Department of Transportation
Federal Highway Administration
Central Federal Lands Highway Division

WY HPP 4-1(5)
Beartooth Highway
Shoshone National Forest
Park County, Wyoming

INVITATION FOR BID

This invitation for bid cites Federal Highway Administration
Specifications FP-03, 2003, Metric

Cut & Paste on Bid Submittal Envelope

OF-17 (cflhd7/03) FAR (48) CFR 53.214(g)
OFFER LABEL FAR (48) CFR 53.215-1(h)

NOTICE TO OFFEROR

1. THIS LABEL MAY ONLY BE USED ON ENVELOPES LARGER THAN 156 mm (6 ½ INCHES) IN HEIGHT AND 292 mm (11 ½ INCHES) IN LENGTH.
2. Print or type your name and address in the UPPER left corner of the envelope containing your offer.
3. Complete the bottom portion of this form and paste it on the lower left corner of the envelope, unless the envelope is 156 mm by 292 mm (6 ½ inches by 11 ½ inches) or smaller.

OFFER

SOLICITATION NO.

DATE FOR RECEIPT OF OFFERS

TIME FOR RECEIPT OF OFFERS

OFFICE DESIGNATED TO RECEIVE OFFERS

Contractor _____

Street Address _____

City/State/Zip _____

State: Wyoming

County: Park

Location: Shoshone National Forest

Length: Schedule A = 18.795 km
Option X = 9.914 km
Option Y = 1.067 km
Option Z = 18.795 km (one-inch additional
overlay of Schedule A)

Type of Improvement: Asphalt surfacing, culvert cleaning and
replacement

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NOTICE TO BIDDERS AND OFFERORS

Before mailing your offer, please check the following:

- Your offer sets forth full, accurate, and complete information as required by this solicitation, including representations and certifications/bidder qualifications and acknowledgement of any amendments that may have been issued.
- You have completed the bid schedule and checked your bid figures, including calculations on your work sheets.
- You have provided the required minimum Bid Guarantee in proper form and amount including Power of Attorney Affidavit. See FAR Provision 52.228-1.
- You have completed and signed all required documents.

INVITATION FOR BID BOOKLET

It is the responsibility of the bidder to verify that the solicitation book and the plan sets are complete as listed in the table of contents and index to sheets. Also, the bidder is responsible for submitting all required forms and documents with the bid.

Applicable FAR provisions and clauses in this IFB are incorporated by reference or full text. FAR provisions and clauses incorporated by reference can be accessed on the Internet at www.arnet.gov/far/. Bidders are strongly encouraged to review the provisions and clauses referenced in this document before submitting a bid.

Bidders **must** fill out and submit with their offers: (1) this page completed, which indicates interest in partnering; (2) pages A-1 and A-2; (3) pages number B-1 through B-22; (4) Sections C and D in their entirety; and (5) page F-3 of the Contract Clauses indicating Bidder's option to waive the price evaluation preference for HUBZone Certified Firms. The remaining pages may be retained by the bidder for their information.

PARTNERING (See Subsection 103.05 of the FP)

Please indicate your interest in participating in Partnering by checking the appropriate blank below.

The offeror is interested in participating in partnering.

The offeror is not interested in participating in partnering.

NOTICE TO BIDDERS AND OFFERORS

BONDING

FAR Provision 52.228-1, Bid Guarantee, requires a bid guarantee of not less than 20 percent of the amount of the bid (see page A-3). A bid bond from a corporate surety must be from a surety acceptable to the Government as appearing on the Department of the Treasury's list of approved sureties. The bid bond must have an original signature and an embossed seal for the surety. If a Power of Attorney is required with the bid bond, an original, photocopy or facsimile of an original Power of Attorney is sufficient evidence of authority to bind the surety. If the Power of Attorney form contains any language stating that the Power of Attorney can be revoked at any time, the document must contain an original signature or an embossed seal in the certification section.

Small business concerns, including minority business enterprises, may obtain assistance in securing necessary bonding for this project by contacting the office of the Small Business Administration located in their State.

ATTENTION: Minority, Women-owned, and Disadvantaged Business Enterprises (DBEs). The Department of Transportation (DOT), offers working capital financing and bonding assistance for transportation related contracts. DOT's Bonding Assistance Program (BAP) offers bid, performance and payment bonds on contracts up to \$1,000,000. DOT's Short-Term Lending Program (STLP) offers lines of credit to finance accounts receivable. Maximum line of credit is \$500,000 with interest at the prime rate. For further information, call (800) 532-1169. Internet address: <http://osdbuweb.dot.gov>.

INDIVIDUAL SURETIES

See FAR contract clause 52.228-11, Pledges of Assets.

UTILIZATION OF SMALL BUSINESS, HUBZone SMALL BUSINESS, SMALL DISADVANTAGED BUSINESS, WOMEN-OWNED SMALL BUSINESS, VETERAN OWNED, AND SERVICE-DISABLED VETERAN OWNED SMALL BUSINESS CONCERNS SUBCONTRACTING PROGRAM

FAR Clause 52.219-8, Utilization of Small Business Concerns states that Prime Contractors afford small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, HUBZone small business concerns, small disadvantaged business concerns, and women-owned small business concerns the maximum practicable opportunity to participate in performing contracts let by any Federal agency.

FAR Clause 52.219-9, Small Business Subcontracting Plan, Alternate I, requires that the large business concern who is the successful low bidder on a Federal project with an anticipated award amount exceeding \$1 million, is required to submit a subcontracting plan prior to contract award. The subcontracting plan expresses goals in terms of percentages of total planned subcontracting dollars for the use of small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns as subcontractors. To view and download a sample plan for subcontracting

NOTICE TO BIDDERS AND OFFERORS

requirements, visit <http://www.cflhd.gov/procurement/construction/reference-links.cfm>. If the apparent successful low bidder fails to submit a subcontracting plan acceptable to the CO within the allowable time, that bidder may be ineligible for award of the contract.

A list of currently known business concerns owned and controlled by socially and economically disadvantaged individuals and/or women-owned small business concerns that have indicated an interest in participating in highway construction is available at <http://www.ccr.gov>

PRICE EVALUATION PREFERENCE FOR HUBZONE SMALL BUSINESS CONCERNS

The award of this contract is subject to a 10% Price Evaluation Preference for HUBZone Small Business Concerns (SBC). Refer to FAR Clause 52.219-4. This price evaluation preference can apply to any qualified HUBZone SBC certified by the Small Business Administration. For any HUBZone SBC electing to waive the preference, see Page F-3 of this solicitation.

NOTICE TO POTENTIAL HUBZONE SBC BIDDERS

In the event this full and open competition results in a contract award to a qualified HUBZone SBC after a price evaluation preference, FAR Clause 52.236-1, Performance of Work by the Contractor, on page F-4, does not apply.

§126.700 of the Code of Federal Regulations (Title 13, Part 126, Subpart G), stated below, will replace the performance of work requirements stated in the above mentioned FAR clause.

A qualified HUBZone SBC receiving a contract under this solicitation for general construction must spend at least 50% of the cost of the contract incurred for personnel on its own employees or employees of other qualified HUBZone SBCs. This requirement may be met by expending at least 50% of the cost of the contract incurred for personnel on its employees or it may subcontract at least 35% of the cost of the contract performance incurred for personnel to one or more qualified HUBZone SBCs. A qualified HUBZone SBC prime contractor may not, however, subcontract more than 50% of the cost of the contract incurred for personnel to non-qualified HUBZone SBCs.

PROGRESS PAYMENTS

DFARS 204.7302, NASA, DOT and Treasury FAR Supplements, requires prospective bidders be registered in Central Contractor Registration (CCR) system prior to the award of a contract, basic agreement, basic ordering agreement, or blanket purchase agreement (Refer to FAR Clause 52.204-7, Central Contractor Registration). The DOT has partnered with the Department of Defense (DOD) to use the CCR system to obtain contractor financial electronic funds transfer (EFT) information.

NOTICE TO BIDDERS AND OFFERORS

FAR Clause 52.232-33, Payment by Electronic Funds Transfer -- Central Contractor Registration requires that the EFT information in the CCR must be accurate in order for contractors' invoices to be considered proper invoices for the purpose of prompt payment. Contractors must input and maintain their current EFT information.

To register in CCR, access the following DOD web site: www.ccr.gov .

FAR Clause 52.232-5, Payments Under Fixed-Price Construction Contracts, states reimbursement will be made for premiums paid by the Contractor to obtain performance and payment bonds as required under this contract. As specified in the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP), Section 151, Mobilization, payment for performance and payment bond premiums will be included in the mobilization item and shall not be in addition to the contract price.

FAR Clause 52.232-27, Prompt Payment for Construction Contracts, states the due date for progress payments shall be the 14th day after receipt of a proper payment request by the Government's designated billing office. Bidders are advised to review Subsection 109.08, Progress Payments and Subsection 109.05, Scope of Payment of the FP concerning direct and indirect payments.

FACSIMILE OR TELEGRAPHIC BIDS ARE NOT AUTHORIZED FOR THIS SOLICITATION

Bids may be modified or withdrawn by facsimile or telegraphic notice, if such notice is received by the time specified for receipt of bids. The Government will not be responsible for ANY failure attributable to the transmission or receipt of telegraphic or facsimile data. See FAR Provision 52.214-5, Submission of Bids.

FAX Number to submit modifications to bids for this project is (307) 772-2011.

SOLICITATION, OFFER AND AWARD <i>(Construction, Alteration or Repair)</i>	1. SOLICITATION NO. DTFH68-08-B-00023	2. TYPE OF SOLICITATION <input checked="" type="checkbox"/> SEALED BID (<i>IFB</i>) <input type="checkbox"/> NEGOTIATED (<i>RFP</i>)	3. DATE ISSUED 9/9/08	PAGE OF PAGES 1 OF 2
IMPORTANT - THE "OFFER SECTION ON THE REVERSE MUST BE FULLY COMPLETED BY OFFEROR.				
4. CONTRACT NO.	5. REQUISITION/PURCHASE REQUEST NO.	6. PROJECT NO. WY HPP 4-1(5), Beartooth Highway		
7. ISSUED BY: FEDERAL HIGHWAY ADMINISTRATION CENTRAL FEDERAL LANDS DIVISION 12300 WEST DAKOTA AVENUE, SUITE 167 LAKEWOOD, COLORADO 80228	CODE: 69050001	8. ADDRESS OFFER TO: Philip E. Miller, Division Administrator Federal Highway Administration Wyoming Division Office Attn: Lee Potter 2617 East Lincolnway, Suite D Cheyenne, WY 82001-5671		
9. FOR INFORMATION CALL SEE PAGE A-3	A. NAME: SEE PAGE A-3	B. TELEPHONE NO. (<i>Include area code</i>) SEE PAGE A-3		
SOLICITATION				
<i>NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder."</i>				
10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK FOR WYOMING HPP 4-1(5), BEARTOOTH HIGHWAY, AS DESCRIBED IN THESE DOCUMENTS AND IN STRICT ACCORDANCE WITH: <ol style="list-style-type: none"> 1. FEDERAL ACQUISITION AND TRANSPORTATION ACQUISITION REGULATIONS (<i>FAR & TAR</i>) 2. DEPARTMENT OF LABOR, DAVIS BACON MINIMUM WAGE RATES (<i>See Section G</i>) 3. SPECIAL CONTRACT REQUIREMENTS (<i>See Section I</i>) 4. PLANS 5. BID SCHEDULE (<i>See Section B</i>) 6. STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS, FP-03, 2003, METRIC 7. SUBCONTRACTING PLAN (IF APPLICABLE) <p>See Subsection 104.04 of the FP for governing order of precedence</p> <p style="text-align: center;">* SEE SUBSECTION 108.01 OF THE SPECIAL CONTRACT REQUIREMENTS</p>				
11. The Contractor shall begin performance within <u>10</u> calendar days and complete it within <u> </u> * calendar days after receiving <input type="checkbox"/> award <input checked="" type="checkbox"/> notice to proceed. The performance period is <input checked="" type="checkbox"/> mandatory <input type="checkbox"/> negotiable.				
12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? (<i>If "YES," indicate within how many calendar days after award in Item 12B.</i>) <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO				12B. CALENDAR DAYS 10
13. ADDITIONAL SOLICITATION REQUIREMENTS: <ol style="list-style-type: none"> A. Sealed offers in original and <u>0</u> copies to perform the work required are due at the place specified in Item 8. by <u>2:00 p.m.</u> (hour) local time on <u>01/01/06</u> (date). If this is a sealed bid solicitation, offers will be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due. B. An offer guarantee <input checked="" type="checkbox"/> is <input type="checkbox"/> is not required. C. All offers are subject to the (1) work requirements and (2) other provisions and clauses incorporated in the solicitation in full text or by reference. D. Offers providing less than <u>60</u> calendar days for Government acceptance after the date offers are due will not be considered and will be rejected. 				

OFFEROR (Must be fully completed by offeror)

14. NAME AND ADDRESS OF OFFEROR (Include ZIP Code)	15. TELEPHONE NO. (Include area code)
	16. REMITTANCE ADDRESS (Include only if different than Item 14)
CODE	FACILITY CODE

17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government in writing with calendar days after the date offers are due. (Insert any number equal to or greater than the minimum requirement stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)

AMOUNTS	SEE INDIVIDUAL BID SCHEDULE(S)
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18. The offeror agrees to furnish any required performance and payment bonds.

19. ACKNOWLEDGMENT OF AMENDMENTS
(The offeror acknowledges receipt of amendments to the solicitation - give number and date of each)

AMENDMENT NO.											
DATE											

20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print)	20B. SIGNATURE	20C. OFFER DATE
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AWARD (To be completed by Government)

21. ITEMS ACCEPTED:

22. AMOUNT	23. ACCOUNTING AND APPROPRIATION DATA
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24. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 27 (4 copies unless otherwise specified)	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO <input type="checkbox"/> 15 U.S.C. 637() <input type="checkbox"/> 41 U.S.C. 253(c)()
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26. ADMINISTERED BY CODE: _____	27. PAYMENT WILL BE MADE BY FEDERAL HIGHWAY ADMINISTRATION CENTRAL FEDERAL LANDS HIGHWAY DIVISION 12300 W. DAKOTA AVENUE, SUITE 167 LAKEWOOD, COLORADO 80228
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CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

<input type="checkbox"/> 28. NEGOTIATED AGREEMENT (Contractor is required to sign this document and return _____ copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all work requirements identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications incorporated by reference in or attached to this contract.	<input type="checkbox"/> 29. AWARD (Contractor is not required to sign this document.) Your offer on this solicitation is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.
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30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN (Type or print)	31A. NAME OF CONTRACTING OFFICER (Type or print)
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30B. SIGNATURE	30C. DATE	31B. UNITED STATES OF AMERICA BY	31C. AWARD DATE
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ADDITIONAL SOLICITATION INFORMATION

Block 9: DATA AVAILABLE

FP-03, Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, 2003, Metric, were utilized for the design of this project. Hard copies of the FP will not be provided to bidders. The FP is available electronically at the link listed below, or may be purchased for \$25.53 each by contacting Jack Natterman at Mercury LDO, telephone number 303-893-8701 or email jnatterman@mercury-ldo.com. Limited numbers of hard copies of the FP will be provided to the awarded Prime Contractor.

The following materials are available electronically at www.cflhd.gov/procurement/construction/advertised-projects.cfm

- Beartooth Highway Road Inventory and Needs Study – October 1994
- Wyoming Beartooth Highway Preliminary Materials Report – October 1998
- Initial Geohazards Evaluation and Geological Study: Beartooth Highway, U.S. 212, WY – October 27, 1998
- Wyoming Beartooth Highway Materials Source Investigation – September 1999
- Initial Geotechnical Investigation: Beartooth Highway, U.S. 212, WY – October 29, 1999
- Final Report – Geotechnical Investigation of Selected Features: Beartooth Highway, U.S. 212, WY – March 2001
- Topsoil Suitability Report – Portions of U.S. 212 (FH 4), The Beartooth Highway, Park County, WY – July 2001
- Geotechnical Investigation – Four Bridges – Beartooth Highway, U.S. 212, Park County, WY – November 6, 2002
- Geotechnical Investigation Report – Beartooth Highway Project, Shoshone National Forest – November 2004
- Earthwork Summary for Option Y

The following materials are available electronically:

Manual of Uniform Traffic Control Devices for Streets and Highways, (Current Edition published by U.S. Government Printing Office found at <http://mutcd.fhwa.dot.gov> .

AASHTO Manuals found at <http://fhwapap04.fhwa.dot.gov/index.jsp> under the Standard Specifications and Supplements link.

FP-03, Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, 2003, found at <http://www.cflhd.gov/design/index.cfm#> under the Construction Specs tab.

Contractor Guidelines for Quality Control Plans and example QC Plans found at <http://www.cflhd.gov/design/index.cfm#> under the Construction Specs tab.

For amendments, bid results and tabulations or other procurement information please visit our website at www.cflhd.gov/procurement/construction

Block 13: A bid guarantee of not less than 20 percent of the amount of the bid or \$3 million, whichever is less, is required. If the bidder fails to provide the required bid guarantee in the proper form and amount, such failure may result in rejection of the bid. See FAR Provision 52.228-1, Bid Guarantee. If the bid guarantee is a bid bond, it must be submitted on Standard Form 24. Also refer to Subsections 102.03 and 102.04 of the FP for additional information.

Block 26: The Contractor shall submit invoices to:

FHWA, CFLHD, Project Engineer's Office (Address to be designated at preconstruction conference), for submission to the designated billing office shown in Block 7.

Final billing shall be submitted directly to the address shown in Block 7.

Other: The estimated price range of the project work is between \$7,000,000.00 and \$16,000,000.00.

For questions regarding access to the Federal Business Opportunities (FBO) website or how to obtain plans and other solicitation documents, please contact either Brenda McGehee at (720) 963-3353 or Tiffany Atchison at (720) 963-3354.

As explained in FAR Provision 52.214-6, any explanation or interpretation of the solicitation, drawings, specifications, etc must be requested in writing to one of the following:

E-mail address: CFLContracts@fhwa.dot.gov
FAX Number: 720-963-3360
Mailing Address: Federal Highway Administration
Central Federal Lands Highway Division
Attention: Acquisition and Contracting
12300 W. Dakota Avenue, Suite 360
Lakewood, Colorado 80228

Responses will be provided to the individual questioner and also be posted on our website at <http://www.cflhd.gov/procurement/construction/advertised-projects.cfm> under the project link. Potential Offerors are advised to check this site on a regular basis to assure the most current and up-to-date information.

All amendments resulting from this solicitation will be uploaded to the FBO website at http://www.fbo.gov/spg/DOT/FHWA/68/postdatePrevDays_1.html and posted on our website at <http://www.cflhd.gov/procurement/construction/advertised-projects.cfm> under Current Solicitations.

**BIDDERS PLEASE BE ADVISED THAT QUESTIONS RELATIVE TO THIS
IFB WILL NOT BE ACCEPTED AFTER 3:00 P.M. MDT ON OCTOBER 9, 2008.**

Bid Schedule Instructions

BIDDERS, PLEASE NOTE: Before preparing the bid, carefully read the Solicitation Provisions on Page E-1 through E-6.

This Bid Proposal is comprised of one schedule and three options as follows:

Schedule A - full depth recycle with a 2-inches of hot asphalt concrete pavement, cleaning CMP and ditches, replacement of CMP, and replacement of guardrail on 18.795 km of roadway.

Option X – spot overlay, spot recycle/overlay, patching, crack sealing, underdrain, clean CMP and ditches, and replacement of CMP on 9.914 km of roadway.

Option Y – remove and replace concrete bridge with 1.067 km roadway approaches on new location in wetland areas.

Option Z – 1-inch of additional overlay of hot asphalt concrete pavement on Schedule A.

- Insert a numeric unit price for each pay item for which a quantity appears in Bid Schedule A, Option X, Option Y, and Option Z.
- When the words “Lump Sum” appear as a unit price, insert an amount for each lump sum pay item.
- Multiply the unit price by the quantity for each pay item and show the amount bid.
- Total all amounts bid for each pay item and show the Total on line provided on Page B-5 for Schedule A; Page B-9 for Option X; Page B-19 for Option Y; and Page B-20 for Option Z.
- Complete the Bid Summary Page on Page B-21.

Field Laboratory Trailer – Schedule A is being solicited using “Item 15401-0000, Contractor Testing (Contractor furnished field lab trailer – See Subsection 153.04A of the Special Contract Requirements). A bid item alternative, “Item 15401-0000, Contractor Testing, Using Government Furnished Field Laboratory” has been included and requires pricing on the Bid Summary Page (B-21).

Evaluation Factors for Award

To be eligible for award of a contract, the bidder shall submit prices for each item necessary to complete all contract work in Schedule A, Option X, Option Y and Option Z.

Evaluation for award of a contract will consist of Schedule A (see FAR Provision 52.217-3, Evaluation Exclusive of Options, April 1984). Accordingly, contract award will be made to the lowest responsible bidder conforming to the solicitation, provided funds are available.

The Government has the right to exercise any combination of Options X, Y and Z, or none of the Options. Any award of Options will be no later than 90 days after the date of the bid opening (see FAR Clause 52.217-7, Option for Increased Quantity—Separately Priced Line Item, March 1989).

Once the lowest responsible bidder has been selected for the schedule to be awarded, the Government will determine whether the alternative bid item for the field laboratory will be included. If the bid alternative is included, Bid Item 15401, Contracting Testing, will be replaced with Bid Item 15401-0000, Contractor Testing, Using Government Furnished Field Laboratory in the awarded contract and the final contract award amount will be determined.

COMPLETION DATES: Please see Subsection 108.04 of the Special Contract Requirements

BID SCHEDULE A

FOR

**WY HPP 4-1(5)
BEARTOOTH HIGHWAY**

Bid Schedule

Project: HPP 4-1(5)
BEARTOOTH HIGHWAY (SCHEDULE A)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
15101-0000	Mobilization ALL	Lump Sum	\$ _____
15210-3000	Centerline, verification and staking 18.795 km	\$ _____	\$ _____
15215-3000	Survey and staking, drainage structure 6 Each	\$ _____	\$ _____
15401-0000	Contractor testing ALL	Lump Sum	\$ _____
15501-0000	Construction schedule ALL	Lump Sum	\$ _____
15705-0100	Soil erosion control, silt fence 1,350 m	\$ _____	\$ _____
15705-1400	Soil erosion control, sediment log 70 m	\$ _____	\$ _____
15706-0200	Soil erosion control, check dam 5 Each	\$ _____	\$ _____
15706-0300	Soil erosion control, sandbag 20 Each	\$ _____	\$ _____
20301-1900	Removal of pipe culvert 7 Each	\$ _____	\$ _____
20301-2800	Removal of structures and obstructions 75 Each	\$ _____	\$ _____

Bid Schedule A

Project: HPP 4-1(5)
BEARTOOTH HIGHWAY (SCHEDULE A)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
20302-0700	Removal of fence 3,100 m	\$ _____	\$ _____
20302-1200	Removal of guardrail 335 m	\$ _____	\$ _____
20303-1200	Removal of paved waterway, asphalt 95 m2	\$ _____	\$ _____
20402-0000	Subexcavation 4,000 m3	\$ _____	\$ _____
30301-2000	Shoulder reconditioning 30.000 km	\$ _____	\$ _____
30302-1000	Ditch reconditioning 2,000 m	\$ _____	\$ _____
30306-3000	Pulverizing, 150mm depth 115,000 m2	\$ _____	\$ _____
30801-1000	Roadway aggregate, method 1 4,000 m3	\$ _____	\$ _____
40101-0600	Superpave pavement, 12.5mm nominal maximum size aggregate, 0.3 to <3 million ESAL 17,000 t	\$ _____	\$ _____
40105-3000	Antistrip additive, type 3 160.0 t	\$ _____	\$ _____
40920-1000	Fog seal, emulsified asphalt grade CSS-1 or CSS-1h, SS-1 or SS-1h 60.0 t	\$ _____	\$ _____
41101-5000	Prime coat grade MC-70 185.0 t	\$ _____	\$ _____

Bid Schedule A

Project: HPP 4-1(5)

BEARTOOTH HIGHWAY (SCHEDULE A)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
41201-1000	Tack coat grade CSS-1, CSS-1h, SS-1, or SS-1h 6.0 t	\$ _____	\$ _____
60201-0600	450mm pipe culvert 30 m	\$ _____	\$ _____
60201-0800	600mm pipe culvert 23 m	\$ _____	\$ _____
60201-0900	750mm pipe culvert 15 m	\$ _____	\$ _____
60704-0000	Cleaning culvert in place 43 Each	\$ _____	\$ _____
60901-2300	Curb, asphalt, 150mm depth 115 m	\$ _____	\$ _____
60908-1000	Paved ditch, asphalt 420 m2	\$ _____	\$ _____
61701-1800	Guardrail system G4, type 4, class A steel posts 310 m	\$ _____	\$ _____
61702-0600	Terminal section, type flared 4 Each	\$ _____	\$ _____
61920-2000	Remove and reset gate 1 Each	\$ _____	\$ _____
62201-0150	Dump truck, 7 cubic meter minimum capacity 40 Hour	\$ _____	\$ _____
62201-0350	Backhoe 40 Hour	\$ _____	\$ _____

Bid Schedule A

Project: HPP 4-1(5)

BEARTOOTH HIGHWAY (SCHEDULE A)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
62201-0900	Wheel loader, 2 cubic meter minimum rated capacity 40 Hour	\$ _____	\$ _____
62201-2850	Motor grader, 3.6 meter minimum blade 80 Hour	\$ _____	\$ _____
62202-1000	Materials transfer vehicle ALL	Lump Sum	\$ _____
62301-0000	General labor 80 Hour	\$ _____	\$ _____
62302-1000	Special labor, hired technical services 20 Hour	\$ _____	\$ _____
62302-1100	Special labor, hired survey services 40 Hour	\$ _____	\$ _____
63402-0300	Pavement markings, type B, solid 75.200 km	\$ _____	\$ _____
63502-0700	Temporary traffic control, cone 80 Each	\$ _____	\$ _____
63502-1300	Temporary traffic control, drum 40 Each	\$ _____	\$ _____
63502-1500	Temporary traffic control, warning light type A 20 Each	\$ _____	\$ _____
63502-1700	Temporary traffic control, warning light type C 25 Each	\$ _____	\$ _____
63504-1000	Temporary traffic control, construction sign 41.2 m2	\$ _____	\$ _____

Bid Schedule A

Project: HPP 4-1(5)

BEARTOOTH HIGHWAY (SCHEDULE A)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
63505-1000	Temporary traffic control, pavement markings 18.795 km	\$ _____	\$ _____
63506-0500	Temporary traffic control, flagger 4,000 Hour	\$ _____	\$ _____

TOTAL \$ _____

Submitted by: _____
 Name of Bidder

BID OPTION X

FOR

**WY HPP 4-1(5)
BEARTOOTH HIGHWAY**

Bid Schedule

Project: HPP 4-1(5)
BEARTOOTH HIGHWAY (OPTION X)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
15101-0000	Mobilization ALL	Lump Sum	\$ _____
15210-3000	Centerline, verification and staking 9.914 km	\$ _____	\$ _____
15215-3000	Survey and staking, drainage structure 2 Each	\$ _____	\$ _____
15401-0000	Contractor testing ALL	Lump Sum	\$ _____
15501-0000	Construction schedule ALL	Lump Sum	\$ _____
15705-0100	Soil erosion control, silt fence 350 m	\$ _____	\$ _____
15705-1400	Soil erosion control, sediment log 30 m	\$ _____	\$ _____
15706-0200	Soil erosion control, check dam 5 Each	\$ _____	\$ _____
15706-0300	Soil erosion control, sandbag 20 Each	\$ _____	\$ _____
20301-1900	Removal of pipe culvert 3 Each	\$ _____	\$ _____
20402-0000	Subexcavation 4,000 m3	\$ _____	\$ _____

Bid Schedule X

Project: HPP 4-1(5)
BEARTOOTH HIGHWAY (OPTION X)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
30301-2000	Shoulder reconditioning 6.000 km	\$ _____	\$ _____
30302-1000	Ditch reconditioning 1,500 m	\$ _____	\$ _____
30306-3000	Pulverizing, 150mm depth 5,000 m2	\$ _____	\$ _____
30801-1000	Roadway aggregate, method 1 4,000 m3	\$ _____	\$ _____
40101-0600	Superpave pavement, 12.5mm nominal maximum size aggregate, 0.3 to <3 million ESAL 1,800 t	\$ _____	\$ _____
40105-3000	Antistrip additive, type 3 20.0 t	\$ _____	\$ _____
40920-1000	Fog seal, emulsified asphalt grade CSS-1 or CSS-1h, SS-1 or SS-1h 10.0 t	\$ _____	\$ _____
41101-5000	Prime coat grade MC-70 15 t	\$ _____	\$ _____
41201-1000	Tack coat grade CSS-1, CSS-1h, SS-1, or SS-1h 5.0 t	\$ _____	\$ _____
41411-1000	Crack, cleaning and sealing 3.000 km	\$ _____	\$ _____
42801-0100	Flexible pavement, full depth patch, type 1 700 m2	\$ _____	\$ _____
60201-0600	450mm pipe culvert 19 m	\$ _____	\$ _____

Bid Schedule X

Project: HPP 4-1(5)

BEARTOOTH HIGHWAY (OPTION X)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
60201-0900	750mm pipe culvert 52 m	\$ _____	\$ _____
60502-0000	Geocomposite underdrain system 620 m	\$ _____	\$ _____
60704-0000	Cleaning culvert in place 11 Each	\$ _____	\$ _____
62201-0150	Dump truck, 7 cubic meter minimum capacity 40 Hour	\$ _____	\$ _____
62201-0350	Backhoe 40 Hour	\$ _____	\$ _____
62201-0900	Wheel loader, 2 cubic meter minimum rated capacity 60 Hour	\$ _____	\$ _____
62201-2850	Motor grader, 3.6 meter minimum blade 80 Hour	\$ _____	\$ _____
62202-1000	Materials transfer vehicle ALL	Lump Sum	\$ _____
62301-0000	General labor 40 Hour	\$ _____	\$ _____
62302-1000	Special labor, hired technical services 20 Hour	\$ _____	\$ _____
62302-1100	Special labor, hired survey services 40 Hour	\$ _____	\$ _____
63402-0300	Pavement markings, type B, solid 44.000 km	\$ _____	\$ _____

Bid Schedule X

Project: HPP 4-1(5)

BEARTOOTH HIGHWAY (OPTION X)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
63502-0700	Temporary traffic control, cone 80 Each	\$ _____	\$ _____
63502-1300	Temporary traffic control, drum 40 Each	\$ _____	\$ _____
63502-1500	Temporary traffic control, warning light type A 20 Each	\$ _____	\$ _____
63502-1700	Temporary traffic control, warning light type C 25 Each	\$ _____	\$ _____
63504-1000	Temporary traffic control, construction sign 22.6 m2	\$ _____	\$ _____
63505-1000	Temporary traffic control, pavement markings 9.914 km	\$ _____	\$ _____
63506-0500	Temporary traffic control, flagger 2,000 Hour	\$ _____	\$ _____

TOTAL \$ _____

Submitted by: _____
Name of Bidder

Bid Schedule X

Project: HPP 4-1(5)
BEARTOOTH HIGHWAY (OPTION X)

BID OPTION Y

FOR

**WY HPP 4-1(5)
BEARTOOTH HIGHWAY**

Bid Schedule

Project: HPP 4-1(5)
BEARTOOTH HIGHWAY RECONSTRUCTION (4R) (OPTION Y)

The quantities for the following items of work are Contract Quantities (see FP-03 Subsection 109.02):

20801-0000, 20803-0000, 55201-0200, 55302-1000, 55401-2000, 55601-0900, 61707-0000, 62026-1000

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
15101-0000	Mobilization ALL	Lump Sum	\$ _____
15206-0000	Slope, reference, and clearing and grubbing stake 1.076 km	\$ _____	\$ _____
15210-4000	Centerline, establishment 1.076 km	\$ _____	\$ _____
15214-1000	Survey and staking, bridge ALL	Lump Sum	\$ _____
15215-1000	Survey and staking, approach road 2 Each	\$ _____	\$ _____
15215-3000	Survey and staking, drainage structure 6 Each	\$ _____	\$ _____
15216-2000	Survey and staking, grade finishing stakes 2.152 km	\$ _____	\$ _____
15401-0000	Contractor testing ALL	Lump Sum	\$ _____
15501-0000	Construction schedule ALL	Lump Sum	\$ _____
15703-1500	Soil erosion control, temporary soil tackifier 3.00 ha	\$ _____	\$ _____

Bid Schedule Y

Project: HPP 4-1(5)
BEARTOOTH HIGHWAY RECONSTRUCTION (4R) (OPTION Y)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
15705-0100	Soil erosion control, silt fence 2,000 m	\$ _____	\$ _____
15705-1400	Soil erosion control, sediment log 80 m	\$ _____	\$ _____
15706-0200	Soil erosion control, check dam 15 Each	\$ _____	\$ _____
15801-0000	Watering for dust control 655 m3	\$ _____	\$ _____
20101-0000	Clearing and grubbing 3.30 ha	\$ _____	\$ _____
20202-0000	Selective clearing 75 m2	\$ _____	\$ _____
20301-0400	Removal of bridge 1 Each	\$ _____	\$ _____
20301-1100	Removal of gate 1 Each	\$ _____	\$ _____
20301-1900	Removal of pipe culvert 4 Each	\$ _____	\$ _____
20301-2400	Removal of sign 8 Each	\$ _____	\$ _____
20401-0000	Roadway excavation 9,500 m3	\$ _____	\$ _____
20402-0000	Subexcavation 1,000 m3	\$ _____	\$ _____

Bid Schedule Y

Project: HPP 4-1(5)

BEARTOOTH HIGHWAY RECONSTRUCTION (4R) (OPTION Y)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
20403-0000	Unclassified borrow 3,500 m3	\$ _____	\$ _____
20701-0700	Earthwork geotextile, type II-A 3,500 m2	\$ _____	\$ _____
20701-0700	Earthwork geotextile, type II-A -C 350 m2	\$ _____	\$ _____
20801-0000	Structure excavation 352 m3	\$ _____	\$ _____
20803-0000	Structural backfill (mechanically reinforced) 570 m3	\$ _____	\$ _____
20810-0000	Shoring and bracing (other structures) ALL	Lump Sum	\$ _____
21101-1000	Roadway obliteration, method 1 3,600 m2	\$ _____	\$ _____
25101-3000	Placed riprap, class 3 (with soil) 100 m3	\$ _____	\$ _____
25101-4000	Placed riprap, class 4 70 m3	\$ _____	\$ _____
25101-4000	Placed riprap, class 4 (with soil) 30 m3	\$ _____	\$ _____
25125-0000	Boulder 160 Each	\$ _____	\$ _____
30502-0100	Aggregate-topsoil course, 25mm depth 3,750 m2	\$ _____	\$ _____

Bid Schedule Y

Project: HPP 4-1(5)

BEARTOOTH HIGHWAY RECONSTRUCTION (4R) (OPTION Y)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
30802-1000	Roadway aggregate, method 1 10,750 t	\$ _____	\$ _____
40101-0600	Superpave pavement, 12.5mm nominal maximum size aggregate, 0.3 to <3 million ESAL 2,600 t	\$ _____	\$ _____
40105-3000	Antistrip additive, type 3 22 t	\$ _____	\$ _____
40920-1000	Fog seal, emulsified asphalt grade CSS-1 or CSS-1h, SS-1 or SS-1h 7.0 t	\$ _____	\$ _____
41101-5000	Prime coat grade MC-70 20.0 t	\$ _____	\$ _____
41105-0000	Blotter 100.0 t	\$ _____	\$ _____
41201-1000	Tack coat grade CSS-1, CSS-1h, SS-1, or SS-1h 7.0 t	\$ _____	\$ _____
55201-0200	Structural concrete, class A (AE) 220 m3	\$ _____	\$ _____
55302-1000	Precast, prestressed concrete box beam, type B1-48 191.2 m	\$ _____	\$ _____
55401-2000	Reinforcing steel, epoxy coated 30,406 kg	\$ _____	\$ _____
55601-0900	Bridge railing, steel (WYDOT TL-3) 82 m	\$ _____	\$ _____
56305-0000	Rock stain 300 m2	\$ _____	\$ _____

Bid Schedule Y

Project: HPP 4-1(5)

BEARTOOTH HIGHWAY RECONSTRUCTION (4R) (OPTION Y)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
56901-0000	Micropiles 200 m	\$ _____	\$ _____
56904-0000	Trial micropile 2 Each	\$ _____	\$ _____
56905-0000	Micropile load verification test 1 Each	\$ _____	\$ _____
60201-0600	450mm pipe culvert 60 m	\$ _____	\$ _____
60201-0800	600mm pipe culvert 90 m	\$ _____	\$ _____
60210-0600	End section for 450mm pipe culvert (bituminous) 4 Each	\$ _____	\$ _____
60210-0800	End section for 600mm pipe culvert (bituminous) 8 Each	\$ _____	\$ _____
60212-0800	Elbow, 600mm 2 Each	\$ _____	\$ _____
60504-0000	Geocomposite sheet drain system 120 m2	\$ _____	\$ _____
60901-0400	Curb, concrete, 150mm depth 100 m	\$ _____	\$ _____
60908-1000	Paved ditch, asphalt 120 m2	\$ _____	\$ _____
61701-1150	Guardrail system G3 (Wyoming Box Beam Steel Posts) 135 m	\$ _____	\$ _____

Bid Schedule Y

Project: HPP 4-1(5)

BEARTOOTH HIGHWAY RECONSTRUCTION (4R) (OPTION Y)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
61701-1800	Guardrail system G4, type 4, class A steel posts 75 m	\$ _____	\$ _____
61702-0600	Terminal section, type flared 2 Each	\$ _____	\$ _____
61702-1100	Terminal section, type FAT-G3 (Wyoming Box Beam end anchorage type I) 4 Each	\$ _____	\$ _____
61707-0000	Structure transition railing 62 m	\$ _____	\$ _____
61902-0000	Gate 1 Each	\$ _____	\$ _____
62026-1000	Remove and reset stone masonry 125 m2	\$ _____	\$ _____
62201-0150	Dump truck, 7 cubic meter minimum capacity 80 Hour	\$ _____	\$ _____
62201-0350	Backhoe 80 Hour	\$ _____	\$ _____
62201-0900	Wheel loader, 2 cubic meter minimum rated capacity 80 Hour	\$ _____	\$ _____
62201-1300	Bulldozer, 120kW minimum flywheel power 80 Hour	\$ _____	\$ _____
62201-2850	Motor grader, 3.6 meter minimum blade 80 Hour	\$ _____	\$ _____
62201-3000	Hydraulic excavator 100 Hour	\$ _____	\$ _____

Bid Schedule Y

Project: HPP 4-1(5)

BEARTOOTH HIGHWAY RECONSTRUCTION (4R) (OPTION Y)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
62201-3150	Hydraulic excavator, crawler mounted, 0.7m3 minimum capacity with thumb attachment 85 Hour	\$ _____	\$ _____
62202-1000	Materials transfer vehicle ALL	Lump Sum	\$ _____
62301-0000	General labor 80 Hour	\$ _____	\$ _____
62302-1000	Special labor, hired technical services 30 Hour	\$ _____	\$ _____
62302-1100	Special labor, hired survey services 80 Hour	\$ _____	\$ _____
62407-0000	Placing conserved topsoil 3,500 m3	\$ _____	\$ _____
62510-1000	Seeding, dry method (seed mix A: riparian/wetland) 0.50 ha	\$ _____	\$ _____
62510-1000	Seeding, dry method (seed mix C) 2.50 ha	\$ _____	\$ _____
62510-1000	Seeding, dry method (seed mix D: Forbs) 1.50 ha	\$ _____	\$ _____
62510-1000	Seeding, dry method (seed mix E: Ghost Creek) 4.50 ha	\$ _____	\$ _____
62515-3000	Mulching, hydraulic method, bonded fiber matrix 3.00 ha	\$ _____	\$ _____
62520-0000	Fertilizer 3.00 ha	\$ _____	\$ _____

Bid Schedule Y

Project: HPP 4-1(5)

BEARTOOTH HIGHWAY RECONSTRUCTION (4R) (OPTION Y)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
62630-0300	Plantings, seedlings, container grown (tree spp., 240 ml) 5 Each	\$ _____	\$ _____
62631-0000	Plantings (list 1) 0.10 ha	\$ _____	\$ _____
62631-0000	Plantings (list 2) 0.30 ha	\$ _____	\$ _____
62631-0000	Plantings (list 7) 1.00 ha	\$ _____	\$ _____
62631-0000	Plantings (list 8) 0.50 ha	\$ _____	\$ _____
62641-0000	Tree well 5 Each	\$ _____	\$ _____
62901-0700	Rolled erosion control product, type 2.C 720 m2	\$ _____	\$ _____
63301-0000	Sign system 5 Each	\$ _____	\$ _____
63309-0100	Delineator, type 1 65 Each	\$ _____	\$ _____
63309-0300	Delineator, type 3 15 Each	\$ _____	\$ _____
63309-0900	Delineator, type flexible 15 Each	\$ _____	\$ _____
63309-1000	Delineator, type snowpole 80 Each	\$ _____	\$ _____

Bid Schedule Y

Project: HPP 4-1(5)

BEARTOOTH HIGHWAY RECONSTRUCTION (4R) (OPTION Y)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
63316-1000	Remove and reset sign 1 Each	\$ _____	\$ _____
63404-0200	Pavement markings, type B 200 L	\$ _____	\$ _____
63502-1300	Temporary traffic control, drum 129 Each	\$ _____	\$ _____
63502-1500	Temporary traffic control, warning light type A 13 Each	\$ _____	\$ _____
63502-1700	Temporary traffic control, warning light type C 116 Each	\$ _____	\$ _____
63502-2000	Temporary traffic control, portable changeable message sign 2 Each	\$ _____	\$ _____
63502-2100	Temporary traffic control, crash cushion 4 Each	\$ _____	\$ _____
63503-0300	Temporary traffic control, barricade type 3 25 m	\$ _____	\$ _____
63503-0400	Temporary traffic control, concrete barrier 380 m	\$ _____	\$ _____
63503-1000	Temporary traffic control, plastic fence 1,400 m	\$ _____	\$ _____
63504-1000	Temporary traffic control, construction sign 29.6 m2	\$ _____	\$ _____
63505-1000	Temporary traffic control, pavement markings 2.000 km	\$ _____	\$ _____

Bid Schedule Y

Project: HPP 4-1(5)

BEARTOOTH HIGHWAY RECONSTRUCTION (4R) (OPTION Y)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
63506-0500	Temporary traffic control, flagger 1,300 Hour	\$ _____	\$ _____
64703-1000	Mitigation, landscaping log 15 Each	\$ _____	\$ _____

TOTAL \$ _____

Submitted by: _____
Name of Bidder

Bid Schedule Y

Project: HPP 4-1(5)

BEARTOOTH HIGHWAY RECONSTRUCTION (4R) (OPTION Y)

BID OPTION Z

FOR

**WY HPP 4-1(5)
BEARTOOTH HIGHWAY**

Bid Schedule

Project: HPP 4-1(5)
BEARTOOTH HIGHWAY (OPTION Z)

Pay Item No.	Estimated Quantity	Unit Bid Price	Amount Bid
15401-0000	Contractor testing ALL	Lump Sum	\$ _____
40101-0600	Superpave pavement, 12.5mm nominal maximum size aggregate, 0.3 to <3 million ESAL 8,500 t	\$ _____	\$ _____
40105-3000	Antistrip additive, type 3 80.0 t	\$ _____	\$ _____
41201-1000	Tack coat grade CSS-1, CSS-1h, SS-1, or SS-1h 65.0 t	\$ _____	\$ _____
62202-1000	Materials transfer vehicle ALL	Lump Sum	\$ _____
63505-1000	Temporary traffic control, pavement markings 18.795 km	\$ _____	\$ _____
63506-0500	Temporary traffic control, flagger 400 Hour	\$ _____	\$ _____

TOTAL \$ _____

Submitted by: _____
Name of Bidder

Bid Schedule Z

Project: HPP 4-1(5)
BEARTOOTH HIGHWAY (OPTION Z)

**BID SUMMARY FOR
WY HPP 4-1(5), Beartooth Highway**

BID SCHEDULE A TOTAL \$ _____

OPTION X TOTAL \$ _____

OPTION Y TOTAL \$ _____

OPTION Z TOTAL \$ _____

**BID SCHEDULE A ALTERNATIVE BID
ITEM 15401-0000, CONTRACTOR TESTING,
USING GOVERNMENT FURNISHED FIELD
LABORATORY (Bidders must submit
a lump sum price as an alternative to
furnishing a field laboratory)** \$ _____

Continuation of Bid Schedule

**BUY AMERICAN ACT- CONSTRUCTION MATERIALS
UNDER TRADE AGREEMENTS**

It is understood and agreed that the materials and components listed in Subpart 25.1 of the FAR are a part of this contract and are deemed to be Domestic Construction Material for the purposes of this contract.

NOTE TO CONTRACTOR:

The following information and any applicable supporting data is required for evaluation of requests under FAR Clause 52.225-11 Paragraph (c) & (d) and FAR Provision 52.225-12 Paragraph (b).

Material and/or Component

Construction Material Description	Unit of Measure	Quantity	*Cost Delivered to Job Site
Foreign Construction Material			
Comparable Domestic Material			

Material and/or Component

Construction Material Description	Unit of Measure	Quantity	*Cost Delivered to Job Site
Foreign Construction Material			
Comparable Domestic Material			

[Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued).]
[Please include name, address, telephone number and contact for suppliers surveyed. Attach copy of response; if oral, attach summary. Include all applicable supporting information.]*

HAZARDOUS MATERIALS

As required by FAR Clause 52.223-3, Hazardous Materials Identification and Safety Data - Alternate I, the apparent low bidder must submit prior to award a Material Safety Data Sheet (MSDS) for all hazardous materials that the bidder identifies in paragraph (b) of the FAR clause and defined under the latest version of Federal Standard No. 313.

Hazardous Material	Identification Number

USE OF RECOVERED MATERIALS ON FEDERAL LANDS HIGHWAY PROJECTS

Use of fly ash and ground granulated blast furnace slag and construction materials containing fly ash and ground granulated blast furnace slag on Federal Lands Highway projects:

- It is the policy of the United States Government that fly ash and ground granulated blast furnace slag and materials containing fly ash and ground granulated blast furnace slag shall have maximum practicable opportunity for incorporation into its construction projects.
- The Contractor agrees to investigate the use of fly ash and ground granulated blast furnace slag and materials containing fly ash and ground granulated blast furnace slag to the fullest extent consistent with the efficient performance of this contract. Both the contractor and the subcontractors are urged to seek out suppliers of fly ash and ground granulated blast furnace slag, cement and concrete containing fly ash and ground granulated blast furnace slag and to solicit bids for these materials.
- Names of firms that supply fly ash and ground granulated blast furnace slag and materials containing fly ash and ground granulated blast furnace slag are available from the American Coal Ash Association and the National Slag Association.

BID BOND (See instructions on reverse)		DATE BOND EXECUTED (Must not be later than bid opening date)			OMB NO. 9000-0045		
Public reporting burden for this collection of information is estimated to average 25 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the FAR Secretariat (MVR), Federal Acquisition Policy Division, GSA, Washington, D.C. 20405.							
PRINCIPAL (Legal name and business address)				TYPE OF ORGANIZATION (aX@ one)			
				<input type="checkbox"/> INDIVIDUAL <input type="checkbox"/> PARTNERSHIP <input type="checkbox"/> JOINT VENTURE <input type="checkbox"/> CORPORATION			
				STATE OF INCORPORATION			
SURETY(IES) (Name and business address)							
PENAL SUM OF BOND				BID IDENTIFICATION			
PERCENT OF BID PRICE 20 PERCENT	AMOUNT NOT TO EXCEED			BID DATE	INVITATION NO. WY HPP 4-1(5)		
	MILLION(S)	THOUSAND(S)	HUNDRED(S)	CENTS	FOR (Construction, Supplies or Services)	CONSTRUCTION	
<p>OBLIGATION:</p> <p>We, the Principal and Surety(ies) are firmly bound to the United States of America (hereinafter called the Government) in the above penal sum. For payment of the penal sum, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally. However, where the Sureties are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us. For all other purposes, each Surety binds itself, jointly and severally with the Principal, for the payment of the sum shown opposite the name of the Surety. If no limit of liability is indicated, the limit of liability is the full amount of the penal sum.</p> <p>CONDITIONS:</p> <p>The Principal has submitted the bid identified above.</p> <p>THEREFORE:</p> <p>The above obligation is void if the Principal - (a) upon acceptance by the Government of the bid identified above, within the period specified therein for acceptance (sixty (60) days if no period is specified), executes the further contractual documents and gives the bond(s) required by the terms of the bid as accepted within the time specified (ten (10) days if no period is specified) after receipt of the forms by the principal; or (b) in the event of failure to execute such further contractual documents and give such bonds, pays the Government for any cost of procuring the work which exceeds the amount of the bid.</p> <p>Each Surety executing this instrument agrees that its obligation is not impaired by any extension(s) of time for acceptance of the bid that the Principal may grant to the Government. Notice to the surety(ies) of extension(s) are waived. However, waiver of the notice applies only to extensions aggregating not more than sixty (60) calendar days in addition to the period originally allowed for acceptance of the bid.</p> <p>WITNESS:</p> <p>The Principal and Surety(ies) executed this bid bond and affixed their seals on the above date.</p>							
PRINCIPAL							
SIGNATURE(S)	1. <div style="text-align: right;">(Seal)</div>	2. <div style="text-align: right;">(Seal)</div>	3. <div style="text-align: right;">(Seal)</div>	Corporate Seal			
NAMES(S) & TITLE(S) (Typed)	1.	2.	3.				
INDIVIDUAL SURETY(IES)							
SIGNATURE(S)	1. <div style="text-align: right;">(Seal)</div>	2. <div style="text-align: right;">(Seal)</div>					
NAME(S) (Typed)	1.	2.					
CORPORATE SURETY(IES)							
SURETY A	NAME & ADDRESS			STATE OF INC.	LIABILITY LIMIT \$		
	SIGNATURE(S)	1.	2.				Corporate Seal
	NAMES(S) & TITLE(S) (Typed)	1.	2.				

CORPORATE SURETY(IES) (Continued)					
SURETY B	NAME & ADDRESS		STATE OF INC.	LIABILITY LIMIT \$	Corporate Seal
	SIGNATURE(S)	1.	2.		
	NAMES(S) & TITLE(S) (Typed)	1.	2.		
SURETY C	NAME & ADDRESS		STATE OF INC.	LIABILITY LIMIT \$	Corporate Seal
	SIGNATURE(S)	1.	2.		
	NAMES(S) & TITLE(S) (Typed)	1.	2.		
SURETY D	NAME & ADDRESS		STATE OF INC.	LIABILITY LIMIT \$	Corporate Seal
	SIGNATURE(S)	1.	2.		
	NAMES(S) & TITLE(S) (Typed)	1.	2.		
SURETY E	NAME & ADDRESS		STATE OF INC.	LIABILITY LIMIT \$	Corporate Seal
	SIGNATURE(S)	1.	2.		
	NAMES(S) & TITLE(S) (Typed)	1.	2.		
SURETY F	NAME & ADDRESS		STATE OF INC.	LIABILITY LIMIT \$	Corporate Seal
	SIGNATURE(S)	1.	2.		
	NAMES(S) & TITLE(S) (Typed)	1.	2.		
SURETY G	NAME & ADDRESS		STATE OF INC.	LIABILITY LIMIT \$	Corporate Seal
	SIGNATURE(S)	1.	2.		
	NAMES(S) & TITLE(S) (Typed)	1.	2.		

INSTRUCTIONS

1. This form is authorized for use when a bid guaranty is required. Any deviation from this form will require the written approval of the Administrator of General Services.
2. Insert the full legal name and business address of the Principal in the space designated "Principal" on the face of the form. An authorized person shall sign the bond. Any person signing in a representative capacity (e.g., an attorney-in-fact) must furnish evidence of authority if that representative is not a member of the firm, partnership, or joint venture, or an officer of the corporation involved.
3. The bond may express penal sum as a percentage of the bid price. In these cases, the bond may state a maximum dollar limitation (e.g., 20% of the bid price but the amount not to exceed 3,000,000.00 dollars).
4. (a) Corporations executing the bond as sureties must appear on the Department of the Treasury's list of approved sureties and must act within the limitation listed therein. Where more than one corporate surety is involved, their names and addresses shall appear in the spaces (Surety A, Surety B, etc.) headed "CORPORATE SURETY(IES)." In the space designated "SURETY(IES)" on the face of the form, insert only the letter identification of the sureties.
 (b) Where individual sureties are involved, a completed Affidavit of Individual Surety (Standard Form 28), for each individual surety, shall accompany the bond. The Government may require the surety to furnish additional substantiating information concerning its financial capacity.
5. Corporations executing the bond shall affix their corporate seals. Individuals shall execute the bond opposite the word "Corporate Seal"; and shall affix an adhesive seal if executed in Maine, New Hampshire, or any other jurisdiction requiring adhesive seals.
6. Type the name and title of each person signing this bond in the space provided.
7. In its application to negotiated contracts, the terms "bid" and "bidder" shall include "proposal" and "offeror."

D-1
FEDERAL ACQUISITION REGULATION
SOLICITATION PROVISIONS

REPRESENTATIONS AND CERTIFICATIONS

Effective January 2005, offerors/bidders must submit Representations and Certifications online at www.bpn.gov. All offerors/bidders should submit/update this information at least annually. Refer to the Federal Acquisition Provision 52.204-8 *Annual Representations and Certifications* below. If you have previously accomplished your on-line registration and the NAICS code for this solicitation is different than the code listed in your online profile, please note the amended changes on the lines provided in the Provision below.

REFER TO CFLHD'S WEBSITE AT <http://www.cflhd.gov/procurement/construction/reference-links.cfm> FOR ON-LINE REGISTRATION INSTRUCTIONS

52.204-8 ANNUAL REPRESENTATIONS AND CERTIFICATIONS (JAN 2006)

- (a) (1) The North American Industry Classification System (NAICS) code for this acquisition is 237310.
(2) The small business size standard is 33.5 million or fewer.
(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

- (b) (1) If the clause at 52.204-7, Central Contractor Registration, is included in this solicitation, paragraph (c) of this provision applies.

(2) If the clause at 52.204-7 is not included in this solicitation, and the offeror is currently registered in CCR, and has completed the ORCA electronically, the offeror may choose to use paragraph (c) instead of completing the corresponding individual representations and certifications in the solicitation. The offeror shall indicate which option applies by checking one of the following boxes:

(i) Paragraph (c) applies.

(ii) Paragraph (c) does not apply and the offeror has completed the individual representations and certifications in the solicitation.

(c) The offeror has completed the annual representations and certifications electronically via the Online Representations and Certifications Application (ORCA) website at <http://orca.bpn.gov>. After reviewing the ORCA database information, the offeror verifies by submission of the offer that the representations and certifications currently posted electronically have been entered or updated within the last 12 months, are current, accurate, complete, and applicable to this solicitation (including the business size standard applicable to the NAICS code referenced for this solicitation), as of the date of this offer and are incorporated in this offer by reference (see FAR 4.1201); except for the changes identified below [*offeror to insert changes, identifying change by clause number, title, date*]. These amended representation(s) and/or certification(s) are also incorporated in this offer and are current, accurate, and complete as of the date of this offer.

FAR CLAUSE	TITLE	DATE	CHANGE
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Any changes provided by the offeror are applicable to this solicitation only, and do not result in an update to the representations and certifications posted on ORCA.

(End of Provision)



FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

BIDDER'S QUALIFICATIONS

INSTRUCTIONS: Answer all questions on this form inserting "none" or "not applicable" where appropriate. If more space is required attach additional sheets. Return the signed, dated and completed form with the bid to the address shown in the invitation for bids on or before the time set for bid opening. The prospective bidder shall provide any additional information requested by the Government during evaluation of the bids.

If the prospective bidder is a joint venture or general partnership, a separate Bidder's Qualifications form shall be provided individually for each joint venture participant or partner.

1. Name and address of business:

Name
Street
City State Zip Code
County
Telephone Number (Include Area Code)
Fax Number (Include Area Code)
DUNS Number (See FAR Provision 52.204-6)*
Home Office Congressional District (Insert District #) *

* Necessary for Government reporting purposes only
To obtain a Dun & Street number, call
800-333-0505.

2. a. Type of organization (check appropriate box):

Individual Non-profit organization Corporation
Partnership Joint Venture Incorporated in:

If a Foreign entity:

Individual Non-profit organization Corporation
Partnership Joint Venture Registered in:

b. Size and type of Business Concern (check appropriate boxes):

Large Business Concern Small Disadvantaged Business Concern Emerging Small Business
Small Business Concern Women-Owned Small Business SBA 8(a) Certified
HUB Zone Business Concern Veteran Owned Business Concern Service-Disabled Veteran-Owned Business Concern

3. If a joint venture or general partnership:

- a. Provide the name under which the project will be bid, the home office address, and name of the principal who will represent the company with regard to this project if different from "1." above.

Principal _____

 Business Name _____

 Street _____

 City State Zip Code _____

- b. Provide the name and home office addresses of each of the joint venture partners; indicate which partner is the sponsoring partner. Attach a separate sheet for additional partners.

Sponsoring Partner _____			Other Partner _____		
Street _____			Street _____		
City	State	Zip Code	City	State	Zip Code

4. Date organization established: _____

5. Name of succeeded business, if any: _____

6. How many years have you been in business as:

- a. General contractor ___ years.
 b. Subcontractor ___ years.

7. a. Furnish the following information concerning the owner, partners, officers and directors:

Name	Title	Percent of Business Owned	Years of Business Experience	
			Contracting	Other

- b. Attach resumes of these key personnel as well as the on-site project manager(s) and superintendent(s), and specifically identify the following:
- Present position, responsibility, and length of employment.
 - Amount and type of construction experience.
 - Amount and type of highway construction experience, including position, responsibility, and a brief project description of each period of employment.
 - Formal education and training, professional or technical registrations or licenses.

FEDERAL ACQUISITION REGULATIONSOLICITATION PROVISIONSInstructions to Bidders**52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998)**

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also the full text of a solicitation provision may be accessed electronically at this address:

<http://www.arnet.gov/far/>.

(End of Provision)

- 52.204-5 WOMEN-OWNED BUSINESS OTHER THAN SMALL BUSINESS (MAY 1999)
- 52.211-6 BRAND NAME OR EQUAL (AUG 1999)
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- 52.214-18 PREPARATION OF BIDS - CONSTRUCTION (APR 1984)
- 52.214-19 CONTRACT AWARD - SEALED BIDDING - CONSTRUCTION (AUG 1996)
- 52.214-34 SUBMISSION OF OFFERS IN THE ENGLISH LANGUAGE (APR 1991)
- 52.214-35 SUBMISSION OF OFFERS IN U.S. CURRENCY (APR 1991)
- 52.236-27 SITE VISIT (CONSTRUCTION) (FEB 1995)

**52.211-4 AVAILABILITY FOR EXAMINATION OF SPECIFICATIONS NOT LISTED
IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND
COMMERCIAL ITEM DESCRIPTIONS (JUN 1988)**

Specifications cited in this solicitation which are not available for distribution may be examined at the following location:

Federal Highway Administration
Central Federal Lands Highway Division
12300 West Dakota Avenue, Suite 360
Lakewood, Colorado 80228
Contact: Brenda McGehee @ (720) 963-3353 or Tiffany Atchison @ (720) 963-3354

(End of Provision)

52.216-1 TYPE OF CONTRACT (APR 1984)

The Government contemplates award of a firm-fixed price contract resulting from this solicitation.

(End of Provision)

**52.222-23 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE
EQUAL EMPLOYMENT OPPORTUNITY (FEB 1999)**

(a) The offeror's attention is called to the Equal Opportunity clause and the Affirmative Action Compliance Requirements for Construction clause of this solicitation.

(b) The goals 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 for minority participation for each trade	Goals for female participation for each trade
3.3%	6.9%

These goals are applicable to all the Contractor's construction work performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, the Contractor shall apply the goals established for the geographical area where the work is actually performed. Goals are published periodically in the Federal Register in notice form, and these notices may be obtained from any Office of Federal Contract Compliance Programs.

(c) The Contractor's compliance with Executive Order 11246, as amended, and the regulations in 41 CFR 60-4 shall be based on

(1) its implementation of the Equal Opportunity clause,

(2) specific affirmative action obligations required by the clause entitled "Affirmative Action Compliance Requirements for Construction," and

(3) its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade. 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, Executive Order 11246, as amended, and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

(d) The Contractor shall provide written notification to the Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor, within 10 working days following 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 -

(1) Name, address, and telephone number of the subcontractor;

(2) Employer's identification number of the subcontractor;

(3) Estimated dollar amount of the subcontract;

(4) Estimated starting and completion dates of the subcontract; and

(5) Geographical area in which the subcontract is to be performed.

(e) As used in this Notice, and in any contract resulting from this solicitation, the "covered area" is Park County, Wyoming.

(End of Provision)

**52.225-12 NOTICE OF BUY AMERICAN ACT REQUIREMENTS-
CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS (JAN 2005)**

(a) *Definitions.*

“Construction material,” “designated country construction material,” “domestic construction material,” and “foreign construction material,” as used in this provision, are defined in the clause of this solicitation entitled “Buy American Act—Construction Materials Under Trade Agreements” (Federal Acquisition Regulation (FAR) clause 52.225-11).

(b) *Requests for determination of inapplicability.* An offeror requesting a determination regarding the inapplicability of the Buy American Act should submit the request to the Contracting Officer in time to allow a determination before submission of offers. The offeror shall include the information and applicable supporting data required by paragraphs (c) and (d) of FAR clause 52.225-11 in the request. If an offeror has not requested a determination

regarding the inapplicability of the Buy American Act before submitting its offer, or has not received a response to a previous request, the offeror shall include the information and supporting data in the offer.

(c) *Evaluation of offers.*

(1) The Government will evaluate an offer requesting exception to the requirements of the Buy American Act, based on claimed unreasonable cost of domestic construction materials, by adding to the offered price the appropriate percentage of the cost of such foreign construction material, as specified in paragraph (b)(4)(i) of FAR clause 52.225-11.

(2) If evaluation results in a tie between an offeror that requested the substitution of foreign construction material based on unreasonable cost and an offeror that did not request an exception, the Contracting Officer will award to the offeror that did not request an exception based on unreasonable cost.

(d) *Alternate offers.*

(1) When an offer includes foreign construction material, other than designated country construction material, that is not listed by the Government in this solicitation in paragraph (b)(3) of FAR clause 52.225-11, the offeror also may submit an alternate offer based on use of equivalent domestic or designated country construction material.

(2) If an alternate offer is submitted, the offeror shall submit a separate Standard Form 1442 for the alternate offer, and a separate price comparison table prepared in accordance with paragraphs (c) and (d) of FAR clause 52.225-11 for the offer that is based on the use of any foreign construction material for which the Government has not yet determined an exception applies.

(3) If the Government determines that a particular exception requested in accordance with paragraph (c) of FAR clause 52.225-11 does not apply, the Government will evaluate only those offers based on use of the equivalent domestic or designated country construction material, and the offeror shall be required to furnish such domestic or designated country construction material. An offer based on use of the foreign construction material for which an exception was requested—

- (i) Will be rejected as nonresponsive if this acquisition is conducted by sealed bidding; or
- (ii) May be accepted if revised during negotiations.

(End of Provision)

52.225-20 – PROHIBITION ON CONDUCTING RESTRICTED BUSINESS OPERATIONS IN SUDAN--CERTIFICATION.

(a) *Definitions.* As used in this provision—

“Business operations” means engaging in commerce in any form, including by acquiring, developing, maintaining, owning, selling, possessing, leasing, or operating equipment, facilities, personnel, products, services, personal property, real property, or any other apparatus of business or

commerce.

“Marginalized populations of Sudan” means—

- (1) Adversely affected groups in regions authorized to receive assistance under section 8(c) of the Darfur Peace and Accountability Act (Pub. L. 109-344) (50 U.S.C. 1701 note); and
- (2) Marginalized areas in Northern Sudan described in section 4(9) of such Act.

“Person” means—

- (1) A Natural person, corporation, company, business association, partnership, society, trust, any other nongovernmental entity, organization, or group;
- (2) Any governmental entity or instrumentality of a government, including a multilateral development institution (as defined in section 1701(c)(3) of the International Financial Institutions Act (22 U.S.C. 262r(c)(3)); and
- (3) Any successor, subunit, parent company or subsidiary of any entity described in paragraphs (1) or (2) of this definition.

“Restricted business operations” means business operations in Sudan that include power production activities, mineral extraction activities, oil-related activities, or the production of military equipment, as those terms are defined in the Sudan Accountability and Divestment Act of 2007 (Pub. L. 110-174). Restricted business operations do not include business operations that the person conducting the business can demonstrate—

- (1) Are conducted under contract directly and exclusively with the regional government of southern Sudan;
- (2) Are conducted pursuant to specific authorization from the Office of Foreign Assets Control in the Department of the Treasury, or are expressly exempted under Federal law from the requirement to be conducted under such authorization ;
- (3) Consist of providing goods or services to marginalized populations of Sudan;
- (4) Consist of providing goods or services to an internationally recognized peacekeeping force or humanitarian organization;
- (5) Consist of providing goods or services that are used only to promote health or education;
- or
- (6) Have been voluntarily suspend.

(b) *Certification.* By submission of its offer, the offeror certifies that it does not conduct any restricted business operations in Sudan.

(End of provision)

52.228-1 BID GUARANTEE (SEP 1996)

(a) Failure to furnish a bid guarantee in the proper form and amount, by the time set for opening of bids, may be cause for rejection of the bid.

(b) The bidder shall furnish a bid guarantee in the form of a firm commitment, e.g., bid bond supported by good and sufficient surety or sureties acceptable to the Government, postal money order, certified check, cashier's check, irrevocable letter of credit, or, under Treasury Department

regulations, certain bonds or notes of the United States. The Contracting Officer will return bid guarantees, other than bid bonds, (1) to unsuccessful bidders as soon as practicable after the opening of bids, and (2) to the successful bidder upon execution of contractual documents and bonds (including any necessary coinsurance or reinsurance agreements), as required by the bid as accepted.

(c) The amount of the bid guarantee shall be 20 percent of the bid price or \$3,000,000, whichever is less.

(d) If the successful bidder, upon acceptance of its bid by the Government within the period specified for acceptance, fails to execute all contractual documents or furnish executed bond(s) within 10 days after receipt of the forms by the bidder, the Contracting Officer may terminate the contract for default.

(e) In the event the contract is terminated for default, the bidder is liable for any cost of acquiring the work that exceeds the amount of its bid, and the bid guarantee is available to offset the difference.

(End of Provision)

52.233-2 SERVICE OF PROTEST (SEPT 2006)

(a) Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the Government Accountability Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from:

Kevin R. Black
Contract Development Engineer
Central Federal Lands Highway Division
12300 West Dakota Avenue, Suite 360
Lakewood, Colorado 80228

(b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

(End of Provision)

52.252-3 ALTERATIONS IN SOLICITATION (APR 1984)

Portions of this solicitation are altered as follows:

None.

(End of Provision)

**1252.216-70 EVALUATION OF OFFERS SUBJECT TO AN ECONOMIC PRICE
ADJUSTMENT CLAUSE (OCT 1994)**

Offers shall be evaluated without an amount for an economic price adjustment being added. Offers will be rejected which: (1) increase the ceiling stipulated; (2) limit the downward adjustment; or (3) delete the economic price adjustment clause. If the offer stipulates a ceiling lower than that included in the solicitation, the lower ceiling will be incorporated into any resulting contract.

(End of Provision)

FEDERAL ACQUISITION REGULATION
CONTRACT CLAUSES
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52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also the full text of a clause may be accessed electronically at this address:

<http://www.arnet.gov/far/>.

(End of Clause)

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**52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK
(APR 1984)--ALTERNATE I (APR 1984)**

The Contractor shall be required to (a) commence work under this contract within 10 calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than (See Standard Form 1442). The time stated for completion shall include final cleanup of the premises.

The completion date is based on the assumption that the successful offeror will receive the notice to proceed by January 2, 2009. The completion date will be extended by the number of calendar days after the above date that the Contractor receives the notice to proceed, except to the extent that the delay in issuance of the notice to proceed results from the failure of the Contractor to execute the contract and give the required performance and payment bonds within the time specified in the offer.

(End of Clause)

52.211-12 LIQUIDATED DAMAGES - CONSTRUCTION (SEPT 2000)

(a) If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the amount of (See Page 41 of the FP-03, Table 108-1 under Subsection 108.04) for each calendar day of delay until the work is completed or accepted.

(b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase under the Termination clause.

(End of Clause)

**52.222-39 NOTIFICATION OF EMPLOYEE RIGHTS CONCERNING
PAYMENT OF UNION DUES OR FEES (DEC 2004)**

(a) *Definition.* As used in this clause—

“United States” means the 50 States, the District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, the U.S. Virgin Islands, and Wake Island.

(b) Except as provided in paragraph (e) of this clause, during the term of this contract, the Contractor shall post a notice, in the form of a poster, informing employees of their rights concerning union membership and payment of union dues and fees, in conspicuous places in and about all its plants and offices, including all places where notices to employees are customarily posted. The notice shall include the following information (except that the information pertaining to National Labor Relations Board shall not be included in notices posted in the plants or offices of carriers subject to the Railway Labor Act, as amended (45 U.S.C. 151-188)).

Notice to Employees

Under Federal law, employees cannot be required to join a union or maintain membership in a union in order to retain their jobs. Under certain conditions, the law permits a union and an employer to enter into a union-security agreement requiring employees to pay uniform periodic dues and initiation fees. However, employees who are not union members can object to the use of their payments for certain purposes and can only be required to pay their share of union costs relating to collective bargaining, contract administration, and grievance adjustment.

If you do not want to pay that portion of dues or fees used to support activities not related to collective bargaining, contract administration, or grievance adjustment, you are entitled to an appropriate reduction in your payment. If you believe that you have been required to pay dues or fees used in part to support activities not related to collective bargaining, contract administration, or grievance adjustment, you may be entitled to a refund and to an appropriate reduction in future payments.

For further information concerning your rights, you may wish to contact the National Labor Relations Board (NLRB) either at one of its Regional offices or at the following address or toll free number:

National Labor Relations Board
Division of Information
1099 14th Street, N.W.
Washington, DC 20570
1-866-667-6572
1-866-316-6572 (TTY)

To locate the nearest NLRB office, see NLRB's website at <http://www.nlr.gov>.

(c) The Contractor shall comply with all provisions of Executive Order 13201 of February 17, 2001, and related implementing regulations at 29 CFR part 470, and orders of the Secretary of Labor.

(d) In the event that the Contractor does not comply with any of the requirements set forth in paragraphs (b), (c), or (g), the Secretary may direct that this contract be cancelled, terminated, or suspended in whole or in part, and declare the Contractor ineligible for further Government contracts in accordance with procedures at 29 CFR part 470, Subpart B—Compliance Evaluations, Complaint Investigations and Enforcement Procedures. Such other sanctions or remedies may be imposed as are provided by 29 CFR part 470, which implements Executive Order 13201, or as are otherwise provided by law.

(e) The requirement to post the employee notice in paragraph (b) does not apply to—

(1) Contractors and subcontractors that employ fewer than 15 persons;

(2) Contractor establishments or construction work sites where no union has been formally recognized by the Contractor or certified as the exclusive bargaining representative of the Contractor's employees;

(3) Contractor establishments or construction work sites located in a jurisdiction named in the definition of the United States in which the law of that jurisdiction forbids enforcement of union-security agreements;

(4) Contractor facilities where upon the written request of the Contractor, the Department of Labor Deputy Assistant Secretary for Labor-Management Programs has waived the posting requirements with respect to any of the Contractor's facilities if the Deputy Assistant Secretary finds that the Contractor has demonstrated that—

(i) The facility is in all respects separate and distinct from activities of the Contractor related to the performance of a contract; and

(ii) Such a waiver will not interfere with or impede the effectuation of the Executive order;
or

(5) Work outside the United States that does not involve the recruitment or employment of workers within the United States.

(f) The Department of Labor publishes the official employee notice in two variations; one for contractors covered by the Railway Labor Act and a second for all other contractors.

The Contractor shall—

(1) Obtain the required employee notice poster from the Division of Interpretations and Standards, Office of Labor-Management Standards, U.S. Department of Labor, 200 Constitution Avenue, NW, Room N-5605, Washington, DC 20210, or from any field office of the Department's Office of Labor-Management Standards or Office of Federal Contract Compliance Programs;

(2) Download a copy of the poster from the Office of Labor-Management Standards website at <http://www.olms.dol.gov>; or

(3) Reproduce and use exact duplicate copies of the Department of Labor's official poster.

(g) The Contractor shall include the substance of this clause in every subcontract or purchase order that exceeds the simplified acquisition threshold, entered into in connection with this contract, unless exempted by the Department of Labor Deputy Assistant Secretary for Labor-Management Programs on account of special circumstances in the national interest under authority of 29 CFR 470.3(c). For indefinite quantity subcontracts, the Contractor shall include the substance of this clause if the value of orders in any calendar year of the subcontract is expected to exceed the simplified acquisition threshold. Pursuant to 29 CFR part 470, Subpart B—Compliance Evaluations, Complaint Investigations and Enforcement Procedures, the Secretary of Labor may direct the Contractor to take such action in the enforcement of these regulations, including the imposition of sanctions for noncompliance with respect to any such subcontract or purchase order. If the Contractor becomes involved in litigation with a subcontractor or vendor, or is threatened with such involvement, as a result of such direction, the Contractor may request the United States, through the Secretary of Labor, to enter into such litigation to protect the interests of the United States.

(End of Clause)

52.225-11 Buy American Act—Construction Materials under Trade Agreements (Nov 2006)

(a) *Definitions.* As used in this clause—

“Caribbean Basin country construction material” means a construction material that—

- (1) Is wholly the growth, product, or manufacture of a Caribbean Basin country; or
- (2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a Caribbean Basin country into a new and different construction material distinct from the materials from which it was transformed.

“Component” means an article, material, or supply incorporated directly into a construction material.

“Construction material” means an article, material, or supply brought to the construction site by the Contractor or subcontractor for incorporation into the building or work. The term also includes an item brought to the site preassembled from articles, materials, or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, that are discrete systems incorporated into a public building or work and that are produced as complete systems, are evaluated as a single and distinct construction material regardless of when or how the individual parts or components of those systems are delivered to the construction site. Materials purchased directly by the Government are supplies, not construction material.

“Cost of components” means—

- (1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the construction material (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or
- (2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the construction material.

“Designated country” means any of the following countries:

- (1) A World Trade Organization Government Procurement Agreement country (Aruba, Austria, Belgium, Canada, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea (Republic of), Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, or United Kingdom);
- (2) A Free Trade Agreement country (Australia, Bahrain, Canada, Chile, El Salvador, Guatemala, Honduras, Mexico, Morocco, Nicaragua, or Singapore);
- (3) A least developed country (Afghanistan, Angola, Bangladesh, Benin, Bhutan, Burkina Faso, Burundi, Cambodia, Cape Verde, Central African Republic, Chad, Comoros, Democratic Republic of Congo, Djibouti, East Timor, Equatorial Guinea, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Haiti, Kiribati, Laos, Lesotho, Madagascar, Malawi, Maldives, Mali, Mauritania, Mozambique, Nepal, Niger, Rwanda, Samoa, Sao Tome and Principe, Senegal, Sierra Leone, Solomon Islands, Somalia, Tanzania, Togo, Tuvalu, Uganda, Vanuatu, Yemen, or Zambia); or

(4) A Caribbean Basin country (Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, British Virgin Islands, Costa Rica, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Montserrat, Netherlands Antilles, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, or Trinidad and Tobago).

“Designated country construction material” means a construction material that is a WTO GPA country construction material, an FTA country construction material, a least developed country construction material, or a Caribbean Basin country construction material.

“Domestic construction material” means—

- (1) An unmanufactured construction material mined or produced in the United States; or
- (2) A construction material manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind for which nonavailability determinations have been made are treated as domestic.

“Foreign construction material” means a construction material other than a domestic construction material.

“Free Trade Agreement country construction material” means a construction material that—

- (1) Is wholly the growth, product, or manufacture of a Free Trade Agreement (FTA) country; or
- (2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a FTA country into a new and different construction material distinct from the materials from which it was transformed.

“Least developed country construction material” means a construction material that—

- (1) Is wholly the growth, product, or manufacture of a least developed country; or
- (2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a least developed country into a new and different construction material distinct from the materials from which it was transformed.

“United States” means the 50 States, the District of Columbia, and outlying areas.

“WTO GPA country construction material” means a construction material that—

- (1) Is wholly the growth, product, or manufacture of a WTO GPA country; or
- (2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a WTO GPA country into a new and different construction material distinct from the materials from which it was transformed.

(b) Construction materials.

(1) This clause implements the Buy American Act (41 U.S.C. 10a-10d) by providing a preference for domestic construction material. In addition, the Contracting Officer has determined that the WTO GPA and Free Trade Agreements (FTAs) apply to this acquisition. Therefore, the Buy American Act restrictions are waived for designated country construction materials.

(2) The Contractor shall use only domestic or designated country construction material in performing this contract, except as provided in paragraphs (b)(3) and (b)(4) of this clause.

(3) The requirement in paragraph (b)(2) of this clause does not apply to the construction materials or components listed by the Government as follows:

1. None

[Contracting Officer to list applicable excepted materials or indicate "none"]

(4) The Contracting Officer may add other foreign construction material to the list in paragraph (b)(3) of this clause if the Government determines that—

(i) The cost of domestic construction material would be unreasonable. The cost of a particular domestic construction material subject to the restrictions of the Buy American Act is unreasonable when the cost of such material exceeds the cost of foreign material by more than 6 percent;

(ii) The application of the restriction of the Buy American Act to a particular construction material would be impracticable or inconsistent with the public interest; or

(iii) The construction material is not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

(c) Request for determination of inapplicability of the Buy American Act.

(1)(i) Any Contractor request to use foreign construction material in accordance with paragraph (b)(4) of this clause shall include adequate information for Government evaluation of the request, including—

(A) A description of the foreign and domestic construction materials;

(B) Unit of measure;

(C) Quantity;

(D) Price;

(E) Time of delivery or availability;

(F) Location of the construction project;

(G) Name and address of the proposed supplier; and

(H) A detailed justification of the reason for use of foreign construction materials cited in accordance with paragraph (b)(3) of this clause.

(ii) A request based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison table in the format in paragraph (d) of this clause.

(iii) The price of construction material shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(iv) Any Contractor request for a determination submitted after contract award shall explain why the Contractor could not reasonably foresee the need for such determination and could not have requested the determination before contract award. If the Contractor does not submit a satisfactory explanation, the Contracting Officer need not make a determination.

(2) If the Government determines after contract award that an exception to the Buy American Act applies and the Contracting Officer and the Contractor negotiate adequate consideration, the

Contracting Officer will modify the contract to allow use of the foreign construction material. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration is not less than the differential established in paragraph (b)(4)(i) of this clause.

(3) Unless the Government determines that an exception to the Buy American Act applies, use of foreign construction material is noncompliant with the Buy American Act.

(d) *Data.* To permit evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the Contractor shall include the following information and any applicable supporting data based on the survey of suppliers:

Foreign and Domestic Construction Materials Price Comparison

Construction Material Description	Unit of Measure	Quantity	Price (Dollars)*
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Item 1:

Foreign construction material	_____	_____	_____
Domestic construction material	_____	_____	_____

Item 2:

Foreign construction material	_____	_____	_____
Domestic construction material	_____	_____	_____

[List name, address, telephone number, and contact for suppliers surveyed. Attach copy of response; if oral, attach summary.]

[Include other applicable supporting information.]

[Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued).]*

(End of clause)

52.236-4 PHYSICAL DATA (APR 1984)

Data and information furnished or referred to below is for the Contractor's information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

(a) The indications of physical conditions on the drawings and in the specifications are the result of site investigations by ____*_____.

(b) Weather conditions: Contact National Weather Service.

(c) Transportation facilities NA_____.

(d) _____*_____.

* See continuation of Standard Form 1442.

(End of Clause)

52.252-4 ALTERATIONS IN CONTRACT (APR 1984)

Portions of this contract are altered as follows: None .

(End of Clause)

General Decision Number: WY080008 06/20/2008 WY8

Superseded General Decision Number: WY20070008

State: Wyoming

Construction Type: Highway

Counties: Albany, Big Horn, Campbell, Carbon, Converse, Crook, Fremont, Goshen, Hot Springs, Johnson, Lincoln, Niobrara, Park, Platte, Sheridan, Sublette, Sweetwater, Teton, Uinta, Washakie and Weston Counties in Wyoming.

Modification Number	Publication Date
0	02/08/2008
1	06/20/2008

* SUWY2008-003 05/08/2008

	Rates	Fringes
CARPENTER.....	\$ 19.55	2.93
Concrete Finisher.....	\$ 17.37	2.83
Ironworker.....	\$ 29.76	3.52
LABORER (Excluding Tunnel & Underground Work)		
Group 1.....	\$ 14.43	
Group 2.....	\$ 15.68	4.65
LABORER CLASSIFICATIONS		

(Excluding Tunnel and Underground Work)

GROUP 1: Axman; Hand Faller; Bin Wall Installer Laborer; Concrete Worker (Wet or Dry); Concrete Worker (Curing and Drying); Dumpman; Erector and Installer - includes the installation and erection of fences, snow fences, guardrails, median rails, median posts, signs, and right of way marker; Flag Person (Traffic Control); Form stripper; Form Setter Laborer (Paving); General Laborer; Gunite Laborer; Heater Tender; Landscape Laborer; Material Handler (Lumber, Rods, Cement, Concrete); Nozzleman (Air and Water); Pilot Car Driver; Pipe setter Laborer (Non-metallic); Pipe setter Laborer (Corrugated); Pre-Watering, pre-setting, and pre-irrigation (all work); Riprap Man; Sandblaster Pot Tender; Signal man, grade concrete, etc; Scissor man or hopper man; Stake Jumper for equipment; Tar and Asphalt Pot Tender; and Wrecking and Demolition Crew.

GROUP 2: Asphalt Raker and Tamper; Bin Wall Installer, Cement Mason Tender; Chuck Tender; Concrete Saw; Form Setter (Paving); Gunite Nozzleman; Hand Operated

Vibratory Roller; High Scaler (Using air tools from bosn chair, swing stage lift belt, or block and tackle shall receive \$.20 per hour more than the classified rate); Landscaper; Maintainer (Traffic Control); Mortar man on stone riprap; Operator of pneumatic, electric gas tamper, and similar mechanical tools; Pipe setter (corrugated, culvert pipe, sectional multi-plate and similar type); Pipe setter, Pipelayer (non-metallic); Pipe wrapper; Powderman tender; Power type concrete buggy (Push ride); Power saw operator (clearing); Vibrator-concrete; Jackhammer and pavement breaker; Sandblaster nozzleman; Sewer pipe installer (non-metallic), clay, concrete, etc. (caulker, collarman, jointer, mortarman, rigger, jacker)

LABORER (Tunnel & Underground Work)

Group 1.....	\$ 14.85	.72
Group 2.....	\$ 16.97	1.50

LABORER CLASSIFICATION - TUNNEL AND UNDERGROUND WORK

GROUP 1: Powderman and Blaster; Wagon Drill; Air-Trac; Diamond and Other Drills for Blasting Powder or Grouting.

GROUP 2: Miner (Driller); Machineman; Timberman; Steelman; Drill Doctor; Form Setter and Mover; Spader; Tuggers; Spilling and/or Caisson Worker; Powderman; Jackhammerman; Finisher.

Line Construction
(Underground Communication Work & All Motor Traffic Controlling, Street & Highway Lighting)

Groundman.....	\$ 24.75	3.85
Inside Wireman (Load Side of Meter).....	\$ 25.70	8.62
Line Equipment Operator (Electrical Work).....	\$ 25.62	8.45
Lineman (Line Side of Meter).....	\$ 33.62	8.93

PAINTER

Brush & Spray.....	\$ 17.82	3.14
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POWER EQUIPMENT OPERATOR

Group 1.....	\$ 16.57	5.52
Group 2.....	\$ 17.90	5.97
Group 3.....	\$ 20.12	6.71
Group 4.....	\$ 21.75	7.25

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

ALL ELECTRICAL WORK IS EXCLUDED. FOR ELECTRICAL WORK, USE EQUIPMENT OPERATOR CLASSIFICATION LISTED UNDER LINE CONSTRUCTION.

GROUP 1: Auger Machine Operator (Post Holes, etc.); Air Compressor (Over 315 cu. ft. cap.); Backhoe (to 1.5 cu. yds.); Batch Bin Weighman, Scissorman, or Hopperman; Brakeman; Broom Operator (Self-Propelled); Cableway Signalman (Bellboy); Chip Spreader Operator; Concrete Saw (Self-Propelled); Conveyor Belt Operator; Crusher Oiler; Front End Loader (to 1.5 cu. yds.); Form Grader Operator; Fork Lift and Lumber Stacker; Joint Machine Operator; Longitudinal Float Operator; Mixer, Operator Concrete (under 1 yard); Oiler, Utility; Power Loader, belt and buckle type; Pump Operator; Roller Operator, Self-Propelled, (Pneumatic, rubber tired, sheep foot, vibratory or combination type); Screed Operator; Screening Plant Operator; Tire Repairman; Tractor Operator: Farm, crawler, or wheel type (60 horsepower drawbar or less) with or without use of power attachments).

GROUP 2: Air Compressor, two or more machines or tunnels, shafts, raises, or Plant Operator; Asphalt Plant Operator; Backhoe (1.5 cu. yds. to 3.5 cu. yds.); Bituminous Laydown Machine Operator; CMI Machine (Auto Grader); Concrete Batch Plant Operator; Concrete Finish Machine Operator; Concrete Multi Blade Span Saw (Hunt Process or Similar); Concrete Spreader and Paver Operator; Crusher Operator; Drilling Machine, Intergrated (Core, Rotary, Caisson, Diamond); Elevating Grader Operator; Front End Loader (1.5 cu. yds. to 3.5 cu. yds.); Hydro-type Crane to 50 Tons; Mixer Operator, Base Course Pugmill Type I; Mixer Operator, Concrete (Over one yard); Motor Patrol Operator (All, excluding finish); Mucking Machine Operator (All Types); Mulching Machine Operator; Oiler (Crane and Shovels); Pavement Breaker, Hydro-Tamper and similar type machines; Pumpcrete Operator; Roller Operators (Tandem Steel Wheel, three axle or three wheel); Scraper Equipment (all types); Scraper Equipment (Multiple units, fifteen cents per hour additional per unit); Shovels, Draglines, Cranes, Piledrivers and Truck Mounted Cranes (Mfg. rating: up to 3.5 cu. yds., or 50 tons, all attachments); Shuttle Car Operator; Subgrade Machine Operator (power); Tractor Operators: Cold Milling, all with use of power attachments and including pushcat, dozer, tournadozer, etc. (the use of power attachments shall not include disking, pulling of rollers or similar unskilled actions); Trenching Machine Operator(Excludes Electrical Work); Wash Plant Operator; and Welder.

GROUP 3: Hoist Operator (Two or more drums, shafts, or raises); Motor Patrol Operator (Finish); Heavy Duty Mechanic, Machine Doctor; Shovels, Draglines, Cranes, Piledrivers, and Truck Mounted Cranes (Mft. rating: 3.5 cu. yds. to 7 cu. yds., or 50 to 90 tons, all attachments); Wheel Excavator Operator; and Front End Loader (3.5 cu. yds. to 7 cu. yds).

GROUP 4: Cableway Operator; Crane, 90 Tons and Over, (Whirley, gantry, stiffleg, overhead and traveling type); Mixer Operator, (Dual Drum); Shovels, Draglines, Piledrivers and Truck Mounted Cranes (Mfg. rating: 7 cu. yds. and over, or 90 tons and over, all attachments).

TRUCK DRIVER: Tireperson

Group 1.....	\$ 14.06	2.08
Group 2.....	\$ 19.98	
Group 3.....	\$ 17.83	3.63

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Pick-Up Truck Driver (When used for hauling); Dump Truck Driver (To and Including 7 cu. yds.); Snow Plow Truck Driver (the cu. yd. rate of the truck); Gravel Spreader; Flat Rack Material Truck Driver (Less than 2 Tons); Gang Truck Driver; Stringing Truck Driver (Single Axle Type); Water Truck Driver (2,500 Gal or Less); Fuel Service Truck Driver; Greaseman, Tireman, Servicemen; Oil Distributor Truck Driver (2,500 Gal. or Less).

GROUP 2: Dump Truck Driver (Over 7 cu. yds. to and including 13 cu. yds.); Flat Rack Material Truck Driver (Over 2 Tons to 5 Tons); Utility Winch Truck Driver; "A" Frame Truck Driver; Material Checker; Transit Mix or Wet Mix Truck Driver; Power Broom Driver; Water Truck Driver (Over 2,500 Gal. to and including 3,600 Gal.); Oil Distributor Truck Driver (Over 2,500 Gal. to and including 3,600 Gal.)

GROUP 3: Dump Truck Driver (Over 13 cu. yds. to and including 45 cu. yds.); Low Boy and Tandem Axle Float Driver; Multiple Axle Type Truck: Semi; Winch Trailer Truck Driver; Water Truck Driver (Over 3,600 Gal.); Oil Distributor Truck Driver (Over 3,600 Gal.); Truck Mechanics; and Flat Rack Material Truck Driver (Over 5 Tons).

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:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write 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 the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write 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 by 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

4.) All decisions by the Administrative Review Board are final.

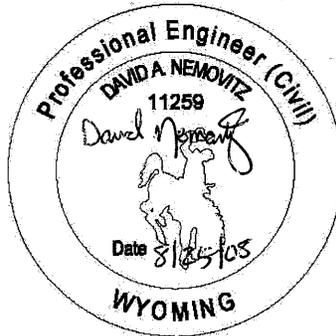
END OF GENERAL DECISION

SPECIAL CONTRACT REQUIREMENTS

Beartooth Highway (U.S. 212) Reconstruction Project



**Kenneth J. Burns Jr., P.E.
Wyoming P.E. License 8235**



**David A. Nemovitz
Wyoming P.E. License 11259**

**SPECIAL CONTRACT REQUIREMENTS
For Schedule A, Option X, and Option Z**

The following Special Contract Requirements amend and supplement the *Standard Specifications for Construction of Roads and Bridges, on Federal Highway Projects (FP-03) Metric Version*, U.S. Department of Transportation, Federal Highway Administration.

SI (METRIC)⁽¹⁾ TO U.S. CUSTOMARY CONVERSION FACTORS (approximate)

To the table on page iv, amend the second line of the MASS and the second line of the ILLUMINATION portion of the table as follows:

Symbol	When You Know	Multiply By	To Find	Symbol
MASS				
kg	kilograms	2.2046	pounds	lb
ILLUMINATION				
cd/m ²	candela/m ²	0.2919	foot-Lamberts	fl

Section 104. – CONTROL OF WORK

104.03 Specifications and Drawings. Add the following:

(c) As-built working drawings. Prepare and furnish as-built working drawings prior to final acceptance. The Government will provide one set of 280 x 430 millimeter contract drawings to be used exclusively for recording the as-built details of the project. Mark plans on title sheet “As-Built Plans”. Use red ink to record the information described below.

Note all additions or revisions to the location, character and dimensions of the prescribed work shown on the contract drawings. Location changes are to be shown in the same coordinate system used for the staking notes. Strikeout all details shown that are not applicable to the completed work. Check and initial all plan sheets that were incorporated into the completed work without change.

Retain the drawings at the project site and, as work progresses, continuously update them to reflect the as-built details. Submit a copy of the updated as-built drawings at least every 30 days to the CO for review for compliance with these specifications.

As a minimum, show the following information on the as-built drawings:

(1) Title Sheet

- (a) Name of contractor.
- (b) Name of Project Engineer.
- (c) Project completion date.

- (d) Revisions to project length.
- (e) Revisions to begin and end stations of project.
- (f) Revisions to index to sheets.
- (g) Strikeout any schedules or options not awarded.
- (h) A note stating "All work was constructed as designed unless otherwise noted."

(2) Typical section(s)

- (a) Revisions in dimensions.
- (b) Revisions in materials.
- (c) Revisions in station ranges.
- (d) Revisions to begin and end stations of project, and length of project.
- (e) Revisions to station equations.
- (f) Revisions to slope ratio and curve widening tables.
- (g) Revisions to any notes.

(3) Summary of Quantities and Tabulation Sheets

- (a) Revisions to all quantities, locations, notes/remarks, including totals.
- (b) Strikeout unused pay items.
- (c) Revisions to application rates.
- (d) Revisions to location, type, end treatments, riprap, skew, on drainage summary.

(4) Control Sheets

- (a) Show any control that was removed, destroyed, established, according to subsections 107.02, paragraph 2; 152.02, paragraph 2; and 152.03.
- (b) Use a unique naming convention for newly established control points. Do not reuse CFL control point numbers.

(5) Plan and profile and layout sheets

- (a) Revisions to the alignment; grades, elevations and stationing of intersection PIs; station equations and superelevation.
- (b) Major changes in the construction limits; particularly changes requiring additional design, additional right of way, or contract modifications. (Show information on plan and profile, layout sheets, and right of way plans if applicable.).
- (c) Changes in permanent rights of way caused by acquisition during construction. (Show information on plan and profile, layout sheets, and right of way plans if applicable). In addition, annotate any construction completed according to agreements made with landowners during construction.
- (d) Revisions in location, type and grade of road approaches.
- (e) Revisions in locations of sub-excavation and roadway obliteration.
- (f) Location, type and elevation of all constructed or relocated utilities, aerial and underground. Location, type and elevation of utilities not previously or inaccurately mapped, but encountered during construction, indicated as "approximate" or "as mapped". (Show information on plan and profile and layout sheets and utilities plans if applicable).
- (g) Location, size and type of underdrains.
- (h) Location, number and type of horizontal, lateral, trench and blanket drains.

- (i) Revisions to culvert diameter, length, type, stationing, skew, riprap and end treatments.
- (j) Length of culvert extension, skew, and offset from centerline to the ends of extended culverts.
- (k) Channel changes.
- (l) Location of monuments and permanent references replaced according to Subsection 107.02.
- (m) Location, length and type of fencing.
- (n) Location, length, stationing and type of walls.
- (o) Location, length, stationing and end treatment of roadside design features, including, but not limited to, guardrail, guardwall, signs, fences, gates, etc.
- (p) Revisions in location of pavement markings.
- (q) Revisions to parking areas or turnouts location.
- (r) Revisions in location, type and length of curbs, sidewalks, and accessible ramps.
- (s) Revisions to any notes.
- (t) Revisions to permanent erosion control measures.

(7) Standards, Details, and Specials

Revisions to notes, dimensions, locations, and materials.

No direct payment will be made for preparing and furnishing as-built working drawings. A retention of 1/10th of 1% of payment due will be withheld from project pay estimates if the Contractor has not kept current the designated set of as-built plans. In addition, a retention of 1/10th of 1% of the contract amount paid to date will be withheld at the end of the project until the set of as-built plans has been submitted to and accepted by the Project Engineer. The final completed as-built working drawings must be submitted to and accepted by the Contracting Officer before final acceptance will be granted on the project.

Section 105. - CONTROL OF MATERIAL

105.01 Source of Supply and Quality Requirements. Add the following:

Submit samples of materials for quality verification testing for materials required to conform to Sections 703, 704, and 705.

Materials containing petroleum-based solvents such as cutback asphalts and traffic paints may be restricted from use by local laws or ordinances in certain geographic areas. Upon presenting proof of such restrictions, alternate materials considered acceptable to the CO may be substituted for the materials specified in the contract.

105.02 Material Sources.

(a) Government-provided sources. Add the following:

The Ghost Creek material source located 9.3 km west of the project is available for use on this project at the contractor's option.

The material may be used to produce the following construction materials:

- Minor crushed aggregate
- Superpave pavement

Each material type produced must meet the aggregate quality requirements specified in the contract.

If the Contractor elects to use the Ghost Creek material source submit a Material Source Development Plan. Use Geotechnical reports to develop the Material Source Development plan. The plan will be approved by the CO prior to performing work within the Government-provided source. The Material Source Development Plan will include the method to best optimize all the material to produce the aggregate types required in the contract. The Contractor will perform all work necessary to produce acceptable material including site development, preparation, erosion control and reclamation. The Material Source Development Plan must address, but is not limited to, the following:

- Reclamation plan
- Erosion control plan
- Optimization plan to utilize material source for applicable construction material types

The Contractor will be responsible to ensure all materials meet the specifications prior to being incorporated into the project.

(b) Contractor-located sources. Add the following to the end of the first paragraph:

For Contractor-located, non-commercial sources, secure environmental clearances according to Subsection 107.10.

Water for this project is available at the Beartooth Lake. Use the Beartooth Lake boat ramp. Configure the boat ramp to allow continuous public use of the ramp during the loading of the water. Repair the boat ramp after use as approved by the CO.

105.04 Storing and Handling Material. Add the following after the third sentence of the second paragraph:

For Contractor-located, non-commercial staging, storing, and material handling areas, secure environmental clearances according to Subsection 107.10.

Forest Service Special Use Permits (SUP) for all areas within the clearing limits and for non-commercial staging, storing, and material handling areas indentified on the title sheet and site plan have been obtained and are included in the Appendices. For Contractor-located, non-commercial staging, storing, and material handling areas **outside** of the areas covered by the SUP and on USFS property, evaluate the environmental documentation for the project to determine if

sensitive resources exist. Obtain a FS SUP. Obtain the SUP prior to beginning work by contacting the SNF Staff Recreation Officer, Shoshone National Forest, P.O. Box 2140, Cody, Wyoming 82414. The telephone number is (307) 527-6241. SUPs may contain work restrictions and/or stipulations that significantly impact types, methods, and amounts of work, material handling, or storage allowed in these areas. In addition to those stipulations required by the FS in SUPs, reclamation of areas used for staging, storing, or material handling will be as directed by the CO, and may include restoring the terrain to natural contours and applying topsoil, seed, mulch, and erosion controls, in accordance with the applicable provisions of these specifications.

Add the following:

The Contractor may use locations (as identified on the title sheet and site plan) for staging areas. These staging area locations have been cleared environmentally and are included in the FS SUP obtained by FHWA. A FS operations plan for any staging, storage, or aggregate production is required. Submit operation plans to the CO for approval prior to use of each site and upon change of operations at any site. Locate additional staging areas and equipment and material storage facilities at sites with minimum visibility from the road, where possible. If the Contractor elects to use private land, the Contractor is responsible for obtaining, environmentally clearing, and reclaiming any private property staging and waste sites.

Section 106. - ACCEPTANCE OF WORK

106.01 Conformity with Contract Requirements. Delete the text and substitute the following:

Follow the requirements of FAR Clause 52.246-12 Inspection of Construction.

References to standard test methods of AASHTO, ASTM, GSA, and other recognized standard authorities refer to the methods in effect on the date of solicitation for bids.

Perform all work to the lines, grades, cross-sections, dimensions, and processes or material requirements shown on the plans or specified in the contract.

Incorporate manufactured materials into the work according to the manufacturer's recommendations or to these specifications, whichever is more strict.

Plan dimensions and contract specification values are the values to be strived for and complied with as the design values from which any deviations are allowed. Perform work and provide material that is uniform in character and reasonably close to the prescribed value or within the specified tolerance range. The purpose of a tolerance range is to accommodate occasional minor variations from the median zone that are unavoidable for practical reasons.

When standard manufactured items are specified (such as fence, wire, plates, rolled shapes, pipe conduits, etc., that are identified by gauge, unit mass, section dimensions, etc.), the identification will be considered to be nominal masses or dimensions. Unless specific contract tolerances are noted, established manufacturing tolerances will be accepted.

The Government may inspect, sample, or test all work at any time before final acceptance of the project. When the Government tests work, copies of test reports are furnished to the Contractor upon request. Government tests may or may not be performed at the work site. If Contractor testing and inspection is verified by the Government, the Contractor's results may be used by the Government to evaluate work for acceptance. Do not rely on the availability of Government test results for process control.

Acceptable work conforming to the contract will be paid for at the contract unit bid price. Four methods of determining conformity and accepting work are described in Subsections 106.02 to 106.05 inclusive. The primary method of acceptance is specified in each Section of work. However, work may be rejected at any time it is found by any of the methods not to comply with the contract.

Remove and replace work that does not conform to the contract, or to prevailing industry standards where no specific contract requirements are noted, at no cost to the Government.

(a) Disputing Government test results. If the accuracy of Government test results is disputed, promptly inform the CO. If the dispute is unresolved after reasonable steps are taken to resolve the dispute, further evaluation may be obtained by written request. Include a narrative describing the dispute and a proposed resolution protocol that addresses the following:

- (1) Sampling method
- (2) Number of samples
- (3) Sample transport
- (4) Test procedures
- (5) Testing laboratories
- (6) Reporting
- (7) Estimated time and costs
- (8) Validation process

If the evaluation requires additional sampling or testing be performed, mutually agree with the Government on witnessing procedures and on sampling and testing by a third party laboratory. Use a third party laboratory accredited by the AASHTO accreditation program. Provide proof of the laboratory's accreditation for the test procedures to be used. Do not use the same laboratory that produced the disputed Government test results or that produced the test results used as a basis for the dispute.

The CO will review the proposed resolution protocol and may modify it before final approval and execution.

The Government will use the approved resolution protocol test results to determine the validity of the disputed testing. If the Government test results are validated, the Contractor will be responsible for all costs associated with developing and performing the resolution protocol. If the Government test results are not validated, the Government will be responsible for all costs associated with developing and performing the resolution protocol. If the validity of the

Government test results cannot be determined, the Contractor and Government will equally share all costs associated with developing and carrying out the resolution protocol.

(b) Alternatives to removing and replacing non-conforming work. As an alternative to removal and replacement, the Contractor may submit a written request to:

- (1) Have the work accepted at a reduced price; or
- (2) Be given permission to perform corrective measures to bring the work into conformity.

The request must contain supporting rationale and documentation. Include references or data justifying the proposal based on an evaluation of test results, effect on service life, value of material or work, quality, aesthetics, and other tangible engineering basis. The CO will determine disposition of the nonconforming work.

Where sample/testing procedures make reference to AASHTO, ASTM, or other standards (designated as FLH T), the procedure as modified in the Materials Manual shall govern. Where the specifications make reference to AASHTO Test T11, "Procedure B - Washing Using a Wetting Agent" shall be the procedure followed.

Where the specifications make reference to AASHTO Test T310, "Direct Transmission Method of In-Place Nuclear Density and Moisture Content" shall be the procedure followed.

Reference to the Materials Manual means the Federal Lands Highway "Field Materials Manual, U.S. Department of Transportation, Federal Highway Administration," Publication No. FHWA-FL-91-002, dated March 1991, revised March 1994, and all amendments and supplements thereto. Copies are available upon request by emailing CFLContracts@fhwa.dot.gov or by FAX request to 720-963-3360.

106.03 Certification. Add the following after the second paragraph:

See Table 106-3 for schedule for full or partial acceptance by material certification. Submit certification and sample of material for testing as required.

Table 106-2 Pay Factor.

The Pay Factor 1.03, category I row: Delete the value 84 in the n=9 column and substitute the value 94.

The Pay Factor 0.75, category II row: Delete the value 35 in the n=3 column and substitute the value 25.

Table 106-3 Schedule For Full or Partial Acceptance by Materials Certification. Add Table 106-3 following Table 106-2.**Table 106-3
Schedule For Full or Partial Acceptance by Materials Certification**

Section	Description	Material	Material Property Or Specification	Frequency	
				Certification	Sample
306	Dust Palliative	Magnesium Chloride, Emulsified Asphalt, Lignin Sulfonate, Calcium Chloride	As specified	1 per shipment	First shipment
308	Minor Crushed Aggregate	Crushed Aggregate	Source, Quality and Gradation	1 per source	1 per source
404 and 417	Minor Hot Asphalt Concrete, Minor Cold Asphalt Mix	Aggregate Asphalt Mix	Source quality, Gradation, Stability, and Grade	1 per mix	1 per source
634 and 635	Permanent Pavement Markings, Temporary Traffic Control	634.02 as applicable, 635 as applicable	As specified	1 per source	-----
701	Hydraulic Cement	Portland Cement, Blended Hydraulic Cement and Masonry Cement	AASHTO M 85, M 240, and ASTM C 91	1 per shipment	1 per 100 tons
702.01	Asphalt Material	Asphalt Cement	AASHTO M 20, M 226, MP 1 or as applicable	1 per shipment	1 per shipment
702.02	Asphalt Material	Cut-back Asphalt	AASHTO M 81 or M 82 as applicable	1 per shipment	1 per shipment
702.03	Asphalt Material	Emulsified Asphalt	AASHTO M 140 or M 208 as applicable	1 per shipment	1 per shipment
702.05	Asphalt Material	Asphalt Materials used for Damproofing and Waterproofing Concrete Surfaces	As specified for each type of asphalt material	1 per shipment	-----
702.06	Recycling Agent	As specified	As applicable	1 per shipment	1 per shipment
702.08	Antistrip	As specified	As applicable	1 per shipment	-----
706	Concrete and Plastic Pipe	As specified	As applicable	1 per shipment	-----
707	Metal Pipe	Metal Pipe as specified	As applicable	1 per shipment	-----
708	Paint	As specified	As applicable	1 per batch\lot	1 sample for quantities >100L

Section	Description	Material	Material Property Or Specification	Frequency	
				Certification	Sample
709	Reinforcing Steel and Wire Rope	As specified	As applicable	1 per shipment	For 709.01 & 709.03 submit 3 1-meter bars of each size and grade of bar furnished. 709.02 submit 1 2-meter length for each size furnished
710	Fence and Guardrail	As specified	As applicable	1 per shipment	-----
711	Concrete Curing Material and Admixtures	As specified	As applicable	1 per material source per material type	-----
712	Joint Material (all)	As specified	As applicable	1 per shipment	-----
713	Roadside Improvement Materials (all)	As specified	As applicable	1 per shipment	-----
714	Geotextile and Geocomposite Drain	As specified	As applicable	1 per shipment	1 per project per type
715	Piling	As specified	As applicable	1 per shipment	-----
716	Material for Timber Structures	Timber and Hardware	As applicable	1 per shipment	-----
717	Structural Metal	As specified	As applicable	1 per shipment	717.01(e) minimum 6 per shipment for each size used. 717.10 1 per project
718	Traffic Signing and Marking (all)	As specified	As applicable	1 per shipment	-----
720	Structural Wall and Stabilized Materials (all)	As specified	As applicable	1 per shipment per material type	-----
721	Electrical and Illumination Material (all)	As specified	As applicable	1 per shipment per material type	-----
722	Anchor Material	As specified	As applicable	1 per shipment per material type	-----
725	Miscellaneous materials	As specified	As applicable	1 per shipment per material type	-----

Section 107. - LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

107.01 Laws to be Observed. Add the following:

Section 401 and 404 of the Clean Water Act.

The Federal Highway Administration has applied for the 404 Permit. We anticipate approval of the 404 Permit prior to bid opening. The 401 Permit will be issued simultaneously with the 404 Permit.

Comply with the terms and conditions of the 404 permit and with the terms and conditions, if any, specified in the 401 certification. Comply with the terms and conditions of any permits that are issued for the performance of work within the jurisdictional waters of the U.S.

For the rehabilitation portion of the project, the USACE has authorized the repair or rehabilitation of drainage structures or features under a separate nationwide permit. Construct all repair or rehabilitation work consistent with the terms and conditions of the USACE nationwide permit. A copy of the requirements for the nationwide permit will be provided prior to the start of construction.

National Pollutant Discharge Elimination System (NPDES)

(a) General. Implement the requirements of the National Pollutant Discharge Elimination System (NPDES) for erosion control due to storm water runoff during construction as specified under the Small Construction Storm Water General Permit, WYR10-A000, for Wyoming.

Comply with all of the requirements of the CGP. Develop a Storm Water Pollution Prevention Plan (SWPPP) describing the measures to be implemented at the construction site (including staging, storage, fueling and maintenance areas) that will eliminate or minimize pollutants in storm water runoff from the site and not cause a violation of water quality standards.

Designate the erosion control/water quality supervisor pursuant to Special Contract Requirement (SCR) 157.03 who will be responsible for implementing the SWPPP. The supervisor must be on-site during construction and can not be the project superintendent. The erosion control/water quality supervisor must be familiar with the CGP and the SWPPP procedures and practices to ensure that these are punctually updated in the SWPPP and available for inspection.

Obtain a separate NPDES permit associated with industrial activity for any mobile asphalt plant and/or concrete plant. Storm water discharge from these activities can be covered by this permit if the plants are dedicated only to this project, equipment is removed and the affected areas are reclaimed after construction, and there is no potential to discharge storm water to class 1 water.

Do not initiate land disturbing activities (clearing, grubbing, and earthwork) until the DEQ has provided written notice that coverage under the CGP is authorized and the SWPPP has been developed and implemented.

(b) Preparation of SWPPP. At least five weeks prior to beginning construction, provide a draft SWPPP to the CO for review/approval which includes the following information and forms:

- (1) The SWPPP Administrator's name or job title
- (2) Site description that includes the items listed in Part 7.2.2 of the CGP
- (3) Site map(s) that include the items listed in Part 7.2.3 of the CGP
- (4) A schedule of the expected sequencing of construction operations and implementation and maintenance of pollutant controls, including dust control
- (5) A narrative description of the best management practices (BMPs), which will be implemented for each major activity before, during, and after (post) construction, including permanent and temporary erosion and sediment controls. Phases of construction that must be addressed include, but are not limited to, clearing and grubbing for perimeter controls, remaining clearing and grubbing, grading, storm drain installation, final grading, stabilization, and removal of control measures
- (6) Erosion control details and quantities provided in the construction plans
- (7) A list of potential pollutants, other than sediment, that may be generated onsite
- (8) Controls for potential onsite pollutants other than sediment
- (9) Description of potential non-storm water discharges at the site
- (10) BMPs for construction site dewatering (removal of storm water)
- (11) Spill prevention, control, and countermeasures plan (see d below)
- (12) Weather monitoring procedure
- (13) Applicable specifications and special contract requirements (SCRs)
- (14) Maintenance and inspection schedule and inspection documentation form that includes the information in Part 9.1.6 of the CGP
- (15) Contractor and subcontractor certification forms
- (16) Other record keeping forms and procedures
- (17) "Good housekeeping" practices and requirements
- (18) Copy of the CGP
- (19) Copy of the NOI and letter of authorization from DEQ

Modify the erosion control details, layout sheets, and quantities included in the plans if necessary to address project site conditions and proposed construction operations and include them in the SWPPP.

Jointly review the draft SWPPP with the CO and agree to any needed revisions. Jointly approve and sign the revised SWPPP consistent with Part 10.7 of the CGP. When the SWPPP is approved and signed by the CO and Contractor, it will be the document in force on the project. Implement the SWPPP throughout the construction period. Update the SWPPP to comply with the CGP and ensure that it is effective in eliminating and minimizing pollutants in storm water runoff from the site.

Place the SWPPP and all updates in a three-ring binder so that completed inspection forms and other records may be inserted. Maintain a copy of the most current version of the SWPPP, including inspection records and other forms, at the active job site throughout the duration of the project. Make the SWPPP available for public inspection and for the inspection and use of the CO.

Maintain all related erosion controls in proper working order throughout construction.

Sign the certification form in the SWPPP acknowledging that the requirements of the CGP are understood. Ensure that all subcontractors are familiar with the requirements of the CGP and sign the certification form.

At the completion of the project, provide the CO with the SWPPP, including all of the inspection and other records.

(c) Erosion Controls. Implement soil erosion controls according to the SWPPP and Section 157. Install and maintain controls following the manufacturer's specifications/guidance and good engineering practices.

Implement temporary stabilization measures of exposed soil areas where further work is not expected to be implemented for 28 days or more.

Visible or measurable erosion/sediment which leaves the construction site as a result of inadequate or ineffective SWPPP design or maintenance of BMPs is prohibited.

(d) Controls for Other Pollutants. List the quantities of petroleum products and hazardous material used for this project in the SWPPP.

Implement controls to eliminate the discharge of pollutants (other than sediment) into storm water, such as pollutants from materials stored onsite. Describe the spill prevention and material management controls and practices, including storage methods for chemicals and construction materials in the SWPPP.

Describe the practices to be implemented that will provide adequate containment of petroleum spills and prevent any spilled material from entering waters of the state or municipal storm water systems. Also, include the practices that will be used for addressing a spill including the methods of handling and disposing of spilled products and contaminated soil. A spill prevention, control, and countermeasures plan is required if the volume of oil (including fuel) in a single location exceeds 1,320 gallons. The shell volume is the total of all containers with a capacity of 55 gallons or more.

Locate machinery servicing and refueling areas away from streambeds and washes to reduce the possibility of impacting these areas by accidental spills or discharge.

Describe the practice(s) that will be implemented to contain concrete wash water and prevent it from entering surface waters and/or storm drains. Do not discharge concrete wash water to waters of the state or to storm water systems.

Describe the BMPs to control storm water pollution from portable concrete or asphalt batch plants covered under this permit.

(e) “Good Housekeeping” Practices and Requirements. Specify the Contractor’s “good housekeeping” practices and requirements in the SWPPP. These include vehicle wash-down areas, methods for recovering sediments transported off of the construction site, onsite and offsite tracking control, protection of equipment storage and maintenance areas, and sweeping of highways and roadways related to hauling activities..

Take precautions and implement measures to prevent pollution of streams, lakes, reservoirs and other surface waters with litter, construction debris, fertilizers, fuels, oil, bitumens, calcium chloride, magnesium chloride, Portland cement, fresh Portland cement concrete, sanitary wastes, muddy water, chemicals or other harmful materials. Do not discharge these materials into channels leading to any stream, lake or reservoir.

Locate machinery servicing and refueling areas away from streambeds and washes to reduce the possibility and minimize the impacts of accidental spills or discharge.

Remove non-waste materials such as used cans, oils, machine and equipment parts, paint, hazardous materials, plastic and rubber parts, discarded metals, and building materials from the construction site and dispose of at an approved landfill.

Where the Contractor’s working area encroaches on a running or intermittent stream, construct and maintain adequate barriers to prevent the discharge of any contaminants into the stream.

Do not operate mechanical equipment in running streams unless approved in writing by the CO.

(f) Inspections and Maintenance. During construction, inspect disturbed areas and storm water outfalls to assess if measurable quantities of sediment or other pollutants are being transported offsite, control measures, areas used for storage of materials and locations where vehicles enter or exit the site, at least once every 14 calendar days and within 24 hours after the end of a storm or snow melt event of greater than 0.5 inches. During seasonal shutdowns inspect the site at least once per month. Inspections are not required in severe weather conditions or during winter when melting conditions do not exist. Monitor rainfall with a rain gauge accurate to the nearest 0.125 inches of rain. Correct deficiencies in pollution control structures or procedures immediately. Summarize and record the measures taken to correct the deficiencies in the SWPPP.

Document inspections and maintenance activities on forms that include the information provided in Part 9.1.6 of the CGP. Sign inspection forms consistent with Part 10.7 of the CGP. Keep the inspection forms and record of maintenance activities in the SWPPP notebook throughout the construction period.

(g) Revisions to the SWPPP. Revisions to the SWPPP may be necessary during construction to make improvements or to respond to unforeseen conditions noted during construction or site inspections. For that purpose, specify in the SWPPP the mechanism whereby revisions may be proposed by the Contractor or the CO and incorporated into the plan, including review and approval of minor changes. Jointly approve and sign each revision to the SWPPP before implementation. Modify the plan whenever there is a change in design, construction, operation,

or maintenance that changes the potential for the discharge of pollutants into state waters. Modify the plan if it is ineffective in eliminating or minimizing pollutants present in storm water. Implement approved modifications immediately after deficiencies are noted.

(h) Dewatering. Construction site dewatering under this permit is limited to storm water and minor amounts of ground water. The latter is defined in Part 8.8 of the CGP.

Implement treatment(s) for turbid and sediment-laden water and discharge BMPs so that the discharge does not violate water quality standards, cause erosion and scouring at the discharge point or adversely affect downstream landowners. Describe the treatments/BMPs that will be used to meet these requirements in the SWPPP.

(i) Notice of Intent (NOI). An NOI will be submitted to DEQ by the government. If this project disturbs more than 100 acres or if there is a potential to discharge storm water to a class 1 surface water, the approved SWPPP must be submitted to DEQ. Provide a copy of the approved SWPPP to the CO for transmittal to DEQ at least 35 days prior to the beginning construction. (The SWPPP must be received by DEQ at least 30 days prior to initiating construction.)

Do not begin construction until DEQ has provided the government with an authorization letter.

Post a copy of the NOI and the DEQ authorization letter at the project site bulletin board and include a copy in the SWPPP.

107.02 Protection and Restoration of Property and Landscape. Delete the sixth paragraph and substitute the following:

Minimize disturbance and protect stream bank vegetation except where its removal is absolutely necessary for completion of the work. Dispose of any vegetation, debris, or other material removed during construction at some location out of the stream channel or adjacent wetland areas where it cannot re-enter the channel during high stream flow or runoff events. Clear all areas to be filled of all vegetation debris and other materials that would be objectionable to the fill. Place, compact, and subsequently protect all fill areas from erosion.

Restore all temporarily impacted wetlands to original condition and grade immediately following construction.

The Beartooth Highway Rehabilitation and Reconstruction project is in a location that contains natural resources that must be avoided at all times, such as wetlands, fens, and FS species of concern. Construction activities outside of the clearing limits for any reason are not allowed without approval from the CO. Allow a minimum of two weeks for amendment of the SUP for work outside the construction limits. Impacts that result from unauthorized construction activities outside of the construction limits, and any remediation, fines, or other costs or punishment according to federal and state law associated with those impacts are the responsibility of the Contractor.

Stop construction immediately and notify the CO if historic properties, including but not limited to artifacts and human remains, are discovered during implementation of the proposed construction or if unanticipated effects on previously identified historic properties occur.

107.03 Bulletin Board. Add the following:

(g) “Beck” poster, according to FAR Clause 52.222-39 Notification of Employee Rights Concerning Payment of Union Dues or Fees.

107.10 Environmental Protection. Delete the text and substitute the following:

(a) Spills of Petroleum Products or Hazardous Materials. Properly clean up, mitigate, and remedy, if necessary, all spills of petroleum products, hazardous materials, or other chemical or biological products released from construction, fleet, or other support vehicles, or stationary sources. Respond in accordance with federal, state, and local regulations.

Immediately report to the CO any spill of petroleum products or a hazardous material. Report the spill to the appropriate federal, state, and local authorities, if the spill is a reportable quantity.

Remove any petroleum-contaminated soils encountered during construction and transport it off-site to a solid waste landfill in accordance with the Wyoming DEQ solid waste guideline on the management of petroleum-contaminated soils.

(b) Water pollution. Do not operate mechanized equipment or discharge or otherwise place any material within the wetted perimeter of any waters of the U.S. within the scope of the Clean Water Act (33 USC § 1251 et seq.). This includes wetlands unless authorized by a permit issued by the U.S. Army Corps of Engineers according to 33 USC § 1344, and, if required, by any State agency having jurisdiction over the discharge of material into the waters of the U.S. In the event of an unauthorized discharge:

- (1) Immediately prevent further contamination;
- (2) Immediately notify appropriate authorities; and
- (3) Mitigate damages as required.

Comply with the terms and conditions of any permits that are issued for the performance of work within the wetted perimeter of the waters of the U.S.

Separate work areas, including material sources, by the use of a dike or other suitable barrier that prevents sediment, petroleum products, chemicals, or other liquid or solid material from entering the waters of the U.S. Use care in constructing and removing the barriers to avoid any discharge of material into, or the siltation of, the water. Remove and properly dispose of the sediment or other material collected by the barrier.

(c) Vehicles and equipment. All vehicles and equipment entering the project area must be clean of noxious weeds and free from oil leaks and are subject to inspection. Pressure wash all construction equipment to thoroughly remove all dirt, plant, and other foreign material prior to entering the project. Particular attention must be shown to the under carriage and any surface where soil containing noxious weed seeds may exist. Cover (tarp) all trucks and trailers entering the project area when loaded. These efforts are critical to prevent the introduction and establishment of non-native plant species into the project area. Make arrangements for the CO and Contractor to inspect each piece of equipment before entering the project. The CO will maintain records of inspections. Equipment found operating on the project that has not been inspected, or has oil leaks will be shut down and subject to citation.

In general, when gasoline, diesel fuel, antifreeze, hydraulic fluid or any other chemical contained within the vehicle is released to the pavement or ground, proper corrective, clean-up, and safety actions specified in the SWPPP must be immediately implemented. All vehicles with load rating of 2 tons or greater should carry, at minimum, enough absorbent materials to effectively immobilize the total volume of fluids contained within the vehicle.

Repair oil leaks immediately on discovery. Do not use equipment that is leaking. Have oil pans and absorbent material in place prior to beginning repair work. Have the “on scene” capability of catching and absorbing leaks or spillages of petroleum products including antifreeze from breakdowns or repair actions with approved absorbent materials. Keep a supply of acceptable absorbent materials at the job site in the event of spills, as defined in the SWPPP. Sand or soil are not approved absorbent materials.

Use oil pans and absorbent materials to prevent leaks, spills and draining petroleum fluids from falling onto bare ground and paved surfaces during servicing of equipment. Dig up soils contaminated with such fluids, place in appropriate safety containers, and dispose of according to state and/or federal regulations.

(d) Environmental Clearances.

(1) Contractor-Selected, Non-Commercial Areas. Contractor-selected, non-commercial areas include, but are not limited to, material sources, disposal sites, waste areas, haul roads, and staging areas. (A commercial source is a current operating concern, which has in the recent past provided same-type materials or services). These requirements do not apply for areas identified by the FHWA as having previously received clearance.

Prior to construction activities in Contractor-selected, non-commercial areas, provide the following to the CO and the FHWA Environmental Section (12300 West Dakota Avenue, Lakewood, CO 80228/Fax 720-963-3610):

(a) A report with documentation, according to the Secretary of the Interior’s Standards and Guidelines for Archeology and Historic Preservation, to determine if prehistoric or historic buildings, structures, sites, objects, or districts listed or eligible for listing in the National Register of Historic Places (NRHP) are present and if they will be affected by the proposed activity. Include information identifying the location, total land area, and

type of activity proposed. The FHWA will review this documentation. The FHWA will coordinate with the State Historic Preservation Officer (SHPO) and other parties, which will require the following time frames:

- (1) Coordination on a “no effect” determination may require 30 days or longer.
- (2) Coordination on eligibility and affects may require 45 days or longer.
- (3) Coordination on mitigation of adverse effects may require 60 days or longer.

(b) Written documentation that such activities will not affect any “Waters of the U.S.” as defined by the U.S. Army Corps of Engineers. Provide documentation by an individual capable of performing wetland delineations according to the 1987 Corps of Engineers’ manual. Documentation of effects to wetlands or other Waters of the U.S. will be submitted to the CO and to the FHWA Environmental section. If wetlands are affected, coordination with the Corps of Engineers may require 45 days or longer.

(c) Written documentation that such activities will not affect any species protected under the Endangered Species Act (ESA). Provide documentation prepared by a biological specialist. The written documentation will include a “no effect,” a “may affect-is not likely to adversely affect,” or a “may affect-is likely to adversely affect,” determination according to Section 7 of the Endangered Species Act. Submit the documentation to the CO and the FHWA Environmental Section. If the determination is “may affect-is not likely to adversely affect” or “may affect-is likely to adversely affect,” the FHWA will coordinate with the U.S. Fish and Wildlife Service (FWS), which will require the following time frames:

- (1) “May affect-is not likely to adversely affect” may require 45 days or longer.
- (2) “May affect-is likely to adversely affect” may require 150 days or longer.

Contract time will not be increased due to the submittal and approval process for the above three items.

(e) Environmental commitments. The Federal Highway Administration CO, in cooperation with the Shoshone National Forest and Yellowstone National Park will oversee the construction of the project to ensure all environmental commitments detailed in the plans and special contract requirements are met. Provide immediate corrective measures as directed by the CO when notification is given that the work is out of compliance.

Environmental and safety awareness training materials will be provided by the FHWA and Shoshone National Forest prior to construction for all construction employees working on-site. This training is mandatory and will be provided in the following form:

- (1) Working in Bear Country DVD (22 minutes in length)
- (2) Staying Safe in Bear Country DVD (48 minutes in length)
- (3) General Environmental Requirements (Checklist)
- (4) Grizzly Bear Requirements (Checklist)

The Environmental Responsibilities Checklist (Checklist) is contained in the Appendix to these SCRs. Provide each employee and sub-contractor employee with a copy of the DVDs and Checklist and submit written proof to the CO that each employee has viewed the DVDs and read and understands the Checklist. Provide all new employees with the complete environmental training prior to their presence on the project site. No employee will be allowed on the project site until completion of the environmental training and understanding of the environmental commitments.

If off-site aggregate sources are required, use only certified weed free materials sources as approved by the CO.

Comply with Forest Service regulations and the environmental checklist in the conduct of all activities. All Contractor and sub-contractor employees will be required to complete the environmental training that includes grizzly bear awareness information. The Contractor's full cooperation in meeting the grizzly bear management goals and objectives of the USFS will be a condition to receiving authorization to continue to operate pursuant to the SUP.

Report all grizzly bear sightings to the CO immediately who will in turn report to the Forest Officer in charge and the Wyoming Game and Fish Department.

In the event of a human/bear conflict, or in order to prevent an imminent potential conflict, the CO may order an immediate temporary cessation of all project activity in the immediate area of the conflict or potential conflict. Comply with such action immediately. The cessation will remain in effect until such time as the appropriate authorities have been contacted and any risk to humans and bears has been successfully resolved in accordance with Interagency Grizzly Bear Guidelines.

Report all road kill on or near the road to the CO immediately.

107.11 Protection of Forests, Parks, and Public Lands. Add the following:

The following Forest Service fire prevention plan involving emergency curtailment of operations is in effect on this project. The CO will order the suspension of burning and other operations when directed to do so by the Forest Service. No adjustment in the contract completion date will be made for partial or total suspensions of burning operations. The Forest Service phone number is 1-800-295-9954.

Fire Precautions.

1. Smoking and Lunch Fires. Smoking is prohibited except inside a building, developed recreation site, vehicle, or while seated in an area of at least three feet in diameter that is barren or cleared of all flammable materials.

The building of camp, lunch, warming and other fires within the construction limits and vicinity is prohibited, except at the Fox Creek Work Camp.

2. Spark Arrester and Mufflers. Operating or using any internal combustion engine, on any timber, brush, or grass covered land, including trails and roads traversing such land, without a spark arrester, maintained in effective working order, meeting either (I) Department of Agriculture, Forest Service standard 5100, "SPARK ARRESTERS FOR INTERNAL COMBUSTION ENGINES," (current edition); or (II) the Society of Automotive Engineers (SAE) recommended Practices J335, "MULTIPOSITION SMALL ENGINE EXHAUST SYSTEM FIRE IGNITION SUPPRESSION," (current revision) and J350, 36 CFR 261.52(j), is prohibited.

Equip passenger carrying vehicles, pickups, medium and large highway trucks (80,000 GVW) with a factory designed muffler system which is specified for the make and model of the respective vehicle/truck or with a muffler system that is equivalent or that exceeds factory specifications.

Properly install and continually maintain in serviceable condition exhaust systems.

3. Fire Extinguishers and Tools on Equipment. While in use, provide each internal combustion engine including tractors, trucks, yarders, loaders, welders, generators, stationary engines, or comparable powered equipment with at least the following:
 - (a) One fire extinguisher, at least 5#ABC with an Underwriters Laboratory (UL) rating of 3A - 40BC, or greater.
 - (b) One shovel, sharp, size O or larger, round-pointed with an overall length of at least 48 inches.
 - (c) One axe, sharp, double bit 3-1/2#, or one sharp pulaski.

Mount extinguishers, shovels, axes, and pulaskis so as to be readily available from the ground. Maintain tools in a serviceable condition.

4. Power Saws. Provide each gasoline engine power saw with one chemical-pressurized fire extinguisher of not less than 8-ounce capacity by weight, and one size O or larger, round-pointed shovel with an overall length of at least 48 inches. Maintain the extinguisher, and shovel in good working order. Make immediately available for use at all times extinguisher and power saw operator. Do not affix the extinguisher to the saw. Make a shovel readily available to the operator of the saw at all times. Having the shovel with the gas can used to refuel the saw may be considered "readily available" if not more than 200 feet from the saw. During periods of critical fire danger, Forest Service may prescribe other precautionary measures.

Any fueling or refueling of a power saw must be done in an area which has first been cleared of material which will carry fire. Move the power saw at least 10 feet from the place of fueling or refueling before starting.

5. Blasting and Welding. The use of fuses in blasting is not permitted except near power lines where the danger of accidental detonation is present, and then only by special written permission of Forest Service. Whenever the relative humidity falls below 50 percent, place a watchman at each point where blasting is done who will remain on duty for at least one hour after blasting is finished, and who will be equipped with a shovel and a water-filled backpack can equipped with hand pump. Discontinue blasting during periods when the relative humidity falls below 20 percent, unless authorized, with special provisions, in writing by Forest Service. Blasting is not permitted in any area not cleared to mineral soil without advance written approval of Forest Service and with such special precautions as may be required.

Do not use Prima Cord in clearing operations, and in other areas where timber has been felled and slash not burned.

Unless otherwise directed in writing by Forest Service, clear for 10 feet around any piece of equipment being welded all flammable material. In addition, provide a fire extinguisher of a size and type designed to extinguish a fire in the flammable materials surrounding the spot being welded.

In order to determine the relative humidity, (a) provide and maintain weather instruments, that will measure relative humidity, in the area where blasting will occur; or (b) provide communications to obtain weather data from Forest Service.

Store explosives in a locked box marked "Explosives" at all times. Store powder and blasting caps in separate boxes.

6. Storage of Flammables. Store gasoline, oil, grease and other highly flammable material in either a separate building, or at a site where all debris is cleared within a radius of 25 feet. Locate storage buildings or sites a minimum distance of 50 feet from other structures. Adequately post storage buildings to warn of the flammables and to prohibit smoking in or around the building.
7. Camp Fire Protection. Keep the grounds around all trailers, buildings, other facilities constructed or placed on or near the clearing limits free of flammable material for a distance of at least 20 feet from the wall of such structure. Burning of such flammable material must be as prescribed by Forest Service in writing.

Equip stovepipes of all wood burning stoves with suitable roof jacks and serviceable spark arresters. Locate stovepipes no closer than 2 feet from any wood or other flammables unless adequately protected by metal or asbestos shield.

Section 108. - PROSECUTION AND PROGRESS**108.01 Commencement, Prosecution, and Completion of the Work: Add the following:**

The construction season is from approximately Memorial Day weekend through October 15, weather permitting. There are two shoulder seasons. The first shoulder season is from approximately April to Memorial Day; the second shoulder season is from mid-October to mid-November.

The Beartooth Highway is not plowed by the Yellowstone National Park Maintenance or opened to traffic until Memorial Day. Plowing of the highway prior to Memorial Day is allowed to gain access to the project site at the Contractor's option. Coordinate the snow removal operations with the NPS Maintenance staff and use existing closure gates or place road closed signs and barricades as directed by the CO to prohibit public access.

The Yellowstone National Park performs seasonal maintenance activities along the Beartooth Highway from Cooke City via Coulter Pass to the Long Lake gate. These seasonal activities are scheduled for completion on 11/01/09 and 11/07/10. Adjust work schedules to comply with these dates. Coordinate with Yellowstone National Park prior to these dates according to Section 156.05.

The Yellowstone National Park Maintenance forces will remove the existing snowpoles two weeks prior to construction. The CO will coordinate this operation.

Ensure the private in-holding, located south of the Ghost Creek Materials source, has access at all times during the course of the project.

Limit operations as follows:

- Road closures are allowed between 8:00 pm and 8:00 am Monday through Thursday nights.
- No road closures are allowed between 8:00 am Friday morning to 8:00 am Monday morning. Limit other delays according to Section 156.
- Submit a safety plan describing lighting conditions and safety precautions for each location of night time work. Do not begin a night time work activity until the plan has been approved by the CO. Once the work is underway, the CO may order additional lighting or safety precautions at no additional cost to the Government.
- The right to work at night is contingent upon the Contractor's ability to provide a safe work environment and perform work which satisfies the contract requirements. The right to work at night may be rescinded for any work activity if the CO determines that safety or quality problems are a result of working in night time conditions.
- No night time closures or night work are allowed from midnight to 6:00 am September 1 through winter shutdown.
- Limit night time noise construction activities as directed by the CO. The use of exhaust brakes (Jake brakes) will not be permitted.

- Island Lake and Beartooth Lake Campgrounds and the Top of the World Store will remain open to public use with night time access. Provide local access to Beartooth Lake Campground, Island Lake Campground and the Top of the World Store during night closures. Cease all operations immediately if emergency ingress/egress is required at these locations.
- No blasting is permitted from September 1 through winter shutdown at the Ghost Creek materials source.
- Pre-work meetings have been established to provide coordination between the CO and the contractor.
- At the pre-construction meeting, initial training materials will be distributed for the environmental requirements required on the project according to Section 107.10 (e).
- Notify the CO two weeks prior to beginning blasting operations.
- Do not leave pulverized roadway unpaved for more that 21 days unless approved by the CO.

Perform no work except to maintain traffic control devices, erosion control devices, the roadway driving surface, and to control dust during the listed Federal holidays and surrounding days:

- Memorial Day Weekend: 12:00 Noon Friday to 6:00 am Tuesday.
- Independence Day: 12:00 Noon July 3 to 6:00 am July 5.
If July 4 falls on a weekend, Friday, or Monday, do not work the weekend.
- Labor Day Weekend: 12:00 Noon Friday to 6:00 am Tuesday.

Schedule at least 2 non-work days out of every 14 calendar days. The selected non-work days do not need to be consecutive, but they must be scheduled. Provide at least 2 weeks notice before changing the scheduled days off.

Exemptions to scheduled days off may be granted by written approval from the CO for specific project operations and/or for periods of limited duration.

Completion Dates: The completion date for Schedule A is September 1, 2009. If Option X is awarded, add 7 calendar days to the completion date. If Option Y is awarded, add 14 calendar days to the completion date. If Option Z is awarded, add 14 calendar days to the completion date.

Add the following:

A Notice to Proceed must be issued before commencement of any work.

Section 109. - MEASUREMENT AND PAYMENT**109.06 Pricing of Adjustments** Add the following:**ASPHALT CEMENT PRICE ADJUSTMENT PROVISION**

GENERAL The Asphalt Cement Price Adjustment Provision contained herein provides for a price adjustment in the form of payment to the Contractor or a rebate to the Government for fluctuations in the cost of asphalt cement consumed in the performance of applicable construction work for *Beartooth Highway*. The price adjustment provisions are applicable only to the asphalt cement, as defined in Section 702.01, and incorporated in the following eligible contract pay items:

- 40101 Superpave pavement

The price adjustment provisions are also applicable to these eligible pay items when the Government adds extra work to the Contract.

The provision will remain in effect throughout the duration of the contract. Enactment of the Asphalt Cement Price Adjustment Provision will only be considered when the **increase or decrease** in the price of asphalt cement as defined herein exceeds 10 percent.

The Asphalt Cement Price Adjustment Provision is intended to reduce but not eliminate the cost effects of price uncertainty to the Contractor and the Government for asphalt cement used in the construction of this contract. It provides for sharing by the Government in a portion of the Contractor's risk, which could result from unusual price fluctuations. The provision is not intended to compensate the Contractor for normal day-to-day fluctuations and seasonal changes or to serve as a guarantee of full compensation for asphalt cement price fluctuations.

PRICE INDEXES The Government will post a monthly performance price index at www.cflhd.gov/procurement/construction/price-indexes/ for asphalt cement using price data obtained from Poten and Partners, Inc. (PPI), which publishes a weekly report (Asphalt Weekly Monitor) on high and low selling prices for states in five regions throughout the United States including the East Coast/Northeast, the Mid-Continent/Midwest, the Gulf Coast/Mid South, the Rocky Mountains and the West Coast/Northwest. Weekly high and low selling price data reported for Rocky Mountains – Wyoming and Montana will be averaged and used to establish a base price index, BPI, for this project and a monthly performance price index, MPPI, for the duration of the contract. These indexes are defined as follows:

- **BASE PRICE INDEX** The base price index, BPI, is the price index posted by the Government as determined by arithmetic average, as specified above, shown in the four weekly publications immediately preceding the bid opening. The calculated BPI will be applicable to both Schedule A and all options included in the contract. It is as follows:

BASE PRICE INDEX (BPI) FOR ASPHALT CEMENT
PER SHORT TON (TON) OR PER METRIC TON = \$ _____

- **MONTHLY PERFORMANCE PRICE INDEX** The monthly performance price index, MPPI, is the monthly price index at the time of performance of applicable work as determined by arithmetic average, as specified above, shown in the four weekly publications issued prior to the last Wednesday of the month (i.e. the monthly performance price index during which asphalt cement is used in the performance of applicable construction work).

PRICE ADJUSTMENTS Price adjustments are calculated by the Government for average conditions and are not intended to reflect the Contractor's actual purchase price. The ratio of the monthly performance price index and the base price index (MPPI/BPI) is calculated and used to determine price adjustments as follows:

- **No Price Adjustment** – When the ratio MPPI/BPI falls within the range of 0.90 to 1.10, no price adjustment will be made for any asphalt cement used in construction work performed during the relevant month.
- **Government Rebate** – When the ratio MPPI/BPI is calculated to be less than 0.90, the Government is due a rebate determined in accordance with the following formula:

$$\text{Government Rebate} = [0.90 - (\text{MPPI/BPI})] (\text{BPI}) (\text{Q})$$

- **Contractor Payment** - When the ratio MPPI/BPI is calculated to be greater than 1.10, the Contractor is due additional payment determined in accordance with the following formula:

$$\text{Contractor Payment} = [(\text{MPPI/BPI}) - 1.10] (\text{BPI}) (\text{Q})$$

The following definitions are applicable to both the Government Rebate and the Contractor Payment formulas:

MPPI = Monthly Performance Price Index for the month during which asphalt cement is used in the performance of applicable construction work.

BPI = Base Price Index that is established immediately preceding the bid opening.

Q = Quantity in metric tons of asphalt cement for eligible pay items that were used on the project during the progress payment period. The quantity will be calculated using the asphalt content of the approved mix design and the following formula:

$$Q = \text{Asphalt Concrete Pavement metric tons placed} \times (\% \text{ Asphalt}/100)$$

PRICE ADJUSTMENT COMPENSATION Monthly adjustments will be accrued. The final price adjustment will be paid, or rebated, after completion of all work for eligible pay items. The Contractor may request in writing a partial price adjustment payment once every 12 months, or when the unpaid accrued increase exceeds \$10,000. The Government will take a rebate when the deductive accrual exceeds \$10,000.

No price adjustments will be made for work performed beyond the Government-approved Contract completion date.

The maximum allowable monthly and final price adjustment to the Contractor or rebate to the Government is limited to a (MPPI/BPI) ratio of 1.6 and 0.4, respectively.

FUEL PRICE ADJUSTMENT PROVISION

GENERAL The Fuel Price Adjustment Provision contained herein provides for a price adjustment in the form of payment to the Contractor or a rebate to the Government for fluctuations in the cost of ultra low sulfur No. 2 diesel fuel consumed in the performance of applicable construction work for *Beartooth Highway*. The price adjustment provisions are applicable only to contract items listed as eligible pay items in Table 1 below, if gasoline and/or diesel are used as the primary fuel in the production of the affected items. The price adjustment provisions are also applicable to these eligible pay items when the Government adds extra work to the Contract.

The provision will remain in effect throughout the duration of the contract. Enactment of the Fuel Price Adjustment Provision will only be considered when the **increase or decrease** in the price of motor fuel as defined herein exceeds 10 percent.

The Fuel Price Adjustment Provision is intended to reduce but not eliminate the cost effects of price uncertainty to the Contractor and the Government for motor fuel used in the construction of this contract. It provides for sharing by the Government in a portion of the Contractor's risk, which could result from unusual price fluctuations. The provision is not intended to compensate the Contractor for normal day-to-day fluctuations and seasonal changes or to serve as a guarantee of full compensation for motor fuel price fluctuations

PRICE INDEXES The Government will post a monthly performance price index at www.cflhd.gov/procurement/construction/price-indexes/ for Gross Ultra Low Sulfur, No. 2 Diesel Fuel using price data obtained from the Oil Price Information Service (OPIS), which publishes a weekly report on gasoline and distillate reseller prices for major cities throughout the United States. The OPIS 5-Day Newsletter average rack price reported to for the Rack City of Billings, MT will be averaged and used to establish a base price index, BPI, for this project and a monthly performance price index, MPPI, for the duration of the contract. These indexes are defined as follows:

- **BASE PRICE INDEX** The base price index, BPI, is the price index posted by the Government as determined by arithmetic average, as specified above, shown in the four weekly publications immediately preceding the bid opening. It is as follows:

BASE PRICE INDEX (BPI) FOR ULTRA LOW SULFUR, NO. 2 DIESEL FUEL
PER GALLON = \$ _____

- **MONTHLY PERFORMANCE PRICE INDEX** The monthly performance price index, MPPI, is the monthly price index at the time of performance of applicable work as determined by arithmetic average, as specified above, shown in the four weekly publications issued prior to the last Wednesday of the month (i.e. the monthly performance price index during which motor fuel is consumed in the performance of applicable construction work).

PRICE ADJUSTMENTS Price adjustments are calculated by the Government for average conditions and are not intended to reflect the Contractor's actual purchase price. The ratio of the monthly performance price index and the base price index (MPPI/BPI) is calculated and used to determine price adjustments for eligible pay items as follows:

- **No Price Adjustment** – When the ratio MPPI/BPI falls within the range of 0.90 to 1.10, no price adjustment will be made for any motor fuel consumed in construction work performed during the relevant month.
- **Government Rebate** – When the ratio MPPI/BPI is calculated to be less than 0.90, the Government is due a rebate determined in accordance with the following formula:

$$\text{Government Rebate} = [0.90 - (\text{MPPI/BPI})] (\text{BPI}) (\text{Q}) (\text{FUF})$$

- **Contractor Payment** - When the ratio MPPI/BPI is calculated to be greater than 1.10, the Contractor is due additional payment determined in accordance with the following formula:

$$\text{Contractor Payment} = [(\text{MPPI/BPI}) - 1.10] (\text{BPI}) (\text{Q}) (\text{FUF})$$

The following definitions are applicable to both the Government Rebate and the Contractor Payment formulas:

- MPPI = Monthly Performance Price Index for the month during which motor fuel is consumed in the performance of applicable construction work.
- BPI = Base Price Index that is established immediately preceding the bid opening.
- Q = Quantity of work on the project during the progress payment period for eligible pay items shown in Table 1 below. The Government, to agree with the units associated with the applicable Fuel Usage Factor, will convert work quantities, as necessary.
- FUF = Fuel Usage Factor shown in Table 1 below applicable to both diesel and gasoline.

Table 1 – Eligible Pay Items For Price Adjustments and Associated Fuel Usage Factors		
Eligible Pay Items	Fuel Usage Factor U.S. Customary Units	Fuel Usage Factor Metric Units
Earthwork:		
Section 204 – Excavation and Embankment 20402 Subexcavation	0.30 gallons per cubic yard	0.39 gallons per cubic meter
Aggregate Courses:		
Section 308 – Minor Crushed Aggregate 30801 Minor crushed aggregate	0.70 gallons per ton	0.77 gallons per metric ton
Asphalt Pavements:		
Section 401 – Superpave Hot Asphalt Concrete Pavement 40101 Superpave pavement	2.40 gallons per ton	2.65 gallons per metric ton
* The Government, to agree with the units associated with the applicable Fuel Usage Factor, will convert work quantities, as necessary.		

PRICE ADJUSTMENT COMPENSATION Monthly adjustments will be accrued. The final price adjustment will be paid, or rebated, after completion of all work for eligible pay items. The Contractor may request in writing a partial price adjustment payment once every 12 months, or when the unpaid accrued increase exceed \$10,000. The Government will take a rebate when the deductive accrual exceeds \$10,000.

No price adjustments will be made for work performed beyond the Government-approved Contract completion date.

The maximum allowable monthly and final price adjustment to the Contractor or rebate to the Government is limited to a (MPPI/BPI) ratio of 1.6 and 0.4, respectively.

109.08 Progress Payments.

(b) Closing date and invoice submittal date. Delete the last sentence and substitute the following:

Submit invoices to the designated billing office by the 7th day after the closing date. Invoices received by the designated billing office after the 16th day following the closing date will not be accepted for payment processing that month. Include late, unprocessed invoice submittals in the following month's invoice.

(e) Processing progress payment requests.

(1) Proper invoices. Delete the title and text and substitute the following:

(1) Invoices received by the 7th day following the closing date.

(a) Proper invoices. If the invoice meets the requirements of Subsection 109.08(c), and the quantities and unit prices shown on the Contractor's invoice agree with the corresponding quantities and unit prices shown on the Government's receiving report, the invoice will be paid.

(b) Defective invoices. If the invoice does not meet the requirements of Subsection 109.08(c), or if any of the quantities or unit prices shown on the Contractor's invoice exceed the corresponding quantities and unit prices shown on the Government's receiving report, the invoice will be deemed defective and the Contractor so notified according to FAR Clause 52.232-27(a)(2). Defective invoices will not be corrected by the Government and will be returned to the Contractor within 7 days after the Government's designated billing office receives the invoice.

Revise and resubmit returned invoices by the 18th day following the closing date. The CO will evaluate the revised invoice. If the invoice still does not meet the requirements of Subsection 109.08(c), the Contractor will be so notified according to FAR Clause 52.232-27(a)(2), and no progress payment will be made that month. Correct the deficiencies and resubmit the invoice the following month.

If the revised invoice meets the requirements of Subsection 109.08(c), but still had quantities or unit prices exceeding the corresponding quantities and unit prices shown on the Government's receiving report, the Government's data for that item or work will be used. The Contractor's invoice, as revised by the Government's receiving report, will be forwarded for processing by the 23rd day following the closing date. The Contractor will be notified by the 23rd day following the closing date of the reasons for any changes to the invoice.

(2) Defective invoices. Delete the title and text and substitute the following:

(2) Invoices received between the 8th and 16th day following the closing date.

(a) Proper invoices. If the invoice meets the requirements of Subsection 109.08(d), and the quantities and unit prices shown on the Contractor's invoice agree with the corresponding quantities and unit prices shown on the CO's receiving report, the invoice will be deemed proper and forwarded for processing within 7 days of receipt.

(b) Defective invoices. If the invoice does not meet the requirements of Subsection 109.08(d), the invoice will be deemed defective, the Contractor so notified according to FAR Clause 52.232-27(a)(2), and no progress payment will be made that month. Correct the deficiencies and resubmit the invoice the following month.

If the invoice meets the requirements of Subsection 109.08(d), but has quantities or unit prices exceeding the corresponding quantities and unit prices shown on the Government's receiving report, the Government's data for that item of work will be used. The Contractor's invoice, as revised by the Government's receiving report, will be forwarded for processing within 7 days of the Government's receipt of the invoice. The Contractor will be notified of the reasons for any changes to the invoice.

(f) Partial payments. Add the following after the first paragraph:

Partial payments for stockpiled manufactured material (aggregates) will be based on Contractor process control test results. If test results show the material to be out-of-specification, or in "reject" where statistical evaluation procedures are used, no payment for stockpiled materials will be made.

Section 152. - CONSTRUCTION SURVEY AND STAKING

Construction Requirements

152.02 General. Delete the first paragraph and substitute the following:

The Government will provide files for downloading 3D data. Following is the information that will be provided electronically:

- 3D coordinates of control points.

The Government will perform the following:

- Establish basic survey control points for vertical and horizontal control of the project.

Add the following:

Furnish a practicable schedule of staking activities with the construction schedule submitted according to Section 155. Include the dates and sequence of staking requirements.

152.03 Survey and Staking Requirements.

(e) Centerline reestablishment. Delete the text and substitute the following:

Reestablish centerline from instrument control points as necessary to construct the work. The CO may require the reestablishment of centerline, at no cost to the government, when construction survey and staking work does not meet the tolerances stated in Table 152-1.

Reestablishment of centerline may be ordered by the CO and paid for under Section 623 for purposes other than to control the work.

(g) Culverts. Delete the first paragraph and substitute the following:

Verify, in the field, the approximate location of each individual culvert with the CO prior to surveying, designing, and staking culverts. Use the “Guide for Designing and Staking Culvert in the Field”, dated January 9, 1996, issued by the U.S. Department of Transportation, Central Federal Lands Highway Division, Lakewood, CO, as a guide to the work in this section.

Perform the following:

(4) Add the following:

(a) For single skewed culverts, also submit a plotted field design cross-section, normal to roadway centerline, at each end section. Plot the offset and elevation of natural ground at the end section and at all proposed template break points between centerline and the end section. Ensure the template design embankment slope is not exceeded.

(b) For multiple skewed culverts, also submit a plotted field design cross-section, normal to roadway centerline, at the end sections (left and right) nearest to the shoulder. Plot the offset and elevation of natural ground at the end section and at all proposed template break points between centerline and the end section. Ensure the template design embankment slope is not exceeded.

(5) Add the following:

Plot at a scale of 1:100.

Add the following:

(8) When the field design has been approved, set culvert survey stakes, reference stakes, and stake inlet and outlet ditches to make the culvert, including end treatments (e.g., drop inlets) functional.

(9) Adjust slope stakes to provide for catch basins (and transitions into and out of catch basins) which correspond to the final culvert location and design. If the culvert was moved from location shown in the plans, review the slope stakes in the vicinity of the plan location and adjust the slope stakes to remove the planned catch basin.

(l) Miscellaneous survey and staking. Delete the text and substitute the following:

Perform all surveying, staking, recording of data, and calculations necessary for establishing the layout, control, and measurement required to construct the project. Perform the work in such a manner as to ensure the contract work is constructed in the proper location and to the required tolerances. Where staking increments are not identified, propose appropriate staking increments to the CO for acceptance.

Add the following:

(m) Centerline staking.

Establish a best fit centerline to control the work using using reference stationing shown in the plans as a guide as well as landmarks and control points. Prior to disturbing the existing road surface, measure the existing surface width and cross-slopes along existing roadway centerline, at changes in the roadway template, at the beginning and ending of superelevation transitions and runoff, in the middle of the superelevated section. Record existing centerline and edge striping information to reestablish permanent striping. Record and stake information on stakes at 10 meters when the centerline curve radius is less than or equal to 75 meters and at 20 meters when the centerline curve radius is greater than 75 meters. Please stakes at 40 meter stationing intervals on tangent. Use white spray paint to mark each location. At each location, each side of the roadway and outside the construction limits, place an offset stake of adequate dimensions to place all required information. Label each stake with the following information corresponding to each respective lane:

- (1) Station
- (2) Offset from striped centerline or other location as directed by the CO
- (3) Offset from the proposed edge of pavement
- (4) Existing pavement cross-slope. If cross-slope is to be changed, provide proposed change
- (5) Offset to existing/proposed paved ditch, including ditch cross-slope, if different from mainline, and ditch width
- (6) Offset to face of existing/proposed guardrail

Allow the CO to comment on any required changes to the stationing and/or readjust or establish additional centerline points. Minor adjustments in grade and/or alignment may need to be made during construction to produce a smooth, uniform project. The final alignment need not be a geometrically computed centerline and may be field adjusted up to 300 millimeters at the direction of the CO to provide a smooth flowing, best-fit alignment.

Provide a list to the CO of any stations or locations where the proposed pavement edge is within 0.6 meter of a break in the topography of the shoulder. The CO will determine if corrective action is required.

If requested by the CO, cross-section each location requiring corrective action at the beginning, end, and at 20 meter intervals between. Cross-sections shall extend a minimum of 8 meters left and right of the centerline, but no less than 3 meters past the flowline of ditches or 2 meters past existing fillslope intersection with natural ground. Plot all cross-sections at a scale of 1:100. Compute quantities for excavation, embankment, and aggregate base to be used for corrective action at each location. Submit all cross-sections to the CO a minimum of 14 days prior to beginning the work.

Provide stations to the nearest meter, offsets to the nearest 50 millimeters, and cross-slopes to the nearest 0.2 percent.

Record the above information books and provide one hard copy to the CO.

Use this recorded information to reestablish the existing roadway template and striping.

Measurement

152.05 Delete the fourth paragraph and substitute the following:

Do not measure miscellaneous survey and staking.

Add the following:

Reestablishing missing Government-set, control points, and stakes will be measured under Special labor, Hired survey services when it is paid by the hour. No payment will be made for re-establishing, control points, or stakes after construction operations have begun.

Measure centerline verification and staking only one time per project.

Section 153. - CONTRACTOR QUALITY CONTROL

Construction Requirements

153.02 Contractor Quality Control Plan.

(a) Process control testing. Add the following:

See Table 153-1 for schedule of minimum sampling and testing for process control. Where no minimums are specified, submit proposed tests to be performed and the proposed sampling and testing frequencies.

For aggregates and/or aggregate/asphalt mixtures accepted under Subsection 106.03, sample and test for conformity with the Certification a minimum of one time per pay item.

(b) Inspection/control procedures.

(3) Production phase. Add the following:

(d) Inspect the work, materials or assemblies accepted under Subsection 106.03 to ensure that **all** the work and materials comply with contract requirements. Furnish the results of the work inspection, along with the product certification or commercial certification as applicable, to the CO prior to incorporating the materials into the work.

(c) Description of records. Add the following:

Identify the format for reporting test results, materials certifications and the procedures to be used to maintain inspection records.

(d) Personnel qualifications.**(1)** Add the following:

Designate a Quality Control Supervisor (QCS) whose primary responsibility is managing the inspection system. The QCS will not be the Contractor's Superintendent. Designate a QCS who is experienced to perform and supervise all work inspection, sampling and testing. The QCS will monitor all phases of the work and identify deficiencies and take appropriate corrective action.

Add the following:

(3) Personnel assigned to sampling or testing will have 1 year or more of recent job experience in the type of sampling and testing required by the contract, and the following:

(a) NICET Level II certification in highway materials, or State (SHA) or industry certification-related sampling and testing equivalent to their intended responsibilities.

(b) WAQTC or other nationally accepted certification program for intended sampling and testing responsibilities.

or

(c) Current or previous employment by an AASHTO accredited laboratory performing sampling and testing equivalent to their intended responsibilities.

(d) Demonstrated proficiency or successful testing of one or more proficiency samples may be substituted for basic qualifications pending verification of test results.

153.03 Testing. Delete the title and text and substitute the following:

153.03 Sampling and Testing. Perform the work required by Table 153-1 and by the accepted Quality Control Plan.

(a) Acceptance sampling. Acceptance sampling schedules and times or locations will be provided by the CO. Use a procedure for random sampling. In addition, sample any material that appears defective or inconsistent with similar material being produced, unless such material is voluntarily removed and replaced or otherwise corrected.

(b) Testing. If the Government-furnished field laboratory option is not exercised by the CO, furnish a laboratory equipped with all test equipment necessary to satisfy the requirements of the

contract. Ensure test equipment has been checked, calibrated, standardized and/or otherwise verified in accordance with AASHTO and ASTM standards by an individual qualified to do this work. Ensure mobile laboratories receive an equipment inspection after the laboratory has been moved to its permanent location on the project site and anytime it is moved thereafter. Inspect equipment within 45 days of actual use in project testing and at least once a year thereafter. Do not use equipment that has not been inspected or is found to be deficient. Mark deficient equipment and take it out-of-service until it is repaired or replaced and shown by subsequent inspection to perform as required. Maintain records documenting these inspections in the laboratory. Provide certification(s) stating the equipment conforms to testing requirements and provide evidence of current inspection.

The CO may require the Contractor to perform testing to demonstrate acceptable equipment and an acceptable level of technician competence. The CO may also check equipment and inspection records to verify condition. Repair or replace equipment not meeting applicable requirements. Keep laboratory facilities clean and maintain equipment in proper working condition. Provide the CO unrestricted access to the laboratory for inspection and review.

(c) Certifications. For materials accepted by certification in accordance with 106.03, review all certifications to insure compliance with the requirements of the contract prior to incorporating materials into the work and provide a signed copy of the reviewed certification(s) to the CO.

153.04 Records. Add the following to the first paragraph:

When tests are on material being incorporated into the work, report test results within the reporting times indicated in the sampling and testing requirements at the end of each section or as specified in the contract.

Add the following to the second paragraph:

Detailed inspection results including deficiencies observed and corrective actions taken.

For each day's placement of Items 40101-0600, Superpave Pavement prepare and submit to the CO a delivery and placement record for each day's work. Include the following information:

- 1) Project identification
- 2) Contract pay item number and description
- 3) Location placed: (station to station, left or right lane, bottom, top or middle lift, other)
- 4) Date
- 5) Calculated yield (percent over or under) for area paved during the day's production.
- 6) Accumulated calculated yield (percent over or under) for total area paved to date.
- 7) Authorized contractor signature

Use an approved format for the submittals. Furnish the signed submittals within 24-hours of placement.

153.05 Acceptance. Add the following:

If chronic deficiencies are noted in the Contractor's inspection or testing systems, the CO may order supplemental inspection and/or testing to be performed. The Government will charge to the Contractor all costs associated with such supplemental inspection or testing.

Table 153-1
Schedule of Minimum Sampling and Testing For Process Control
 (to be performed by the Contractor)

Section(s): 204, 208, 209.

Material	Property or Characteristic	Test Method or Specification	Frequency	Sampling Point
Embankment Construction Composition of Roadbed in Cuts	Classification and Moisture/Density	AASTHO M 145 AASHTO T 99 or AASHTO T 180 (minimum of 5 proctor points).	1 per material/type.	Source of material.
	In-place density and moisture content	AASHTO T 310	2 per lift, but not less than 2 every 800 cubic meters.	Compacted embankment, subgrade as applicable.
	R-value	AASHTO T 190 (Tested by FHWA Central Lab).	1 per 700 meters, or change in material type.	Sample depth: 0-300 mm.
Bedding/Backfill for Structures and Culvert Pipe	Classification and Moisture/Density	AASTHO M 145 AASHTO T 99 or AASHTO T 180 (minimum of 5 proctor points).	1 per material/type.	Source of material.
	In-place density and moisture content	AASHTO T 310	1 per 15 meters/lift. Minimum 2 per lift.	Compacted bedding or backfill as applicable.

Table 153-1
Schedule of Minimum Sampling and Testing For Process Control
 (to be performed by the Contractor)

Section(s): 255.

Material	Property or Characteristic	Test Method or Specification	Frequency	Sampling Point
Select wall backfill 704.13(a) and Wall backfill 704.13(b)	Gradation and liquid limit	AASHTO T 11 AASHTO T 27 AASHTO T 89 AASHTO T 90	1 per material/type	Source of material
	Moisture Density	AASHTO T99, Method C ⁽¹⁾	1 per material/type	Source of material
	In-place density and moisture content	AASHTO T 310	For MSE walls: 1 per 300-mm lift per 75-meters of wall length (minimum of 2 per lift)	Compacted backfill

⁽¹⁾ A minimum of 5 points are required for moisture density test.

Table 153-1
Schedule of Minimum Sampling and Testing For Process Control
 (to be performed by the Contractor)

Section(s): 301, 303, 304, 305, 306, 308.

Material	Property or Characteristic	Test Method or Specification	Frequency	Sampling Point
Subbase, Base Course Aggregate	Gradation (301)	AASTHO T 11 AASTHO T 27	2 per day	Crusher belt
	Moisture/Density	AASHTO T 99 or AASTHO T 180 (minimum of 5 proctor points)	1 per source of material	Source of material
Stabilization and Aggregate Topsoil Courses	In-place density and moisture content	AASHTO T 310 or ASTM 2950	2 per lift at 300-meter intervals, alternating lanes	Compacted aggregate
	Plasticity index (aggregate surfacing only)	AASHTO T 90	2 per day	Crusher belt
	Gradation (304 materials processed in place)	AASHTO T 11 AASHTO T 27	1 per 300 meters	Processed material
Magnesium Chloride and Calcium Chloride	Specific Gravity	Hydrometer	1 per shipment	Transport vehicle

Note: Density and Moisture calculations AASHTO T 310...Density corrections based on moisture for recycled materials containing asphalts, or aggregates containing MgCl or CaCl will be made based on samples taken from each test site and oven-dried in the laboratory.

Table 153-1
Schedule of Minimum Sampling and Testing For Process Control
 (to be performed by the Contractor)

Section: 401.

Material	Property or Characteristic	Test Method or Specification	Frequency	Sampling Point
Superpave Hot Asphalt Concrete Pavement	Gradation	AASTHO T 11 AASHTO T 27	2 per day per stockpile	Crusher belt (during production) and Cold Feed or Hot Bins (as applicable during production of hot mix)
	Moisture content of aggregates	AASHTO T 255	1 per day	Cold Feed (during production of hot mix)
	Compaction	ASTM D2950	Test strip, first day of production to establish roller pattern: 12 per 500 meters, then 3 per 500 meters	In place, after compaction
	Placement temperature	Thermometer	As directed	Behind laydown machine
	Surface tolerance	Straight edge and FLH T 504	During and after compaction	See Subsection 401.16
Aggregate	Fine aggregate angularity	AASHTO T 304, Method A	1 per day	Cold Feed

Table 153-1
Schedule of Minimum Sampling and Testing For Process Control
 (to be performed by the Contractor)

Section(s): 402, 403, 404, 405, 408.

Material	Property or Characteristic	Test Method or Specification	Frequency	Sampling Point
Asphalt Concrete Pavement	Gradation	AASTHO T 11 AASHTO T 27	2 per day per stockpile	Crusher belt (during production) and Cold Feed or Hot Bins (as applicable during production of hot mix)
Open-Graded Asphalt Friction Course	Moisture content of aggregates	AASHTO T 255	1 per day	Cold Feed (during production of hot mix)
Asphalt Base Course	Compaction	ASTM D2950	Test strip, first day of production to establish roller pattern: 12 per 500 meters, then 3 per 500 meters	In place, after compaction
	Placement temperature	Thermometer	As directed	Behind laydown machine
	Surface tolerance	Straight edge and FLH T 504	During and after compaction	See Subsection 401.16

Table 153-1
Schedule of Minimum Sampling and Testing For Process Control
 (to be performed by the Contractor)

Section(s): 409, 410.

Material	Property or Characteristic	Test Method or Specification	Frequency	Sampling Point
Chip seal aggregate	Gradation	AASTHO T 11 AASHTO T 27	2 per day	Production belt or spreader discharge
Slurry seal aggregate	Moisture content of aggregates	AASHTO T 255	1 per day	Stockpile or spreader discharge
Asphalt binder Emulsified asphalt	Placement temperature	Thermometer	Prior to each days production, followed by 2 each day	Distributor truck

Table 153-1
Schedule of Minimum Sampling and Testing For Process Control
 (to be performed by the Contractor)

Section(s): 416, 418.

Material	Property or Characteristic	Test Method or Specification	Frequency	Sampling Point
Continuous Cold Recycled Asphalt Base Course Foamed Asphalt Stabilized Base Course	Gradation	AASTHO T 27 (maximum size only)	1 per 500 meters	Recycled material prior to compaction
	Moisture content	FLH T 515	Minimum 1 per 500 meters alternating lanes (as necessary to comply with contract requirements)	In place after compaction and prior to compaction to determine total moisture.
	In-place density	ASTM D2950	1 per 500 meters, alternating lanes (1 value will be equal to the mean of 3 in-place tests, and as necessary to comply with contract requirements)	In place after compaction

Note: Density and Moisture calculations ASTM D 2950...Density corrections based on moisture for recycled materials containing asphalts, or aggregates containing MgCl or CaCl will be made based on samples taken from each test site and oven-dried in the laboratory.

Table 153-1
Schedule of Minimum Sampling and Testing For Process Control
(to be performed by the Contractor)

Section(s): 501, 552, 601.

Material	Property or Characteristic	Test Method or Specification	Frequency	Sampling Point
Concrete	Gradation and fineness modulus	AASTHO T 11 AASHTO T 27	1 per day	Aggregate, before batching
	Moisture	AASHTO T 255	1 per day/stockpile	Aggregate, before batching
	Slump	AASHTO T 119	1 per 25 cubic meters, minimum 1 per day	See note
	Air content	AASHTO T 152	1 per 25 cubic meters, minimum 1 per day	See note
	Unit weight	AASHTO T 121	1 per 25 cubic meters, minimum 1 per day	See note
	Temperature	Thermometer	1 per 25 cubic meters, minimum 1 per day	See note
	Making test specimens for compressive strength	AASHTO T 23	1 set per 25 cubic meters, minimum 1 set per day	At point of discharge

Note: If an extended set admixture is used for the sole purpose of extending discharge times, sampling and testing will be performed by the Contractor at point of batching and discharge location to ensure compliance with Subsection 552.08.

Section 154. - CONTRACTOR SAMPLING AND TESTING**Construction Requirements****154.03 Testing** Add the following:

Where Process Control Sampling and Testing frequencies in Table 153-1 are identical to the Sampling and Testing Tables for all applicable work the Process Control Samples may be used for acceptance.

Add the following Subsections:

154.03A Field Laboratory (Government-Furnished). Refer to Page B-ii of this solicitation for information regarding the option to use a Government-Furnished field laboratory.

If the bid option “Item 15401-0000, Contractor Testing, Using Government Furnished Field Laboratory” is **exercised**, the government will provide for the Contractor’s use a mobile field laboratory, including testing equipment as follows:

- Ignition Oven
- Convection Oven
- Liquid Limit Machine and Grooving Tool
- 30,000 Gram Balance
- 12,000 Gram Balance
- 4,600 Gram Balance (readable to 0.01)
- Platform Scale
- Mechanical Compactor (Moisture Density) and Accessories
- 8-inch Sieve Shaker and Sieve Stack
- 12-inch Sieve Shaker and Sieve Stack
- Drill Press with Muller
- Large Sample Splitter
- Small Sample Splitter

Provide any additional equipment or facilities necessary to fulfill the requirements of the Contract.

Transport the laboratory from 12300 West Dakota Avenue, Lakewood, CO to the point of use and return the laboratory to the same Lakewood address upon completion of the work. The trailer will be available for pick up by the contractor upon issuance of Notice to Proceed and must be returned no later than 14 days following final acceptance of the contract. Contact the CFLHD Equipment Depot at (720) 963-3459 for specific directions to the laboratory storage location.

Assume responsibility for the replacement of any and all missing or damaged equipment and for the repair of any damage to the laboratory. Replacement cost for missing or damaged equipment or facilities will be deducted from any remaining monies owed the Contractor. If sufficient

funds are not available under the Contract for such retention, the Contractor agrees to make payment directly to the Government for any damaged or missing equipment or facilities.

Specifics:

Furnished equipment will be inspected by the Government by checking, standardizing, calibrating and/or verifying, as appropriate, in accordance with applicable AASHTO and ASTM standards. The Government equipment inspection will be completed after the laboratory has been moved to its permanent location on the project site prior to actual use in project testing and at least once a year thereafter. Notify the CO at least 30 days in advance of intent to use the testing equipment on the project so that Government equipment inspection can be scheduled and performed. Assume responsibility for additional equipment inspections prior to the Government's yearly inspection if the mobile laboratory is moved. Maintain records documenting these inspections in the laboratory.

Maintain equipment in proper operating condition. Do not use equipment that is found to be deficient or defective. Mark deficient or defective equipment and take it out-of-service and immediately notify the CO. If Government-furnished testing components fail through no fault or negligence of the Contractor, the Government will replace or repair the equipment in the most expeditious manner practicable. Requests for time extension and/or delay damages will not be granted for delays of less than 48 hours for any one occurrence, or for cumulative delays amounting to less than 5 (five) days in any one 365-day period. Requests for time extensions or damages due to equipment-related delays caused by equipment misuse or other Contractor fault will not be granted.

- Furnish water to the Government-provided field laboratory which is clear and free of oil, acid, rust, alkali, sugar, and vegetable substances. Furnish 120/240-volt, 60-cycle, single-phase current adequate to operate all of the Government field laboratory facilities at all times as required by the CO. Supply enough power to support a 200 amp service panel. Equip the power supply with a regulator that limits the voltage of the power furnished to the laboratory to not less than 220 volts and not more than 240 volts.
- All equipment provided by the Government and replaced by the Contractor will remain with the laboratory and will become the property of the Government.
- Use of the laboratory is limited to testing materials in connection with this contract.

154.03B Field Laboratory (Contractor-Furnished). If the Government-furnished field laboratory bid option is not exercised, furnish a laboratory equipped with all test equipment necessary to satisfy the requirements of the contract.

The sampling and testing services of a commercial laboratory meeting or exceeding the requirements described herein may be used if all contract sampling and testing requirements are satisfied by the use of the commercial facility.

Ensure test equipment has been checked, calibrated, standardized and/or otherwise verified in accordance with AASHTO and ASTM standards by an individual qualified to do this work. Ensure mobile laboratories receive an equipment inspection after the laboratory has been moved

to its permanent location on the project site and anytime it is moved thereafter. Inspect equipment within 45 days of actual use in project testing and at least once a year thereafter. Do not use equipment that has not been inspected or is found to be deficient. Mark deficient equipment and it take out-of-service until it is repaired or replaced and shown by subsequent inspection to perform as required. Maintain records documenting these inspections in the laboratory. Provide certification(s) stating the equipment conforms to testing requirements and provide evidence of current inspection.

The CO may require the Contractor to perform testing to demonstrate acceptable equipment and an acceptable level of technician competence. The CO may also check equipment and inspection records to verify condition. Repair or replace equipment not meeting applicable requirements. Keep laboratory facilities clean and maintain equipment in proper working condition. Provide the CO unrestricted access to the laboratory for inspection and review.

Section 155. - SCHEDULES FOR CONSTRUCTION CONTRACTS

Construction Requirements

155.02 General. Delete the third paragraph and add the following:

Use the Critical Path Method (CPM) construction scheduling method for this project.

155.05 Written Narrative. Add the following:

(j) List anticipated monthly and cumulative contract earnings (including, for schedule updates, any contract modifications) for each month from the beginning of construction operations through the completion of the work. Calculate and list each month's anticipated earnings through the close of business on the date provided by the CO as the cut-off date for monthly project pay estimates.

Section 156. - PUBLIC TRAFFIC

Construction Requirements

156.03 Accommodating Traffic During Work. Delete the last two sentences of the first paragraph and substitute the following:

Submit situation-specific traffic control implementation drawings and alternate traffic control proposals according to Subsection 104.03 for acceptance at least 14 days before intended use.

Add the following:

Maintain safe access to all approach roads, access roads, campgrounds, Top of the World Store, and trail access locations during construction. Maintain safe access to parking areas and pullouts during construction where possible.

Allow immediate access to emergency vehicles.

Provide advance notice of traffic control or scheduling changes to the CO as required to update the Public Information Program, on a weekly basis, or when changes are anticipated.

Notify and coordinate with all users of the Island Lake and Beartooth Lake Campgrounds and the Top of the Word Store (if open) when night closures of the highway are anticipated by furnishing and maintaining a sign at the entrance to the Beartooth Lake Campground and the Island Lake Campground which provides appropriate information and advance notice regarding construction delays and closures as approved by the CO.

Employ the following measures to assure safe driving conditions:

- (a) Preserve and maintain existing paved surfaces as long as reasonably possible.

156.04 Maintaining Roadways During Work.

(a) Add the following:

Do not construct diversions outside of the clearing limits or use alternate route detours without the approval of the CO.

156.05 Maintaining Roadways During Non-Work Periods. Add the following:

In the event of shoulder season plowing and winter shut down periods, provide a safe and passable condition and configuration for snow grooming equipment and the operation of snowmobiles, taking into consideration historical snow depth conditions and public snowmobile trail locations and use patterns. Provide a minimum one-lane width of 4.3 meters throughout the project length for snowmobile trail grooming.

Prior to winter shutdown, coordinate with Yellowstone National Park maintenance through the CO for final snow staking of the highway and work zones to remain over the winter for installation of temporary snow poles. Installation and supply of temporary snow poles will be by the National Park Service. Prior to winter shutdown, coordinate with the Yellowstone National Park Maintenance through the CO to provide specific hazard markers or signing for breaks in the pavement or other hazards to snow plowing that are to be left over the winter.

Complete all preparation activities for a winter suspension by mid-October. These activities include completing all surface course on roadbeds where pavement has been pulverized and installing and fortifying temporary and permanent erosion and sediment control devices as shown on the plans or as directed by the CO.

During periods of extended work shutdowns at anytime other than winter shutdown, allow no delays to public traffic and maintain the roadway open to either alternate one-way traffic with a minimum travelway width of 4.0 meters, or two-lane traffic with a minimum travelway width of 5.4 meters

156.06 Limitations on Construction Operations.

(c) Delete the first sentence and substitute the following:

For alternate one-way traffic control, provide a minimum lane width of 2.7 meters. For two-way traffic, provide a minimum roadway width of 5.4 meters.

(i) Delete the text and substitute the following:

Limit construction-caused delays to public traffic from 8:00 am to 8:00 pm to a maximum of 30 minutes through the project.

Measurement and Payment

156.10 Add the following:

Hauling, placement, and spreading of salvaged existing pavement material for temporary surfacing will not be measured for payment.

Section 157. - SOIL EROSION CONTROL

Construction Requirements

157.03 General. Delete the second paragraph and substitute the following:

Standard erosion control and sediment control devices are provided in the contract. Detail site-specific measures for controlling erosion and submit to the CO for acceptance prior to implementation. Provide working drawings and associated data that do not exceed 610 by 920 millimeters in size. Allow 7 days for acceptance of the drawings or a return for corrections. Include the following in the detailed design:

- (1) Address contractual requirements for storm water runoff permits, environmental commitments, and other permit requirements here or in Subsection 107.01 or 107.10.
- (2) Location of each proposed erosion control measure and sediment control devices.
- (3) Type of each erosion control measure and sediment control device.
- (4) Quantities and estimated unit costs of proposed temporary erosion control and sediment control devices to be implemented during construction.

(5) A schedule detailing coordination of erosion control and sediment control measures with the various construction operations or stages. Include the furnishing, installation, maintaining, and removing of temporary devices and the installation of permanent erosion control features.

(6) A schedule outlining the proposed schedule of culvert replacement operations such that the area of disturbed or erodible material is minimized. Schedule the work such that temporary and permanent erosion and sediment control measures can be incorporated at the earliest practical time.

(7) Construction methods used in various items of work to minimize erosion.

Add the following:

At least 5 days prior to the preconstruction conference, designate in writing an Erosion Control Supervisor who is responsible for implementing the requirements of this Section.

When temporary erosion and sediment control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as part of the work in a timely manner, provide temporary measures at no cost to the Government.

157.12 Inspection and Reporting. Add the following:

Monitor the turbidity of waters adjacent to the project. Take turbidity measurements using an HF-DRT 15CE turbidimeter or equivalent upstream of the project and 150 meters downstream of the area of the highest turbidity. If the measurements show an increase of 10 NTU or more, immediately suspend operations in the vicinity of the problem area and modify the erosion control measures to eliminate the cause of the high turbidity. Include turbidity readings, locations, and actions taken, if any, in inspection reports. Also provide documentation of meter calibration.

157.14 Acceptance. Add the following:

Soil erosion control will be evaluated under Subsection 106.02 based on the demonstrated ability of the erosion control measures to result in minimal soil erosion, sedimentation and/or siltation, and turbidity increases within or adjacent to the project limits.

Section 203. – REMOVAL OF STRUCTURES AND OBSTRUCTIONS**Description****203.01** Add the following:

This item also includes the removal of 35 sediment logs and 40 sandbags from along the existing corridor.

Construction Requirements**203.04 Removing Material.** Add the following:

Approximately 3,100 m of silt fence was installed during the clearing contract in 2004 and 2005 along the Beartooth Highway (KP 39.5 to KP 52.4). In those locations outside immediate construction activities, coordinate with the CO to remove the silt fence.

Measurement**203.07** Add the following:

Measure for the removal of existing sediment logs and sandbags will be made by the each.

Section 303. - ROAD RECONDITIONING**Material****303.02** Add the following:

Crushed aggregate

703.06

Construction Requirements**303.04 Shoulder Reconditioning.** Delete the text and substitute the following:

Place windrowed shoulder material along the shoulders to eliminate pavement edge drop offs along the edge of the pavement. Shape as necessary for drainage and appearance. Dispose of waste according to Subsection 204.14.

303.08 Pulverizing. Delete the text and substitute the following:

Remove vegetation adjacent to the pavement by blading each side of the roadway 300mm prior to pulverizing. Pulverize the existing asphalt pavement and underlying materials to a depth of 150 mm or 25 mm below the existing asphalt pavement depth, whichever is greater. If cobbles or boulders are

encountered within the specified depth to be pulverized the contractor may reduce the depth of pulverization. Pulverized depth may only be reduced after inspection and verification of oversized material by the CO. Pulverize to the widths shown in the plans with an approved rotary milling machine to meet the following size requirements according to AASHTO T27:

Sieve Designation	Percent Passing
38 mm	100
25 mm	85 – 100

Place and compact the pulverized material according to Subsection 301.05. Compact each layer to at least 95 percent of maximum density. Determine the in place density and moisture content according to AASHTO T 310 or ASTM D2950.

Individual aggregate particles larger than 38mm encountered in the pulverization depth will not be required to be reduced in size to meet the above specified grading.

Mix, spread, compact, finish, and maintain the pulverized material according to Section 301. Compact each layer to at least 95 percent of maximum density. Determine the in-place density and moisture content according to AASHTO T-191 (Sand Cone), AASHTO T 310 (Nuclear Gauge) or ASTM D2950. Moisture contents and therefore the dry density calculation of samples containing any asphalt material must be determined using AASHTO T-265 (Drying Oven), or alternate method approved by the CO

Do not leave pulverized roadway unpaved for more than 21-days. Place the first lift of Superpave pavement within 21 days of finishing the pulverizing unless the CO approves a longer period.

Submit a proposed schedule of pulverizing, paving sequencing, and traffic control for review and approval 14-days prior to start of pulverizing. A “Job-Mix Formula” meeting the requirement of Section 401 must be approved prior to the start of work on Item 303, Roadway Reconditioning.

Remove and dispose of unsuitable material prior to pulverizing as directed by the CO. Replace unsuitable material with minor crushed aggregate. Perform work according to Section 308. Clean the compacted surface of all loose material, dirt, or other deleterious substances by approved methods. Correct surface irregularities by scarifying the defective area and reworking the pulverized material. Finish the pulverized surface according to Subsection 301.06. Shape and finish cross slopes as shown in the plans or directed by the CO.

The existing road structure varies considerably throughout the project length and includes inconsistent layers and depths of Hot Mix Asphalt (HMA) pavement. Although a site investigation including borings was undertaken to help define the existing site conditions, it is possible that subgrade soil, base course and pavement conditions may vary between or beyond the points explored. Refer to the October 1998 preliminary materials report in the Appendices for more information about existing pavement conditions and depths. It should be noted that

cobbles or boulders may exist beneath the pavement. For the purposes of this specification, use the definitions of AASHTO M 146 for cobbles and boulders.

Section 308. - MINOR CRUSHED AGGREGATE

Construction Requirements

308.06 Acceptance Delete the second paragraph and substitute the following:

Construction of roadway aggregate courses will be evaluated under Subsections 106.02 and 106.04. Method 2 compaction will be evaluated under Section 106.04. Sample material from the windrow or roadbed after processing but prior to compaction at the frequency shown in Table 308-1. Submit samples to the CO for verification. Materials that do not meet the approved certification will be considered unacceptable.

Payment

308.08 Add the following:

A price adjustment will be made for fluctuations in the cost of low sulfur No. 2 diesel fuel consumed in the performance of applicable construction work according to Subsection 109.06 Pricing of Adjustments Fuel Price Adjustment Provision.

Section 401. - SUPERPAVE HOT ASPHALT CONCRETE PAVEMENT

Description

401.01 Delete the third paragraph and substitute the following:

A minimum of one percent lime is required in the Superpave hot asphalt concrete mixture.

Pavement roughness requirements:

Schedule A – Type IV

Option X – Type V

Option Z – Type IV

Asphalt binder grade is PG 64-28.

Material

401.02 Delete the first line and substitute the following:

Aggregate

703.07

Construction Requirements

401.03 Composition of Mix (Job-Mix Formula). Delete the second paragraph and substitute the following:

Compact specimens with the gyratory effort corresponding to the design ESAL level of 0.3 to <3 million. Volumetric mix properties will be determined at N_{design} . Use a gyratory compactor which meets the internal angle requirement according to AASHTO T 312.

Table 401-1 Superpave Hot Asphalt Concrete Pavement Design Requirements Table. Delete Table 401-1 and substitute the following:

**Table 401-1
 Superpave Hot Asphalt Concrete Pavement Design Requirements, AASHTO R 35**

Design ESAL (Million)	Gyratory Compaction Level (% Theoretical Maximum Specific Gravity, G_{mm}) AASHTO T 312			Minimum Voids-in-the Mineral Aggregate (VMA), % ⁽¹⁾				Voids Filled with Asphalt (VFA), % ⁽³⁾	Minimum Hveem Stabilometer value	Dust-to- Binder Ratio ⁽⁴⁾	Minimum Tensile Strength Ratio, AASHTO T 283 ⁽⁵⁾
				Nominal Maximum Size Aggregate ⁽²⁾							
	$N_{initial}$	N_{design}	N_{max}	1 inch	$\frac{3}{4}$ inch	$\frac{1}{2}$ inch	$\frac{3}{8}$ inch				
< 0.3	6 ($\leq 91.5\%$)	50 (96.0%)	75 ($\leq 98.0\%$)	12.0	13.0	14.0	15.0	70.0 - 80.0	30	0.8 -1.6	0.80
0.3 to 3	7 ($\leq 90.5\%$)	75 (96.0%)	115 ($\leq 98.0\%$)					65.0 - 78.0			
3 to 30	8 ($\leq 89.0\%$)	100 (96.0%)	160 ($\leq 98.0\%$)					65.0 - 78.0			

⁽¹⁾ When mineral filler or hydrated lime is used, include in the calculation for compliance with the VMA.

⁽²⁾ The nominal maximum size aggregate is one size greater than the first sieve to retain more than 10 percent of the combined aggregate.

⁽³⁾ For 1-inch nominal maximum size aggregate mixtures with <0.3 million ESALs, provide a VFA ≥ 67.0 percent.

⁽⁴⁾ Dust to binder ratio is defined as the percent of material including lime, baghouse fines, and other mineral matter added to the mixture. Calculate the ratio using the effective asphalt content calculated by mass of mix.

⁽⁵⁾ Specimens shall be 100 millimeters in diameter. Note that AASHTO T 283 requires a freeze-thaw cycle.

(c) **Verification.** Delete the text and substitute the following:

(1) Aggregate Gradations. Representative aggregate samples from each stockpile, when combined according to the Contractor's recommendation for stockpile percentages, shall be within the gradation defined by the Contractor's target values plus or minus the following tolerance for each sieve.

Sieve Size	Tolerance, % (\pm)
25 mm	3.0
19 mm	3.0
12.5 mm	3.0
9.5 mm	3.0
4.75 mm	3.0
2.36 mm	3.0
600 μ m	2.0
300 μ m	2.0
75 μ m	1.0

(2) Bulk specific gravity of aggregate (G_{sb}). The Contractor's coarse and fine G_{sb} is verified if the CO's results are within the acceptable range for the AASHTO Multilaboratory precision D2S shown in AASHTO T 84 and T 85. Once verified, the mean of the Contractor's and CO's combined coarse and fine G_{sb} values will be used to calculate volumetrics on field produced mix samples.

(3) Voids in the mineral aggregate (VMA). The Contractor's VMA result is verified if the CO's result is above the minimum specification limit in Table 401-1.

(4) Voids filled with asphalt (VFA). The Contractor's VFA result is verified if the CO's result is within the specification limit in Table 401-1.

(5) Air Voids (V_a). The Contractor's V_a result is verified if the CO's result at the same design asphalt binder content is between 3.0 and 5.0 percent.

(6) Hveem stabilometer value. The Contractor's Hveem stabilometer value is verified if the CO's result is above the minimum specification of 30.

(7) Tensile strength ratio (TSR). The Contractor's TSR result is verified if the CO's result is above the minimum specification of 0.80.

401.04 Mixing Plant.

(a) **All plants.**

(2) Dust collector. Delete the text and substitute the following:

AASHTO M 156, Requirements for All Plants, Emission Controls is amended as follows:

Equip the plant with a dust collector. Dispose of the collected material. In the case of baghouse dust collectors, dispose of the collected material or return the collected material uniformly.

Use of baghouse fines in asphalt concrete mixes requires approval unless included as part of the approved job-mix formula. If baghouse fines are approved for use, batch or continuous mix plants will meter it by volume or mass into the mixing chamber.

401.08 Asphalt Preparation. Delete the text of this Subsection and substitute the following:

Uniformly heat the asphalt binder to provide a continuous supply of the heated asphalt binder from storage to the mixer. Do not heat asphalt binder above 185 °C.

401.09 Aggregate Preparation. Delete the text of this Subsection and substitute the following:

Adjust the aggregate moisture to at least 4 percent by mass of aggregate. Mix the lime uniformly with the aggregate before introducing the aggregate into the dryer or dryer drum. Use calibrated weighing or metering devices to measure the amount of lime and moisture added to the aggregate.

For batch plants, heat, dry, and deliver aggregate for pugmill mixing at a temperature sufficient to produce a mix temperature within the approved range. Adjust flames used for drying and heating to prevent damage to and contamination of the aggregate.

Control plant operations so the moisture content of the mix behind the paver is 0.5 percent or less according to AASHTO T 255.

Add lime to the aggregate by Method A, B, or C below.

Method A - Add lime to the combined cold feed aggregate using an enclosed in-line cold feed mechanical pugmill mixer. Use a twin-shaft, continuous mixing pugmill with adjustable mixing paddles. Adjust the retention time of the mixture in the pugmill so no unmixed lime is visible after the lime and aggregate exit the pugmill.

Method B - Add lime to the produced aggregates during stockpiling using a pugmill. Add twenty-five (25) percent of the lime to be added to the coarse aggregate stockpile, and add seventy-five (75) percent of the lime to be added to the fine aggregate stockpile. When more than two stockpiles are used, include the distribution of lime per stockpile in the mix design.

A minimum moisture content of two (2) percent by dry weight for coarse aggregate and four (4) percent by dry weight for fine aggregate is required at the time the aggregates and lime are mixed.

Method C - Use a lime slurry consisting of one part lime and three parts water. Equipped the plant with a mixing unit to allow mixing of the slurry and aggregate prior to entering the dryer or dryer drum.

Adjust the moisture of the coarse and fine aggregates, or combination of aggregates, to obtain uniform coating of the aggregate with the lime.

Prior to the production of Superpave hot asphalt concrete pavement, obtain approval of synchronized metering and weighing devices used to introduce a constant rate of lime and water.

401.13 Placing and Finishing. Delete the fifth paragraph and substitute the following:

Make the longitudinal joint in the top layer along the existing striped centerline, as recorded under Subsection 152.03(n), or at the lane lines of roadways with more than two lanes.

Add the following:

Use a Materials Transfer Vehicle (MTV) with storage and remixing capabilities on all mainline construction when placing asphalt concrete mixtures. The MTV will independently remix and deliver mixture from the hauling equipment to the paving equipment.

Furnish an MTV with the following capabilities:

- An unloading system to receive mixtures from the hauling equipment.
- A minimum storage capacity of 13 tons with a remixing system in the MTV storage bin.
- A discharge conveyor to deliver the mixture to the paver hopper.
- The MTV system cannot exceed maximum legal loadings on structures.

Acceptable Material Transfer Vehicles are:

- Barber Greene MTV-3500
- Roadtec SB-1500
- Roadtec SB-2500

In the event the MTV malfunctions during paving operations, the Contractor must suspend paving, however hot mix in transit and stored in the silo at the time of breakdown may be placed without the use of an MTV. Do not resume hot mix placement until the MTV is operational.

401.14 Compacting. Delete the first sentence of the first paragraph and substitute the following:

Furnish at least 3 rollers. Furnish one roller each for breakdown, intermediate, and finish rolling. At least one roller will be pneumatic-tired. Size the rollers to achieve the required results. Operate rollers according to the recommendation of the manufacturer. Diesel fuel will not be used as a release agent with any roller used to compact the asphalt mix.

401.16 Pavement Smoothness/Roughness. Delete the title and text of this Subsection and substitute the following:

401.16 Pavement Roughness. Measure the roughness of the final paved surface course within 21 days after final rolling of the completed roadway paving, and before placement of any surface treatment. In addition to meeting the pavement roughness type requirements, construct all pavement surfaces to meet the requirements of Type V pavement roughness.

(a) International roughness index (IRI).

Equipment. Provide an ASTM E 950, class 1, high speed inertial profiling system meeting all the requirements and specifications found in AASHTO MP 11, with emphasis on the filter and sampling intervals specified in sections 4.2.3 and 4.2.4. Certify profiler in accordance with AASHTO PP 49. Operate profiler in accordance with AASHTO PP 50. At the pre-construction meeting and before profiling provide copies of profiling system to be used and certification(s). Display a current decal on the equipment indicating the expiration date of certification(s).

Personnel. Certify operator in accordance with AASHTO PP 49. At the pre-construction meeting and before profiling provide copies of operator certification(s).

Measuring. Measure the pavement profile in both wheel paths, two longitudinal traces with a sensor path spacing of 165-180 centimeters, centered in the traveled way of the lane. For each lane, submit on disk one continuous raw IRI data file (*.ERD) for the “left” and “right” wheel paths to the CO immediately after profiling. Use profiler’s automatic start/stop activation when collecting data. The CO must coordinate and observe profiling operations. Non-continuous data files will not be accepted. Submit inertial profiler setup parameters (e.g. filters, sampling interval, and segment length, etc.). Measure excluded areas according to Type V pavement roughness.

Evaluation. The CO will review, analyze and may perform verification testing on all IRI measurements. The CO will analyze profile data using Profile Viewer and Analysis (ProVAL) software. The CO’s analysis will be used to determine the Mean Roughness Index (MRI), and the associated roughness pay factor.

Defective areas include the following:

- Bumps or Localized Roughness Areas (LRA) in excess of 5.0 millimeters in 7.62 meters, using ProVAL’s Localized Roughness Analysis.
- 0.1-lane kilometer MRI greater than a Ride Quality Threshold of 1.657 meters/kilometer, using ProVAL’s Smoothness Assurance Analysis.

Correct defective areas according to paragraph (c) below.

If the final MRI for the entire traveled way is greater than 1.973 meters/kilometer using ProVAL's Ride Statistics Analysis, the traveled way is in reject. Correct rejected traveled way according to paragraph (c) below.

An MRI value will be determined for each 0.1-lane kilometer of traveled way. The total traveled way will be analyzed including partial segments less than 0.1-lane kilometer. Exclusion areas are 7.62 meters on either side of Beginning and End of Project, cattle guards, and bridges. These areas will be excluded from the calculation of MRI and determination of localized roughness.

(1) Type III pavement roughness (IRI measurements for reconstructed and new roads). Measure the roughness of the final paved surface course. Pay factors from Table 401-3 will be used in conjunction with the histogram printout from ProVAL's Smoothness Assurance Analysis. The final pay factor (PF_{rough}) is equal to the sum of the products of the individual pay factors indicated in Table 401-3 multiplied by ProVAL's corresponding histogram percentages, divided by 100. Calculate the final pay factor to two decimal places.

Table 401-3
Type III Pavement Roughness

MRI (m/km)	Pay Factor (PF_{rough})
Greater than 1.499	0.70
1.499 to 1.420	0.80
1.420 to 1.263	0.90
1.263 to 1.105	0.96
1.105 to 0.947	1.00
0.947 to 0.789	1.02
0.789 to 0.631	1.03
0.631 to 0.473	1.04
Less than 0.473	1.05

(2) Type IV pavement roughness (IRI measurements for overlay, recycle with overlay, or milling with overlay projects). Measure the roughness of the existing surface before construction traffic. The existing surface is defined as the original surface before overlaying, recycling, or milling. Submit original surface raw data files (*.ERD). The CO will review, analyze and may perform verification testing on all IRI measurements. No work that will disturb the original surface will proceed until CO's analysis is complete. The original surface MRI will be used to determine the percent improvement for the entire traveled way.

The percent improvement in MRI will be determined to one decimal place for the entire traveled way according to the following formula:

$$\% \text{ Improvement} = [(\text{Original MRI} - \text{Final MRI}) / \text{Original MRI}] \times 100$$

Table 401-4 will be used to determine the final pay factor (PF_{rough}) for the entire traveled way. No deductions will be made when the final MRI value is less than or equal to 1.105 meters per kilometer ($PF_{\text{rough}} = 1.00$). Compute the final pay factor to two decimal places.

Table 401-4
Type IV Pavement Roughness

Single Lift Percent Improvement (%)	Pay Factor (PF_{rough})	Multi-Lift Percent Improvement (%)	Pay Factor (PF_{rough})
Greater than 50.0	PF = 1.05	Greater than 60.0	PF = 1.05
47.6 to 50.0	PF = 1.04	58.6 to 60.0	PF = 1.04
45.1 to 47.5	PF = 1.03	57.6 to 58.5	PF = 1.03
43.6 to 45.0	PF = 1.02	56.6 to 57.5	PF = 1.02
42.1 to 43.5	PF = 1.01	55.1 to 56.5	PF = 1.01
25.0 to 42.0	PF = 1.00	49.0 to 55.0	PF = 1.00
24.0 to 24.9	PF = 0.99	48.0 to 48.9	PF = 0.99
23.0 to 23.9	PF = 0.98	47.0 to 47.9	PF = 0.98
22.0 to 22.9	PF = 0.97	46.0 to 46.9	PF = 0.97
21.0 to 21.9	PF = 0.96	45.0 to 45.9	PF = 0.96
20.0 to 20.9	PF = 0.95	44.0 to 44.9	PF = 0.95
19.0 to 19.9	PF = 0.94	43.0 to 43.9	PF = 0.94
18.0 to 18.9	PF = 0.93	42.0 to 42.9	PF = 0.93
17.0 to 17.9	PF = 0.92	41.0 to 41.9	PF = 0.92
16.0 to 16.9	PF = 0.91	40.0 to 40.9	PF = 0.91
15.0 to 15.9	PF = 0.90	38.0 to 39.9	PF = 0.90
14.0 to 14.9	PF = 0.89	36.0 to 37.9	PF = 0.89
13.0 to 13.9	PF = 0.88	35.0 to 35.9	PF = 0.88
12.0 to 12.9	PF = 0.87	34.0 to 34.9	PF = 0.87
11.0 to 11.9	PF = 0.86	33.0 to 33.9	PF = 0.86
10.0 to 10.9	PF = 0.85	31.0 to 32.9	PF = 0.85
5.0 to 9.9	PF = 0.80	25.0 to 30.9	PF = 0.80
Less than 4.9	PF = 0.70	Less than 24.9	PF = 0.70

NOTE: A single lift is defined as asphalt concrete pavement placed in one operation.

(b) Type V pavement roughness (straightedge measurement). Use a 3 meter metal straight edge to measure at right angles and parallel to the centerline. Type V localized roughness areas (LRA) are surface deviations in excess of 6 millimeters in 3 meters between any two contacts of the straightedge with the surface.

(c) Defective area correction. Correct defective areas from paragraphs (a) or (b) above. Obtain approval from the CO for correction of defected areas as well as the method of correction. When grinding is allowed, the area ground shall not exceed 67 square meters per location, and is limited to 6 locations per lane kilometer. Grinding depth is limited to 12.5% of the design

pavement thickness. Grinding in excess of these limits is not an acceptable method of correction unless it is accompanied by an overlay or a single-course surface treatment over the entire length of the project.

If grinding is allowed, grind the pavement surface with a diamond blade machine and apply a surface treatment according to Sections 409 or 410 as approved by the CO. The endpoints of the areas where a grinder is to be applied must be optimized using ProVAL.

If corrections are allowed, re-measure the pavement profile. Data from the re-measurement and re-analysis will be used to determine PF_{rough} in accordance with Table 401-3 or Table 401-4.

If corrections are not allowed, no adjustment will be made to the final pay factor (PF_{rough}) determined from Table 401-3 or Table 401-4. A dollar adjustment per remaining bump when grinding is not allowed will be determined according to subsection 401.19.

Defective area corrections and surface treatments shall be provided at no cost to the Government.

401.17 Acceptance. Delete the second paragraph and substitute the following:

Asphalt binder will be evaluated under Subsections 106.04, and 702.09, and Table 401-5.

Payment

401.19 Delete the text of this Subsection and substitute the following:

The accepted quantities will be paid at the contract price per unit of measurement for the Section 401 pay items listed in the bid schedule except the Superpave hot asphalt concrete pavement contract unit bid price will be adjusted according to Subsections 106.05, 401.16, and Table 401-5. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

Payment for Superpave hot asphalt concrete pavement will be made at a price determined by multiplying the contract unit bid price by the material pay factor. The material pay factor is calculated as follows:

$$A1 = [(PF_{\text{Superpave}} - 1) + (PF_{\text{PG}} - 1)]$$

where:

A1 = Material pay factor.

$PF_{\text{Superpave}}$ = Pay factor for Superpave hot asphalt concrete pavement. $PF_{\text{Superpave}}$ is the lowest single pay factor determined for asphalt binder content, VMA, and core density.

PF_{PG} = Pay factor for asphalt binder. The PF_{PG} formula is as follows:

$$PF_{PG} = (PF_1 + PF_2 + PF_3 + \dots + PF_n) / n$$

where:

$PF_{\#}$ = For each sample, the lowest pay factor determined from any test in Table 401-5. If the lowest pay factor for a sample is in reject, the sample's pay factor is zero.

n = Number of samples tested.

If either the pay factor for the asphalt binder (PF_{PG}) or the pay factor for Superpave hot asphalt concrete pavement ($PF_{Superpave}$) is below 0.75, the lot for Superpave hot asphalt concrete pavement is in reject.

When the bid schedule contains a pay item for Superpave hot asphalt concrete pavement, type III and type IV pavement roughness, a separate pay adjustment will be made for pavement roughness calculated as follows:

$$\text{Type III and Type IV Pay Adjustment} = 24,800 (PF_{rough} - 1.00)(L) - (NLRA \times 300)$$

where:

PF_{rough} = Pay factor from Table 401-3 or Table 401-4.

L = Total project length in lane kilometers of traveled way. Measure the project length to 2 decimals.

$NLRA$ = Number of localized roughness areas (bumps) remaining in final traveled way as determined by ProVAL and Type V measurements.

A price adjustment will be made for fluctuations in the cost of asphalt cement consumed in the performance of applicable construction work according to Subsection 109.06 Pricing of Adjustments Asphalt Cement Price Adjustment Provision.

A price adjustment will be made for fluctuations in the cost of low sulfur No. 2 diesel fuel consumed in the performance of applicable construction work according to Subsection 109.06 Pricing of Adjustments Fuel Price Adjustment Provision.

Section 409. - ASPHALT SURFACE TREATMENT

Construction Requirements

409.10 Fog Seal. Add the following after the first sentence:

Unless otherwise noted on the plans, dilute the specified emulsion one part water to one part emulsified asphalt.

Measurement**409.14** Add the following:

Measure fog seal including water added for dilution.

Indicate a breakdown of total emulsion and water added on the load invoices supplied to the CO for payment.

Section 411. - ASPHALT PRIME COAT**Description****411.01** Delete the second paragraph and substitute the following:

Prime coat asphalt grade is designated as shown in AASHTO M 140 or AASHTO M 208 for emulsified asphalt; AASHTO M 81 or AASHTO M 82 for cut-back asphalt; or Subsection 702.03(e) for other emulsified asphalts

Measurement**411.08** Add the following after the second paragraph:

Indicate a breakdown of total emulsion and water added on the load invoices supplied to the CO for payment.

Section 412. - ASPHALT TACK COAT**Description****412.01** Delete the text and substitute the following:

This work consists of applying an emulsified asphalt or hot asphalt cement tack coat.

Tack coat emulsified asphalt grade will meet AASHTO T 140 or AASHTO T 208.

Tack coat asphalt cement grade will meet AASHTO M 20, M 226, or M 320

Measurement**412.08** Add the following after the second paragraph:

Indicate a breakdown of total emulsion and water added on the load invoices supplied to the CO for payment.

**Section 414. – ASPHALT PAVEMENT CRACK AND JOINT SEALING
(Option X only)**

Construction Requirements

414.05 Crack Cleaning and Sealing. Add the following:

In areas that will receive a hot asphalt concrete pavement (HACP) overlay provide a minimum of 1-week cure time for the sealant prior to the placement of a HACP overlay or chip seal.

Delete the 3rd and 4th paragraphs of this subsection and substitute the following:

For cracks with a width less than 25 mm, seal with a hot-poured elastic sealant according to Subsection 414.04. For cracks with a width greater than 25 mm, fill crack with asphalt mix crack filler material per Section 404 flush with existing surface.

Add the following Section:

**SECTION 428 - - FLEXIBLE PAVEMENT RESTORATION
(Option X only)**

Description

428.01. This work consists of the restoration of asphalt concrete pavement by removal of the existing pavement and patching.

Material

428.02. Conform to the following Sections and Subsections:

Excavation and Embankment	204
Aggregate Base	308
Asphalt Tack Coat	412
Hot Asphalt Concrete	401
Underdrains, Sheet Drains, and Pavement Edge Drains	605
Bituminous Materials	702
Biaxial Geogrid	714.03(a)

Construction Requirements

428.03. General. Place asphalt concrete pavement in accordance with Section 401 and place granular backfill material in accordance with Section 301. Remove all material not suitable for use on the project and dispose of legally off Government property. Sawcut and remove existing asphalt concrete pavement according to Section 203 or by milling.

428.04. Personnel. Accomplish asphalt pavement restoration with personnel experienced in this type of work. The experience shall be relevant to anticipated conditions and special techniques required. Demonstrate to the satisfaction of the CO the techniques and equipment to be used and submit documentation of projects on which this type of work has been performed at the preconstruction conference.

428.05. Equipment. Use equipment and tools designed and built to perform the work and obtain approval from the CO for their use.

428.06. Flexible pavement full depth patch, Type 1 (FDP-1). This work consists of repairing distressed areas of pavement by removing and replacing the pavement and base to a depth of 300 mm.

(a) Patch Areas. Extend the repair area 300 mm beyond the distressed area. If patch cuts are within 600 mm of the pavement edge, extend the patch limit to the pavement edge. Make the minimum width dimension of the patch $\frac{1}{2}$ of a travel lane (1.5 meters) and the minimum length dimension of the patch 1.0 meter.

(b) Pavement Removal. Make a neat sawcut completely through the pavement thickness, with one pass around the perimeter of the patch area to the limits shown on the plans or as designated by the CO. Make sawcuts a minimum depth of 200 mm, perpendicular to the roadway surface and at right angles to each other. Remove the pavement to expose subbase or subgrade. All existing pavement, aggregate base and sub grade material within the patch limits will be removed from the park at Contractor's expense. In lieu of this process, a milling machine may be used to remove the pavement material.

(c) Undercut. Remove a minimum of 150 mm of material.

(d) Patching. Place geogrid material at the locations and at the depths indicated in the plans before placing aggregate base. Overlap geogrid material a minimum of one foot. Use metal pins or hooks as necessary to retain the position of geogrid material. Tension the geogrid materials by hand during placement and take care to prevent damage during backfilling. Replace geogrid damaged during placement by the Contractor at the Contractor's expense.

(e) Place and compact aggregate base in 1 lift, 150 mm thick. Apply a tack coat to all asphalt concrete surfaces within the patch area in accordance with Section 412. Place and compact asphalt concrete pavement, in two lifts, so that the patched surface matches the same grade as the adjacent surface. Place a minimum asphalt concrete thickness of 150 mm in the patch.

Acceptance

428.07. Construction of flexible pavement, full depth patch will be evaluated under subsections 106.02 and 106.04.

Aggregate will be evaluated under Section 308.

Tack coat will be evaluated under Subsections 106.02 and 106.04.

Asphalt pavement joint sealing will be evaluated under Subsection 106.04.
Asphalt concrete will be evaluated under Section 401.
Geogrid will be evaluated under subsections 106.02 and 106.03.

Measurement

428.08. Measure Flexible Pavement, Full depth patch, Type 1, by the square meter of the surface area of the patch complete in place and accepted. No other items will be measured for payment.

Payment

428.09. The accepted quantities will be paid at the contract price per unit of measurement for Section 428 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Schedule. See Subsection 109.05.

Section 602. - CULVERTS AND DRAINS

Material

602.02 Add the following:

Precast concrete units	725.11
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Construction Requirements

602.03 General. Add the following:

Do not use precast units unless included in the plans or approved by the CO.

Measurement

602.09 Add the following:

Adjustment of the existing drop inlet at Sta. 55+215 will not be measured and is included in the cost of the pipe.

Section 609. – CURB AND GUTTER

Description

609.01 Add the following:

This work also consists of constructing paved ditches contiguous to the traveled way.

Construction Requirements

609.03 General. Add the following:

For asphalt paved ditches, form the bed parallel to the finished surface of the ditch.

When bonding concrete curb to existing asphalt pavement thoroughly clean the pavement surface in advance of placing the curb. Abrade and/or high pressure water wash the existing asphalt pavement to assure removal of all dust and loose material.

Bond the extruded curb or precast curb to the existing asphalt pavement using an approved concrete to asphalt adhesive or a two-component epoxy, designed to bond fresh concrete to the existing pavement. Submit proposed adhesive for approval by the CO prior to use. Apply according to the manufacturer's recommendations.

Add the following Subsection:

609.08A Asphalt Paved Ditch. Perform the work according to Section 404. Before overlaying existing asphalt paved ditches, clean and seal the cracks according to Section 414. Compact according to Subsection 404.07(a). Compact according to Subsection 404.07(b), only if paved ditch cannot be rolled safely.

Measurement

609.10 Add the following:

No separate measurement will be made for the asphalt mix included in asphalt curb or paved ditch or sealing the cracks in the ditches.

Measure paved ditches by the square meter width horizontally to include total width.

Measure curb by the linear meter.

Section 617. – GUARDRAIL

Construction Requirements

617.03 Posts. Add the following to the third paragraph:

Longer posts will be required on this project, especially on the outside of curves. Coordinate final locations of longer post installations with the CO.

Section 619. – FENCES, GATES, AND CATTLE GUARDS**Description****619.01** Add the following:

Remove the existing gate at Sta 52+334 and replace the gate with a new gate provided by the Yellowstone National Park. Provide at a minimum 2 months lead time to Yellowstone National Park for this work.

Section 623. – GENERAL LABOR

Delete the text of this Section and substitute the following:

Description

623.01 This work consists of furnishing workers and hand tools for construction work, survey crews, and/or furnishing qualified personnel to perform technical work ordered by the CO and not otherwise provided for under the contract.

Construction Requirements

623.02 Workers and Equipment. Furnish competent workers and appropriate hand tools for the work.

Obtain approval of the length of a workday and workweek before beginning the work. Keep daily records of the number of hours worked. Submit the records along with certified copies of the payroll weekly.

623.03 Surveying Services. Furnish personnel, equipment, and material that conform to the requirements of Subsection 152.01. Survey according to Section 152.

Survey and establish controls within the tolerances shown in Table 152-1, or within other tolerances as established by the CO.

Prepare field notes in an approved format. Furnish calculations. All field notes, supporting documentation, and calculations become the property of the Government upon completion of the work.

623.04 Office Technical Services. Furnish qualified engineering personnel experienced in highway construction and design, capable of performing in a timely and accurate manner. Provide personnel with a minimum of NICET Level II certification in highway design and construction, or State (SHA) or industry certification-related design and construction equivalent to their intended responsibilities. Personnel with 2 years or more of recent job experience in the type of highway design and construction provided for under the contract may be used in lieu of

certifications. Provide the names and relevant experience of all personnel. Furnish supporting tools and equipment (e.g., calculator, computer and software, and appropriate and commonly-used drafting tools for the assigned task).

All calculations, notes, and supporting documentation become the property of the government upon completion of the work.

623.05 Acceptance. Additional surveying services will be evaluated under Section 152.

Hired technical services will be evaluated under Subsections 106.02 and 106.04

Measurement

623.06 Measure the Section 623 items listed in the bid schedule according to Subsection 109.02 and the following as applicable.

Round portions of an hour up to the nearest half hour. Measure time in excess of 40 hours per week at the same rate as the first 40 hours.

For surveying services, the minimum field survey crew is two persons. Measure surveying service by the crew hour. Do not measure time spent in making preparations, performing calculations, plotting cross-sections and other data, and processing computer data, and other efforts necessary to successfully accomplish the ordered survey services.

Do not measure time for worker's transportation time to and from the project site.

Measure office technical services by the hour as ordered by the CO for performing calculations, plotting cross-sections and other data, and processing computer data.

Payment

623.07 The accepted quantities will be paid at the contract price per unit of measurement for the Section 623 pay item listed in the bid schedule. Payment will be full compensation for the work prescribed in this section. See Subsection 109.05.

Section 634. - PERMANENT PAVEMENT MARKINGS

Construction Requirements

634.03 General. Delete the last sentence of the first paragraph and substitute the following:

Place centerline and edge striping as recorded under Subsection 152.03(n).

Add the following:

The Contractor may use, upon approval, permanent pavement marking materials and layouts meeting current state approved standards that are practiced in the region of the project in lieu of contract requirements, if the state standards meet the requirements of the MUTCD. The material substituted must be equivalent to or better than that required in the specifications. Obtain the CO's approval before incorporating into the work. When requesting approval, furnish to the CO the applicable state standards (specifications and drawings), manufacturer's name and address, supplier's certification indicating material is produced to state approved specifications, pricing data showing cost difference for labor and materials, and any other available information describing application and performance. When directed, submit samples for approval at the Contractor's expense. Within 14 days, the CO will inform the Contractor as to the acceptance of the request. The unit price for the contract item(s) will be reduced to reflect any cost savings.

Section 635. - TEMPORARY TRAFFIC CONTROL

Construction Requirements

635.07 Construction Signs. Add the following to the end of the first paragraph:

Provide the same type of sheeting on all post-mounted construction signs that pertain to the project.

635.13 Temporary Pavement Markings and Delineation. Delete the text and substitute the following:

Before opening a pavement surface to traffic, remove all conflicting pavement markings by sandblasting or other methods that do not damage the surface or texture of the pavement. Make removal pattern uneven so it does not perpetuate the outline of the removed pavement markings. Lightly coat sandblasted or removal areas on asphalt surfaces with emulsified asphalt.

Provide pavement markings or delineation and signing according to Section 156, the MUTCD, and project plans. Install and maintain temporary pavement markings that are neat, crack free, true, straight, and unbroken.

For seasonal suspensions, apply permanent pavement marking pattern with temporary traffic paint.

Install permanent pavement markings within 14 days. If permanent pavement markings are not placed within 14 days, provide, at no cost to the contract, additional temporary delineation equivalent to the permanent pavement marking pattern required by the contract. Do not apply temporary traffic paint to the final surface.

For temporary pavement markings, use preformed retroreflective tape, traffic paint, or temporary raised pavement markers as follows:

(a) Temporary Markings. For temporary pavement markings, use preformed retroreflective tape, traffic paint, or temporary raised pavement markers as indicated in the plans and as follows:

(1) Preformed retroreflective tape. Apply according to the manufacturer's instructions. Remove all loose temporary preformed retroreflective tape before placing additional pavement layers.

(2) Temporary traffic paint. Apply temporary traffic paint at a 0.38-millimeter minimum wet film thickness (0.38 liters per square meter). Immediately apply type 1 glass beads on the paint at a minimum rate of 0.7 kilograms per liter of paint.

(3) Raised pavement markers. When chip seals, slurry seals, or tack coats are used after marker placement, protect the markers with an approved protective cover, which is removed after the asphalt material is sprayed.

Remove all temporary pavement markers before placing additional pavement layers. Remove all temporary pavement markings from the surface course before placing permanent pavement markings.

(b) Delineation for Unmarked Pavements with Vehicle Positioning Guides. For ADT's greater than 1000, vehicle positioning guides may be used in lieu of temporary markings for the delineation of unmarked pavements for a period of no longer than 3 days. For ADT's of 1000 or less, vehicle positioning guides may be used in lieu of temporary markings for the delineation of unmarked pavements for the full 14 day temporary marking period.

For unmarked pavements, install signing and vehicle positioning guides as indicated on plan sheet M635-2. Use vehicle positioning guides that meet the requirements of Subsection 718.21(b), raised pavement markers.

Remove all vehicle positioning guides before placing additional pavement layers. Remove all vehicle positioning guides from the surface course before placing permanent pavement markings.

Measurement

635.26 Delete the tenth paragraph and substitute the following:

Measure temporary pavement markings by the kilometer along the centerline of the roadway. Measure temporary pavement markings as a single measurement, inclusive of all markings, from end to end regardless of color, material type, or number of lines. Do not deduct for standard gaps between stripes. Measure only one application of temporary pavement markings per lift.

Measure vehicle positioning guides used at the option of the Contractor in lieu of temporary markings as equivalent temporary pavement markings. When vehicle positioning guides exceed the period of use stated in the plans, provide additional temporary or permanent pavement markings at no cost to the Government. Measure vehicle positioning guides by the kilometer

along the centerline of the roadway. Measure as a single measurement, inclusive of all markings, from end to end regardless of material type, gaps or number of lines. Measure only one application of vehicle positioning guides per lift. "DO NOT PASS", "PASS WITH CARE", and "NO CENTER STRIPE" signs required to be used with vehicle positioning guides are subsidiary to the temporary pavement marking item. Do not measure these signs as construction signs.

Section 702. - ASPHALT MATERIAL

702.01 Asphalt Binder. Delete the text of this Subsection and add the following:

Conform to M 320, Table 1. Conform to Subsection 702.04.

In AASHTO M 320, Table 1 replace footnote g with the following:

^g If the creep stiffness is below 300MPa, the direct tension test is not required. If the creep stiffness is between 301 and 600 MPa, the direct tension failure strain requirement shall be used in lieu of the creep stiffness requirement. The *m*-value requirement must be satisfied in both cases.

702.03 Emulsified Asphalt. Add the following:

(e) Other emulsified asphalts. Other emulsified asphalts not covered by item (a) through (d) will conform to the following:

(1) Saybolt furol viscosity at 50°C, AASHTO T 59	15 - 150 sec
(2) Settlement, AASHTO T 59	1% max.
(3) Residue by distillation, AASHTO T 59	65% min.
(4) Oil Distillate by volume, AASHTO T 59	25% max.
(5) Solubility in trichloroethylene, AASHTO T 44	97.5 % min.

Section 703. - AGGREGATE

703.06 Crushed Aggregate. Add the following to the end of the paragraph:

When aggregate is used as a surface course, furnish an aggregate with a Plasticity Index conforming to Table 703-3a.

Table 703-3a
Surface Course Gradation and Plasticity Index

Sieve Size	Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11)
19.0 mm	100
4.75 mm	41-71
425 µm	*
75 µm	5-20
Plasticity Index (PI)	4-12

(*) Submit target values for applicable sieves

703.07 Hot Asphalt Concrete Aggregate. Delete the text of this Subsection and substitute the following:

Furnish hard, durable particles or fragments of crushed stone, crushed slag, or crushed gravel conforming to the following:

- (a) Los Angeles abrasion, AASHTO T 96 35% max.
- (b) Sodium sulfate soundness, AASHTO T 104 (5 cycles):
 - Coarse aggregate 12% max.
 - Fine aggregate 12% max.
- (c) Fractured faces, ASTM D 5821 (one or more) 90% min.
- (d) Fine aggregate angularity, AASHTO T 304 (method A) 40% min.
- (e) Flat and elongated particles, ASTM D 4791 (1:5 ratio, +9.5 mm sieve, calculated by mass, weighted average) 10% max.
- (f) Sand equivalent AASTHO T 176 (referee method, alt 2) 45 min.

(g) Gradation. Size, grade and combined the aggregate fractions in mix proportions that result in a composite blend meeting the specified gradation. Nominal maximum size is one sieve size greater than the first sieve to retain more than 10 percent of the combined aggregate. Test according to AASHTO T 27 and T 11.

(1) See Table 703-12 for Superpave aggregate gradation.

(2) See Table 703-4 for Hveem or Marshall aggregate gradation.

For surface course, do not use aggregates known to polish or carbonate aggregates containing less than 25 percent by mass of insoluble residue when tested according to ASTM D 3042.

Section 706. - CONCRETE AND PLASTIC PIPE

706.08 Plastic Pipe. Delete the text and substitute the following:

Furnish perforated and nonperforated plastic pipe conforming to the following for the size and types specified. For watertight joints, conform to ASTM D 3212. For pipe culvert, furnish pipe conforming to types (a), (b), or (c) for the size specified.

(d) Corrugated polyethylene drainage tubing. Delete the title and text and substitute the following:

(d) Drainage pipe. Furnish polyethylene perforated or non-perforated corrugated plastic pipe conforming to AASHTO M 252. Furnish perforated or non-perforated polyvinyl chloride pipe with smooth interior, smooth or ribbed exterior conforming to AASHTO M 278, ASTM F 758, or ASTM F 949.

Section 712. – JOINT MATERIAL**712.01 Sealants, Fillers, Seals, and Sleeves**

(a) Joint sealants and crack fillers. Delete lines (1) and (2) and substitute the following:

- | | |
|--|-----------------------|
| (1) Concrete joint sealer, hot-poured elastic type | AASHTO M 324, TYPE II |
| (2) Joint Sealant, hot poured, for rigid
and asphalt pavement | AASHTO M 324, TYPE II |

714 – GEOTEXTILE AND GEOCOMPOSITE DRAIN MATERIAL

Add the following Subsection:

714.03 Geogrids

(a) Biaxial Geogrid – Furnish a polymeric grid formed by a regular network of integrally connected tensile elements with apertures of sufficient size to allow interlocking with surrounding soil, rock, or earth to function primarily as reinforcement. The biaxial geogrid should meet the requirements of Table 5.8.6.1.2A of the AASHTO Standard Specifications for Highway Bridges” (current edition and interims) and the following:

Property	Test Method	Units	Biaxial Geogrid	
			MD	XD
Rib Shape	Observation	N/A	Rectangular or Square	
Rib Thickness	Callipered	inch	.045	
Aperture Size	I.D. Callipered	inch	1.0	1.3
Junction Efficiency	GRI-GG2	%	93	
Flexural Rigidity	ASTM D1388	mg-cm	750,000	
Ultraviolet Stability	ASTM 4355	hrs.	70% at 500 hrs	
Initial Modulus	ASTM D6637	lb/ft	27,240	44,500
Tensile Strength @ 2%	ASTM D6637	lb/ft	410	590
Tensile Strength @ 5%	ASTM D6637	lb/ft	810	1340
ALL VALUES ARE MINIMUM AVERAGE ROLL VALUES UNLESS A RANGE OR CHARACTERISTIC IS INDICATED				

Submit the following for geogrid evaluation and approval:

1. Product sample approximately 1-foot by 1 foot or larger.
2. Product data sheet and certification from the Manufacturer that the geogrid product supplied meets the requirements of this Section.
3. Manufacturer's installation instructions and general recommendations.

Geogrid materials not meeting the requirements of this Section may be considered by submitting the following additional information.

1. Full-scale laboratory and in-ground testing of pavement structures reinforced with the specific geogrid that quantifies TBR of the geogrid to the pavement structure. The TBR must meet or exceed that of the design geogrid.
2. Submit a list of 5 comparable projects that are similar in terms of size and application, are located in the United States, and where the results of using the specific geogrid material can be verified after a minimum of 1 year of service life.

Section 718. - TRAFFIC SIGNING AND MARKING MATERIAL

718.14 Waterborne Traffic Paint.

(g) Daylight reflectance. (without glass beads) Delete the text and substitute the following:

(1) White, ASTM E 1347 84% relative to magnesium oxide standard

(2) Yellow, ASTM E 1347 55% relative to magnesium oxide standard

SPECIAL CONTRACT REQUIREMENTS
Option Y

Beartooth Highway (U.S. 212) Reconstruction Project

The following Special Contract Requirements amend and supplement the *Standard Specifications for Construction of Roads and Bridges, on Federal Highway Projects (FP-03) Metric Version*, U.S. Department of Transportation, Federal Highway Administration.

SI (METRIC)⁽¹⁾ TO U.S. CUSTOMARY CONVERSION FACTORS (approximate)

To the table on page iv, amend the second line of the MASS and the second line of the ILLUMINATION portion of the table as follows:

Symbol	When You Know	Multiply By	To Find	Symbol
MASS				
kg	kilograms	2.2046	pounds	lb
ILLUMINATION				
cd/m ²	candela/m ²	0.2919	foot-Lamberts	fl

Section 101. - TERMS, FORMAT, AND DEFINITIONS

101.03 Abbreviations. Add the following:

API — American Petroleum Institute

101.04 Definitions. Add the following:

Admixture — Substance added to the grout to either control bleed and/or shrinkage, improve flowability, reduce water content, retard setting time, or resist washout.

Alignment Load (AL) — A nominal load applied to a micropile during testing to keep the testing equipment correctly positioned.

Bond Length — The length of the micropile that is bonded to the ground and which is conceptually used to transfer the applied axial loads to the surrounding soil or rock.

Casing — Steel pipe introduced during the drilling process to temporarily stabilize the drill hole. Depending on the details of the micropile construction and composition, this casing may be fully extracted during or after grouting, or may remain partially or completely in place, as part of the final pile configuration.

Centralizer — A device to centrally locate the reinforcing element(s) within the borehole.

Coupler — The means by which the load can be transmitted from one partial length of reinforcement to another.

Design Load (DL) — Anticipated final maximum service load in the micropile.

Micropile — A small diameter, bored, cast-in-place pile, in which most of the applied load is resisted by the steel reinforcement.

Micropile Contractor — The person/firm responsible for performing the micropile work. The micropile Contractor may be the Contractor or subcontractor.

Overburden — Non-lithified material, natural or placed, which normally requires cased drilling methods to provide an open borehole to underlying strata.

Post Grouting — The injection of additional grout into the bond length of a micropile after the Primary grout has set. Also known as regrouting or secondary grouting.

Proof Test — Incremental loading of a micropile, recording the total movement at each increment.

Reinforcement — The steel component of the micropile which accepts and/or resists applied loadings.

Tremie Grouting — The placing of grout in a borehole via a grout pipe introduced to the bottom of the hole. During grouting, the exit of the pipe is kept at least 10 feet below the level of the grout in the hole.

Section 103. - SCOPE OF WORK

103.02 Disputes. Add the following:

Provide a project specific issue resolution matrix to the CO for approval that clearly identifies the responsibilities, organizational structure, chain of command, and anticipated durations for resolving disputes. Provide this information for review at the Preconstruction Meeting.

103.06 Issue Resolution. (Added subsection.)

Resolve project issues at the lowest authorized level, and in the most expedient manner possible. For those issues that cannot be resolved at the lowest authorized level, an Issue Escalation Matrix is included in this contract (See Table 103-1).

Resolve issues within the working days set forth in the Issue Escalation Matrix. Escalate issues not resolved within the working days established in the Matrix to the next higher level. An exception to this requirement may be observed when both parties agree to a longer period of time and extra time is needed for the development of facts.

Either party may request that an issue be escalated. Upon the request of either party, both parties shall escalate the matter. A request to escalate must be made in writing. Failure to meet the time periods set forth in the Matrix and any mutually agreed extension shall constitute grounds permitting the escalation of the issue.

Decision making is encouraged to be made at the lowest authorized level onsite. Recommendations, options, and ideas by all team members are requested. Decisions made at the lowest level possible will be supported by all management levels. Countermands of decisions will not be permitted, except where there is a conflict with code, regulation, law, the contract, or a change of critical facts or information which causes a re-evaluation of the resolution. Support of a countermand by the original decision team is critical. All Contractor and Government team members must understand why the change is necessary and must be able to support it.

Table 103-1
Issue Escalation Matrix

Contractor Representative	FHWA Representative	Time
On-site field management	Project Engineer	2 days
Off-site project manager	Construction Operations Engineer	5 days
Corporate Officer	Construction Engineer	10 days
President	Director of Project Delivery	20 days

Section 104. - CONTROL OF WORK

104.03 Specifications and Drawings. Add the following:

(c) As-built working drawings. Prepare and furnish as-built working drawings prior to final acceptance. The Government will provide one set of 280 x 430 millimeter contract drawings to be used exclusively for recording the as-built details of the project. Mark plans on title sheet "As-Built Plans". Use red ink to record the information described below.

Note all additions or revisions to the location, character and dimensions of the prescribed work shown on the contract drawings. Location changes are to be shown in the same coordinate system used for the staking notes. Strikeout all details shown that are not applicable to the completed work. Check and initial all plan sheets that were incorporated into the completed work without change.

Retain the drawings at the project site and, as work progresses, continuously update them to reflect the as-built details. Submit a copy of the updated as-built drawings at least every 30 days to the CO for review for compliance with these specifications.

As a minimum, show the following information on the as-built drawings:

(1) Title sheet

- (a) Name of contractor.
- (b) Name of Project Engineer.
- (c) Project completion date.
- (d) Revisions to project length.
- (e) Revisions to begin and end stations of project.
- (f) Revisions to index to sheets.
- (g) Strikeout any schedules or options not awarded.
- (h) A note stating "All work was constructed as designed unless otherwise noted."

(2) Typical section(s)

- (a) Revisions in dimensions.
- (b) Revisions in materials.
- (c) Revisions in station ranges.
- (d) Revisions to begin and end stations of project, and length of project.
- (e) Revisions to station equations.
- (f) Revisions to slope ratio and curve widening tables.
- (g) Revisions to any notes.

(3) Summary of quantities and tabulation sheets

- (a) Revisions to all quantities, locations, notes/remarks, including totals.
- (b) Strikeout unused pay items.
- (c) Revisions to application rates.
- (d) Revisions to location, type, end treatments, riprap, skew, on drainage summary.

(4) Control sheets

- (a) Show any control that was removed, destroyed, established, according to subsections 107.02, paragraph 2; 152.02, paragraph 2; and 152.03.
- (b) Use a unique naming convention for newly established control points. Do not reuse CFL control point numbers.

(5) Plan and profile and layout sheets

- (a) Revisions to the alignment; grades, elevations and stationing of intersection PIs; station equations and superelevation.
- (b) Major changes in the construction limits; particularly changes requiring additional design, additional right of way, or contract modifications. (Show information on plan and profile, layout sheets, and right of way plans if applicable.).
- (c) Revisions in location, type and grade of road approaches.
- (d) Revisions in locations of sub-excavation and roadway obliteration.
- (e) Revisions to culvert diameter, length, type, stationing, skew, riprap and end treatments.
- (f) Channel changes.
- (g) Location of monuments and permanent references replaced according to subsection 107.02.
- (h) Location, length, stationing and end treatment of roadside design features, including, but not limited to, guardrail, signs, fences, gates, etc.

- (i) Revisions in location of pavement markings.
 - (j) Revisions to parking areas or turnouts location.
 - (k) Revisions in location, type and length of curbs, sidewalks, and accessible ramps.
 - (l) Revisions to any notes.
 - (m) Revisions to permanent erosion control measures.
- (6) Structural sheets**
- (a) Stationing of bridge ends.
 - (b) Micropile locations, depth, inclination, bedrock depth and composition details.
 - (c) Revisions to footing and seal elevations.
 - (d) Any changes in plan or dimensions including any major changes in reinforcing.
- (7) Standards, details, and specials**
- Revisions to notes, dimensions, locations, and materials.

No direct payment will be made for preparing and furnishing as-built working drawings. A retention of 1/10th of 1% of payment due will be withheld from project pay estimates if the Contractor has not kept current the designated set of as-built plans. In addition, a retention of 1/10th of 1% of the contract amount paid to date will be withheld at the end of the project until the set of as-built plans has been submitted to and accepted by the Project Engineer. The final completed as-built working drawings must be submitted to and accepted by the Contracting Officer before final acceptance will be granted on the project.

Section 105. - CONTROL OF MATERIAL

105.01 Source of Supply and Quality Requirements. Add the following:

Submit samples of materials for quality verification testing for materials required to conform to Sections 703, 704, and 705.

Materials containing petroleum-based solvents such as cutback asphalts and traffic paints may be restricted from use by local laws or ordinances in certain geographic areas. Upon presenting proof of such restrictions, alternate materials considered acceptable to the CO may be substituted for the materials specified in the contract.

105.02 Material Sources.

(a) Government-provided sources. Add the following:

The Ghost Creek material source located 9.3 km west of the project and rock cuts are available for use on this project at the contractor's option.

The material may be used to produce the following construction materials:

- Roadway embankment

- Structural backfill
- Unclassified borrow
- Riprap class 3 and 4
- Individual boulders
- Aggregate base
- Aggregate-topsoil course
- Superpave pavement

Each material type produced must meet the aggregate quality requirements specified in the contract.

If the Contractor elects to use the Ghost Creek material source submit a Material Source Development Plan. Use Geotechnical reports to develop the Material Source Development plan. The plan will be approved by the CO prior to performing work within the Government-provided source. The Material Source Development Plan will include the method to best optimize all the material to produce the aggregate types required in the contract. The Contractor will perform all work necessary to produce acceptable material including site development, preparation, erosion control and reclamation. The Material Source Development Plan must address, but is not limited to, the following:

- Reclamation plan
- Erosion control plan
- Optimization and source development plan to utilize material source for applicable construction material types

The Contractor will be responsible to ensure all materials meet the specifications prior to being incorporated into the project.

(b) Contractor-located sources. Add the following to the end of the first paragraph:

For Contractor-located, non-commercial sources, secure environmental clearances according to Subsection 107.10.

Water for this project is available at the Beartooth Lake. Use the Beartooth Lake boat ramp. Configure the boat ramp to allow continuous public use of the ramp during the loading of the water. Repair the boat ramp after use as approved by the CO.

105.04 Storing and Handling Material. Add the following after the third sentence of the second paragraph:

Forest Service Special Use Permits (SUP) for all areas within the clearing limits and for non-commercial staging, storing, and material handling areas have been obtained and are included in the Appendix. For Contractor-located, non-commercial staging, storing, and material handling areas **outside** of the areas covered by the SUP and on USFS property, evaluate the environmental documentation for the project to determine if sensitive resources exist. Obtain a FS SUP. Obtain

the SUP prior to beginning work by contacting the SNF Staff Recreation Officer, Shoshone National Forest, 808 Meadow Lane, Cody, Wyoming 82414. The telephone number is (307) 578-1200. SUPs may contain work restrictions and/or stipulations that significantly impact types, methods, and amounts of work, material handling, or storage allowed in these areas. In addition to those stipulations required by the FS in SUPs, reclamation of areas used for staging, storing, or material handling will be as directed by the CO, and may include restoring the terrain to natural contours and applying topsoil, seed, mulch, and erosion controls, in accordance with the applicable provisions of these specifications.

Add the following:

The Contractor may use Ghost Creek and the pullout south of the Top of the World Store for a staging area. These staging area locations have been cleared environmentally and are included in the FS SUP obtained by FHWA. A FS operations plan for any staging, storage, or aggregate production is required. Submit operation plans to the CO for approval prior to use of each site and upon change of operations at any site. Locate additional staging areas and equipment and material storage facilities at sites with minimum visibility from the road, where possible. If the Contractor elects to use private land, the Contractor is responsible for obtaining, environmentally clearing, and reclaiming any private property staging and waste sites.

The Ghost Creek site is also available for the storage and production of aggregate materials for this project. Commercial sources are acceptable.

Transplant wetland topsoil, salvaged wetland and upland sod, and salvaged willows immediately after salvaging unless storage is approved by CO.

Store plant materials to ensure survival and health, when storage of topsoil, salvaged sod, salvaged willows, and other plant materials is unavoidable. Supply all necessary water to plant materials to ensure health and survival. Create planting beds in stockpile areas in which to temporarily plant salvaged willows. Place salvaged sod chunks adjacent to one another so that moisture is maintained between sod chunks. Place subsoil material around the edges of salvage sod to keep the edges from drying. Plant roots must at no time become dry or be exposed to air for more than 10 minutes.

Section 106. - ACCEPTANCE OF WORK

106.01 Conformity with Contract Requirements. Delete the text and substitute the following:

Follow the requirements of FAR Clause 52.246-12 Inspection of Construction.

References to standard test methods of AASHTO, ASTM, GSA, and other recognized standard authorities refer to the methods in effect on the date of solicitation for bids.

Perform all work to the lines, grades, cross-sections, dimensions, and processes or material requirements shown on the plans or specified in the contract.

Incorporate manufactured materials into the work according to the manufacturer's recommendations or to these specifications, whichever is more strict.

Plan dimensions and contract specification values are the values to be strived for and complied with as the design values from which any deviations are allowed. Perform work and provide material that is uniform in character and reasonably close to the prescribed value or within the specified tolerance range. The purpose of a tolerance range is to accommodate occasional minor variations from the median zone that are unavoidable for practical reasons.

When standard manufactured items are specified (such as fence, wire, plates, rolled shapes, pipe conduits, etc., that are identified by gauge, unit mass, section dimensions, etc.), the identification will be considered to be nominal masses or dimensions. Unless specific contract tolerances are noted, established manufacturing tolerances will be accepted.

The Government may inspect, sample, or test all work at any time before final acceptance of the project. When the Government tests work, copies of test reports are furnished to the Contractor upon request. Government tests may or may not be performed at the work site. If Contractor testing and inspection is verified by the Government, the Contractor's results may be used by the Government to evaluate work for acceptance. Do not rely on the availability of Government test results for process control.

Acceptable work conforming to the contract will be paid for at the contract unit bid price. Four methods of determining conformity and accepting work are described in Subsections 106.02 to 106.05 inclusive. The primary method of acceptance is specified in each Section of work. However, work may be rejected at any time it is found by any of the methods not to comply with the contract.

Remove and replace work that does not conform to the contract, or to prevailing industry standards where no specific contract requirements are noted, at no cost to the Government.

(a) Disputing Government test results. If the accuracy of Government test results is disputed, promptly inform the CO. If the dispute is unresolved after reasonable steps are taken to resolve the dispute, further evaluation may be obtained by written request. Include a narrative describing the dispute and a proposed resolution protocol that addresses the following:

- (1) Sampling method
- (2) Number of samples
- (3) Sample transport
- (4) Test procedures
- (5) Testing laboratories
- (6) Reporting
- (7) Estimated time and costs
- (8) Validation process

If the evaluation requires additional sampling or testing be performed, mutually agree with the Government on witnessing procedures and on sampling and testing by a third party laboratory.

Use a third party laboratory accredited by the AASHTO accreditation program. Provide proof of the laboratory's accreditation for the test procedures to be used. Do not use the same laboratory that produced the disputed Government test results or that produced the test results used as a basis for the dispute.

The CO will review the proposed resolution protocol and may modify it before final approval and execution.

The Government will use the approved resolution protocol test results to determine the validity of the disputed testing. If the Government test results are validated, the Contractor will be responsible for all costs associated with developing and performing the resolution protocol. If the Government test results are not validated, the Government will be responsible for all costs associated with developing and performing the resolution protocol. If the validity of the Government test results cannot be determined, the Contractor and Government will equally share all costs associated with developing and carrying out the resolution protocol.

(b) Alternatives to removing and replacing non-conforming work. As an alternative to removal and replacement, the Contractor may submit a written request to:

- (1) Have the work accepted at a reduced price; or
- (2) Be given permission to perform corrective measures to bring the work into conformity.

The request must contain supporting rationale and documentation. Include references or data justifying the proposal based on an evaluation of test results, effect on service life, value of material or work, quality, aesthetics, and other tangible engineering basis. The CO will determine disposition of the nonconforming work.

Where sample/testing procedures make reference to AASHTO, ASTM, or other standards (designated as FLH T), the procedure as modified in the Materials Manual shall govern. Where the specifications make reference to AASHTO Test T11, "Procedure B - Washing Using a Wetting Agent" shall be the procedure followed.

Where the specifications make reference to AASHTO Test T310, "Direct Transmission Method of In-Place Nuclear Density and Moisture Content" shall be the procedure followed.

Reference to the Materials Manual means the Federal Lands Highway "Field Materials Manual, U.S. Department of Transportation, Federal Highway Administration," Publication No. FHWA-FL-91-002, dated March 1991, revised March 1994, and all amendments and supplements thereto. Copies are available upon request by emailing CFLContracts@fhwa.dot.gov or by faxing a request to 720-963-3660.

106.03 Certification. Add the following after the second paragraph:

See Table 106-3 for schedule for full or partial acceptance by material certification. Submit certification and sample of material for testing as required.

106.05 Statistical Evaluation of Work and Determination of Pay Factor (Value of Work).

(b) Acceptance. Delete the last sentence of the second paragraph and substitute the following:

If a lot is concluded or terminated with fewer than three samples, the samples will be combined with those of an adjacent lot. In the event there is no adjacent lot, the material will be accepted according to Subsection 106.04.

Table 106-2 Pay Factor.

The Pay Factor 1.03, category I row: Delete the value 84 in the n=9 column and substitute the value 94.

The Pay Factor 0.75, category II row: Delete the value 35 in the n=3 column and substitute the value 25.

Table 106-3 Schedule For Full or Partial Acceptance by Materials Certification. Add Table 106-3 following Table 106-2.**Table 106-3
Schedule For Full or Partial Acceptance by Materials Certification**

Section	Description	Material	Material Property Or Specification	Frequency	
				Certification	Sample
306	Dust Palliative	Magnesium Chloride, Emulsified Asphalt, Lignin Sulfonate, Calcium Chloride	As specified	1 per shipment	First shipment
308	Minor Crushed Aggregate	Crushed Aggregate	Source, Quality and Gradation	1 per source	1 per source
404 and 417	Minor Hot Asphalt Concrete, Minor Cold Asphalt Mix	Aggregate Asphalt Mix	Source quality, Gradation, Stability, and Grade	1 per mix	1 per source
634 and 635	Permanent Pavement Markings, Temporary Traffic Control	634.02 as applicable, 635 as applicable	As specified	1 per source	-----
701	Hydraulic Cement	Portland Cement, Blended Hydraulic Cement and Masonry Cement	AASHTO M 85, M 240, and ASTM C 91	1 per shipment	1 per 100 tons
702.01	Asphalt Material	Asphalt Cement	AASHTO M 20, M 226, MP 1 or as applicable	1 per shipment	1 per shipment
702.02	Asphalt Material	Cut-back Asphalt	AASHTO M 81 or M 82 as applicable	1 per shipment	1 per shipment
702.03	Asphalt Material	Emulsified Asphalt	AASHTO M 140 or M 208 as applicable	1 per shipment	1 per shipment
702.05	Asphalt Material	Asphalt Materials used for Damproofing and Waterproofing Concrete Surfaces	As specified for each type of asphalt material	1 per shipment	-----
702.06	Recycling Agent	As specified	As applicable	1 per shipment	1 per shipment
702.08	Antistrip	As specified	As applicable	1 per shipment	-----
706	Concrete and Plastic Pipe	As specified	As applicable	1 per shipment	-----
707	Metal Pipe	Metal Pipe as specified	As applicable	1 per shipment	-----
708	Paint	As specified	As applicable	1 per batch\lot	1 sample for quantities >100L

Section	Description	Material	Material Property Or Specification	Frequency	
				Certification	Sample
709	Reinforcing Steel and Wire Rope	As specified	As applicable	1 per shipment	For 709.01 & 709.03 submit 3 1-meter bars of each size and grade of bar furnished. 709.02 submit 1 2-meter length for each size furnished
710	Fence and Guardrail	As specified	As applicable	1 per shipment	-----
711	Concrete Curing Material and Admixtures	As specified	As applicable	1 per material source per material type	-----
712	Joint Material (all)	As specified	As applicable	1 per shipment	-----
713	Roadside Improvement Materials (all)	As specified	As applicable	1 per shipment	-----
714	Geotextile and Geocomposite Drain	As specified	As applicable	1 per shipment	1 per project per type
715	Piling	As specified	As applicable	1 per shipment	-----
716	Material for Timber Structures	Timber and Hardware	As applicable	1 per shipment	-----
717	Structural Metal	As specified	As applicable	1 per shipment	717.01(e) minimum 6 per shipment for each size used. 717.10 1 per project
718	Traffic Signing and Marking (all)	As specified	As applicable	1 per shipment	-----
720	Structural Wall and Stabilized Materials (all)	As specified	As applicable	1 per shipment per material type	-----
721	Electrical and Illumination Material (all)	As specified	As applicable	1 per shipment per material type	-----
722	Anchor Material	As specified	As applicable	1 per shipment per material type	-----
725	Miscellaneous materials	As specified	As applicable	1 per shipment per material type	-----

Section 107. - LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC**107.01 Laws to be Observed. Add the following:****Section 401 and 404 of the Clean Water Act.**

The Federal Highway Administration has applied for the 404 Permit. We anticipate approval of the 404 Permit prior to bid opening. The 401 Permit will be issued simultaneously with the 404 Permit.

Comply with the terms and conditions of the 404 permit and with the terms and conditions, if any, specified in the 401 certification. Comply with the terms and conditions of any permits that are issued for the performance of work within the jurisdictional waters of the U.S.

The U.S. Army Corps of Engineer's has authorized the discharge of dredged or fill material by Permit Number 199840159. Construct the project consistent with the terms and conditions of the permit. A copy of the requirements is contained in the Appendix to these SCRs.

National Pollutant Discharge Elimination System (NPDES)

(a) General. Implement the requirements of the National Pollutant Discharge Elimination System (NPDES) for erosion control due to storm water runoff during construction as specified under the Small Construction Storm Water General Permit, WYR10-A000, for Wyoming.

Comply with all of the requirements of the CGP. Develop a Storm Water Pollution Prevention Plan (SWPPP) describing the measures to be implemented at the construction site (including staging, storage, fueling and maintenance areas) that will eliminate or minimize pollutants in storm water runoff from the site and not cause a violation of water quality standards.

Designate the erosion control/water quality supervisor pursuant to Special Contract Requirement (SCR) 157.03 who will be responsible for implementing the SWPPP. The supervisor must be on-site during construction and can not be the project superintendent. The erosion control/water quality supervisor must be familiar with the CGP and the SWPPP procedures and practices to ensure that these are punctually updated in the SWPPP and available for inspection.

Obtain a separate NPDES permit associated with industrial activity for any mobile asphalt plant and/or concrete plant. Storm water discharge from these activities can be covered by this permit if the plants are dedicated only to this project, equipment is removed and the affected areas are reclaimed after construction, and there is no potential to discharge storm water to class 1 water.

Do not initiate land disturbing activities (clearing, grubbing, and earthwork) until the DEQ has provided written notice that coverage under the CGP is authorized and the SWPPP has been developed and implemented.

(b) Preparation of SWPPP. At least five weeks prior to beginning construction, provide a draft SWPPP to the CO for review/approval which includes the following information and forms:

- (1) The SWPPP Administrator's name or job title
- (2) Site description that includes the items listed in Part 7.2.2 of the CGP
- (3) Site map(s) that include the items listed in Part 7.2.3 of the CGP
- (4) A schedule of the expected sequencing of construction operations and implementation and maintenance of pollutant controls, including dust control
- (5) A narrative description of the best management practices (BMPs), which will be implemented for each major activity before, during, and after (post) construction, including permanent and temporary erosion and sediment controls. Phases of construction that must be addressed include, but are not limited to, clearing and grubbing for perimeter controls, remaining clearing and grubbing, grading, storm drain installation, final grading, stabilization, and removal of control measures
- (6) Erosion control details and quantities provided in the construction plans
- (7) A list of potential pollutants, other than sediment, that may be generated onsite
- (8) Controls for potential onsite pollutants other than sediment
- (9) Description of potential non-storm water discharges at the site
- (10) BMPs for construction site dewatering (removal of storm water)
- (11) Spill prevention, control, and countermeasures plan (see d below)
- (12) Weather monitoring procedure
- (13) Applicable specifications and special contract requirements (SCRs)
- (14) Maintenance and inspection schedule and inspection documentation form that includes the information in Part 9.1.6 of the CGP
- (15) Contractor and subcontractor certification forms
- (16) Other record keeping forms and procedures
- (17) "Good housekeeping" practices and requirements
- (18) Copy of the CGP
- (19) Copy of the NOI and letter of authorization from DEQ

Modify the erosion control details, layout sheets, and quantities included in the plans if necessary to address project site conditions and proposed construction operations and include them in the SWPPP.

Jointly review the draft SWPPP with the CO and agree to any needed revisions. Jointly approve and sign the revised SWPPP consistent with Part 10.7 of the CGP. When the SWPPP is approved and signed by the CO and Contractor, it will be the document in force on the project. Implement the SWPPP throughout the construction period. Update the SWPPP to comply with the CGP and ensure that it is effective in eliminating and minimizing pollutants in storm water runoff from the site.

Place the SWPPP and all updates in a three-ring binder so that completed inspection forms and other records may be inserted. Maintain a copy of the most current version of the SWPPP, including inspection records and other forms, at the active job site throughout the duration of the

project. Make the SWPPP available for public inspection and for the inspection and use of the CO.

Maintain all related erosion controls in proper working order throughout construction.

Sign the certification form in the SWPPP acknowledging that the requirements of the CGP are understood. Ensure that all subcontractors are familiar with the requirements of the CGP and sign the certification form.

At the completion of the project, provide the CO with the SWPPP, including all of the inspection and other records.

(c) Erosion Controls. Implement soil erosion controls according to the SWPPP and Section 157. Install and maintain controls following the manufacturer's specifications/guidance and good engineering practices.

Implement temporary stabilization measures of exposed soil areas where further work is not expected to be implemented for 28 days or more.

Visible or measurable erosion/sediment which leaves the construction site as a result of inadequate or ineffective SWPPP design or maintenance of BMPs is prohibited.

(d) Controls for Other Pollutants. List the quantities of petroleum products and hazardous material used for this project in the SWPPP.

Implement controls to eliminate the discharge of pollutants (other than sediment) into storm water, such as pollutants from materials stored onsite. Describe the spill prevention and material management controls and practices, including storage methods for chemicals and construction materials in the SWPPP.

Describe the practices to be implemented that will provide adequate containment of petroleum spills and prevent any spilled material from entering waters of the state or municipal storm water systems. Also, include the practices that will be used for addressing a spill including the methods of handling and disposing of spilled products and contaminated soil. A spill prevention, control, and countermeasures plan is required if the volume of oil (including fuel) in a single location exceeds 1,320 gallons. The shell volume is the total of all containers with a capacity of 55 gallons or more.

Locate machinery servicing and refueling areas away from streambeds and washes to reduce the possibility of impacting these areas by accidental spills or discharge.

Describe the practice(s) that will be implemented to contain concrete wash water and prevent it from entering surface waters and/or storm drains. Do not discharge concrete wash water to waters of the state or to storm water systems.

Describe the BMPs to control storm water pollution from portable concrete or asphalt batch plants covered under this permit.

(e) “Good Housekeeping” Practices and Requirements. Specify the Contractor’s “good housekeeping” practices and requirements in the SWPPP. These include vehicle wash-down areas, methods for recovering sediments transported off of the construction site, onsite and offsite tracking control, protection of equipment storage and maintenance areas, and sweeping of highways and roadways related to hauling activities..

Take precautions and implement measures to prevent pollution of streams, lakes, reservoirs and other surface waters with litter, construction debris, fertilizers, fuels, oil, bitumens, calcium chloride, magnesium chloride, Portland cement, fresh Portland cement concrete, sanitary wastes, muddy water, chemicals or other harmful materials. Do not discharge these materials into channels leading to any stream, lake or reservoir.

Locate machinery servicing and refueling areas away from streambeds and washes to reduce the possibility and minimize the impacts of accidental spills or discharge.

Remove non-waste materials such as used cans, oils, machine and equipment parts, paint, hazardous materials, plastic and rubber parts, discarded metals, and building materials from the construction site and dispose of at an approved landfill.

Where the Contractor’s working area encroaches on a running or intermittent stream, construct and maintain adequate barriers to prevent the discharge of any contaminants into the stream.

Do not operate mechanical equipment in running streams unless approved in writing by the CO. Fording of running streams with construction equipment will not be permitted. Obtain approval from the CO to use temporary bridges or other structures whenever crossings are necessary.

Immediately clear streams, lakes and reservoirs of all work items, debris or other obstructions inadvertently placed thereby or resulting from construction operations.

Install silt fence and erosion and sediment control measures as shown in the plans in all construction areas that contribute to wetlands and other aquatic resources prior to construction.

(f) Inspections and Maintenance. During construction, inspect disturbed areas and storm water outfalls to assess if measurable quantities of sediment or other pollutants are being transported offsite, control measures, areas used for storage of materials and locations where vehicles enter or exit the site, at least once every 14 calendar days and within 24 hours after the end of a storm or snow melt event of greater than 13 millimeters (0.5 inches). During seasonal shutdowns inspect the site at least once per month. Inspections are not required in severe weather conditions or during winter when melting conditions do not exist. Monitor rainfall with a rain gauge accurate to the nearest 3 millimeters (0.125 inches) of rain. Correct deficiencies in pollution control structures or procedures immediately. Summarize and record the measures taken to correct the deficiencies in the SWPPP.

Document inspections and maintenance activities on forms that include the information provided in Part 9.1.6 of the CGP. Sign inspection forms consistent with Part 10.7 of the CGP. Keep the inspection forms and record of maintenance activities in the SWPPP notebook throughout the construction period.

(g) Revisions to the SWPPP. Revisions to the SWPPP may be necessary during construction to make improvements or to respond to unforeseen conditions noted during construction or site inspections. For that purpose, specify in the SWPPP the mechanism whereby revisions may be proposed by the Contractor or the CO and incorporated into the plan, including review and approval of minor changes. Jointly approve and sign each revision to the SWPPP before implementation. Modify the plan whenever there is a change in design, construction, operation, or maintenance that changes the potential for the discharge of pollutants into state waters. Modify the plan if it is ineffective in eliminating or minimizing pollutants present in storm water. Implement approved modifications immediately after deficiencies are noted.

(h) Dewatering. Construction site dewatering under this permit is limited to storm water and minor amounts of ground water. The latter is defined in Part 8.8 of the CGP.

Implement treatment(s) for turbid and sediment-laden water and discharge BMPs so that the discharge does not violate water quality standards, cause erosion and scouring at the discharge point or adversely affect downstream landowners. Describe the treatments/BMPs that will be used to meet these requirements in the SWPPP.

(h) Notice of Intent (NOI). An NOI will be submitted to DEQ by the government. If this project disturbs more than 100 acres or if there is a potential to discharge storm water to a class 1 surface water, the approved SWPPP must be submitted to DEQ. Provide a copy of the approved SWPPP to the CO for transmittal to DEQ at least 35 days prior to the beginning construction. (The SWPPP must be received by DEQ at least 30 days prior to initiating construction.)

Do not begin construction until DEQ has provided the government with an authorization letter.

Post a copy of the NOI and the DEQ authorization letter at the project site bulletin board and include a copy in the SWPPP.

107.02 Protection and Restoration of Property and Landscape. Delete the sixth paragraph and substitute the following:

Before beginning work in an area, contact the local Utility Locator Service, at the phone number shown in the plans, to have all utilities located. Protect utilities from construction operations. Cooperate with utility owners to expedite the relocation or adjustment of their utilities to minimize interruption of service, duplication of work, and delays.

Add the following:

Minimize disturbance and protect stream bank vegetation except where its removal is absolutely necessary for completion of the work. Dispose of any vegetation, debris, or other material removed during construction at some location out of the stream channel or adjacent wetland areas where it cannot re-enter the channel during high stream flow or runoff events. Revegetate all cut and fill slopes in stream channel that will not be protected with riprap with appropriate species to prevent erosion. Clear all areas to be filled of all vegetation debris and other materials that would be objectionable to the fill. Place, compact, and subsequently protect all fill areas from erosion.

Restore all temporarily impacted wetlands to original condition and grade immediately following construction.

The Beartooth Highway Reconstruction project is in a location that contains natural resources that must be avoided at all times, such as wetlands, fens, and FS species of concern. Construction activities outside of the clearing limits for any reason are not allowed without approval from the CO. Allow a minimum of two weeks for amendment of the SUP for work outside the construction limits. Impacts that result from unauthorized construction activities outside of the construction limits, and any remediation, fines, or other costs or punishment according to federal and state law associated with those impacts are the responsibility of the Contractor.

Stop construction immediately and notify the CO if historic properties, including but not limited to artifacts and human remains, are discovered during implementation of the proposed construction or if unanticipated effects on previously identified historic properties occur.

107.03 Bulletin Board. Add the following:

(g) “Beck” poster, according to FAR Clause 52.222-39 Notification of Employee Rights Concerning Payment of Union Dues or Fees.

107.10 Environmental Protection. Delete the text and substitute the following:

(a) **Spills of Petroleum Products or Hazardous Materials.** Properly clean up, mitigate, and remedy, if necessary, all spills of petroleum products, hazardous materials, or other chemical or biological products released from construction, fleet, or other support vehicles, or stationary sources. Respond in accordance with federal, state, and local regulations.

Immediately report to the CO any spill of petroleum products or a hazardous material. Report the spill to the appropriate federal, state, and local authorities, if the spill is a reportable quantity.

(b) **Water pollution.** Do not operate mechanized equipment or discharge or otherwise place any material within the wetted perimeter of any waters of the U.S. within the scope of the Clean Water Act (33 USC § 1251 et seq.). This includes wetlands unless authorized by a permit issued

by the U.S. Army Corps of Engineers according to 33 USC § 1344, and, if required, by any State agency having jurisdiction over the discharge of material into the waters of the U.S. In the event of an unauthorized discharge:

- (1) Immediately prevent further contamination;
- (2) Immediately notify appropriate authorities; and
- (3) Mitigate damages as required.

Comply with the terms and conditions of any permits that are issued for the performance of work within the wetted perimeter of the waters of the U.S.

Separate work areas, including material sources, by the use of a dike or other suitable barrier that prevents sediment, petroleum products, chemicals, or other liquid or solid material from entering the waters of the U.S. Use care in constructing and removing the barriers to avoid any discharge of material into, or the siltation of, the water. Remove and properly dispose of the sediment or other material collected by the barrier.

(c) Vehicles and equipment. All vehicles and equipment entering the project area must be clean of noxious weeds and free from oil leaks and are subject to inspection. Wash all construction equipment to thoroughly remove all dirt, plant, and other foreign material prior to entering the project. Particular attention must be shown to the under carriage and any surface where soil containing exotic seeds may exist. These efforts are critical to prevent the introduction and establishment of non-native plant species into the project area. Make arrangements for the CO to inspect each piece of equipment before entering the project. The CO will maintain records of inspections. Equipment found operating on the project that has not been inspected, or has oil leaks will be shut down and subject to citation.

In general, when gasoline, diesel fuel, antifreeze, hydraulic fluid or any other chemical contained within the vehicle is released to the pavement or ground, proper corrective, clean-up, and safety actions specified in the SWPPP must be immediately implemented. All vehicles with load rating of 2 tons or greater should carry, at minimum, enough absorbent materials to effectively immobilize the total volume of fluids contained within the vehicle.

Repair oil leaks immediately on discovery. Do not use equipment that is leaking. Have oil pans and absorbent material in place prior to beginning repair work. Have the “on scene” capability of catching and absorbing leaks or spillages of petroleum products including antifreeze from breakdowns or repair actions with approved absorbent materials. Keep a supply of acceptable absorbent materials at the job site in the event of spills, as defined in the SWPPP. Sand or soil are not approved absorbent materials.

Use oil pans and absorbent materials to prevent leaks, spills and draining petroleum fluids from falling onto bare ground and paved surfaces during servicing of equipment. Dig up soils contaminated with such fluids, place in appropriate safety containers, and dispose of according to state and/or federal regulations.

(d) Environmental Clearances.

(1) Contractor-Selected, Non-Commercial Areas. Contractor-selected, non-commercial areas include, but are not limited to, material sources, disposal sites, waste areas, haul roads, and staging areas. (A commercial source is a current operating concern, which has in the recent past provided same-type materials or services). These requirements do not apply for areas identified by the FHWA as having previously received clearance.

Prior to construction activities in Contractor-selected, non-commercial areas, provide the following to the CO and the FHWA Environmental Section (12300 West Dakota Avenue, Lakewood, CO 80228/Fax 720-963-3610):

(a) A report with documentation, according to the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, to determine if prehistoric or historic buildings, structures, sites, objects, or districts listed or eligible for listing in the National Register of Historic Places (NRHP) are present and if they will be affected by the proposed activity. Include information identifying the location, total land area, and type of activity proposed. The FHWA will review this documentation. The FHWA will coordinate with the State Historic Preservation Officer (SHPO) and other parties, which will require the following time frames:

- (1) Coordination on a "no effect" determination may require 30 days or longer.
- (2) Coordination on eligibility and affects may require 45 days or longer.
- (3) Coordination on mitigation of adverse effects may require 60 days or longer.

(b) Written documentation that such activities will not affect any "Waters of the U.S." as defined by the U.S. Army Corps of Engineers. Provide documentation by an individual capable of performing wetland delineations according to the 1987 Corps of Engineers' manual. Documentation of effects to wetlands or other Waters of the U.S. will be submitted to the CO and to the FHWA Environmental section. If wetlands are affected, coordination with the Corps of Engineers may require 45 days or longer.

(c) Written documentation that such activities will not affect any species protected under the Endangered Species Act (ESA). Provide documentation prepared by a biological specialist. The written documentation will include a "no effect," a "may affect-is not likely to adversely affect," or a "may affect-is likely to adversely affect," determination according to Section 7 of the Endangered Species Act. Submit the documentation to the CO and the FHWA Environmental Section. If the determination is "may affect-is not likely to adversely affect" or "may affect-is likely to adversely affect," the FHWA will coordinate with the U.S. Fish and Wildlife Service (FWS), which will require the following time frames:

- (1) "May affect-is not likely to adversely affect" may require 45 days or longer.
- (2) "May affect-is likely to adversely affect" may require 150 days or longer.

Contract time will not be increased due to the submittal and approval process for the above three items.

(e) Environmental commitments. The Federal Highway Administration CO, in cooperation with the Shoshone National Forest and Yellowstone National Park will oversee the construction of the project to ensure all environmental commitments detailed in the plans and special contract requirements are met. Provide immediate corrective measures as directed by the CO when notification is given that the work is out of compliance.

Environmental and safety awareness training will be provided by the FHWA and Shoshone National Forest for all construction employees working on-site. This training is mandatory and will be provided in the following form:

- (1) Working in Bear Country DVD (22 minutes in length)
- (2) Staying Safe in Bear Country DVD (48 minutes in length)
- (3) General Environmental Requirement (Checklist)
- (4) Grizzly Bear Requirement (Checklist)

The Environmental Responsibilities Checklist (Checklist) is contained in the Appendices to these SCRs. Provide each employee and sub-contractor employee with a copy of the DVDs and Checklist and submit written proof to the CO that each employee has viewed the DVDs and read and understands the Checklist.. Provide all new employees with the complete environmental training prior to their presence on the project site. No employee will be allowed on the project site until completion of the environmental training and understanding of the environmental commitments.

The Federal Highway Administration, in conjunction with the Shoshone National Forest representatives will monitor vegetation cover and implement contingency and maintenance plans until vegetation cover is 70 percent of the original background vegetation cover in accordance with the NPDES permit requirements and fulfilled by the contractor.

Prepare and submit a weed management plan for approval by the CO. Implement the approved weed management plan. Implement inspections and spot controls every three weeks to prevent weed establishment. Maintain records of inspections. Monitor vegetation changes in the work site resulting from ground disturbance and develop a plan to remove exotic forbs in the disturbed post-construction areas. Use the best available scientific-based technology (e.g., USDA plants database, SNF resource specialist, etc.) to attempt to prevent exotic clover (*Trifolium hybridum*) from growing in the disturbed areas.

If off-site aggregate sources are required, use only certified weed free materials sources as approved by the CO.

Prior to work or placement of embankment in wetland areas, place Geotextile, Type II-A separation fabric over the wetland area. Follow manufacturer's recommendations for geotextile placement.

Comply with Forest Service regulations and the environmental Checklist in the conduct of all activities. All Contractor and sub-contractor employees will be required to complete the environmental training that includes grizzly bear awareness information. The Contractor's full cooperation in meeting grizzly bear management goals and objectives of the USFS will be a condition to receiving authorization to continue to operate pursuant to the SUP.

Report all grizzly bear sightings to the CO immediately who will in turn report to the Forest Officer in charge and the Wyoming Game and Fish Department.

In the event of a human/bear conflict, or in order to prevent an imminent potential conflict, the CO may order an immediate temporary cessation of all project activity in the immediate area of the conflict or potential conflict. Comply with such action immediately. The cessation will remain in effect until such time as the appropriate authorities have been contacted and any risk to humans and bears has been successfully resolved in accordance with Interagency Grizzly Bear Guidelines.

Report all road kill on or near the road to the CO immediately.

107.11 Protection of Forests, Parks, and Public Lands. Add the following:

The following Forest Service fire prevention plan involving emergency curtailment of operations is in effect on this project. The CO will order the suspension of burning and other operations as directed by the Forest Service. No adjustment in the contract completion date will be made for partial or total suspensions of burning operations.

Fire Precautions.

1. Smoking and Lunch Fires. Smoking is prohibited except inside a building, developed recreation site, vehicle, or while seated in an area of at least three feet in diameter that is barren or cleared of all flammable materials.

The building of camp, lunch, warming and other fires within the construction limits and vicinity is prohibited except at the Fox Creek Work Camp.

2. Spark Arrester and Mufflers. Operating or using any internal combustion engine, on any timber, brush, or grass covered land, including trails and roads traversing such land, without a spark arrester, maintained in effective working order, meeting either (I) Department of Agriculture, Forest Service standard 5100, "SPARK ARRESTERS FOR INTERNAL COMBUSTION ENGINES," (current edition); or (II) the Society of Automotive Engineers (SAE) recommended Practices J335, "MULTIPOSITION SMALL ENGINE EXHAUST SYSTEM FIRE IGNITION SUPPRESSION," (current revision) and J350, 36 CFR 261.52(j), is prohibited.

Equip passenger carrying vehicles, pickups, medium and large highway trucks (80,000 GVW) with a factory designed muffler system which is specified for the make and model of

the respective vehicle/truck or with a muffler system that is equivalent or that exceeds factory specifications.

Properly install and continually maintain in serviceable condition exhaust systems.

3. Fire Extinguishers and Tools on Equipment. While in use, provide each internal combustion engine including tractors, trucks, yarders, loaders, welders, generators, stationary engines, or comparable powered equipment with at least the following:
 - (a) One fire extinguisher, at least 5#ABC with an Underwriters Laboratory (UL) rating of 3A - 40BC, or greater.
 - (b) One shovel, sharp, size O or larger, round-pointed with an overall length of at least 48 inches.
 - (c) One axe, sharp, double bit 3-1/2#, or one sharp pulaski.

Mount extinguishers, shovels, axes, and pulaskis so as to be readily available from the ground. Maintain tools in a serviceable condition.

4. Power Saws. Provide each gasoline engine power saw with one chemical-pressurized fire extinguisher of not less than 8-ounce capacity by weight, and one size O or larger, round-pointed shovel with an overall length of at least 48 inches. Maintain the extinguisher, and shovel in good working order. Make immediately available for use at all times extinguisher and power saw operator. Do not affix the extinguisher to the saw. Make a shovel readily available to the operator of the saw at all times. Having the shovel with the gas can used to refuel the saw may be considered "readily available" if not more than 200 feet from the saw. During periods of critical fire danger, Forest Service may prescribe other precautionary measures.

Any fueling or refueling of a power saw must be done in an area which has first been cleared of material which will carry fire. Move the power saw at least 10 feet from the place of fueling or refueling before starting.

5. Blasting and Welding. The use of fuses in blasting is not permitted except near power lines where the danger of accidental detonation is present, and then only by special written permission of Forest Service. Whenever the relative humidity falls below 50 percent, place a watchman at each point where blasting is done who will remain on duty for at least one hour after blasting is finished, and who will be equipped with a shovel and a water-filled backpack can equipped with hand pump. Discontinue blasting during periods when the relative humidity falls below 20 percent, unless authorized, with special provisions, in writing by Forest Service. Blasting is not permitted in any area not cleared to mineral soil without advance written approval of Forest Service and with such special precautions as may be required.

Do not use Prima Cord in clearing operations, and in other areas where timber has been felled and slash not burned.

Unless otherwise directed in writing by Forest Service, clear for 10 feet around any piece of equipment being welded all flammable material. In addition, provide a fire extinguisher of a size and type designed to extinguish a fire in the flammable materials surrounding the spot being welded.

In order to determine the relative humidity, (a) provide and maintain weather instruments, that will measure relative humidity, in the area where blasting will occur; or (b) provide communications to obtain weather data from Forest Service.

Store explosives in a locked box marked "Explosives" at all times. Store powder and blasting caps in separate boxes.

6. Storage of Flammables. Store gasoline, oil, grease and other highly flammable material in either a separate building, or at a site where all debris is cleared within a radius of 25 feet. Locate storage buildings or sites a minimum distance of 50 feet from other structures. Adequately post storage buildings to warn of the flammables and to prohibit smoking in or around the building.
7. Camp Fire Protection. Keep the grounds around all trailers, buildings, other facilities constructed or placed on or near the clearing limits free of flammable material for a distance of at least 20 feet from the wall of such structure. Burning of such flammable material must be as prescribed by Forest Service in writing. The building of camp, lunch, warming and other fires within the construction limits and vicinity is prohibited except at the Fox Creek Workcamp.

Equip stovepipes of all wood burning stoves with suitable roof jacks and serviceable spark arresters. Locate stovepipes no closer than 2 feet from any wood or other flammables unless adequately protected by metal or asbestos shield.

Section 108. - PROSECUTION AND PROGRESS

108.01 Commencement, Prosecution, and Completion of Work. Add the following:

The construction season is from approximately Memorial Day weekend through October 15, weather permitting. There are two shoulder seasons. The first shoulder season is from approximately April to Memorial Day; the second shoulder season is from mid-October to mid-November.

The Beartooth Highway is not plowed by the Yellowstone National Park Maintenance or opened to traffic until Memorial Day. Plowing of the highway prior to Memorial Day is allowed to gain access to the project site at the Contractor's option. Coordinate the snow removal operations

with the NPS Maintenance staff and use existing closure gates or place road closed signs and barricades as directed by the CO to prohibit public access.

The Yellowstone National Park performs seasonal maintenance activities along the Beartooth Highway from Cooke City via Coulter Pass to the Long Lake gate. These seasonal activities are scheduled for completion on 11/01/09 and 11/07/10. Adjust work schedules to comply with these dates. Coordinate with Yellowstone National Park prior to these dates according to Section 156.05.

Ensure the private in-holding, located south of the Ghost Creek Materials source, has access at all times during the course of the project.

Limit operations as follows:

- Road closures are allowed between 8:00 pm and 8:00 am Monday through Thursday nights.
- No road closures are allowed between 8:00 am Friday morning to 8:00 am Monday morning. Limit other delays according to Section 156.
- Submit a safety plan describing lighting conditions and safety precautions for each location of night time work. Do not begin a night time work activity until the plan has been approved by the CO. Once the work is underway, the CO may order additional lighting or safety precautions at no additional cost to the Government.
- The right to work at night is contingent upon the Contractor's ability to provide a safe work environment and perform work which satisfies the contract requirements. The right to work at night may be rescinded for any work activity if the CO determines that safety or quality problems are a result of working in night time conditions.
- The following work activity is not permitted at night:
 - (a) Rock staining.
- No night time closures or night work are allowed from midnight to 6:00 am September 1 through winter shutdown.
- Limit night time noise construction activities as directed by the CO near Top of the World Store, Island Lake Campground, and west of the project area near the Beartooth Lake Campground, when they are open to public use. The use of exhaust brakes (Jake brakes) will not be permitted.
- Beartooth Lake Campground, Island Lake Campground and the Top of the World Store will remain open to public use with night time access. Provide local access to Beartooth Lake Campground, Island Lake Campground and the Top of the World Store during night closures. Cease all operations immediately if emergency ingress/egress is required at these locations.
- No blasting is permitted from September 1 through winter shutdown at the Ghost Creek materials source.

- Pre-work meetings have been established to provide coordination between the CO, agency representatives, and the contractor. Coordination with agency representatives by the CO will be conducted to review and approve methods, materials, and processes for various construction items. The CO will then guide and approve the work based on this input by agency representatives.
- At the pre-construction meeting, initial training materials will be distributed for the environmental requirements required on the project according to Section 107.10 (e).
- Prior to the start of any clearing and/or grubbing operations, schedule and attend a site meeting with the CO to determine which vegetation, rock formations, or other features located along the tentative clearing limits are to remain and which are to be removed.
- Before starting grading operations submit a topsoil handling plan detailing proposed topsoil salvage and placement methods, specific windrowing and stockpiling locations, and topsoil placement sequencing as related to anticipated completion of the cuts and fills. Also discuss landscaping plans and details, slope shaping and sculpting methods, roadway obliteration details, and wetland mitigation plans. Request changes to the approved plan in writing. Implement only the current approved plan.
- Notify the CO two weeks prior to beginning blasting operations.
- A pre-work meeting will be held by the CO prior to the start of micropile installation to clarify construction requirements, coordinate the construction schedule and activities, and identify contractual relationships and delineation of responsibilities amongst the prime Contractor and the various Subcontractors.
- Notify the CO at least two weeks prior to starting construction areas with specific landscaping plans.
- Notify the CO three weeks prior to starting any work on dismantling the existing stone masonry structures including bridge piers and abutments and culvert headwalls.

Perform no work except to maintain traffic control devices, erosion control devices, the roadway driving surface, and to control dust during the listed Federal holidays and surrounding days:

- Memorial Day Weekend: 12:00 Noon Friday to 6:00 am Tuesday.
- Independence Day: 12:00 Noon July 3 to 6:00 am July 5.
If July 4 falls on a weekend, Friday, or Monday, do not work the weekend.
- Labor Day Weekend: 12:00 Noon Friday to 6:00 am Tuesday.
- Thanksgiving: 12:00 Noon Wednesday to 6:00 am Monday.
- Christmas/New Years Holiday: 12:00 Noon December 23 to 6:00 am January 2.
If December 23 or January 1 falls on a Monday, do not work the adjacent weekend and do not work on December 23. If January 1 falls on a Friday, do not work the weekend.

Schedule at least 2 non-work days out of every 14 calendar days. The selected non-work days do not need to be consecutive, but they must be scheduled. Provide at least 2 weeks notice before changing the scheduled days off.

Exemptions to scheduled days off may be granted by written approval from the CO for specific project operations and/or for periods of limited duration.

See Page I-22 for completion date information.

Add the following:

A Notice to Proceed must be issued before commencement of any work.

Section 109. - MEASUREMENT AND PAYMENT

109.06 Pricing of Adjustments Add the following

ASPHALT CEMENT PRICE ADJUSTMENT PROVISION

GENERAL The Asphalt Cement Price Adjustment Provision contained herein provides for a price adjustment in the form of payment to the Contractor or a rebate to the Government for fluctuations in the cost of asphalt cement consumed in the performance of applicable construction work for the Beartooth Highway Reconstruction Project Option Y. The price adjustment provisions are applicable only to the asphalt cement, as defined in Section 702.01, and incorporated in the following eligible contract pay items:

- 40101 Superpave pavement

The price adjustment provisions are also applicable to these eligible pay items when the Government adds extra work to the Contract.

The provision will remain in effect throughout the duration of the contract. Enactment of the Asphalt Cement Price Adjustment Provision will only be considered when the **increase or decrease** in the price of asphalt cement as defined herein exceeds 10 percent.

The Asphalt Cement Price Adjustment Provision is intended to reduce but not eliminate the cost effects of price uncertainty to the Contractor and the Government for asphalt cement used in the construction of this contract. It provides for sharing by the Government in a portion of the Contractor's risk, which could result from unusual price fluctuations. The provision is not intended to compensate the Contractor for normal day-to-day fluctuations and seasonal changes or to serve as a guarantee of full compensation for asphalt cement price fluctuations.

PRICE INDEXES The Government will post a monthly performance price index at <http://www.cflhd.gov/procurement/construction/price-indexes/> for asphalt cement using price

data obtained from Poten and Partners, Inc. (PPI), which publishes a weekly report (Asphalt Weekly Monitor) on high and low selling prices for states in five regions throughout the United States including the East Coast/Northeast, the Mid-Continent/Midwest, the Gulf Coast/Mid South, the Rocky Mountains and the West Coast/Northwest. Weekly high and low selling price data reported for Rocky Mountains – Wyoming and Montana will be averaged and used to establish a base price index, BPI, for this project and a monthly performance price index, MPPI, for the duration of the contract. These indexes are defined as follows:

- **BASE PRICE INDEX** The base price index, BPI, is the price index posted by the Government as determined by arithmetic average, as specified above, shown in the four weekly publications immediately preceding the bid opening. It is as follows:

BASE PRICE INDEX (BPI) FOR ASPHALT CEMENT
PER SHORT TON (TON) OR PER METRIC TON = \$ _____

- **MONTHLY PERFORMANCE PRICE INDEX** The monthly performance price index, MPPI, is the monthly price index at the time of performance of applicable work as determined by arithmetic average, as specified above, shown in the four weekly publications issued prior to the last Wednesday of the month (i.e. the monthly performance price index during which asphalt cement is used in the performance of applicable construction work).

PRICE ADJUSTMENTS Price adjustments are calculated by the Government for average conditions and are not intended to reflect the Contractor's actual purchase price. The ratio of the monthly performance price index and the base price index (MPPI/BPI) is calculated and used to determine price adjustments as follows:

- **No Price Adjustment** – When the ratio MPPI/BPI falls within the range of 0.90 to 1.10, no price adjustment will be made for any asphalt cement used in construction work performed during the relevant month.
- **Government Rebate** – When the ratio MPPI/BPI is calculated to be less than 0.90, the Government is due a rebate determined in accordance with the following formula:

$$\text{Government Rebate} = [0.90 - (\text{MPPI/BPI})] (\text{BPI}) (Q)$$

- **Contractor Payment** - When the ratio MPPI/BPI is calculated to be greater than 1.10, the Contractor is due additional payment determined in accordance with the following formula:

$$\text{Contractor Payment} = [(\text{MPPI/BPI}) - 1.10] (\text{BPI}) (Q)$$

The following definitions are applicable to both the Government Rebate and the Contractor Payment formulas:

- MPPI = Monthly Performance Price Index for the month during which asphalt cement is used in the performance of applicable construction work.
- BPI = Base Price Index that is established immediately preceding the bid opening.
- Q = Quantity in metric tons of asphalt cement for eligible pay items that were used on the project during the progress payment period. The quantity will be calculated using the asphalt content of the approved mix design and the following formula:

$$Q = \text{Asphalt Concrete Pavement metric tons placed} \times (\% \text{ Asphalt}/100)$$

PRICE ADJUSTMENT COMPENSATION Monthly adjustments will be accrued. The final price adjustment will be paid, or rebated, after completion of all work for eligible pay items. The Contractor may request in writing a partial price adjustment payment once every 12 months, or when the unpaid accrued increase exceeds \$10,000. The Government will take a rebate when the deductive accrual exceeds \$10,000.

No price adjustments will be made for work performed beyond the Government-approved Contract completion date.

The maximum allowable monthly and final price adjustment to the Contractor or rebate to the Government is limited to a (MPPI/BPI) ratio of 1.6 and 0.4, respectively.

FUEL PRICE ADJUSTMENT PROVISION

GENERAL The Fuel Price Adjustment Provision contained herein provides for a price adjustment in the form of payment to the Contractor or a rebate to the Government for fluctuations in the cost of low sulfur No. 2 diesel fuel consumed in the performance of applicable construction work for the Beartooth Highway Reconstruction Project Option Y. The price adjustment provisions are applicable only to contract items listed as eligible pay items in Table 1 below, if gasoline and/or diesel are used as the primary fuel in the production of the affected items. The price adjustment provisions are also applicable to these eligible pay items when the Government adds extra work to the Contract.

The provision will remain in effect throughout the duration of the contract. Enactment of the Fuel Price Adjustment Provision will only be considered when the **increase or decrease** in the price of motor fuel as defined herein exceeds 10 percent.

The Fuel Price Adjustment Provision is intended to reduce but not eliminate the cost effects of price uncertainty to the Contractor and the Government for motor fuel used in the construction of this contract. It provides for sharing by the Government in a portion of the Contractor's risk, which could result from unusual price fluctuations. The provision is not intended to compensate

the Contractor for normal day-to-day fluctuations and seasonal changes or to serve as a guarantee of full compensation for motor fuel price fluctuations

PRICE INDEXES The Government will post a monthly performance price index at <http://www.cflhd.gov/procurement/construction/price-indexes/> for Gross Ultra Low Sulfur, No. 2 Diesel Fuel using price data obtained from the Oil Price Information Service (OPIS), which publishes a weekly report on gasoline and distillate reseller prices for major cities in five regions throughout the United States. The OPIS 5-Day Newsletter average rack price reported to for the Rack City of Billings, MT will be averaged and used to establish a base price index, BPI, for this project and a monthly performance price index, MPPI, for the duration of the contract. These indexes are defined as follows:

- **BASE PRICE INDEX** The base price index, BPI, is the price index posted by the Government as determined by arithmetic average, as specified above, shown in the four weekly publications immediately preceding the bid opening. It is as follows:

BASE PRICE INDEX (BPI) FOR LOW SULFUR, NO. 2 DIESEL FUEL
PER GALLON = \$ _____

- **MONTHLY PERFORMANCE PRICE INDEX** The monthly performance price index, MPPI, is the monthly price index at the time of performance of applicable work as determined by arithmetic average, as specified above, shown in the four weekly publications issued prior to the last Wednesday of the month (i.e. the monthly performance price index during which motor fuel is consumed in the performance of applicable construction work).

PRICE ADJUSTMENTS Price adjustments are calculated by the Government for average conditions and are not intended to reflect the Contractor's actual purchase price. The ratio of the monthly performance price index and the base price index (MPPI/BPI) is calculated and used to determine price adjustments for eligible pay items as follows:

- **No Price Adjustment** – When the ratio MPPI/BPI falls within the range of 0.90 to 1.10, no price adjustment will be made for any motor fuel consumed in construction work performed during the relevant month.
- **Government Rebate** – When the ratio MPPI/BPI is calculated to be less than 0.90, the Government is due a rebate determined in accordance with the following formula:

$$\text{Government Rebate} = [0.90 - (\text{MPPI}/\text{BPI})] (\text{BPI}) (\text{Q}) (\text{FUF})$$

- **Contractor Payment** - When the ratio MPPI/BPI is calculated to be greater than 1.10, the Contractor is due additional payment determined in accordance with the following formula:

$$\text{Contractor Payment} = [(\text{MPPI}/\text{BPI}) - 1.10] (\text{BPI}) (\text{Q}) (\text{FUF})$$

The following definitions are applicable to both the Government Rebate and the Contractor Payment formulas:

MPPI = Monthly Performance Price Index for the month during which motor fuel is consumed in the performance of applicable construction work.

BPI = Base Price Index that is established immediately preceding the bid opening.

Q = Quantity of work on the project during the progress payment period for eligible pay items shown in Table 1 below. The Government, to agree with the units associated with the applicable Fuel Usage Factor, will convert work quantities, as necessary.

FUF = Fuel Usage Factor shown in Table 1 below applicable to both diesel and gasoline.

Table 1 – Eligible Pay Items For Price Adjustments and Associated Fuel Usage Factors		
Eligible Pay Items	Fuel Usage Factor U.S. Customary Units	Fuel Usage Factor Metric Units
Earthwork:		
Section 204 – Excavation and Embankment 20401 Roadway excavation 20402 Subexcavation 20403 Unclassified borrow	0.30 gallons per cubic yard	0.39 gallons per cubic meter
Aggregate Courses:		
Section 301 – Untreated Aggregate Courses 30801 Minor crushed aggregate	0.70 gallons per ton	0.77 gallons per metric ton
Asphalt Pavements:		
Section 401 – Superpave Hot Asphalt Concrete Pavement 40101 Superpave pavement	2.40 gallons per ton	2.65 gallons per metric ton
* The Government, to agree with the units associated with the applicable Fuel Usage Factor, will convert work quantities, as necessary.		

PRICE ADJUSTMENT COMPENSATION Monthly adjustments will be accrued. The final price adjustment will be paid, or rebated, after completion of all work for eligible pay items. The Contractor may request in writing a partial price adjustment payment once every 12 months, or when the unpaid accrued increase exceed \$10,000. The Government will take a rebate when the deductive accrual exceeds \$10,000.

No price adjustments will be made for work performed beyond the Government-approved Contract completion date.

The maximum allowable monthly and final price adjustment to the Contractor or rebate to the Government is limited to a (MPPI/BPI) ratio of 1.6 and 0.4, respectively.

109.08 Progress Payments.

(b) Closing date and invoice submittal date. Delete the last sentence and substitute the following: Submit invoices to the designated billing office by the 7th day after the closing date. Invoices received by the designated billing office after the 16th day following the closing date will not be accepted for payment processing that month. Include late, unprocessed invoice submittals in the following month's invoice.

(e) Processing progress payment requests.

(1) Proper invoices. Delete the title and text and substitute the following:

(1) Invoices received by the 7th day following the closing date.

(a) Proper invoices. If the invoice meets the requirements of Subsection 109.08(c), and the quantities and unit prices shown on the Contractor's invoice agree with the corresponding quantities and unit prices shown on the Government's receiving report, the invoice will be paid.

(b) Defective invoices. If the invoice does not meet the requirements of Subsection 109.08(c), or if any of the quantities or unit prices shown on the Contractor's invoice exceed the corresponding quantities and unit prices shown on the Government's receiving report, the invoice will be deemed defective and the Contractor so notified according to FAR Clause 52.232-27(a)(2). Defective invoices will not be corrected by the Government and will be returned to the Contractor within 7 days after the Government's designated billing office receives the invoice.

Revise and resubmit returned invoices by the 18th day following the closing date. The CO will evaluate the revised invoice. If the invoice still does not meet the requirements of Subsection 109.08(c), the Contractor will be so notified according to FAR Clause 52.232-27(a)(2), and no progress payment will be made that month. Correct the deficiencies and resubmit the invoice the following month.

If the revised invoice meets the requirements of Subsection 109.08(c), but still had quantities or unit prices exceeding the corresponding quantities and unit prices shown on the Government's receiving report, the Government's data for that item or work will be used. The Contractor's invoice, as revised by the Government's receiving report, will be forwarded for processing by the 23rd day following the closing date. The Contractor will be notified by the 23rd day following the closing date of the reasons for any changes to the invoice.

(2) Defective invoices. Delete the title and text and substitute the following:

(2) Invoices received between the 8th and 16th day following the closing date.

(a) Proper invoices. If the invoice meets the requirements of Subsection 109.08(d), and the quantities and unit prices shown on the Contractor's invoice agree with the corresponding quantities and unit prices shown on the CO's receiving report, the invoice will be deemed proper and forwarded for processing within 7 days of receipt.

(b) Defective invoices. If the invoice does not meet the requirements of Subsection 109.08(d), the invoice will be deemed defective, the Contractor so notified according to FAR Clause 52.232-27(a)(2), and no progress payment will be made that month. Correct the deficiencies and resubmit the invoice the following month.

If the invoice meets the requirements of Subsection 109.08(d), but has quantities or unit prices exceeding the corresponding quantities and unit prices shown on the Government's receiving report, the Government's data for that item of work will be used. The Contractor's invoice, as revised by the Government's receiving report, will be forwarded for processing within 7 days of the Government's receipt of the invoice. The Contractor will be notified of the reasons for any changes to the invoice.

(f) Partial payments. Add the following after the first paragraph:

Partial payments for stockpiled manufactured material (aggregates) will be based on Contractor process control test results. If test results show the material to be out-of-specification, or in "reject" where statistical evaluation procedures are used, no payment for stockpiled materials will be made.

Section 152. - CONSTRUCTION SURVEY AND STAKING

Construction Requirements

152.02 General. Delete the first paragraph and substitute the following:

The Government will furnish to the Contractor one copy of each of the following information:

- 3D coordinates and offset distance from centerline for subgrade and surface course finishing stakes at 20-meter intervals and miscellaneous intermediate stations.
- Slope stake books containing centerline grade and slope staking information at 20-meter station intervals and miscellaneous intermediate stations and at 10-meter station intervals on curves with radii of 115 meters.

- Computer listings containing: horizontal alignment, vertical alignment, earthwork quantities, and staking details showing superelevation template data and slope information.

The Government will provide files for downloading 3D data. Following is the information that will be provided electronically:

- 3D coordinates of control points.
- 3D coordinates of grade finishing stakes.
- 3D coordinates of slope stakes.

The Government has performed the following:

- Establish basic survey control points for vertical and horizontal control of the project.
- Set centerline stakes, take cross-sections, and set reference hubs at 20-meter intervals and miscellaneous intermediate stations from Station 45+020 to Station 46+750 for Schedule A and Station 45+020 to Station 47+640 for Schedule B. This work was completed in 2004.

Delete the second sentence of the second paragraph and substitute the following:

Reestablish missing terrain cross-section reference hubs, control points, and stakes before slope staking begins from Station 45+020 to Station 46+750 for Schedule A and Station 45+020 to Station 47+640 for Schedule B.

Add the following:

Furnish a practicable schedule of staking activities with the construction schedule submitted according to Section 155. Include the dates and sequence of staking requirements.

152.03 Survey and Staking Requirements.

(b) Roadway cross-sections. Delete the text and substitute the following:

Take roadway cross-sections when required to re-catch slope stakes according to 152.03(c). Take roadway cross-sections normal to centerline. Along each cross-section, measure and record points at breaks in topography, but no farther apart than 5 meters. Space the points so that the maximum variation in vertical distance from a straight line between two consecutive points and the ground line does not exceed ± 0.2 meters. Measure and record points to at least the anticipated slope stake and reference locations. Reduce all cross-section distances to horizontal distances from centerline.

Submit one printed copy and one electronic file of the cross-sectional data in GEOPAK ASCII text format: station, offset, elevation, north coordinate, east coordinate, p-code text format. Include a file header that defines the data type of the column. (Contact Central Federal lands

Survey Manager, at 720-963-3700 for more information on the format.) Include one observation per line in the submitted files showing the following data:

Station (nominal), offset from centerline, elevation, north coordinate, east coordinate, p-code (Feature code: RH for reference hub, CL for centerline).

(e) Centerline reestablishment. Delete the paragraph and substitute the following:

Reestablish centerline from instrument control points as necessary to construct the work. The CO may require the reestablishment of centerline, at no cost to the government, when construction survey and staking work does not meet the tolerances stated in Table 152-1. The maximum spacing between centerline points is 10 meters when centerline curve radius is less than or equal to 75 meters. When the centerline curve radius is greater than 75 meters, the maximum distance between centerline points is 20 meters. Reestablish centerline as many times as necessary to construct the work.

Reestablishment of centerline may be ordered by the CO and paid for under Section 623 for purposes other than to control the work.

(f) Grade finishing stakes. Delete the third paragraph and substitute the following:

The maximum longitudinal spacing between stakes is 10 meters when the centerline curve radius is less than or equal to 75 meters. When the centerline curve radius is greater than 75 meters, the maximum longitudinal spacing between stakes is 20 meters. The maximum transverse spacing between stakes is 10 meters. Reset grade finishing stakes as many times as necessary to construct the subgrade and each aggregate course. Use brushes or guard stakes at each stake.

(g) Culverts. Delete the first paragraph and substitute the following:

Verify, in the field, the approximate location of each individual culvert with the CO prior to surveying, designing, and staking culverts. Use the “Guide for Designing and Staking Culvert in the Field”, dated January 9, 1996, issued by the U.S. Department of Transportation, Central Federal Lands Highway Division, Lakewood, CO, as a guide to the work in this section. Coordinate culvert staking and location with the CO prior to beginning construction.

Perform the following:

(4) Add the following:

(a) For single skewed culverts, also submit a plotted field design cross section, normal to roadway centerline, at each end section. Plot the offset and elevation of natural ground at the end section and at all proposed template break points between centerline and the end section. Ensure the template design embankment slope is not exceeded.

(b) For multiple skewed culverts, also submit a plotted field design cross section, normal to roadway centerline, at the end sections (left and right) nearest to the shoulder. Plot the offset and elevation of natural ground at the end section and at all proposed template break points between centerline and the end section. Ensure the template design embankment slope is not exceeded.

(5) Add the following:

Plot at a scale of 1:100.

Add the following:

(8) When the field design has been approved, set culvert survey stakes, reference stakes, and stake inlet and outlet ditches to make the culvert, including end treatments (e.g., drop inlets) functional.

(9) Adjust slope stakes to provide for catch basins (and transitions into and out of catch basins) which correspond to the final culvert location and design. If the culvert was moved from location shown in the plans, review the slope stakes in the vicinity of the plan location and adjust the slope stakes to remove the planned catch basin.

(l) Miscellaneous survey and staking. Delete the text and substitute the following:

Perform all surveying, staking, recording of data, and calculations necessary for establishing the layout, control, and measurement required to construct the project. Perform the work in such a manner as to ensure the contract work is constructed in the proper location and to the required tolerances. Where staking increments are not identified, propose appropriate staking increments to the CO for acceptance.

Add the following:

(m) Reference hub re-establishment. Re-establish reference hubs and guard stakes on both sides of centerline as required to construct the project. Reference hubs were initially established at 20-meter station intervals and at each intermediate cross-section as shown in the plans, according to the offset distance and elevation data furnished. Reference hubs will be 19-millimeter square, 300 millimeter long oak or ash (hardwood) stakes driven flush with the natural ground. If rocky soil prohibits the use of stakes this long, 200-millimeter stakes can be substituted. Steel nails are allowed in solid rock. Set reference hubs approximately 6 meters outside of the proposed cut limits and 5 meters outside of the proposed fill limits, except in rock cuts and wall areas. Should the Contractor be unable to set any of the reference hubs because of obstructions such as trees or boulders, determine alternate locations for the hubs in the field. Locate the alternate point for the hub along the station right-angle line to a more usable location. This move should be of minimal distance. Centerline points will be 12d light boat nails (or equivalent) with cloth flagging if the points fall within the existing highway surface, or 19 millimeter by 38 millimeter by 450 millimeter guard stakes if they fall outside the existing roadway. Reference hub and centerline guard/offset stakes will be 19 millimeter by 38

millimeter by 450 millimeter finished size pine stakes painted white. Remove and dispose of any reference hubs and guard stakes previously placed by the Government.

Measurement

152.05 Delete the fourth paragraph and substitute the following:

Do not measure miscellaneous survey and staking.

Add the following:

Reestablishing missing Government-set terrain cross-section reference hubs, control points, and stakes will be measured under Special labor, Hired survey services when it is paid by the hour. No payment will be made for re-establishing missing hubs, control points, or stakes after construction operations have begun.

Section 153. - CONTRACTOR QUALITY CONTROL

Construction Requirements

153.02 Contractor Quality Control Plan.

(a) Process control testing. Add the following:

See Table 153-1 for schedule of minimum sampling and testing for process control. Where no minimums are specified, submit proposed tests to be performed and the proposed sampling and testing frequencies.

For aggregates and/or aggregate/asphalt mixtures accepted under Subsection 106.03, sample and test for conformity with the Certification a minimum of one time per pay item.

(b) Inspection/control procedures.

(3) Production phase. Add the following:

(d) Inspect the work, materials or assemblies accepted under Subsection 106.03 to ensure that **all** the work and materials comply with contract requirements. Furnish the results of the work inspection, along with the product certification or commercial certification as applicable, to the CO prior to incorporating the materials into the work.

(c) Description of records. Add the following:

Identify the format for reporting test results, materials certifications and the procedures to be used to maintain inspection records.

(d) Personnel qualifications.**(1) Add the following:**

Designate a Quality Control Supervisor (QCS) whose primary responsibility is managing the inspection system. The QCS will not be the Contractor's Superintendent. Designate a QCS who is experienced to perform and supervise all work inspection, sampling and testing. The QCS will monitor all phases of the work and identify deficiencies and take appropriate corrective action.

Add the following:

(3) Personnel assigned to sampling or testing will have 1 year or more of recent job experience in the type of sampling and testing required by the contract, and the following:

(a) NICET Level II certification in highway materials, or State (SHA) or industry certification-related sampling and testing equivalent to their intended responsibilities.

(b) WAQTC or other nationally accepted certification program for intended sampling and testing responsibilities.

or

(c) Current or previous employment by an AASHTO accredited laboratory performing sampling and testing equivalent to their intended responsibilities.

(d) Demonstrated proficiency or successful testing of one or more proficiency samples may be substituted for basic qualifications pending verification of test results.

153.03 Testing. Delete the title and text of this Subsection and substitute the following:

153.03 Sampling and Testing. Perform the work required by Table 153-1 and by the accepted Quality Control Plan.

(a) Acceptance sampling. Acceptance sampling schedules and times or locations will be provided by the CO. Use a procedure for random sampling. In addition, sample any material that appears defective or inconsistent with similar material being produced, unless such material is voluntarily removed and replaced or otherwise corrected.

(b) Testing. If the Government-furnished field laboratory option is not exercised by the CO, furnish a laboratory equipped with all test equipment necessary to satisfy the requirements of the contract. Ensure test equipment has been checked, calibrated, standardized and/or otherwise verified in accordance with AASHTO and ASTM standards by an individual qualified to do this work. Ensure mobile laboratories receive an equipment inspection after the laboratory has been moved to its permanent location on the project site and anytime it is moved thereafter. Inspect

equipment within 45 days of actual use in project testing and at least once a year thereafter. Do not use equipment that has not been inspected or is found to be deficient. Mark deficient equipment and take it out-of-service until it is repaired or replaced and shown by subsequent inspection to perform as required. Maintain records documenting these inspections in the laboratory. Provide certification(s) stating the equipment conforms to testing requirements and provide evidence of current inspection.

The CO may require the Contractor to perform testing to demonstrate acceptable equipment and an acceptable level of technician competence. The CO may also check equipment and inspection records to verify condition. Repair or replace equipment not meeting applicable requirements. Keep laboratory facilities clean and maintain equipment in proper working condition. Provide the CO unrestricted access to the laboratory for inspection and review.

(c) Certifications. For materials accepted by certification in accordance with 106.03, review all certifications to insure compliance with the requirements of the contract prior to incorporating materials into the work and provide a signed copy of the reviewed certification(s) to the CO.

153.04 Records. Add the following to the first paragraph:

When tests are on material being incorporated into the work, report test results within the reporting times indicated in the sampling and testing requirements at the end of each section or as specified in the contract.

Add the following to the second paragraph:

Detailed inspection results including deficiencies observed and corrective actions taken.

153.05 Acceptance. Add the following:

If chronic deficiencies are noted in the Contractor's inspection or testing systems, the CO may order supplemental inspection and/or testing to be performed. The Government will charge to the Contractor all costs associated with such supplemental inspection or testing.

Table 153-1
Schedule of Minimum Sampling and Testing For Process Control
(to be performed by the Contractor)

Section(s): 204, 208, 209.

Material	Property or Characteristic	Test Method or Specification	Frequency	Sampling Point
Embankment Construction Composition of Roadbed in Cuts	Classification and Moisture/Density	AASHTO M 145 AASHTO T 99 or AASHTO T 180 (minimum of 5 proctor points).	1 per material/type.	Source of material.
	In-place density and moisture content	AASHTO T 310	2 per lift, but not less than 2 every 800 cubic meters.	Compacted embankment, subgrade as applicable.
	R-value	AASHTO T 190 (Tested by FHWA Central Lab).	1 per 700 meters, or change in material type.	Sample depth: 0-300 mm.
Bedding/Backfill for Structures and Culvert Pipe	Classification and Moisture/Density	AASHTO M 145 AASHTO T 99 or AASHTO T 180 (minimum of 5 proctor points).	1 per material/type.	Source of material.
	In-place density and moisture content	AASHTO T 310	1 per 15 meters/lift. Minimum 2 per lift.	Compacted bedding or backfill as applicable.

Table 153-1
Schedule of Minimum Sampling and Testing For Process Control
(to be performed by the Contractor)

Section(s): 255.

Material	Property or Characteristic	Test Method or Specification	Frequency	Sampling Point
Select wall backfill 704.13(a) and Wall backfill 704.13(b)	Gradation and liquid limit	AASHTO T 11 AASHTO T 27 AASHTO T 89 AASHTO T 90	1 per material/type	Source of material
	Moisture Density	AASHTO T99, Method C ⁽¹⁾	1 per material/type	Source of material
	In-place density and moisture content	AASHTO T 310	For MSE walls: 1 per 300-mm lift per 75-meters of wall length (minimum of 2 per lift)	Compacted backfill

(1) A minimum of 5 points are required for moisture density test.

Table 153-1
Schedule of Minimum Sampling and Testing For Process Control
(to be performed by the Contractor)

Section(s): 301, 303, 304, 305, 306, 308.

Material	Property or Characteristic	Test Method or Specification	Frequency	Sampling Point
Subbase, Base Course Aggregate	Gradation (301)	AASTHO T 11 AASTHO T 27	2 per day	Crusher belt
	Moisture/Density	AASHTO T 99 or AASTHO T 180 (minimum of 5 proctor points)	1 per source of material	Source of material
Stabilization and Aggregate Topsoil Courses	In-place density and moisture content	AASHTO T 310 or ASTM 2950	2 per lift at 300-meter intervals, alternating lanes	Compacted aggregate
	Plasticity index (aggregate surfacing only)	AASHTO T 90	2 per day	Crusher belt
	Gradation (304 materials processed in place)	AASHTO T 11 AASHTO T 27	1 per 300 meters	Processed material
Magnesium Chloride and Calcium Chloride	Specific Gravity	Hydrometer	1 per shipment	Transport vehicle

Note: Density and Moisture calculations AASHTO T 310...Density corrections based on moisture for recycled materials containing asphalts, or aggregates containing MgCl or CaCl will be made based on samples taken from each test site and oven-dried in the laboratory.

Table 153-1
Schedule of Minimum Sampling and Testing For Process Control
(to be performed by the Contractor)

Section: 401.

Material	Property or Characteristic	Test Method or Specification	Frequency	Sampling Point
Superpave Hot Asphalt Concrete Pavement	Gradation	AASHTO T 11 AASHTO T 27	2 per day per stockpile	Crusher belt (during production) and Cold Feed or Hot Bins (as applicable during production of hot mix)
	Moisture content of aggregates	AASHTO T 255	1 per day	Cold Feed (during production of hot mix)
	Compaction	ASTM D2950	Test strip, first day of production to establish roller pattern: 12 per 500 meters, then 3 per 500 meters	In place, after compaction
	Placement temperature	Thermometer	As directed	Behind laydown machine
	Surface tolerance	Straight edge and FLH T 504	During and after compaction	See Subsection 401.16
Aggregate	Fine aggregate angularity	AASHTO T 304, Method A	1 per day	Cold Feed

Table 153-1
Schedule of Minimum Sampling and Testing For Process Control
(to be performed by the Contractor)

Section(s): 402, 403, 404, 405, 408.

Material	Property or Characteristic	Test Method or Specification	Frequency	Sampling Point
Asphalt Concrete Pavement Open-Graded Asphalt Friction Course	Gradation	AASHTO T 11 AASHTO T 27	2 per day per stockpile	Crusher belt (during production) and Cold Feed or Hot Bins (as applicable during production of hot mix)
Asphalt Base Course	Moisture content of aggregates	AASHTO T 255	1 per day	Cold Feed (during production of hot mix)
	Compaction	ASTM D2950	Test strip, first day of production to establish roller pattern: 12 per 500 meters, then 3 per 500 meters	In place, after compaction
	Placement temperature	Thermometer	As directed	Behind laydown machine
	Surface tolerance	Straight edge and FLH T 504	During and after compaction	See Subsection 401.16

Table 153-1
Schedule of Minimum Sampling and Testing For Process Control
(to be performed by the Contractor)

Section(s): 501, 552, 601.

Material	Property or Characteristic	Test Method or Specification	Frequency	Sampling Point
Concrete	Gradation and fineness modulus	AASHTO T 11 AASHTO T 27	1 per day	Aggregate, before batching
	Moisture	AASHTO T 255	1 per day/stockpile	Aggregate, before batching
	Slump	AASHTO T 119	1 per 25 cubic meters, minimum 1 per day	See note
	Air content	AASHTO T 152	1 per 25 cubic meters, minimum 1 per day	See note
	Unit weight	AASHTO T 121	1 per 25 cubic meters, minimum 1 per day	See note
	Temperature	Thermometer	1 per 25 cubic meters, minimum 1 per day	See note
	Making test specimens for compressive strength	AASHTO T 23	1 set per 25 cubic meters, minimum 1 set per day	At point of discharge

Note: If an extended set admixture is used for the sole purpose of extending discharge times, sampling and testing will be performed by the Contractor at point of batching and discharge location to ensure compliance with Subsection 552.08.

Section 154. - CONTRACTOR SAMPLING AND TESTING**Construction Requirements****154.02 Sampling.** Add the following:

Perform the initial curing of all concrete test cylinders. Provide for transporting the cylinders to the FHWA-Central Federal Lands Highway's Laboratory unless other testing facilities are authorized by the CO.

Label each concrete mold with the name and number of the Project, the cylinder number, date molded, location of the sample, and the test age (i.e. – 7, 14, or 28 days). Label the mold after casting and the cylinder after stripping to ensure the sample can be identified throughout the entire curing process.

Provide the required cylinder molds.

154.03 Testing. Add the following:

Where Process Control Sampling and Testing frequencies in Table 153-1 are identical to the Sampling and Testing Tables for all applicable work the Process Control Samples may be used for acceptance.

Add the following subsections:

154.03A Field Laboratory (Government-Furnished). Refer to Page B-ii of this solicitation for information regarding the option to use a Government-Furnished field laboratory.

If the bid option “Item 15401-0000, Contractor Testing, Using Government Furnished Field Laboratory” is **exercised**, the government will provide, for the Contractor's use, a mobile field laboratory, including testing equipment as follows:

- Ignition Oven
- Convection Oven
- Liquid Limit Machine and Grooving Tool
- 30,000 Gram Balance
- 12,000 Gram Balance
- 4,600 Gram Balance (readable to 0.01)
- Platform Scale
- Mechanical Compactor (Moisture Density) and Accessories
- 8-inch Sieve Shaker and Sieve Stack
- 12-inch Sieve Shaker and Sieve Stack
- Drill Press with Muller
- Large Sample Splitter
- Small Sample Splitter

Provide any additional equipment or facilities necessary to fulfill the requirements of the Contract.

Transport the laboratory from 12300 West Dakota Avenue, Lakewood, CO to the point of use and return the laboratory to the same Lakewood address upon completion of the work. The trailer will be available for pick up by the contractor upon issuance of Notice to Proceed and must be returned no later than 14 days following final acceptance of the contract. Contact the CFLHD Equipment Depot at **(720) 963-3459** for specific directions to the laboratory storage location.

Assume responsibility for the replacement of any and all missing or damaged equipment and for the repair of any damage to the laboratory. Replacement cost for missing or damaged equipment or facilities will be deducted from any remaining monies owed the Contractor. If sufficient funds are not available under the Contract for such retention, the Contractor agrees to make payment directly to the Government for any damaged or missing equipment or facilities.

Specifics:

Furnished equipment will be inspected by the Government by checking, standardizing, calibrating and/or verifying, as appropriate, in accordance with applicable AASHTO and ASTM standards. The Government equipment inspection will be completed after the laboratory has been moved to its permanent location on the project site prior to actual use in project testing and at least once a year thereafter. Notify the CO at least 30 days in advance of intent to use the testing equipment on the project so that Government equipment inspection can be scheduled and performed. Assume responsibility for additional equipment inspections prior to the Government's yearly inspection if the mobile laboratory is moved. Maintain records documenting these inspections in the laboratory.

Maintain equipment in proper operating condition. Do not use equipment that is found to be deficient or defective. Mark deficient or defective equipment and take it out-of-service and immediately notify the CO. If Government-furnished testing components fail through no fault or negligence of the Contractor, the Government will replace or repair the equipment in the most expeditious manner practicable. Requests for time extension and/or delay damages will not be granted for delays of less than 48 hours for any one occurrence, or for cumulative delays amounting to less than 5 (five) days in any one 365-day period. Requests for time extensions or damages due to equipment-related delays caused by equipment misuse or other Contractor fault will not be granted.

- Furnish water to the Government-provided field laboratory which is clear and free of oil, acid, rust, alkali, sugar, and vegetable substances. Furnish 120/240-volt, 60-cycle, single-phase current adequate to operate all of the Government field laboratory facilities at all times as required by the CO. Supply enough power to support a 200 amp service panel. Equip the power supply with a regulator that limits the voltage of the power furnished to the laboratory to not less than 220 volts and not more than 240 volts.
- All equipment provided by the Government and replaced by the Contractor will remain with the laboratory and will become the property of the Government.
- Use of the laboratory is limited to testing materials in connection with this contract.

154.03B Field Laboratory (Contractor-Furnished). If the Government-furnished field laboratory bid option is not exercised, furnish a laboratory equipped with all test equipment necessary to satisfy the requirements of the contract.

The sampling and testing services of a commercial laboratory meeting or exceeding the requirements described herein may be used if all contract sampling and testing requirements are satisfied by the use of the commercial facility.

Ensure test equipment has been checked, calibrated, standardized and/or otherwise verified in accordance with AASHTO and ASTM standards by an individual qualified to do this work. Ensure mobile laboratories receive an equipment inspection after the laboratory has been moved to its permanent location on the project site and anytime it is moved thereafter. Inspect equipment within 45 days of actual use in project testing and at least once a year thereafter. Do not use equipment that has not been inspected or is found to be deficient. Mark deficient equipment and it take out-of-service until it is repaired or replaced and shown by subsequent inspection to perform as required. Maintain records documenting these inspections in the laboratory. Provide certification(s) stating the equipment conforms to testing requirements and provide evidence of current inspection.

The CO may require the Contractor to perform testing to demonstrate acceptable equipment and an acceptable level of technician competence. The CO may also check equipment and inspection records to verify condition. Repair or replace equipment not meeting applicable requirements. Keep laboratory facilities clean and maintain equipment in proper working condition. Provide the CO unrestricted access to the laboratory for inspection and review.

Section 155. - SCHEDULES FOR CONSTRUCTION CONTRACTS

Construction Requirements

155.02 General. Delete the third paragraph and add the following:

Use the Critical Path Method (CPM) construction scheduling method for this project.

155.05 Written Narrative. Add the following:

(j) List anticipated monthly and cumulative contract earnings (including, for schedule updates, any contract modifications) for each month from the beginning of construction operations through the completion of the work. Calculate and list each month's anticipated earnings through the close of business on the date provided by the CO as the cut-off date for monthly project pay estimates.

155.06 Schedule Updates. Add the following:

On a weekly basis, provide construction activity and traffic control plan updates to the CO for incorporation into the Public Information Program (PIP).

The update should contain at a minimum:

- (a) Construction activities and expected noise levels planned for the following week.
- (b) Anticipated traffic delays for each of the major activities and the duration of the expected delays.
- (c) Scheduled night work activities and closures.
- (d) Locations of the construction activities identified by either mileposts or project feature such as the Top of the World Store, etc.
- (e) Anticipated surface condition information at each location of work.

Provide the information in a bullet format for the major activities, clearly defining the work. Provide a hardcopy and electronic version to the CO for inclusion in the PIP. Designate a project spokesperson to provide detailed project updates every Friday to the CO no later than 12:00 PM (noon) for transmittal to the Public Information Program Officer.

The PIP officer will review the traffic control plan updates submitted as they relate to other Beartooth Highway project closures and delays and advise the CO of conflicts that may cause undue public delays or inconveniences over the reach of the entire highway. In some instances, the CO may require the Contractor to alter proposed traffic control plans to prevent or mitigate this conflict.

Section 156. - PUBLIC TRAFFIC**Construction Requirements****156.03 Accommodating Traffic During Work.** Delete the last two sentences in the first paragraph and substitute the following:

Submit situation-specific traffic control implementation drawings and alternate traffic control proposals according to Subsection 104.03 for acceptance at least 14 days before intended use.

Add the following:

Maintain safe access to all approach roads, access roads, campgrounds, Top of the World Store, and trail access locations during construction. Maintain safe access to parking areas and pullouts during construction where possible.

The Little Bear Creek Bridge #1 will require a 48-hour closure to traffic before June 15th or after September 15th during Monday through Thursday for fast track construction as indicated in the plan package. Complete closure from Station 39+450 through the bridge site will be allowed during this period, if required, in order to complete culvert pipe replacements or other work no amenable to maintenance of traffic.

Allow immediate access to emergency vehicles.

Provide advance notice of traffic control or scheduling changes to the CO as required to update the Public Information Program when changes are anticipated.

Notify and coordinate with all users of the Island Lake Campground and the Top of the Word Store (if open) when night closures of the highway are anticipated. Furnish and maintain a sign at the entrance to the Beartooth Lake Campground and the Island Lake Campground which provides appropriate information and advance notice as approved by the CO.

Employ the following measures to assure safe driving conditions:

- (a) Preserve and maintain existing paved surfaces as long as reasonably possible.

156.04 Maintaining Roadways During Work.

- (a) Add the following:

Do not construct diversions outside of the clearing limits or use alternate route detours without the approval of the CO.

- (g) Add the following:

Develop an employee communication protocol for contractor/public interaction and submit it to the CO for approval. Limit unauthorized communication between workers and the public.

156.05 Maintaining Roadways During Non-Work Periods. Add the following:

In the event of shoulder season plowing and winter shut down periods, provide a safe and passable condition and configuration for snow grooming equipment and the operation of snowmobiles, taking into consideration historical snow depth conditions and public snowmobile trail locations and use patterns. Provide a minimum one-lane width of 4.3 meters throughout the project length for snowmobile trail grooming. Provide winter snowmobile access across Little Bear Creek until the two bridges have been constructed.

Prior to winter shutdown, coordinate with Yellowstone National Park maintenance through the CO for final snow staking of the highway and work zones to remain over the winter for installation of temporary snow poles. Installation and supply of temporary snow poles will be by the National Park Service. Prior to winter shutdown, coordinate with the Yellowstone National Park Maintenance through the CO to provide specific hazard markers or signing for breaks in the pavement or other hazards to snow plowing that are to be left over the winter.

Complete all preparation activities for a winter suspension by mid-October. These activities include placing and compacting surfacing on all roadbed where pavement has been removed, placing topsoil on all disturbed areas except exposed bedrock, seeding and mulching on all disturbed areas except exposed bedrock, and installing and fortifying temporary and permanent erosion control devices as shown on the plans or as directed by the CO.

During periods of extended work shutdowns at anytime, allow no delays to public traffic and maintain the roadway open to either alternate one-way traffic with a minimum travelway width of 4.0 meters, or two-lane traffic with a minimum travelway width of 6.0 meters.

156.06 Limitations on Construction Operations.

(c) Delete the first sentence and substitute the following:

For alternate one-way traffic control, provide a minimum lane width of 4.0 meters. For two-way traffic, provide a minimum roadway width of 6.0 meters except when directing traffic on the existing roadway with an approximate width of 5.5 meters.

(i) Delete the text and substitute the following:

Limit construction-caused delays to public traffic from 8:00 am to 8:00 pm to a maximum of 30 minutes through the project.

156.08 Traffic and Safety Supervisor.

Delete the first paragraph and substitute the following:

Provide a traffic and safety supervisor who is certified by the State highway agency or other acceptable certification program. Furnish the traffic safety supervisor's name, address, and 24-hour telephone number(s) at the preconstruction conference. At all times during the contract, including periods of suspensions and work stoppages, perform all of the following:

Measurement and Payment

156.10 Add the following:

Hauling, placement, and spreading of salvaged existing pavement material for temporary surfacing will not be measured for payment.

Section 157. - SOIL EROSION CONTROL**Construction Requirements**

157.03 General. Delete the second paragraph and substitute the following:

Standard erosion and sediment control devices are provided in the contract. Detail site-specific measures for controlling erosion and submit to the CO for acceptance prior to implementation. Provide working drawings and associated data that do not exceed 610 by 920 millimeters in size. Allow 7 days for acceptance of the drawings or a return for corrections. Include the following in the detailed design:

- (1) Address contractual requirements for storm water runoff permits, environmental commitments, and other permit requirements here or in Subsection 107.01 or 107.10.
- (2) Location of each proposed erosion control measure.
- (3) Type of each erosion control measure.
- (4) Quantities and estimated unit costs of proposed temporary erosion control devices to be implemented during construction.
- (5) A schedule detailing coordination of erosion control measures with the various construction operations or stages. Include the furnishing, installation, maintaining, and removing of temporary devices and the installation of permanent erosion control features.
- (6) A schedule outlining the proposed schedule of clearing and grubbing, excavation, embankment, and culvert operations such that the area of disturbed or erodible material is minimized. Schedule the work such that temporary and permanent erosion measures can be incorporated at the earliest practical time.
- (7) Construction methods used in various items of work to minimize erosion.

Add the following:

At least 5 days prior to the preconstruction conference, designate in writing an Erosion Control Supervisor who is responsible for implementing the requirements of this Section.

When temporary erosion and sediment control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as part of the work in a timely manner, provide temporary measures at no cost to the Government.

157.04 Controls and Limitations on Work.

Delete the second paragraph and substitute with the following:

Construct manageable sections that reflect changes in vegetation. Sequence construction so that salvaged upland sod, salvaged wetland sod, and salvaged willows are placed immediately following harvesting. Wetland topsoil or salvaged sod may be stockpiled in isolated instances only with written approval of CO. Do not stockpile topsoil or salvaged sod for more than 30 days, except stockpiling of topsoil stripped at the Ghost Creek Material Source may be longer than 30 days, as necessary for material processing requirements, as approved by the CO. Apply temporary soil tackifier to all slopes not being worked after seven days as work progresses to minimize soil loss.

157.11 Temporary Turf Establishment. Add the following:

Apply temporary soil tackifier to exposed slopes at a rate of 131 kilograms/hectare. Provide a tackifier that is water-soluble granular power composed of hydrocolloids. Provide J3000 or approved equal. Asphalt emulsion is not an acceptable soil tackifier.

157.12 Inspection and Reporting. Add the following:

Monitor the turbidity of waters adjacent to the project. Take turbidity measurements using an HF-DRT 15CE turbidimeter or equivalent upstream of the project and 150 meters downstream of the area of the highest turbidity. If the measurements show an increase of 10 NTU or more, immediately suspend operations in the vicinity of the problem area and modify the erosion control measures to eliminate the cause of the high turbidity. Include turbidity readings, locations, and actions taken, if any, in inspection reports. Also provide documentation of meter calibration. See section 107.01 (f) for frequency and events for measurement requirements.

157.14 Acceptance. Add the following:

Soil erosion and sediment control will be evaluated under Subsection 106.02 based on the demonstrated ability of the erosion control measures to result in minimal soil erosion, sedimentation and/or siltation, and turbidity increases within or adjacent to the project limits.

Section 201. - CLEARING AND GRUBBING**Description****201.01** Delete the text and substitute the following:

This work consists of minor clearing and all grubbing within the clearing limits based on the dimensions shown in the plans, adjusted to fit field conditions as directed by the CO. Major clearing was initiated during the summer of 2004 and was completed in 2005.

Provide equipment capable of excavating small, isolated pockets of soil, and working around areas of designated vegetation or tree stumps to remain, and placing material on slopes and in pockets on rock ledges. The project requires non-conventional methods to excavate, stockpile, and place the conserved material due to the limited amount of material available for topsoil in the project area and the need to establish the best growing medium possible to revegetate the roadside.

Construction Requirements

201.03 General. Add the following:

The CO will either approve the clearing limits as staked or direct the Contractor specifically how to adjust the clearing limits to preserve existing vegetation, rock formations, or other features. When directed, re-catch slope stakes at new slope ratio in accordance with Subsection 152.03(c).

If clearing limits are increased, an amendment to the SUP will be required according to Section 105.04.

Install temporary fencing or silt fence prior to grubbing operations in all sensitive locations as shown on the plans, or designated by the CO. Maintain temporary fencing for the duration of the contract and remove upon completion of construction activities.

Refer to Subsection 157.11 for temporary turf establishment in cleared areas.

201.04 Clearing. Add the following:

Construct tree wells as described in Section 251 and detailed in the Site Specific Landscape Plan 9.

Stockpile the quantity of logs for use in landscaping as described in Section 647, Roadside Development. Do not push trees over with heavy equipment, disturb root systems, or perform grubbing operations not in compliance with Section 201.05 until topsoil is conserved.

Salvage trees along the clearing limit that are a minimum of 4.5 m in length and 300 mm in diameter for use as landscaping logs. Leave these trees in place as the clearing progresses to minimize handling.

Remove all woody vegetation prior to topsoil salvaging except as identified in section 201.05.

201.05 Grubbing. Delete the first paragraph and substitute the following:

Remove and dislodge topsoil from removed stumps. Grub deep enough to remove stumps, branches, tree and shrub roots, and buried logs.

Minimize scarring and damage to the exposed surface of existing surface rocks located within the construction limits if the rocks are to be used in revegetation and landscape work.

In wetland and riparian areas, leave willow roots intact, and salvage willow roots along with topsoil according to Section 624 and 626.03. Cut willows within 900 mm of the ground surface.

Add the following:

- (e) Conserve topsoil according to 204.05 prior to grubbing operations.
- (f) Conserve topsoil from all grubbed stumps.

Payment

201.09 Add the following:

Payment for Equipment hours for topsoil removal from stumps will be paid for under Item 62201-0350 Backhoe.

Section 202. - ADDITIONAL CLEARING AND GRUBBING

Description

202.01 Delete the first sentence and add the following:

This work also consists of leaving landscaping logs inside the construction limits along the forest edge for use as landscaping logs identified in Section 647, Roadside Development.

This work consists of clearing and grubbing as directed by the CO.

Construction Requirements

202.04 Selective Clearing. Add the following:

In selected locations within the construction limits, stands of trees and shrubs or individual trees and shrubs must be left in place when, at the discretion of the CO, such stands or individuals do not interfere with grading or construction operations. Clear select trees as directed by the CO for placement on slopes or for site specific landscaping construction.

Adjust the clearing and grubbing limits, and adjust the slope stakes at the ends of cut slopes and embankments within the transition area to adequately provide for slope warping. The CO will approve final slopes.

Section 203. - REMOVAL OF STRUCTURES AND OBSTRUCTIONS**Description****203.01** Add the following:

This work also includes the removal of the existing Little Bear Lake No. 1 Bridge and all associated facilities in these locations.

Material**203.02** Add the following:

Shoring and bracing

208

Construction Requirements**203.03 Salvaging Material.** Add the following:

Remove stone masonry from existing structures so as not to damage or mark the stone. Remove and handle stone masonry in accordance with Section 620.03.

Stockpile existing bridge rail at the NPS maintenance yard, located approximately 6.5 kilometers (4.0 miles) west of the project, as directed by the CO for use by the NPS.

Remove and salvage signs as designated on the plans and permanent sign summary and as directed by the CO for use by the FS.

203.04 Removing Material. Add the following:

Remove all structures completely from the stream channel at the conclusion of the construction and restore the area to a natural appearance.

The existing bridge elements may have lead-based paint coating(s). Comply with the required Federal, State, and local regulations.

203.05 Disposing of Material.**(a) Remove from project.** Add the following:

Secure environmental clearances according to Subsection 107.10.

(c) Bury. Delete the text.

Measurement**203.07** Add the following:

Measurement for payment of the Removal of Pipe Culverts includes the pipe culvert, end sections, headwalls, and inlets.

Payment**203.08** Add the following:

Payment for the salvaging of the existing bridge masonry, including stockpiling, will be paid under Item 620, Stone Masonry.

Section 204. - EXCAVATION AND EMBANKMENT**Description****204.02 Definitions.****(a) Excavation.** Add the following:**(4) Excavation and embankment.** Add the following:

Topsoil refers to the uppermost soil horizon, usually darker in color, in which the majority of roots grow. It is usually found in the top 50 to 450 mm. In areas where there is no darker layer, treat the top 50 to 100 mm as topsoil.

Material**204.03** Add the following:

Geotextile

714.01

Construction Requirements**204.04 Preparation for Roadway Excavation and Embankment Construction.** Add the following:

Place Geotextile Fabric Type II (A-C) separation material over wetland areas for protection. This operation is required in those areas where embankment may be temporarily placed on wetlands to complete the work.

Prior to beginning excavation operations, including topsoil removal, arrange for a pre-excavation conference. Coordinate attendance with the CO and all applicable subcontractors. Prepare to discuss the following:

- 1) Topsoil Handling Plan
- 2) Landscaping plans and details
- 3) Slope shaping and sculpting methods
- 4) Roadway obliteration details
- 5) Wetland Mitigation Plan

204.05 Conserved Topsoil. Delete the first sentence and substitute the following:

Prior to topsoil removal, present a topsoil removal and stockpile plan to the CO for approval. Stockpile topsoil in stockpile locations, as approved by the CO. Stockpiled topsoil will be no higher than 1.2 meters, except stockpiling of topsoil stripped at the Ghost Creek Material source may vary in height, as necessary for material processing requirements, as approved by the CO. Topsoil will be placed before winter, and will be placed on the finished slopes at locations near those from which it was removed.

Conserve topsoil from the roadway excavation and from embankment foundation areas to the extent and depth determined by the CO (approximately 3,028 m³ of topsoil). Salvage topsoil within tree stumps to the extent possible.

Nonconventional methods will be required in the removal and stockpiling of topsoil in some areas. Use equipment capable of excavating small isolated pockets of topsoil. Do not compact or drive upon topsoil during removal. Do not mix topsoil with subsoils or with topsoils from other areas, as approved by the CO.

204.06 Roadway Excavation.

(b) Rock cuts. Add the following:

When blasting rock, use the controlled blasting methods according to Subsection 205.08(c). Preserve all depressions resulting from blasting operations which may serve as soil pockets as described on plan Special M626-9.

204.07 Subexcavation. Delete the third sentence and add the following:

Prevent unsuitable material from becoming mixed with the backfill, using separation geotextiles when directed by the CO or as defined in the plans for specific subexcavation locations. In wetland areas, utilize backfill that meets the requirements of Section 704.03 (c).

204.09 Add the following:

(e) Embankments constructed on wetlands. Ensure that backfill placed in wetlands has similar permeability to adjacent soil and maintains the existing subsurface groundwater flows.

Backfill that allows more subsurface flow than existing material on the site will not be accepted. Backfill that inhibits ground water flow to a greater extent than native soil also will not be accepted. Utilize backfill meeting the requirements of Section 704.03 (c). Utilize Geotextile Fabric Type II-(A) to maintain existing sub-surface flows.

204.13 Sloping, Shaping, and Finishing.

(a) Sloping. Add the following paragraph:

Leave all slopes with roughened surfaces as they are being constructed and according to landscape treatment details shown in the plans. Leave irregular pockets in boulder-laden slopes and rock slopes, as applicable, for deposition of topsoil and planting materials. Leave rock slopes with a natural form and appearance without scaling or drilling marks.

(1) Earth slopes. Adjust the material within the fill slopes to obtain varying and undulating contoured slope, rounding at the toe of fills, and to flatten selected slopes to blend with existing land forms or promote revegetation. Do not round slopes in wetlands.

Locate conserved landscaping boulders on slopes according to Section 251.

Locate conserved snags and trees on slopes according to Section 647.

(2) Rock slopes. Construct rock slopes to simulate surrounding rock outcrops. Consider aesthetics, safety, and constructability when determining methods to shape slopes. Refer to the Landscaping Details in the roadway plans for specific landscaping techniques. Proposed rock cut limits and the use of soil pockets are to be reviewed and approved by the CO on a site-specific basis. Leave rock slopes with a natural form and appearance without drilling marks. Round material overlaying solid rock to the extent practical. Pursuant to Sections 205 and 563, stain all newly exposed rock slope surfaces as directed by the CO. Preserve segments of large rock outcrops with jagged edge appearance and planting pockets suitable for placement of topsoil, seed, and plants. Locations of rock slopes are identified in the grading summary in the plans.

(c) Shaping. Delete the text and substitute the following:

Construct slopes generally to the staked slope ratios, but steepen and flatten slopes randomly and intermittently to simulate the irregularity of the existing terrain. Sculpt slopes to produce irregular ledges, shelves, and planting pockets suitable for placement of topsoil and vegetation by steepening the nominal slope ratio in staggered locations. Shaping opportunities will be identified by the CO as the work progresses

Leave boulders undisturbed that are firmly in place and protruding from the cut slopes. Some rock outcrops and boulders may be left in place to create natural pockets for vegetation.

204.14 Disposal of Unsuitable or Excess Material. Add the following:

Do not sell, donate, or otherwise remove materials from National Forest Lands without a permit from the U.S. Forest Service and the approval of the CO.

Secure environmental clearances according to Subsection 107.10.

Measurement**204.16****(a) Roadway excavation.**

(1) Include the following volumes in roadway excavation:

(e) Delete the text and substitute the following:

Conserved topsoil stripped from cuts.

(h) Delete the text and substitute the following:

Conserved material taken from stockpiles and used in Section 204 work except topsoil measured under Section 624. Only materials required to be conserved by the CO are eligible for measurement under this item.

(2) Do not include the following in roadway excavation: Add the following:

(m) Conserved topsoil stripped from fills.

Payment**204.17** Add the following:

Payment for Item 20401 is limited to ten percent of the plan quantity of excavation in the cut until the slope rounding in that cut is completed.

Payment for conserving topsoil operations will be considered subsidiary to Item 20401-0000, Roadway Excavation. Payment for equipment hours for sloping, shaping and finishing will be considered subsidiary to Item 20401-0000. Payment for the construction of fill slope terraces will be made under Item 62201-0350, Backhoe or Item 62201-3000, Hydraulic Excavator. Payment for the placement of geotextile will be made under Item 20701-0700, Earthwork Geotextile, Type II-A and Type II (A-C).

A price adjustment will be made for fluctuations in the cost of motor fuel (both diesel and gasoline) consumed in the performance of applicable construction work according to Subsection 109.06 Pricing of Adjustments Fuel Price Adjustment Provision.

Section 205. - ROCK BLASTING**Description****205.01** Delete the text of this Subsection and substitute the following:

The rock cuts for the Option Y project on the Beartooth Highway range from approximately 1.5 m to 2 m. The techniques detailed in the specification were created for the more extensive rock cuts west of the project in the Beartooth Ravine but apply to this project. The Beartooth Highway project will require carefully planned and uniquely adapted blasting approaches to achieve engineered road cuts which are both structurally sound and aesthetically pleasing.

Obliterate all visible drill hole marks in newly exposed rock surfaces. Obtain approval of obliteration of the drill marks from the CO. Scale blasted area of loose rock and debris. Pick up and dispose of all blasting caps, lead wire, and other material associated with each blast. Treat newly exposed rock surfaces with rock stain, as described in Section 204 and 563.

Construct cut faces to have a natural, rather than artificial, appearance to the fullest extent practicable. Identify and use specific measures applicable to blasting that will enable the final cut faces to blend with the form, line, color and texture of the existing rock formations of the surrounding landscape. Controlled blasting will be required in order to utilize the existing geologic structure properly and to minimize back-break beyond the trim line.

Following are specific blasting objectives:

- (1) Minimize blast damage beyond the trim line. Blast damage is defined to include widening and loosening of existing joints or foliation, displacement of blocks of intact rock, and creation of new fractures.
- (2) Utilize the natural geologic bedding planes and joint structure in a predicted and controlled manner to form the final cut.
- (3) Blast and scale to the trim lines to produce stable faces such that the subsequent rock fall and associated maintenance costs are minimized.
- (4) Preserve or create sufficient irregularities in the rock faces to allow for pockets and ledges for special revegetation, as shown on the plans, prescribed in Section 204, or as directed by the CO. Accomplish the creation of ledges and a rough, natural appearance by incorporation of these features in the blast plan, and not by overshooting and selective removal of damaged rock.
- (5) Remove drill hole scars or machine scaling equipment scars in the final cut faces.
- (6) Prevent fly rock from landing in wetlands.

(7) Prevent damage to the natural environment outside the clearing limits from fly rock, operation of equipment, or other construction related causes in accordance with Subsection 107.02.

(8) Conduct all blasting, scaling, and cleanup work in accordance with Sections 108 and 156, ensuring traffic safety at all times.

Controlled blasting consists of the controlled use of explosives and blasting accessories in carefully spaced and aligned drill holes to produce specific free surfaces or shear planes in the rock along the predetermined excavation backslope. Controlled blasting techniques include cushion blasting or variations of cushion blasting, as approved by the CO, but do not generally include pre-splitting. Pre-splitting may only be used for temporary excavations in rock that will eventually be covered or further excavated using cushion blasting techniques. The CO may require the use of controlled blasting to form the faces of slopes, even if the slopes could be formed by non-blasting methods. Use controlled blasting methods to minimize damage to the rock backslope to help insure long-term stability.

For cushion blasting, controlled blast holes are defined as the first row of drill holes (normally within 0.6 m of the plane forming the final cut face), as shown on the approved blasting plan.

Production blasting consists of the main fragmentation blasting resulting from more widely spaced production holes drilled through the main excavation area. Detonate production holes in a controlled delay sequence. Use production blasting methods which prevent escape of material beyond the construction limits shown on the plans and in accordance with Subsection 107.02.

Construction Requirements

205.05 Blasting Plans.

(a) **General blasting plan.** Add the following:

(6) Methods for and locations of explosive storage.

(7) Methods to be employed for traffic control and other public safety precautions in the use, storage, and transportation of explosives.

(8) General methods and approach to blasting which account for the full range of geologic settings and physical conditions present on the project. Describe how the specific blasting plans will account for various cut geometries, rock types, access problems, categories of fracturing and jointing, and required face contours.

(9) Equipment intended to be used in support of blasting operations.

- (10) Method of containment to prevent rock material from escaping the construction limits, and contingency measures for unanticipated rock fall.

Do not deliver explosives to the project until the General Blasting Plan is accepted.

(b) Site-specific blasting plans. Add the following:

Comply with Special M 626-9, Landscaping Details. Limit the volume of individual blasts to that which can be contained within the construction limits. Comply with Subsection 204.06(a) of these special contract requirements.

- (5) Specific fly rock control measure.
- (6) Estimated quantities of volume of rock in-place and length of both production and controlled blast drill hole.
- (7) Location and attitude of significant fracturing, rock type changes, faulting, and any special circumstances to be accounted for in the plan.

The CO may require modifications of any blasting plans over the duration of the project. Obtain approval by the CO for any modifications in the blasting plans, including changes in drilling pattern or depth, loading, or initiation occasioned by the review of the drilling behavior or subsequent blasting performance.

205.07 Test Blasting. Delete the last paragraph and substitute the following:

Do not drill ahead of the test shot area until the test section has been excavated and results evaluated by the CO. If test blasting results are unsatisfactory, in the opinion of the CO, adopt such revised methods as are necessary to achieve the required results. A test blast is unacceptable when it results in fragmentation beyond the final rock face, fly rock, overbreak, damage to the final rock face, or overhang. All costs incurred by the Contractor in adopting revised blasting methods necessary to produce an acceptable test shot are considered as a subsidiary obligation to the work.

If at any time during the progress of the work the methods of drilling and blasting do not produce the desired slope and rock face, conduct additional test blasting until a suitable drilling and blasting method is determined. Extra cost resulting from this requirement is considered as a subsidiary obligation to the work.

205.08 Blasting.

(a) General. Add the following after the fourth paragraph:

Blast during daylight hours and in accordance with Section 108. Do not leave loaded holes overnight. Plan daytime blasting schedules, quantities, and clearance times in accordance with maintenance of traffic requirements described in Section 108 and 156.

Add the following after the seventh paragraph:

Preserve existing rock outcrops outside the clear zone and within construction limits to vary cut face slope, composition, color, and texture. Undulate or roughen cut face slopes to match adjacent rock outcrops and landforms. Manipulate blasting patterns to create rock surfaces, terraces, and ridges similar to undisturbed rock faces and outcrops. Shape cut faces to blend with adjacent undisturbed rock faces. Create soil pockets within the terraces and ridges of cut faces to accommodate and promote revegetation. Locate, size, and shape the soil pockets to replicate the planting areas of undisturbed rock faces.

205.09 After Blast Reports. Add the following:

(b) Blasting logs that include the following:

(3) Name of the blasting foreman and the date and time of the blast.

After mucking operations for each blast, measure the excavated slopes to determine overbreak quantities. Measurement may be done after each individual blast or after a series of blasts in the cut, as requested by the CO. Incorporate these quantities as part of the final blasting report.

The blasting plan submittal and blasting report are for quality control and record keeping purposes. Review of blast design and techniques by the CO do not relieve the Contractor of responsibility for adequacy, safety, proper supervision, and compliance with these SCRs, when implemented in the field.

Section 207. – EARTHWORK GEOTEXTILES

Measurement

207.07 Delete the text of this Subsection and substitute the following:

Measure the Section 207 items listed in the bid schedule according to Subsection 109.02.

Section 208. - STRUCTURE EXCAVATION AND BACKFILL FOR SELECTED MAJOR STRUCTURES

Construction Requirements

208.04 General. Delete the second sentence of the fourth paragraph and replace with the following:

Remove shoring and bracing to at least 0.5 meter below the surface of the finished ground. Provide weep holes to allow for drainage when shoring and bracing are allowed to remain in place.

Measurement

208.13 Delete the text of this Subsection and substitute the following:

Measure the Section 208 items listed in the bid schedule according to Subsection 109.02 and the following:

Measure structural excavation and backfill by the cubic meter in its original position. Determine the limit as shown on the plans. Do not include the following volumes in structure excavations:

- (a) Material excavated beyond the limits as shown on the plans.
- (b) Any material included within the staked limits of the excavation, such as contiguous channel changes and ditches, for which measurement is covered under other sections;
- (c) Water or other liquid material;
- (d) Material excavated before measurements of the original ground; or
- (e) Material re-handled, except when the contract specifically requires excavation after embankment placement.

Section 211. - ROADWAY OBLITERATION**Description****211.01**

(a) **Method 1.** Add the following:

Excavate existing pavement surface, base and subbase material to 75 mm below the surface of original ground contours or as identified in the cross sections and the wetland mitigation plans. Also, refer to detail M211-1 in the plans for roadway obliteration details. Place topsoil to approximate original ground contours. Remove and dispose of the existing pavement surface material as approved by the CO.

Section 251. - RIPRAP**Description**

251.01 Add the following:

This work also consists of furnishing and placing landscape boulders and riprap within the project, as shown in the plans and as directed by the CO. Provide rock for the construction of a tree well at Station 45+600 and other required tree well locations as directed by the CO.

Material**251.02** Add the following:

Select Granular Backfill

704.10

Construction Requirements**251.04 Placed Riprap.** Add the following:

Furnish materials and incidentals necessary to install riprap mixed with topsoil. Provide topsoil, to be mixed with riprap, conforming to the requirements as described below. Install riprap mixed with topsoil at riprap rundowns or as directed by the CO.

Place riprap with topsoil so that a uniform mixture of soil and riprap is achieved that eliminates voids. Mix 25 to 35% topsoil, by volume, with stockpiled riprap, then place the mixture in a layer of approximate 150 mm thickness. Consolidate by large vibratory equipment or backhoe bucket to create a tight, dense interlocking mass. Wet the topsoil, as necessary, to encourage void filling. Fill any large voids with rock and small voids with topsoil. Place the top layer in a similar manner, but such that the top surface of the rocks is largely the size of the 150 mm and a smooth plane is created. Cover the top surface with 75 mm of topsoil.

(a) Landscape boulders. Comply with Miscellaneous Details, Specials M626-8 and 9, and Landscape Plan 7 in the plans for the placement of boulders. During roadway excavation leave boulders exposed that are unearthed during construction on slopes, as directed by the CO. Limit damage to boulders from equipment, and place boulders to hide equipment handling marks and with lichen or weathered surface facing up.

(b) Tree wells. Prior to the construction of fill slopes, construct tree wells according to Special M 626-7F. Do not damage trees, including the roots or bark, during the construction of the tree wells. Do not excavate existing soil surface to construct tree wells.

(c) Riprap Class 4. Comply with Specials M251-A in the plans for riprap Class 4 placed at the Little Bear Creek Bridge #1. Place 1 – 1.5 m boulders interspersed in riprap revetment. Boulders are to make-up 20% of total rock volume.

Measurement**251.08** Add the following:

Measure Landscape boulders by the each. Do not measure boulders less than 1 m³ for payment.

Do not measure boulders for riprap Class 4. This material will be subsidiary to Item 25101-4000, Placed Riprap, Class 4 and Item 25101-4000 Placed Riprap, Class 4 (with soil).

Section 305. - AGGREGATE-TOPSOIL COURSE**Material**

305.02 Delete the requirement for aggregate and substitute the following:

Aggregate

703.05

305.04 Mixing, Placing, and Compacting. Delete the text of this Subsection and substitute the following:

Mix topsoil with aggregate on the road foreslopes. Place 25 mm of salvaged topsoil over aggregate. Mix topsoil into the upper 25 mm of the aggregate using a rake, harrow, or other equipment. Remove all equipment tracks. Seed with seed mixes shown in the revegetation plans.

Section 308. - MINOR CRUSHED AGGREGATE**Construction Requirements**

308.06 Acceptance Delete the second paragraph and substitute the following:

Construction of roadway aggregate courses will be evaluated under Subsections 106.02 and 106.04. Method 2 compaction will be evaluated under Section 106.04. Sample material from the windrow or roadbed after processing but prior to compaction at the frequency shown in Table 308-1. Submit samples to the CO for verification. Materials that do not meet the approved certification will be considered unacceptable.

Payment

308.08 Add the following:

A price adjustment will be made for fluctuations in the cost of low sulfur No. 2 diesel fuel consumed in the performance of applicable construction work according to Subsection 109.06 Pricing of Adjustments Fuel Price Adjustment Provision.

Section 401. - SUPERPAVE HOT ASPHALT CONCRETE PAVEMENT**Description**

401.01 Delete the third paragraph and substitute the following:

A minimum of one percent lime is required in the Superpave hot asphalt concrete mixture.

Pavement roughness requirements:

Option Y – Type III

Asphalt binder grade is PG 64-28.

Material

401.02 Delete the first line and substitute the following:

Aggregate

703.07

Construction Requirements

401.03 Composition of Mix (Job-Mix Formula). Delete the second paragraph and substitute the following:

Compact specimens with the gyratory effort corresponding to the design ESAL level of 0.3 to <3 million. Volumetric mix properties will be determined at N_{design} . Use a gyratory compactor which meets the internal angle requirement according to AASHTO T 312.

Table 401-1 Superpave Hot Asphalt Concrete Pavement Design Requirements Table. Delete Table 401-1 and substitute the following:

**Table 401-1
Superpave Hot Asphalt Concrete Pavement Design Requirements, AASHTO R 35**

Design ESAL (Million)	Gyratory Compaction Level (% Theoretical Maximum Specific Gravity, G_{mm}) AASHTO T 312			Minimum Voids-in-the Mineral Aggregate (VMA), % ⁽¹⁾				Voids Filled with Asphalt (VFA), % ⁽³⁾	Minimum Hveem Stabilometer value	Dust-to- Binder Ratio ⁽⁴⁾	Minimum Tensile Strength Ratio, AASHTO T 283 ⁽⁵⁾
				Nominal Maximum Size Aggregate ⁽²⁾							
	$N_{initial}$	N_{design}	N_{max}	1 inch	$\frac{3}{4}$ inch	$\frac{1}{2}$ inch	$\frac{3}{8}$ inch				
< 0.3	6 ($\leq 91.5\%$)	50 (96.0%)	75 ($\leq 98.0\%$)	12.0	13.0	14.0	15.0	70.0 - 80.0	30	0.8 - 1.6	0.80
0.3 to 3	7 ($\leq 90.5\%$)	75 (96.0%)	115 ($\leq 98.0\%$)					65.0 - 78.0			
3 to 30	8 ($\leq 89.0\%$)	100 (96.0%)	160 ($\leq 98.0\%$)					65.0 - 78.0			

⁽¹⁾ When mineral filler or hydrated lime is used, include in the calculation for compliance with the VMA.

⁽²⁾ The nominal maximum size aggregate is one size greater than the first sieve to retain more than 10 percent of the combined aggregate.

⁽³⁾ For 1-inch nominal maximum size aggregate mixtures with <0.3 million ESALs, provide a VFA ≥ 67.0 percent.

⁽⁴⁾ Dust to binder ratio is defined as the percent of material including lime, baghouse fines, and other mineral matter added to the mixture. Calculate the ratio using the effective asphalt content calculated by mass of mix.

⁽⁵⁾ Specimens shall be 100 millimeters in diameter. Note that AASHTO T 283 requires a freeze-thaw cycle.

(c) **Verification.** Delete the text of this Subsection and substitute the following:

(1) Aggregate Gradations. Representative aggregate samples from each stockpile, when combined according to the Contractor's recommendation for stockpile percentages, shall be within the gradation defined by the Contractor's target values plus or minus the following tolerance for each sieve.

Sieve Size	Tolerance, % (\pm)
25 mm	3.0
19 mm	3.0
12.5 mm	3.0
9.5 mm	3.0
4.75 mm	3.0
2.36 mm	3.0
600 μ m	2.0
300 μ m	2.0
75 μ m	1.0

(2) Bulk specific gravity of aggregate (G_{sb}). The Contractor's coarse and fine G_{sb} is verified if the CO's results are within the acceptable range for the AASHTO Multilaboratory precision D2S shown in AASHTO T 84 and T 85. Once verified, the mean of the Contractor's and CO's combined coarse and fine G_{sb} values will be used to calculate volumetrics on field produced mix samples.

(3) Voids in the mineral aggregate (VMA). The Contractor's VMA result is verified if the CO's result is above the minimum specification limit in Table 401-1.

(4) Voids filled with asphalt (VFA). The Contractor's VFA result is verified if the CO's result is within the specification limit in Table 401-1.

(5) Air Voids (V_a). The Contractor's V_a result is verified if the CO's result at the same design asphalt binder content is between 3.0 and 5.0 percent.

(6) Hveem stabilometer value. The Contractor's Hveem stabilometer value is verified if the CO's result is above the minimum specification of 30.

(7) Tensile strength ratio (TSR). The Contractor's TSR result is verified if the CO's result is above the minimum specification of 0.80.

401.04 Mixing Plant. Delete the text and substitute the following:

(2) Dust collector. AASHTO M 156, Requirements for All Plants, Emission Controls is amended as follows:

Equip the plant with a dust collector. Dispose of the collected material. In the case of baghouse

dust collectors, dispose of the collected material or return the collected material uniformly.

Use of baghouse fines in asphalt concrete mixes requires approval unless included as part of the approved job-mix formula. If baghouse fines are approved for use, batch or continuous mix plants will meter it by volume or mass into the mixing chamber.

401.08 Asphalt Preparation. Delete the Subsection and substitute the following:

Uniformly heat the asphalt binder to provide a continuous supply of the heated asphalt binder from storage to the mixer. Do not heat asphalt binder above 185 °C.

401.09 Aggregate Preparation. Delete the Subsection and substitute the following:

Adjust the aggregate moisture to at least 4 percent by mass of aggregate. Mix the lime uniformly with the aggregate before introducing the aggregate into the dryer or dryer drum. Use calibrated weighing or metering devices to measure the amount of lime and moisture added to the aggregate.

For batch plants, heat, dry, and deliver aggregate for pugmill mixing at a temperature sufficient to produce a mix temperature within the approved range. Adjust flames used for drying and heating to prevent damage to and contamination of the aggregate.

Control plant operations so the moisture content of the mix behind the paver is 0.5 percent or less according to AASHTO T 255.

Add lime to the aggregate by Method A, B, or C below.

Method A - Add lime to the combined cold feed aggregate using an enclosed in-line cold feed mechanical pugmill mixer. Use a twin-shaft, continuous mixing pugmill with adjustable mixing paddles. Adjust the retention time of the mixture in the pugmill so no unmixed lime is visible after the lime and aggregate exit the pugmill.

Method B - Add lime to the produced aggregates during stockpiling using a pugmill. Add twenty-five (25) percent of the lime to be added to the coarse aggregate stockpile, and add seventy-five (75) percent of the lime to be added to the fine aggregate stockpile. When more than two stockpiles are used, include the distribution of lime per stockpile in the mix design.

A minimum moisture content of two (2) percent by dry weight for coarse aggregate and four (4) percent by dry weight for fine aggregate is required at the time the aggregates and lime are mixed.

Method C - Use a lime slurry consisting of one part lime and three parts water. Equip the plant with a mixing unit to allow mixing of the slurry and aggregate prior to entering the dryer or dryer drum.

Adjust the moisture of the coarse and fine aggregates, or combination of aggregates, to obtain uniform coating of the aggregate with the lime.

Prior to the production of Superpave hot asphalt concrete pavement, obtain approval of synchronized metering and weighing devices used to introduce a constant rate of lime and water.

401.13 Placing and Finishing. Delete the fifth paragraph and substitute the following:

Make the longitudinal joint in the top layer along the existing striped centerline, as recorded under Subsection 152.03(n), or at the lane lines of roadways with more than two lanes.

Add the following:

Use a Materials Transfer Vehicle (MTV) with storage and remixing capabilities on all mainline construction when placing asphalt concrete mixtures. The MTV will independently remix and deliver mixture from the hauling equipment to the paving equipment.

Furnish an MTV with the following capabilities:

- An unloading system to receive mixtures from the hauling equipment.
- A minimum storage capacity of 13 tons with a remixing system in the MTV storage bin.
- A discharge conveyor to deliver the mixture to the paver hopper.
- The MTV system cannot exceed maximum legal loadings on structures.

Acceptable Material Transfer Vehicles are:

- Barber Greene MTV-3500
- Roadtec SB-1500
- Roadtec SB-2500

In the event the MTV malfunctions during paving operations, the Contractor must suspend paving, however hot mix in transit and stored in the silo at the time of breakdown may be placed without the use of an MTV. Do not resume hot mix placement until the MTV is operational.

401.14 Compacting. Delete the first sentence of the first paragraph and substitute the following:

Furnish at least 3 rollers. Furnish one roller each for breakdown, intermediate, and finish rolling. At least one roller will be pneumatic-tired. Size the rollers to achieve the required results. Operate rollers according to the recommendation of the manufacturer. Diesel fuel will not be used as a release agent with any roller used to compact the asphalt mix.

401.16 Pavement Smoothness/Roughness. Delete the Subsection and substitute the following:

401.16 Pavement Roughness. Measure the roughness of the final paved surface course within 21 days after final rolling of the completed roadway paving, and before placement of any surface treatment. In addition to meeting the pavement roughness type requirements, construct all pavement surfaces to meet the requirements of Type V pavement roughness.

(a) International roughness index (IRI).

Equipment. Provide an ASTM E 950, class 1, high speed inertial profiling system meeting all the requirements and specifications found in AASHTO MP 11, with emphasis on the filter and sampling intervals specified in sections 4.2.3 and 4.2.4. Certify profiler in accordance with AASHTO PP 49. Operate profiler in accordance with AASHTO PP 50. At the pre-construction meeting and before profiling provide copies of profiling system to be used and certification(s). Display a current decal on the equipment indicating the expiration date of certification(s).

Personnel. Certify operator in accordance with AASHTO PP 49. At the pre-construction meeting and before profiling provide copies of operator certification(s).

Measuring. Measure the pavement profile in both wheel paths, two longitudinal traces with a sensor path spacing of 165-180 centimeters, centered in the traveled way of the lane. For each lane, submit on disk one continuous raw IRI data file (*.ERD) for the “left” and “right” wheel paths to the CO immediately after profiling. Use profiler’s automatic start/stop activation when collecting data. The CO must coordinate and observe profiling operations. Non-continuous data files will not be accepted. Submit inertial profiler setup parameters (e.g. filters, sampling interval, and segment length, etc.). Measure excluded areas according to Type V pavement roughness.

Evaluation. The CO will review, analyze and may perform verification testing on all IRI measurements. The CO will analyze profile data using Profile Viewer and Analysis (ProVAL) software. The CO’s analysis will be used to determine the Mean Roughness Index (MRI), and the associated roughness pay factor.

Defective areas include the following:

- Bumps or Localized Roughness Areas (LRA) in excess of 5.0 millimeters in 7.62 meters, using ProVAL’s Localized Roughness Analysis.
- 0.1-lane kilometer MRI greater than a Ride Quality Threshold of 1.657 meters/kilometer, using ProVAL’s Smoothness Assurance Analysis.

Correct defective areas according to paragraph (c) below.

If the final MRI for the entire traveled way is greater than 1.973 meters/kilometer using ProVAL’s Ride Statistics Analysis, the traveled way is in reject. Correct rejected traveled way according to paragraph (c) below.

An MRI value will be determined for each 0.1-lane kilometer of traveled way. The total traveled way will be analyzed including partial segments less than 0.1-lane kilometer. Exclusion areas are 7.62 meters on either side of Beginning and End of Project, cattle guards, and bridges. These areas will be excluded from the calculation of MRI and determination of localized roughness.

(1) Type III pavement roughness (IRI measurements for reconstructed and new roads).

Measure the roughness of the final paved surface course. Pay factors from Table 401-3 will be used in conjunction with the histogram printout from ProVAL's Smoothness Assurance Analysis. The final pay factor (PF_{rough}) is equal to the sum of the products of the individual pay factors indicated in Table 401-3 multiplied by ProVAL's corresponding histogram percentages, divided by 100. Calculate the final pay factor to two decimal places.

Table 401-3
Type III Pavement Roughness

MRI (m/km)	Pay Factor (PF_{rough})
Greater than 1.499	0.70
1.499 to 1.420	0.80
1.420 to 1.263	0.90
1.263 to 1.105	0.96
1.105 to 0.947	1.00
0.947 to 0.789	1.02
0.789 to 0.631	1.03
0.631 to 0.473	1.04
Less than 0.473	1.05

(2) Type IV pavement roughness (IRI measurements for overlay, recycle with overlay, or milling with overlay projects). Measure the roughness of the existing surface before construction traffic. The existing surface is defined as the original surface before overlaying, recycling, or milling. Submit original surface raw data files (*.ERD). The CO will review, analyze and may perform verification testing on all IRI measurements. No work that will disturb the original surface will proceed until CO's analysis is complete. The original surface MRI will be used to determine the percent improvement for the entire traveled way.

The percent improvement in MRI will be determined to one decimal place for the entire traveled way according to the following formula:

$$\% \text{ Improvement} = [(Original \text{ MRI} - Final \text{ MRI}) / Original \text{ MRI}] \times 100$$

Table 401-4 will be used to determine the final pay factor (PF_{rough}) for the entire traveled way. No deductions will be made when the final MRI value is less than or equal to 1.105 meters per kilometer ($PF_{\text{rough}} = 1.00$). Compute the final pay factor to two decimal places.

Table 401-4
Type IV Pavement Roughness

Single Lift Percent Improvement (%)	Pay Factor (PF _{rough})	Multi-Lift Percent Improvement (%)	Pay Factor (PF _{rough})
Greater than 50.0	PF = 1.05	Greater than 60.0	PF = 1.05
47.6 to 50.0	PF = 1.04	58.6 to 60.0	PF = 1.04
45.1 to 47.5	PF = 1.03	57.6 to 58.5	PF = 1.03
43.6 to 45.0	PF = 1.02	56.6 to 57.5	PF = 1.02
42.1 to 43.5	PF = 1.01	55.1 to 56.5	PF = 1.01
25.0 to 42.0	PF = 1.00	49.0 to 55.0	PF = 1.00
24.0 to 24.9	PF = 0.99	48.0 to 48.9	PF = 0.99
23.0 to 23.9	PF = 0.98	47.0 to 47.9	PF = 0.98
22.0 to 22.9	PF = 0.97	46.0 to 46.9	PF = 0.97
21.0 to 21.9	PF = 0.96	45.0 to 45.9	PF = 0.96
20.0 to 20.9	PF = 0.95	44.0 to 44.9	PF = 0.95
19.0 to 19.9	PF = 0.94	43.0 to 43.9	PF = 0.94
18.0 to 18.9	PF = 0.93	42.0 to 42.9	PF = 0.93
17.0 to 17.9	PF = 0.92	41.0 to 41.9	PF = 0.92
16.0 to 16.9	PF = 0.91	40.0 to 40.9	PF = 0.91
15.0 to 15.9	PF = 0.90	38.0 to 39.9	PF = 0.90
14.0 to 14.9	PF = 0.89	36.0 to 37.9	PF = 0.89
13.0 to 13.9	PF = 0.88	35.0 to 35.9	PF = 0.88
12.0 to 12.9	PF = 0.87	34.0 to 34.9	PF = 0.87
11.0 to 11.9	PF = 0.86	33.0 to 33.9	PF = 0.86
10.0 to 10.9	PF = 0.85	31.0 to 32.9	PF = 0.85
5.0 to 9.9	PF = 0.80	25.0 to 30.9	PF = 0.80
Less than 4.9	PF = 0.70	Less than 24.9	PF = 0.70

NOTE: A single lift is defined as asphalt concrete pavement placed in one operation.

(b) Type V pavement roughness (straightedge measurement). Use a 3 meter metal straight edge to measure at right angles and parallel to the centerline. Type V localized roughness areas (LRA) are surface deviations in excess of 6 millimeters in 3 meters between any two contacts of the straightedge with the surface.

(c) Defective area correction. Correct defective areas from paragraphs (a) or (b) above. Obtain approval from the CO for correction of defected areas as well as the method of correction. When grinding is allowed, the area ground shall not exceed 67 square meters per location, and is limited to 6 locations per lane kilometer. Grinding depth is limited to 12.5% of the design pavement thickness. Grinding in excess of these limits is not an acceptable method of correction unless it is accompanied by an overlay or a single-course surface treatment over the entire length of the project.

If grinding is allowed, grind the pavement surface with a diamond blade machine and apply a surface treatment according to Sections 409 or 410 as approved by the CO. The endpoints of the areas where a grinder is to be applied must be optimized using ProVAL.

If corrections are allowed, re-measure the pavement profile. Data from the re-measurement and re-analysis will be used to determine PF_{rough} in accordance with Table 401-3 or Table 401-4.

If corrections are not allowed, no adjustment will be made to the final pay factor (PF_{rough}) determined from Table 401-3 or Table 401-4. A dollar adjustment per remaining bump when grinding is not allowed will be determined according to subsection 401.19.

Defective area corrections and surface treatments shall be provided at no cost to the Government.

401.17 Acceptance. Delete the second paragraph and substitute the following:

Asphalt binder will be evaluated under Subsections 106.04, and 702.09, and Table 401-5.

Payment

401.19 Delete the Subsection and substitute the following:

The accepted quantities will be paid at the contract price per unit of measurement for the Section 401 pay items listed in the bid schedule except the Superpave hot asphalt concrete pavement contract unit bid price will be adjusted according to Subsections 106.05, 401.16, and Table 401-5. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

Payment for Superpave hot asphalt concrete pavement will be made at a price determined by multiplying the contract unit bid price by the material pay factor. The material pay factor is calculated as follows:

$$A1 = [(PF_{\text{Superpave}} - 1) + (PF_{\text{PG}} - 1)]$$

where:

$A1$ = Material pay factor.
 $PF_{\text{Superpave}}$ = Pay factor for Superpave hot asphalt concrete pavement. $PF_{\text{Superpave}}$ is the lowest single pay factor determined for asphalt binder content, VMA, and core density.

PF_{PG} = Pay factor for asphalt binder. The PF_{PG} formula is as follows:

$$PF_{PG} = (PF_1 + PF_2 + PF_3 + \dots + PF_n) / n$$

where:

$PF_{\#}$ = For each sample, the lowest pay factor determined from any test in Table 401-5. If the lowest pay factor for a sample is in reject, the sample's pay factor is zero.

n = Number of samples tested.

If either the pay factor for the asphalt binder (PF_{PG}) or the pay factor for Superpave hot asphalt concrete pavement ($PF_{Superpave}$) is below 0.75, the lot for Superpave hot asphalt concrete pavement is in reject.

When the bid schedule contains a pay item for Superpave hot asphalt concrete pavement, type III and type IV pavement roughness, a separate pay adjustment will be made for pavement roughness calculated as follows:

$$\text{Type III and Type IV Pay Adjustment} = 24,800 (PF_{rough} - 1.00)(L) - (NLRA \times 300)$$

where:

PF_{rough} = Pay factor from Table 401-3 or Table 401-4.

L = Total project length in lane kilometers of traveled way. Measure the project length to 2 decimals.

$NLRA$ = Number of localized roughness areas (bumps) remaining in final traveled way as determined by ProVAL and Type V measurements.

Add the following:

A price adjustment will be made for fluctuations in the cost of asphalt cement consumed in the performance of applicable construction work according to Subsection 109.06 Pricing of Adjustments Asphalt Cement Price Adjustment Provision.

A price adjustment will be made for fluctuations in the cost of low sulfur No. 2 diesel fuel consumed in the performance of applicable construction work according to Subsection 109.06 Pricing of Adjustments Fuel Price Adjustment Provision.

Section 409. - ASPHALT SURFACE TREATMENT**Construction Requirements**

409.10 Fog Seal. Add the following after the first sentence:

Unless otherwise noted on the plans, dilute the specified emulsion one part water to one part emulsified asphalt.

Measurement

409.14 Add the following:

Measure fog seal including water added for dilution.

Indicate a breakdown of total emulsion and water added on the load invoices supplied to the CO for payment.

Section 411. - ASPHALT PRIME COAT**Description**

411.01 Delete the second paragraph and substitute the following:

Prime coat asphalt grade is designated as shown in AASHTO M 140 or AASHTO M 208 for emulsified asphalt; AASHTO M 81 or AASHTO M 82 for cut-back asphalt; or Subsection 702.03(e) for other emulsified asphalts

Measurement

411.08 Add the following after the second paragraph:

Indicate a breakdown of total emulsion and water added on the load invoices supplied to the CO for payment.

Section 412. - ASPHALT TACK COAT**Description**

412.01 Delete the text and substitute the following:

This work consists of applying an emulsified asphalt or hot asphalt cement tack coat.

Tack coat emulsified asphalt grade will meet AASHTO T 140 or AASHTO T 208.

Tack coat asphalt cement grade will meet AASHTO M 20, M 226, or M 320

Measurement

412.08 Add the following after the second paragraph:

Indicate a breakdown of total emulsion and water added on the load invoices supplied to the CO for payment.

Section 552. - STRUCTURAL CONCRETE

Material

552.02 Add the following:

Concrete coloring agent	711.05
Precast reinforced concrete box sections	706.07
Precast concrete units	725.11
Reinforcing fibers	725.29

Construction Requirements

552.03 **Composition (Concrete Mix Design).** Delete Tables 552-1, 2, and 3 and substitute the following:

Table 552-1
Composition of Concrete

Class of Concrete	Minimum Cement Content (kg/m ³)	Maximum W/C Ratio	Slump ⁽¹⁾ (mm)	Maximum Nominal Coarse Aggregate Size ⁽⁵⁾ (mm)
A	360	0.49	50 to 100	37.5
A(AE)	360	0.44	25 to 100	37.5
B	310	0.58	50 to 100	63
B(AE)	310	0.58	50 to 100	63
C	390	0.49	50 to 100	19
C(AE)	390	0.44	25 to 75	19
D(AE) ⁽²⁾	360	0.40	25 to 75	37.5
E(AE) ⁽³⁾	360	0.40	100 to 150 ⁽⁴⁾	19
P (Prestressed)	390	0.44	0 to 100	25
P(AE)	390	0.44	0 to 100	25
Seal	390	0.54	100 to 200	37.5

(1) Maximum slump is 200 millimeters if approved mix design includes a high-range water reducer.

(2) Concrete with a water reducing and retarding admixture conforming to AASHTO M 194, type D.

(3) A latex modified concrete with 0.31 liters of modifier per kilogram of cement.

(4) Measure the slump 4 to 5 minutes after the concrete is discharged from the mixer.

(5) Meeting the processing requirements of AASHTO M43, Table 1 – Standard Sizes of Processed Aggregate.

Table 552-2
Minimum Air Content for Air Entrained Concrete

Nominal Maximum Aggregate Size ⁽¹⁾	As Delivered Minimum Air Content ⁽²⁾⁽³⁾ (%)
63 mm	3.5
50mm	3.5
37.5 mm	4.0
25 mm	4.5
19 mm	4.5
12.5 mm	5.5

(1) Meeting the processing requirements of AASHTO M 43, Table 1 – Standard Sizes of Processed Aggregate.

(2) These air contents apply to the total mix. When testing these concretes, aggregates larger than 37.5 millimeters is removed by handpicking or sieving, and air content is determined on the minus 37.5-millimeter fraction of the mix. Air content of the total mix is computed from the value determined on the minus 37.5-millimeter fraction.

(3) For P(AE) concrete, the as delivered minimum air contents may be reduced 1.0 % and the maximum air content is 6.0 %

Table 552-3
Required Average Compressive Strength ⁽¹⁾

Specified Compressive Strength (f'_c) (MPa)	Required Average Compressive Strength (f'_{cr}) (MPa)
Less than 21	$f'_c + 7.0$
21 to 35	$f'_c + 8.5$
Over 35	$1.10f'_c + 5.0$

(1) Use this table when there is not enough data available to establish a standard deviation

552.09 Quality Control of Mix. Add the following after the first paragraph:

At least 2 weeks prior to the start of concrete placement operations, arrange a pre-concrete placing conference. Coordinate attendance with the CO and any applicable subcontractors. Be prepared to discuss and/or submit the following:

- (1) Proposed concrete placement schedule.
- (2) Review approved concrete mix design and determination of batch weights.
- (3) Discuss Section 153, Contractor Quality Control, minimum frequency schedule for process control sampling and testing (to be performed by the Contractor).
- (4) Discuss batching, mixing, placing, and curing requirements.
- (5) Discuss Subsections 106.03, Certification, and 106.05, Statistical Evaluation of Material for Acceptance.

552.12 Construction Joints. Delete the third paragraph and substitute the following:

When the joint is between two fresh concrete placements, rough float the first placement to thoroughly consolidate the surface and leave the surface in a roughened condition. Clean the joint surface of laitance, curing compound, and other foreign material. Use an abrasive blast or another approved method to expose the aggregate on the joint surface. Re-tighten forms where the joint overlaps the first placement. Immediately before placing new concrete, flush the joint surface with water and allow to dry to a surface dry condition.

552.14 Finishing Plastic Concrete.**(d) Texturing.****(1) Grooved finish.** Delete the first sentence and substitute the following:

Use an approved machine designed specifically for sawing grooves in concrete pavements.

552.16 Finishing Formed Concrete Surfaces. Add the following after the first paragraph:

Use an approved form release agent to produce a minimum of staining, air holes, and hydration discoloration.

552.19 Acceptance. Add the following:

Material for fly ash, lime, hydraulic cement, and water will be evaluated under Subsections 106.02 and 106.03.

Measurement**552.20** Add the following:

Do not measure for payment the volume of concrete required outside the neat lines of the footing to pour against undisturbed rock as shown on the plans. When the CO directs the removal of material below the established elevation of the bottom of the footing, the volume of concrete required to fill the void will be measured for payment.

Measure concrete coloring agent by the pound.

Delete footnote (3) in Table 552-9 and substitute the following:

⁽³⁾ A single compressive strength test result is the average result from 2 cylinders cast from the same load and tested at 28 days.

Payment

552.21 Delete the text and substitute the following:

The accepted quantities will be paid at the contract price per unit of measurement for the Section 552 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

Section 554. - REINFORCING STEEL**Construction Requirements**

554.07 Epoxy Coated Reinforcing Steel. Delete the fifth paragraph and substitute the following:

Field repairs will not be allowed on bars that have severely-damaged coatings. Replace bars with severely-damaged coatings. A severely-damaged coating is defined as a bar where the sum of all areas covered with patching material, including overlaps, exceeds five percent of the total surface area of the bar. This limit on repaired damage coating does not include sheared or cut ends that are coated with patching material. Coat mechanical splices after splice installation according to AASHTO M 284M for patching damaged epoxy coatings.

554.08 Placing and Fastening. Delete the first sentence of the first paragraph and substitute the following:

Place, fasten, and support the bars according to the *CRSI Manual of Standard Practice*. Use precast concrete blocks or metal supports.

Section 562. - TEMPORARY WORKS**Material**

562.02 Delete the second sentence and substitute the following:

Furnish factory fabricated components of vertical shoring towers complying with the *Certification Program for Bridge Temporary Works* (FHWA-RD-93-033).

Design Requirements

562.03 Design.

(c) Delete the third paragraph and substitute the following:

Do not use overhang form brackets for girder bridges that require holes to be cast or drilled into the girder webs.

Construction Requirements**562.07 Maintenance and Inspection.** Delete the text and substitute the following:

Inspect and maintain temporary works in an acceptable condition throughout the period of use.

In the presence of the CO, perform an in-depth inspection of temporary works not more than 24 hours before beginning each concrete placement or before allowing people to enter a cofferdam or excavation support structure. Inspect other temporary works at least once a month to insure they are functioning properly. Use a registered professional engineer to inspect cofferdams, shoring, support of excavation structures, and support systems for load tests before loading.

Furnish written results of the inspections to the CO before placing concrete, before allowing people to enter a cofferdam or excavation support structure, and before loading temporary works. Include a certification that the system meets the requirements of the contract and drawings.

Clearly mark the capacity of factory fabricated components of vertical shoring towers according to the *Certification Program for Bridge Temporary Works* (FHWA-RD-93-033). Make inspections and certifications for factory fabricated components of vertical shoring towers according to the *Certification Program for Bridge Temporary Works* (FHWA-RD-93-033).

Section 563. - PAINTING**Description**

563.01 Add the following: This work also consists of applying rock stain to the newly exposed rock slope surfaces.

Material

563.02 Conform to the following Subsection:

Penetrating Stain

708.05

Construction Requirements

563.06 Paint Application, General. Add the following:

Use a penetrating stain with color shades for the newly exposed rock slope surfaces which complement the natural rock outcroppings in the vicinity of the rock slope with the CO's approval. Ensure the final color shades consist of 50% brown tones and 50% gray tones.

Ensure the color/stain application is applied by a Color Application Artist who has a minimum of five consecutive years of experience applying special color stain surface finish to newly exposed rock slopes surfaces. Submit the following for approval by the CO:

(a) A list of three applications of newly exposed rock slopes surface work completed by the Color Application Artist within the last 5 years. Include the stain manufacturer, project name, project location, project address, and phone number of the owner or owner's representative.

(b) A minimum of three 8 inch x 10 inch color photographs of each installation referenced above. The photographs must show details of the color/stain application and overall quality of the work. The photographs will be used to evaluate the experience and ability of the Color Application Artist to achieve realistic surfaces. Submit photographs taken at various distances from the stained surface to clearly show distinguishing characteristics and overall quality of the work.

Achieve the desired finish effect by applying one color over another or by intermixing several colors of stain. Apply concrete stain base coat using an air or airless sprayer. Highlight coloration will be by hand or other suitable antiquing method. Stain individual rocks on the pattern to produce natural irregularities.

Provide a color/stain Manufacturer's Technical Representative for on site technical supervision of the Color Application Artist during the color/stain application production work.

Measurement

563.12 Add the following:

Measure rock stain by the square meter of the rock slope.

Add the following Section:

Section 569. - MICROPILES

Description

569.01 This work consists of furnishing all necessary engineering and design services, supervision, labor, materials, and equipment to perform all work necessary to install and test micropiles, per the specifications described herein, and as shown in the Plans. Install a micropile system that will develop the load capacities indicated in the Plans. The micropile load capacities and measurements shall be verified by testing, as specified herein.

Material

569.02 Conform to the following subsections:

(a) **Water.** 725.01. Test drilling fluids in accordance with API RP 13B-1, Recommended Practice – Standard Procedure for Field Testing Water Based Drilling Fluids.

(b) Admixtures. 711.03. Admixtures which control bleed, improve flowability, reduce water content, and retard set may be used in the grout subject to the review and acceptance of the CO. Add expansive admixtures only to the grout used for filling sealed encapsulations. Provide admixtures compatible with the grout and mixed in accordance with the manufacturer's recommendations. Their use will only be permitted after appropriate field tests on fluid and set grout properties. Admixtures with chlorides are not permitted.

(c) Cement. 701.01(a). Conduct additional grout mix tests if the brand or type of cement is changed during a project, to ensure consistency of quality and performance in situ.

(d) Fillers. Inert fillers such as sand may be used in the grout in special situations (e.g., presence of large voids in the ground, when grout take and travel are to be limited) as approved by the CO.

(e) Bar reinforcement.

(1) Deformed bars. 709.01. Provide deformed reinforcing steel bars conforming to AASHTO M31, in Grade 420 or Grade 520 as designated on the plans.

(2) High strength steel bars. 709.03.

(3) Epoxy-coated bars. Furnish bars conforming to AASHTO M284, except that coating flexibility bending requirements are waived. Store, handle and repair epoxy-coated bars in accordance with Subsection 554.07.

(4) Bar couplers. Use couplers with a strength that is at least 125 percent of the required yield strength of the reinforcing steel.

When a bearing plate and nut are required to be threaded onto the top end of reinforcing bars for the pile top to the anchorage, the threading may be continuous spiral deformed ribbing provided by the bar deformations (e.g., Dywidag or Williams continuous thread bars) or may be cut into a reinforcing bar. If threads are cut into a reinforcing bar, provide the next larger bar number designation from that shown on the plans.

(f) Permanent casing. Provide permanent steel casing which meets the following:

- (1)** Tensile requirements of ASTM A252, Grade 3
- (2)** Minimum yield strength as shown on the plans
- (3)** Minimum elongation = 15%
- (4)** Minimum diameter and wall thickness as shown on the plans

Permanent casing may be new "Structural Grade" (a.k.a. "Mill Secondary") API Specification 5CT, Grade N80 steel pipe meeting (1) thru (4) above but without Mill Certification, free from defects (dents, cracks, tears) and with two coupon tests per truckload.

Perform welding in accordance with Section 551.09(a). Welding, except as shown on the plans, is not permitted without approval.

The permanent steel casing wall thickness includes an additional 1.6 millimeters of sacrificial steel required for long term corrosion protection.

(g) Plates and shapes. ASTM A36M.

(h) Centralizers. Fabricate centralizers from plastic, steel, or material that is non-detrimental to the reinforcing steel. Wood centralizers are not allowed.

(i) Grout. 725.22 (f). In addition, furnish a grout mixture consisting of fine aggregate.

Construction Requirements

569.03 Related Project Experience. Provide a micropile contractor fully experienced in all aspects of micropile design and construction, and capable of furnishing all necessary equipment, materials, skilled labor, and supervision to carry out the contract. The micropile contractor will have successfully completed at least five projects in the previous five years of similar scope and size, demonstrating experience with similar soil/rock project conditions and demonstrating experience with comprehensive micropile testing. The contractor must also provide résumés of key personnel who will be present on site and materially involved, and who will each have at least three years of relevant experience. Include resumes for superintendent, driller, and project engineer/manager. In addition, at least 30 calendar days prior to the start of construction, submit a project reference and personnel list to the CO. Include a brief project description with the owner's name, current phone number and load test reports on the project reference list. Identify the system designer (if applicable), supervising engineer, drill rig operators, and on-site foremen on the personnel list.

Do not allow the micropile contractor to sublet the whole or any part of the contract without the express permission in writing of the CO.

569.04 Pre-Installation Submittals. Submit drawings according to Subsection 104.03. Furnish drawings that bear the seal and signature of a professional engineer who is proficient in micropile design and licensed in the state where the project will be constructed. Submit the following:

- (a) Proposed construction schedule
- (b) Drawings for micropile installation showing:
 - (1) Plan and elevation views,
 - (2) Micropile number, location and pattern,
 - (3) Micropile design load,
 - (4) Type and size of permanent casing,
 - (5) Type and size of reinforcing steel,
 - (6) Type and dimensions of structural steel plates

- (7) Minimum total bond length,
- (8) Corrosion protection system,
- (9) Total micropile length,
- (10) Grouting volumes and maximum pressures,
- (11) Micropile top attachment,
- (12) Micropile cut-off elevation,
- (13) Quantities summary, and
- (14) General construction sequence notes.

(c) Proposed method(s) for constructing and load testing the micropiles. Include all necessary drawings and details to clearly describe the load test method and equipment proposed. Include a schedule of major equipment resources. Include supporting structural design calculations for all structural components of the micropile load test apparatus.

(d) Certified mill test reports for the reinforcing steel, properly marked and as the materials are delivered. Include the ultimate strength, yield strength, elongation, and composition. For steel pipe used as permanent casing submit a minimum of two representative coupon tests on each load delivered to the project. Submit mill certifications if available.

(e) Grout mix designs, including details of all materials to be incorporated and the procedure for mixing and placing the grout. The grout design strength is 27.6 MPa at 28 days and 13.8 MPa at 7 days. Include certified test results verifying the acceptability of the proposed mix designs whereby 100 by 200 mm cylinders are made and standard cured in accordance with AASHTO T23 and tested at 7 and 28 days in accordance with AASHTO T22. The measured grout density shall typically range from 1.8 kg/m³ to 1.9 kg/m³, with grout mixes generally conforming to Section 725.22(f) with fine aggregate.

(f) Calibration reports for each test jack, pressure gauge, and master pressure gauge to be used. An independent testing laboratory must have conducted the tests within 6 months of the date submitted. Do not commence testing until the CO has approved the jack, pressure gauge and master pressure gauge test components.

Do not start construction of any micropile work for which drawings are required until the CO has accepted the drawings.

A pre-work meeting will be held by the CO prior to the start of micropile installation to clarify construction requirements, coordinate the construction schedule and activities, and identify contractual relationships and delineation of responsibilities amongst the prime Contractor and the various Subcontractors.

569.05 Allowable Tolerances.

- (a) Construct centerline of piling no more than 75mm (3 in.) from indicated pile spacing and plan location.
- (b) Construct the pile-hole alignment within 2% of design alignment.

(c) Construct the top elevation of pile within +25 mm (+1 in.) of the design vertical elevation.

(d) Construct the centerline of reinforcing steel no more than 19 mm ($\frac{3}{4}$ in.) from centerline of piling.

Observe site conditions in the vicinity of the micropile construction on a daily basis for signs of ground heave or subsidence. Immediately suspend operations and notify the CO if signs of movement are observed, if the micropile structure is adversely affected, or if adjacent structures are damaged from drilling or grouting. Take corrective actions necessary to stop the movement or perform repairs as directed by the CO.

569.06 Installation Records. The following records will be prepared for the CO within 24 hours after each pile installation is completed. Include the following minimum record information:

- (1) Pile drilling duration and observations (e.g., flush return),
- (2) Soil/rock/water encountered, included in drilling log format,
- (3) Approximate final tip elevation,
- (4) Cut-off elevation,
- (5) Overburden depth,
- (6) Depth to bedrock,
- (7) Description of unusual installation behavior or problems encountered,
- (8) Grout pressures attained,
- (9) Grout quantities pumped,
- (10) Pile materials employed and dimensions,
- (11) Installation methods/equipment employed, and
- (12) Micropile test records, analyses, and details, as applicable.

In addition, as-built drawings showing the location of the piles, their depth and inclination, depth to bedrock, and details of their composition shall be submitted within 14 calendar days of project completion.

Execution

569.07 Micropile Installation. Provide a micropile installation technique that it is consistent with the geotechnical, logistical, environmental, and load carrying conditions of the project. Select the drilling method and the grouting procedures used for the installation of the micropiles, subject to the approval of the CO. Provide drilling equipment and methods suitable for drilling through the conditions to be encountered, with minimal disturbance to these conditions or any overlying or adjacent structure or service. After drilling, flush the hole with water and/or air to remove drill cuttings and/or other loose debris. The borehole must be open to the defined nominal diameter, full length, prior to placing grout and reinforcement. Develop methods of stabilizing borehole that in no way have a deleterious effect on the geotechnical bond development of the grout.

Determine and schedule all installation techniques such that there will be no interconnection or damage to piles in which grout has not achieved final set.

Securely attach centralizers and spacers to the reinforcement; sized to position the reinforcement to the tolerances defined in 569.05; sized to allow grout tremie pipe insertion to the bottom of the drill hole; and designed to allow grout to freely flow up the drill hole and casing without misalignment of the reinforcement. Provide centralizers at 3.0 meters maximum vertical spacing and within 1.5 meters from the top and bottom of the reinforcement.

Lower the central reinforcement steel with centralizers into the stabilized drill holes to the desired depth without difficulty. Provide reinforcement that is free of deleterious substances such as soil, mud, grease, or oil that might contaminate the grout or coat the reinforcement and impair bond. Do not drive or force partially inserted reinforcing bars into the hole such that there will be no interconnection or damage to piles in which the grout has not achieved final set.

If, during installation of a pile, an obstruction is encountered that prevents the practical advancement of the pile, abandon the hole and fill with grout. Drill a new pile at a location to be determined by the CO; however, it must be acknowledged that in certain structures, relocation options may be severely limited, and further attempts at the original location with different methods may be required.

Inject grout according to Section 569.09, below.

Check pile top elevations and adjust all installed micropiles to the planned elevations.

For a minimum of one micropiles at each of the bridge foundation units, advance micropile borings a minimum of 4 meters below the assumed bedrock contact to verify top of bedrock and that piles are not founded on a boulder.

569.08 Pipe Casing and Reinforcing Bar Placement and Splicing. Secure lengths of casing and reinforcing bars to be spliced in proper alignment and in a manner to avoid eccentricity or angle between the axes of the two lengths to be spliced. Locate threaded pipe casing joints at least two casing diameters (OD) from a splice in any reinforcing bar. When multiple bars are used, stagger bar splices at least 300 millimeters. Construct all pile splices to develop the required design strength of the pile section.

569.09 Grouting. Grout micropiles the same day the load transfer bond length is drilled. Provide a grout that does not contain lumps or any other evidence of poor or incomplete mixing. Mix admixtures, if used, in accordance with manufacturer's recommendations. Equip the pump with a pressure gauge to monitor grout pressures. Provide a pressure gauge capable of measuring pressures of at least 1,035 kPa (150 psi) or twice the actual grout pressures used by the Contractor, whichever is greater. Size the grouting equipment to enable the grout to be pumped in one continuous operation. Keep the grout in constant agitation prior to pumping.

Inject the grout from the lowest point of the drill hole by gravity fill (tremie method) until clean, pure grout flows from the top of the micropile. The tremie grout may be pumped through grout tubes, hollow stem augers, or drill rods. Subsequent to tremie grouting, all grouting operations associated with, for example, extraction of drill casing and pressure grouting, must ensure complete continuity of the grout column. The use of compressed air to directly pressurize the fluid grout is not permissible.

Control the grout pressures and grout takes to prevent excessive heave in cohesive soils or fracturing of soil or rock formations. Grout the entire pile to the design cut-off level.

There will be no extra payment for grout overruns.

Upon completion of grouting, the grout tube may remain in the hole, but filled with grout. If the Contractor uses a post-grouting system, submit all relevant details including grouting pressure, volume, location and mix design, as part of Section 569.04. Grout within the micropiles shall be allowed to attain the minimum design strength prior to being loaded.

During production, micropile grout shall be regularly tested by the Contractor for compressive strength and consistency. Compressive strength of 100 by 200 mm cylinders shall be determined in accordance with AASHTO T22 at a frequency of no less than one set of three samples from each grout plant each day of operation, or per every 20 micropiles, whichever occurs more frequently. Cylinders shall be made and standard cured in accordance with AASHTO T23. The compressive strength shall be the average of the three samples tested, and shall meet or exceed the approved mix design strength requirements, as submitted under 569.04. Grout consistency, as measured by grout density, shall be determined in accordance with AASHTO T133 or API RP-13B-1 at a frequency of at least one test per every five piles. Provide grout compressive strength and density test results to the CO within 24 hours of testing.

Pile Load Tests

569.10 Micropile Load Verification Tests. Perform pre-production verification pile load tests to verify the design of the pile system and the construction methods proposed prior to installing any production piles. Construct one sacrificial verification test piles along each bridge, located as directed by the CO.

Submit for review and acceptance the proposed micropile load testing procedure. Provide the testing program at least two weeks prior to starting the load testing. Provide the micropile verification load testing proposal in general conformance with ASTM D-1143 and D-3689, and indicate the minimum following information:

- (1) Type and accuracy of apparatus for load measurement,
- (2) Type and accuracy of apparatus for applying load,
- (3) Type and apparatus for measuring pile deformation and displacement,
- (4) Type and capacity of reaction load system, including sealed design drawings,
- (5) Hydraulic jack calibration report.

Size the verification test micropile structural steel sections to safely resist the maximum test load. Do not exceed 80 percent of the structural capacity of the micropile structural elements, including steel yield in tension, steel yield or buckling in compression, or grout crushing in compression when the maximum verification (and proof) test loads are applied.

Provide micropile load verification test results that verify the suitability of the Contractor's design and installation methods. The test results will be reviewed and accepted by the CO prior to beginning production micropiles. Provide drilling and grouting methods, casing and other reinforcement details, and depth of embedment for the test pile identical to the production piles, except where approved otherwise by the CO.

Load tested micropiles to 250% of the compression and/or tension design load (DL) (i.e., 2.5 DL). The load tested piles must be of the same design as the production piles to ensure meaningful results. Position the jack at the beginning of the test such that the unloading and repositioning of the jack during the test will not be required. Test piles under compression loads prior to testing under tension loads, as applicable. An Alignment Load (AL), if required, may be applied to the pile prior to setting the movement recording devices. Provide an Alignment Load no greater than 10% of the Design Load (i.e., 0.1 DL). Zero dial gauges after the first setting of AL.

Conduct axial pile load tests by loading the micropile and recording the pile head movement in the following cyclic load increments:

Table 569-1

Load	Hold Time (Minutes)
AL	1
0.25 DL	1
0.50 DL	1
AL	1
0.25 DL	1
0.50 DL	1
0.75 DL	1
AL	1
0.25 DL	1
0.50 DL	1
0.75 DL	1
1.00 DL	1
AL	1
0.25 DL	1
0.50 DL	1
0.75 DL	1
1.00 DL	1
1.33 DL	60*
1.75 DL	1
2.00 DL	1
2.25 DL	1
2.50 DL	10
AL	1

* Hold until pile meets acceptance criterion (2) below

AL = Alignment Load

DL = Design Load

Thereafter for special test piles not to be later used in service, further load cycles should be conducted to the maximum safe loading capability of the test apparatus or to failure, whichever comes first.

Obtain measurement of pile movement at each increment. Start the load hold period as soon as the test load is applied, and measure and record the pile movement, with respect to a fixed reference. Measure the pile movement during the creep test, and record, at 1, 2, 3, 4, 5, 6, 10, 20, 30, 50, and 60 minutes.

The acceptance criteria for micropile verification load tests are:

- (1) Provide a pile to sustain the compression and tension design loads (1.0 DL) with no more than 10 mm (3/8 in.) total vertical movement at the top of the pile as measured relative to the top of the pile prior to the start of testing. If an Alignment Load is used, then the allowable movement will be reduced by multiplying by a factor of $(DL-AL)/DL$. (This conservatively accounts for the movement in reaching AL).
- (2) Provide test piles that have a creep rate at the end of the 133% DL increment which is not greater than 1 mm/log cycle (0.040 in./log cycle) time from 1 to 10 minutes or 2 mm/log cycle (0.080 in./log cycle) time from 6 to 60 minutes and has a linear or decreasing creep rate.
- (3) Failure does not occur at the 2.5 DL maximum compression and tension loads. Failure is defined as a slope of the load versus deflection (at end of increment) curve exceeding 0.635 mm/kip (0.025 inches/kip).

Provide the CO a written report confirming micropile geometry, construction, and testing details within seven working days following completion of the pre-production verification tests. This report will either confirm the bond lengths as shown in the drawings for micropiles or propose modifications based upon the results of the verification tests.

When a micropile fails to meet the acceptance criteria, establish the cause(s) and provide modifications to the design, the construction procedures, or both. Retest the new system, as directed by the CO. These modifications include, but are not limited to, installing replacement micropiles, modifying the installation methods, increasing the bond length, regrouting via pre-placed re-grout tubes, or changing the micropile type. Any modification which requires changes to the structure must have prior review and acceptance of the CO. Determine the cause for any modifications of design or construction procedures in order to appropriately determine any additional cost implications.

At the completion of verification testing, test piles shall be removed down to the elevation specified by the CO.

Any change in construction method or encounter with a markedly different foundation material should be accompanied by additional verification tests.

569.11 Production Pile Proof Testing. Perform proof load tests on at least one production pile per foundation unit at the Beartooth Ravine Bridge. The piles to be tested will be selected by the CO. At

the Contractor's suggestion, but with the CO's concurrence, tension tests may be performed based on maximum DL in compression or tension for friction piles with sufficient structural tension capacity.

Test piles designated for compression or tension proof load testing to a maximum test load of 1.67 times the micropile Design Load, as shown on the Plans or Working Drawings. Proof tests shall be made by incrementally loading the micropile in accordance with the following schedule, to be used for both compression and tension loading:

Table 569-2

Load	Minimum Hold Time (Minutes)
AL	1
0.25 DL	1
0.50 DL	1
0.75 DL	1
1.00 DL	1
1.33 DL	10*
1.67 DL	1
AL	1

* Hold until pile meets acceptance criterion (2) of next paragraph

AL = Alignment Load

DL = Design Load

The acceptance criteria for micropile proof load tests are:

- (1) Compression and tension design loads (1.0 DL) with no more than 13 mm (1/2 in.) total vertical movement at the top of the pile as measured relative to the pile prior to the start of testing. If an Alignment Load is used, then the allowable movement will be reduced by multiplying by a factor of (DL-AL)/DL. (This conservatively accounts for the movement in reaching AL.)
- (2) A creep rate at the end of the 133% DL increment which is not greater than 1 mm/log cycle (0.040 in./log cycle) time from 1 to 10 minutes or 2 mm/log cycle (0.080 in./log cycle) time from 6 to 60 minutes and has a linear or decreasing creep rate.
- (3) Failure does not occur at the maximum compression and tension load increment. Failure is defined as a slope of the load versus deflection (at end of increment) curve exceeding 0.635 mm/kip (0.025 inches/kip).

If a proof-tested micropile fails to meet the acceptance criteria, proof test another micropile in the immediate vicinity. For failed piles and further construction of other piles, modify the design, the construction procedure, or both. These modifications include, but are not limited to, installing replacement micropiles, incorporating piles of reduced load capacities, modifying the installation methods, increasing the bond length, or changing the micropile type. Provide prior review for the approval of the CO of any modification which requires changes to the structure. Decide the cause for any modifications of design or construction procedures in order to appropriately determine any additional cost implications.

Measurement

569.13 Measure Section 569 items listed in the bid schedule according to Subsection 109.02 and the following as applicable.

Measure Micropile load verification tests that indicate acceptable installations.

Measure production pile proof testing for payment under Trial micropile pay item.

Payment

569.14 The accepted quantities will be paid at the contract price per unit of measurement for Section 569 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

Section 601. - MINOR CONCRETE STRUCTURES

Material

601.02 Add the following:

Concrete coloring agents	711.05
Precast reinforced concrete box sections	706.07
Reinforcing fibers	725.29

601.03 Concrete Composition. Delete Table 601-1 and substitute the following:

Table 601-1
Composition of Minor Structure Concrete

Property	Specification
Cement content	362 kg/m ³ minimum
Water/cement ratio	0.49 maximum
Slump	125 mm maximum
Air Content	4% minimum
Size of coarse aggregate	AASHTO M43 with 100% passing the 37.5-mm sieve
28-day compressive strength	20.7 MPa minimum

Section 602. - CULVERTS AND DRAINS**Material**

602.02 Delete the text and substitute the following: Conform to the following Section and Subsections:

Asphalt-coated pipe	707.04
Joint fillers, sealants, and preformed joint seals	712.01
Metallic-coated corrugated steel pipe	707.02
Lean concrete backfill	614
Watertight gaskets	712.03

Construction Requirements

602.03 General. Add the following:

In wetlands, construct culvert inverts so that the existing water surface elevations are maintained.

Use asphalt coated culvert pipe end sections to diminish their visibility.

Section 609. - CURB AND GUTTER**Description**

609.01 Add the following:

This work also consists of constructing paved ditches contiguous to the traveled way.

Construction Requirements

609.03 General. Add the following:

For asphalt paved ditches, form the bed parallel to the finished surface of the ditch.

Add the following Subsection:

609.08A Asphalt Paved Ditch. Perform the work according to Section 404. Before overlaying existing asphalt paved ditches, clean and seal the cracks according to Section 414. Compact according to Subsection 404.07(a). Compact according to Subsection 404.07(b), only if paved ditch cannot be rolled safely.

Measurement**609.10** Add the following:

No separate measurement will be made for the asphalt mixture included in asphalt curb or paved ditch.

Measure paved ditches by the square meter width horizontally to include total width.

Measure curb by the linear meter.

Section 614. - LEAN CONCRETE BACKFILL**Construction Requirements****614.03 Composition of Mix.** Delete Table 614-1 and substitute the following:

Table 614-1
Composition of Lean Concrete Backfill

Property	Specification
Cement content	56 kg/m ³ min.
Aggregate particle size	25 mm max.
Aggregate passing 75- μ m sieve	10% max.
7-day compressive strength	1.5 MPa max.

614.04 General. Add the following:

Do not place lean concrete backfill in contact with aluminum, aluminum-coated or plastic culverts.

Section 617. - GUARDRAIL**Construction Requirements****617.03 Posts.** Add the following:

Use Type IV corrosion resistant steel for guardrail posts in accordance with Section 710.09.

Construct all post systems for the Wyoming Box Beam in accordance with the plans.

617.04 Rail Elements. Add the following:

Construct the Wyoming Box Beam rail sections in accordance with the plans. Paint all Wyoming Box Beam rail sections to match bridge railing.

617.05 Terminal Sections. Add the following:

Construct all terminal sections for the Wyoming Box Beam in accordance with the specials M617-A in the plans. See the Little Bear Creek Bridge #1 plans for paint color for all such components. Apply paint according to Section 563.

Delete the third paragraph and substitute the following:

Use Type FAT-G3 (Wyoming Box Beam end anchorage type I) as shown in the specials M617-A in the plans. Submit drawings from the manufacturer for the terminal according to Subsection 104.03.

617.06 Connection to Structure. Add the following:

Use the Wyoming Box Beam for the transition rail to connect the guardrail to all the structures on the project. The Wyoming Box Beam has a standard detail shown in the plans for connecting the Wyoming TL-3 bridge rail used on the structures.

Section 620. - STONE MASONRY**Construction Requirements****620.03 General.** Delete the first paragraph and replace with the following:

Furnish stone that matches native stone on the project. Salvage original stone masonry on the bridges and culvert headwalls and use the salvaged stone masonry, except as described below, to provide facing for the bridge abutments as called for in the plans. Split exposed face of stone into nominal 10 inch thick pieces maintaining the original size of the exposed face as much as possible. Limit the losses during splitting to 50%. Adjust the method of splitting the stone if losses exceed 50%. Additional rock quarry locations will be available on the project site for use in constructing stone masonry as directed by the CO. Submit stone samples representing the range of colors and sizes to be used on the project to the CO 14 days before beginning work.

Add the following:

Prior to removal of stone masonry, submit a plan that addresses and records the existing stone assembly pattern, removal, temporary storage, resetting, safety, and construction requirements for approval by the CO. Photographs and dimensioning of the existing stone will be required to ensure that the reset stone pattern is similar to the existing historic structures. Submit working drawings and procedures according to Subsection 104.03.

Stockpile salvaged stone adjacent to roadway or parking area within the clearing limits, and away from construction activities. Take all necessary precautions to prevent damage to stone when disassembling.

Ensure the stone masonry work is performed by a journeyman stone contractor experienced in this type of work.

Submit for review by the CO substantiating evidence that the contractor or subcontractor(s) is (are) qualified by previous experience in construction of stone masonry. Include the following:

- (a) A list of representative jobs the Contractor or subcontractor has completed using the various procedures required to accomplish this type of work, i.e., furnishing, selecting, and placing the stone.
- (b) The name and work history of the person(s) employed by the Contractor or subcontractor(s) who will be in direct supervision of the stone masonry operations. Include a list of projects that such person(s) has been in a position of responsibility for and has successfully completed while in the employment of the Contractor or its subcontractor(s).

Rub dark colored or obsidian sand into mortar joint surfaces before it sets to obtain the color of the Lake Creek Retaining wall mortar joints. Obtain the obsidian sand from an approved source. A commercial source for the obsidian sand is Squire Brick, Inc. in Rexburg, Idaho phone number (208) 356-3324. Dark colored sand material may also be produced on site, utilizing material from the mafic dike area located near the road closure gate east of the Top of the World Store.

620.04 Placing Stone. Add the following:

When removing and resetting stone, place weathered faces outward and in the most visible locations as directed by the CO. The intent is to replicate the original stone appearance at the new locations.

Measurement

620.11 Add the following:

Do not measure excavation, mining, splitting, and handling of all stone but include in the work.

Measure, removal, and resetting stone masonry by the square meter in the structure after resetting.

Section 622. - RENTAL EQUIPMENT

Description

622.01 Add the following:

If normal blasting and excavation activities result in an insufficient quantity of soil pockets on the rock cuts, the CO may order the creation of additional soil pockets utilizing rental equipment.

This work also consists of salvaging willows and sod conservation and placement.

This work also consists of the construction of fill slope terraces, rock soil pockets, and removing and dislodging topsoil from stumps with Item 62201-0350, Backhoe or Item 62201-3000, Hydraulic Excavator.

Section 623. - GENERAL LABOR

Delete the text of this Section and substitute the following:

Description

623.01 This work consists of furnishing workers and hand tools for construction work, survey crews, and/or furnishing qualified personnel to perform technical work ordered by the CO and not otherwise provided for under the contract. This work includes re-catching slope stakes as directed by the CO. This work will also include the Top of the World Interpretive Site and trail.

Construction Requirements

623.02 Workers and Equipment. Furnish competent workers and appropriate hand tools for the work.

Obtain approval of the length of a workday and workweek before beginning the work. Keep daily records of the number of hours worked. Submit the records along with certified copies of the payroll.

623.03 Surveying Services. Furnish personnel, equipment, and material that conform to the requirements of Subsection 152.01. Survey according to Section 152.

Survey and establish controls within the tolerances shown in Table 152-1, or within other tolerances as established by the CO.

Prepare field notes in an approved format. Furnish calculations. All field notes, supporting documentation, and calculations become the property of the Government upon completion of the work.

Re-catch slopes stakes as directed by the CO. Complete survey work required at the Top of the World Store interpretive site and trail as shown in the plans and as directed by the CO.

623.04 Office Technical Services. Furnish qualified engineering personnel experienced in highway construction and design, capable of performing in a timely and accurate manner. Provide personnel with a minimum of NICET Level II certification in highway design and construction, or State (SHA) or industry certification-related design and construction equivalent to their intended responsibilities. Personnel with 2 years or more of recent job experience in the type of highway design and construction provided for under the contract may be used in lieu of certifications. Provide the names and relevant experience of all personnel. Furnish supporting tools and equipment (e.g., calculator, computer, and software, and appropriate and commonly-used drafting tools for the assigned task).

All calculations, notes, and supporting documentation become the property of the government upon completion of the work.

623.05 Acceptance. Additional surveying services will be evaluated under Section 152.

Hired technical services will be evaluated under Subsections 106.02 and 106.04

Measurement

623.06 Measure the Section 623 items listed in the bid schedule according to Subsection 109.02 and the following as applicable.

Round portions of an hour up to the nearest half hour. Measure time in excess of 40 hours per week at the same rate as the first 40 hours.

For surveying services, the minimum field survey crew is two persons. Measure surveying service by the crew hour. Do not measure time spent in making preparations, performing calculations, plotting cross-sections and other data, and processing computer data, and other efforts necessary to successfully accomplish the ordered survey services.

Do not measure time for worker's transportation time to and from the project site.

Measure office technical services by the hour as ordered by the CO for performing calculations, plotting cross-sections and other data, and processing computer data.

Reestablishing missing Government-set terrain cross-section reference hubs, control points, and stakes will be measured under Special Labor, hired survey services. No payment will be made for re-establishing missing hubs, control points, or stakes after construction operations have begun.

Payment

623.07 The accepted quantities will be paid at the contract price per unit of measurement for the Section 623 pay item listed in the bid schedule. Payment will be full compensation for the work prescribed in this section. See Subsection 109.05.

Section 624. - TOPSOIL

Description

624.01 Add the following:

This work also consists of preparing a topsoil handling plan and submitting the plan to the CO for approval, prior to beginning work.

Construction Requirements

624.03 Preparing Areas. Delete the second sentence and substitute the following:

Prior to placing topsoil in areas not roughened under Section 204.13, disk or scarify slope to a depth of 300 millimeters in a direction perpendicular to the natural flow of water. Rake out obvious furrows. Leave slopes with small depressions, up to 150 mm deep and 300 mm in diameter, on all cut and fill slopes for seed and plant establishment.

624.04 Placing Topsoil. Add the following:

Spread conserved topsoil at depths ranging from 100 mm to 200 mm thick as directed by the CO. In wetland and riparian areas, spread conserved topsoil at depths ranging from 300 mm to 450 mm.

Do not stockpile topsoil at depths greater than 1.2 m, except stockpiling of topsoil stripped at the Ghost Creek Material source may vary in height, as necessary for material processing requirements, as approved by the CO.

If the conserved quantities of topsoil in a specific area are not sufficient to obtain the designated depth pursuant to Section 204.05, the CO may approve use of additional topsoil from a nearby area on the project. If determined necessary by the CO, place reduced topsoil thicknesses on the lower one-third of the embankment slopes and the least visible portions of the cutslopes as directed by the CO. Remove all equipment marks from the soil.

On rock slopes, place and lightly compact topsoil in depressions, pockets, and ledges to establish areas for planting and vegetation. If necessary, use special equipment and manual methods to completely fill all pockets with compacted topsoil over the entire rock face.

Use all conserved topsoil on disturbed slopes. Coordinate grading operations so that topsoil is replaced on the slopes within 30 days of stockpiling, unless otherwise approved by the CO. Replacement of topsoil stripped at the Ghost Creek Material source may be longer than 30 days, as necessary for material processing requirements, as approved by the CO.

Do not import topsoil from outside of the project area or move it from its conserved location unless approved by the CO.

Prepare a topsoil handling plan for the project detailing the salvaging, windrowing, and replacement of topsoil. Describe the process, including equipment to be used, by which topsoil will be salvaged, windrowed, and replaced to maximize the amount of topsoil conserved. Describe how extra topsoil, if any, will be salvaged and placed in those areas deficient in topsoil.

Payment

624.07 Add the following: Payment for construction of rock cut soil pockets and boulder field section placement will be made under Section 622.

Section 625. - TURF ESTABLISHMENT**Construction Requirements****625.03 Turf Establishment Seasons.** Add the following:

The CO may approve turf establishment beyond 30 days from completion of grading activities if the CO determines that turf establishment would be more successful if delayed.

625.04 Preparing Seedbed. Delete the first paragraph and substitute the following:

Grade seeding area to line and grade as described in Section 624. Remove all weeds and other debris detrimental to application, growth, or maintenance of turf. Remove all stones greater than 1.2 meters in diameter unless approved by CO to remain as landscape features. Do not grade the area completely smooth. Leave small depressions in the topsoil between 75 mm and 150 mm in diameter for establishment of plants and seed.

625.06 Fertilizing. Add the following:

(a) Dry method. Apply an organic fertilizer at a rate of 1,690 kg/ha. Use standard agricultural seed/fertilizer spreaders or other application equipment approved by the CO. Calculate the application rate for the organic fertilizer on a dry weight basis. Do not consider water, soil material, rock or other impurities as part of the application rate. For a specified application rate, apply the amendment in an appropriate, uniform manner across the project site. Do not apply the organic fertilizer during windy conditions strong enough to displace material. The CO may halt application during such conditions.

Following amendment application, rake or harrow the soil to incorporate the fertilizer to a depth of 50 mm. Ensure a complete and uniform mix of the organic fertilizer and soil to a depth of 50 mm. Remove all equipment tracks.

Complete all harrowing and raking within 48 hours of amendment application. Harrow or rake so that soil and organic fertilizer are uniformly spread over the seeded area. Ensure equipment tracks are not visible when completed.

625.08 Mulching. Delete the text and substitute the following:

Avoid application of surface mulch to bare rocks. Apply mulch within 48 hours after seeding by the following methods:

(b) Hydraulic method. Apply bonded fiber matrix at a rate of 3,400 kg/ha. Apply so no hole in the matrix is greater than 10 mm. Apply so that no gaps exist between the matrix and soil. Apply according to manufacturer's recommendations.

Section 626. - PLANTS, TREES, SHRUBS, VINES, AND GROWDCOVERS**Description****626.01** Add the following:

This work also includes planting vegetation in accordance with the plant lists identified in Section 713.06 and according to Specials M626-7B through 7D. The work also includes tree wells and willow transplants.

This work also includes construction of fill slope terraces, rock cut soil pockets, and boulder field sections as indicated on Specials M626-8 B-D and M626-9 A-C.

Construction Requirements**626.03 General.** Add the following:

All 164 ml (supercell type), 262 ml (deepot type) and 1,835 ml (minimum 0.5 gallon) plant materials must be planted between April 15 and June 30. A fall planting schedule may be allowed at the direction of the CO; however, the warranty requirement of Subsection 626.13 will still apply. Plant all containerized plant materials with an 884 ml gel pack as described in Section 713.06.

Salvaged Willows. Salvage selected mature willows with root balls ranging in size from 0.6 to 1.0 m from wetland and riparian areas to be impacted during clearing and grubbing operations. Equipment used must be capable of handling willows and root balls so that root balls remain intact, and branches remain intact to the extent practicable. Salvage willows as follows:

(a) Prune all dead or unhealthy branches, and 1/3 of live healthy branches.

(b) Excavate the root ball insuring that the root ball remains intact. Provide hydraulic excavator with thumb.

Supply all necessary water to plant materials to ensure health and survival.

Willow Sprigs. Cut live willow sprigs from existing willows found on the site as directed by the CO. Cut the existing willows 200 to 250 mm from the ground with loppers or hand saws. Make cuts at a 45-degree angle. Cut willow sprigs approximately from 900 mm to 1200 mm long and between 12 to 25 mm in diameter.

Collect and plant willow sprigs before the willows break dormancy. Dormancy has been broken when green leafy material of any size is present on the plant. In the project area, dormancy may be broken between April and June, depending on the elevation and annual climatic conditions.

626.05 Protection and Temporary Storage. Add the following:

Transplant salvaged willows and other plant materials immediately after salvaging unless storage is approved by the CO.

When storage of salvaged willows or other plant material is unavoidable, store plant materials to ensure survival and health. Supply all necessary water to plant materials to ensure health and survival. Create planting beds in stockpile areas in which to temporarily plant salvaged willows. Plant roots must at no time become dry or be exposed to air for more than 10 minutes.

If stockpiling of salvaged willows is necessary, dig pits or a trench for placement of willows that allows soil backfill to completely cover the root ball. Water willows to ensure survival during temporary storage. If salvaged willows do not survive, or are in an unhealthy condition when transplanting is to proceed, replace stored willows with newly salvaged willows at the direction of the CO.

626.06 Excavation for Plant Pits and Beds. Add the following:

For plant material with minimum container sizes of approximately 164 ml, 262 ml and 1,835 ml dig pits the size of the plant material and ensure the pit contains a gel pack as described in Section 713.06. Scarify the edges of the pits. Remove all plastic or other containers, labels, etc. prior to planting.

For salvaged willows, dig a pit that accommodates the salvaged willow root ball so that soil backfill will completely cover the root ball. Pit sizes depending on root ball size. Size pits so that no air pockets are left around the root ball following transplanting.

Plant willow sprigs with the cut end planted first. Create a minimum 600 mm deep hole to insert the willow sprigs. Insert a minimum 65% of the sprig into the hole. Plant willow sprigs so that the bottom 100 mm of the willow sprig will be below the final water table at the site. Leave the upper 300 mm above the soil surface.

(b) Depth of excavation. Add the following:

(2) Deciduous and evergreen shrubs. Add the following:

(c) Salvaged willows. A minimum of 0.15 m deeper than the root ball to be planted.

(4) Vines and groundcovers. Delete the text and substitute the following:

Double the depth of the pot.

Add the following:

(5) Herbaceous plants.

(a) Under 60 cm height. 250 mm.

626.07 Setting Plants. Delete the second paragraph and substitute the following:

Set all plants approximately plumb and at the same level or slightly lower than the depth at which they were grown in the nursery or collected in the field. Plants should be placed in small depressions, adjacent to logs or rocks where possible. Refer to Landscaping Detail Special M626-8 for more

detailed instructions. Set plants to match vegetation patterns in adjacent undisturbed areas. Set plants in pits to minimize air pockets around the root ball. Areas for plants in Plant Lists 1, 2, 3 and 7 are shown on the Revegetation Plans. Plant lists and planting locations for landscape plans are shown on the Site Specific Landscape Plans.

626.09 Watering. Add the following:

Place 164 ml, 262 ml and 1,835 ml plant materials in small basins, make the diameter of the basin equal to that of the plant pit (about 125 mm in diameter).

Place salvaged willows in basins about 0.33 m larger than the root ball.

626.13 Plant Establishment Period. Delete the title and text of this Subsection and substitute the following:

626.13 Warranty Requirement.

Provide a one year warranty period from the date of final acceptance. Ensure 80% survival rate after one year. If less than 80% survival rate, replace any plant materials that have died during the warranty period up to 80% of original number planted.

Measurement

626.15 Add the following:

Do not measure rock cut soil pockets and boulder field section placement.

Landscaping boulders for the boulder field section placement will be measured under item 25125-0000.

Rock slope soil pockets will be measured according to Section 622, Rental Equipment.

Payment

626.16 Add the following: Payment for equipment hours for salvaged willows will be made under Section 622.

Section 627. - SOD

Description

627.01 Add the following:

This work also consists of removal, stockpile, and transplanting of wetland sod pockets as shown on the plans.

Construction Requirements**627.03 General.** Delete the text and substitute the following:

Move and lay sod during dry weather and on un-frozen ground.

Transplant salvaged wetland and upland sod immediately after salvaging unless storage is approved by the CO. If storage of sod is necessary, the CO will approve the location and methods to ensure survival. If storage is approved, supply two times the amount of sod required in the plans. Do not store sod more than one layer deep, and do not pile sod chunks on top of other sod. Store sod with the vegetation up and the roots down. Supply all necessary water to ensure health and survival as directed by the CO. Place salvaged sod chunks adjacent to one another so that moisture is maintained between sod chunks. Place subsoil material around the edges of salvaged sod to keep the edges from drying. Sod roots must at no time become dry or be exposed to air. The CO must approve all sod before planting.

627.04 Inspecting and Delivering. Delete the text and substitute the following:

Wetland Sod. Conserve wetland sod from areas within the construction limits during construction. Conserve sod only from wetland areas to be filled or removed by roadway construction. Provide at least 14 days notice before cutting sod. The CO will approve the sod for use in its original position before cutting. Harvest wetland sod 1.2 meters in diameter and 400 mm thick. Conserve sod so that the entire root zone is gathered and in one cohesive piece. Provide hydraulic excavator with thumb or approved equipment as directed by the CO to excavate sod.

Upland Sod. Conserve upland sod 300 mm in diameter. Conserve sod so that the entire root zone is gathered and in one cohesive piece, typically 100 mm deep. Disturb only the minimum area of soil necessary to remove upland sod. If sod is removed from areas not to be disturbed by construction, following removal of upland sod, repair the depression from which the sod was removed by back filling with topsoil.

627.05 Preparing the Soil. Delete the second paragraph and substitute the following:

Topsoil according to Section 624. Prepare depressions in the topsoil the size of the sod piece to be transplanted.

627.06 Placing Sod. Add the following:

Place sod in depressions in the soil so that the elevation of the top of soil in the sod chunk matches the elevation of adjacent topsoil. Pack topsoil around the edges of the sod and lightly compact sod chunks to eliminate air pockets adjacent to and under the sod.

Following placement, water sod within 2 hours so that the entire sod transplant is saturated.

Payment

Add the following Subsection:

627.10 Add the following: Payment for equipment hours for sod conservation and placement made under Section 622.

**Section 629. - ROLLED EROSION CONTROL PRODUCTS
AND CELLULAR CONFINEMENT SYSTEMS**

Construction Requirements

629.05 Erosion Control Blanket, Open Weave Textile, and Turf Reinforcement Mat (RECP, Types 1.B, 1.C, 1.D, 2.B, 2.C, 2.D, 3.B, 4, 5.A, 5.B, and 5.C). Add the following:

Install erosion control mats on soil surfaces that are at final grade, stable, firm, and free of rocks or other obstructions. Spread erosion control mats evenly and smoothly, without stretching, to ensure direct contact with the soil at all points. Unroll erosion control mats parallel to the drainage flow direction. Lap edges as recommended by the manufacturer. Install mats from the bottom up, so that upper mats overlap lower mats.

Place the upslope end in a 150-mm vertical slot. Backfill the slot and compact.

Place staples, rebar, and rock at a minimum spacing of 900 mm to ensure that the mat does not break free from the soil, and that the mat is in contact with the soil surface at all times. Voids between the mat and the soil surface will not be accepted, even in small depressions. Place staples in depressions so that the mat is in full contact with the soil surface.

Section 633. - PERMANENT TRAFFIC CONTROL

Description

633.01 Add the following:

This work also consists of constructing permanent snow pole delineator holders at the Little Bear Creek Bridge # 1 as indicated in the plans.

Material

633.02 Add the following:

Snow pole delineator holder

Schedule 40 PVC

Timber material for snow poles will be provided by the National Park Service.

Construction Requirements**633.06 Delineators and object markers.** Add the following:

Construct the snow pole delineator holders as detailed on special M633-C.

633.07 Removing and Resetting Permanent Traffic Control Devices. Add the following:

Replace all existing sign posts with steel posts as indicated on the plans.

Measurement**633.09** Add the following:

Do not measure snow pole delineator holders for payment.

Payment**633.10** Add the following:

Payment for snow pole delineator holders will not be made. They are considered subsidiary to Item 63309-1000, Delineators, type snowpole.

Section 634. - PERMANENT PAVEMENT MARKINGS**Construction Requirements****634.03 General.** Delete the last sentence of the first paragraph and substitute the following:

For simple curve widening locations (widening only on one side) shift the centerline striping location such that the centerline stripe is midway between the normal edge of shoulders. The shift from the staked centerline will be towards the widened lane one-half the total curve widening specified for the given station as shown in the plans.

Add the following:

The Contractor may use, upon approval, permanent pavement marking materials and layouts meeting current state approved standards that are practiced in the region of the project in lieu of contract requirements, if the state standards meet the requirements of the MUTCD. The material substituted must be equivalent to that required in the specifications. Obtain the CO's approval before incorporating into the work. When requesting approval, furnish to the CO the applicable state standards (specifications and drawings), manufacturer's name and address, supplier's certification indicating material is produced to state approved specifications, pricing data showing cost difference for labor and materials, and any other available information describing application and performance.

When directed, submit samples for approval at the Contractor's expense. Within 14 days, the CO will inform the Contractor as to the acceptance of the request. The unit price for the contract item(s) will be reduced to reflect any cost savings.

Section 635. - TEMPORARY TRAFFIC CONTROL

Construction Requirements

635.07 Construction Signs. Add the following to the first paragraph:

Provide the same type of sheeting on all post-mounted construction signs that pertain to the project.

635.13 Temporary Pavement Markings and Delineation. Delete the text and substitute the following:

Before opening a pavement surface to traffic, remove all conflicting pavement markings by sandblasting or other methods that do not damage the surface or texture of the pavement. Make removal pattern uneven so it does not perpetuate the outline of the removed pavement markings. Lightly coat sandblasted or removal areas on asphalt surfaces with emulsified asphalt.

Provide pavement markings or delineation and signing according to Section 156, the MUTCD, and project plans. Install and maintain temporary pavement markings that are neat, crack free, true, straight, and unbroken.

For seasonal suspensions, apply permanent pavement marking pattern with temporary traffic paint.

Install permanent pavement markings within 14 days. If permanent pavement markings are not placed within 14 days, provide, at no cost to the contract, additional temporary delineation equivalent to the permanent pavement marking pattern required by the contract. Do not apply temporary traffic paint to the final surface.

For temporary pavement markings, use preformed retroreflective tape, traffic paint, or temporary raised pavement markers as follows:

(a) Temporary markings. For temporary pavement markings, use preformed retroreflective tape, traffic paint, or temporary raised pavement markers as indicated in the plans and as follows:

(1) Preformed retroreflective tape. Apply according to the manufacturer's instructions.

Remove all loose temporary preformed retroreflective tape before placing additional pavement layers.

(2) Temporary traffic paint. Apply temporary traffic paint at a 0.38-millimeter minimum wet film thickness (0.38 liters per square meter). Immediately apply type 1 glass beads on the paint at a minimum rate of 0.7 kilograms per liter of paint.

(3) Raised pavement markers. When chip seals, slurry seals, or tack coats are used after marker placement, protect the markers with an approved protective cover, which is removed after the asphalt material is sprayed.

Remove all temporary pavement markers before placing additional pavement layers. Remove all temporary pavement markings from the surface course before placing permanent pavement markings.

(b) Delineation for unmarked pavements with vehicle positioning guides. For ADT's greater than 1000, vehicle positioning guides may be used in lieu of temporary markings for the delineation of unmarked pavements for a period of no longer than 3 days. For ADT's of 1000 or less, vehicle positioning guides may be used in lieu of temporary markings for the delineation of unmarked pavements for the full 14 day temporary marking period.

For unmarked pavements, install signing and vehicle positioning guides as indicated on plan sheet M635-2. Use vehicle positioning guides that meet the requirements of Subsection 718.21(b), raised pavement markers.

Remove all vehicle positioning guides before placing additional pavement layers. Remove all vehicle positioning guides from the surface course before placing permanent pavement markings.

Measurement

635.26 Delete the tenth paragraph and substitute the following:

Measure temporary pavement markings by the kilometer along the centerline of the roadway. Measure temporary pavement markings as a single measurement, inclusive of all markings, from end to end regardless of color, material type, or number of lines. Do not deduct for standard gaps between stripes. Measure only one application of temporary pavement markings per lift.

Measure vehicle positioning guides used at the option of the Contractor in lieu of temporary markings as equivalent temporary pavement markings. When vehicle positioning guides exceed the period of use stated in the plans, provide additional temporary or permanent pavement markings at no cost to the Government. Measure vehicle positioning guides by the kilometer along the centerline of the roadway. Measure as a single measurement, inclusive of all markings, from end to end regardless of material type, gaps or number of lines. Measure only one application of vehicle positioning guides per lift. "DO NOT PASS", "PASS WITH CARE", and "NO CENTER STRIPE" signs required to be used with vehicle positioning guides are subsidiary to the temporary pavement marking item. Do not measure these signs as construction signs.

Add the following Section:

Section 647. - ROADSIDE DEVELOPMENT

Description

647.01 This work consists of limbing, placing and staking salvaged logs on finished slopes. Generate logs for this operation during the clearing and grubbing operations as directed by the CO.

Material

647.02 Materials shall conform to the following subsections:

Logs	713.19
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Construction Requirements

647.03 Limbing. Limb logs and trees on one side. Use all salvaged logs before removing other live trees. Prior to selective clearing operations meet with the CO to determine which trees to salvage for landscaping logs.

647.04 Placing. Place and anchor all logs before completing work under Section 624. Place logs on all erodible slopes as directed by the CO. Stagger and place logs in a random fashion to prevent the appearance of a pattern. Lay logs flush with ground line.

647.05 Anchoring. Anchor logs to the slopes using 25x50x750 millimeter hardwood stakes. Drive stakes perpendicular to the ground line to a minimum depth of 450 millimeters. Use a minimum of three stakes to anchor logs of 3.0-meter length and a minimum of five stakes to anchor logs in excess of 200 millimeters in diameter. Use an additional stake for every 1.0 meter in length beyond the 3.0 meter minimum. Tops of stakes should not extend above the log, and should not protrude from the ground less than one-half the diameter of the log. Reinforcing steel (no. 5), 750 millimeters in length may be used in areas where wood stakes cannot be driven.

647.06 Acceptance. Logs for landscaping will be evaluated under Subsection 106.02 and 713.19.

Measurement

647.07 Measure logs by the each, in place, completed and accepted.

Payment

647.08 The accepted quantities will be paid at the contract unit price per unit of measurement for the Section 647 pay item listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

Section 701. - CEMENT**701.01 Hydraulic Cement**

(a) Portland Cement. Add the following:

When Prestressed Concrete is specified, Type III cement is allowed.

Section 702. - ASPHALT MATERIAL

702.01 Asphalt Binder. Delete the text of this Subsection and substitute the following:

Conform to M 320, Table 1. Conform to Subsection 702.04.

In AASHTO M 320, Table 1 replace footnote *g* with the following:

⁸ If the creep stiffness is below 300MPa, the direct tension test is not required. If the creep stiffness is between 301 and 600 MPa, the direct tension failure strain requirement shall be used in lieu of the creep stiffness requirement. The *m*-value requirement must be satisfied in both cases.

702.03 Emulsified Asphalt. Add the following:

(e) Other emulsified asphalts. Other emulsified asphalts not covered by item (a) through (d) will conform to the following:

(1) Saybolt furol viscosity at 50°C, AASHTO T 59	15 - 150 sec
(2) Settlement, AASHTO T 59	1% max.
(3) Residue by distillation, AASHTO T 59	65% min.
(4) Oil Distillate by volume, AASHTO T 59	25% max.
(5) Solubility in trichloroethylene, AASHTO T 44	97.5 % min.

Section 703. - AGGREGATE

703.02 Coarse Aggregate for Concrete. Delete the text and substitute the following:

Conform to AASHTO M 80 class A including the restriction on reactive materials, except as amended or supplemented by the following:

Add the following:

In addition to the requirements under **703.01** and **703.02** the following will also apply to fine and coarse aggregate for concrete.

Fine and Coarse Aggregate for Concrete.

Alkali reactivity of aggregates (Mortar bar method), ASTM C 1260 0.10% max.

Aggregates tested by ASTM C 1260, which exhibit mortar bar expansions less than 0.10 % at 16 days after casting, are considered innocuous and may be used.

Aggregates tested by ASTM C 1260 which exhibit mortar bar expansions between 0.10 and 0.20 % at 16 days after casting may be used if acceptable supplemental information is submitted which confirms that mortar bar expansions are not caused by alkali-silica reactions. Acceptable supplemental information includes:

- A report of petrographic examination of the aggregate by ASTM C 295 performed within one year from the time of submittal which contains quantifiable data and conclusions verifying that the aggregate is not potentially deleteriously reactive with cement

or

- A report of petrographic examination of the ASTM C 1260 mortar bar samples by ASTM C 856 which contains quantifiable data and conclusions verifying that the aggregate is not potentially deleteriously reactive with cement and that the mortar bar reaction products are not due to alkali-silica reaction.

Aggregates tested by ASTM C 1260 which exhibit mortar bar expansions more than 0.20 % at 16 days after casting *or* aggregates exhibiting expansions between 0.10 and 0.20 % at 16 days after casting that have been found to be potentially deleteriously reactive by acceptable supplemental information may be used if additional supplemental information is submitted which confirms that effective mitigation measures utilizing supplementary cementitious materials have been used in the concrete mix design. Acceptable supplemental information includes:

- Data and test results by ASTM C 1567 which confirm that concrete mix design combinations of cement, fly ash, silica fume and/or ground iron blast furnace slag exhibit expansions less than 0.10 % at 16 days after casting. Lithium compounds shall not be used.

Testing of the reactivity of aggregates by ASTM C 1293 may be substituted for ASTM C 1260. In such a case, the average concrete prism expansion must be less than 0.04 % at one year. Aggregates exhibiting mortar bar expansions more than 0.04 % at one year may be used if additional supplemental information is submitted which confirms that effective mitigation measures utilizing supplementary cementitious materials have been used in the concrete mix design. Acceptable supplemental information includes:

- Data and test results by ASTM C 1567 which confirm that concrete mix design combinations of cement, fly ash, silica fume and/or ground iron blast furnace slag exhibit expansions less than 0.10 % at 16 days after casting. Lithium compounds shall not be used.

703.06 Crushed Aggregate. Add the following to the end of the paragraph:

When aggregate is used as a surface course, furnish an aggregate with a Plasticity Index conforming to Table 703-3a.

Table 703-3a
Surface Course Gradation and Plasticity Index

Sieve Size	Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11)
19.0 mm	100
4.75 mm	41-71
425 µm	*
75 µm	5-20
Plasticity Index (PI)	4-12

(*) Submit target values for applicable sieves

703.07 Hot Asphalt Concrete Aggregate. Delete the text of this Subsection and substitute the following:

Furnish hard, durable particles or fragments of crushed stone, crushed slag, or crushed gravel conforming to the following:

- (a) Los Angeles abrasion, AASHTO T 96 35% max.
- (b) Sodium sulfate soundness, AASHTO T 104 (5 cycles):
Coarse aggregate 12% max.
Fine aggregate 12% max.
- (c) Fractured faces, ASTM D 5821 (one or more) 90% min.
- (d) Fine aggregate angularity, AASHTO T 304 (method A) 40% min.
- (e) Flat and elongated particles, ASTM D 4791 (1:5 ratio, +9.5 mm sieve, calculated by mass, weighted average) 10% max.
- (f) Sand equivalent AASTHO T 176 (referee method, alt 2) 45 min.

(g) Gradation. Size, grade and combined the aggregate fractions in mix proportions that result in a composite blend meeting the specified gradation. Nominal maximum size is one sieve size greater than the first sieve to retain more than 10 percent of the combined aggregate. Test according to AASHTO T 27 and T 11.

(1) See Table 703-12 for Superpave aggregate gradation.

(2) See Table 703-4 for Hveem or Marshall aggregate gradation.

For surface course, do not use aggregates known to polish or carbonate aggregates containing less than 25 percent by mass of insoluble residue when tested according to ASTM D 3042.

Section 704. - SOIL

704.02 Bedding Material. Delete the text and substitute the following:

- | | |
|--|--|
| (a) Maximum particle size | 12.5 mm or half the corrugation depth,
whichever is smaller |
| (b) Material passing 75- μ m sieve, AASHTO T 27 and T 11 | 10% max. |

704.03 Backfill Material. Add the following:

- | | |
|-------------------------------|---------|
| (c) Backfill in wetland areas | |
| (1) Maximum particle size | 75 mm |
| (2) Minimum particle size | 6.25 mm |

Section 705. - ROCK

705.02 Riprap Rock. Delete lines (a), (b), (c), (d), and substitute the following:

- | | |
|--|-------------|
| (a) Apparent specific gravity, AASHTO T 85 | 2.40 min. |
| (b) Absorption, AASHTO T 85 | 4.0% max. |
| (c) Los Angeles abrasion, AASHTO T 96 | 50% max. |
| (d) Gradation for the class specified | Table 705-1 |

Section 706. - CONCRETE AND PLASTIC PIPE

(d) Corrugated polyethylene drainage tubing. Delete the title and text and substitute the following:

(d) Drainage pipe. Furnish polyethylene perforated or non-perforated corrugated plastic pipe conforming to AASHTO M 252. Furnish perforated or non-perforated polyvinyl chloride pipe with smooth interior, smooth or ribbed exterior conforming to AASHTO M 278, ASTM F 758, or ASTM F 949.

Section 709. - REINFORCED STEEL AND WIRE ROPE**709.01 Reinforcing Steel.**

(b) Reinforcing bars. Delete the text and substitute the following:

Furnish deformed, grade 420 bars conforming to AASHTO M31M or M322M.

(d) Tie bars. Delete the text and substitute the following:

Furnish deformed, grade 420 bars conforming to AASHTO M31M.

(e) Hook bolts. Delete the text and substitute the following:

Furnish deformed, grade 420 bars conforming to AASHTO M31M with M14 rolled threads or M16 cut threads. Furnish a threaded sleeve nut capable of sustaining a minimum axial load of 67 kilonewtons.

709.03 Prestressing Steel. Delete the first and second bullets and substitute the following:

- Stress-relieved steel wire, AASHTO M 204, type BA or WA
- Uncoated seven-wire steel strand, AASHTO M 203, grade 1860; or

Section 712. - JOINT MATERIAL**712.01 Sealants, Fillers, Seals, and Sleeves**

(a) Joint sealants and crack fillers. Delete lines (1) and (2) and substitute the following:

- | | |
|---|--------------|
| (1) Concrete joint sealer,
hot-poured elastic type | AASHTO M 324 |
| (2) Joint sealants, hot poured, | AASHTO M 324 |

(g) Backer rod. Delete the text and substitute the following:

Conform to ASTM D 5249 type 1. For size of backer rod, conform to Table 712-2.

Add the following Subsection:

(h) Non-sag elastomeric sealant. Furnish colored elastomeric sealants which conform to the following:

- Non-sag consistency
- Two-component polyurethane base
- Conforming to ASTM C-920 and Federal Specification TT-S-00227-E

Provide color samples or samples of the actual colored product to the CO for approval.

712.05 Mortar for Masonry Beds and Joints. Delete the text of this Subsection and substitute the following:

Furnish and proportion masonry mortar conforming to ASTM C 270. Use only mortar masonry cement mortar Type M or S. Mortar should not have any color or stain. Incorporate in the mortar mix a water repellent admixture. Provide a dosage sufficient to ensure a reduction of 25% of water absorption in hardened mortar as indicated by ASTM C 642. Mortar may be preblended or mixed on site.

Section 713. - ROADSIDE IMPROVEMENT MATERIAL

713.03 Fertilizer. Delete text of this Subsection and substitute the following:

Furnish an organic fertilizer derived from byproducts through the manufacture of penicillin and other antibiotics, or other organic sources. The organic fertilizer must provide a source of macronutrients with a nitrogen, phosphorous, and potassium (N:P:K) ratio of 7:2:3. The product must be a slow-release organic fertilizer that takes a minimum of 2 to 3 years to break down. Provide documentation of the rate of release, N:P:K ratio, and organic source to the CO for approval. Provide Biosol Mix™, a slow release organic amendment, as supplied by Rocky Mountain Bio Products, 2310 South Syracuse Way, Denver, CO 80231 (303)696-8964; or equal. Mineral fertilizer is not allowed.

Submit a sample of the organic fertilizer for approval prior to application. Submit organic fertilizer bag tags to CO for organic matter content, pH, and organic matter-to-nitrogen ratio verification.

Submit documented proof of equivalent revegetation results for organic amendment substitutions. Submit documentation in the form of test results on similar landforms, soil types, aspect, and elevation as exists at this project location. Results must be from studies in which a minimum of 5 years of revegetation data has been collected.

713.04 Seed. Add the following:

The Contractor may use seed obtained from commercial sources. Supply the CO with all seed bag tags and a certification from the supplier stating that the seed complies with the Federal Seed Act at least 3 weeks prior to seeding. Supply separate bags and separate seed bag tags for each species. Mix seed only after the CO has approved the seed bag tags. Supply seed bag tags labeled with:

- (a) The common name, genus, species, and variety of each species in excess of 1 %;
- (b) The percentage of each type of seed;
- (c) The state or county of origin;
- (d) The approximate percentage of viable seed of each species, together with the date of test; from an independent seed testing laboratory;
- (e) The approximate percentage by weight of pure seed, meaning the freedom of seed from inert matter and from other seeds;
- (f) The approximate percentage by weight of sand, dirt, broken seeds, sticks, chaff, and other inert matter;
- (g) The approximate percentage by weight of other seeds;
- (h) The full name and address of the person or firm selling the seed.

All seed must be guaranteed for purity and germination, free of noxious weed seed, and supplied on a Pure Live Seed (PLS) basis. Seed origin must be in the Northern Rocky Mountains or Northern Great Plains, and the Contractor must use seed with the closest practicable origin to the project area. The CO may reject seed with greater than 1 % weed seed, or with origin greater than 160 km (100 miles) from the project site. No substitutions unless approved by CO. Submit documentation within 30 days after the award of the project providing all specified seed in the quantities required by the dates specified.

Seed Mix A (Riparian/Wetland).

Item	Botanical Name	Common Name	PLS kg/ha	PLS % of Mix
1	<i>Calamagrostis canadensis</i>	Bluejoint reedgrass	1.12	25.00
2	<i>Calamagrostis stricta</i>	Northern reedgrass	1.12	25.00
3	<i>Deschampsia caespitosa</i>	Tufted hairgrass	1.12	25.00
4	<i>Phleum alpinum</i>	Alpine timothy	1.12	25.00
Totals			4.48	100.00

Seed Mix C.

Item	Botanical Name	Common Name	KG/Ha (PLS)	PLS % of Mix
1	<i>Deschampsia caespitosa</i>	Tufted hairgrass	1.68	8.18
2	<i>Elymus scribneri</i>	Spreading wheatgrass	1.77	8.62
3	<i>Elymus trachycaulus</i>	Slender wheatgrass v. Pryor	5.60	27.28
4	<i>Festuca idahoensis</i>	Idaho fescue	2.80	13.64
5	<i>Festuca ovina</i>	Sheep fescue	2.80	13.64
6	<i>Penstemon procerus</i>	Penstemon	0.28	1.36
7	<i>Poa secunda</i>	Sandberg bluegrass	2.24	10.91
8	<i>Poa alpina</i>	Alpine bluegrass	3.36	16.37
Totals			20.55	100.00

Seed Mix D (Forbs).

Item	Botanical Name	Common Name	PLS kg/ha	PLS % of Mix
1	<i>Agoseris glauca</i>	False dandelion	1.12	24.27
2	<i>Epilobium angustifolium</i>	Fireweed	0.13	2.91
3	<i>Eriogonum umbellatum</i>	Sulphur flower	3.36	72.82
Totals			4.62	100.00

Seed Mix E (Ghost Creek).

Item	Botanical Name	Common Name	PLS kg/ha	PLS % of Mix
1	<i>Artemisia tridentata</i>	Big sagebrush	1.12	2.55
2	<i>Bromus marginatus</i>	Mountain brome	17.93	40.76
3	<i>Elymus trachycaulus</i>	Slender wheatgrass	5.60	12.74
4	<i>Eriogonum umbellatum</i>	Sulphur flower	2.24	5.10
5	<i>Festuca idahoensis</i>	Idaho fescue	2.80	6.37
6	<i>Koeleria macranthera</i>	Prairie junegrass	0.84	1.91
7	<i>Poa fendleriana</i>	Muttongrass	2.24	5.10
8	<i>Poa secunda</i>	Sandberg bluegrass	2.24	5.10
9	<i>Pseudoroegneria spicata</i>	Bluebunch wheatgrass	8.97	20.38
Totals			43.98	100.00

713.06 Plant Material. Add the following:

Supply the materials from a northern Rocky Mountain source.

Supply tree and shrub plant materials in 262 ml, 1,835 ml and 3,670 ml containers (3,670 ml containers must measure 300 mm to 400 mm deep) as specified in plant lists. These container sizes are the minimum sizes allowed; standard industry sizes near but above these are allowed. Ensure that

plant roots are sufficiently developed that the soil material and plant roots are bound together and remain intact when removed from containers.

Supply herbaceous plants in container size ranging from 164 ml to 262 ml. These container sizes are the minimum sizes allowed; standard industry sizes near but above these are allowed. Ensure that plant roots are sufficiently developed that the soil material and plant roots are bound together and remain intact when removed from containers.

Ensure that plant roots are sufficiently developed that the soil material and plant roots are bound together and remain intact when removed from containers.

Supply gel containing a matrix of about 98% water in a 2% food-based gel. Submit manufacturer's information for gel pacs to CO at least 2 weeks prior to planting for CO approval.

Submit documentation within 30 days after the award of the project construction contract for providing all specified plant materials in the quantities required by the dates specified. No substitutions unless approved by the CO.

Plant List 1.

Item	Botanical Name	Common Name	Plants/Ha	Type/Size	Vertical Distance Above Ground Water
	Shrubs				
1	<i>Salix eastwoodii</i>	Eastwood willow	247	262 ml	600-900 mm
2	<i>Salix glauca</i>	Glaucus willow	247	262 ml	600-900 mm
3	<i>Salix planifolia</i>	Planeleaf willow	371	262 ml	600-900 mm
4	<i>Salix spp.</i>	Willow spp.	210	262 ml	450-1220 mm; Transplant from on site only
	Herbaceous				
5	<i>Senecio triangularis</i>	Arrowleaf groundsel	247	164 ml	305-915

Plant List 2.

Item	Botanical Name	Common Name	Plants/Ha	Type/Size	Pattern Notes
	Trees				
1	<i>Abies lasiocarpa</i>	Subalpine fir	124	262 ml	Locate on north-facing slopes in depressions adjacent to rocks or logs
2	<i>Picea engelmannii</i>	Engelmann spruce	124	262 ml	Locate in depressions adjacent to rocks or logs
3	<i>Pinus albicaulis (A)</i>	Whitebark pine	124	262 ml	Locate in depressions adjacent to rocks or logs away from lodgepole pine
4	<i>Pinus albicaulis (B)</i>	Whitebark pine	50	1,835 ml	Locate in depressions adjacent to rocks or logs away from lodgepole pine
5	<i>Pinus contorta</i>	Lodgepole pine	247	262 ml	Locate in depressions adjacent to rocks or logs
	Shrubs				
6	<i>Juniperus communis</i>	Common juniper	185	164 ml	Locate in depressions adjacent to rocks or logs
7	<i>Shepherdia canadensis</i>	Buffaloberry	247	164 ml	Locate in depressions adjacent to rocks or logs
	Herbaceous				
8	<i>Lupinus argenteus</i>	Silvery lupine	62	164 ml	Locate in depressions adjacent to rocks or logs
9	<i>Geranium viscosissimum</i>	Sticky geranium	62	164 ml	Locate in depressions adjacent to rocks or logs

Plant List 7.

Item	Botanical Name	Common Name	Plants/Ha	Type/Size	Pattern Notes
	Herbaceous				
1	<i>Lupinus argenteus</i>	Silvery lupine	124	164 ml	Locate on north-facing slopes in depressions
2	Misc.	Sod transplants	124	1,000 m2	Transplant immediately, do not store

Plant List 8.

Item	Botanical Name	Common Name	Plants/Ha	Type/Size*	Elev. Above GW**
	Shrubs			(cc)	(mm)
1	<i>Salix planifolia</i>	Planeleaf willow	371	C	610-915
2	<i>Salix eastwoodii</i>	Eastwood willow	247	C	610-915
3	<i>Salix glauca</i>	Glaucus willow	247	C	610-915
4	<i>Salix</i> spp.	Willow spp.	210	T	<1220
	Herbaceous				
5	<i>Caltha leptosepala</i>	Marsh marigold	124	164	0-300
6	<i>Carex nebrascensis</i>	Nebraska sedge	124	164	0-300
7	<i>Carex utriculata</i>	Beaked sedge	124	164	0-300
8	<i>Carex haydeniana</i>	Hayden sedge	124	164	0-300
9	<i>Misc.</i>	Sod transplants	124	1 m2	0-300

*C=Cutting , T=Transplant

**Vertical distance above the average ground water elevation during the growing season.

713.17 Temporary Rolled Erosion Control Products.

(g) Type 2.C, short-term single-net erosion control blanket or open weave textile. Delete text and substitute the following:

(1) *Straw and coconut mats.* Furnish a mat consisting of 70% straw and 30% coconut fibers enclosed in biodegradable mesh. Do not use any synthetic plastic or non-biodegradable mesh. Furnish mats in continuous rolls of 1.25 meters or greater width.

(2) *Staples.* Furnish U-shaped wire staples, 2.2 mm in diameter or greater with legs 150 mm to 200 mm in length and a 25 to 50 mm crown.

Add the following Subsection:

713.19 Logs and Snags. Conform to the following:

(a) Diameter Requirements 100 to 300 millimeters in diameter (DBH)

(b) Length Requirements Table 713-8

**Table 713-8
 Landscaping Logs**

Length (m)	Percent of Logs and Snags to be placed
3 to 5	70
Greater than 5	30

Section 718. - TRAFFIC SIGNING AND MARKING MATERIAL

718.08 Signposts.

(b) Galvanized Steel posts.

(2) Square tubular steel posts.

(c) Delete the text and substitute the following:

Galvanizing after punching
(inside and outside of post)

ASTM A 653M,
coating designation Z275

718.14 Waterborne Traffic Paint.

(g) Daylight reflectance. Delete the text and substitute the following:

(1) White, ASTM E 1347

84% relative to magnesium oxide
standard

(2) Yellow, ASTM E 1347

55% relative to magnesium oxide
standard