REQUEST FOR PROPOSALS

CDBG-DR WATERSHED RESILIENCE & NRCS EMERGENCY WATERSHED PROTECTION IMPLEMENTATION PROJECT:
INGRAM GULCH

DATE:
July 3, 2017

ISSUED BY:
Fourmile Watershed Coalition
1740 Fourmile Canyon Drive
Boulder, CO 80302

PROJECT NUMBER:
WI 17-103

PROPOSAL DUE DATE:
July 26, 2017

TABLE OF CONTENTS

REQUEST FOR PROPOSALS (RFP) 3
PROJECT BACKGROUND AND SCOPE 5
1.0 Project Background and Purpose 5
1.1 Scope of Work 9
1.1.1 Permitting 9
1.1.2 Construction Surveying 10
1.1.3 Construction 11
1.1.4 Construction Administration 11
1.2 Proposal Process 14
INSTRUCTIONS TO PROPOSERS 15
2.0 General 15
2.1 Proposal 15
2.2 Qualifications of Proposer 15
2.2.1 Contractor Experience and Capability to Perform Work 15
2.2.2 Experience and Qualifications of Project Team 15
2.2.3 Project Understanding and Value Engineering Approaches 15
2.2.4 Unit Costs 15
2.2.5 Proposed Work Schedule and Workload Capacity 16
2.3 Completion and Signing 16
2.4 Bid Bond 16
2.5 Addenda 16
2.6 Unbalanced Proposal 16
2.7 Site Inspection and Investigations 16
2.8 Inconsistencies and Interpretations 17
2.9 Award of Contract 17
2.10 Rejection of Proposal 19
2.11 Failure to Execute Contract and Furnish Bond 19
2.12 Confidential Information 19
FORMS 20
PROJECT FORMS AND EXHIBITS 27

4.0 Project Design Plans 27
4.1 Project Construction Specifications 27
4.2 Sample Construction Contract 27
4.3 Supplemental Exhibits 27

REQUEST FOR PROPOSALS (RFP)

The Fourmile Watershed Coalition will receive proposals for the federally-funded **CDBG-DR WATERSHED RESILIENCE & NRCS EMERGENCY WATERSHED PROTECTION IMPLEMENTATION PROJECT**. Proposals must be received by the Fourmile Watershed Coalition, 1740 Fourmile Canyon Drive, Boulder CO 80302 on or before 4:00 p.m. on **July 26, 2017**. Email proposals to fourmilewatershed@gmail.com with Ingram Gulch proposal in the title of the email.

Proposal documents are available via the coalition website at http://www.fourmilewatershed.org or at the Colorado EWP website atwww.coloradoewp.com/bids.

Mandatory Pre-Proposal Meeting & Site Visit:
Monday, July 17 2016 at 10:00 a.m., followed by a site visit. MEETING LOCATION: 1740 Fourmile Canyon Drive (Poorman Fire Station).

Cost may not exceed $1,300,000.

For additional information regarding this RFP, please contact:

Maya MacHamer
303-817-2261
fourmilewatershed@gmail.com

Selection of CONTRACTOR, or a short list of CONTRACTORS, to then be interviewed will be made by August 2, 2017. If interviews are held, they will be scheduled for August 4th and the selection team will work with selected CONTRACTORS to schedule a specific time.

Evaluation Criteria will be weighted as follows:

Evaluation Category	Score Range	Weighted Score Multiplier	Total Score Range
Contractor Experience and Capability to Perform Work	0-5	5	0-25
Experience and Qualifications of Team	0-5	5	0-25
Project Understanding/Potential Mitigation of Risks/Value Engineering	0-5	4	0-20
Cost	0-5	3	0-15
Proposed Schedule and Work Capacity	0-5	3	0-15

The coalition will receive, date, and time stamp all proposals. No proposal will be considered which has not been received by the deadline set forth above. The Coalition is not responsible for delays occasioned by the U.S. Postal Service or other means of delivery employed by the proposer.

Attention is called to the fact that not less than the minimum salaries and wages as set forth in the CONTRACT DOCUMENTS must be paid on this project (Davis Bacon Wages), and that the CONTRACTOR must ensure that employees and applicants for employment are not discriminated against because of their race, color, religion, sex, or national origin (Equal Employment Opportunity).

In the event that the proposer anticipates hiring employees to work on the JOB, the proposer should contact the local manpower office for qualified candidates (Section 3).

PROJECT BACKGROUND AND SCOPE

1.0 Project Background and Purpose

The Ingram Gulch Restoration Project is located at 632 Gold Run Road in Fourmile Canyon approximately 8 miles outside of the City of Boulder. The Ingram Gulch watershed is located above the Gold Run drainage which is tributary to Fourmile Creek. The Ingram Gulch drainage consists of approximately 286 acres of land, of which approximately 270 acres were severely disturbed by fire in 2010. Following the fire, severe flooding and debris flows occurred in both 2011 and 2013 which significantly affected the Ingram Gulch channel and the downstream drainage Gold Run Creek causing significant damage to homes and infrastructure.

The key feature of the stream channel is the steep gradient, which is typically greater than 10%. Sinuosity is essentially non-existent. Erosion of the channel side slopes has undercut the valley walls which are unstable regardless of the flow conditions. The unstable slopes continue to erode, and sediment transport is enhanced during any flood flows. Vegetation is limited or non-existent along the riparian corridor.

Figure 1: Looking downstream from the upstream extent of the project

This project proposes to construct the following improvements:

- Stabilize the channel by dissipating energy and controlling erosion;
- Construct a multi-stage channel for low and bankfull flow events for approximately 1,700 linear feet (lf). The upper 300 lf of channel are stable and only need vegetation planting;
- Revegetation of the floodplain surfaces and uplands.

The primary objective of the work proposed at Ingram Gulch project, is to protect life and property for the home in the Gulch as well as the downstream town of Salina. This would be accomplished by expanding floodplain capacity, increasing channel stability, reducing erosion and promoting the regrowth of vegetation so that gulch is more resilient under flood conditions. Improvements include the installation of channel stabilization structures and boulder toe walls; channel and floodplain grading to increase capacity where applicable and the stabilization of upland slopes through grading and revegetation to minimize erosion under a wide range of flow conditions. Improvements also include increasing spillway capacity of the two sediment ponds near the home and potentially constructing a sediment catchment structure above the home. The usefulness of and need for this structure will be determined during the value engineering period.

Figure 2 shows the project area of lower Ingram Gulch (blue line).

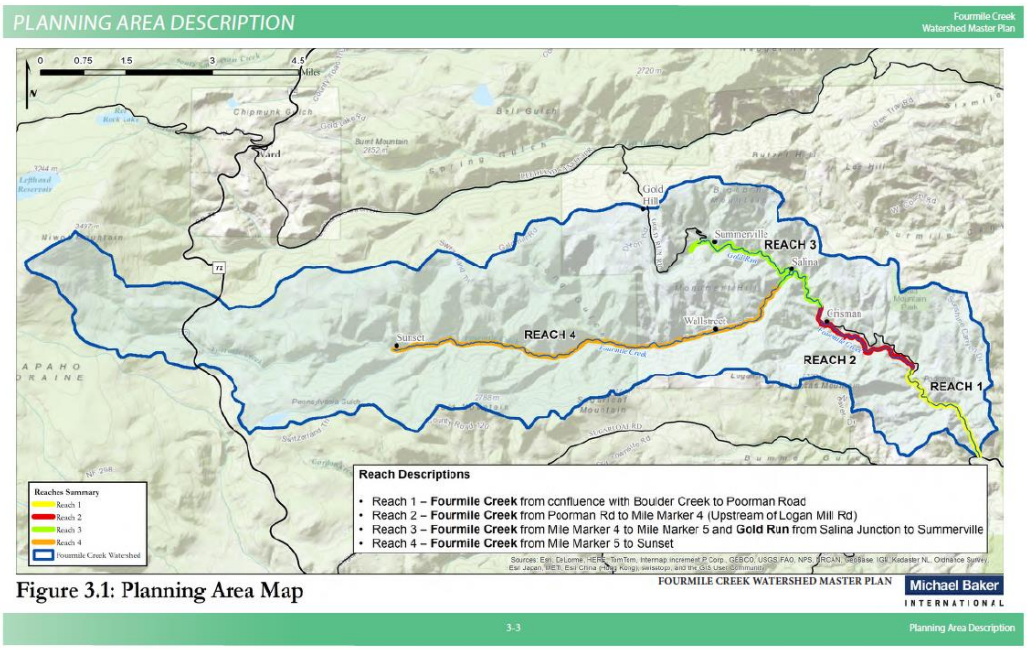

Figure 3.1: Planning Area Map

Fourmile Creek flows east and is a tributary to Boulder Creek approximately 2 miles before it enters the city of Boulder. Figure 3 shows an overview map of the watershed. Gold Run Road is the majority of Reach 3 (green).

Funding Information & Requirements: The Four Mile Fire Protection District as the fiscal agent for the Fourmile Watershed Coalition (the "Coalition") has received a Financial Assistance Agreement from the Natural Resources Conservation Service (NRCS) under the Emergency Watershed Protection (EWP) Program. Under this agreement, this project is intended to stabilize the channel in lower Ingram Gulch which was severely damaged by the 2013 flood event. The project will also reestablish floodplain where applicable and stabilize with native riparian vegetation, and potentially install a sediment catchment structure above the home in the gulch (to be determined through the value engineering period). Additionally, the Coalition received cost share match funding from the Colorado Department of Local Affairs Community Development Block Grant - Disaster Recovery (CDBG-DR) Watershed Resilience Pilot Program. Due to the nature of this funding, the Ingram Gulch project must comply with all regulations associated with the CDBG-DR Watershed Resilience Pilot Program, including Davis Bacon and Section 3 of the Housing and Urban Development Act of 1968. This federally-funded Program is designed to help watersheds recover from damage sustained in the federally-declared fire and flood events of 2012 and 2013. The Program's goal is to align watershed restoration and risk mitigation with community and economic development goals using a collaborative, multi-jurisdictional, coalition-of-partners approach. Project implementation grants are meant to address long-term watershed system improvements that build watershed resilience. This project will be awarded to a contractor to construct this project located in the Boulder County within the Fourmile Watershed.

The selected contractor shall perform or supply all necessary services as specified in this document, or pursuant to generally accepted standard industry practice, with regard to construction surveying, utility location and coordination, traffic control plans, stormwater discharge permit, erosion control best management practices, and as-built plans with associated GIS shape files.

All construction work will be performed by a qualified contractor with experience on similar types of projects under the direction and supervision of the design engineer, Norwest Corporation, hereto referred to as the ENGINEER in this RFP.

Requesting Agency Information: The Four Mile Fire Protection District is a Special District and the fiscal agent for the Fourmile Watershed Coalition. The Fourmile Watershed Coalition is working to develop community resilience to natural hazards while improving the overall health of the Fourmile watershed. The Fourmile Watershed Coalition's mission is "to identify, evaluate, obtain funding for, and implement projects within the Fourmile watershed to continue recovery from the 2013 flood, improve protection of the community to future wildfire and flood events, and provide a long-term framework for future resiliency planning and response." The Watershed Coalition is a stakeholder driven organization composed of private and public landowners who are invested in watershed health and the safety of the community. The Watershed Coalition works in partnership with the Four Mile Fire Protection District.

Non Discrimination: The Four Mile Fire Protection District is an Equal Opportunity Employer and no otherwise qualified individual shall be subject to discrimination on the basis of race, color, religion, creed, national origin, ancestry, sex, age, sexual orientation (incl. transgender status), physical or mental disability, marriage to a co-worker and retaliation for engaging in protected activity (opposing a discriminatory practice or participating in an employment discrimination proceeding) in any phase of employment for this position.

Americans with Disabilities Act (ADA): If you need special services provided for under the American Disabilities Act, contact Maya MacHamer at 303-817-2261 at least 48 hours prior to the event.

Section 3 Requirements: The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (Section 3), which states that: 1) Employment, training, contracting and other economic opportunities generated by HUD assistance shall, to the greatest extent feasible, be directed to low and very low-income persons residing within the project area; and 2) Contracts for work in connection with the projects shall, to the greatest extent feasible, be awarded to businesses which are located in, or owned substantially by persons residing in the project area. All CDBG-DR funded projects must, to the greatest extent feasible, comply with Section 3 when contracting for professional services.

The selected Contractor must adhere to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (Section 3). Selection will be made based on qualifications and the cost of proposed services that provide best value to the project. The project to

which the construction work covered by this proposal is being assisted by the United States of America and must comply with all provisions of the Davis-Bacon Act.

1.1 Scope of Work

The following provides a summary of the items to be completed under the contract for construction for this project. CONTRACTOR will be responsible for bidding unit costs for project as specified in the FORMS.

1.1.1 Permitting

The Army Corps Nationwide 37 permit has been obtained and the Boulder County Land Use review process received conditional approval. A Floodplain Development Permit is not required for this project because Ingram Gulch is not in a FEMA regulatory floodplain. A Grading Permit and Traffic Control Plan must be submitted by the contractor prior to construction. The contractor will be required to obtain an oversize/overweight permit, if applicable, prior to commencing work. A State Stormwater Discharge Permit with associated erosion control plan will also be obtained by the contractor.

The traffic control/management plan must include:

a. The applicant shall provide the haul routes to be used at building/grading permit application for approval.
b. Flaggers and/or other traffic control measures must be used at the intersections of the access points on Gold Run during hauling operations. Locations of flaggers must be shown on the Traffic Control Plans.
c. Locations and types of warning signs along the roads shall be shown.
d. The applicant must use vehicle tracking to minimize the amount of rocks, mud, and other debris tracked onto Gold Run Road.
e. The applicant must provide a sweeping plan for the affected portion of Gold Run Road if sweeping becomes necessary.
f. Prior to project commencement, the applicant must photo-document the conditions of all County roads used for hauling. The applicant must restore all affected roadways to pre-project conditions or better.
g. The project shall be coordinated with the Transportation Department's Public Relations Director, Andrew Barth (303-441-1032).
h. If necessary, the applicant must contact Rocky Milano (303-682-6737) at the Transportation Department to obtain an oversize/overweight permit.
g. Coordination with Boulder County as they create a Traffic Management Plan will be required as there are many construction projects that will be occurring in Fourmile Canyon during the summer construction season.

Gold Run Road is scheduled to begin road/stream construction by Boulder County in September 2017. The contractor must haul in needed equipment and materials for the Ingram Gulch project prior to September to avoid Gold Run construction delays. There is significant area for staging materials within Ingram Gulch.

Additional Permit Requirements:

1. An archeological monitor will be present during construction near the Salina Cemetery located within Ingram Gulch. This area has been identified as culturally sensitive. This cost is not part of the bid schedule.
2. A nesting bird survey may be needed prior to construction. This work will be completed by others and is not included as part of the bid schedule.
3. The Consultant is required to locate utilities prior to beginning construction. Overhead power lines run up the Ingram Gulch valley, and two power poles are in the vicinity of the project. Both poles are anticipated to be outside the construction area, but the guy wires may be affected by construction. Also, water lines cross the stream channel near the outlet of the culvert, and these must be protected.
4. Scheduling project inspections as required by Boulder County is the responsibility of the contractor.
5. The septic field and well must be flagged by the contractor and avoided during construction.
6. Appropriate erosion control measures shall be installed downslope and parallel to contours for all disturbed areas including staging areas. The location of erosion control shall be shown on site plans submitted for Boulder County building permit approval. Stockpiled fill piles over 30 days shall be properly covered and/or stabilized with temporary vegetation.
7. All heavy equipment must use biodegradable hydraulic fluid.
8. Only plants and seed native to Boulder County are allowable as part of the project.

1.1.2 Construction Surveying

The contractor will be responsible for all construction surveying and staking. The contractor will also be responsible for as-built surveys with associated GIS shape files.

In regards to as-builts survey, please see the EWP Project Engineering Guidance for the 2013 Colorado Flood Recovery Phase 2 on the Colorado EWP website (Record drawing and as-built requirements are in Appendix A3):

https://coloradoewp.com/document/emergency-watershed-protection-ewp-program-2013-colorado-flood-recovery-phase-2-project

The following items must be included in the as-built survey as a minimum:

1. Thalweg survey capturing overall stream profile and grade breaks for instream structures including riffles, cross vanes, step pools, etc.
2. Detailed in-stream structure survey following rock crests or edges and/or select survey at structures showing conformance to plans or changes from plans.
3. Cross section survey at minimum of 200 feet (or as specified by the engineer – to match hydraulic modeling used for floodplain development permit) spanning the entire regulatory floodplain. Cross sections shall capture all grade breaks along a section including thalweg, toe of slope on each bank, flood benches, and other significant geographic features.

4. All as-built survey to be provided in AutoCAD format and also include a PDF version certified by a Professional Land Surveyor.

1.1.3 Construction

Complete construction of all improvements identified in the plans including providing a safe work environment, complying with permitting requirements, and close coordination with the ENGINEER. The contractor will address all landowner requests and concerns through the Coalition staff. Under no circumstance will the contractor do work for a landowner that is not approved by the design engineer and Coalition staff. Project design and Construction Specifications can be found in Section 4 of this RFP.

The contractor will shape and construct the proposed channel as designed. The design engineer will be responsible for and direct field fit revisions during construction. Finished floodplain grading will include the installation of soil amendments in preparation for revegetation. Revegetation will include seeding, mulching, live plant installation, willow staking and local live shrub transplants.

1.1.4 Construction Administration

A. The management and administration of the Consultant's Construction Phase contract obligations including, but not limited to, the following activities:

- Provide all requisite bonds and insurance for the construction of the project;
- Possess the requisite licenses (including a Class M license in Boulder County) and assure that all subcontractors are also appropriately licensed and bonded for the tasks needed to complete the construction phase of the project;
- Procure and manage all construction contractors to complete the Construction Phase scope of work for the project;
- Hold weekly progress/construction meetings between the contractor, the coalition and the ENGINEER;
- Develop and update a construction management plan that includes Construction Phase quality control procedures, safety programs, construction document management protocol, etc.;
- Manage subcontractors (contracts, compliance, insurance, and bonds);
- Work with ENGINEER as they perform construction oversight and be responsive to necessary adaptive management, field fitting suggestions, and updated design;
- Prepare payment requests, relevant back up documentation, and maintain cash flow projection, including wage compliance with Davis-Bacon and weekly certified payroll;
- Track permit compliance;
- Track Requests for Information and/or clarification (RFIs);
- Manage change orders and documentation necessary to support changes; all change orders require written approval from the Coalition prior to implementing work under the change order;
- Prepare as-built drawings;

- Coordinate all monitoring activity as described previously; and
- Administer warranties through the warranty period.

B. Site Security will be the responsibility of the contractor throughout the duration of the Construction Phase. The contractor will need to develop an acceptable security control plan to control access to the construction site during all phases of construction while maintaining traffic flow. The contractor will be responsible for construction of any alternate entrance locations or detours, as well as any repairs required to bring facilities back to their current condition. The contractor may close the site to the public during construction.

C. Project Schedule requirements will include developing a detailed project construction schedule defining construction activities of each element of the project and their inter-relationships, along with milestone dates relative to project completion and permit requirements. Regular monitoring, updating, and reporting of the project schedule and implementation process will be required to demonstrate an efficient and timely delivery of the product. The detailed project schedule must include all critical path permit activities through the issuance of Proposed Agency Action by each respective permitting agency. Critical permits include any necessary permits that, if delayed, would delay the Project Schedule.

D. Project Budget reporting requirements will include the preparation of a project budget monitoring protocol to provide regular updates on the status and attributes of the project. Provide documentation of any resultant changes in the projected project costs resulting from construction-related decisions and/or changes. Change orders, including additive change orders, are allowable. Circumstances that would warrant a change order are primarily those which would require shifting the project location. Note that all work must be done within the area covered in the environmental review. In addition, cost of services must not exceed the total funds awarded for this project, and construction costs must not exceed the Not to Exceed figure established at the time of contracting.

E. Permitting requirements for the contractor during the Construction Phase will include compliance with all permit requirements as well as the responsibility for the completion of all necessary work activities needed for the completeness determination of all permits and approvals required to construct and operate the project. All permits, whether obtained by the Coalition or contractor, will become part of the project construction specifications and final design package. Permit completeness determination includes, but is not limited to, the following tasks:

- Develop a permitting compliance schedule and/or matrix, generating and/or assembling associated requisite technical data/documents as required for permit compliance;
- Prepare permit applications and fees for all required permits with the exception of those obtained by the Coalition;
- Coordinate responses to Requests for Information (RFIs); and

- Develop requisite permit compliance and monitoring programs associated with permits obtained by the design engineer along with any potential redesign activities required to achieve permit compliance.

F. Design Compliance Review, will be included in the weekly construction meetings with the Coalition to validate that the design requirements are being provided during the Construction Phase. The Coalition will establish a small project team to communicate with the contractor during this phase. The meetings will occur at a frequency dictated by the Coalition and agreed upon by the contractor. One objective of these meetings will be to review the contractor's documentation of any resultant changes in the projected costs resulting from construction-related decisions and/or changes.

G. Construction Document Management will be implemented as defined in the construction management plan to collect and store the following data in a readily retrievable manner: correspondence, payment requests, schedule updates, RFIs, change requests, and as-built drawings.

H. Project Closeout will include activities needed to achieve final completion of the Construction Phase following the notification of Substantial Completion by the Coalition. Closeout activities will include, but not be limited to, the completion of all punch list items defined at the point of Substantial Completion, final permit closeout, and project document transfer.

I. Warranty Administration will be provided by the contractor throughout the requisite warranty period and will include activities such as: warranty request tracking, event documentation, and response. The Contractor must directly interface with suppliers, subcontractors, and others for requesting all warranty service needs and corrective activities, and provide any modification and/or updates to the project record drawings that may result from warranty activities. The warranty period for the Project will be 12 months from the date of closeout, unless otherwise negotiated and agreed upon between Coalition and contractor and included in the contract.

   A 20% survival for all cuttings and 65% survival for all container plants are required 1-year after planting. If survival is lower than this amount, replanting per the original species recommendation by zone is required.

   During the first season on a non-irrigated site, reseed if bank area re-vegetated during the implementation phase is less than 35% vegetated.

   All Shrub and Tree containers must be watered at a rate of one gallon per watering according to the irrigation schedule to be provided. Watering should be provided at a rate such that the irrigation wells (i.e., constructed depressions around drip line of shrub and tree containers to capture water) do not overflow at the time of watering. Irrigation wells should be repaired as needed to retain irrigation water.

J. The work under this project must be Davis-Bacon Act compliant. The Coalition is responsible for monitoring the consultant for Davis-Bacon compliance, including monitoring consultant's weekly

payroll. In addition, all work will comply with federal, state, and local law, including but not limited to the Copeland "Anti-Kickback" Act (40 USC 276c), Contract Work Hours and Safety Standards Act (40 USC 327-332), Fair Labor Standards Act (29 USC 102 et seq), and comply with minimum wage (8-16-101 CRS 1973, as amended), discrimination and affirmative action (24-34-402, 1973 as amended), and Colorado labor preference (8-17-101 & 102 CRS 2013, as amended).

1.2 Proposal Process

The intent of the Proposal Process is to select the lowest responsive and responsible proposer. Due to the overall schedule of the NRCS EWP program and deadlines for CDBG-DR grants, construction documents for the project are not completed to a 100% level of design. The plans and specifications included herein are preliminary only. Changes, including but not limited to adjustments to quantities, revised plan layouts, and updated specification revisions may still be made to the construction documents. The contractor is to provide a proposal, specifically unit prices, based on the preliminary construction documents provided with the RFP. The proposal price provided in the RFP will not be used as the final price. Instead, it is the intention of this process to bring the contractor on-board as part of a collaborative project partners team consisting of the Coalition, the engineer, and the contractor. In the first 30 days or less, the contractor will operate under a contract to perform permitting tasks and to provide value engineering and support to the design team. This work will not be paid for separately, but shall be included in the contractor's mobilization costs be paid using an hourly billing rate. The contractor and engineer will work together to clarify design details, design intent, discuss materials, and value engineer the project. Once a final plan set and quantities are developed, the contractor, using the **original unit costs** provided in the contractor's initial proposal, will prepare a final proposal to be used for the project change order covering the physical construction of the project. If, during the project partners process, further clarification of the design allows or necessitates that the contactor revise a unit price for the project the finalized unit costs may not exceed 15% above the original proposed unit costs (although the total project cost may not exceed $1,300,000) unless approved in writing by the engineer and Coalition. Unit costs will not be changed due to adjustments in quantities. This project partner's process to finalize the design and proposal will not exceed 30 days.

INSTRUCTIONS TO PROPOSERS

2.0 General

These instructions apply to proposal preparation for construction work for the Fourmile Watershed Coalition.

2.1 Proposal

Each proposal must include and be made on the forms provided in FORMS. All FORMS shall be enclosed in a sealed envelope, addressed to the Fourmile Watershed Coalition, showing on the face thereof the name of proposer and the project or submitted electronically as instructed in the request for proposals.

2.2 Qualifications of Proposer

Specific qualifications related to the project shall be submitted as required in the FORMS. Additional detail related to the information required on the FORMS is provided in the following sections.

2.2.1 Contractor Experience and Capability to Perform Work

Provide company background and relevant project experience using the PREVIOUS PROJECT EXPERIENCE table provided with the FORMS. Project experience should reflect work performed on stream stabilization improvements, stream and floodplain restoration, flood recovery, revegetation, and if projects involved alternative project delivery approaches. Provide up to six relevant project examples and note whether they were federally funded in part or in whole. In addition, for each project please provide the following:

- Narrative of project work and key components.
- Client contact information for each project.
- Up to 3 photos of completed work.

2.2.2 Experience and Qualifications of Project Team

Describe the contractor's team for the project. Include key staff on the PROPOSED PROJECT TEAM MEMBERS table provided with the FORMS.

2.2.3 Project Understanding and Value Engineering Approaches

Provide understanding of the project; potential risks that may directly affect cost, schedule, or project success; proposed contractor activities to mitigate the identified risk; and provide value engineering approaches for the proposed work.

2.2.4 Unit Costs

Provide unit costs using the attached BID SCHEDULE and/or electronic schedule included with the proposal documents. Approximate quantities for this project are included on the BID SCHEDULE, however, these shall not be considered final quantities. Final quantities will be determined following the project partners process described in Section 1.2.

2.2.5 Proposed Work Schedule and Workload Capacity

Due to the unique nature of flood recovery work in a natural disaster of this significance, sufficient contractor workload capacity is critical for this contract. Anticipated implementation of this project requires that construction be completed within 220 days of a signed Financial Assistance (FA) agreement between the Natural Resources Conservation Service (NRCS) and the Colorado Water Conservation Board. The anticipated signature date of the FA agreement is mid-July, 2017. All Emergency Watershed Protection Projects must be completed by December 31, 2017. The contractor's ability and commitment to perform this work in the available time frame is essential.

Provide a proposed work schedule with milestone deliverables and dates, with a completion date according to details listed in "Contract Term." Also, please list your proposed project team's current workload capacity and commitments in addition to its anticipated capacity for the Ingram Gulch Project through December 2017. Please state your team's commitment to accomplish this project in what is acknowledged to be a tight time frame.

2.3 Completion and Signing

Proposal must be legibly written in ink and must cover all of the items of work called for herein and no others. All of the blank spaces in the BEST VALUE BID FORM must be properly completed. Proposer must sign and give a complete business address. Proposal(s) by corporations must be signed with the name of the corporation followed by the signatures and designations of the President and Secretary (or other person authorized to bind it in the matter) and must have the corporate seal affixed thereto.

2.4 Bid Bond

All proposals must be accompanied by a bid bond at 5% of the proposed price. Proposals without a bid bond will be removed from consideration.

2.5 Addenda

Proposer must acknowledge the receipt of all Addenda on the proposal, in the place provided, and include it with the proposal. There will be at least one addendum, which will include the Pre-proposal Meeting attendee list and answers to questions.

2.6 Unbalanced Proposal

Any proposal that, in the opinion of owner, is unbalanced so that each item does not reasonably carry its own proportion of cost, or that contains inadequate or unreasonable prices for any item, may be rejected.

2.7 Site Inspection and Investigations

Prior to submitting a proposal, proposer(s) must inspect the work Site and its surroundings. It will be conclusively presumed that the inspection of the Site has been made by the submittal of a proposal.

DRAWINGS and SPECIFICATIONS, defining the work, were prepared on the basis of interpretation by ENGINEER of information derived from investigations of the work Site. Such information and data are subject to sampling errors, and the interpretation of the information and data depends to a degree on the judgment of ENGINEER. In view of this, proposer is invited to make additional investigations. Information about the degree of difficulty of the work to be done cannot totally be derived from either the DRAWINGS and SPECIFICATIONS or from ENGINEER or ENGINEER's representatives.

Since the proposal information cannot be guaranteed, proposer will have assumed the risks attendant to successful performance of the work at the amount of the proposal and will never make claim for additional payments or time extensions on the grounds that the nature or amount of work to be done was not understood by proposer when submitting the proposal.

2.8 Inconsistencies and Interpretations

Any seeming inconsistencies between different provisions of the contract documents or any point requiring explanation must be inquired into by proposer, in writing, to owner at least five (5) days, excluding Saturdays, Sundays, and holidays, prior to the deadline for submission of proposal. A copy of the decision will be distributed only to those who have registered their contact information with the Coalition. After proposals are opened, all proposers must abide by the decision of the Coalition as to such interpretation.

If the decision or interpretation requires that addenda to the CONTRACT DOCUMENTS be issued, such ADDENDA will be distributed only to those who have registered their contact information with the Coalition. Each proposer must acknowledge the addenda in the proposal.

Only those interpretations, clarifications, and explanations issued in writing by the Coalition, either by addenda or by a formal written decision, will be binding. Oral or other interpretations, clarifications, or explanations will be without legal effect.

2.9 Award of Contract

The Fourmile Watershed Coalition reserves the right to award the contract at any time within sixty (60) days from the date of the opening of proposals unless otherwise specified in the CONTRACT DOCUMENTS. The Coalition further reserves the right to reject any and all proposals and waive any and all informalities, and the right to disregard all non-conforming or conditional or counter proposals.

In evaluating the proposal, The Coalition will consider the following: capability of contractor to perform work, experience and qualifications of proposed construction team, project understanding and value engineering approaches, cost, and proposed work schedule and work capacity. Each of the five listed evaluation criteria will be scored and weighted specifically for the project as follows:

Contractor Experience and Ability of Contractor to Perform Work (0-5 points):
Previous experience by the construction team implementing stream channel modifications, stream bank stabilization, floodplain revegetation, previous flood recovery work, revegetation,

understanding of the unique permitting requirements of river related construction projects, and previous experience working on Colorado watersheds. The Coalition will also consider prior experience with projects funded in whole or in part with federal funding.

Experience and Qualifications of the Proposed Construction Team (0-5 points):
Construction manager, key team members, and the construction company's qualifications; defined responsibilities; key team member's experience working together (continuity). Note team members with relevant experience with federally-funded projects involving regulations such as Davis Bacon and Section 3 of the Housing and Urban Development Act of 1968 (described above in Section 1 of this RFP).

Project understanding and Value Engineering Approaches (0-5 points):
Demonstrated understanding of the project goals and objectives, potential project risks, and evaluation of value added engineering approaches.

Cost (0-5 points):
Costs will be evaluated based on engineer's estimate, current industry construction bids/proposals and competitiveness with other received proposals.

Proposed Work Schedule and Workload Capacity (0-5 points):
Demonstrated capacity to complete the work within the 220-day construction period and understanding of project components and scheduling.

Upon receipt of proposals, the Coalition selection committee will individually review and score each proposal and meet to make a selection. The scores will be compiled in order to rank the applicants from highest to lowest. While price is one of the primary factors in proposal selection, the selection committee will select the lowest responsive and responsible proposer, comparing price with qualifications. The best value contracting company(s) will be selected to enter into a professional services agreement with the Four Mile Fire Protection District, subject to the approval of the designated selection committee of the Coalition. Interviews may be held with a short-list of top-scoring contracting companies if necessary and/or desired by the selection committee.

If a contract is to be awarded, it will be awarded to the proposer whose evaluation by the Coalition indicates to the Coalition that it is the lowest responsive and responsible proposer. If the contract is to be awarded, the Coalition shall enter into a change order for the project design phase within sixty (60) days after the selection of contractor date.

At the completion of the project design phase, the project team will develop a schedule and finalize plans and specifications for the project. The contractor will work with project team to finalize unit prices based on the field ready PLAN and SPECIFICATIONS. Original unit prices will be used unless specifically discussed and negotiated by the CONTRACTOR, ENGINEER, and the Coalition. Negotiated/verified unit prices may not exceed $1,300,000. Unit costs modifications will not be allowed for bid quantity changes. A third-party evaluator may be used in negotiating/verifying pricing. If

contractor and the Coalition cannot come to an agreement on final unit prices at the end of the design phase, then no award will be given for the construction phase. If contractor and the Coalition successfully negotiate, NOTICE OF AWARD will be given.

2.10 Rejection of Proposal

If, at a minimum, any of the below-listed items are encountered, then the proposal will be deemed unacceptable.

1. Proposer(s) name is not on the plan holders list (established at the mandatory pre-proposal meeting);
2. Proposal is missing any of the Procurement Forms;
3. Proposal not signed by an authorized person of the corporation or company; and
4. Receipt of addenda not acknowledged by proposer on the proposal;

2.11 Failure to Execute Contract and Furnish Bond

If the successful proposer fails to execute the contract and furnish the performance and payment bonds and certificate of insurance within ten (10) days from the issuance of the notice of award, the proposer shall forfeit the proposal security accompanying the proposal. The proposal security shall be retained as liquidated damages by the Coalition, and it is agreed that this said sum is a fair estimate of the amount of damages the Coalition will sustain.

2.12 Confidential Information

Pursuant to the Colorado Open Records Act, C.R.S. §§ 24-72-201 et seq. (“Act”), all information contained in any bid or proposal is subject to public disclosure unless it meets one of the exceptions set forth in the Act. To avoid disclosure of trade secrets, privileged information, or confidential commercial, financial, geological, or geophysical data (“Confidential Information”), the proposer must clearly mark all Confidential Information as such and provide a written, detailed justification with its bid or proposal of the protected nature of the Confidential Information under Colorado law. This justification must address, at a minimum, the specific competitive harm that may result from any disclosure, the intrinsic value of the Confidential Information to the proposer, and any safeguards the proposer uses to protect the Confidential Information from disclosure.

By submitting a proposal, the proposer agrees to hold the Coalition and Fire Protection District harmless from any claim arising from the release of Confidential Information not clearly marked as such by the proposer or lacking written, detailed justification supported by Colorado law.

FORMS

BEST VALUE BID FORM

**CDBG-DR WATERSHED RESILIENCE & NRCS EMERGENCY WATERSHED PROTECTION IMPLEMENTATION PROJECT:
INGRAM GULCH
(AGREEMENT NO. 17-103)**

Bid of _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____, doing business as _____, (Corporation, Partnership, Individual).

In conformity with the preliminary CONTRACT DOCUMENTS, listed in the AGREEMENT between the Four Mile Fire Protection District and CONTRACTOR:

(I)(We) hereby certify that this BID is made and submitted without fraud or collusion with any other person, firm, or corporation whatsoever; that an examination has been made of the Site of the WORK and the CONTRACT form, together with the preliminary CONTRACT DOCUMENTS for the improvement.

(I)(We) understand the BIDDER(s) will be evaluated on five criteria based on information submitted in BID(s). The five evaluation criteria are: capability of contractor to perform work, experience and qualifications of proposed construction team, project understanding and value engineering approaches, unit costs, and proposed work schedule and work capacity

(I)(We) understand that the quantities of WORK shown herein are approximate only and are subject to increase or decrease; are to be performed at the unit prices shown on the attached schedule; and that, at the time of the evaluation of BID(s), totals of BID(s) will be based on the correct summation of item totals obtained from the unit prices BID.

(I)(We) understand that after selection of CONTRACTOR a CHANGE ORDER for PROJECT design phase of work will be given. Work performed during the design phase will be done at an hourly rate with a Not to Exceed amount. Work includes attending meetings and providing expertise and knowledge to assist in how to best deliver PROJECT goals. Work may also include equipment or product research, field investigation, permitting, public outreach, coordination, and project partnering activities.

(I)(We) understand at the completion of the PROJECT design phase, the project team will develop a bid schedule and finalize PLANS and SPECIFICATIONS for the PROJECT. CONTRACTOR will work with project team to finalize unit prices based on the field ready PLAN and SPECIFICATIONS. A third-party evaluator may be used in negotiating/verifying pricing. If CONTRACTOR and LTWC cannot come to an agreement on unit prices at the end of the design phase, then no AWARD will be given for the construction phase. If CONTRACTOR and LTWC successfully negotiate, NOTICE OF AWARD will be given.

(I)(We) propose to furnish all necessary machinery, equipment, tools, labor, and other means of construction and to furnish all materials specified, in the manner and at the time prescribed, all in accordance with the terms of the CONTRACT DOCUMENTS.

(I)(We) further propose to do all extra work that may be required to complete the contemplated improvement, at unit prices, lump sums, or time and materials to be agreed upon in writing prior to starting such WORK.

(I)(We) further propose to execute the AGREEMENT and BOND(s) within ten (10) days after receiving written NOTICE OF AWARD.

(I)(We) further propose to perform all WORK in accordance with the CONTRACT DOCUMENTS and in a good and workmanlike manner, and to renew or repair any WORK that may be rejected due to defective materials or workmanship, prior to final completion and acceptance of the PROJECT by LTWC.

BIDDER acknowledges receipt of the following ADDENDA:

No. _____, dated _____, 20_____ No. _____, dated _____, 20_____

No. _____, dated _____, 20_____ No. _____, dated _____, 20_____

No. _____, dated _____, 20_____ No. _____, dated _____, 20_____

Evaluation Factor 1: Contractor Experience and Ability of Contractor to Perform Work

Provide information on a minimum of six projects in the table below. In addition, for each project please provide and attach the following:

- Narrative of project work and key components.
- Client contact information for each project.
- Up to 3 photos of completed work.

Previous Project Experience Chart						
No.	**Project Name**	**Owner**	**Owner's Contact**	**Cost**	**Major Work Elements (see key below)**	**Alternative Delivery Approach Used (y/n)**
1						
2						
3						
4						
5						
6						

Major Work Element Key (use for column 6)

1. Stream Grading
2. Instream Structures
3. Large Woody Material
4. Stream Stabilization
5. Sediment Removal
6. Bioengineering
7. Revegetation
8. Water Control
8. Federally Funded
9. Davis Bacon Compliance
10. EWP

Evaluation Factor 2: Experience and Qualifications of Proposed Construction Team

Provide information for key individuals proposed to be used for this project in the table below.

Proposed Project Team Members			
Name	**Position**	**Years with Company**	**Projects Worked on** (use project No. above)

Evaluation Factor 3: Project understanding and Value Engineering Approaches

Evaluation Factor 4: Unit Costs

Provide unit costs on the UNIT PRICE BID SCHEDULE included with the RFP.

Evaluation Factor 5: Proposed Work Schedule and Workload Capacity

For purposes of this project, the proposed schedule is as follows:

Permit Completion and Final Design Revisions: 30 days from NTP

Construction Phase: 30 days from NTP to 220 days from signature of FA agreement

Construction Duration: 220 days from signature of FA agreement or December 31, 2017

Provide explanation of workload capacity and commitment to perform work on the required 220-day time frame. Attach a proposed construction schedule with the proposal.

UNIT PRICE BID SCHEDULE

BIDDER agrees to perform all the WORK described in the CONTRACT DOCUMENTS per the unit prices provided on the attached BID SCHEDULE:

Item No.	Line Item	Unit	Qty	Unit Cost	Total
	BASE BID				
	Task 1: General and Grading				
1	**Mobilization**				
1.1	*Mobilization*	LS	1		$-
2	**Erosion Control**				
2.1	*Erosion Control*	LS	1		$-
3	**Construction Surveying**				
3.1	*Construction Surveying (Layout & Staking & As-Builts)*	LS	1		$-
4	**Dewatering/Water Control**				
4.1	*Dewatering/Water Control*	LS	1		$-
5	**Traffic Control**				
5.1	*Traffic Control*	LS	1		$-
6	**Excavation and Filling**				
6.1	*Unclassified Excavation- Complete in place - Cut for Finished Grade Channel*	CY	659		$-
6.2	*Unclassified Excavation- Complete in place - Cut for upper sediment pond spillway*	CY	296		$-
6.3	*Unclassified Excavation- Complete in place - Cut for lower sediment pond spillway*	CY	26		$-
6.4	*Unclassified Excavation-With Export of Excess Material - Onsite Placement on Flat above House*	CY	789		$-
6.5	*Unclassified Excavation-Sort and Stockpile Rock - generate Boulder and Cobble for reuse on-site in Boulder Structures and finer materials for Fine Grading*	LS	1		$-
6.6	*Unclassified Excavation- Topsoil/Native Soil - Save and Stockpile*	SY	3480		$-
6.7	*Unclassified Excavation-Fine Grading*	MSF	313		$-
				Task 1 Subtotal:	**$-**

7	**Boulders**				
7.1	*Boulder Cascade Crests - Installation only*	EA	20		$-
7.2	*Boulder Riffle Crests - Installation only*	EA	25		$-

7.3	*Bed Stabilization Treatment: Grade Control Boulder-Cobble Bar Sills - Installation only*	EA	14		$-
7.4	*Bed Stabilization Treatment: Cobble-Gravel Fill - Installation only*	CY	1243		$-
7.5	*Bed Stabilization Treatment: Filter Blanket - Installation only*	CY	592		$-
7.6	*Bank Stabilization Treatment: Boulder-Cobble Toe 1' walls - Installation only*	LF	1805		$-
7.7	*Bank Stabilization Treatment: Stacked Boulder Toe with Willows 2' walls - Installation only*	LF	85		$-
7.8	*Bank Stabilization Treatment: Stacked Boulder Toe with Willows 3' walls - Installation only*	LF	480		$-
7.9	*Floodplain Stabilization Treatment: Fill Soil/Native Soil compacted above riprap - Installation only*	CY	1047		$-
8	**Large Woody Material (LWM) Features**				
8.1	*Floodplain Wood- Installation Only*	EA	20		$-
9	**Riprap**				
9.1	*Riprap (12 Inch) for Base Rocks - Materials and Import only*	TON	400		$-
9.2	*Void-Filled Riprap (<12 Inch) for Gravel Fill - Materials and Import only*	CY	1243		$-
9.3	*Bed Stabilization Materials - Filter Blanket - Materials and Import only*	CY	592		$-
10	**Structures**				
10.1	*Boulder Road Berm*	LF	100		$-
				Task 2 Subtotal:	**$-**

11	**Clearing and Grubbing**				
11.1	*Clearing and Grubbing*	AC	1.15		$-
11.2	*Debris Removal - landfill disposal of trash (sediments under Item 3 Excavation)*	LOAD	5		$-
				Task 3 Subtotal:	**$-**

12	**Vegetation**				
12.1	*Seeding (Mesic, Mesoriparian, Xeroriparian) acquisition, shipping, and installation*	AC	0.31		$-
12.2	*Seeding (Upland) acquisition, shipping, and installation*	AC	0.54		$-
12.3	*Willow Cuttings (48-inch cuttings) acquisition, shipping, and installation*	EA	2630		$-
12.4	*Cottonwood Cuttings (60-inch cuttings) acquisition, shipping, and installation*	EA	90		$-

12.5	*Nursery Stock Herbaceous Container (10ci) acquisition, shipping, and installation*	EA	3247		$-
12.6	*Nursery Stock Deep Rooted Container (D-60) acquisition, shipping, and installation*	EA	1437		$-
12.7	*Nursery Stock Bare root for vegetated soil lifts - acquistion, shipping, and Installation*	EA	1420		$-
12.8	*Mulching (Woodstraw) acquisition and installation of woodstraw*	AC	0.85		$-
12.9	*Soil Conditioning (Biocomp/Biosol) acquisition and installation*	AC	0.85		$-
12.10	*Vegetation Maintenance (Containerized Stock Watering/Maintenance during and after installation)*	LS	1		$-
13	**Geotextiles**				**$-**
13.1	*Bank Stabilization Treatment (Vegetated soil lift -- 3 lifts high, including willow harvest and install)*	SY	2130		$-
13.2	*Bank Stabilization Treatment - Erosion Matting - materials and installation*	SY	4110		$-
				Task 4 Subtotal:	**$-**
				Base Bid Subtotal:	**$-**

Bid Alternatives

ALT	Alternates				
ALT-1	*Debris Rack including all fill, concrete, and steel work*	EA	1		$-
ALT-2	*Void-Filled Riprap (18 Inch) - Materials and Import and Installation*	CY	100		$-
ALT-3a	*1' Boulders - Materials and Import (assumes not available onsite)*	TN	400		$-
ALT-3b	*2' Boulders - Materials and Import (assumes not available onsite)*	TN	437		$-
ALT-3c	*3' Boulders - Materials and Import (assumes not available onsite)*	TN	421		$-
ALT-4	*Unclassified Excavation-With Export of Excess Material (additional)*	CY	855		$-
ALT-5	*Tree Removal*	EA	10		$-
ALT-6	*Guard Rail*	LF	100		$-
				Bid Alternatives Total:	**$-**

Total Cost	**Total Cost:**	**$-**

TOTAL OF BASE BID: $_____
(Numbers)

_____Dollars
(Words)

BIDDER STATES THAT:

1. MAJOR MATERIAL AND EQUIPMENT SUPPLIERS ARE: MATERIAL THEY WILL SUPPLY:

_____ _____

_____ _____

_____ _____

2. MAJOR SUBCONTRACTORS ARE: WORK THEY WILL PERFORM:

_____ _____

_____ _____

_____ _____

ATTEST:

By: _____
(Signature)

Name: _____
(Print)

(SEAL)

CONTRACTOR:

_____
Company Name (Print)

By: _____
(Signature)

Name: _____
(Print)

Title: _____

Address: _____

_____

Date: _____

PROJECT FORMS AND EXHIBITS

4.0 Project Design Plans

4.1 Project Construction Specifications

4.2 Sample Construction Contract

4.3 Supplemental Exhibits- Please fill out and return the included Exhibit forms and the Best Value Bid Form (included above), Exhibits below are L, M, N, O, O.1, O.2, O.4

- Bid for Unit Cost Price- Exhibit L
- Bid Bond Form- Exhibit M
- Performance and Payment Bonding Requirements- Exhibit N
- Consultant and Subcontractor Certifications- Exhibit O
    - Equal Employment Opportunity – Executive Order 11246
    - Section 3 & Segregated Facilities Certification
    - Noncollusion Affidavit of Prime Contractor
- Federal LABOR Standards Provisions-Exhibit I.1
- Davis Bacon Wage Determination
    - Heavy Construction Projects 6/9/2017

TECHNICAL SPECIFICATIONS
FOR
EWP - INGRAM GULCH RECOVERY PROJECT
FOURMILE WATERSHED COALITION

GENERAL

All work shall be completed in accordance with the Colorado Department of Transportation (CDOT) Standard Specifications for Road and Bridge Construction (2011). The Contractor shall use the 2011 CDOT specifications for the subject work, with the following exceptions as amended below and additional Project Special Provisions.

Per CDOT Section 105.09, in case of a discrepancy the order of precedence is as follows:

1. Special Provisions
    a. Project Special Provisions
    b. Standard Special Provisions
2. Plans
    a. Detailed Plans
    b. Standard Plans
3. Supplemental Specifications
4. Standard Specifications

Per CDOT Section 105.09, “the Contractor shall not take advantage of any apparent error or omission in the Contract. If the Contractor discovers an error or omissions, the Engineer shall immediately be notified. The Engineer will make corrections and interpretations as necessary to fulfill the intent of the Contract.”

PROJECT SPECIAL PROVISIONS

REVISION OF SECTION 101 - DEFINITIONS AND TERMS 5
REVISION OF SECTION 105 - CONTROL OF WORK 6
REVISION OF SECTION 107 - LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC 7
REVISION OF SECTION 107 - WATER QUALITY CONTROL 8
REVISION OF SECTION 201 - CLEARING AND GRUBBING 10
REVISION OF SECTION 201 - REMOVAL OF DEBRIS 11
REVISION OF SECTION 202 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS 12
REVISION OF SECTION 203 - EXCAVATION AND EMBANKMENTS (UNCLASSIFIED EXCAVATION) 13
REVISION OF SECTION 203 - UNCLASSIFIED EXCAVATION (FINE GRADING) 15
REVISION TO SECTION 208 - EROSION CONTROL 17
REVISION OF SECTION 211- DEWATERING 18
REVISION OF SECTION 212 - SEED AND SOIL CONDITIONING 20
REVISION OF SECTION 213 - MULCHING 21
REVISION OF SECTION 214 - PLANTING 22
REVISION OF SECTION 214 - WILLOW AND COTTONWOOD CUTTINGS AND WILLOW TOE 23
REVISION OF SECTION 214 - VEGETATION MAINTENANCE 24
REVISION OF SECTION 214 - LARGE WOODY MATERIAL (LWM) FEATURES 25
REVISION OF SECTION 216 - SOIL RETENTION COVERING 28
REVISION OF SECTION 506 - RIPRAP, VOID-FILLED RIPRAP, RIPRAP PAD 34
REVISION OF SECTION 506 - BOULDERS 36
REVISION OF SECTION 625 - CONSTRUCTION LAYOUT AND SURVEYING 76
REVISION OF SECTION 630 - CONSTRUCTION ZONE TRAFFIC CONTROL 77
REVISION OF SECTION 626 - MOBILIZATION AND DEMOBILIZATION 78

NOTICE TO BIDDERS

The proposal guaranty shall be a bid bond in the amount of five percent (5%) of the Contractor's total bid.

Pursuant to Subsections 102.04 and 102.05, it is recommended that bidders on this project review the work site and plan details. Prospective bidders shall contact the following authorized Fourmile Watershed Coalition representative with any project specific questions.

Coalition Project Manager
Contact: Maya MacHamer
Office Phone: 303-817-2261
1740 Fourmile Canyon Dr.
Boulder, Co. 80302

On-Site Project Manager
Contact: Paul Kos (303) 570-9163
John Giordanenego (970) 420-7346

The above referenced individuals are the only representatives with authority to provide any information, clarification, or interpretation regarding the plans, specifications, and any other contract documents or requirements. Contact with any other employee of the coalition or any other individuals regarding this project, is not authorized. Any information obtained from other than the authorized Fourmile Watershed Coalition representative, shall be considered invalid in the preparation of a proposal for this project.

All references to the Colorado Division of Highways, Colorado Department of Transportation, and/or Department or Division shall also mean Fourmile Watershed Coalition.

COMMENCEMENT AND COMPLETION OF WORK

The Contractor shall substantially complete the work on or before 220 calendar days from the date of signature of the Financial Assistance (FA) agreement between the Natural Resources Conservation Service (NRCS) and the Colorado Water Conservation Board (CWCB), except for temperature sensitive landscaping items.

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

1. Permitting
2. Clearing and grubbing
3. Earthwork
4. Channel work and stabilization
5. Topsoil and revegetation
6. Construction as-builts
7. Supplemental watering

Subsection 108.03 shall include the following:

The Contractor shall complete all work within 220 working days from the date of signature on the Financial Assistance (FA) agreement between the Natural Resources Conservation Service (NRCS) and the Colorado Water Conservation Board (CWCB) in accordance with the "Notice to Proceed."

REVISION OF SECTION 101 - DEFINITIONS AND TERMS

Technical Specifications related to construction materials and methods for the Work embraced under this Contract shall consist of the "Colorado Department of Transportation's Standard Specifications for Road and Bridge Construction", dated 2011. Certain terms utilized in the Specifications referred to in the paragraph above shall be interpreted to have different meanings within the scope of this Contract. A summary of redefinitions follows:

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

Subsection 101.01: Abbreviations.

"NRCS" Natural Resources Conservation Service

“CWCB” Colorado Water Conservation Board

Subsection 101.28: "Department" shall mean Fourmile Watershed Coalition.

Subsection 101.29: "Chief Engineer" shall mean the Engineer, Fourmile Watershed Coalition or their designated representative. The Engineer who designed the project acting directly or through an authorized representative, who is responsible for engineering and administrative supervision of the project.

Subsection 101.47: "Project Engineer" or "Project Manager" shall mean the Engineer, Fourmile Watershed Coalition or their designated representative.

Subsection 101.68: "State" shall Fourmile Watershed Coalition (where applicable).

REVISION OF SECTION 105 - CONTROL OF WORK

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

Subsection 105.09 shall have the second paragraph replaced as follows:

In case of discrepancy the order of precedence is as follows:

(a) Special Provisions
    1. Project Special Provisions
    2. Standard Special Provisions
    3. Fourmile Watershed Coalition Special Provisions
(b) Plans
    1. Detailed Plans
    2. CDOT Standard Plans
(c) Supplemental Specifications
(d) Standard Specifications

A hard copy of the Fourmile Watershed Coalition Special Provisions may also be obtained from the Fourmile Watershed Coalition.

REVISION OF SECTION 107–LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

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

107.02 PERMITS, LICENSES, AND TAXES

Subsection 107.02 shall include the following:

Unless otherwise specified, the Contractor shall procure all required permits and licenses; pay all charges, fees, and taxes, including permits procured for this project by others; and give all notices necessary and incidental to the due and lawful prosecution of the work. The costs of these permits will not be paid for separately, but shall be included in the work.

Prior to beginning work, the Contractor shall furnish the Engineer with a written list of all permits required for the proper completion of the contract. The list shall clearly identify the types of permits that must be obtained before work on each phase or phases of work can be started. Copies of the fully executed permits shall be furnished to the Engineer upon request.

The Contractor shall obtain, but not limited to, the following permits:

1. Storm Water Discharge Permit CDPHE
2. Construction Dewatering Wastewater Discharge Permit CDPHE
3. State Department of Revenue Tax Exempt Permit (See Boilerplate)
4. Boulder County Stream Restoration Permit. Floodplain Development Permit has already been applied for by the Engineer. Contractor must address remaining requirements including grading permit, erosion control, traffic management, haul routes, and all other necessary information required by Boulder County to obtain permit approval.

107.12 Protection and Restoration of Property and Landscape

Subsection 107.12 shall include the following:

The Contractor shall protect in place existing riparian, wetlands, and other vegetation, except for those what must be removed to accommodate construction of the project. The Contractor shall fence specific areas of vegetation to be protected in the field as shown in the plans or as directed by the Engineer.

The Contractor shall perform all the work in such a manner that the least environmental damage will result. Any questionable areas or items shall be brought to the attention of the Engineer for approval prior to vegetation removal or any damaging activity. Damaged or destroyed fenced trees, shrubs, or wetlands, which could have been avoided as determined by the Engineer, shall be replaced in kind at the expense of the Contractor.

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

REVISION OF SECTION 107—WATER QUALITY CONTROL

Subsection 107.25 (b) *Construction Requirements is hereby revised to include the following:*

25. This project is subject to permits with the Colorado Department of Health for Stormwater Discharges and Dewatering Discharges Associated with Construction Activities. The permits shall be obtained by the Contractor. The Contractor shall prepare all applications required and submit to the Colorado Department of Health. The Contractor shall submit a copy of certification of the permit to the Engineer prior to the start of construction. The Contractor is responsible for all application permit fees.

26. This project is subject to US Army Corps of Engineers Nationwide 404 Permit 37 for Emergency Watershed Protection and the Pre-Construction Notification for the EWP Program Ingram Gulch Project dated June 9, 2017.

For information on required steps to secure the Stormwater Discharge Permit and the Construction Dewatering Permit, the Contractor shall contact:

Colorado Department of Public Health and Environment
WQCD-P-B2
4300 Cherry Creek Drive South
Denver, CO 80246-1530
Attn: Permits Unit, c/o Nathan Moore
Phone: (303) 692-3555

REVISION OF SECTION 108 –PROSECUTION AND PROGRESS

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

108.03 SCHEDULE

Subsection 108.03 shall include the following:

Salient features to be shown on the Contractor's Progress Schedule are as shown in Commencement and Completion of Work.

REVISION OF SECTION 201 — CLEARING AND GRUBBING

Section 201 of the Standard Specifications is hereby revised for this project as follows:

DESCRIPTION

Subsection 201.01 is replaced with the following:

The work consists of clearing of vegetation within the limits of grading areas, staging areas, and access routes, including trees and shrubs up to 6-inches in diameter (as measured from 4.5 feet up from the ground). Vegetation and objects designated to remain shall be preserved free from injury or defacement, including the limbs and rootwads of large wood.

CONSTRUCTION REQUIREMENTS

Subsection 201.02 shall include the following:

The Contractor shall retain and stockpile rocks and large boulders encountered during clearing and grubbing for reuse in structures and bank protection (Refer to Revision of Section 506-Boulders).

The Engineer and/or Ecologist shall flag vegetation that shall not be disturbed before construction begins. The Contractor shall not disturb existing stands of vegetation that have been flagged for protection. The Contractor shall review flagged vegetation stands with the Engineer and/or Ecologist prior to the start of work. No flagged vegetation shall be removed unless explicitly directed by engineer and documented by email from Owner and Engineer before removal. If flagged trees are removed, contractor shall be responsible for providing replacement trees at a value determined by the project ecologist.

The Contractor shall retain and stockpile large wood (downed trees), that meet the specifications in Section 202, encountered during clearing and grubbing for reuse or for Owner use (refer to Revision of Section 202). The limbs and rootwads of large wood material shall remain intact. Removal of woody material for beneficial reuse onsite or in the vicinity will be paid for under Section 202.

BASIS OF PAYMENT

Payment for temporary construction fencing shall be included under Item 626-Mobilization.

Subsection 201.04 shall include the following:

Payment will be made under:

Pay Item	**Pay Unit**
Clearing and Grubbing	Acre

REVISION OF SECTION 201 - REMOVAL OF DEBRIS

Section 201 of the Standard Specifications is hereby revised for this project to include the following:

Subsection 201.01 shall include the following:

This work includes, but is not limited to, the removal of flood generated debris. Debris is defined as concrete, asphalt, rebar, trash, plastic, fencing, wire, as well as building, deck, shed, and vehicle remnants, and all other debris that are not designated or permitted to remain, as shown in the Plans or as directed by the Engineer.

Except in areas to be excavated, the resulting trenches, holes, and pits shall be backfilled and revegetated at no additional cost to the project.

CONSTRUCTION REQUIREMENTS

Subsection 201.02 shall include the following:

The Contractor shall submit to the Engineer methods that will be utilized to remove debris along the project corridor. Methods proposed by the Contractor will need approval by the Engineer, especially for areas that impact the active stream environment.

Before seeding and mulching, the project area shall be reviewed and all visible debris, as defined above, shall be removed by Contractor.

METHOD OF MEASUREMENT

Subsection 201.03 shall include the following:

Removal of debris will be measured per load based on a standard tandem dump truck estimated at 10 cubic yards. The Contractor and Engineer shall agree on the number of loads and the amount of each load prior to each load leaving the site.

BASIS OF PAYMENT

Subsection 201.04 shall include the following:

The accepted quantities to complete removals as identified will be paid for on a unit price for all work required to remove and dispose of debris from the site.

Pay Item Pay	**Unit**
Removal of Debris	Load

REVISION OF SECTION 202 — REMOVAL OF STRUCTURES AND OBSTRUCTIONS

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

Subsection 202.02 is shall include the following:

The Contractor shall remove all trees greater than 6 inches in diameter (as measured 4.5 feet up from the ground) designated for removal or as directed by the Engineer. Select trees to be removed shall be beneficially reused on-site for rootwad construction (see Revision of Section 214 for Large Woody Debris and rootwad specifications). Trees removed that are not designated for use in rootwad construction shall be legally disposed of off-site unless designated for additional on-site use by the Engineer or for other use by Owner.

The Engineer and/or Ecologist shall flag vegetation that shall not be disturbed before construction begins. No flagged vegetation shall be disturbed or removed unless explicitly directed by engineer and documented by email to Owner and Engineer before removal. The Contractor shall review flagged vegetation stands with the Engineer and/or Ecologist prior to the start of work in each work area.

BASIS OF PAYMENT

Subsection 202.12 shall include the following:

Payment will be made under:

Pay Item Pay	**Unit**
Remove Tree	Each

REVISION OF SECTION 203 — EXCAVATION AND EMBANKMENTS (UNCLASSIFIED EXCAVATION)

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

DESCRIPTION

Subsection 203.02 shall include the following:

Unclassified Excavation – General. This work consists of excavation of material within the Ingram Gulch channel and floodplain, as well as, disposal of excess material off-site. This work includes the sorting and stockpiling of in-situ riprap, larger, alluvial rounded rock and boulder material located in the existing river bottom, banks, floodplain, and soil piles, to be used in later stages of construction to form river features (see Section 506–Boulders) as well as sorting, stockpiling, and placing native soils.

CONSTRUCTION REQUIREMENTS

Subsection 203.04 (General) shall include the following:

The proposed haul route shall use Fourmile Canyon Drive and Gold Run Road. Hours of hauling shall be from 8:00 AM to 4:00 PM to limit impacts on regular vehicular traffic. Roadway conditions prior to work shall be photo documented. Contractor to obtain an oversize, overweight permit issued by Boulder County Transportation, if applicable to Contractor fleet; contractor shall determine if the permit is necessary (contact Rocky Milano at 303-682-6737).

Subsection 203.05 (Excavation) shall include the following:

Final grade cuts and fills in unconsolidated materials shall not be steeper than 1.5:1. The typical floodplain bench grading dimensions shown in the plan set shall be field fit to tie into existing topography at slopes to minimize filling, but no less steep than 3:1. The grading limits shown in the plan set shall be field fit based on-site specific conditions at the direction of the Engineer. The proposed channel and floodplain shall be formed according to the typical sections and grading contours as shown in the Plans or as directed by the Engineer. To the greatest extent practicable, all grade breaks shall be rounded.

Existing river conditions prior to mass grading shall be carefully documented with photographs or other approved method. Contractor shall confirm existing conditions represent design plans prior to all road revetment and mass grading activity.

Riprap materials (competent angular, sub-angular materials, and cobbles conforming to the requirements of Section 506 (Riprap)) shall be retained for re-grading and re-use on the Project; All rounded large cobbles (greater than 12-inch) and boulders suitable for use with in-channel Boulder Features (as shown in the Plans; see Section 506–Boulders) shall be removed and stockpiled as close to the work area as possible.

Where native soil or topsoil exists, the soil shall be removed and stockpiled and reapplied to graded surfaces.

The final compaction level of graded areas shall be consistent with the intent to re-establish vegetation. Final surfaces shall have no visible track marks, tire marks, or excavation scars, and shall be roughened. Final compaction level and surface condition shall be approved by the Engineer.

The Engineer may direct the creation of micro-topography at their discretion to create small-scale stream channel and landscape features not shown on the plan set provided they are in-line with the vision of the project and not time intensive.

BASIS OF PAYMENT

Subsection 203.14 shall include the following:

When grading is either partially or entirely complete and Engineer has approved grading, contractor shall estimate the volume (CY) of excavation in a method approved by the Engineer.

Unclassified Excavation- Complete in Place includes the total volume excavated and reshaped into the final dimensions of the channel and floodplain in cubic yards. Complete in Place is defined by the entirety of the project limits, not the limits of the work area, zone, or reach. The work to be paid under pay item Unclassified Excavation, Complete in Place consists of excavation, placement, and compaction of material to be handled as part of channel grading, floodplain grading, and excavation to install structures.

Unclassified Excavation-With Export of Excess Material includes haul away of any excess material to an approved and legal on-site or off-site location. The work to be paid under Unclassified Excavation with Export of Excess Material consists of excavation, hauling, and disposal of excess cut material that is not used as fill.

Unclassified Excavation-Sort and Stockpile Rock includes the detailed sorting, stripping, stockpiling and final placement of select existing rock materials necessary to construct the Boulder Features (Section 506–Boulders), provide ballast and anchoring for the *Large Wood Structures* and *Rootwads* (Section 214-Large Wood Structures), and install in the channel as habitat rocks, bank features, and floodplain features as described in Section 203-Final Grading. Sorting and stockpiling of river rock material is measured by the mass of material stockpiled in CY based on field estimates.

Unclassified Excavation- Sort and Stockpile Native Soil includes the detailed stripping, stockpiling and final placement of native soils as described above. Sorting and stockpiling of native soil material is measured by the volume of material stockpiled in cubic yards, based on field estimates.

Pay Item Pay	**Unit**
Unclassified Excavation-Complete in Place	Cubic Yards
Unclassified Excavation-With Export of Excess Material	Cubic Yards
Unclassified Excavation-Sort/Stockpile Rock	LS
Unclassified Excavation- Native Soil	Cubic Yards

REVISION OF SECTION 203—UNCLASSIFIED EXCAVATION (FINE GRADING)

Section 203 of the Standard Specifications is hereby revised for this project to include the following:

DESCRIPTION

Subsection 203.02 shall include the following:

Rough Grading. This work consists of the final excavation and fills (shaping) of the reconstructed Ingram Gulch channel bottom, banks, and floodplain as shown on the plans, after Rough Grading has been completed (see Revision of Section 203 Excavation and Embankments (Unclassified Excavation)).

The work includes of fine grading to create riffles, pools, and a low flow channel at the locations and with the typical dimensions indicated on the plan set. The Engineer may provide additional direction in the field on the location and dimensions of these channel features. Per the Revision of Section 203 (Unclassified Excavation), the Engineer may direct the creation of micro-topography at their discretion to create small-scale stream channel and landscape features not shown on the plan set.

CONSTRUCTION REQUIREMENT

Subsection 203.05 shall include the following:

Unclassified Excavation-Fine Grading. Channel Grading is performed in multiple steps; the first steps are described in Revision of Section 203 (Unclassified Excavation). After major cuts and fills are completed, rock placement, wood placement, and excavation in the bottom and along the banks and floodplain of the multi-stage channel (approximately 10’- 30’ wide) will be completed. The channel bottom will be reshaped by excavating 12”-24” (typical) deep pools, as shown on the plans, and as directed by Engineer. This excavated material will then be placed and graded into slightly elevated areas adjacent to the low flow channel as directed by the Engineer. The placed material is then track packed. This work is followed by (or concurrent) with the placement of boulder features with the initially harvested materials described in Revision of Section 203 (Unclassified Excavation). Most of this work is performed by utilizing an excavator equipped with a thumb and assisted by either a second excavator, loader, tracked skid steer or small dozer. Fine Graded channel elements shall be inspected and approved by the Engineer.

The specific location of certain weir crests and pool tail-outs may be adjusted under the supervision of the Engineer to better match existing conditions and minimize bed disturbance if field conditions differ from the existing conditions shown in the plan set. In particular, profile changes in critical areas near bends or structures must be approved by the Engineer (refer to Revision of Section 506 (In-Channel Boulder Features) for information on step structure construction).

Bed material cut during fine channel grading shall be used as the fill for areas in the channel and adjacent floodplain.

METHOD OF MEASUREMENT

Subsection 203.13(a) shall include the following:

Unclassified Excavation-Fine Grading is measured by the linear foot, measured along the project stationing, rounded to the nearest 10-foot increment. The payment includes work in the channel, on the channel banks, and throughout the floodplain, as applicable.

BASIS OF PAYMENT

Subsection 203.14 shall include the following:

Payment includes the excavation of the low flow channel and pools, and the subsequent placement of excavated material into areas requiring alluvial fill in the vicinity of the excavations, to shape the overall low flow channel, based on plan quantity.

Pay Item	**Pay Unit**
Unclassified Excavation (Fine Channel Grading, Complete in Place)	LF

REVISION TO SECTION 208 - EROSION CONTROL

DESCRIPTION

Subsection 208.01 shall include the following:

The Contractor shall develop a Stormwater Management Plan (SWMP) and obtain a construction stormwater permit and construction dewatering permit from Colorado Department of Health and Environment as applicable.

Erosion control measures shall be installed and maintained in the locations specified and as described in the SWMP. Erosion control measures will consist of, but are not limited to vehicle tracking control, silt fence, erosion control log, check dam, surface roughening, erosion control blanket, dewatering well points, diversion ditches, concrete washout areas or other approved measures needed to satisfy the requirements of the stormwater and construction dewatering permits.

CONSTRUCTION REQUIREMENTS

Subsection 208.06 shall include the following:

Biodegradable hydraulic fluids shall be used for all heavy machinery.

Contractor will comply with equipment cleaning protocols to prevent the spread of New Zealand Mud Snails, other aquatic nuisance species (hitchhikers), and noxious plant species prior to entering the site per requirements of the 404 Permits (details provided at the end of this specifications package).

A spill kit, including absorbent socks and booms, shall be kept on-site during all work with machinery (emergency pollutant isolation and clean-up materials, with procedures). All crew members shall be trained on how to use the spill kit equipment and where the materials are kept on-site. Engineer to approve Contractor plan for leaking equipment extraction from river (spill plan information to be included in SWMP).

Vehicle tracking pads are required to prevent tracking debris on Gold Run Road.

BASIS OF PAYMENT

Subsection 208.12 shall include the following:

Erosion Control shall include all materials and work necessary to satisfy the requirements of the stormwater and construction dewatering permits.

Pay Item	Pay Unit
Erosion Control	Lump Sum

REVISION OF SECTION 211 - DEWATERING

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

This work consists of dewatering temporary excavations in accordance with Colorado Department of Health and Environment dewatering regulations to facilitate construction activities.

MATERIALS

The Contractor shall provide all required materials and equipment to facilitate dewatering. On-site materials meeting specifications may be used within the limits of construction to construct temporary dams and berms. Other materials such as plastic sheeting and sand bags may also be used if desired by the Contractor.

CONSTRUCTION REQUIREMENTS

The Contractor shall dewater, by pumping or by excavating trenches leading to a positive gravity outlet.

General: For all work, the Contractor shall provide suitable equipment and labor to remove water, and shall keep the excavations dewatered so that construction can be carried on under dewatered conditions where required by the Plans or as directed by the Engineer. Water control shall be accomplished such that no damage is done to adjacent banks or structures. The Contractor is responsible for investigating and being familiar with all site conditions that may affect the work including surface water and the level of groundwater and the time of year the work is to be done. Flowing mine workings result in perennial flow at the surface or within the alluvium for much of the project area. All excavations made as part of dewatering operations shall be backfilled with the same type material as was removed and compacted to 95 percent of maximum density (ASTM D698) or to 75 percent relative density (ASTM D2049), except where replacement by other materials and/or methods are required. Contractor is responsible for all applicable permits related to dewatering and water control throughout the project site.

Surface Water Control: Surface water control generally falls in to the following categories:

1. Normal low flows in Ingram Gulch;
2. Storm/flood flows in Ingram Gulch;
3. Flows from existing storm drains; and
4. Local surface inflows.

The Contractor shall coordinate, evaluate, design, construct, and maintain temporary water control conveyance systems, as required. These systems will not worsen flooding, alter major flow paths, or worsen flow characteristics during construction. The Contractor is responsible to ensure that any such worsening of flooding does not occur. The hydrology was calculated by Norwest Corporation, and details on the calculation are included in the 30% design report.

Winter Baseflow	1 cfs
Summer Baseflow	6 cfs
2-year Flood	175 cfs
10-year Flood	400 cfs
25-year Flood	789 cfs
50-year Flood	1209 cfs
100-year Flood	1734 cfs

The 100-year flood flow has a one percent probability of being equaled or exceeded in any given year.

The Contractor will be responsible for diverting surface flow around the construction area so that the excavation for boulders and riprap remain free of surface water for the time it takes to install these materials.

The Contractor shall, at all times, maintain a flow channel or route for Ingram Gulch. Temporary structures such as berms, sandbags, pipeline diversions, etc., shall be permitted for the control of creek flow, as long as such measures are not a major obstruction to flood flows, do not worsen flooding, or alter historic flow routes. Existing trees and vegetation should be preserved. In the event existing trees or vegetation require removal for dewatering operations, no such removal can occur without the approval of the Engineer.

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

Special Dewatering Provisions for Instream Structures: The Contractor shall isolate the work area from surface waters, and then draw down the groundwater level to an elevation below subgrade in a manner which will prevent "quick" conditions. The dewatering operation will be continuous, 24 hours per day, until the affected portion of the drop structures is complete and the groundwater level can be allowed to rise without endangering the stability of existing or new structures.

The Contractor should anticipate that even with the groundwater level lowered below subgrade where boulders and riprap are to be placed, conditions will be moist and possibly soft and easily disturbed by construction and other activities. The Contractor is responsible to control such conditions and prevent loosening of the subgrade material and refrain from activities which would make the materials more permeable and/or inadequate to support the structure.

The Contractor may use special drain zones in his design for dewatering trenches or well points, as long as the system does not harm the stability of the planned channel structures. Any temporary dewatering trenches or well points will be restored following dewatering operations to reduce permeability in those areas as approved by the Engineer. Dewatering trenches are not acceptable on the drop slope where they may compromise the integrity of the sloped subgrade material.

METHOD OF MEASUREMENT

Dewatering will not be measured, but will be paid for on a Lump Sum basis.

BASIS OF PAYMENT

Pay Item	**Pay Unit**
Dewatering	Lump Sum

REVISION OF SECTION 212 — SEED AND SOIL CONDITIONING

Section 212 of the Standard Specifications is hereby revised for this project as follows:

DESCRIPTION

Subsection 212.01 is replaced with the following:

The work consists of revegetating all areas that have been disturbed as part of floodplain benching, channel grading, debris removal, staging, construction access, or otherwise. This work also includes revegetation that is specified as part of bank stabilization treatments (refer to Revision of Section 506).

Seeding zones are defined in the plan set and will be delineated in the field by the ecologist.

CONSTRUCTION REQUIREMENTS

Subsection 212.06 shall include the following:

On-site soil shall be top dressed with Biocomp/Biosol, or an approved alternative, in accordance with the Plans.

BASIS OF PAYMENT

Subsection 212.08 shall include the following:

Pay Item	**Pay Unit**
Seeding, Broadcast, Mesic	Acre
Seeding, Broadcast, Mesoriparian	Acre
Seeding, Broadcast, Xeroriparian	Acre
Seeding, Broadcast, Upland	Acre
Soil Amendments	Acre

Payment for Seeding shall include seed acquisition, transport, installation, and all other work necessary to complete the work.

Payment for Soil Amendments shall include amendments acquisition, transport, installation, and all other work necessary to complete the work.

REVISION OF SECTION 213 - MULCHING

Section 213 of the Standard Specifications is hereby revised for this project as follows:

BASIS OF PAYMENT

Subsection 213.05 shall include the following:

Payment for wood straw mulch will be full compensation for all work and materials necessary to furnish apply, and crimp the mulch at the rates specified on the construction plans.

Pay Item	**Pay Unit**
Mulching (Wood straw)	Acre

REVISION OF SECTION 214 - PLANTING

Section 214 of the Standard Specifications is hereby revised for this project as follows:

DESCRIPTION

Subsection 214.01 shall include the following:

For containerized stock, all plants should be pre-inspected by the planting contractor to help ensure quality, proper hardening (2-week minimum), and species correctness. Any dead, dying, stressed, or badly "root-bound" plants will be rejected. Planting holes should be hand dug or drilled with an auger where necessary to allow deep root penetration and to minimize "j-rooting". Holes will be dug twice the width and equal to the depth of the root ball of the plant. Holes will be watered before planting, then filled, tamping down the soil to remove air pockets, and watered again immediately.

The work consists of furnishing all plants, labor, materials and equipment and performing all work necessary and incidental to installing container stock, piles and live cuttings as indicated in the plan set.

CONSTRUCTION REQUIREMENTS

Subsection 214.03 shall include the following:

It is recommended that the Contractor source as much of the plant material as possible through the Colorado State Forest Service (CSFS).

BASIS OF PAYMENT

Subsection 214.06 shall include the following:

Payment for plantings will be full compensation for all work and materials necessary to furnish and install said plant.

Pay Item	Pay Unit
Nursery Container Stock (DRC #10)	EA
Nursery Container Stock (DRC #40)	EA
Nursery Container Stock (DRC #60)	EA

REVISION OF SECTION 214— WILLOW CUTTINGS AND COTTONWOOD CUTTINGS AND WILLOW TOE

Section 214 of the Standard Specifications is hereby revised for this project as follows:

Subsection 214.01 shall include the following:

This work consists of furnishing all plants, labor, materials and equipment and performing all work necessary and incidental to installing live willow cuttings and willow toes and cottonwood poles for the stabilization of soil. Willows and cottonwoods may be harvested on-site, if available, from parent material identified by Ecologist. On-site harvesting must have the appropriate property access permission.

Subsection 214.02 shall include the following:

(e) *Willow and cottonwood cuttings*. Willow stakes and cottonwood poles shall be approximately the length specified in the Plans, and between ½ and ¾ inches in diameter. All side branches shall be trimmed. Willow cuttings shall be cut from branches with smooth undamaged bark. Branches with thick, cracked bark shall not be used because they will not re-sprout effectively. Cuttings shall be cut about one foot from the ground. Cuts must be clean, without stripping the bark or splitting the wood. The base cuts shall be at a 45 degree angle to identify the root end of the cutting. The top shall be cut off, with a square cut so that the top of the stake is easily distinguishable from the bottom. Willow cuttings for use in Willow Log do not require specific measurements or trimming, but all side branches shall be trimmed. The harvesting site shall be left clean and tidy, to the satisfaction of the Engineer or Ecologist.

(k) *Transportation*. Immediately after cutting, all live cuttings shall be placed in water so that the cut ends are covered in water, and the cuttings shall be stored in a cool location. Plants shall be stored in containers with water at least one foot deep. The containers shall be continuously shaded and protected from the wind. Cuttings shall be protected from drying at all times. During transportation, the cuttings shall be placed in containers with water at least 1 foot deep in orderly fashion to prevent damage and to facilitate handling. Upon arrival at the construction site, cuttings shall be inspected for acceptability. Only healthy, undamaged material will be accepted.

(l) *Installation*. Using a piece of rebar or other mechanical method such as a stinger backhoe attachment or trenching equipment, create a vertical hole or trench deep enough to reach the water table throughout the growing season. Insert about 2/3 of the cutting into the hole/trench so that the end of the cutting is in contact with the water table.

For live cutting and pole installation, contractors should install stakes and poles of adequate length to reach six inches into the low-season water table, with enough stem remaining that no fewer than three to four live buds remain above the ground surface and a minimum of 1 foot of the cutting protrudes from the final grade. The hole should be backfilled with excavated soil, water-in and tamped to remove air pockets.

Payment will be made under:

Pay Item	**Pay Unit**
Willow Cuttings	Each
Cottonwood Cuttings	Each
Willow Toe	Lineal Foot

REVISION OF SECTION 214 - VEGETATION MAINTENANCE

Section 214 of the Standard Specifications is hereby revised for this project as follows:

Subsection 214.04 (b) 2 shall be replaced with the following:

Watering in Non-irrigated Areas. Deep watering should occur on all container stock to ensure plant survival. The contractor should water three times a week for the first four weeks. After the first four weeks, water once a week until the September 1st. After September 1st, water once every other week until the first frost. For year two and three of plant establishment, water once a week from April 15th until September 1st. After September 1st, water once every other week until the first frost, depending on ambient air temperatures.

Subsection 214.06 shall include the following:

Payment will be made under:

Pay Item	**Pay Unit**
Vegetation Maintenance	Lump Sum

REVISION OF SECTION 214— LARGE WOODY MATERIAL (LWM) FEATURES

Section 214 of the Standard Specifications is hereby revised for this project as follows:

DESCRIPTION

Subsection 214.01 shall include the following:

Large Woody Material (LWM). Large woody material (LWM) are trees or tree trunks, preferentially sourced or harvested on-site with intact root mass, used to construct *Rootwads*, *Floodplain Wood*, and *Large Wood Complexes*. They develop riparian habitat features and for low-flow to bankfull-discharge stabilization and floodplain roughness. LWM installation includes all equipment, materials, labor, and other costs associated with supplying and installing large woody material features as indicated in the plans.

Three types of LWM features are defined below:

Rootwad. A single piece of LWM with rootball intact. Often installed with live willow stakes. *Rootwad* work includes all equipment, materials, labor, and other costs associated with supplying and installing rootwads as indicated in the Plans.

Large Wood Complex. A structure consisting of five or more overlapping pieces of LWM with or without rootballs, as specified in the Plans. Often installed with live willow stakes. Large Wood Complex work includes all equipment, materials, labor, and other costs associated with supplying and installing the large wood structure as indicated in the Plans.

Floodplain Wood. A single piece of LWM buried into overbank and floodplain areas. *Floodplain Wood* work includes all equipment, materials, labor, and other costs associated with supplying and installing *Floodplain Wood* as indicated in the Plans.

MATERIALS

Subsection 214.02 shall include the following:

LWM elements shall not be hollow or rotten and can include bark.

Tree trunks without intact root mass may be substituted with approval of the Engineer if suitable LWM

with intact root mass is not available.

LWM may be limbed to 18” maximum length from trunk for transport, handling, and installation. LWM for construction shall include root mass and be measured as follows:

1. Diameter: at 4.5 feet from the top of the rootwad.
   (a) Minimum *diameter* of 6- to 9-inches.
   (b) Nominal diameter of 10- to 12-inches.
2. Length: 20 feet (minimum); longer trunk lengths up to the maximum practicable length (assumed 35+ feet) shall be provided. Length to be measured from top of log to bottom of log, which is to include the root wad.

LWM shall be sourced from within the Project, be of non-invasive species, and preferred source from a coniferous tree. If insufficient LWM elements are generated by the Project, then LWM may be imported or replaced with Boulder Features as indicated in the Plans or as directed by the Engineer.

Anchor rocks/boulders used in all LWM construction including for *Rootwad, Large Wood Complex*, and *Floodplain Wood* shall be per Revision of Section 506-Boulders and shall be considered subsidiary to the work.

Delivery, Storage, and Handling:

LWM shall be harvested, handled, and stored according to Section 202 Removal of Trees.

The Contractor shall take care to protect the LWM and branches from damage during handling and installation of the *Rootwad*, *Large Wood Structure*, or *Floodplain Wood*.

CONSTRUCTION REQUIREMENTS

Subsection 214.04 shall include the following:

Add the following subsections immediately following subsection 214.04 as follows:

214.041 LWM placement. *Rootwad, Large Wood Complex*, and *Floodplain Wood* material shall be placed per the following:

(a) Place LWM as specified and indicated in the Plans.
(b) *Rootwads* and the bottom layer of all *Large Wood Complexes* must be installed 1/3 below the baseflow water surface elevation.
(c) The Contractor shall immediately notify the Engineer if a specified log size is not available.
(d) The location, element number, and configuration of LWM may vary in field due to site conditions, and the final location of these structures will be approved by the Engineer in the field prior to construction. After construction, final numbers of installed *Rootwad, Large Wood Complex*, and *Floodplain Wood* shall be totaled for payment.
(e) All *Rootwad, Large Wood Complex*, and *Floodplain Wood* shall be secured in placement locations by designated anchoring method detailed in the Plans. The Contractor shall notify the Engineer of additional measures needed to secure elements beyond those outlined in the Plans.
(f) Trench widths associated with *Rootwad, Large Wood Complex*, and *Floodplain Wood* installation shall be limited to the log diameter plus 2 feet, and the Contractor shall take care to minimize bank disturbance. Following construction, the Contractor shall stabilize any disturbed banks using methods noted on the Plans.
(g) Live willow stakes shall be installed with all LWM while the trench/excavation is open.

214.042 LWM Quality Control and Acceptance. LWM shall be accepted per the following:

(a) Verify that LWM delivered to the placement site meets the applicable quality, size, type, and number of elements presented in the Plans. Verification of materials sourced within Project limits shall be by visual inspection of quality and by measurement of trunk length/diameter.
(b) Rejected materials shall be transported off-site and disposed of at Contractor expense outside of Project limits.
(c) Verify that LWM has been placed to lines and grades indicated in the Plans. Verification shall be by visual inspection and survey of grade if specific elevations are identified on the Plans.

METHOD OF MEASUREMENT

Subsection 204.05 shall include the following:

Rootwads shall be measured by the number of installed LWM pieces with root mass intact within the bankfull channel. *Rootwads* pay item shall include the LWM with root mass intact, footer rock or logs, anchor rocks/boulders, ballast rock/boulders, excavation, backfill, and all other materials or work

necessary to complete the work. Willow stake material installed with *Rootwads* will be counted and paid for separately.

Large Wood Complexes shall be measured by the number of installed *Large Wood Complexes*. *Large Wood Complex* pay item shall include all necessary LWM, footer rock or logs, anchor rocks/boulders, ballast rock/boulders, excavation, backfill, and all other materials or work necessary to complete the work. Willow stake material installed with *Large Wood Complexes* will be counted and paid for separately.

Floodplain Wood shall be measured by the number of LWM pieces installed in the floodplain and overbank areas. *Floodplain Wood* pay item shall include the LWM, anchor rocks/boulders, ballast rock/boulders, and all other materials or work necessary to complete the work. Willow stake material installed with *Floodplain Wood* will be counted and paid for separately.

BASIS OF PAYMENT

Subsection 204.06 shall include the following:

Pay Item	**Pay Unit**
Rootwad	Each
Large Wood Complex	Each
Floodplain Wood	Each

REVISION OF SECTION 216— SOIL RETENTION COVERING

Section 216 of the Standard Specifications is hereby revised for this project as follows:

MATERIALS

Subsection 216.02 (a), Part 2. is deleted and replaced with the following:

2. Coconut Blanket shall be C400B coconut fiber blanket with biodegradable netting on both sides as manufactured by Nedia Enterprises, Inc. or approved equivalent.

Subsection 216.02 (a) is revised to include the following:

(a) Covering. Coir mat shall be KoirMat 700 coconut fiber erosion control matting (woven matting of coir yarn) manufactured by Nedia Enterprises, Inc. or approved equivalent.

Subsection 216.02 (b) is deleted and shall be replaced with the following:

Blanket Anchors. Blanket anchors shall be 18- to 24-inch wood stakes made from cutting a 2”x4” at a diagonal per details in the plan set.

CONSTRUCTION REQUIREMENTS

Subsection 216.03 (b) is deleted and shall be replaced with the following:

Areas to be covered with coir mat or coconut blankets shall be properly prepared, seeded, and mulched before blankets are placed. Contour furrowing shall not be done in areas where blankets are to be placed. The soil shall be free of clods, rocks, wood, and other obstructions so that the blankets are in direct contact with soil. No gaps or voids shall exist under the blankets.

Blankets shall be installed starting at the upstream end and unrolled in the direction of the flow of water. Blankets shall be placed smoothly but loosely on the soil surface without stretching. Blankets shall be staked and anchored according to the details shown in the Plans. A minimum edge distance of 2-inches from the edge of blanket to the edge of stake shall be maintained.

See the Plans for installation details. Initial and terminal anchor trenches shall be used at the upstream and downstream ends of all installations. Longitudinal trenches shall be installed at the toe and top of slopes.

When blankets/mats need to be spliced at ends, place upstream blanket/mat over the downstream blanket/mat with an overlap of 12 inches and stake using 18-inch long wood stakes at one-foot transverse spacing. Intermediate staking using one-foot transverse spacing and 18-inch long wood stakes shall be completed at 50-foot intervals (longitudinally).

Any areas disturbed during installation of the blankets shall be reseeded and mulched

METHOD OF MEASUREMENT

Subsection 216.04 shall include the following:

Bank Protection will be measured by the actual area of blanket that are installed and accepted. This will include all materials, equipment and labor required to install each bank protection installation.

BASIS OF PAYMENT

Subsection 216.05 shall include the following:

Payment for blanket placement shall include but is not limited to excavation for void filled material and vegetated soil lifts; subgrade preparation, furnishing and placing void filled riprap, as specified; and disposal of excess excavated material on-site, installation of coir mat, and installation of willow stakes. Payment shall be made at the contract unit price and shall include full compensation for all labor, equipment, materials, transportation, and all other appurtenant items to complete the work.

Pay Item	**Pay Unit**
Coir Mat	Square yard
Coconut Blanket	Square yard

REVISION OF SECTION 207 - TOPSOIL

Subsection 207.01 shall include the following:

This work consists of salvaging and stockpiling topsoil, and excavating suitable topsoil from stockpiles, contractor sources, available sources, or from the approved natural ground cover to place on designated areas. It shall include the placing of topsoil upon constructed cut and fill slopes after grading operations are completed.

DESCRIPTION

Subsection 207.02 shall include the following:

Topsoil shall consist of loose friable soil from the zone of major root development free of subsoil, refuse, stumps, woody roots, rocks, brush, noxious weed seed and reproductive plant parts from current state and county weed lists, heavy clay, hard clods, toxic substances, or other material which would be detrimental to its use on the project.

CONSTRUCTION REQUIREMENTS

Subsection 207.03 shall include the following:

Topsoil within the limits of the excavated areas shall be salvaged prior to beginning hauling, excavating, or fill operations by excavating and stockpiling the material at designated locations in a manner that will facilitate measurement, minimize sediment damage, and not obstruct natural drainage. Topsoil shall be placed directly upon completed cut and fill slopes whenever conditions and the progress of construction will permit.

Topsoil shall be placed at locations and to the thickness provided in the Contract and shall be keyed and tracked to the underlying material without creating a compacted surface by the use of harrows, bulldozers, rollers, or other equipment suitable for the purpose.

Salvaged topsoil exceeding the quantity required under the Contract shall be disposed of at locations acceptable to the Engineer.

METHOD OF MEASUREMENT

Subsection 207.04 shall include the following:

Topsoil salvaged and placed in stockpiles or windrows shall be measured in the stockpile in cubic yards by the method of average end areas and paid for as Stockpile Topsoil.

Topsoil salvaged, hauled and placed directly upon completed cut and fill slopes shall be measured at its source in cubic yards, as described in subsection 203.13, and paid for as Topsoil.

Topsoil secured from the Contractor’s source will be measured in place by measuring random depths of topsoil, and computing the volume by multiplying the area times the average depth

BASIS OF PAYMENT

Subsection 207.05 shall include the following:

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

Payment will be made under:

Pay Item	**Pay Unit**
Stockpile Topsoil	Cubic Yard
Topsoil	Cubic Yard

REVISION OF SECTION 217 - HERBICIDE TREATMENT

DESCRIPTION

Subsection 217.01 shall include the following:

This work consists of furnishing and applying herbicides to prevent or control plant growth in areas shown on the plans or designated.

MATERIALS

Subsection 217.02 shall include the following:

Herbicides shall be designated in the contract. All herbicide labels shall be currently registered with the Colorado Department of Agriculture and the U.S. Environmental Protection Agency. All herbicides shall be supplied to the project in labeled containers. The labels shall show the product name, chemical composition, expiration date, and directions for use.

CONSTRUCTION REQUIREMENTS

Subsection 217.03 shall include the following:

All herbicides shall be applied by commercial pesticide applicators licensed by the Colorado Department of Agriculture as qualified applicators. The Contractor shall furnish documentation of such licensing prior to herbicide application. Herbicide mixing and application shall be done in accordance with instructions on the registered product label. The Engineer shall be furnished such label information prior to mixing and application.

The Contractor shall notify the Engineer at least 24 hours prior to each herbicide application and shall indicate the time and location application will begin. Application will not be allowed on Saturdays, Sundays, or holidays unless otherwise approved by the Engineer.

Herbicides shall not be applied when weather conditions, including wind conditions, are unsuitable for such work. Herbicides shall not be applied when soil is extremely dry.

Herbicide application method shall be such that plant growth outside the designated treatment areas will not be damaged. All damage caused by improper herbicide application shall be repaired at the Contractor’s expense.

Herbicides shall not be used on areas that are to be topsoil sources unless otherwise approved by the Engineer.

METHOD OF MEASUREMENT

Subsection 217.04 shall include the following:

The quantity of herbicide treatment to be measured will be the actual number of square yards treated in accordance with the foregoing requirements or the actual number of hours the Contractor spends applying the herbicide and accepted by the Engineer. Areas designated to receive herbicide treatment will be measured once for each designated application. Reapplication of herbicide required due to inappropriate timing of the original application will not be measured or paid for.

BASIS OF PAYMENT

Subsection 217.05 shall include the following:

The accepted quantities of herbicide treatment will be paid for at the contract unit price per square yard or per hour.

Payment will be made under:

Pay Item	**Pay Unit**
Herbicide Treatment	Square Yard
Herbicide Treatment	Hour

Water will not be measured and paid for separately but shall be included in the work.

REVISION OF SECTION 506 - RIPRAP, VOID-FILLED RIPRAP, RIPRAP PAD

DESCRIPTION

Subsection 506.01 shall include the following:

The work consists of placing buried void filled riprap in accordance with the materials and placement specifications for riprap described in Section 506 or as modified in these Project Special Provisions.

MATERIALS

Subsection 506.02 shall include the following:

Reuse of riprap found on-site must be approved by Engineer.

CONSTRUCTION REQUIREMENTS

Where "Gravel Fill" is designated in the Plans, 8-inch to 15-inch riprap shall be mixed with <8-inch excavated gravels and cobbles and associated proportions listed in the table below to fill the voids of the riprap:

Approximate Proportions (loader buckets)	Material Type	Material Description
2	12-inch	8- to 15-inch median size riprap
1	<8-inch Void-fill material	Excavated gravels and cobbles from on-site

Note: Mix proportions and material gradations are approximate and are subject to adjustment by the Engineer. No adjustment in unit price for void-filled riprap will be allowed based on modifications to the mix proportions.

Subsection 506.03 shall be replaced with the following:

The 8- to 15-inch riprap and <8-inch void-fill materials shall be thoroughly mixed prior to placement and shall be installed and compacted so that a dense, interlocked layer of riprap and void-fill material is provided with riprap voids completely filled. The loose material shall be placed in a single lift of sufficient height such that final grade will be achieved upon compaction. If the compacted material is below final grade, placement of only the smaller void-fill materials to achieve final grade will not be permitted. Segregation of materials shall be avoided and in no case shall the combined material consist primarily of the void-fill materials. The density and interlocking nature of riprap in the mixed material shall essentially be the same as if the riprap was placed without filling the voids.

Compaction of the void-filled riprap shall be performed by running over the void-filled riprap with a large, heavy duty track excavator or dozer. The moisture content of the mixture shall be at optimum conditions prior to compaction and water shall be added as necessary at the direction of the Engineer. Compaction of void-filled riprap shall be reviewed and approved by the Engineer.

Where indicated in the Plans, a surface layer of moist topsoil or amended soil shall be placed over the void-filled riprap. The top surface layer shall be compacted to a firm texture as approved by the Engineer. Topsoil shall be added to any areas that settle.

The Contractor shall install a test section of at least 60 square feet of void-filled riprap for the review and approval of the Engineer prior to installation of the remaining void filled riprap.

Elevation tolerance for the void-filled riprap shall be 0.25 feet. Thickness of void-filled riprap shall be no less than thickness shown and no more than 2-inches greater than the thickness shown in the Plans.

BASIS OF PAYMENT

Subsection 506.05 shall include the following:

Pay Item	**Pay Unit**
Void-Filled Riprap Gravel Fill – Materials and Import	Cubic Yard

REVISION OF SECTION 506 - BOULDERS

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

GENERAL

Subsection 506.01 shall include the following:

The terms *Boulder Material* and *Boulders* include native and imported rock specified by the Plans and used to construct the *Boulder Features*. This rock may be sub-angular to angular and has the additional characteristics as defined in the MATERIALS section of this Revision.

The *Boulder Feature* work includes construction of in-channel and floodplain boulder features within Ingram Gulch. These structures specifically include the following as defined by the Plans:

Step Boulder Cascade
Step Boulder Riffle
Grade Control Boulder-Cobble Sill
Stacked Boulder Toe Wall with Willows
Stacked Boulder Toe Wall

Each feature contains a variable number of boulders and rocks from on-site and/or off-site sources. Work includes the selection and placement of approved boulders and cobbles into distinct features as shown in the Plans.

Delineations of what constitutes a single “Boulder Feature” is depicted on the plans. Construction will be limited to areas as shown in the Plans or as agreed to by the Engineer.

MATERIALS

Subsection 506.02 shall include the following:

Either on-site boulders or imported riprap may be used as materials, with a preference to on-site boulders sorted per Section-203, unless otherwise specified in this Revision.

Boulders and cobbles for use in channel features shall be sub-angular to angular, and diameters as specified in the plan set (measured on the A-axis). Rocks that make up subgrade materials or other less prominent portions of each feature may be angular. Specific details of the boulder and rock materials required for each feature are depicted in the typical details in the plans.

Boulders and rocks for use in the in-channel features shall be selected in the field or imported, and approved by the Engineer.

BOULDERS

1. Boulders used shall be the type designated in the Plans and shall conform to Table 1.

Table 1: Boulder Properties

Nominal Size (inches)	Range of Smallest Dimension of Individual Rock Boulders (inches)	Maximum Ratio of Largest to Smallest Rock Dimension of Individual Boulders
12	10-15	1.50
15	12-17	1.50
18	16-20	1.50
24	20-28	1.50
30	28-32	1.50
36	32-38	1.50

Imported material must meet the following requirements.

1. Boulder specific gravity shall be according to the bulk-saturated, surface-dry basis, in accordance with AASHTO T85.
2. The specific gravity of the boulders shall be two and one-half (2.5) or greater.
3. The bulk density for the boulder shall be 1.3 ton/cy or greater.
4. Color:
   (a) The color of the boulders shall, to the greatest extent practicable, match the native rock material with tan/gray/blue hues or other acceptable colors approved by ENGINEER prior to delivery to the PROJECT site.
   (b) Color, to the greatest extent practicable, shall be consistent on the entire PROJECT and shall match the color of rock to be used for all other portions of the WORK.

CONSTRUCTION REQUIREMENTS

Subsection 506.03 shall include the following:

1. Boulders for toe walls and channel structures shall be angular to sub-angular boulders.. Rounded boulders may be used for all boulders that will be exposed above the base flow water levels within the channel area with permission of Engineer.
2. Following excavation and acceptance of subgrade by Engineer, Boulder placement shall commence as follows:
   (a) Boulders shall be placed on the prepared subgrade in a manner which will minimize voids.
   (b) Voids between boulders exceeding 4" shall be chinked.
3. Unless directed by engineer, the term “embedded” means at least 2/3 of the rock is below the bed of the creek.
4. Isolated Boulders serve an aesthetic and hydraulic function and as such shall be placed and rotated into final position as directed by Engineer in order to achieve the desired result.
5. Arrangement of boulders within each structure and spacing between channel features will be as shown in the Plans and per the Engineer’s direction.
6. Any dewatering required during construction shall follow Revision of Section 211, the approved construction dewatering permit requirements and/or water control plan.
7. Live willow stakes included in the Plans for Boulder Features shall be installed concurrently with all Boulder Material while the trench/excavation is open.
8. Plans denote minimum rock size. Maximum rock size is 12” greater than minimum unless directed or approved by Engineer.

Step Boulder Cascade: The work consists of installing one *Step Boulder Cascade* structure at each of the locations shown and detailed in the plan set. Exact locations may be adjusted in the field by Engineer. The dimensions and materials are specified in the typical detail of the plan set. Each *Step Boulder Cascade* shall span the width of the bankfull channel and 2-year floodplain bench (if applicable) and be keyed into the bank a minimum of 5 ft. The total height of the *Step Boulder Cascade* from the top of the crest rock to the bottom of the footer rock shall be 3.5 feet at a minimum. Through the active channel, the height of the crest rocks shall vary (minimum of 3" and maximum of 6"). These height variations shall be created near the low-flow flow path. The crest elevation for the *Step Boulder Cascade* shall not be more than 0.25' higher than the final grade contours and shall not be more than 0.1' lower than the final grade contours shown on the Plans. A second tier of rocks downstream of and below the *Step Boulder Cascade* shall be placed as directed by the Engineer. This second tier shall create a pool between the structures per the typical details of the plan set. Material for *Step Boulder Cascade* construction shall preferentially be derived from on-site materials. Per Revision of Section 203, appropriate boulders shall be salvaged from debris piles and elsewhere on-site, as directed by the Engineer, to be reused in *Step Boulder Cascade* construction and other activities. If no adequate boulder material is available, as determined by the Engineer, boulder material shall be purchased and imported.

Step Boulder Riffle: The work consists of installing one *Step Boulder Riffle* structure in each of the locations shown and detailed in the plan set. Exact locations may be adjusted in the field by Engineer. The dimensions and materials are specified in the typical detail in the plan set. Each *Step Boulder Riffle* shall span the width of the bankfull channel and 2-year floodplain bench (if applicable) and be keyed into the bank a minimum of 5 ft. The total height of the *Step Boulder Riffle* from the top of the crest rock to the bottom of the footer rock shall be 3.5 feet at a minimum. Through the active channel, the height of the crest rocks shall vary (minimum of 3" and maximum of 6"). These height variations shall be created near the low-flow flow path. The crest elevation for the *Step Boulder Riffle* shall not be more than 0.25' higher than the final grade contours and shall not be more than 0.1' lower than the final grade contours shown on the Plans. A second tier of rocks downstream of and below the *Step Boulder Riffle* shall be placed as directed by the Engineer. This second tier shall create a pool between the structures per the typical details of the plan set. Material for Ste Boulder Riffle construction shall preferentially be derived from on-site materials. Per Revision of Section 203, appropriate boulders shall be salvaged from debris piles and elsewhere on-site, as directed by the Engineer, to be reused in *Step Boulder Riffle* construction and other activities. If no adequate boulder material is available, as determined by the Engineer, boulder material shall be purchased and imported.

Grade Control Boulder-Cobble Sill: The work consists of installing one *Grade Control Boulder-Cobble Sill* in each of the locations shown in the plan set. The dimensions and materials are specified in the plan set. Each *Grade Control Boulder-Cobble Sill* shall span the width of the overflow channel and tie into boulders on the bank of the overflow channel. The total height of the *Grade Control Boulder-Cobble Sill* from the top of the crest rock to the bottom of the footer rock shall be 2.5 feet at a minimum. The crest elevation for the *Grade Control Boulder-Cobble Sill* shall not be more than 0.25' higher than the final grade contours and shall not be more than 0.1' lower than the final grade contours shown on the Plans. Material for *Grade Control Boulder-Cobble Sill* construction shall preferentially be derived from on-site materials. Per Revision of Section 203, appropriate boulders shall be salvaged from debris piles and elsewhere on-site, as directed by the Engineer, to be reused in step construction and other activities. If no adequate boulder material is available, as determined by the Engineer, boulder material shall be purchased.

Boulder-Cobble Toe: The work consists of installing a continuous *Boulder-Cobble Toe* treatment in each of the locations and as per the specification shown in the plan set Exact locations may be adjusted in the

field by Engineer. Vegetation (willow stakes) in and above the *Boulder-Cobble Toe* is a critical part of this bank treatment, as such, the scope of work and installation cost of the willow stakes in all *Boulder-Cobble Toe* is included in this work, though Revision of Section 214 defines the MATERIAL considerations and the CONSTRUCTION REQUIREMENTS considerations for the installation of the live willow stakes. Live willow stakes included in the Plans for Boulder Features shall be installed concurrently with all Boulder Material while the trench/excavation for the *Boulder-Cobble Toe* is open. The rock gradation size specified in the plan set is the minimum rock size. Material for *Boulder-Cobble Toe* construction shall preferentially be derived from on-site materials. Per Revision of Section 203, appropriate boulders shall be salvaged from debris piles and elsewhere on-site, as directed by the Engineer, to be reused in step construction and other activities. If no adequate boulder material is available, as determined by the Engineer, boulder material shall be purchased.

Stacked Boulder Toe Wall: The work consists of installing a continuous Stacked Boulder Toe treatment in the locations as per the specification shown in the plan set. Exact locations may be adjusted in the field by Engineer. The rock gradation size specified in the plan set is the minimum rock size. Material for Stacked Boulder Toe construction shall preferentially be derived from on-site materials. Per Revision of Section 203, appropriate Boulder Material shall be salvaged from debris piles and elsewhere on-site, as directed by the Engineer, to be reused in step construction and other activities. If no adequate boulder material is available, as determined by the Engineer, boulder material shall be purchased and imported.

Stacked Boulder Toe Wall with Willows: The work consists of installing a continuous Stacked Boulder Toe with Willows treatment in the locations as per the specification shown in the plan set. Exact locations may be adjusted in the field by Engineer. Vegetation (willow stakes) in and above the Stacked Boulder Toe with Willows is a critical part of this bank treatment, as such, the scope of work and installation cost of the willow stakes in all Stacked Boulder Toe with Willows is included in this work, though Revision of Section 214 defines the MATERIAL considerations and the CONSTRUCTION REQUIREMENTS considerations for the installation of the live willow stakes. Live willow stakes included in the Plans for Boulder Features shall be installed concurrently with all Boulder Material while the trench/excavation for the Stacked Boulder Toe with Willows is open. The rock gradation size specified in the plan set is the minimum rock size. Material for Stacked Boulder Toe with Willows construction shall preferentially be derived from on-site materials. Per Revision of Section 203, appropriate Boulder Material shall be salvaged from debris piles and elsewhere on-site, as directed by the Engineer, to be reused in step construction and other activities. If no adequate boulder material is available, as determined by the Engineer, boulder material shall be purchased.

METHOD OF MEASUREMENT

Subsection 506.04 shall include the following:

Construction of Boulder Features will be measured by each boulder feature, by lineal foot constructed, or by installed cubic yard. Construction shall be completed in place and shall include all materials and work necessary to complete the work.

BASIS OF PAYMENT

Subsection 506.05 shall include the following:

The accepted quantities will be paid for at the contract unit price for each feature, including all labor and equipment required to complete the work.

Step Boulder Cascade shall be measured by the number of installed Step Boulder Cascades. Step Boulder Cascade pay item shall include installation of the feature including excavation, riprap and boulder placement, cobble and bed material backfill, and installation of filter blanket material.

Step Boulder Riffle shall be measured by the number of installed Step Boulder Riffle structures. Step Boulder Riffle pay item shall include installation of the feature including excavation, boulder placement, cobble and bed material backfill. Boulder material installed with Step Boulder Riffle will be counted and paid for separately.

Boulder-Cobble Toe Walls shall be measured by the installed linear foot of installed *Boulder-Cobble Toe* Walls as determined by the stationing on the Plans rounded to the nearest 10-foot increment. *Boulder-Cobble Toe* Wall pay item shall include installation of the feature including excavation, boulder and cobble placement, cobble and bed material backfill, and installation of willow stakes. Boulder material installed with *Boulder-Cobble Toe* will be counted and paid for separately.

Stacked Boulder Toe Wall with Willows shall be measured by the installed linear foot of installed *Stacked Boulder Toe Wall with Willows* as determined by the stationing on the Plans rounded to the nearest 10-foot increment. *Stacked Boulder Toe Wall with Willows* pay item shall include installation of the feature including excavation, boulder placement, geotextile placement, structure backfill, cobble and bed material backfill, and installation of willow stakes. Willow stake material installed with *Stacked Boulder Toe Wall with Willows* will be counted and paid for separately. Boulder material installed with *Stacked Boulder Toe Wall with Willows* will be counted and paid for separately. Geotextile installed with *Stacked Boulder Toe Wall with Willows* is included in this pay item.

Grade Control Boulder-Cobble Sill shall be measured by the number of installed *Grade Control Boulder-Cobble Sill*s. *Grade Control Boulder-Cobble Sill* pay item shall include installation of the feature including excavation, boulder placement, cobble and bed material backfill. Boulder material installed with *Grade Control Boulder-Cobble Sill* will be counted and paid for separately.

Pay Item	**Pay Unit**
Step Boulder Cascade	EA
Step Boulder Riffle	EA
Boulder-Cobble Toe Wall	LF
Grade Control Boulder-Cobble Sill	EA
Stacked Boulder Toe with Willows	LF
Boulder 12 Inch (Cost to Import and Stockpile)	TON
Boulder 18 Inch (Cost to Import and Stockpile)	TON
Boulder 24 Inch (Cost to Import and Stockpile)	TON
Boulder 36 Inch (Cost to Import and Stockpile)	TON

Excavations for pools and in-channel work that correspond to features above shall be paid for under Section 203. Sorting and stockpiling of onsite boulder and cobble materials to be used as materials for each feature will be paid for under Section 203. Imported rock materials, where required, will be paid for separately from installation line items under Section 506.

Vegetation shown in the plans, excluding the installation of willow stakes described above, associated with each feature will be paid for under Sections 212-214.

REVISION OF SECTION 509 - STEEL STRUCTURES

DESCRIPTION

Subsection 509.01 shall include the following:

This work consists of furnishing, fabricating, erecting, and painting structural steel in accordance with these specifications and to the dimensions, shapes, and design shown on the plans, and to the lines and grades established. Structural steel shall include galvanizing, bolting, welding, special and alloy steels, electrodes, and steel forgings.

Subsection 509.02 shall include the following:

Welding and fabrication of steel structures shall conform to the Bridge Welding Code ANSI/AASHTO/AWS D1.5, as amended by the contract documents. When AWS D1.5 is cited in the Standard Specifications, the reference shall be to the latest edition of the Bridge Welding Code.

MATERIALS

Subsection 509.03 shall include the following:

Structural carbon steel for bolted or welded construction shall conform to AASHTO M 270 (ASTM A 709) Grade 36. Material supplied for main members in tension as designated in the Contract shall meet a longitudinal Charpy V-notch (CVN) value of 15 foot-pounds at 40 °F. Testing shall be in accordance with AASHTO T 243 (ASTM A 673). The H frequency of heat testing shall be used.

High-Strength Low-Alloy Structural Steel for welding shall conform to the following specifications:

High-Strength Low-Alloy Columbium-Vanadium: AASHTO M 270 (ASTM A 709) Steels of Structural Quality, Grade 50
High-Strength Low-Alloy Structural Steel: AASHTO M 270 (ASTM A 709) 50 ksi Minimum Yield Point to 4 inches thick

Steel conforming to AASHTO M 270 (ASTM A 709) Grade 50W shall not be painted unless otherwise shown on the plans.

Material supplied for main members in tension, as designated in the Contract, shall meet the longitudinal Charpy V-notch tests as specified for Zone 2 in AASHTO M 270.

Self-weathering structural steel tubing shall conform to ASTM A 847, Cold-Formed Welded and Seamless High Strength, Low Alloy Structural Tubing With Improved Atmospheric Corrosion Resistance.

Structural Tubing. Steel base metal to be used for tubular structures, including bridge rail, shall conform to the plans or AWS D1.1 section 5.2.1. The grade and specification to be used shall be specified in the Contract.

Bolts not otherwise specified in the Contract shall be zinc plated and meet the requirements of ASTM A 307 for Grade A Bolts. Bolts shall have single self-locking nuts or double nuts unless otherwise specified in the Contract. Beveled washers shall be used when bearing surfaces have a slope exceeding 1:20 with respect to a plane normal to the bolt axis.

High Strength Bolts Unless otherwise shown in the Contract, all bolts for fastening of structural steel shall be high strength bolts. High strength bolts, including suitable nuts and plain hardened washers, shall conform to AASHTO M 164. Type 1 bolts shall be used. Bolts for self weathering steels shall be Type 3, unless otherwise shown in the Contract.

Bolt and nut dimensions shall conform to AISC, section 4. Threads for all bolts shall conform to the United Standard Series UNC-ANSI B1.1, Class 2A for external threads and Class 2B for internal threads. The length of the bolts shall be such that the point of the bolt will be flush with or outside of the face of the nut when completely installed. Sufficient thread must be provided to prevent the nut from encountering thread runout.

Washers and beveled washers shall conform to ASTM F436. Washers and beveled washers for AISC American Standard beams and channels or when bearing surfaces have a slope exceeding 1:20 with respect to a plane normal to the bolt axis shall be square or rectangular, shall taper in thickness, and shall conform to the dimensions given in AISC, section 4.

Pins and rollers shall conform to ASTM A 668, Class C, D, F, or G as specified in the Contract. They shall be accurately manufactured to the dimensions shown in the Contract. Pins larger than 9 inches in diameter shall have a hole not less than 2 inches in diameter bored longitudinally through their centers. The hole shall be bored before the pin is subjected to heat treatment. Threads for all pins shall conform to the United Standard Series UNC-ANSI B1.1, Class 2A for external threads and Class 2B for internal threads, except that pin ends having a diameter of 1½ inches or more shall have six threads per 1 inch.

Anchor Bolts. Unless otherwise shown in the Contract, all anchor bolts shall conform to ASTM A 449 and shall be zinc plated.

Galvanized and Metallized Steel. When shown in the Contract, structural steel shall be galvanized in accordance with AASHTO M 111. Steel surfaces to be metallized shall be coated in accordance with AWS C2.2, Recommended Practice for Metallizing with Aluminum and Zinc for Protection of Iron and Steel. When the Contract specifies galvanizing, metallizing may be substituted.

Welded Stud Shear Connectors shall meet the requirements of ASTM A 108, grades 1010 through 1020, killed or semi-killed. In addition, studs shall conform to AWS D1.5, paragraphs 7.2 and 7.3, Type B studs, unless otherwise noted. Furnishing, testing, and qualifying of stud welding procedures shall be at the Contractor's expense. Manufacturer shall furnish the Engineer a certification as required by AWS D1.5 paragraph 7.3.3.

CONSTRUCTION REQUIREMENTS

Subsection 509.04 shall include the following:

Mill Test Reports. The fabricator shall furnish the quality assurance inspector with copies of the certified mill test reports on all material that will be used. Mill test reports shall be furnished prior to cutting of the steel or any other fabrication. The fabricator may furnish, with approval of the Engineer, material from stock, provided it can be identified by rolling direction (where orientation is specified), heat number, and mill test reports.

Material which has been used elsewhere shall not be used in any part of this work without written approval or unless specifically provided for in the Contract.

Subsection 509.05 shall include the following:

Nondestructive Testing.

(a) *Written Practice and Records*. The fabricator's quality control plan shall detail the nondestructive testing procedures, including the weld identification and location system. It shall also include the fabricator's Written Practice for the Administration of Personnel Qualification and Certification Program in accordance with The American Society for Nondestructive Testing SNTTC-1A. The written practice shall indicate the specific requirements of the fabricator.

Qualification records of all nondestructive testing personnel shall be included in the written practice. Each fabricator's written practice shall be subject to the approval of the QA inspector. All nondestructive test results shall be available for review during fabrication and forwarded to the QA inspector prior to acceptance of the assembly.

Ultrasonic Inspection of Complete Penetration Groove Welds.

1. *Weld Stress Categories*. The following weldments shall be categorized as follows:
   (a) *Attachments*. Longitudinal and transverse stiffeners, gussets, pintles, and all other attachments shall be considered as part of the flange, web, end, or pier diaphragm to which they are welded.
   (b) *Pier and End Diaphragms.* Pier and end diaphragms shall be considered as part of the web or flange to which they are welded.
   (c) *Splices.* Splices of main members, secondary members, or backing, when approved to be left in place, which attach to a main member, shall be ultrasonically tested and accepted prior to attaching to another member. Ultrasonic acceptance-rejection criteria shall be in accordance with either table 6.3 or table 6.26.3.2, of AWS D1.5 as determined by the category of stress of the main member to which the secondary member is attached. All flanges which connect at a splice, indicating a change from tension to compression, shall be tested in accordance with the tension criteria of table 6.3 of AWS D1.5.
   (d) *Sequence.* All flange and web splices shall be welded and tested prior to fitting of the web to the flange.
2. *Extent and Acceptance Criteria of Ultrasonic Testing*. Ultrasonic testing of complete penetration groove welds shall be performed by QC to the extent listed in Table 509-1. The percent inspection indicated for each category is the minimum percent of the total length of each weld that must be tested.

Table 509-1

Element	Tension-Compression[1]	Weld Orientation[2]	Percent Inspection[3]
Flange	Tension	Transverse	100
Flange	Tension	Longitudinal	25
Flange	Compression	Transverse	25
Flange	Compression	Longitudinal	10
Web	Tension[4]	Transverse	100
Web	Tension[4]	Longitudinal	25
Web	Compression	Transverse	25
Web	Compression	Longitudinal	10
Pier & End Diaphragms	Tension[4]	Transverse	100
	Tension[4]	Longitudinal	25
	Compression	Transverse	25
	Compression	Longitudinal	10

Notes:

- Tension areas shall be tested in accordance with AWS DI.5 Table 6.3. Compression areas shall be tested in accordance with Table 6.4 of AWS D1.5.
- The orientation is referenced with respect to the longitudinal center line of the girder for flanges and webs. The orientation is referenced parallel to the center line of bearing for end and pier diaphragms.
- If any rejectable discontinuities are found in any weld tested less than 100%, the remaining length of that weld and all similar welds in that member shall be tested.
- The tension area of webs and end or pier diaphragms is defined as 1/6 the depth of the web from the tension flange.

3. *Preparation of Test Material and Testing Procedures.* All groove welds shall be ground flush to a maximum surface roughness (ANSI B46.1) of 125 microinches and a medium range waviness such that no gap greater than 0.020 inch is present beneath a 2 inch long straightedge placed anywhere on the test surface. The test surface shall be ground to bright metal and allow intimate coupling with the search unit. Failure to provide this condition shall result in repair or removal and re-welding of the joint, or alternative nondestructive testing methods, as determined by the QA inspector. The testing procedures established in AWS D1.5, section 6.19 shall be amended as follows:
   - i *Splices*. All materials spliced shall be tested prior to attaching into the assembly.
   - ii *Alternate Procedures.* Scanning of welds may be made using other methods, as approved by the Engineer, provided evaluation is made in accordance with chapter 6, part C of AWS D1.5.
   - iii *Butt Joints*. All butt joints shall be ground flush and shall include mandatory scanning using pattern “D” (Figure 6.7 of AWS D1.5) longitudinal to their axis.
   - iv *Scanning Procedure*. Table 6.2 of AWS D1.5 shall be amended as follows:
     (a) Testing from both sides of the weld axis shall be made in both Leg I and Leg II.
     (b) Face A on both connecting members of flanges at a butt weld must lie in a single plane. Scanning of butt welds in which Face A and Face B individually lie within the same plane shall be performed in Leg I and Leg II from each side of the weld axis (Form VII-9, AWS D1.5). Should neither Face A nor Face B lie in a single plane, the testing procedure shall be as follows: Face A from the thinner material shall be tested both in Leg I and Leg II. The thicker material shall be tested from Leg I from both Face A and Face B. Leg II from Face A shall be evaluated when it originates from the thinner material. Transducers with frequencies greater than 2.25 MHZ may be used to facilitate locating the discontinuities, but evaluation for acceptance shall be made in accordance with chapter 6, part C of AWS D1.5.
     (c) T joints shall be evaluated from both Face A and Face B in Legs I, II, and III. In addition, scanning pattern E shall be performed. All indications which are up to and including 6 dB less critical than reject shall be recorded on the test report and reported to the Engineer for acceptance evaluation.
     (d) Tables 6.3 and 6.4 of AWS D1.5 shall include the following: Flaws evaluated with 60 or 45 degree search units and rejected, but which have indication levels at or above the minimum level listed for a 70 degree search unit, shall be evaluated with 70, 60, and 45 degree search units. If this testing reveals that the sound beam of the 60 or 45 degree search unit is striking the flaw at 90 plus or minus 15 degrees, the acceptance level listed for a 70 degree search unit shall be used as the basis for acceptance, regardless of the angle of search unit used to evaluate the flaw.

(e) Evaluation using reject may be used to evaluate flaws, only if calibration in accordance with AWS D1.5, 6.17.1 and the vertical linearity is within plus or minus 1 dB for a 60 dB range. Both AWS D1.5 forms VII-8 and VII-9 shall be recorded and submitted to the QA inspector prior to approval, whether or not reject is used.

2. *Index Marking.* Two low stress die stamp marks shall be located on Face A, 12 inches from the centerline of the joint on one side of the joint, and 3 inches from each edge of the plate.
3. *Through Thickness Tension Plate.* Ultrasonic testing of plates as identified in the plans as exhibiting tension in the through thickness direction shall be performed in accordance with ASTM A 578. Plates greater than ¾ inch thick shall be tested using 2.25 MHZ 1 inch diameter transducers. Plates less than and including ¾ inch thick shall be tested with a 5 MHZ ½ inch diameter transducer. Supplementary requirement S2 shall be used as the acceptance standard.

(c) *Dye Penetrant Testing.* Dye penetrant testing in accordance with ASTM E 165 may be substituted for magnetic particle testing with approval of the Engineer.

(d) *Magnetic Particle Testing*. Magnetic particle testing shall be performed on areas defined in AWS D1.5 and this subsection. Magnetic particle testing shall be conducted in accordance with ASTM E 709 and AWS D1.5, except as amended herein. Alternating current shall be used. The yoke spacing shall be between 2 and 4 inches. The minimum lifting power shall be 10 pounds. Red dry particles shall be used. The light intensity shall meet ASTM E 709, Section 7.

The yokes shall be set in two positions when testing the weld or base metal. They shall be positioned both normal and parallel with respect to the weld axis and rolling direction of the base metal.

Magnetic particle tests shall be performed at the following locations:

i *Base metal*. All areas contacted by the carbon arc gouge electrode, the electrode cup, and the welding electrode. All three conditions are arc strikes.
ii *Fillet welds*. Each design weld size on main member to main member and secondary member to main member weldments. All stop-starts and weld termini. All linear indications shall further be evaluated with 10x or 30x magnification. Verification shall be resolved by excavation.
iii *Groove welds*. All through thickness edges on transverse butt joint weldments in tension areas.
iv *Repairs*. All repair welds to correct: defects in groove and fillet welds, plate cut edges, correction of fabrication errors in cutting, punching, drilling, or fitting, and members which are tacked or welded and subsequently cut apart and re-welded.

(e) *Radiographic Testing. When radiographic testing is specified, it shall be performed in accordance with chapter 6, part B of AWS D1.5, except that edge blocks shall be used. Radiographs shall be identified as follows:*

v *Contract Number*.
vi *Weld Identification Number*. The fabrication number of the girder in which the radiographed weld occurs, followed by a dash (-).
vii *Letter Designation*. Letter combination designating the section as follows: TF (top flange); BF (bottom flange); W (web); and when applicable, N (near side) and F (far side).
viii *Joint Designation*. A letter preceded by a space followed by a number. The number shall designate the joint in which the radiograph occurs and shall correspond to the number of welded joints between the reference end of the section and the radiographed weld.
ix *Defect Description*. All defects shall be outlined on the radiograph clearly showing the rejected areas. The report shall indicate the type of discontinuity and its location from a reference point on the film.

(f) *Hardness Testing*. Hardness testing shall be conducted as required by AWS D1.5. Oxygas cutting procedures used on tension flanges shall be qualified prior to fabrication. The procedure shall be

qualified on all of the following parameters: the grade and type of steel, thickest material cut, highest carbon equivalency, and lowest base metal temperature at the time of cutting. Tests shall be witnessed by the Inspector.

- The test equipment and procedures shall be in accordance with ASTM E 18. Each test area shall be contained within 6 square inches.
- The mean value of five readings, within a test area, shall not exceed 30 HRC. Excessive values shall require establishing higher material temperatures at the time of cutting. The base metal temperature shall be measured on the surface opposite the cutting source: 3 inches from the point on the surface nearest to the heat source.
- Production Quality Control tests shall be performed by the Contractor. The number of tests shall be the next highest whole number calculated as follows:
- Total number of tension flanges on the bridge divided by 10
- Production Quality control tests shall include the first production cut of the thickest fabricated flange. A minimum of 50 percent of production Quality control tests shall be performed on the thickest flanges fabricated.
- All test results shall document the base metal thickness and temperature measured at the time of cutting. Test reports shall be forwarded to the QA Inspector. Test values greater than Rockwell C 30 shall be reported to the QA Inspector immediately.

Subsection 509.06 shall include the following:

General Fabrication Requirements.

(a) *Identification of Steels During Fabrication.* Materials received from the mill shall be stored so that heat numbers are visible. Plates shall be step stacked with the heat number of each plate marked at the end, along with the contract number and size of the plate as received from the mill. Shapes, bars, and other materials that are furnished in tagged lifts or bundles, shall be received and stored with identification as required by AASHTO M 160. Pieces of steel which, prior to assembling into members, will be subject to painting, galvanizing, or any other operations that will obliterate the heat numbers shall be marked with the heat number and plate number (CVN plate frequency, if applicable) with low stress die stamp (spherical indent).

- Any excess material placed into stock for future use shall be marked with the heat number, rolling direction, and plate number if applicable, and grade of steel. Secondary members shall be identified at a frequency of once for every 20 pieces (or less) per heat.
- The fabricator shall furnish to the QA inspector cutting lists indicating the rolling direction, heat numbers (plate number for P frequency when applicable), and fabrication piece number marked in a timely manner during fabrication.
- The Contractor shall furnish, if requested by the Engineer, an affidavit certifying that throughout the fabrication the identification of steel has been maintained in accordance with this specification.

(b) *Location of Splices*. Groove welded splices shall be located a minimum of 5 feet from the centerline of field splices and 1 foot minimum from centerline of the nearest bolt hole.

(c) *Location of Stiffeners and Connections*. Intermediate stiffeners or connection plates shall be placed at least 6 inches from a groove welded splice in the web or flange. Welder identification marks shall be made using low stress die stamps (spherical indent) near the weld, but not closer than 1 inch from the heat affected zone.

(d) *Rolling Direction and Cutting*. Unless otherwise shown on the plans, steel plates for girder flanges, webs, and splice plates shall be cut and fabricated so that the primary direction of rolling is parallel to the longitudinal centerline of the girder. Abutment and pier diaphragm plates (includes flanges,

webs, and splice plates) shall be cut and fabricated so that the primary direction of rolling is parallel to the centerline of bearing. Sheared edges of plates more than 5/8 inch thick and carrying calculated stress shall be milled or sawn to a depth of ¼ inch. Reentrant corners shall be pre-cut to a minimum radius of 1 inch before cutting. The procedure for cutting plate edges of tension flanges shall be qualified in accordance with this subsection.

(e) *End Treatment of Webs and Flanges*. The ends of webs and flanges shall be flush and within the same plane so as to leave no reentrant corners.

(f) *Minimum Base Metal Temperature*. The minimum base metal temperature qualified to cut flanges and webs in tension, shall be established by hardness testing in accordance with this subsection.

(g) *Holes for Fasteners*. All holes for bolts in main members, or secondary members that weld to main members, shall be either sub-punched and reamed, subdrilled and reamed, or drilled from the solid. Holes shall be sub-punched or subdrilled 1/16 inch smaller than the nominal diameter of the fastener and reamed to 1/16 inch larger than the nominal diameter of the fastener, or drilled to 1/16 inch larger than the nominal diameter of the fastener. Subsized holes prior to reaming shall not be offset more than 1/16 inch. Reaming or drilling full sized holes shall be done using a template with hardened bushings or with a numeric control (N/C) machine such that no offset equal to 1/32 inch occurs in more than 15 percent of the connection. Enlarged or slotted holes for high strength bolts may be used only when shown on the plans or authorized. Holes shall be clean cut, without torn or ragged edges. All burrs shall be removed, as well as oil and other foreign matter. Holes shall be cylindrical within 1/32 inch and perpendicular to the member. Connection parts requiring reaming or drilling shall be assembled and securely held and shall be match marked before disassembling. Poor matching of holes will be cause for rejection.

(h) *Boring Pin Holes*. Pin holes shall be bored true to the specified diameter, smooth and straight, at right angles with the axis of the member and parallel with each other unless otherwise required. The final surface shall be produced by a finishing cut. The distance outside to outside of holes in tension members, and inside to inside of holes in compression members shall not vary more than 1/32 inch from that specified. Boring of holes in built-up members shall be done after fabrication of the member is completed. The diameter of the pin hole shall not exceed that of the pin by more than 1/50 inch for pins 5 inches or less in diameter, or 1/32 inch for larger pins. Two pilot nuts and two driving nuts for each size pin shall be furnished unless otherwise specified.

Subsection 509.07 shall include the following:

Welding

(a) *Process.* Welding of steel structures shall conform to AWS D1.5 as amended herein. All web and flange butt joints and web to flange welds shall be made using the submerged arc welding process (SAW). Alloy “active” fluxes shall not be used in groove welds or fillet welds with more than three passes. Repairs may be made using submerged arc welding or shielded metal arc welding (SMAW). Flux core arc welding (FCAW) will be permitted on secondary to main member attachments when performed in the flat or horizontal positions. Vertical or overhead FCAW welding shall be limited to only that work approved by the QA inspector.

- The ratio of the width of the face to the depth of penetration of each Submerged Arc Welding fillet pass shall be a minimum of 1.1:1. This shall be verified by macroetch testing and included in the Procedure Qualification Record (PQR). The test heat input and voltage qualified shall establish the maximum values used in fabrication welding. These values shall be indicated in the Welding Procedure Specification.
- The macroetch shall be performed in accordance with Figure 5.8 of AWS D1.5, with the following exception: The T-joint shall contain an acute angle less than or equal to the smallest

acute angle to be used in fabrication. The acute angle tested qualifies all angles equal to or greater than this angle. Both sides of the T-joint shall be welded.

(b) *Base Metal Preparation.* The preparation of base metal shall be in accordance with AWS D1.5, with the following exception: All mill scale and rust shall be removed from the surfaces of main members on which all welds are made by any process. Surfaces and edges to be welded shall not exceed an ANSI B46.1 roughness value of 500 microinches.

(c) *Run On-off Plates.* Run-on and run-off plates shall be used on all butt joints. They shall be of the same base metal as the material being welded. Removal of these plates shall be accomplished by cutting the plates off and grinding to a surface finish in accordance with AWS D 1.5.

(d) *Undercut.* Undercut in the stiffener, web or flange shall not exceed 0.01 inch in areas of tension as indicated in the plans when the axis of the undercut is normal to the longitudinal centerline of the girder, or normal to the centerline of bearings in the case of plate diaphragms. Undercut in compression areas shall not exceed 1/32 inch.

(e) Temporary Tack Welds. Temporary tack welds will not be permitted on splice plates to facilitate stack drilling. All temporary tack welds not incorporated into the final weld, shall be submitted to the Engineer for approval. Temporary tack welds that are approved shall be removed by grinding such that the plate thickness is not reduced by more than five percent, and tested in accordance with this subsection.

(f) *Gusset Plates.* Lateral gusset plates welded to girder flanges in tension shall be pre-heated to 250 °F.

(g) *Repairs.* All welding required to repair cracks, oxygen cut gouges, porosity, and undercut, shall conform to the following:

1. *General.* Repairs made to correct undercut, craters, undersized welds, porosity, excessive roughness on oxygen cut gouges, and cracks shall not be performed without the knowledge of the QC inspector. Undercut may be prepared by contour grinding when approved by the Engineer. Areas repaired shall be recorded in accordance with AWS D 1.5, paragraph 6.5.8. Surfaces that are air carbon arc gouged shall be ground to bright metal prior to welding. Repair areas shall be preheated to a temperature of 200 to 300 °F prior to welding. Cracks removed prior to welding shall be penetrant tested or magnetic particle tested to assure their complete removal before welding. All repairs shall be penetrant or magnetic particle tested for soundness. This requirement applies equally to tack welds.
2. *Groove Welds*. The number of repairs shall be limited to three or fewer heat cycles in any groove weld.
3. *Cut Edges.* Cavities resulting from the removal of cut edge discontinuities in plates shall be prepared prior to welding using a minimum ¼ inch radius and a minimum 40 degree angle. The base metal shall be ground to bright metal prior to welding.
4. *Mislocated Holes*. Misfit holes shall not be repaired, unless approved by the Engineer. When holes are repaired in accordance with an approved welding procedure, the soundness shall be established by ultrasonic testing. In addition, the hardness of the heat affected zone of the repair area shall be less than or equal to Rockwell C 30, when tested in accordance with ASTM E 110. Post weld heat shall be 400 °F per inch of thickness.

(h) *Stud Welding.* Stud welding shall conform to AWS D1.5 section 7, as amended herein.

- Studs shall not be welded to top flanges until after the formwork for the deck is in place in accordance with Occupational Safety and Health Administration (OSHA) regulations 29 CFR 1926 Subpart R.
    1. *Camber*. Adequate provisions shall be made in fabrication of structural members to compensate for loss of camber due to welding of the shear connectors.
    2. *Production Tests*. The first two studs welded on each beam or girder, after being allowed to cool, shall be bent 45 degrees by striking the stud with a hammer. If failure occurs in the

weld of either stud, the weld procedure shall be corrected and two successive studs successfully welded and tested before any more studs are welded to the beam or girder. The QA inspector shall be promptly informed of all changes in the welding procedure at any time during fabrication.

(i) *Weld Termini Treatment*. All gussets, stiffeners, diaphragms, or other attachments at a corner of intersecting plates joined by a fillet or groove weld, shall be clipped 1½ inch minimum. Intersecting fillet welds will not be allowed. Treatment of all end weld termini on transverse secondary attachments to main members shall be such that the welds terminate ¼ inch short of the end of the attachment.

(j) *Gas Certification.* The Contractor shall furnish certification that the gas or gas mixture is suitable for the intended application in accordance with AWS D1.5 and the manufacturer's recommendations.

(k) *Miscellaneous Attachments*. Attachments shall not be welded to main members, unless approved.

FIELD CONSTRUCTION REQUIREMENTS

Subsection 509.08 shall include the following:

Field Welding and Inspection. Field welding will not be permitted unless shown on the plans or approved by the Engineer, except to attach studs. All field welding and inspection shall be performed in accordance with this specification and AWS D1.5. Studs shall be free from rust, rust pits, scale, oil, moisture, paint, and other deleterious matter that would adversely affect the welding operation. Surfaces to which studs are to be welded shall be free of scale, rust, moisture, paint, and other injurious material that would prevent proper welding or produce objectionable fumes. Additional studs shall be tested in accordance with AWS D1.5 paragraph 7.5.4.1 when the base metal temperature is below 32 °F at the time of welding. Stud welding shall not be done when the base metal temperature is below -4 °F at the time of welding.

(a) *Stud Welding in the Field*. Automatic stud welding guns shall be used to weld studs to girders. The operator shall be qualified per AWS D1.5 Subsection 7.7.4. The base metal where the stud is to be welded shall be ground to bright metal immediately prior to the weld being made. Manual welding will not be allowed except to make repairs. Stud welding shall be in accordance with this subsection.

(b) *Repairing Stud Welds*. Electrodes used to repair stud welds shall be kept in rod ovens in accordance with AWS D1.5 Subsection 12.6. The fillet weld size shall be a minimum of 5/16 inch. The welder shall be prequalified for the welding process used and stud welding.

Subsection 509.09 shall include the following:

Erection of Steel Structures. Structural steel members shall be erected to prevent damage to all elements of the structure and in a safe manner. Structural steel members to which the erection specification applies are those members that bear on the substructure of a bridge. The primary members such as beams and girders shall be temporarily anchored and braced as they are erected to preclude detrimental movement in any direction, and to prevent overturning and buckling. Struts, bracing, tie cables, and other devices used for temporary restraint shall be considered falsework and shall be designed to resist all loads imposed during each stage of construction until the deck concrete has attained the Field Compressive Strength shown in Table 601-1.

At least two steel girders shall be erected when girders are initially placed in any span, unless the Engineer provides a written waiver to this requirement. Diaphragms and cross frames between girders shall be connected to the girders and all diaphragm or cross frame connection bolt holes filled with bolts that are at least snug tight during erection. The Contractor's Engineer shall specify bolt torque

requirements, if any, prior to releasing girders from the crane. Steel box girders need not be erected in pairs.

At least one week prior to the Pre-Erection Conference, the Contractor shall approve, sign and submit an Erection Plan to the Engineer for record purposes only. The Erection Plan shall be stamped “Approved for Construction” and signed by the Contractor. The Erection Plan will not be approved by the Engineer. If falsework drawings are required, they shall conform to and be submitted in accordance with subsection 601.11.

The Erection Plan and procedure shall provide complete details of the erection process with dimension tolerances including:

1. Temporary falsework support, struts, bracing, tie cables and other devices, material properties and specifications for temporary works, bolt torque requirements prior to releasing girders from the cranes (if required), connection details and attachments to other structure components or objects;
2. Procedure and sequence of operations, including a detailed schedule with completion times for work items that complies with the working hour limitations;
3. Minimum load chart lift capacity, outrigger size and reactions for each crane;
4. Assumed loads and girder weights, lift points, lifting devices, spreaders, and angle of lifting cables.
5. Girder stresses at critical points along the girder length during progressive stages of erection shall be investigated to assure that the structural integrity and stability of the girders is maintained. Stresses at lift points induced as a result of lifting shall be investigated and adequate bracing provided as indicated by the analysis.
6. Locations of cranes, trucks delivering girders, and the location of cranes and outriggers relative to other structures, including retaining walls, wing walls and utilities.
7. Drawings, notes, catalog data showing the manufacturer’s recommendations or performance tests, and calculations clearly showing the above listed details, assumptions, and dimensions.
8. Contingency plans detailing what measures the Contractor will take in case of inclement weather (forecast or actual), equipment failure, delivery interruption, and slower than planned production.

   A Pre-Erection Conference will be held at least one week prior to the beginning of erection. The Engineer, Contractor, erection subcontractor, and the Contractor’s Engineer shall attend the meeting. The erection subcontractor shall demonstrate his knowledge and familiarity of where the piece marks are located on the components to be erected, their orientation in the erected structure, and the shop drawing piece mark convention used by the girder fabricator at the Pre-Erection Conference. The girder fabricator shall participate in the conference, by way of speaker telephone, during only that portion in which the piece marks are discussed. The girder fabricator shall state whether the erection subcontractor has demonstrated a correct understanding of the piece marks, and if not, correct any misunderstanding.

   Additional Pre-Erection conferences may be required for subsequent phases of construction, or for phases that differ from the original construction plan, as directed by the Engineer. Additional conferences may also be requested by the Contractor, and approved by the Engineer.

   The Contractor shall submit a final Erection Plan to the Engineer prior to girder erection for record purposes only. The Contractor’s Engineer shall sign and seal (1), (5), and (7) listed above in the final Erection Plan. The final Erection Plan shall be stamped “Approved for Construction” and signed by the Contractor.

When a bridge spans traffic of any kind, except for construction traffic and the Contractor's employees, the Contractor's Engineer shall inspect and provide written approval of the erected girders prior to opening the area beneath the girders to traffic. For this specification, traffic is defined as the vehicles, railroad, pedestrians, and watercraft moving along a route. The Contractor shall perform daily inspections of the erected girders and other permanent and temporary bridge elements until the deck concrete has attained the Field Compressive Strength. The Contractor's Engineer shall provide an inspection form to the Engineer and the Contractor that lists the items the Contractor will document during the daily inspection of the erected girders. The inspection form shall include inspection items specific to each bridge being constructed. The Contractor shall provide the Engineer and the Contractor's Engineer with written documentation of these inspections within 24 hours of each inspection.

All temporary struts, bracing, tie cables, other devices and extra material required shall be removed upon completion of the structure.

(a) *Equipment.* The Contractor shall provide the falsework and all tools, machinery, and supplies, including drift pins and fitting up bolts, necessary to complete the work.

(b) *Field Inspection.* Material and work not previously inspected will be inspected after delivery to the job site. The quality of all field welds, including inspection and testing, shall meet the requirements of this section.

(c) *Storage.* Girders and beams shall be placed upright and shored. Long members such as columns and chords shall be supported on skids placed in such positions as to prevent damage by deflection.

(d) *Falsework.* Falsework shall conform to subsection 601.11.

(e) Bearings. Bearings and bearing seats shall conform to Section 512.

(f) *Anchorage.* Anchor bolts in piers, abutments, or pedestals shall be accurately set either in the concrete as it is being placed, or in holes formed while the concrete is being placed, or in holes drilled after the concrete has set. Bolts placed in formed or drilled holes shall be grouted in place with a nonshrink or epoxy grout which shall completely fill the holes. Location of anchors and setting of rockers shall take into account any variation from mean temperature at time of setting and anticipated lengthening of bottom flange due to dead load after setting. At mean temperature and under dead load the rockers shall be set vertical and anchor bolts at expansion bearings shall be centered in their slots. Care shall be taken that full and free movement at the movable bearings is not restricted by improper setting or adjustment of bearings or anchor bolts and nuts.

(g) *Straightening*. The straightening of bent material, when permitted, shall be done by methods that will not produce fracture or other damage. Distorted members shall be straightened by mechanical means or, if approved, by application of a limited amount of localized heat. Heat shall not be applied directly on the weld metal. The temperature of heated areas shall not exceed 1200 °F as controlled by temperature indication crayons. The surfaces of metal for all steels will be inspected visually, and by magnetic particle or dye penetrant tests for evidences of fracture following the straightening procedures.

(h) *Galvanizing*. Galvanized units on which the spelter coating has been burned by welding or damaged during erection shall be repaired by a hot dip or metallizing process as described in AASHTO M36 or shall be painted with one full brush coat of a zinc-rich paint meeting Military Specification DODP-21035A. Spray can applications of zinc will not be allowed.

(i) *Handling and Installation*. During erection the parts shall be accurately assembled, as shown on the plans, and match-marks shall be followed. The material shall be so handled that parts will not be bent, broken, or otherwise damaged. Hammering which will damage or distort the

members will not be permitted. Bearing surfaces and surfaces to be in permanent contact shall be cleaned before the members are assembled. Splices and field connections of main stress carrying members shall have a minimum of one half of the holes filled with high strength bolts and cylindrical erection pins, with the bolts fully tightened before external support systems are removed and the connections completed by belting, unless otherwise specified.

- Erection pins which are no less than 1/64 inch in diameter smaller than the drilled holes shall be used at the extreme corners of the pattern in main member connections. This requirement does not apply to diaphragms and lateral bracing in straight girder spans, provided the member is adequately supported prior to removal of the external support. Members that are assembled prior to being erected shall have all bolts installed and fully tightened. The structure shall not carry traffic or construction loads without approval of the Engineer.

(j) *Pin Connections.* Pilot and driving nuts shall be used in driving pins. Pins shall be so driven that the members will take full bearing on them. Pin nuts shall be screwed tight and the threads burred at the face of the nut with a pointed tool.

(k) *Misfits.* The correction of minor misfits involving minor reaming, cutting, and chipping will be considered a legitimate part of the erection. However, any error in shop fabrication or deformation resulting from handling and transportation which prevents proper assembling and fitting up of parts by moderate use of drift pins or by a moderate amount of reaming and slight chipping or cutting shall be reported immediately to the Engineer. The Engineer's approval shall be obtained for methods of correction and the correction shall be made in the Engineer's presence.

(l) *Cleaning of Connections.* When splices are designated Class B slip critical on the plans, the contact surfaces of splices shall be field inspected immediately prior to assembly. All foreign material shall be removed prior to fitting and bolting of the splices.

Subsection 509.10 shall include the following:

Connections Using High-Strength Bolts.

(a) *Certification.* The Contractor shall submit the supplier's certified test reports which provide a corresponding lot number appearing on the shipping package and the certification. The supplier's certification shall state when and where all testing was done, and indicate the zinc thickness when galvanized bolts and nuts are used.

(b) *Materials*. Washer type direct tension indicators shall conform to ASTM F 959.

- Bolts shall be AASHTO M164 Type 1 for connections which are painted. Bolts for unpainted ASTM A 709 Grade 50W steel shall be AASHTO M 164 Type 3. The maximum tensile strength shall be 150 ksi for bolts 1 inch or less in diameter and 120 ksi for larger bolts.
- Nuts shall be AASHTO M 292 grade 2H or AASHTO M291 grade DH for plain or galvanized fasteners, except connections for unpainted ASTM A 709 Grade 50W steel, in which case nuts shall be AASHTO M 291 grade DH3 or C3. For galvanized fasteners, the nuts shall be over-tapped to the minimum amount required for the fastener assembly.
- All nuts, bolts, and washers shall have the manufacturer's markings on them.
- All galvanized nuts shall be lubricated with a lubricant containing a visible dye so a visual check can be made for the lubricant at the time of field installation. Plain bolts shall be "oily" to the touch when installed. Weathered or rusty items shall be cleaned and relubricated prior to installation.

(c) *Test Requirements.* All high strength fasteners, including black bolts and nuts, shall be subjected to a rotational-capacity test in accordance with AASHTO M 164, section 8.5 and shall meet the following requirements:

1. *Tension Procedure*. Fasteners shall be turned two times the required number of turns (from snug tight conditions) indicated in the AASHTO Standard Specifications for Highway Bridges,Table 10.17B, in a Skidmore-Wilhelm calibrator, or equivalent tension measuring device, without stripping or failure.
2. *Minimum Tension*. During this test the maximum record tension shall be equal to or greater than 1.15 times the required fastener tension,

   AASHTO Standard Specifications for Highway Bridges, Table 10.17A.

3. *Maximum Torque.* The measured torque to produce the required fastener tension shall not exceed the following equation:

   Torque = 0.25 PD Where:

   Torque = Measured torque in foot-pounds

   P = Measured bolt tension in pounds

   D = Nominal diameter in feet

4. *Proof Load Tests.* Proof load tests (ASTM F 606 Method 1) are required for the bolts. Wedge tests of full size bolts are required in accordance with section 8.3 of AASHTO M 164. Galvanized bolts shall be wedge tested after galvanizing. Proof load tests in accordance with ASTM F 606 are required for the nuts. The proof load tests for the nuts to be used with galvanized bolts shall be performed after galvanizing, overtapping, and lubricating.
5. *Snug Tight.* Installation of all high strength bolts shall be in accordance with AASHTO Standard Specifications for Highway Bridges, paragraph 10.17.4. The “snug tight” condition as defined in paragraph 10.17.4.3 or 10.17.4.6 shall be accomplished for any method of tightening.
   (d) *Field Connections.* Unless otherwise specified, all field connections shall be made with high-strength bolts which include direct tension indicators. Direct tension indicators shall be either washer type direct tension indicators or tension control bolts. Washer type indicators shall not be used with unpainted ASTM A 709 Grade 50W steel.
   (e) *Bolted Parts.* Bolted parts shall fit solidly together when assembled and shall not be separated by gaskets or any other interposed compressible material. All joint surfaces, when assembled, shall be free of scale, except tight mill scale; dirt; burrs; other foreign material; and other defects that may prevent solid seating of the parts. Contact surfaces within friction-type joints shall be free of oil, paint, lacquer, or rust inhibiter. Contact surfaces may be galvanized only when specified on the plans.
   (f) *Installation.* Fasteners and contact surfaces of splices shall be protected from dirt and moisture at the jobsite. All fasteners shall then be tightened, progressing systematically from the center or most rigid part of the connection to the free edges in a manner that will minimize relaxation of previously tightened fasteners. In some cases, proper tensioning of the bolts may require more than a single cycle of systematic partial tightening prior to final tightening to obtain proper tension. A minimum of 10 percent of the bolts (must be at least six bolts) in each splice shall be tightened sufficiently to assure all plates are in firm contact before final tensioning is started. When all fasteners in the joint are tight, each fastener shall have a tension no less than the minimum bolt tension shown in Table 509-3 for the size of fastener used, and a minimum of two threads shall project beyond the surface of the nut.
      1. *Impact Wrenches*. Impact wrenches, if used, shall be of adequate capacity to perform the required tightening of each bolt in approximately 10 seconds.
      2. *Washer Location*. In addition to load indicating washers, each fastener shall have a hardened washer under the turning element.

3. *Beveled Washers*. Where the outer face of the bolted parts has a slope of more than 1:20 with respect to a plane normal to the bolt axis, a smooth beveled washer shall be used to compensate for lack of parallelism.
4. *Reusing Fasteners*. Bolts may be reused once, if approved. Direct tension indicators shall be tensioned only once and shall not be reused. Retightening of previously tightened bolts shall not be considered as reuse.

(g) *Locknuts and Lock Washers.* Fasteners with lock washers or locknuts shall be snug tight only.

(h) *Inspection.* The Contractor shall provide an acceptable platform from which the Engineer can inspect bolt tension and determine whether the work meets specification requirements. The following inspection procedure shall be used unless a more extensive or different inspection is specified.

1. *Quality Assurance.* The Engineer will inspect a sufficient number of fasteners to assure compliance with Table 509-3 using a method commensurate with the type of fastener used. All loose fasteners shall be brought into compliance.
2. *Procedure Qualification*. The Contractor shall demonstrate that the bolt tightening method is providing tension in accordance with Table 509-3.
3. *Frequency.* The demonstration shall be done daily on a minimum of three fasteners of each size and lot number using an accurate direct tension measuring device. (For short grip bolts, direct tension indicators with solid plates may be used to perform this test. The direct tension indicators shall be checked with a longer grip bolt in the tension measuring device first). There shall be a hardened washer under the nut or bolt head turned to tighten each bolt. The direct tension measurement device shall be furnished by the Contractor, and shall be certified by a testing laboratory at least once a year.

Table 509-3

Nominal Bolt Size	Required Minimum Bolt Tension (lbs.)
½	12,000
5/8	19,000
¾	28,000
7/8	39,000
1	51,000
1 1/8	56,000
1 ¼	71,000
1 3/8	85,000
1 ½	103,000

Subsection 509.11 shall include the following:

Field Cleaning and Painting of Steel.

Self Weathering Steel. Unpainted ASTM A 709 Grade 50W steel shall be cleaned of foreign material after erection to assure uniform weathering of the steel.

Subsection 509.12 shall include the following:

Fracture Control Plan. The fracture control plan (FCP) applies to all main stress carrying members identified on the plans as fracture critical. Welded butt joints spliced within fracture critical members (FCMs), including weld and fillet weld attachments to FCMs, shall be welded and tested in accordance

with this plan. The FCP shall be in accordance with AWS D1.5, Section 12. Chemical and mechanical tests, as required by this plan, shall be the responsibility of the fabricator.

BASIS OF PAYMENT

Subsection 509.13 shall include the following:

The structural steel required for the debris rack shall include all materials and work necessary to satisfy the requirements of the plans.

Payment will be made under:

Pay Item	**Pay Unit**
Structural Steel	Lump Sum

All costs associated with implementing the fracture control plan shall be included in the price paid for structural steel of which the fracture critical members are a part.

All costs associated with the preparation and implementation of the Erection Plan will not be measured and paid for separately, but shall be included in the work.

REVISION OF SECTION 601 - STRUCTURAL CONCRETE

DESCRIPTION

Subsection 601.01 shall include the following:

This work consists of furnishing and placing portland cement concrete in accordance with these specifications and in conformity with the lines, grades and dimensions as shown on the plans or established.

This work includes preparing concrete surfaces designated in the Contract and applying an approved colored Structural Concrete Coating to them.

Subsection 601.02 shall include the following:

Class B concrete is an air entrained concrete for general use. Class D, H or P concrete may be substituted for Class B concrete. The coarse aggregate shall have a nominal maximum size of 1½ inches or smaller.

Class D concrete is a dense medium strength structural concrete. Class H may be substituted for Class D concrete. Additional requirements are: An approved water reducing admixture shall be incorporated in the mix. The concrete mix shall be made with AASHTO M 43 sizes No. 57, No. 6, or No. 67 coarse aggregate.

The classes of concrete shown in Table 601-1 shall be used when specified in the Contract.

Table 601-1 CONCRETE TABLE

Concrete Class	Required Field Compressive Strength (psi)	Cementitious Material Content: Minimum or Range (lbs/yd^3)	Air Content: % Range (Total)	Water/ Cementitious Material Ratio: Maximum or Range
B	4500 at 28 days	N/A	5 - 8	0.45
D	4500 at 28 days	615 to 660	5 – 8	0.45

MATERIALS

Subsection 601.03 shall include the following:

Materials shall meet the requirements specified in the following subsections:

Fine Aggregate	703.01
Coarse Aggregate	703.02
Portland Cement	701.01
Fly Ash	701.02
Silica Fume Admixture	701.03
Water	712.01

Calcium Chloride shall not be used in reinforced concrete. Calcium Chloride shall be used in non-reinforced concrete only when specified.

CONSTRUCTION REQUIREMENTS

Subsection 601.04 shall include the following:

Proportioning. The Contractor shall submit a Concrete Mix Design for each class of concrete being placed on the project. Concrete shall not be placed on the project before the Concrete Mix Design Report has been reviewed and approved by the Engineer. The Concrete Mix Design will be reviewed and approved following the procedures of CP 62. The Concrete Mix Design will not be approved when the laboratory trial mix data are the results from tests performed more than two years in the past or aggregate data are the results from tests performed more than two years in the past. The concrete mix design shall show the weights and sources of all ingredients including cement, pozzolan, aggregates, water, additives and the water to cementitious material ratio (w/cm). When determining the w/cm, the weight of cementitious material (cm) shall be the sum of the weights of the cement, fly ash and silica fume.

1. The laboratory trial mix data shall include results of the following:
2. AASHTO T 119 (ASTM C 143) Slump of Hydraulic Cement Concrete.
3. AASHTO T 121 (ASTM C 138) Weight per Cubic Foot, Yield, and Air Content (Gravimetric) of Concrete.
4. AASHTO T 152 (ASTM C 231) Air Content of Freshly Mixed Concrete by the Pressure Method
5. ASTM C 39 Compressive Strength of Cylindrical Concrete Specimens shall be performed with at least two specimens at 7 days and three specimens at 28 days. Three additional specimens tested at 56 days shall be required for Class H and HT concrete.

Except for class BZ concrete, the maximum slump of the delivered concrete shall be the slump of the approved concrete mix design plus 1½ inch. The laboratory trial mix must produce an average compressive strength at least 115 percent of the required field compressive strength specified in Table 601-1.

The laboratory trial mix shall have a relative yield of 0.99 to 1.02. When Portland Cement Concrete Pavement is paid with a volumetric pay quantity, the relative yield of the concrete produced on the project shall be 0.99 to 1.02.

If the produced concrete does not have a relative yield of 0.99 to 1.02 for two consecutive yield determinations, concrete production shall cease and the Contractor shall present a plan to correct the relative yield to the Engineer.

Aggregate data shall include the results of the following:

1. AASHTO T 11 (ASTM C 117) Materials Finer Than 75 um (No. 200) Sieve in Mineral Aggregates by Washing.
2. AASHTO T 19 (ASTM C 29) Unit Weight and Voids in Aggregate.
3. AASHTO T 21 (ASTM C 40) Organic Impurities in Fine Aggregate for Concrete.
4. AASHTO T 27 (ASTM C 136) Sieve Analysis of Fine and Coarse Aggregates.
5. AASHTO T 84 (ASTM C 128) Specific Gravity and Absorption of Fine Aggregate.
6. AASHTO T 85 (ASTM C 127) Specific Gravity and Absorption of Coarse Aggregate.
7. AASHTO T 96 (ASTM C 131) Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
8. AASHTO T 104 (ASTM C 88) Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate.
9. CP 37 Plastic Fines in Graded Aggregates and Soils by use of the Sand Equivalent Test
10. ASTM C 535 Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

11. ASTM C1260 Determining the Potential Alkali Reactivity of Aggregates (Accelerated Mortar-Bar Method). When an aggregate source is known to be reactive, ASTM C1567 results may be submitted in lieu of ASTM C1260 results.

Any aggregate tested by ASTM C1260 with an expansion of 0.10 percent or more, or that is known to be reactive, shall not be used unless mitigative measures are included in the mix design.

Test results from ASTM C1293 Standard *Test Method for Determination of Length Change of Concrete Due to Alkali-Silica Reaction* may be substituted for ASTM C1260 test results. The ASTM C1293 test shall be run on an individual source of aggregate. The ASTM C1293 test shall not use fly ash or slag as part of the cementitious material content. Any aggregate source tested by ASTM C1293 with an expansion greater than or equal to 0.04 percent at one year shall not be used unless mitigative measures are included in the mix design.

Mitigative measures shall be tested using ASTM C1567 and exhibit an expansion less than 0.10 percent by one of the following methods:

1. Combined Aggregates. The mix design sources of aggregates, cement and mitigative measures shall be tested. The proportions of aggregates, cement and mitigative measures shall be those used in the mix design.
2. Individual Aggregates. Each source and size of individual aggregates shall be tested. The source of cement and mitigative measures shall be those used in the mix design. The highest level of mitigative measures for any individual aggregate shall be the minimum used in the mix design.

The Concrete Mix Design Report shall include Certified Test Reports showing that the cement, fly ash and silica fume meet the specification requirements and supporting this statement with actual test results. The certification for silica fume shall state the solids content if the silica fume admixture is furnished as slurry.

Approved fly ash may be substituted for ASTM C150 cement up to a maximum of 20 percent Class C or 30 percent Class F by weight of total cementitious material.

For all concrete mix designs with ASTM C595 or C1157 cements, the total pozzolan content shall not exceed 30 percent by weight of the cementitious material content.

When the Contractor's use of fly ash results in any delay, necessary changes in admixture quantities or source, or unsatisfactory work, the cost of such delays, changes, or corrective actions shall be borne by the Contractor.

The Contractor shall submit a new Concrete Mix Design Report meeting the above requirements when a change occurs in the source, type, or proportions of cement, fly ash, silica fume or aggregate. When a change occurs in the source of approved admixtures, the Contractor shall submit a letter stamped by the Concrete Mix Design Engineer approving the changes to the existing mix design. The change will be approved by the Engineer prior to use.

The use of approved accelerating, retarding or hydration stabilizing admixtures to existing mix designs will be permitted at the discretion of the Engineer when documentation includes the following:

1. Manufacturer's recommended dosage of the admixture
2. A letter stamped by the Concrete Mix Design Engineer approving the changes to the existing mix design.

Unless otherwise permitted by the Engineer, the product of only one type of hydraulic cement from one source of any one brand shall be used in a concrete mix design.

Review and approval of the Concrete Mix Design by the Engineer does not constitute acceptance of the concrete. Acceptance will be based solely on the test results of concrete placed on the project.

Batching. Measuring and batching of materials shall be done at a batching plant in accordance with AASHTO M 157.

The Contractor shall furnish a batch ticket (delivery ticket) with each load for all classes of concrete. Concrete delivered without a batch ticket containing complete information as specified shall be rejected. The Contractor shall collect and complete the batch ticket at the placement site and deliver all batch tickets to the Engineer on a daily basis. The Engineer shall have access to the batch tickets at any time during the placement. The following information shall be provided on each batch ticket:

1. Supplier's name and date
2. Truck number
3. Project number and location
4. Concrete class designation and item number
5. Cubic yards batched
6. Time batched
7. CDOT mix design number
8. Type, brand, and amount of each admixture
9. Type, brand, and amount of cement and fly ash
10. Weights of fine and coarse aggregates
11. Moisture of fine and coarse aggregate
12. Gallons (Pounds) of batch water (including ice)
13. The Contractor shall add the following information to the batch ticket at the placement site:
14. Gallons of water added by truck operator plus quantity of concrete in the truck each time water is added
15. Number of revolutions of drum at mixing speed (for truck mixed concrete)
16. Discharge time
17. Location of batch in placement

The drum on each truck mixer shall be reversed prior to charging to eliminate any wash water remaining in the mixer.

(a) *Portland Cement and Fly Ash.* Either sacked or bulk cement may be used. No fraction of a sack of cement shall be used in a batch of concrete unless the cement is weighed.
- All bulk cement shall be weighed on an approved weighing device. The bulk cement weighing hopper shall be sealed and vented to preclude dusting during operation. The discharge chute shall be so arranged that cement will not lodge in it or leak from it.
- Separate storage and handling equipment shall be provided for the fly ash. The fly ash may be weighed in the cement hopper and discharged with the cement.

(b) *Water.* Unless water is to be weighed, the water-measuring equipment shall include an auxiliary tank from which the measuring tank shall be filled. The measuring tank shall be equipped with an outside tap and valve to provide for checking the calibration unless other means are provided for readily and accurately determining the amount of water in the tank. The volume of the auxiliary tank shall be at least equal to that of the measuring tank. In lieu of the volume method specified above, the Contractor will be permitted to use a water metering device that is accurate within the prescribed limits.

(c) *Aggregates*. Aggregates from different sources and of different gradings shall not be stockpiled together.

- Aggregate shall be handled from stockpiles or other sources to the batching plant in such manner as to secure a uniform grading of the material. Aggregates that have become segregated, or mixed with earth or foreign material, shall not be used. All aggregates produced or handled by hydraulic methods, and washed aggregates, shall be stockpiled or binned for draining at least 12 hours before being batched. Rail shipment requiring more than 12 hours will be accepted as adequate binning only if the car bodies permit free drainage. In case the aggregates contain high or non-uniform moisture content, storage or stockpile period in excess of 12 hours may be required.

(d) *Bins and Scales*. The batching plant may include bins, weighing hoppers, and scales for the fine aggregate and for each size of coarse aggregate. If cement is used in bulk, a bin, hopper, and scale for cement shall be included. A single weighing hopper with an accumulative scale will be permitted, provided a separate scale is used for weighing cement. Scales shall meet the requirements of subsection 109.

Mixing. Concrete may be mixed in stationary mixers, in a central-mix plant, in truck mixers, or in self-contained mobile mixers. Mixing time shall be measured from the time all materials, except water, are in the drum.

Silica fume, when specified, shall be added to the mix during initial batching.

(a) *Mixing General. The concrete shall be deposited in place within 90 minutes after batching when concrete is delivered in truck mixers or agitating trucks, and within 60 minutes when delivered in non-agitating trucks.*

- The 90 minute time limit for mixer or agitating trucks may be extended to 120 minutes if:
  - i No water is added after 90 minutes.
  - ii The concrete temperature prior to placement is less than 90 °F
- The 90 minute time limit for mixer or agitating trucks may be extended to 180 minutes if:
  - iii No water is added after 90 minutes.
  - iv The concrete temperature prior to placement is less than 90 °F.
  - v The approved concrete mix contains a water reducing and retarding admixture which conforms to AASHTO M 194, Type D.

(b) *Stationary Mixing*. When mixed in a central mixing plant, the mixing time shall be between 50 and 90 seconds. Four seconds shall be added to the specified mixing time if timing starts the instant the skip reaches its maximum raised position. Mixing time ends when the discharge chute opens. Transfer time in multiple drum mixers is included in mixing time. The contents of an individual mixer drum shall be removed before a succeeding batch is emptied therein.

- The volume of concrete mixed per batch may exceed the mixer's nominal capacity, as shown on the manufacturer's standard rating plate on the mixer, up to 10 per cent provided concrete test data for strength, segregation, and uniform consistency are satisfactory, and provided spillage of concrete does not occur.
- The batch shall be so charged into the drum that a portion of the mixing water shall enter in advance of the cement and aggregates. The flow of water shall be uniform and all water shall be in the drum by the end of the first 15 seconds of the mixing period. The throat of the drum shall be kept free of such accumulations as may restrict the free flow of materials into the drum.
- The timing device on stationary mixers shall be equipped with a bell or other suitable warning device adjusted to give a clearly audible signal each time the lock is released. In case of failure of the timing device, the Contractor will be permitted to operate while it is being repaired, provided the Contractor furnishes an approved timepiece equipped with

minute and second hands. If the timing device is not placed in good working order within 24 hours, further use of the mixer will be prohibited until repairs are made.

(c) *Truck Mixing. Truck mixed concrete shall conform with one of the following:*

1. Concrete mixed entirely in a truck mixer equipped with a mechanical counter shall be partially mixed at the plant or in transit for not less than 20 revolutions of the drum at mixing speed. The revolutions of the drum at charging speed shall not be counted as mixing revolutions. The concrete shall be mixed between 50 and 100 revolutions of the mixer drum at mixing speed at the delivery site before discharge of the concrete.
2. Concrete partially mixed in a stationary central mixing plant with mixing brought to completion in a truck mixer (known as shrink mixing) shall be mixed for a minimum of 30 seconds in the stationary mixer. Mixing shall be completed in the truck mixer for at least 20 but not more than 100 revolutions of the mixer drum at mixing speed at the delivery site before discharge of the concrete.
3. Concrete mixed entirely in a stationary mixer and delivered to the job in a truck mixer shall be remixed for a minimum of 20 revolutions of the mixing drum at mixing speed at the job site prior to discharge.
    - When water is added at the delivery site to control the consistency of the concrete as specified in subsection 601.02, the concrete shall be mixed for at least 20 revolutions of the mixer drum at mixing speed for each addition of water before discharge. These revolutions are in addition to the minimum revolutions required for mixing at the delivery site. The added water shall not cause the water/cement ratio to exceed the requirements in subsection 601.02. Water from all sources shall be documented by the ready mix producer on the delivery slip for each load of concrete.
    - The Contractor shall provide a Concrete Truck Mixer Certification. This certification shall show the various pick-up and throw-over configurations and wear marks so that the wear on the blades can be checked. Blades shall be replaced when any part or section is worn 1 inch or more below the original height of the manufacturer's design. A copy of the manufacturer's design, showing the dimensions and arrangement of blades, shall be available to the Engineer at all times.
    - The Contractor shall furnish a water-measuring device in good working condition, mounted on each transit mix truck, for measuring the water added to the mix after the truck has left the charging plant. Each measuring device shall be equipped with an easy-to-read gauge. Water shall be measured to the accuracy prescribed in AASHTO M 157.

(d) *Self Contained Mobile Mixer. Proportioning and mixing equipment shall be of the self-contained, mobile, continuous mixing type subject to the following:*

- The mixer shall be self-propelled and be capable of carrying sufficient unmixed dry, bulk cement, fine aggregate, coarse aggregate, admixtures and water to produce on the site not less than 6 cubic yards of concrete. The mixer shall have one bin for each size aggregate.
- The mixer shall be capable of positive measurement of cement being introduced into the mix. A recording meter visible at all times and equipped with a ticket printout shall indicate the quantity of total concrete mix.
- The mixer shall provide positive control of the flow of water into the mixing chamber. Water flow shall be indicated by flow meter and be readily adjustable to provide for minor variations in the aggregate moisture.

  The mixer shall be capable of being calibrated to automatically proportion and blend all components of indicated composition on a continuous or intermittent basis as required by

the finishing operation, and shall discharge mixed material through a conventional chute directly in front of the finishing machine.

- The Contractor shall perform calibration tests according to the equipment manufacturer's recommendations at the beginning of each project, and when there is a change in the mix design proportions or source of materials. The Engineer may require a calibration test or yield check whenever a change in the characteristics of the mixture is observed. The tolerances in proportioning the various ingredients shall be according to subsection 6.8 of AASHTO M 241.

  Air Content Adjustment. When a batch of concrete delivered to the project does not conform to the minimum specified air content, an air entraining admixture may be added. After the admixture is added, the concrete shall be re-mixed for a minimum of 20 revolutions of the mixer drum at mixing speed. The concrete shall then be re-tested by QC.

Forms.

(a) *Design.* Forms shall be mortar tight and sufficiently rigid to prevent distortion due to the pressure of the concrete and other loads incidental to the concrete operations, including vibration.
- The rate of depositing concrete in forms shall be controlled to prevent deflections of the form panels in excess of the deflections permitted by these specifications.
- Forms for exposed concrete surfaces shall be designed and constructed so that the formed surface of the concrete does not undulate excessively in any direction between studs, joists, form stiffeners, form fasteners, or wales. Undulations exceeding 3/32 inch between the center to center distance of studs, joists, form stiffeners, form fasteners or wales will be considered to be excessive. Should any form or forming system, even though previously approved for use, produce a concrete surface with excessive undulations, its use shall be discontinued until modifications satisfactory to the Engineer have been made. Portions of concrete structures with surface undulations in excess of the limits herein may be rejected by the Engineer.
- Forms for drainage inlets may be constructed of any suitable material that will produce a structure with the inside dimensions and at least the wall thicknesses shown on the plans. Undulations of finished interior wall surfaces shall not exceed 0.5 inch.

(b) *Construction. Forms shall be constructed and maintained so as to prevent the opening of joints due to shrinkage of the lumber. The use of ties consisting of twisted wire loops to hold forms in position will not be permitted.*
- The inside surfaces of forms shall be cleaned of all dirt, mortar and foreign material. Forms which will later be removed shall be thoroughly coated with form oil prior to use. The form oil shall be a commercial quality form oil or other equivalent coating which will permit the ready release of the forms and will not discolor the concrete.
- Concrete shall not be deposited in the forms until all work connected with constructing the forms has been completed; all materials required to be embedded in the concrete have been placed, unless otherwise specified on the plans or approved; and the Engineer has inspected said forms and material. Such work shall include the removal of all dirt, chips, sawdust, water and other foreign material from the forms.
- Anchor devices may be cast into the concrete for later use in supporting forms or for lifting precast members. The use of driven types of anchorages for fastening forms or form supports to concrete will not be permitted.

- Backforms may be omitted with the approval of the Engineer in cases involving footings which can be placed in the dry without the use of cribs or coffer dams. In such cases, the entire excavation shall be filled with concrete to the required elevation of the top of the footing. The additional concrete required shall be placed at the expense of the Contractor, except when footings are poured out to rock. Extra concrete required to pour footings out to rock will be allowed in the concrete quantities, provided that no allowance will be made for any concrete extending more than 6 inches in any direction beyond the neat lines of the footings as shown on the plans.

(c) *Form Lumber. Form lumber for all exposed concrete surfaces shall be dressed at least on one side and two edges and shall be constructed so as to produce mortar-tight joints and smooth, even concrete surfaces. Forms shall be filleted and chamfered as shown on the plans, and shall be given a bevel or draft in the case of all projections, such as girders and copings, to assure easy removal.*

- Unless otherwise specified, forms for exposed surfaces shall be constructed with triangular fillets ¾ inch by ¾ inch at all exterior corners.

(d) *Metal Ties. Metal ties or anchorages within the forms shall be so constructed as to permit their removal to a depth of at least ½ inch from the face without injury to the concrete. When wire ties are used the wires shall be cut back at least ¼ inch from the face of the concrete upon removal of the forms. The cavities shall be filled with cement mortar and the surface left sound, smooth, even and uniform in color.*

(e) *Walls. Where the bottom of the forms is inaccessible, the lower form boards shall be left loose or other provisions made so that extraneous material may be removed from the forms immediately before placing the concrete.*

(f) *Surface Treatment. All forms shall be treated with oil prior to placing reinforcement except that an approved non-petroleum base form release agent shall be used for surfaces which are to receive Class 5, Masonry Coating Finish. Wood forms shall be thoroughly moistened with water immediately before placing the concrete.*

- For rail members or other members with exposed faces, the forms shall be treated with an approved form release agent to prevent the adherence of concrete. Material which will adhere to or discolor the concrete shall not be used.
- All concrete forms for surfaces to which Structural Concrete Coating is to be applied shall be treated with a water based concrete form release agent prior to placing reinforcement.

(g) *Metal Forms for General Use. The specifications for forms, regarding design, mortar tightness, filleted corners, beveled projections, bracing, alignment, removal, reuse and oiling, apply to metal forms. The metal used for forms shall be of such thickness that the forms will remain true to shape. All bolt and rivet heads shall be countersunk. Clamps, pins or other connecting devices shall be designed to hold the forms rigidly together and to allow removal without injury to the concrete. Metal forms which do not present a smooth surface or do not line up properly shall not be used. Metal forms shall be free from rust, grease or other foreign matter.*

(h) *Removal of Forms. The forms for any portion of the structure shall not be removed until the concrete is strong enough to withstand damage when the forms are removed.*

(i) *Unless controlled by beam or cylinder tests, the following minimum periods of times, exclusive of days when the ambient temperature is below 40 °F, may be used as a guide for removal of forms and supports.*

(j) *Patching. The mixed formula for patch mortar shall be determined by trial to obtain a good color match with the concrete when both patch and concrete are cured and dry.*

(k) *Re-use of Forms. The shape, strength, rigidity, water-tightness and surface smoothness of reused forms shall be maintained at all times. Warped or bulged lumber shall not be used.*

Placing Concrete.

(a) *General. A pre-placement conference shall be held with selected Contractor and Department personnel prior to placement of concrete to discuss the method and sequence of placing concrete.*

- Concrete shall not be placed until forms have been completed and materials required to be embedded in the concrete have been placed, and the Engineer has inspected the forms and materials. The forms shall be cleaned of all debris before concrete is placed.
- The external surface of all concrete shall be thoroughly worked during the placing by means of tools of an approved type. The working shall be such as to force all coarse aggregate from the surface and to bring mortar against the forms to produce a smooth finish substantially free from water and air pockets, or honeycomb.
- Unless otherwise specified, hand finishing methods will be permitted only when performed under the direct supervision of a Craftsman holding the following certificate: ACI Concrete Flatwork Finisher and Technician (ACICFFT) or other Flatwork Finisher certification program approved by the Department. A minimum of one certified Craftsman is required at each finishing operation. A minimum of one certified Craftsman is required for each three or fewer finishers (non-certified ACICFFTs) at each operation.

(a) *Hot Weather Limitations. Placing of concrete during hot weather shall be limited by the temperature of the concrete at the time of placing. Mixed concrete which has a temperature of 90 °F or higher, shall not be placed.*

- The Contractor shall provide fogging equipment and keep the concrete surface moist at all times by fogging with an approved atomizing nozzle until the curing material is in place.
- The aggregate stockpiles shall be kept moist at all times.

(b) *Cold Weather Limitations. The mixed concrete temperature shall be between 50 and 90 °F at the time of placement. Water, aggregates, or both shall be heated when necessary under such control and in sufficient quantities to avoid fluctuations in the temperature of the concrete of more than 10 °F from batch to batch.*

- To avoid the possibility of flash set when the water is heated to a temperature in excess of 100 °F, the water and the aggregates shall be charged into the mixer before the cement is added.
- Heating equipment or methods which alter or prevent the entrainment of the required amount of air in the concrete shall not be used. The equipment shall be capable of heating the materials uniformly. Aggregates and water used for mixing shall not be heated to a temperature exceeding 150 °F. Materials containing frost or lumps of frozen material shall not be used.

  Stockpiled aggregates may be heated by the use of dry heat or steam. Aggregates shall not be heated directly by gas or oil flame or on sheet metal over fire.

- When aggregates are heated in bins, steam-coil or water-coil heating, or other methods which will not be detrimental to the aggregates may be used. The use of live steam on or through binned aggregates will not be permitted.
- Concrete shall not be placed on frozen ground. Before concrete placement, all ice, snow, and frost shall be completely removed from within formwork. Salt shall not be used to thaw ice, snow, or frost.

(c) *Chutes and Troughs*. Concrete shall be placed so as to avoid segregation of the materials and the displacement of the reinforcement.

- Concrete shall not be dropped more than 5 feet, unless confined by closed chutes or pipes. Care shall be taken to fill each part of the form by depositing the concrete as near final position as possible. The coarse aggregate shall be worked back from the forms and worked around the reinforcement without displacing the bars. After initial set of the concrete, the forms shall not be jarred and strain shall not be placed on the ends of projecting reinforcement.
- Where steep slopes are required, the chutes shall be equipped with baffle boards or be in short lengths that reverse the direction of movement.
- The Contractor shall not use pipes, fittings, chutes, troughs, spouts, or tremies that are fabricated of aluminum materials for pumping, conveying, or placing concrete.
- Concrete shall not be pumped through aluminum alloy pipe.
- All chutes, troughs and pipes shall be kept clean and free from coatings of hardened concrete.

(d) *Vibrating*. Unless otherwise directed, the concrete shall be consolidated with suitable mechanical vibrators operating within the concrete. When required, vibrating shall be supplemented by hand spading with suitable tools to assure proper and adequate consolidation.

- Vibrators shall be of a type and design approved by the Engineer. They shall be capable of frequencies of at least 10,000 vibrations per minute, in air.
- Vibrators shall be so manipulated as to work the concrete thoroughly around the reinforcement and imbedded fixtures and into corners and angles of the forms. Vibrators shall not be used as a means to cause concrete to flow or run into position in lieu of placing. The vibration at any point shall be of sufficient duration to accomplish consolidation, but shall not be prolonged to the point where segregation occurs.

(e) *Placement*. Concrete shall be placed in horizontal layers not more than 18 inches thick except as hereinafter provided. When less than a complete layer is placed in one operation, it shall be terminated in a vertical bulkhead. Each layer shall be placed and consolidated before the preceding batch has taken initial set. Each layer shall be so consolidated as to avoid the formation of a construction joint with a preceding layer which has not taken initial set.

- When the placing of concrete is temporarily discontinued, the concrete, after becoming firm enough to retain its form, shall be cleaned of laitance and other objectionable material to a sufficient depth to expose sound concrete. The top surfaces of concrete adjacent to the forms shall be smoothed with a trowel to minimize visible joints upon exposed faces. Work shall not be halted within 18 inches of the top of any face, unless provision has been made for a coping less than 18 inches thick, in which case the construction joint may be made at the underside of the coping.
- Immediately after the work of placing concrete is halted, all accumulations of mortar splashed upon the reinforcement and surfaces of forms shall be removed before the concrete takes its initial set. Care shall be taken when cleaning reinforcing steel to prevent damage to or breakage of the concrete steel bond.

  When concrete is placed by pumping, the pumping equipment shall be thoroughly cleaned prior to concrete placement. Excess form release agent shall be removed from the hopper. The pump shall be primed at the Contractor's expense by pumping and discarding enough concrete to produce a uniform mix exiting the pump. At least 0.25 cubic yard of concrete shall be pumped and discarded to prime the pump. Water shall not be added directly into the concrete pump hopper after placement has commenced. If water is added to the concrete pump hopper, all concrete in the concrete pump hopper and the line shall be discarded and the pump re-primed at the Contractor's expense.

- The pump operator shall have a valid operator's certification from the American Concrete Pumping Association, or approved equal. Boom pumps shall have a documented current inspection as required by ASME B30.27. Equipment added to the pump shall meet the pump manufacturer's specifications. The Contractor shall submit the specifications of the pumping equipment and the qualifications of the operator to the Engineer for review at least two weeks prior to pumping concrete. Equipment and operators rejected by the Engineer shall be replaced at the Contractor's expense.
- The pump shall be operated so that a continuous stream of concrete is produced. The pump equipment shall use a minimum of one of the following to maintain concrete uniformity:
  1. A 360 degree loop immediately prior to the delivery end of the pump line.
  2. A minimum one inch reducer installed at the entry to the delivery hose.
  3. A minimum one inch reducing delivery hose.
  4. A cable attached to the pump boom creating a minimum 90 degree bend in the steel braded flexible hose. The point of discharge from the flexible hose at the end of the boom shall be at or above the lowest point of the bend.
  5. On horizontal pours a 10-foot minimum horizontal delivery system placed on the deck.
  6. Other approved methods.
     - Metal pump lines or couplings shall not rest directly on epoxy coated reinforcing steel.

(h) *Placing Sequence.* Unless otherwise shown on plans, or ordered, the concrete placing sequence shall be as follows:

- Concrete in columns shall be placed in one continuous operation. The concrete in columns shall be allowed to set at least 12 hours before caps are placed. Each span of simple span concrete slab and girder bridges less than 30 feet in length shall be placed in one continuous operation.

(i) *Construction Joints.* Construction joints shall be made only where located on the plans or shown in the placing schedule, unless otherwise approved.

- All construction joints shall be cleaned of surface laitance, curing compound, and other foreign materials before fresh concrete is placed against the surface of the joint.
- Surfaces on which concrete is to be placed shall be thoroughly moistened with water immediately before placing concrete. When concrete is to be placed on or adjacent to hardened concrete surfaces, the surface shall be saturated surface dry. Saturated surface dry concrete has no water on its surface. The pores of the concrete beneath the surface are moist.
- Where construction joints are allowed on visible surfaces, chamfer strips attached to the forms or other approved methods shall be utilized to provide an even joint appearance.

  When the plans show new concrete to be joined to existing concrete by means of bar reinforcing dowels placed in holes drilled in the existing concrete, the diameter of the holes shall be the minimum needed to place non-shrink grout or epoxy grout and the dowel. Immediately prior to placing the dowels, the holes shall be cleaned of dust and other foreign material and sufficient grout placed in the holes so that there are no voids in the drilled holes after the dowels are inserted.

(j) *Float Finish on Horizontal Surfaces*. All freshly placed concrete on horizontal surfaces shall be given a float finish except as otherwise provided in the plans. A float finish shall be achieved by placing an excess of material in the form and removing or striking off the excess with a template, forcing the coarse aggregate below the mortar surface. Creation of concave surfaces shall be avoided. After the concrete has been struck off, the surface shall be

thoroughly worked and floated with a suitable floating tool. Before the finish has set, the surface cement film shall be removed with a fine brush in order to have a fine grained, smooth but sanded texture.

Curing Concrete Other Than Bridge Decks. When the ambient temperature is below 35 °F the Contractor shall maintain the concrete temperature above 50 °F during the curing period. It shall be the Contractor's responsibility to determine for himself the necessity for undertaking protective measures. The minimum curing period shall be determined by one of the following methods. The Engineer shall review for adequacy, the Contractor's determination of the curing period.

1. The minimum curing period shall be 120 hours
2. The minimum curing period shall be from the time the concrete has been placed until the concrete has met a compressive strength of 80 percent of the required field compressive strength. The Contractor shall cast information cylinders on the final portion of a placement and store as close to the structure as possible. The information cylinders shall receive similar thermal protection as the structure. The contractor shall protect the information cylinders from damage. In-place strength shall be determined by at least two cylinders. If the information cylinders are destroyed in the field, the minimum curing period shall be 120 hours.
3. The minimum curing period shall be from the time the concrete has been placed until the concrete has met a compressive strength of 80 percent of the required field compressive strength. The Contractor shall develop a maturity relationship for the concrete mix design in accordance with ASTM C 1074. The Contractor shall provide the maturity meter and all necessary thermocouples, thermometers, wires and connectors. The Contractor shall place, protect and maintain the maturity meters and associated equipment. Locations where the maturity meters are placed shall be protected in the same manner as the rest of the structure. The Contractor shall install the thermocouples at locations designated by the Engineer. The Contractor shall monitor the temperature at intervals acceptable to the Engineer.

   Enclosures with artificial heat sources will be permitted. If enclosures are used the Contractor shall monitor the structural integrity of the enclosure. Artificial heat sources shall not be placed in such a manner as to endanger formwork or expose any area of concrete to drying due to excessive temperatures. At the end of the curing period, the protection shall remain in place until it can be removed without permitting the concrete temperature to fall more than 50 °F in a 24-hour period. Sudden changes of concrete temperature shall be prevented.

   Immediately after placing fresh concrete, all concrete shall be cured by one of the following methods. The Engineer shall review for adequacy, the curing method proposed by the Contractor.

   (a) *Water Method*. All surfaces other than slabs shall be protected from the sun and the whole structure shall be kept wet throughout the curing period. Surfaces requiring a Class 2 finish may have the covering temporarily removed for finishing, but the covering must be restored as soon as possible. All concrete slabs shall be covered as soon as possible with suitable material so that concrete is kept thoroughly wet for at least five days. The concrete surface shall be kept moist at all times by fogging with an atomizing nozzle until the covering is placed.
   (b) *Membrane Forming Curing Compound Method*. Curing compound may be applied only to those surfaces, which are to receive a Class I or Class 4 final finish. A volatile organic content (VOC) compliant curing compound conforming to AASHTO M 148, Type 2 shall be used on surfaces where curing compound is allowed, except that Type 1 curing compound shall be used on exposed aggregate or colored concrete, or when directed by the Engineer. Curing

compound shall not be used on construction joints. The rate of application of curing compound will be in accordance with the manufacturer's recommendation, but shall not be more than 300 square feet per gallon. All concrete cured by this method shall receive two applications of the curing compound. The first coat shall be applied immediately after stripping of forms and acceptance of the concrete finish. If the surface is dry, the concrete shall be thoroughly wet with water and the curing compound applied just as the surface film of water disappears. The second application shall be applied after the first application has set. During curing operations, all unsprayed surfaces shall be kept wet with water. The coating shall be protected against marring for a period of at least 10 days after application. Coating marred, or otherwise disturbed, shall be given an additional coating. Should the surface coating be subjected continuously to injury, the Engineer may require that water curing, as described in subsection 601.13(a) be applied at once. When using a curing compound, the compound shall be thoroughly mixed within an hour before use. If the use of a curing compound results in a streaked or blotchy appearance, its use shall be discontinued. Water curing, as described in subsection 601.13 (a), shall then be applied until the cause of the defective appearance is corrected.

(c) *Form Method*. Concrete shall be protected by forms during the curing period. Forms shall be kept moist, when necessary, during the curing period to insure the concrete surface remains wet.

(d) *Blanket Method.* Electrically heated curing blankets or insulation blankets may be used in cold weather to maintain specified curing temperature and to retain moisture in concrete. Blankets shall be lapped at least 8 inches and shall be free of holes. Blankets shall be secured at laps and edges to prevent moisture from escaping.

(e) The following procedures shall be followed if the temperature of the concrete structure falls below 32 °F before the concrete reaches 80 percent of the required field compressive strength:
   1. The Contractor will take cores at locations designated by the Engineer.
   2. The Engineer will take immediate possession of the cores and submit the cores to a petrographer for examination in accordance with ASTM C 856.
   3. All costs associated with coring, transmittal of cores, and petrographic examination shall be borne by the Contractor regardless of the outcome of the petrographic examination.
   4. Concrete damaged by frost as determined by the petrographic examination shall be removed and replaced at the Contractor's expense.

Subsection 601.05 shall include the following:

Acceptance and Pay Factors. These provisions apply to all concrete. The Contractor shall sample 601 pay items for both QC and QA in accordance with CP 61. The Engineer will witness the sampling and take possession of the QA samples at a mutually agreed upon location.

(a) *Air Content.* The first three batches at the beginning of production shall be tested by QC and QA for air content. When air content is below the specified limit, it may be adjusted in accordance with subsection 601.08. Successive batches shall be tested by QC and witnessed by the Engineer until three consecutive batches are within specified limits. After the first three batches, CDOT will follow the random minimum testing schedule. Air content shall not be adjusted after a QA test.

- At any time during the placement of the concrete, when a QA test on a batch deviates from the minimum or maximum percent of total air content by 1 percent or less may be accepted at a reduced price using Table 601-3.

(b) *Slump*. Slump acceptance, but not rejection, may be visually determined by the Engineer. During the placement of the concrete, when a batch exceeds the maximum slump specified, the following procedure shall be used to analyze the acceptability of the concrete.

i A batch that exceeds the maximum slump specified by more than 1 inch will be rejected. Portions of loads incorporated into structures prior to determining test results which indicate rejection as the correct course of action shall be subject to acceptance at reduced price, no payment, or removal as determined by the Engineer.

ii A batch that exceeds the maximum slump specified by 1 inch or less may be incorporated into the project at a reduced price, calculated as follows: The first batch that exceeds the maximum slump specified by ½ inch or less will be accepted at full price. The first batch that exceeds the maximum slump specified by more than ½ inch and up to 1 inch, which the Contractor elects to place, will be accepted at a reduced price. The second and third successive batches of a series that exceed the maximum slump specified by 1 inch or less, which the Contractor elects to place, will be accepted at a reduced price. The fourth and all other successive batches of a series that exceed the maximum slump specified shall be rejected. The rejected batch count will stop with a batch that has less than the maximum slump, and will resume at one with the next batch that exceeds the maximum slump.

(c) *Pay Factors*. The pay factor for concrete which is allowed to remain in place at a reduced price shall be according to Table 601-3 and shall be applied to the unit price bid for Item 601, Structural Concrete.

- If deviations occur in air content, slump, and strength within the same batch, the pay factor for the batch shall be the product of the individual pay factors.

Table 601-3

PAY FACTORS

*Percent Total Air		Slump		Strength		
Deviations From Specified Air (Percent)	**Pay Factor (Percent)**	**Maximum Slump Exceeded by (Inches)**	**Pay Factor (Percent)**	**Below Specified Strength (psi) [< 4500 psi Concrete]**	**Pay Factor (Percent)**	**Below Specified Strength (psi) [≥ 4500 psi Concrete]**
0.0-0.2	98	¼	98	1-100	98	1-100
0.3-0.4	96	½	96	101-200	96	101-200
0.5-0.6	92	¾	92	201-300	92	201-300
0.7-0.8	84	1	84	301-400	84	301-400
0.9-1.0	75	Over 1	Reject	401-500	75	401-500
Over 1.0	Reject			Over 500	Reject	
*Class D, DT, H & HT bridge deck concrete with air content over 8 percent will be rejected.					65	501-600
					54	601-700
					42	701-800
					29	801-900
					15	901-1000
					Reject	Over

METHOD OF MEASUREMENT

Subsection 601.06 shall include the following:

Concrete will be measured by the cubic yard in accordance with the dimensions shown on the plans. Plan quantities reflect deductions for all voids designed into the structure except, deductions will not be made for the volume occupied by pipes or conduits less than 3 inches in diameter, ducts for prestressing steel, reinforcing steel, anchors, weep holes, piling, and form liner textures and nominal chamfers. Miscellaneous concrete shall consist of the structural concrete of the designated class shown on the plans.

BASIS OF PAYMENT

Subsection 601.07 shall include the following:

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

Payment will be made under:

Pay Item	**Pay Unit**
Concrete Class B	Cubic Yard

REVISION OF SECTION 606 - GUARDRAIL

DESCRIPTION

Subsection 606.01 shall be modified to include:

This work consists of the construction of guardrail in accordance with these specifications and in conformity with the lines and grades shown on the plans or established.

The construction of the various types of guardrail shall include the assembly and erection of all component parts and materials complete at the locations shown on the plans or as directed.

The types of guardrail are designated as follows: Type 3 Guardrail - W Beam. Use of Type 4 Precast Concrete Barrier is not permitted.

MATERIALS

Subsection 606.02 shall be modified to include:

Materials shall meet the requirements specified in the section 710.

The Contractor may furnish either wood or steel posts and wood or FHWA approved synthetic material blocks for guardrail as shown on the plans. Except as designated on the plans, only one type of posts and blocks shall be furnished for the project.

Components on which the spelter coating has been burned by welding or otherwise damaged shall be regalvanized, recoated in accordance with AASHTO M 36, or painted with one full brush coat of zinc rich paint meeting Military Specification DOD-P-21035A.

CONSTRUCTION REQUIREMENTS

Subsection 606.03 shall be modified to include:

Post and Rail Elements.

(a) Posts. Posts shall be set firm and aligned with a tolerance of plus or minus ¼ inch from plumb, grades and lines as staked. All fittings and metal plates shall be placed securely in position to conform to designated dimensions and requirements.

- Posts shall be set by one of the following methods:
  1. Driven in place.
  2. Set in dug holes.
  3. Set in concrete base.

  Driving of posts shall be accomplished by methods and equipment that will leave the posts in their final position free from any distortion, burring or any other damage.

- Excavated post holes shall have a firm bottom and be backfilled with acceptable material placed in layers and thoroughly compacted.
- Dissimilar metal-to-metal or aluminum-to-concrete post or rail installations shall have contact surfaces separated by an approved protective coating.
- Wood posts cut in the field shall have the cut surfaces protected with two coats of an approved preservative. When the cut surface is above ground, the treating solution to be used shall be the same type as was used in the original treatment.

(b) Rail. Rail elements shall be erected in a manner resulting in a smooth, continuous installation. All bolts in the finished rail shall be drawn tight. Bolts shall be of sufficient length to extend beyond the nuts. Rail shall be shop bent for installations on horizontal curves having a radius of 150 feet or less.

METHOD OF MEASUREMENT

Subsection 606.04 shall be modified to include:

Guardrail will be measured by the linear foot along the centerline of the rail from end to end of completed and accepted rail as shown on the plans, excluding end anchorages, median terminals, and transitions.

End anchorages, median terminals and transitions will be measured by the actual number placed and accepted. Each end anchorage, median terminal, or transition shall include all concrete, reinforcing steel, anchor bolts, cable, rods, turnbuckles, backing rail, plates, bolts, nuts, washers and all other work and material necessary to complete the item.

Posts will be included in the quantities of guardrail of the specified type and not measured separately. Additional posts required for guardrail adjacent to bridges and obstructions, as shown on the plans, will not be measured and paid for separately but shall be included in the work.

BASIS OF PAYMENT

Subsection 606.05 shall be modified to include:

The accepted quantities of guardrail will be paid for at the contract unit price for the type specified.

Payment will be made under:

Pay Item	**Pay Unit**
Guardrail, “W” Beam	Linear Foot

All work and materials necessary and incidental to the temporary treatment of guardrail ends will not be measured and paid for separately but shall be included in the work.

Partial payments will not be made for partially completed guardrail runs that do not conform to the end treatments specified in subsections.

REVISION OF SECTION 620 - FIELD FACILITIES

DESCRIPTION

Subsection 620.01 shall be modified to include:

The Contractor shall furnish field offices, sanitary facilities and field laboratories when called for on the plans or as directed. These units are to be maintained by the Contractor and shall be removed when the project is completed unless released earlier by the Engineer.

MATERIALS

Subsection 620.02 shall be modified to include:

Field offices shall substantially conform to the requirements of this section. The field office shall be equipped with a copy machine and telephone service that conform to the following:

1. *Copy Machine*. The Contractor shall provide a self feeding plain paper photo copying machine, which is capable of making at least eight copies per minute. Copier shall also be capable of reproducing copies at standard sizes up to and including 11 x 17 inches. The copier shall be capable of reducing 11 x 17 plan sheets to 8½ x 14 legal size and to 8½ x 11 letter size. The Contractor shall supply all necessary supplies, except paper, and a roll-around stand. Paper will be provided by the Department. The Contractor shall maintain all furnished equipment in good working condition and shall provide replacement equipment due to breakage, damage, or theft within five working days.
2. *Telephone Service*. The Contractor shall provide telephone service as required by standard plans. This service shall include a long distance carrier. The Department will be responsible for actual long distance toll charges.

Subsection 620.03 shall be modified to include:

Sanitary facilities shall consist of a portable chemical toilet fabricated from steel, fiberglass or wood. Each facility shall be well ventilated, shall conform to State law, shall have a vented chemical tank and a separate urinal.

CONSTRUCTION REQUIREMENTS

Subsection 620.04 shall be modified to include:

The Contractor shall furnish a suitable site for field facilities. The site may be located within the right of way with approval of the Engineer. If located within the right of way, the Contractor shall be responsible for restoring the area.

Facilities shall be on the project, leveled and ready for use prior to the start of any operations. Facilities shall be for the exclusive use of Department personnel.

Sanitary facilities shall be placed at least 50 feet from the nearest State Water, in locations accessible for servicing, and not in low lying areas subject to ponding. They shall be anchored to prevent movement or overturning.

The Contractor shall provide replacement equipment due to breakdown, damage, or theft within five working days.

Subsection 620.05 shall be modified to include:

The Contractor shall furnish the following:

Fuel:	Adequate supply for heating and testing operations.
Electricity:	A 3,000 watt, 115-125 volt AC facility for each field office and field laboratory. Independent generators shall be provided where commercial power is not available.
Telephone:	Minimum flat rate service from nearest exchange for each field office and field laboratory as directed.
Sanitary:	Sanitary facilities shall be serviced and maintained in a sanitary condition.
Trash:	The Contractor shall provide and maintain suitable containers and shall haul away as necessary.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Subsection 620.06 shall be modified to include:

The various facilities shall be included in the mobilization lump sum cost.

Restoration of the field facility areas will not be paid for separately, but shall be included in the cost of the item.

REVISION OF SECTION 625 - CONSTRUCTION LAYOUT AND SURVEYING

DESCRIPTION

Subsection 625.01 shall include the following:

The work consists of pre-construction surveying and layout, an As-Built survey, and utility locating.

The Contractor shall provide all construction surveying. It is recommended that the contractor maintain a survey grade GPS unit onsite with the design grades, control points, and feature locations loaded for reference.

Survey control monuments are located upstream. Contractor shall verify or re-establish control prior to the start of construction.

CONSTRUCTION REQUIREMENTS

Subsection 625.03 shall include the following:

A pre-construction survey shall be conducted to mark the limits of grading and location of proposed in-stream features as indicated in the Plans.

A post-construction survey shall be conducted to survey the final stations, elevations, and dimensions of constructed in-channel features and bench grading, at a minimum.

The Contractor shall preserve, relocate, or replace survey point, including property boundary corners, land corners, range points, and survey control markers and benchmarks. If required, all property boundary corners shall be placed by a registered Colorado Professional Land Surveyor (PLS).

The As-Built Survey shall be certified by a PLS licensed in the state of Colorado and, at minimum include a profile throughout the entire project reach, including areas where no work was completed, and at all cross sections identified in the Plans on the Floodplain Development Permit Information Sheets.

The Contractor shall be responsible for coordinating with local Utility owners (and Colorado811) and property owners and conducting a private utility survey to locate utilities on-site prior to starting work.

Overhead facilities exist within the project area. The Contractor shall coordinate with the utility owners regarding all work around utility lines and poles and temporary support of poles. Contractor shall use caution when operating large vehicles beneath these lines, and maintain minimum clearance as required by utility owners.

Pay Item	**Pay Unit**
Construction and As-built Survey	Lump Sum

REVISION OF SECTION 630 - CONSTRUCTION ZONE TRAFFIC CONTROL

DESCRIPTION

Subsection 630.01 shall include the following:

This work consists of developing and implementing a traffic control/management plan (TCP). The TCP shall be approved by a Traffic Control Supervisor and submitted to the Boulder County Transportation Department for review and approval at the time of the building application.

The traffic control/management plan shall include the following items:

1. Flaggers and/or other traffic control measures must be used at the intersections of the access points on Gold Run Road during hauling operations.
2. Locations and types of warning signs along the roads shall be shown.
3. The applicant must minimize the amount of rocks, mud, and other debris tracked onto Gold Run Road.
4. Prior to project commencement, the applicant must photo-document the conditions of all County roads used for hauling. The applicant must restore all affected roadways to pre-project conditions or better.

The Contractor shall obtain Oversize/Overweight permits from CDOT if applicable.

Pay Item	**Pay Unit**
Traffic Control	Lump Sum

REVISION OF SECTION 626 - MOBILIZATION AND DEMOBILIZATION

DESCRIPTION

Subsection 626.01 shall be modified to include:

Mobilization shall cover all work including labor, material and any incidental work and equipment necessary for mobilization of personnel, equipment and supplies at the project site. This item shall also include the establishment of the Contractor's offices, buildings, and other necessary facilities. This item may also include providing of required bonds, insurance and preparation of the project schedule. The removal of the Contractor's equipment, supplies, excess materials, and cleanup of the site is also included in this item.

In addition, mobilization shall cover all outstanding items listed as a condition of Boulder County's Stream Restoration Permit approval that the Contractor is responsible for not specifically listed in 630-Construction Zone Traffic Control and Section 208 – Erosion Control.

The Contractor shall establish access and staging areas in coordination with the Engineer, Owner, and property owners. The grading associated with creating this staging area is described in Section 203 and the reclamation and revegetation of these areas after demobilization described in Section 212-214.

Heavy Equipment and vehicle fueling must be completed at least 50' from Ingram Gulch or Gold Run over non-porous soils.

Worker parking is permitted only in staging areas and designated approved areas outside of Gold Run Road ROW.

Contractor to determine and finalize all access locations and to acquire a temporary access permit if a new access is to be created, as applicable.

Prior to commencement of site disturbance, the contractor must identify the location of all onsite treatment wastewater systems (OWTS) components in the project area. Heavy equipment should be restricted from the surface of the absorption fields of nearby residences during construction to avoid soil compaction, which could cause premature absorption field malfunction. Contractor to flag all OWTS and Wells with Owner and Engineer.

Contractor shall provide construction fencing as required. The Contractor shall use BMPs to best protect the floodplain and vegetation area per Section 208. The Contractor shall restore any areas disturbed by staging that are outside the proposed grading as shown in the Plans to pre-disturbance grade and native revegetation.

Subsection 626.02 shall be modified to include:

No measurement for payment shall be made of any of the work, materials, and equipment required for mobilization. Payment will be made as the work progresses. Fifty-percent (50%) of the lump sum bid price will be paid at the time of the first monthly progress payment. An additional thirty-percent (30%) will be paid when one-half the original contract amount is earned. The remaining twenty percent (20%) will be paid upon final acceptance of the project.

The lump sum bid price shall include all the Contractor's costs of whatsoever nature including labor, material, and any incidental work and equipment necessary for mobilization of personnel, equipment and supplies at the project site. This item shall also include the establishment of the Contractor's offices,

buildings and other necessary facilities, and all other costs incurred of labor and operations which must be performed prior to beginning the other items under this Contract. This item may also include provision of required bonds, insurance and preparation of the project schedule. The removal of the Contractor's equipment, supplies, excess materials, and cleanup of the site is also included in this item. Mobilization shall not exceed 10% of the total contract.

Payment for temporary construction fencing and temporary construction fencing and flagging to identify vegetation to be protected shall be included under Item 626-Mobilization.

Pay Item	**Pay Unit**
Mobilization	Lump Sum

REVISION OF SECTION 703 - AGGREGATES

All sieve sizes and designations described in this section refer to laboratory sieves having square openings and conforming to ASTM E 11.

Where the Contract refers to a nominal size aggregate, the nominal size shall conform to the gradation in Table 703-1 below.

Table 703-1
DEFINITION OF NOMINAL AGGREGATES

Nominal Size	Material passing the designated sieve by weight		
	100%	90% to 100%	No more than 90%
50 mm (2")	63 mm (2½")	50 mm (2")	37.5 mm (1½")
37.5 mm (1½")	50 mm (2")	37.5 mm (1½")	25.0 mm (1")
25.0 mm (1")	37.5 mm (1½")	25.0 mm (1")	19.0 mm (¾")
19.0 mm (¾")	25.0 mm (1")	19.0 mm (¾")	12.5 mm (½")
12.5 mm (½")	19.0 mm (¾")	12.5 mm (½")	9.5 mm (3/8")
9.5 mm (3/8")	12.5 mm (½")	9.5 mm (3/8")	4.75 mm (#4)

The grading and composition requirements for coarse and fine aggregates for concrete are set forth in Table 703-2.

Table 703-2

CONCRETE AGGREGATE GRADATION TABLE

Percentage Passing Designed Sieves and Nominal Size Designation

Sieve Size	Coarse Aggregates (from AASHTO M 43)									Fine Aggregate
	No. 3	**No. 357**	**No. 4**	**No. 467**	**No. 27**	**No. 6**	**No. 67**	**No. 7**	**No. 8**	
	50 mm to 25.0 mm (2" to 1")	50 mm to 4.75 mm (2" to No. 4)	37.5 mm to 19.0 mm (1½" to ¾")	37.5 mm to 4.75 mm (1½" to #4)	25.0 mm to 4.75 mm (1" to #4)	19.0 mm to 9.5 mm (¾" to 3/8")	19.0 mm to 4.75 mm (¾" to #4)	12.5 mm to 4.75 mm (½" to #4)	9.5 mm to 2.36 mm (3/8" to #8)	4.75 mm to 150 µm (#4 to #100)
63 mm (2½")	100	100								
50 mm (2")	90-100	95-100	100	100						
37.5 mm (1½")	35–70		90–100	95–100	100					
25.0 mm (1")	0-15	35-70	20-55		95-100	100	100			
19.0 mm (¾")			0-15	35-70		90-100	90-100	100		
12.5 mm (½")	0-5	10-30			25-60	20-55		90-100	100	
9.5 mm (3/8")			0-5	10-30		0-15	20-55	40-70	85-100	100
4.75 mm (#4)		0-5		0-5	0-10	0-5	0-10	0-15	10-30	95-100
2.36 mm (#8)					0-5		0-5	0-5	0-10	80-100
1.18 mm (#16)									0-5	50-85
600 µm (#30)										25-60
300 µm (#50)										10-30
150 µm (#100)										2-10

Subsection 703.01 shall be modified to include:

Fine Aggregate for Concrete shall conform to the requirements of AASHTO M 6. The amount of material finer than 75 µm (No. 200) sieve shall not exceed three percent by dry weight of fine aggregate, when tested in accordance with AASHTO T 11 or Colorado Procedure 31, Method D, unless otherwise specified. The minimum sand equivalent, as tested in accordance with AASHTO T 176 shall be 80 unless otherwise specified. The fineness modulus, as determined by AASHTO T 27, shall not be less than 2.50 or greater than 3.50 unless otherwise approved.

Subsection 703.02 shall be modified to include:

Coarse Aggregate for Concrete shall conform to the requirements of AASHTO M 80, except that the percentage of wear shall not exceed 45 when tested in accordance with AASHTO T 96. Coarse aggregate shall conform to the grading in Table 703-2. Sizes 357 and 467 shall each be furnished in two separate sizes and combined in the plant in the proportions necessary to conform to the grading requirements. Compliance with grading requirements will be based on the combination and not on each individual stockpile.

Subsection 703.02 shall be modified to include:

Filter material shall consist of free draining sand, gravel, slag, or crushed stone. The grading requirements are set forth in Table 703-7.

GRADATION SPECIFICATIONS FOR FILTER MATERIAL

Sieve Size	Mass Percent Passing Square Mesh Sieves		
	Class A	**Class B**	**Class C**
75 mm (3")	100		
37.5 mm (1½")		100	
19.0 mm (¾")	20-90		100
4.75 mm (No. 4)	0-20	20-60	60-100
1.18 µm (No. 16)		10-30	
300 µm (No. 50)		0-10	10-30
150 µm (No. 100)			0-10
75 µm (No. 200)	0-3	0-3	0-3

REVISION OF SECTION 710 - FENCE AND GUARDRAIL

Subsection 710.01 shall be modified to include:

Woven wire shall conform to the details and requirements shown on the plans and to the following:

Zinc coated steel woven wire shall conform to the requirements of ASTM A 116, coating Class I.

Aluminum coated steel woven wire shall conform to the requirements of ASTM A 116, Type A.

Fittings and attachments shall be zinc coated to conform to the requirements of

AASHTO M 232.

Subsection 710.02 shall be modified to include:

"W" Beam Rail shall be corrugated sheet steel beams conforming to the requirements of AASHTO M 180 of the designated class and type. The beams shall be galvanized, shop painted or corrosion resistant as may be specified. The same requirements shall apply to metal offset devices.

Corrosion resistant steel for rail elements and terminals shall not be painted or galvanized.

Corrosion resistant beam rails shall consist of corrugated sheet steel conforming to the requirements of AASHTO M 180, Type IV and shall have a corrosion resistance of at least 4 times that of carbon steel without copper (0.02 Max), or twice that of carbon steel with copper. The sheet steel may be either in coils or cut lengths when processed for corrugation.

All corrosion resistant material shall be sandblasted to provide a uniform weathered appearance.

All corrosion resistant steel parts shall be handled with care to avoid gouges, scratches, or dents. Care shall be exercised to keep foreign material such as paint, grease, oil, or crayon, from contact with the surface. Steel parts damaged either physically or by contact with foreign substances, will not be accepted.

During shipment or site storage, corrosion resistant steel parts must be positioned to allow free drainage and air circulation on the surfaces. Natural oxide formation on the steel may occur and will not be considered objectionable.

The Contractor shall furnish three copies of a certified mill test report to the Engineer. This report shall show the results of physical and chemical tests of the metal and its coating.

Subsection 710.03 shall be modified to include:

Fence Posts shall conform to the details and dimensions indicated on the plans. Wood posts shall be straight, sound, and seasoned with ends sawed off square or as indicated. All knots shall be trimmed flush with the surface. Wood posts shall be peeled and shall be treated with preservative in accordance with AASHTO M 133 and AWPA C14. When native cedar posts are called for on the plans, the requirements for peeling and for treating may be omitted.

All dimension timber and lumber required for fences or gates shall be sound, straight, and free from knots, splits, and shakes. It shall be of the species and grades indicated on the plans.

Concrete posts shall be made of concrete of the class specified, and shall contain steel reinforcement as shown on the plans.

Steel posts shall be galvanized in accordance with AASHTO M 111. Fittings, hardware and other appurtenances not specifically covered by the Contract shall be standard commercial grade, and in accord with current standard practice. Pipe material for fence posts shall conform to the requirements shown on the plans and to the requirements of Class 1 Pipe, Grade A or Grade B, of Federal Specification RR-F-191/3C.

Subsection 710.04 shall be modified to include:

Guardrail Posts shall be of either wood or steel. When the choice of post is at the option of the Contractor, there shall be only one kind furnished on the project unless otherwise specified in the Contract.

(a) Wood posts shall be fabricated from an approved or specified timber species and shall be of the quality, diameter or section, and length as specified or as shown in the Contract. Treated posts shall be fabricated or framed before treatment, and shall conform to the requirements of AASHTO M 133.
(b) Steel posts shall be of the section and length as specified or as shown in the Contract. Steel shall conform to the requirements of AASHTO M 183 for the grade specified.
    - The posts shall be galvanized or corrosion resistant as may be specified.
    - All corrosion resistant material shall conform to the requirements of AASHTO M 222.
(c) Concrete deadmen for end anchorages shall be as specified in the Contract.

Subsection 710.05 shall be modified to include:

Guardrail Hardware including splices, end connections, end anchor rods, and accessories shall be as specified or as shown in the Contract.

Bolts, nuts, and washers shall be galvanized in accordance with AASHTO M 232, Class C, or AASHTO M 298, Class 50, Type 1. All other fittings shall be galvanized in accordance with AASHTO M 111. Bolts, nuts, and washers for corrosion resistant guard rail shall be of corrosion resistant material and conform to or exceed the requirements of ASTM A 307.

Where high strength bolts are required, they shall conform to the requirements of ASTM A 325.

REVISION OF SECTION 712 – MISCELLANEOUS

Subsection 712.01 shall be modified to include:

Water used in mixing or curing shall be reasonably clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substance injurious to the finished product. Water will be tested in accordance with, and shall meet the suggested requirements of AASHTO T 26. Water known to be of potable quality may be used without test. Where the source of water is relatively shallow, the intake shall be so enclosed as to exclude silt, mud, grass, or other foreign materials.

FOUR MILE FIRE PROTECTION DISTRICT
CONSTRUCTION CONTRACT

THIS CONTRACT is made this ____ day of _____, 2016 by and between The Four Mile Fire Protection District, a _____ (hereafter "the District " or "Grantee"), and **_____,** (hereafter the "**Contractor**").

RECITALS

WHEREAS, the District, desires to have constructed the _____ as more fully described in a Request for Proposals dated _____ (hereafter the "**Project**"); and

WHEREAS, the District will manage the Project to accommodate the needs and concerns of stakeholders and more efficiently administer Project funds; and

WHEREAS, the Contractor provides professional construction services to the public and is fully qualified to perform the construction of the Project; and

WHEREAS, the District, as part of its Subrecipient Grant Agreement with the Colorado Water Conservation Board ("CWCB") under contract number _____, has been awarded Emergency Watershed Protection Program ("EWP") funds for the purposes set forth herein (hereinafter referred to as the "**CWCB Grant Agreements**); and

WHEREAS, The District, as part of its Subrecipient Grant Agreement with the State of Colorado Department of Local Affairs (DOLA) under contract number CDBG-DR _____, has been awarded Community Development Block Grant Disaster Recovery Program funds (hereinafter referred to as CDBG-DR funds) for the purposes set forth herein (hereinafter referred to as the "**CDBG-DR Grant Agreement**"); and

WHEREAS, the Scope of Work (as hereinafter defined) included in this contract is authorized as part of the District's CWCB and CDGG-DR Grant Agreements; and

WHEREAS, it is beneficial to the District to utilize the Contractor as an independent entity to accomplish the Scope of Work as set forth herein and such endeavor would tend to best accomplish the objectives of the Grant Agreements.

NOW, THEREFORE, in consideration of the mutual promises, covenants and provisions contained herein, and the mutual benefits to be derived therefrom, the parties hereto agree as follows.

COVENANTS AND CONDITIONS

A. GEOGRAPHIC SCOPE OF WORK UNDER THIS CONTRACT

A. General.
The Project is to be constructed on property owned by third parties and not on property owned by the Grantee. The general geographic area involved within the scope of this contract can be described as:

The Wall Street Reach in Upper Fourmile Canyon. Generally between the upstream address of 16 Alpine Gulch and the downstream address of 5411 Fourmile Canyon Drive.

The foregoing may be referenced herein as the **"Project Area."** All of the Project Area is contained within Boulder County, Colorado.

B. Specific Affected Properties.

The specific parcels of real property directly involved or significantly affected by the Project as presently known are as set forth on Exhibit A, attached hereto and incorporated herein as if fully set forth. These parcels may be referred to herein as the **"Affected Properties."** The owners of the Affected Properties, as shown in the records of Boulder County, are as set forth on Exhibit A and may be referred to herein as the **"Affected Landowners."** The Grantee has obtained access and participation agreements from the Affected Landowners.

C. Other Interested Properties.

Other parcels of property that either adjoin or neighbor the specifically affected properties as presently known, may also be set forth on Exhibit A, attached hereto and incorporated herein as if fully set forth. These parcels may be referred to herein as **"Interested Properties."** The owners of the Interested Properties, as shown in the records of Boulder County, are as set forth on Exhibit A and may be referred to herein as the **"Interested Landowners."** The Grantee will obtain authorization, consent, and access from the appropriate Interested Landowners as necessary.

II. SCOPE OF WORK UNDER THIS CONTRACT (the "Work")

A. General.

The Contractor shall complete all construction work necessary to complete the construction of the Project and furnish all equipment and materials needed for the completion of the Project in accordance with such plans, designs, drawings and specifications provided by the Grantee.

B. Consultation with the Grantee.

The Contractor shall communicate with the Grantee about the Project as necessary or appropriate in order to ensure that the Project is completed on time and in accordance with the goals, objectives and requirements of the Project as set forth in the Scope of Work, as hereinafter defined. Such communication shall occur primarily through The Fourmile Watershed Coalition's Watershed Coordinator, acting as Project Manager of this project on behalf of the District.

C. Specific Duties and Responsibilities.

Additional specifics for the Project are set forth in **Exhibit B**, (the "Scope of Work") and **Exhibit C**, (the "Quality Assurance Plan"), attached hereto and made a part hereof by reference.

(i) Part 1 of the Scope of Work describes the preliminary plans and designs that have been heretofore prepared by or on behalf of the Grantee.
(ii) Part 2 of the Scope of Work sets for a breakdown of the Project into specific tasks to be accomplished by the Contractor.
(iii) Part 3 of the Scope of Work contains a more detailed statement of the goals, objectives and requirements of the Project.
(iv) The Quality Assurance Plan describes practices applicable to the Project pursuant to the Grant Agreements.

D. Cleanup and Remediation.

The Contractor shall remove all debris and excess material generated by its work and to remediate and mitigate any disturbance of vegetation and soil conditions on the Affected Properties caused by or resulting from, either directly or indirectly, the work performed by the Contractor. Such cleanup and remediation shall be to the satisfaction of the Grantee in its reasonable discretion.

E. Compliance with Applicable Laws and Grant Requirements.

The construction of the Project will comply with all applicable laws and requirements of the Grant Agreements including but not limited to the laws of the County of Boulder, Colorado, the State of Colorado

and all federal laws including, without limitation, those set forth in the **General Provisions** attached hereto as **Exhibit D** which is incorporated herein by reference as if fully set forth.

F. Permitting

The Contractor shall comply with any and all permits necessary for the completion of the Project. The Contractor and any and all subcontractors or tradespersons providing services to the Contractor in the performance of the work under this Contract shall obtain and maintain during the term of their work under this Contract all permits and licenses that may be necessary under local, state or federal law.

G. Subcontractors.

The Contractor may not assign this Contract but may subcontract any or all of the work to be performed under this Contract. However, notwithstanding any subcontract of work, the Contractor shall supervise all work performed by such subcontractor and shall be strictly liable for the performance of such work and the compliance by such subcontractors with the terms of this Contract including, without limitation, their compliance with Paragraph E of this Section II. The General Conditions set forth in Exhibit D will be incorporated into each and every subcontract for work performed under this Contract.

H. Change Orders and Extra Services.

Upon the written request of the Grantee, the Contractor shall, if requested, alter the design and construct additional improvements in addition to and/or instead of the design and improvements set forth in the Scope of Work. Notwithstanding the foregoing, services requested by the Grantee in writing shall only constitute a change order pursuant to this subsection if this Paragraph H of Section II is expressly referenced in that written request (a **"Change Order"**). The Contractor shall charge the Grantee for such extra services, if any, in accordance with the contract price adjustment, if any, set forth in the Change Order. If no contract price adjustment is referenced in the Change Order, the Contract Price as set forth in Section V shall remain unadjusted..

I. Warranty Administration

Warranty administration will be provided by the Contractor for the Project, including all planted areas, for a period of 12 months following the date of closeout of this Agreement. Warranty administration includes, but is not limited to: warranty request tracking, event documentation, and corrective response. Upon request of the Grantee, the Contractor shall inspect the Project Area and perform response action as needed. Warranty response includes all necessary corrective activities, such as replanting areas, weed control, repairing in stream grade control structures and/or bank repair as needed. Geomorphic monitoring must conform to the CWCB Standard Operating Procedure for Topographic Survey of Stream Channels. The Contractor shall be responsible for obtaining all services, supplies, and subcontracts as needed to perform all warranty service needs and corrective activities. The Contractor shall provide any modification and/or updates to the project record drawings that may result from warranty activities

III. LANDOWNER RELATIONS

A. Access Agreement for Implementation and Construction.

The Grantee has obtained Access Agreement for Implementation and Construction from each of the Affected Landowners. Prior to the Contractor commencing work on the Affected Property, the Contractor must conduct a site walk and flag work areas with the Coalition and property owners to confirm grading extents and locations of septic fields and wells.

B. Contractor's Strict Compliance with terms of the Access Agreements.

The Contactor will not engage in any activities except as permitted under executed and effective Access Agreements entered into by the Grantee with Affected Landowners. The Contractor shall strictly comply with all terms, conditions and responsibilities of the Grantee and its Authorized Parties as provided under such agreements. Communication with affected landowners shall always go through the Coalition's project manager.

IV. TIME OF PERFORMANCE

The Contractor hereby agrees to commence Work under this Contract on or before a date to be specified in a written "Notice to Contractor to Proceed" issued by the Grantee and to fully complete all Work except any necessary irrigation and maintenance activities under this Contract within _____[220 days or less, determined by date of entering contract] thereafter. Any necessary irrigation and maintenance activities under this Contract shall continue for an additional _____ days, as needed. The Contractor agrees to pay, as liquidated damages the sum of $250 for each calendar day or portion thereof between the end of such period and the actual completion of the Work under this Contract as further provided in Paragraph 49 of the General Conditions.

V. AMOUNT OF PAYMENTS TO CONTRACTOR AND TIME OF PAYMENTS

A. Total Amount of Payments.

The total amounts to be paid by the Grantee to the Contractor for completion of the Project and the performance by the Contractor of its obligations under this Contract shall not exceed the sum of _____ Dollars (the **"Contract Price"**). Any changes, whether additions or deductions, shall be made in writing and agreed upon by a change order pursuant to Section II, Paragraph H, and expressly authorized by the Project Manager.

B. Invoices for Partial Completion.

The Contractor may bill the Grantee from time to time but at least on a quarterly basis. Billings shall be made by invoice delivered electronically to the Project Manager. Each invoice shall refer to the _____*(Project Number)* and specify the task or tasks as set forth in Part 2 of the Scope of Work that have been completed since the last invoice together with the estimated cost of such completed task. Each invoice shall include a certification from the Contractor that all wages, bills and amounts due under any subcontract have been paid in full. In accordance with Section 24-91-103, C.R.S., five percent (5%) will be withheld from payment of each invoice for the calculated value of work until the Project is satisfactorily completed and finally accepted by Grantee.

C. Invoice for Final Payment upon Completion.

In accordance with Section 38-26-107, C.R.S., upon completion of the Project and acceptance of the work in accordance with this Contract, the Contractor may invoice the Grantee for the balance of the full Contract Price (as such may have been adjusted by any change orders) including the retainage amount which will be paid in accordance with Section 24-91-103, C.R.S.

D. Dispute of any Invoice.

If the Grantee or the Grantee disputes any invoice for any reason, it shall notify the Contractor as soon as reasonably practicable. The Contractor understands that an invoice may be disputed after it has been submitted for payment pursuant to the terms of the Grant Agreements and a delay notice of a dispute of an invoice arising from a delay in CWCB or DOLA accepting an invoice for payment or a delay in the Project Manager in communicating such a dispute to the Contractor shall not preclude or prevent the Grantee from disputing the payment of any invoice. No verbal or email communication from the Grantee shall constitute a waiver of the right to dispute any invoice.

E. Payment of Invoices.

Once an invoice from the Contractor has been accepted for payment, payment of each invoice shall be due and payable within three (3) business days after the Grantee receives reimbursement from CWCB. Contractors must deposit checks, once received, within three business days. Payment of the final invoice shall be subject to the additional provisions contained in the applicable paragraphs of the General Conditions attached hereto as Exhibit D.

F. Qualifications on Obligations to Pay.

Notwithstanding any other terms of this Contract, the Grantee may withhold any payment (whether a progress payment or final payment) to the Contractor if any one or more of the following conditions exists:

(i) The Contractor is in default of any of its obligations under this Contract.

(ii) Any part of such payment is attributable to services which are not performed according to this Contract. (The Grantee will pay for only the part thereof attributable to services performed according to this Contract.)

(iii) The Contractor fails to make payments promptly to any third parties used in the services for which the Grantee has made payment to the Contractor.

(iv) The Grantee, in its good faith judgment, determines that the portion of the compensation then remaining unpaid will not be sufficient to complete the Project or any task according to this Contract. In such case, no additional payments will be due to the Contractor until the Contractor, at its sole cost, performs a sufficient portion of the Project or task so that the Grantee determines that the compensation then remaining unpaid is sufficient to complete the Project or task.

(v) No partial payment shall be final acceptance or approval of that part of the Project or task paid for, or shall relieve the Contractor of any of its obligations under this Contract.

G. Recapture of Funds

In the event that the Contractor fails to perform this Contract in accordance with state laws, federal laws, and/or the provisions of this Contract, Grantee reserves the right to recapture funds in an amount to compensate Grantee for the noncompliance in addition to any other remedies available at law or in equity. Repayment by the Contractor of funds under this recapture provision shall occur within the time period specified by Grantee. In the alternative, Grantee may recapture such funds from payments due under this Contract.

VI. PAYMENT, PERFORMANCE AND WARRANTY BOND

The Contractor shall, within seven (7) calendar days after the execution of this Contract furnish the Project Manager with a Performance Bond, Payment Bond and Warranty Bond each in the penal amount of one-hundred percent (100%) of the Contract Price. Such bonds shall be obtained from a surety licensed to transact such business in the state of Colorado and acceptable to both the Grantee and CWCB and DOLA. The expense of such bonds shall be borne by the Contractor. Such bonds shall be maintained until such time as the final payment is made by the Grantee to the Contractor in accordance with this Contract.

VII. SUSPENSION OF THE CONTRACT

A. If the Contractor fails to comply with the terms and conditions of this contract, or whenever the Contractor is unable to substantiate full compliance with provisions of this contract, the Grantee may suspend the contract pending corrective actions or investigation, effective not less than seven (7) days following written notification to the Contractor or its authorized representative. The suspension will remain in full force and effect until the Contractor has taken corrective action to the satisfaction of the Grantee and is able to substantiate its full compliance with the terms and conditions of this contract. No obligations incurred by the Contractor or its authorized representative during the period of suspension will be allowable under the contract except: Reasonable, proper and otherwise allowable costs which the Contractor could not avoid during the period of suspension;

B. If upon investigation, the Contractor is able to substantiate complete compliance with the terms and conditions of this contract, otherwise allowable costs incurred during the period of suspension will be allowed; and

C. In the event all or any portion of the work prepared or partially prepared by the Contractor is suspended, abandoned or otherwise terminated, the Grantee shall pay the Contractor for work performed to the satisfaction of the Grantee, in accordance with the percentage of the work completed.

VIII. TERMINATION OF THE CONTRACT

A. This Contract may be terminated by either party for a material breach of this Contract by the other party not caused by any action or omission of either the terminating party by giving the other party written notice at least three (3) days in advance of the termination date. The termination notice shall specify in reasonable detail each such material breach. In the event of such termination by either party, the Contractor shall promptly deliver to the Grantee all drawings, computer programs, computer input and output, analysis, plans, photographic images, tests, maps, surveys, and written materials of any kind generated in the performance of services under this Contract up to and including the date of termination. If this Contract is so terminated by the Contractor, it will be paid for all services rendered up to the date of termination, except as set forth in Section VI above. If this Contract is so terminated by the Grantee, the Contractor will be paid for all services rendered to the date of termination, except those services which, in the Grantee's judgment, constituted the grounds, in whole or in part, of the notice of termination, and except as set forth in Section VII, above. Upon such payment, all obligations of the Grantee to the Contractor under this Contract shall cease.

B. In addition to the foregoing, this Contract may be terminated by the Grantee for its convenience and without cause of any nature by giving the Contractor written notice at least seven days in advance of the termination date. In the event of such termination, the Contractor will be paid for all services rendered to the date of termination, except as set forth in Section VII, above, and upon such payment, all obligations of the Grantee to the Contractor under this Contract shall cease. Furthermore, in the event of such termination, the Contractor shall promptly deliver to the Grantee all drawings, computer programs, computer input and output, plans, photographic images, analyses, test, maps, surveys, and written materials of any kind generated in the performance of its services under this Contract up to and including the date of termination.

IX. CONTRACT DOCUMENTS

The documents that together comprise the entire agreement between the Grantee and the Contractor concerning the Project (the **"Contract Documents"**) consist of the following:

A. The terms and conditions of the Grant Agreements;
B. This Contract;
C. The Exhibits to this Contract;
D. The Grantee's Request for Proposals dated_____;
E. The Proposal submitted by the Contractor dated _____;
F. The Notice of Award dated _____;
G. The Existing Plans, Designs and Specifications referenced in Part 1 of Exhibit A;
H. Access Agreements obtained by the Grantee from Affected Landowners in accordance with Paragraphs A and B of Section III of this Contract;
I. The Notice to Contractor to Proceed issued by the Grantee pursuant to Section IV of this Contract.
J. Any Change Orders prepared and authorized pursuant to Section II, Paragraph H of this Contract;
K. Any amendments to this Contract provided that any such amendment is in writing, specifically references that it amends this Contract and is executed by the Contractor, in its sole discretion, and by the Grantee, in its sole discretion.

The foregoing constitutes the entire agreement between the Grantee and the Contractor and incorporates all prior verbal and written communications between the parties concerning the subject matter included herein.

In the event of conflicting provisions, requirements or discrepancies among the provisions of the Contract Documents, their provisions shall apply in the following order of priority:

(i) The CWCB and EWP Grant Agreements, unless an exception has been granted by CWCB or DOLA in writing and in its sole discretion;
(ii) Amendments to this Contract;
(iii) Change Orders for clarification of drawings, design or work to be performed;
(iv) This Contract;
(v) Exhibits to this Contract;

(vi) Any applicable Access Agreement;
(vii) Final Design Plan Drawings and Specifications;
(viii) The Request for Proposals;
(ix) The Existing Preliminary Plans and Designs; and then
(x) Other documents in a reverse order of chronology (latest documents given priority over older documents).

X. NO MULTIPLE FISCAL YEAR OBLIGATION

Nothing herein shall constitute a multiple fiscal year obligation pursuant to Colorado Constitution, Article X, Section 20. Notwithstanding any other provision of this Contract, the Grantee's obligations under this contract are subject to annual appropriation by the Board of Directors of the Grantee. Any failure of the Board of Directors annually to appropriate adequate monies to finance the Grantee's obligations under this contract shall terminate this Agreement at such time as such then-existing appropriations are to be depleted. Notice shall be given promptly to the Contractor of any failure to appropriate such adequate monies.

XI. FINANCIAL OBLIGATIONS OF THE GRANTEE

All financial obligations of the Grantee under this contract are contingent upon appropriation, budgeting, and availability of specific funds through the Grant Agreements to discharge such obligations. Nothing in this Agreement shall be deemed a pledge of the Grantee's credit, or a payment guarantee by the Grantee to the Contractor. Any failure of the State of Colorado or federal government annually to appropriate adequate monies to finance the Grantee's obligations under this contract shall terminate this contract at such time as such then-existing appropriations are to be depleted.

XII. NON-WAIVER

Nothing herein is intended or shall be interpreted to waive any of the rights, immunities, and protections provided by the Colorado Governmental Immunity Act, CRS §24-10-101, *et seq*., as from time to time amended.

XIII. MISCELLANEOUS

A. Captions.
Each paragraph of this contract has been supplied with a caption to serve only as a guide to the contents. The caption does not control the meaning of any paragraph or in any way determine its interpretation or application.

B. Amendments in Writing.
No amendment or modification shall be made to this Contract unless it is in writing and signed by both parties.

C. Governing Law and Venue.
This Contract is governed by the laws of the State of Colorado. Any suit between the parties arising under this Contract shall be brought only in a court of competent jurisdiction in Boulder County, Colorado.

D. No Third-Party Beneficiaries.
The parties intend no third-party beneficiaries under this Contract. Any person other than the Grantee, the Grantee or the Contractor receiving services or benefits under this Contract is an incidental beneficiary only.

E. No Waiver.
No waiver of any breach or default under this Contract shall be a waiver of any other or later breach of default.

F. Addresses for Notices and Communications.

All notices required or permitted to be given under this Contract shall be in writing, sent by regular mail or by electronic delivery (email), addressed as follows:

FOUR MILE FIRE PROTECTION DISTRICT:
1740 Fourmile Canyon Drive
Boulder, CO 80302

CONTRACTOR:

Either party may, by notice in writing to the other party, change the address to which notices to that party are to be given.

G. Authority.
Each party executing this Contract warrants that the individual executing this Contract is properly authorized to bind such party to this Contract.

IN WITNESS WHEREOF, the parties hereto have signed this Contract effective as of the day and year first above written.

CONTRACTOR

By: _____
Title: _____

FOUR MILE FIRE PROTECTION DISTRICT

_____
_____, President

Exhibit A

Geographic Scope

Affected Properties and Affected Landowners

Street Number	Street *	Boulder Co. Assessor parcel no.	Landowner of Record

❖ ***All street addresses are listed as Boulder County***

Interested Properties and Interested Landowners

Street Number	Street *	Boulder Co. Tax parcel no.	Landowner of Record

❖ ***All street addresses are listed as Boulder County***

Exhibit B
Scope of Work

Part 1—Existing Preliminary Plans and Designs

Each of the foregoing is incorporated by this reference as if fully set forth herein.

Part 2—Breakdown of the Scope of Work into Tasks

Part 3—More Detailed Statement of the Goals, Objectives and Requirements of the Project

Project Goals and Objectives:

Deliverables:

INGRAM GULCH

EWP Stream Stabilization Project

Project Sponsor

Fourmile Watershed Coalition

Boulder, Colorado

Prepared on 04/05/2017

By Norwest Corporation, Denver, Colorado

QUALITY ASSURANCE PLAN

USDA United States Department of Agriculture
Natural Resources Conservation Service

DNR CO
COLORADO
Colorado Water Conservation Board
Department of Natural Resources

UNITED STATES DEPARTMENT OF AGRICULTURE

NATURAL RESOURCES CONSERVATION SERVICE

Denver, Colorado

TABLE OF CONTENTS

Overview 3
QA Personnel 3
Specific Personnel Recommended for this Project 4
Quality Control (QC) 4
Quality Assurance Plan (QAP) 5
Preconstruction Meeting 8
Equipment 9
Performance Time 10
Desirable Skills for QA Personnel 10
Inspection and Requirements Checklist 12

Overview

This *quality assurance plan* is for an Emergency Watershed Protection (EWP) project using the following components:

X	Streambank Shaping (excavation & fill)	X	Bioengineering
X	In-Stream Rock Structures	X	Live Stakes
X	Toe Rock and/or Rock Riprap		Brush Mattresses
X	Toe Wood Along Bottom of Bank	X	Tree Planting
X	Large Woody Debris Structures	X	Boulder Clusters
X	Combination Rock & Wood Structures		Bottomless Culvert
	Open Drainage Ditches	X	Constructed Riffles
X	Tree Revetments		Water Diversions
X	Bankfull Bench Construction	X	Sediment Removal
	Stream Crossing	X	Grade Control Structures

Personnel assigned to the project should have experience observing the installation of the components identified in the above table.

QA PERSONNEL

Sponsor's Representative: someone with the authority to act on behalf of the sponsor.

Technical Representative (Tech Rep): someone with construction experience to assist with construction implementation of the project. This may be a soil conservation technician, soil conservationist, civil engineering technician, district conservationist, or consultant's representative.

Surveyor: someone with survey equipment and experience to assist with spot-checking structure grades and elevations; establishing survey control points for use by the contractor; and for completing as-built survey.

Stream Restoration Specialist (SRS): a person assigned to the project with specialized skills, training, education, and experience implementing stream restoration projects.

Design Engineer: the engineer, stream restoration specialist, or other qualified person responsible for designing the project.

Plant Specialist: person responsible for implementing the project's vegetation plan, including mulch, soil amendments, erosion matting, fencing, and other treatments related to the successful establishment of native riparian vegetation and adjacent upland vegetation. They shall have education and experience with selecting and installing native riparian plant species. They shall oversee all re-vegetation activities.

Specific Personnel Recommended for this Project

Sponsor's Representative:	Maya MacHamer, Cat Price or Bret Gibson
Technical Representative:	Paul Kos and/or representative
Stream Restoration Specialists:	Paul Kos, John Giordanengo and/or representative
Design Engineer:	Paul Kos and/or representative
Vegetation Specialist:	John Giordanengo and/or representative
Surveyor:	TBD

QUALITY CONTROL (QC)

The Contractor is responsible for quality control (QC) to build the project according to the construction specifications and drawings. This responsibility is required by the general specifications section. Quality Assurance personnel will verify that QC tasks are being done. Major QC items include:

1. **Surveys**: The Contractor is responsible for construction stakeout of the work, and meeting grades and elevations required by the drawings.
2. **Utilities**: Verify that the Contractor has located utilities before starting work at the project site. Ask the Contractor, visit the site to see the utility markings, and request utility locate reference number.
3. **Pollution Control**: The Contractor is responsible for preventing pollution of surface and ground water from contamination or from sediment runoff. See specifications for pollution control.
4. **Dewatering**: The Contractor is required to divert or remove water from the work site, as possible, or to work in low flow conditions.
5. **Excavations and Embankments**: The Contractor needs to meet the grades and slopes required by the drawings.
6. **Rock and Aggregates**: The rock must come from a CDOT-approved quarry (with a copy of test results or certifications), or from a source approved by the design engineer.
7. **Material Certifications**: The Contractor shall provide documentation, which certifies that the materials provided comply with the contract requirements. If specified for this project, material certifications for the following are required (items not required for this project are shown in light gray):
    (a) Crushed aggregates – the material used to resurface any road should be tested for gradation.
    (b) Erosion Control Fabric – manufacturer's product data showing compliance with specifications.
    (c) Geotextile – manufacturer's information showing compliance with specifications.
    (d) Structure Rock – visual inspection by the Technical Representative or Inspector.
    (e) Seeding and mulching materials – documentation of a weed-free seed mix and mulch. Seed vendors must provide information as to the weed content of each lot/species included in the seed mix. Unacceptable weed content should be addressed via substitute species and/or adjusting the percent mix of the remaining species.
    (f) Silt fence or Erosion Control Wattles – manufacturer's product data showing compliance with specifications.
    (g) Trees & shrubs – invoice showing source, species, and quantity. Plants must be native to the Front Range of Colorado, with Ecotypic plant material acquired when available.

QUALITY ASSURANCE PLAN (QAP)

The *Natural Resources Conservation Service* (NRCS) Quality Assurance Program assures that the specified contract quality of materials and workmanship is attained. The primary responsibility of the QA personnel is to observe the operations of the Contractor to assure compliance with the construction contract. This includes the physical examination of materials brought on to the site; observation of the placement of materials; observation of the construction techniques; observation of quality control and construction management operations by the Contractor; periodic and continuous observation of construction work. The Quality Assurance Plan may be updated to include changing project conditions and to reflect lessons-learned during construction.

The intensity/frequency of the quality assurance activities is shown in Table 1 – . Conduct periodic quality assurance observations and checks of the Contractor's Quality Control to verify that measurable qualities of the work meet the contract requirements.

The following is a description of the **minimum** quality assurance activities required:

1. The design engineer and stream restoration specialist and technical representative shall attend the **preconstruction meeting** arranged by the sponsor to include the contractor. Design engineer will give an overview of the project with the drawings and answer questions related to the design.
2. The design engineer and stream restoration specialist (or technical representative) shall spot check **construction staking** and survey control to ensure the work is properly staked before work starts. They will also assist the Contractor with establishing survey control for each major work item, particularly in the identification of normal flow and bankfull flow elevations.
3. All listed personnel shall read the construction specifications, drawings, design report, and the QAP.
4. Sponsor's Representative and/or Technical Rep shall review required **submittals** for compliance with the contract requirements. Contact the design engineer or sponsor if there is a problem.
5. The Technical Rep should be in daily communication with the contractor to stay abreast of work in progress and upcoming work activities, including work requiring quality control tests. All onsite personnel shall keep a weekly log of construction activities to provide to the design engineer to keep them informed on project status and concerns.
6. All onsite personnel shall be familiar with sensitive plant and animal species and know how to identify them. Specific concerns for this project are: none.
7. Technical Representative should provide oversight of inspection of **equipment and materials** to ensure they are clean and free of any material that could contain or hold seeds. This should be a continual process and referenced in daily logs. Do this before contractor starts work, and whenever new materials and equipment arrive on-site.
8. Technical Representative should verify that the contractor is meeting **pollution control specifications** and only disturbing ground and vegetation as needed for construction. This should be referenced in daily logs.

9. Technical Representative should ensure the contractor has a **spill-response kit** on-site on a weekly basis and after use.

10. All shall take **digital photographs** of work progress to provide a representative photo record of the project. Photo-document key stages of major work items to record images of foundation preparations, installation of buried features, and completed work. Photographs should include date/time stamp. Share photographs with design engineer and stream restoration specialist on a weekly basis.

11. Design Engineer shall review/observe **subgrade preparations** for all rock structures to ensure compliance with the drawings and specifications before contractor places the rock structure. Accomplish this in a timely manner to avoid delaying the contractor's work. Visually check the stability of the subgrade and foundation; rock, filter, fill, and/or geotextile.

12. Design Engineer shall review/observe proper **placement and use of geotextile**. The geotextile must be installed properly to prevent backfill washout under the structures.

13. Design Engineer or SRS or Vegetation Specialist shall review and observe proper placement of **erosion control fabric** according to drawings and specifications.

14. Design Engineer or SRS shall verify the **backfill material** for rock structures is an acceptable mix of gravel and cobble per specifications. Check for proper compaction or consolidation of backfill materials.

15. Design Engineer or SRS shall spot check **cut and fill slopes** to verify elevations with the drawings. Completed structural elevations (cross vanes, log vanes, etc.) must be within 0.25' of the specified elevations on the drawings unless the material or subgrade (bedrock) prevents this; final grade for benches, floodplains, and slopes must be within 0.5' of the specified elevations on the drawings.

16. SRS and Design Engineer may direct the **creation of micro-topography** at their discretion to create small scale river and landscape features not shown on the plan set provided they are in-line with the vision of the project and not time intensive.

17. SRS and Design Engineer may direct the **installation of rock and wood features** at their discretion to create small scale river and landscape features not shown on the plan set provided they are in-line with the vision of the project and not time or material intensive.

18. Design Engineer and Technical Representative shall observe the installation of basin embankment, connection to all existing culverts, and any side channel connections to verify construction and material specifications are met for foundation material, invert elevations, size and type of flow conveyance structure, fill material, compaction and protective armoring.

19. Vegetation Specialist shall be present for the initiation of all **seeding and mulching operations** as well as the initiation of the planting of container plants, and will provide follow-up oversight as needed.

20. Vegetation Specialist shall be present for the initiation of all **bioengineering treatments** that include live staking.

21. Vegetation Specialist shall be consulted before seed mixes are confirmed, in order to provide recommendation on weed content of lots and approval of substitute species as needed.

PRECONSTRUCTION MEETING

The *Sponsor* should work with the technical representative, stream restoration specialist, and design engineer to establish a mutually agreeable date and time for meeting. Communications to the contractor should be through any of the personnel listed in this document. Someone should be identified to take notes. Include a discussion of the following items in addition to standard pre-construction agenda items.

(1) Introductions and lines of communications.

(2) Overview of the drawings and specifications by *design engineer*.

(3) Point out temporary benchmarks and any layout work accomplished, such as staking for major work items (structures, project start, and end).

(4) Site conditions, special constraints, and site-specific safety concerns.

(5) Contractor is responsible for utility locates. Ask the contractor to provide a copy of confirmation for utility locates.

(6) Remind the contractor to limit disturbance to the site. Discuss **pollution control** requirements to include erosion and sediment control.

(7) **Permit requirements** and conditions. Other special environmental concerns? Cultural Resources? Historical sites?

(8) Discuss tree planting, seeding, and live stakes. Live stakes should be installed during dormant season, but realize that isn't always possible.

(9) Discuss working from bank or during low flow conditions whenever possible.

(10) Discuss any time restrictions, such as winter shutdown, high flow months, and avoiding disturbance during spawning seasons.

(11) Review equipment and material **cleaning requirements**. Importance of preventing spread of invasive species, such as Didymo algae (*Didymosphenia geminate)*.

(12) Construction surveying requirements – contractor is responsible for meeting lines, grades, and elevations for structures and bank shaping.

(13) Discuss **rock source** – provided from the temporary rock storage site or from acceptable on-site sources. Are on-site materials available?

(14) Identify and discuss access routes and staging areas.

(15) Discuss harvesting of on-site materials as applicable. Are on-site materials available?

(16) Get contractor's estimate of **construction duration**. Some contractors may have a construction schedule they are trying to meet.

EQUIPMENT

The QA personnel should have a minimum of the following equipment available when needed:

1. Survey Equipment

    a. GPS, total station, or laser level for setting survey control points, temporary benchmarks, spot-checks, and for as-built survey.
    b. Survey level
    c. Hand level for quick elevation checks
    d. Survey rod, reflector, receiver, etc.
    e. Measuring tape, 200-foot minimum.
    f. Weather resistant field books for taking notes and pens or pencils
    g. Stakes, flags, ribbon, permanent markers, etc.

2. Photographic Equipment

    a. Digital camera with the following minimum features: date/time stamping, video recording, and some zoom capability.

3. Special Clothing

    a. Backpack and clothing suitable for working at remote sites with highly variable weather conditions,
    b. Chest waders and personal safety equipment for working in stream, if necessary
    c. Studded wading boots (no felt soles, due to potential of Didymo contamination))
    d. Other clothing as appropriate to provide the required services

4. Other Special Equipment

    a. Mobile telephone
    b. Notebook computer or similar device for making notes while on-site (optional – nice-to-have).

5. Safety Gear

    a. Hard hat
    b. Bright-colored safety vest.
    c. Appropriate footwear, such as boots with toe and ankle protection.

d. Repirators and eyewear appropriate for the soil amendments, fertilizers, and other materials according to MSDS specifications.
e. Other applicable safety gear for site-specific conditions

PERFORMANCE TIME

For estimated project duration, see the performance time in the design report. Actual construction times vary due to weather, site conditions, flow levels, contractor efficiency, material delivery times, quantity of equipment, size of equipment, size of labor force, fuel availability, unforeseen problems, mechanical problems, personnel availability, traffic, accidents, and other unpredictable factors.

DESIRABLE SKILLS FOR QA PERSONNEL

1. Skills

    a. Ability to understand the plans and specifications.
    b. Ability to maintain construction records.
    c. Basic photography.
    d. Basic math and reading.
    e. Ability to assist with basic layout, staking, quantity, and "as-built" surveys.
    f. Ability to get to the project site and walk across uneven terrain.
    g. Ability to operate the equipment required to meet the QAP requirements.
    h. Good communications skills to communicate with the Contractor, sponsors, and personnel of other federal, state, and local government agencies. Ability to communicate in person, by email, written reports, telephone, and through legible handwritten documentation.

2. Training & Experience

    a. On-the Job Training for stream restoration work.
    b. Attend stream restoration related training when it is made available.
    c. Some experience on a stream restoration project site.
    d. Some knowledge or training in geomorphic stream design, such as Rosgen Level I or equivalent preferred.

INSPECTION AND REQUIREMENTS CHECKLIST

At a minimum, periodically observe all work for compliance with the construction documents. The following are items of work and QA activities for this project.

Table 1 – Quality Assurance Activities and Frequencies

✓	**Description**	**Staff**	**Inspection Frequency**
	Field verification of design, setting or checking survey control for structures, and staking out structure locations	SRS and Design Engr & Surveyor	Once
	Attend **preconstruction meeting** – good opportunity for everyone to get familiar with project	SRS and Design Engr	Once
	Mobilization and coordination with the sponsor	Tech Rep, Design Engr or SRS	Periodic
	Approve clearing limits; make sure the contractor has coordinated access route with sponsor; and make sure contractor doesn't disturb more vegetation than necessary.	Tech Rep, Design Engr or SRS	Periodic
	Monitoring of materials and equipment being delivered to the project site – random weekly spot checks with documentation in job diary. Frequency will vary depending on Contractor's delivery schedule and level of trust established.	Tech Rep or SRS	Weekly
	Pollution control work, including erosion & sediment control measures	Tech Rep	Weekly
	Conformance with grades, structure geometry, & elevations. Make sure contractor is using a level, tape, or other survey equipment. If in doubt, contact Design Engineer.	Tech Rep	Periodic
	Seeding and mulching of disturbed areas after grading is completed and before work shutdowns (before holidays & weekends)	Tech Rep	Weekly
	Ensure the site is stabilized before predicted rainstorms. Banks protected. Wood structures anchored. Equipment and materials out of flow path of rising stream levels.	Tech Rep	Periodic
	Coordination of tree removal with sponsor and trees for project use flagged and approved by sponsor	Tech Rep	Once

	Rock riprap and rock toe installation – verification of keys, proper geotextile installation, etc.	Tech Rep	Periodic
	Geotextile installation	Tech Rep	Continuous
	Seeding, mulching, and erosion control fabric	Tech Rep	Periodic
	Periodic site visits and at critical times during construction	Design Engr or SRS	Periodic
	Tree planting and restoration of temporary access roads/staging areas	Tech Rep	Periodic
	Call or email the *design engineer* to discuss any work that doesn't seem right or to relay questions from the contractor	Tech Rep	As Needed
	Pre-completion inspection of work while contractor still has equipment and materials on-site	Tech Rep & Design Engr or SRS	Once
	Keep written field notes and take digital photographs of work progress	Tech Rep	Periodic
	Final inspection and certification of work completed	Design Engr or SRS	Once
	Construction status updates to design engineer or Stream Restoration Specialist via email	Tech Rep	Weekly
	Assist with data collection for as-built drawings	Tech Rep & Surveyor	Once
	Submit as-built drawings to NRCS	Design Engineer	Once

Exhibit D
General Conditions

INDEPENDENT CONTRACTOR

1) The relationship between the Contractor and the Grantee is that of an independent contractor. The Contractor shall supply all personnel, equipment, materials and supplies at its own expense, except as specifically set forth herein. The Contractor shall not be deemed to be, nor shall it represent itself as, an employee, partner, or joint venturer of the Grantee or the Grantee. No employee or officer of the Grantee shall supervise the Contractor. **The Contractor is not entitled to workers' compensation benefits and is obligated to directly pay federal and state income tax on money earned under this Contract.**

PERSONNEL

2) The Contractor represents that it has, or will secure at its own expense, all personnel required in order to perform under this contract. Such personnel shall not be employees of, or have any contractual relationship to, the Grantee or Grantee. All services required hereunder will be performed by the Contractor or under its supervision and all personnel engaged in the work shall be fully qualified and shall be authorized or permitted under federal, state and local law to perform such services. None of the work or services covered by this contract shall be subcontracted without prior written approval of the Grantee. Any work or services subcontracted hereunder shall be specified in written contract or agreement and shall be subject to each provision of this contract. The Contractor shall provide to Grantee a copy of each written subcontractor contract or agreement prior to any work being started by such subcontractor.

INTELLECTUAL PROPERTY RIGHTS

3) The Contractor shall hold and save harmless the Grantee and Grantee from any and all claims for infringement, by reason of the use of any patented design, device, material, process, or trademark or copyright, and shall indemnify the Grantee or Grantee for any costs, expenses, and damages, including court costs and attorney fees, which it might be obligated to pay by reason of infringement at any time during the prosecution or after completion of its work under this Contract.

4) All work notes, reports, documents, computer programs (non-proprietary), computer input and output, analyses, tests, maps, surveys, or any other materials developed specifically for the Project are and shall remain the sole and exclusive property of the Grantee. The Contractor, upon request by the Grantee, agrees to provide documents or any other materials developed specifically for the Project in an electronically editable format (for example, Word or Excel). The Contractor shall not, without the prior written consent of the Grantee, provide copies of any material prepared under this Contract to any other party.

CONFLICT OF INTEREST PROVISIONS

5) The Contractor represents, warrants and covenants that it presently has no interest and shall not acquire interest, direct or indirect, in any of the Affected Properties or any other real property or financial interest which would conflict in any manner or degree with the performance of its services hereunder. The Contractor further covenants that in the performance of this contract, no person having such interest shall be employed.

6) The Contractor represents, warrants and covenants that no member of the governing body of the Grantee or Grantee, and no other officer, employee, or agent of the Grantee who exercises any functions or responsibilities in connection with the planning and carrying out of the Project has any interest, direct or indirect, in the Contractor or this Contract; and the Contractor shall take appropriate steps to assure compliance with this provision for the term of the Contract.

CONTRACTOR'S DUTIES

7) Notwithstanding anything to the contrary contained in this Contract, the Grantee and the Contractor agree and acknowledge that the Grantee enters into this Contract relying on the special and unique abilities of the Contractor to accomplish the Project. The Contractor accepts the relationship of trust and confidence established between it and the Grantee by this Contract. The Contractor covenants with the Grantee to use its best efforts. The Contractor shall further the interests of the Grantee according to the Grantee's requirements and procedures, according to the highest professional standards and in compliance with all applicable national, federal, state, municipal laws, regulations, codes, ordinances, and orders and with those of any other body having jurisdiction.

8) The Contractor represents, covenants, and agrees that it has and will undertake no obligations, commitments, or impediments of any kind that will limit or prevent it from the timely completion of the Project, loyally and strictly according to the best interests of the Grantee. In case of any conflict between interests of the Grantee and any other entity, the Contractor shall fully and immediately disclose the issue to the Grantee and shall take no action contrary to the Grantee's interests.

9) The Contractor has familiarized itself with the nature and extent of the Contract Documents, the geographic area of the Project and its physical characteristics, including without limitation the existing improvements, soil conditions, drainage, topography and all other features of the terrain and the local conditions and federal, state and local laws, ordinances, rules and regulations that in any manner may affect the cost, progress or performance of the work to be performed under this Contract.

10) The Contractor understands that it shall not be allowed any extra compensation by reason of any condition as described in Paragraph 9 above concerning which it might have fully informed itself prior to signing this Contract.

11) The Contractor is retained to perform work for the Grantee that includes confidential data, work product, and other privileged or confidential information that is protected under pertinent laws and Grantee policies. In order to maintain the fact and appearance of absolute objectivity, loyalty, and professionalism, the Contractor shall not, without the prior written consent of the Grantee, do any of the following:
    a. Disclose at any time information obtained as a result of this contractual relationship to any third party;
    b. Make any public statements or appear at any time to give testimony at any public meeting on the subject matters with regard to which the Contractor is or was retained by the Grantee. To the extent that the Grantee provides written consent for the disclosure of information or authorizes the making of public statements, the Grantee may impose such conditions upon such disclosure or communications as it thinks appropriate, and the Contractor agrees to comply with those conditions. This provision shall not preclude the Contractor from providing information to law enforcement officials in connection with any criminal justice investigation.

12) The Contractor represents, covenants, and agrees that all of the services furnished, work performed and materials used by the Contractor under this Contract shall be of at least the standard and quality prevailing among highly competent professionals who perform work of a similar nature to the work described in this Contract and shall be of good quality, free from faults or defects and in conformance with the Contract Documents to the reasonable satisfaction of the Grantee.

13) The Contractor represents, covenants, and agrees that its work will be accurate and free from any material errors. The Contractor additionally represents, covenants, and agrees that the planning for the Project will conform to all foreseeable uses thereof. Grantee approval shall not diminish or release the Contractor's duties since the Grantee is ultimately relying upon the Contractor's skill and knowledge.

14) The Contractor agrees to call to the Grantee's attention errors in any drawings, plans, sketches, instructions, information, requirements, procedures, and other data supplied to the Contractor (by the Grantee, Grantee or any other party) that it becomes aware of and believes may be unsuitable, improper, or inaccurate in a material way. However, the Contractor shall not independently verify the validity, completeness, or accuracy of such

information unless otherwise expressly engaged to do so by the Grantee. Nothing shall detract from this obligation unless the Contractor advises the Grantee in writing that such data may be unsuitable, improper, or inaccurate and the Grantee nevertheless confirms in writing that it wishes the Contractor to proceed according to the data as originally given.

15) The Contractor represents, covenants, and agrees to furnish efficient business administration and superintendence and perform the services required by this Contract in the best, most expeditious and most economical manner consistent with the interests of the Grantee.

16) The Contractor represents, covenants and agrees that it holds all required licenses or certifications to perform the services under this Contract and shall maintain them in full force through the duration of the Project.

17) The Contractor shall promptly pay all bills for labor and material performed and furnished by others in performance of the Project.

18) The Contractor is solely responsible for its own review and understanding of the terms and requirements under the Grant Agreements and shall fully comply with such requirements in performing the services required by this Contract.

19) The Contractor shall comply with the Watershed Best Management Practices, as referenced at http://www.coloradoewp.com/guideline-and-resources, so as to prevent harm from arising to the Affected Properties as a result of the Contractor's performance of work under this Contract.

20) The Contractor shall comply with all requirements of OSHA regulations, NRCS Supplement to OSHA Parts 1910 and 1926, attached as **Exhibit E**, and the Contract Work Hours and Safety Standards Act as supplemented by Department of Labor Regulations. The Contractor shall report to Grantee periodically regarding its compliance with safety requirements.

COMPLIANCE WITH LAWS

21) This Contract is funded in whole or in part with federal funds through the Grantee's Grant Agreements to fund projects approved under the NRCS Emergency Watershed Protection Program and DOLA's Community Development Block Grants. Contractors are responsible for complying with those regulations and restrictions normally associated with federally-funded programs and any other requirements that the state may prescribe. The Contractor shall comply with all applicable laws, ordinances and codes of the state and local government and the Contractor shall save the Grantee harmless with respect to any damages arising from any tort done in performing any of the work embraced by this Contract.

22) The Contractor will comply with all federal statutes relating to nondiscrimination and environmental protection, including but not limited to those listed herein, including the Clean Water Act and the Clean Air Act.

23) Under Title VI of the Civil Rights Act of 1964, no person shall, on the grounds of race, color, creed, religion, sex or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance including funds received under the Grant Agreements.

24) Under Section 109 of the Housing and Community Development Act of 1974, no person in the United States shall, on the grounds of race, color, creed, religion, sex or national origin, be excluded from participation in, be denied benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under this title including funds received under the Grant Agreements.

25) Under the Age Discrimination Act of 1975, as amended, (42 U.S.C. 610 et. seq.), no person shall be excluded from participation, denied program benefits, or subjected to discrimination on the basis of age under any program or activity receiving federal funding assistance including funds received under the Grant Agreements.

26) Under Section 504 of the Rehabilitation Act of 1973, as amended, (29 U.S.C. 794), no otherwise qualified individual shall, solely by reason or his or her disability, be excluded from participation (including employment), denied program benefits, or subjected to discrimination under any program or activity receiving federal funds including funds received under the Grant Agreements.

27) Under Public Law 101-336, Americans with Disabilities Act of 1990, no qualified individual with a disability shall, by reason of such disability, be excluded from participation in or be denied the benefits of the services, programs, or activities of a public entity, or be subjected to discrimination by any such entity.

28) The Contractor shall comply with Equal Opportunity provisions. During the performance of this contract, the Contractor agrees as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this Equal Opportunity (Federally Assisted Construction) clause.

2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

3. The Contractor will send to each labor union or representative of workers, with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the Contractor's commitments under
this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

4. The Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

5. The Contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

6. In the event of the Contractor's noncompliance with the Equal Opportunity (Federally Assisted Construction) clause of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended, in whole or in part, and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as provided by law.

7. The Contractor will include this Equal Opportunity (Federally Assisted Construction) clause in every subcontract or purchase order unless exempted by the rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the Contractor may request the United States to enter into such litigation to protect the

29) The Contractor certifies that it shall comply with the provisions of section 8-17.5-101 *et seq.,* C.R.S. The Contractor shall not knowingly employ or contract with an illegal alien to perform work under this contract or enter into a contract with a subcontractor that fails to certify to the Contractor that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this Contract.

30) Under the Contract Work Hours and Safety Standards Act, as amended, (40 U.S.C. 327-332), workers must be compensated for overtime and be provided safe and healthy working conditions when working on federally assisted (including funds received under the Grant Agreements) construction projects.

31) The Contractor represents, warrants, and agrees (i) that it has confirmed the employment eligibility of all employees who are newly hired for employment to perform work under this Contract through participation in either the E-Verify or the Department Program; (ii) that the Contractor is prohibited from using either the E-Verify Program or the Department Program procedures to undertake pre-employment screening of job applicants while the public contract for services is being performed; and (iii) if the Contractor obtains actual knowledge that a subcontractor performing work under the public contract for services knowingly employs or contracts with an illegal alien, the Contractor shall be required to:
    a. Notify the subcontractor and the contracting state agency or political subdivision within three (3) days that the Contractor has actual knowledge that the subcontractor is employing or contracting with an illegal alien; and
    b. Terminate the subcontract with the subcontractor if within three (3) days of receiving the notice required pursuant to 8-17.5-102(2)(b)(III)(A) the subcontractor does not stop employing or contracting with the illegal alien; except that the Contractor shall not terminate the contract with the subcontractor if during such three days the subcontractor provides information to establish that the subcontractor has not knowingly employed or contracted with an illegal alien.

32) The Contractor further agrees that it shall comply with all reasonable requests made in the course of an investigation under section 8-17.5-102(5), C.R.S. by the Colorado Department of Labor and Employment. If the Contractor fails to comply with any requirement of this provision or section 8-17.5-101 *et seq.,* C.R.S., the Grantee may terminate this contract for breach and the Contractor shall be liable for actual and consequential damages to the Grantee.

33) The Contractor will comply with the provisions of the Federal Fair Labor Standards Act.

34) Section 3 of the Housing and Community Development Act of 1968 Compliance in the Provision of Training, Employment, and Business Opportunities: The work to be performed under this Agreement is on a project assisted under a program providing direct federal financial assistance from HUD and is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u. Section 3 requires that to the greatest extent feasible opportunities for training and employment be given lower-income residents of the project area; and contracts for work in connection with the project be awarded to business concerns which are located in, or owned in substantial part, by persons residing in the area of the project. The Contractor will comply with the provisions of said Section 3 and the regulations issued pursuant thereto by the Secretary of HUD set forth in 24 CFR 135, and all applicable rules and orders of HUD and CTED issued thereunder prior to the execution of this contract. The Contractor certifies and agrees that it is under no contractual or other disability that would prevent it from complying with these provisions.

35) No funds under this Contract shall be used for the acquisition, operation, or maintenance of computer software in violation of federal copyright laws or applicable licensing restrictions.

36) The Contractor shall not subcontract with parties excluded from in the federal System for Award Management, which includes all parties debarred, suspended, or otherwise excluded by agencies or declared ineligible to receive federal funds.

COMPLIANCE WITH DAVIS-BACON ACT PROVISIONS

37) The Project to which the construction work covered by this Contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. **(i) Minimum Wages.** All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor as determined between three (3) and ten (10) days prior to the bid opening which determination is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section l(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

(ii) **(a)** Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will

notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this Contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this Contract or any other Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the Contractor, disburse such amounts withheld for and on account of the Contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. **(i) Payrolls and basic records.** Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section l(b)(2)(B) of the Davis-bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section l(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) **(a)** The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the

contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The Contractor shall also submit payrolls for those weeks after work begins and where no work is performed for whatever reason with hours and payments marked with zeroes (0) until the final walk through is completed. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at *http://www.dol.gov/esa/whd/forms/wh347instr.htm* or its successor site. The prime Contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime Contractor to require a subcontractor to provide addresses and social security numbers to the prime Contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The Contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job and shall not require notice of planned interviews. If the Contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the Contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant ',to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

38) **Compliance with Copeland Act requirements.** The Contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this Contract.

39) **Limitation on Public Statements and Lobbying Activity.**

Contractor are retained to provide information and advice to the Grantee that includes confidential data, work product, and other privileged or confidential information that is protected under pertinent laws and Grantee policies and described in Grantee's sub- agreement with the State. In order to maintain the fact and appearance of absolute objectivity, loyalty, and professionalism, Contractor shall not, without the prior written consent of the Grantee, do any of the following:

a) Disclose at any time information obtained as a result of this contractual relationship to any third party.

b) Lobby any Grantee agency on any pending matter while they are under Agreement to the Grantee.

c) Make any public statements or appear at any time to give testimony at any public meeting on the subject matters with regard to which Contractor is or was retained by the Grantee. To the extent that the Grantee provides written consent for the disclosure of information or authorizes the making of public statements, the Grantee may impose such conditions upon such disclosure or communications as it thinks appropriate, and Contractor agree to comply with those conditions. This provision shall not preclude Contractor from providing information to law enforcement officials in connection with any criminal justice investigation.

40) Byrd Anti-Lobbying Amendment.

The Contractor shall supply a certification that it has not used federal funds to pay any person or organization for influencing or attempting to influence an officer or employee or any agency, a member of Congress, officer or employee of Congress in connection with obtaining any federal contract or grant.

INDEMNIFICATION

41) The Contractor shall comply with the requirements of all applicable laws, rules, and regulations in connection with the services of the Contractor, and shall exonerate, indemnify, and hold harmless the Grantee, its officers, directors, agents, and all employees from and against it, and local taxes or contributions imposed or required under the Social Security, Workers' Compensation, and Income Tax Laws. Further, the Contractor shall exonerate, indemnify, and hold harmless the Grantee (the District and Watershed Coalition), Interested Landowners, Affected Landowners, The State of Colorado and Grantee with respect to any damages, expenses, or claims arising from or in connection with any of the work performed or to be performed under this contract by the Contractor. This shall not be construed as a limitation of the Contractor's liability under this Contract or as otherwise provided by law. Nothing herein shall be construed as a waiver express or implied of any of the immunities, rights, benefits, protections, or other provisions, of the Colorado Governmental Immunity Act, CRS § 24-10-101, *et seq*.

INSURANCE

42) The Contractor agrees to procure and maintain in force during the terms of this Contract, at its own cost, the following minimum coverages:

a.	Workers' Compensation and Employers' Liability	Statutory
b.	Commercial General Liability	
	Bodily Injury & Property Damage General Aggregate Limit	$1,000,000
	Personal & Advertising Injury Limit	$1,000,000
	Each Occurrence Limit	$1,000,000

The policy shall be on an Occurrence Form and include the following coverages: Premises Operations; Personal and Advertising Injury; Medical Payments; Liability Assumed under an Insured Contract; Independent Contractors; and Broad Form Property Damage. Coverage provided should be at least as broad as found in Insurance Services Office (ISO) form CG0001.

c.	Professional Liability (errors and omissions)	
	Each Claim/Loss:	$1,000,000
	Aggregate:	$3,000,000
	Products and Completed Operations Aggregate	$1,000,000
	Any one Fire	$ 50,000

This coverage shall remain in place for at least two years after the project is complete.

d.	Commercial Automobile Liability Limits	
	Bodily Injury & Property Damage Combined Single Limit	$1,000,000
	Medical Payments per person	$ 5,000
	Uninsured/Underinsured Motorist	$ 100,000

e. Waiver of subrogation

Coverage is to be provided on Business Auto, Garage, or Truckers form. Coverage provided should be at least as broad as found in ISO form CA0001 (BAP), CA0005 (Garage) or CA0012 (Trucker) including coverage for owned, non-owned, & hired autos.

43) Insurance required by this Contract shall be primary coverage, unless otherwise specified, and shall specify that in the event of payment for any loss under the coverage provided, the insurance company shall have no right of recovery against the Grantee and Grantee or its insurers. All policies of insurance under this Contract shall be provided by a reputable insurance company or companies qualified to conduct business in Colorado. The Grantee reserves the right, but shall not have the duty, to reject any insurer which it finds to be unsatisfactory and insist that the Contractor substitute another insurer that is reasonably satisfactory to the Grantee. Property and Liability Insurance Companies shall be licensed to do business in Colorado and shall have an AM Best rating of not less than A- VI. This insurance shall be maintained in full force and effect during the term of this Contract and for the additional periods set forth herein and shall protect the Contractor, its agents, employees and representatives from claims for damages for personal injury and wrongful death and for damages to property arising in any manner from negligent or wrongful acts or omissions of the Contractor, its agents, employees, and representatives in the performance of the services covered herein.

44) All Insurance policies (except Workers' Compensation and Professional Liability) shall include the Grantee, Interested Landowners, Affected Landowners, Grantee, the State of Colorado and its officers, directors, agents and employees as additional insureds as their interests may appear. The additional insured endorsement should be at least as broad as ISO form CG2010 for General Liability coverage and similar forms for Commercial Auto and Umbrella Liability.

45) Automobile insurance shall, without limitation, cover all automobiles used in performing any services under this Contract.

46) In the case of any claims-made insurance policies, the Contractor shall procure necessary retroactive dates, tail coverage and extended reporting periods to cover a period at least two (2) years beyond the expiration date of this Contract. This obligation shall survive the termination or expiration of this Contract.

47) The Contractor shall not cancel, materially change, or fail to renew required insurance coverages. The Contractor shall notify the Project Manager of any material reduction or exhaustion of aggregate limits. Should the Contractor fail to immediately procure other insurance, as specified, to substitute for any policy canceled before final payment to the Contractor, the Grantee may procure such insurance and deduct its cost from any sum due to the Contractor under this Contract.

48) Certificates showing that the Contractor is carrying the above-described insurance, and the status of the additional insureds, shall be furnished to the Project Manager prior to the execution of this Contract by the Grantee. Certificates of insurance on all policies shall give the Grantee written notice of not less than forty-five (45) days prior to cancellation or change in coverage. The Contractor shall forthwith obtain and submit proof of substitute insurance in the event of expiration or cancellation of coverage.

BOOKS AND RECORDS OF THE CONTRACTOR

49) The Contractor agrees to maintain such records and follow such procedures as may be required under the Grant Agreements and any such procedures as the Grantee or Grantee may prescribe. In general, such records will include information pertaining to the contract, obligations and unobligated balances, assets and liabilities, outlays, equal opportunity, labor standards (as appropriate), and performance.

50) All such records and all other records pertinent to this contract and work undertaken under this contract shall be retained by the Contractor for a period of five years after final payment is made by the Grantee to the Contractor under this Contract project, unless a longer period is required to resolve audit findings or litigation. In such cases, the Grantee shall request a longer period of record retention.

51) The Grantee, Grantee and other authorized representatives of the state and federal government shall have access to any books, documents, papers and records of the Contractor which are directly pertinent to the contract for the purpose of making audit, examination, excerpts, and transcriptions.

52) The Grantee, the Project Manager and duly authorized officials of the state and federal government shall have full access to and the right to examine any pertinent documents, papers, records and books of the Contractor involving transactions related to the Grant Agreements or this contract.

TIME FOR COMPLETION AND LIQUIDATED DAMAGES

53) Time is of the essence of each and every portion of this Contract. It is hereby understood and mutually agreed, by and between the Contractor and the Grantee, that the date of beginning and the time for completion as specified in Section IV of this Contract of the work to be done hereunder are essential conditions of this Contract; and it is further mutually understood and agreed that the work embraced in this Contract shall be commenced on a date to be specified in the "Notice to Proceed." The Contractor agrees that the Work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will insure full completion thereof within the time specified. It is expressly understood and agreed that the time for the completion of the Work set forth in this Contract is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality. Upon becoming aware of any reason why there may be a delay in the completion of any portion of the Work under this Contract, the Contractor shall notify the Project Manager of the nature and cause of the delay.

If the Contractor refuses, neglects or fails for any reason to complete the work within the time specified, or any proper extension thereof granted by the Grantee in its sole discretion, then the Contractor shall pay the Grantee the amount specified in this Contract, not as a penalty but as liquidated damages for such breach of contract. Such amount is fixed and agreed upon by and between the Contractor and the Grantee because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Grantee would in such event sustain.

PROJECT COMPLETION AND FINAL PAYMENT

54) Upon completion of work on the Project, the Contractor shall, within ten (10) calendar days send the Grantee notice that the Project has been completed (the "**Contractor's Notice of Completion**"). This Notice of Completion shall be accompanied by an invoice from the Contactor for the balance of the Contract Price increased or decreased by any adjustment of such Contract Price made by any Change Order. It shall also be accompanied by an affidavit from the Contractor stating that all subcontractors, vendors, persons or firms who

have supplied labor or materials for the work on the Project have been fully paid or satisfactorily secured and that all taxes, if any, have been paid. The Contractor's Notice of Completion shall also be accompanied by a statement from the surety company that provided the Contractor's payment and performance bonds, as required under Section VI of this Contract, consenting to final payment by the Grantee under this Contract.

55) Upon receipt of a Contractor's Notice of Completion, the Grantee shall:
    a) Be entitled to publish a Notice of Final Settlement in accordance with the provisions of Colorado Revised Statutes Section 38-26-107;
    b) Be entitled to inspect the Affected Properties and provide written notice to the Contractor of either (i) any observed deficiencies in the work to have been performed under this Contract or (ii) the acceptance by the Grantee of the work performed under this Contract; provided, however, that such written notice shall not waive any claims the Grantee may otherwise have against the Contractor under this Contract.

56) Upon the expiration of the time allowed for claims to be made under the provisions of Colorado Revised Statutes Section 38-26-107 or within three (3) calendar days after receipt by the Grantee of reimbursement of the Contractor's final invoice pursuant to the Grant Agreements, whichever comes later, the Grantee shall pay the Contractor the balance of the Contract Price increased or decreased by any adjustment of such Contract Price made by any Change Order less the amount of any claims received by the Grantee in accordance with the provisions of Colorado Revised Statutes Section 38-26-107.

57) By submitting a Contractor's Notice of Completion to the Grantee, the Contractor, by such act, agrees to indemnify and save the Grantee, the Grantee, the Affected Landowners, the Interested Landowners, The State of Colorado and their respective agents harmless from any and all claims growing out of any demand (whether with merit or not) from any subcontractor, laborers, workmen, mechanics, material men and furnishers of machinery, equipment, tools, supplies or materials incurred by the Contractor in the performance of the work under this Contract.

58) The acceptance by the Contractor of final payment shall be and shall operate as a release of the Grantee of all claims and all liability to the Contractor for all claims for all work performed and materials provided in connection with this Contract.

AUDITS AND INSPECTIONS

59) The Grantee, its independent certified public accounts, the State Auditor of the State of Colorado, CWCB or their delegates shall have the right to review and monitor the financial records, payroll records, records of personnel, invoice of materials and other components of the work and services provided and undertaken as part of the project and this Contract, by whatever legal and reasonable means are deemed expedient by such persons. Such persons shall also be permitted to inspect all work and worksites at any time deemed appropriate by such persons.

SUSPENSION OF THE CONTRACT

60) If the Contractor fails to comply with the terms and conditions of this contract, or whenever the Contractor is unable to substantiate full compliance with provisions of this contract, the Grantee may suspend the contract pending corrective actions or investigation, effective not less than seven (7) days following written notification to the Contractor or its authorized representative. The suspension will remain in full force and effect until the Contractor has taken corrective action to the satisfaction of the Grantee and is able to substantiate its full compliance with the terms and conditions of this contract. No obligations incurred by the Contractor or its authorized representative during the period of suspension will be allowable under the contract except:
    a. Reasonable, proper and otherwise allowable costs which the Contractor could not avoid during the period of suspension;
    D. If upon investigation, the Contractor is able to substantiate complete compliance with the terms and conditions of this contract, otherwise allowable costs incurred during the period of suspension will be allowed; and

E. In the event all or any portion of the work prepared or partially prepared by the Contractor is suspended, abandoned or otherwise terminated, the Grantee shall pay the Contractor for work performed to the satisfaction of the Grantee, in accordance with the percentage of the work completed.

TERMINATION OF THE CONTRACT

61) This Contract may be terminated by either party for a material breach of this Contract by the other party not caused by any action or omission of either the terminating party or CWCB by giving the other party written notice at least three (3) days in advance of the termination date. The termination notice shall specify in reasonable detail each such material breach. In the event of such termination by either party, the Contractor shall promptly deliver to the Grantee all drawings, computer programs, computer input and output, analysis, plans, photographic images, tests, maps, surveys, and written materials of any kind generated in the performance of services under this Contract up to and including the date of termination. If this Contract is so terminated by the Contractor, it will be paid for all services rendered up to the date of termination, except as set forth in Section V above. If this Contract is so terminated by the Grantee, the Contractor will be paid for all services rendered to the date of termination, except those services which, in the Grantee's judgment, constituted the grounds, in whole or in part, of the notice of termination, and except as set forth in Section V above. Upon such payment, all obligations of the Grantee to the Contractor under this Contract shall cease.

62) In addition to the foregoing, this Contract may be terminated by the Grantee for its convenience and without cause of any nature by giving the Contractor written notice at least seven days in advance of the termination date. In the event of such termination, the Contractor will be paid for all services rendered to the date of termination, except as set forth in Section V above and upon such payment, all obligations of the Grantee to the Contractor under this Contract shall cease. Furthermore, in the event of such termination, the Contractor shall promptly deliver to the Grantee all drawings, computer programs, computer input and output, plans, photographic images, analyses, test, maps, surveys, and written materials of any kind generated in the performance of its services under this Contract up to and including the date of termination.

Exhibit E
NRCS Supplement to OSHA Provisions

Attach from CWCB Grant exhibit C-6

Exhibit F

Subcontractor Signatures

EXHIBIT VIII-L

BID FOR UNIT PRICE CONTRACTS

Place: _____ Date: _____

Project Name: _____ Project No.: _____

Proposal of _____ (hereinafter called Bidder), a corporation organized under

the laws of the State of _____ /a partnership/an individual doing business as

_____ (strike out inapplicable references).

To the _____ (hereinafter called Owner).

Gentlemen:

The Bidder, in compliance with your invitation for bids for the construction of a

_____

having examined the plans and specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies; and to construct the project in accordance with the Contract Documents, within the time set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents, of which this proposal is a part.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete the project within consecutive calendar days thereafter is stipulated in the specifications. Bidder further agrees to pay as liquidated damages, the sum of $ _____ for each consecutive calendar day thereafter as hereinafter provided in the GENERAL CONDITIONS.

Bidder acknowledges receipt of the following addenda:

_____

_____

_____

_____

EXHIBIT VIII-L, Cont.

Bidder agrees to perform all the _____ work described in the specifications and shown on the plans, for the following unit prices:

Item #	Est. Qty.	Description	Unit Price (Each)	Total Price
1._____ _____			_____ Dollars & Cents ($_____)	_____ Dollars & Cents ($_____)
2._____ _____			_____ Dollars & Cents ($_____)	_____ Dollars & Cents ($_____)
3._____ _____			_____ Dollars & Cents ($_____)	_____ Dollars & Cents ($_____)

TOTAL OF BID $_____

Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.)

The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informality in the bidding.

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of thirty (30) calendar days after the scheduled closing time for receiving bids.

Upon receipt of Owner's written acceptance of this bid, Bidder will execute the formal contract attached within ten (10) days and deliver a Surety Bond or Bonds as required by the GENERAL CONDITIONS.

The bid security attached in the sum of _____ ($_____) is to become the property of the Owner in the event the contract and bond are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

Respectively submitted,

By:_____

(SEAL - If bid is by a corporation)

_____
Title

_____
Address

_____

EXHIBIT VIII-M

BID BOND

KNOW ALL PEOPLE BY THESE PRESENT, that we, the undersigned _____ as Principal, and _____ as Surety, are hereby held and firmly bound unto _____ as Owner in the penal sum of _____ Dollars ($_____) for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns. Signed this _____ day of _____ 20____.

The condition of the above obligation is such that whereas the Principal has submitted to _____ a certain bid, attached hereto and hereby made a part hereof to enter into a contract in writing, for the

NOW THEREFORE,

(a) If said Bid shall be rejected, or in the alternate,

(b) If said Bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a bond for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bid,

that this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS THEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these present to be signed by their proper officers, the day and year first set forth above.

_____

Principal (L.S.)

_____

(SEAL) Surety

By:_____

EXHIBIT VIII-N

PERFORMANCE AND PAYMENT BONDING REQUIREMENTS

Colorado Department of Local Affairs regulations require a Grantee and/or its contractor (or subcontractors) performing the work to secure the following:

PAYMENT BOND. A "payment bond" is one executed in connection with a contractor to assure payment, as required by law, of all persons supplying labor and material in the execution of the work provided for in the contract. A Payment Bond is required on the part of the contractor for one-hundred percent (100%) of the contract price. The bond shall be obtained from a company holding a certificate of authority as an acceptable surety. A certified or cashier's check or a bank money order may be accepted in lieu of a bond.

PERFORMANCE BOND. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract. A Performance Bond is required on the part of the contractor for one-hundred percent (100%) of the contract price. The bond shall be obtained from a company holding a certificate of authority as an acceptable surety. A certified or cashier's check or a bank money order may be accepted in lieu of a bond.

WAIVER OPTION. If the total cost of the Project is less than $50,000.00, Grantee may submit a written request to the State requesting waiver of these bond requirements in exchange for an irrevocable letter of credit.

(EXHIBIT VIII-N, continued)

PERFORMANCE BOND

KNOW ALL PEOPLE BY THESE PRESENTS: that

(Name of Contractor or Company)

(Address)

a _____ hereinafter called Principal, and _____
(Corporation/Partnership) (Name of Surety Company)

(Address)

hereinafter called SURETY, are held and firmly bound unto

(Name of Recipient)

(Recipient's Address)

hereinafter called OWNER, in the penal sum of $_____ Dollars in lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, successors, and assigns, jointly and severally, firmly in these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER dated the _____ day of _____ 20_____ , a copy of which is hereto attached and made a part hereof for the construction of:

PROJECT NAME: _____

NOW THEREFORE, if the Principal shall well, truly and faithfully perform its duties in all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this

BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this the _____ day of _____ 20_____.

ATTEST:

_____
Principal

_____ By_____
Principal Secretary

(SEAL)

_____ _____
Witness as to Principal Address

_____
Address

_____

ATTEST:

_____
Surety

_____ By_____
Witness as to Surety Attorney in Fact

_____ _____
Address Address

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the PROJECT is located.

(EXHIBIT VIII-N, Continued)

PAYMENT BOND

KNOW ALL PEOPLE BY THESE PRESENTS: that

(Name of Contractor or Company)

(Address)

a _____ hereinafter called Principal, and _____
(Corporation/Partnership) (Name of Surety Company)

(Address)

hereinafter called SURETY, are held and firmly bound unto

(Name of Recipient)

(Recipient's Address)

hereinafter called OWNER, in the penal sum of $_____ Dollars in lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, successors, and assigns, jointly and severally, firmly in these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER dated the _____ day of _____ 20_____ , a copy of which is hereto attached and made a part hereof for the construction of:

PROJECT NAME:

NOW THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUB-CONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such Contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK whether by SUB-CONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this the _____ day of _____ 19_____ .

ATTEST:

_____
Principal

_____ By_____
Principal Secretary

(SEAL)

_____ _____
Witness as to Principal Address

_____
Address

_____

ATTEST:

_____
Surety

_____ By_____
Witness as to Surety Attorney in Fact

_____ _____
Address Address

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the PROJECT is located.

EXHIBIT VIII-O

CONTRACTOR/SUBCONTRACTOR CERTIFICATIONS

Grantee must require that prospective bidders complete and incorporate the following certifications as part of their bid submittal package.

1. EQUAL EMPLOYMENT OPPORTUNITY - EXECUTIVE ORDER 11246
2. SECTION 3 & SEGREGATED FACILITIES CERTIFICATION
3. NONCOLLUSION AFFIDAVIT OF PRIME CONTRACTOR

EXHIBIT VIII-O, Cont.

CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30 F.R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven calendar days after bid opening. No contract shall be awarded unless such a report is submitted.

CERTIFICATION BY BIDDER

NAME AND ADDRESS OF BIDDER (Include ZIP Code)

---

1. Bidder has participated in a previous contract or subcontractor subject to the Equal Opportunity Clause.
   _____ Yes _____ No

---

2. Compliance reports were required to be completed in connection with such contract or subcontract.
   _____ Yes _____ No

---

3. Bidder has filled all compliance reports due under applicable instructions.
   _____ Yes _____ No

---

4. Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended.
   _____ Yes _____ No

NAME AND TITLE OF SIGNER (Please type)

SIGNATURE DATE

EXHIBIT VIII-O, Cont.

CERTIFICATION OF CONTRACTOR REGARDING SECTION 3 AND SEGREGATED FACILITIES

Name of Contractor or Sub-Contractor

Project Name and Number

The undersigned hereby certifies that:

(a) Section 3 provisions are included in the Contract if this is a Section 3 project.

(b) No segregated facilities will be maintained as required by Title VI of the Civil Rights Act of 1964.

Name and Title of Signer (Type of Print)

Signature

Date

EXHIBIT VIII-O, Cont.

NONCOLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____)
County of _____) ss.

_____ being first duly sworn, deposes and says that:

(1) He is _____ of _____

_____ , the Bidder that has submitted the attached Bid;

(2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affined, has in any way colluded, conspired, connived or agreed, directly or indirectly with another Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly of indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix an overhead, profit or cost element of the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the (Local Public Agency) or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including is affined.

(Signed) _____

Title_____

Subscribed and sworn to me this

_____ day of _____, 19_____

By:_____
Notary Public

My Commission expires: _____

EXHIBIT VIII-O.1

CERTIFICATIONS
CIVIL RIGHTS

The undersigned is fully aware that this contract is wholly or partially federally funded, and further, agrees to abide by the:

Civil Rights Act of 1964, Title VI, as amended, that provides no person on the basis of Race, Color, or National Origin shall be excluded from participation, denied program benefits, or subjected to discrimination.

And, Civil Rights Act of 1968, Title VIII, as amended, will not discriminate in housing on the basis of Race, Color, Religion, Sex, or National Origin.

And, Rehabilitation Act of 1973, Section 504, as amended, that no otherwise qualified individual shall solely by reason of his or her handicap be excluded from participation and/or employment, denied program benefits, subjected to discrimination under any program receiving federal funds;

And, Housing and Community Development Act of 1974, Section 109, as amended, that no person shall be excluded from participation (including employment), denied program benefits, or subjected to discrimination on the basis of Race, Color, National Origin, Sex, Age, and Handicap under any program or activity funded in whole or part under Title I (CDBG) of the Act. And, Age Discrimination Act of 1975, as amended, that no person shall be excluded from participation, denied program benefits, or subjected to discrimination on the basis of age under any program or activity receiving federal funds.

And, Americans with Disabilities Act of 1990, as amended, that there shall be no employment discrimination against "qualified individuals with disabilities."

And, Executive Order 11063, that no person shall, on the basis of race, color, religion, sex, or national origin, be discriminated against in housing and related facilities provided with federal assistance, or lending practices with respect to residential property when such practices are connected with loans insured or guaranteed by the federal government.

And, Executive Order 11246, as amended, that no person shall be discriminated against, on the basis of race, color, religion, sex, or national origin, in any phase of employment during the performance of federal or federally assisted construction contracts in excess of $10,000.

EQUAL EMPLOYMENT OPPORTUNITY

During the performance of the contract, the CONTRACTOR agrees as follows:

1. The CONTRACTOR will not discriminate against any employee or applicant for employment because of race, creed, sex, color, national origin, familial status, religious affiliation or handicap. The CONTRACTOR will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, sex, color, national origin, familial status, religious affiliation or handicap. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The CONTRACTOR agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the GRANTEE setting forth the provisions of this non-discrimination clause.

EXHIBIT VIII-O.1

2. The CONTRACTOR will, in all solicitation or advertisements for employees placed by or on behalf of the CONTRACTOR for the GRANTEE, state that all qualified applicants will receive consideration for employment without regard to race, creed, sex, color, national origin, familial status, religious affiliation or handicap. 3. The CONTRACTOR will cause the foregoing provisions to be inserted in all subcontracts for any work covered by this contract so that such provisions will be binding upon each subcontractor, provided that the foregoing provisions shall not apply to contracts or subcontracts for standard commercial supplies or raw materials.

4. The CONTRACTOR will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his/her books, records, and accounts by the GRANTEE's Department of Housing and/or Community Development and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

5. In the event of the CONTRACTOR's non-compliance with any provision of this contract or with any of such rules, regulations or orders, this Agreement may be canceled, terminated, or suspended in whole or in part and the CONTRACTOR may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

6. The CONTRACTOR will include the provisions of the subparagraphs 12 (a) through (f) in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provision will be binding upon each subcontractor or vendor. The CONTRACTOR will take such action with respect to any subcontract or purchase order as the GRANTEE's Department of Housing and/or Community Development may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that in the event the CONTRACTOR becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the GRANTEE's Department of Housing and/or Community Development, the CONTRACTOR may request the United States to enter into such litigation to protect the interests of the United States.

AFFIRMATIVE ACTION FOR HANDICAPPED WORKERS
SECTION 503
(if contract $25,000 or over)

1. The CONTRACTOR will not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant for employment is qualified. The CONTRACTOR agrees to take affirmative action to employ, advance in employment and otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap in all employment practices such as the following: employment, upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

2. The CONTRACTOR agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act. 3. In the event of the CONTRACTOR's non-compliance with the requirements of this clause, actions for non-compliance may be taken in accordance with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

EXHIBIT VIII-O.1

4. The CONTRACTOR agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Director, provided by or through the contracting officer. Such notices shall state the CONTRACTOR's obligation under the law to take affirmative action to employ and advance in employment qualified handicapped employees and applicants for employment, and the rights of applicants and employees.

5. The CONTRACTOR will notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the CONTRACTOR is bound by the terms of Section 503 of Rehabilitation Act of 1973, and is committed to take affirmative action to employ and advance in employment physically and mentally handicapped individuals.

6. The CONTRACTOR will include the provisions of this clause in every subcontract or purchase order of $2,500 or more unless exempted by rules, regulations, or orders of the Secretary issued pursuant to Section 503 of the Act, so that such provisions will be binding upon each subcontractor with respect to any subcontract or purchase order as the Director of the Office of Federal contract Compliance Programs may direct to enforce such provisions, including action for non-compliance.

ACCESS TO RECORDS AND RECORDS RETENTION

The undersigned certifies, to the best of his or her knowledge and belief that:

1. The individual, sole proprietor, partnership, corporation, and/or association agrees to permit the TOWN / County of), State of Colorado Department of Local Affairs (DOLA), U. S. Department of Housing and Urban Development (HUD), and the Office of the Inspector General and/or their designated representatives to have access to all records for review, monitoring, and audit during normal working hours.
2. The individual, sole proprietor, partnership, corporation, and/or association agrees to retain all records for at least five years following the "official State of Colorado Department of Local Affairs (DOLA)"Closeout" date of the grant or the resolution of all audit findings, whichever is later.

CONFLICT OF INTEREST

The undersigned is fully aware that this contract is wholly or partially federally funded, and further, by submission of the bid or proposal that the individual or firm, certifies that:

1. There is no substantial interest, as defined by Colorado Statutes, with any public official, employee, agency, commission, or committee with the *Town / County* _____ or DOLA.
2. Any substantial interest, as defined by Colorado Statutes, with any public official, employee, agency, commission, or committee (including members of their immediate family) with the *Town / County* that develops at any time during this contract will be immediately disclosed to the Town *Town / County* and DOLA.

ANTI-LOBBYING CERTIFICATION

The undersigned certifies, to the best of his or her knowledge and belief that:

1. No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

EXHIBIT VIII-O.1

2. If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

3. The undersigned shall require that the language of this Certification be included in the award documents for all sub-awards to all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

CERTIFICATIONS SIGNATURE FORM

Return this page with proposal.

These Certifications (Civil Rights, Equal Employment Opportunity, Affirmative Action for Handicapped Workers -Section 503, Access to Records and Records Retention, Conflict of Interest, Lobbying) are a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of these Certifications is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U. S. Code.

_____ _____

(typed name of official) (signature of official)

_____ _____

(typed name of entity) (date)

EXHIBIT VIII-O.2

Section 3 Certifications

This section should be included in all Section 3 covered contracts. The CDBG Program Manager will notify those grantees who have Section 3 covered activities.
Delete this section and the Section 3 forms if not applicable.

THIS PROJECT IS IN WHOLE OR IN PART FEDERALLY FUNDED AND THE SUCCESSFUL BIDDER WILL BE REQUIRED TO ADHERE TO SECTION 3 PROVISIONS

DOLA will monitor compliance with such provisions and standards for the *Town / County*. The successful bidder will be required to complete the following forms in order to comply. A brief explanation of the form and when the form is to be submitted to *DOLA* is listed below. Should you have any questions concerning Section 3 or the forms to be submitted, please feel free to contact the DOLA CDBG Program Manager.

SECTION 3 BUSINESS SELF-CERTIFICATION (1 page)

This form is to be completed by the contractor if applicable, and **submitted as a part of the bid package or within 3 days of contract award.** The bidder completes this form to qualify as a Section 3 business concern.

Section 3 Certification
Business Certification

EXHIBIT VIII-O.2

Section 3 Certifications

Project Name: _____

Number: _____

Contractor Name:

_____

It is the policy of the Congress and the purpose of the federal Section 3 policy to ensure that the employment and other economic opportunities generated by federal financial assistance for housing, economic and community development programs shall, to the greatest extent feasible, be directed toward low and very low income persons, particularly those who are the recipients of government assistance for housing.

Does your business qualify as a Section 3 business? _____ Yes _____ No

To qualify as a Section 3 business, you must meet one or more of the following three criteria (please check all that apply as per 24 CFR, Subchapter B, Part 135.5):

_____ Is owned (51% or more) by Section 3 residents (defined below *)

_____ Employs in permanent, full-time positions, at least 30% persons whom are currently Section 3 residents OR whom were Section 3 residents within three years of the date of first employment with the business

_____ Provides evidence of a commitment to subcontract in excess of 25% of the dollar award of all subcontracts to be awarded to businesses that meet one of the above definitions.

* Section 3 residents are persons who either live in public housing or are at or below the following income qualifications **(**available from your Project Monitor or at HUD.GOV): http://www.huduser.org/portal/datasets/il/il2013/select_Geography.odn)

COUNTY	Type of Household	1 Person	2 Person	3 Person	4 Person	5 Person	6 Person	7 Person	8 Person
	Moderate Income								

I certify that the above information is accurate, and agree to provide records upon request for verification of my eligibility as a Section 3 business.

_____ _____

Signature Title

_____ _____

Name (printed) Date

EXHIBIT VIII-O.4

NONCOLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____)

County of _____) ss.

_____ being first duly sworn, deposes and says that:

(1) They are _____ of _____

_____ , the Bidder that has submitted the attached Bid;

(2) They are fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affined, has in any way colluded, conspired, connived or agreed, directly or indirectly with another Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly of indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix an overhead, profit or cost element of the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the (Local Public Agency) or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including is affined.

(Signed) _____

Title_____

Subscribed and sworn to me this

_____day of _____, 20_____

By:_____
Notary Public

My Commission expires: _____

EXHIBIT VIII-1.1

Federal Labor Standards Provisions

U.S. Department of Housing and Urban Development
Office of Labor Relations

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section l(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

(ii) (**a**) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part

of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section l(b)(2)(B) of the Davis-bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section l(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at *http://www.dol.gov/esa/whd/forms/wh347instr.htm* or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant ',to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by

the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 in this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1 01 0, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration..... makes, utters or publishes any statement knowing the same to be false..... shall be fined not more than $5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable where the amount of the prime contract exceeds $100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in sub paragraph (1) of this paragraph.

(3) **Withholding for unpaid wages and liquidated damages.** HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) **Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety. The provisions of this paragraph C are applicable where the amount of the prime contract exceeds $100,000.

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96). 40 USC 3701 et seq.

(3) The contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

General Decision Number: CO170012 06/09/2017 CO12

Superseded General Decision Number: CO20160012

State: Colorado

Construction Type: Heavy

Counties: Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, El Paso, Jefferson, Larimer, Mesa, Pueblo and Weld Counties in Colorado.

HEAVY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.20 for calendar year 2017 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.20 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2017. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/06/2017
1	01/20/2017
2	02/03/2017
3	04/07/2017
4	05/19/2017
5	05/26/2017
6	06/02/2017
7	06/09/2017

ASBE0028-001 07/01/2016

	Rates	Fringes
Asbestos Workers/Insulator (Includes application of all insulating materials, protective coverings, coatings and finishings to all types of mechanical systems)	$ 29.73	13.93

BRCO0007-004 01/01/2017

ADAMS, ARAPAHOE, BOULDER, BROOMFIELD, DENVER, DOUGLAS AND JEFFERSON COUNTIES

	Rates	Fringes
BRICKLAYER	$ 26.62	7.99

BRCO0007-006 05/01/2017

EL PASO AND PUEBLO COUNTIES

	Rates	Fringes
BRICKLAYER	$ 25.32	9.90

ELEC0012-004 09/01/2016

PUEBLO COUNTY

	Rates	Fringes
ELECTRICIAN		
Electrical contract over $1,000,000	$ 28.00	11.00+3%
Electrical contract under $1,000,000	$ 24.85	11.00+3%

ELEC0068-001 06/01/2017

ADAMS, ARAPAHOE, BOULDER, BROOMFIELD, DENVER, DOUGLAS, JEFFERSON, LARIMER, AND WELD COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 34.70	14.97

* ELEC0111-001 01/01/2017

	Rates	Fringes
Line Construction:		
Groundman	$ 24.87	22.25%+$5.75
Line Equipment Operator	$ 30.36	22.25%+$5.75
Lineman and Welder	$ 43.51	25.25%+$5.75

ELEC0113-002 06/01/2017

EL PASO COUNTY

	Rates	Fringes
ELECTRICIAN	$ 31.00	15.38

ELEC0969-002 06/01/2015

MESA COUNTY

	Rates	Fringes
ELECTRICIAN	$ 24.00	7.92

* ENGI0009-001 05/01/2017

	Rates	Fringes
Power equipment operators:		
Blade: Finish	$ 27.92	10.10
Blade: Rough	$ 27.60	10.10
Bulldozer	$ 27.60	10.10
Cranes: 50 tons and under	$ 27.75	10.10
Cranes: 51 to 90 tons	$ 27.92	10.10
Cranes: 91 to 140 tons	$ 28.55	10.10
Cranes: 141 tons and over	$ 29.82	10.10
Forklift	$ 27.22	10.10

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     Mechanic...................$ 28.08            10.10
     Oiler......................$ 26.84            10.10
     Scraper:  Single bowl
     under 40 cubic yards.......$ 27.75            10.10
     Scraper:  Single bowl,
     including pups 40 cubic
     yards and over and tandem
     bowls......................$ 27.92            10.10
     Trackhoe...................$ 27.75            10.10
----------------------------------------------------------------
 IRON0024-003 05/01/2017

                                   Rates          Fringes

Ironworkers:.....................$ 26.30            21.45
  Structural
----------------------------------------------------------------
 LABO0086-001 05/01/2009

                                   Rates          Fringes

Laborers:
     Pipelayer..................$ 18.68             6.78
----------------------------------------------------------------
 PLUM0003-005 06/01/2017

ADAMS, ARAPAHOE, BOULDER, BROOMFIELD, DENVER, DOUGLAS,
JEFFERSON, LARIMER AND WELD COUNTIES


                                   Rates          Fringes

PLUMBER.........................$ 39.08            16.44
----------------------------------------------------------------
 PLUM0058-002 07/01/2016

EL PASO COUNTY

                                   Rates          Fringes

Plumbers and Pipefitters.........$ 35.60            13.65
----------------------------------------------------------------
 PLUM0058-008 07/01/2016

PUEBLO COUNTY

                                   Rates          Fringes

Plumbers and Pipefitters.........$ 35.60            13.65
----------------------------------------------------------------
 PLUM0145-002 07/01/2016

MESA COUNTY

                                   Rates          Fringes

Plumbers and Pipefitters.........$ 35.17            11.70
----------------------------------------------------------------
 PLUM0208-004 06/01/2016

ADAMS, ARAPAHOE, BOULDER, BROOMFIELD, DENVER, DOUGLAS,
JEFFERSON, LARIMER AND WELD COUNTIES


                                   Rates          Fringes
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PIPEFITTER.....$ 37.10 16.62

SHEE0009-002 07/01/2016

	Rates	Fringes
Sheet metal worker.....	$ 32.56	15.96

TEAM0455-002 07/01/2016

	Rates	Fringes
Truck drivers:		
Pickup.....	$ 20.16	4.02
Tandem/Semi and Water.....	$ 20.79	4.02

SUCO2001-006 12/20/2001

	Rates	Fringes
BOILERMAKER.....	$ 17.60	
Carpenters:		
Form Building and Setting...	$ 16.97	2.74
All Other Work.....	$ 15.14	3.37
Cement Mason/Concrete Finisher...	$ 17.31	2.85
IRONWORKER, REINFORCING.....	$ 18.83	3.90
Laborers:		
Common.....	$ 11.22	2.92
Flagger.....	$ 8.91	3.80
Landscape.....	$ 12.56	3.21
Painters:		
Brush, Roller & Spray.....	$ 15.81	3.26
Power equipment operators:		
Backhoe.....	$ 16.36	2.48
Front End Loader.....	$ 17.24	3.23
Skid Loader.....	$ 15.37	4.41

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information

on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

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 (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those

classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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.

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END OF GENERAL DECISION