

Project: I-70 Vail Pass Various Wall Repairs

Project Sub Acct. No: 21897

Date: November 1, 2018

## Technical Requirements

### Section 2 – Project Management

#### Administration

The Contractor has the responsibility for management and performance of the Work. CDOT will perform all Quality Assurance testing and Verification on the project.

#### *Work Breakdown Structure (WBS)*

The Contractor shall submit to the CDOT Project Engineer a Project Schedule for Acceptance, including a detailed and organized hierarchical division of the Work Breakdown Structure (WBS) for completing each element of the Work.

The following list represents the minimum levels of the WBS that all cost and schedule information shall roll-up. The schedule shall also address review and response times, procurement (submittals, reviews, approvals, and delivery) and all Safety Critical elements. Further detail may be provided by the Contractor to ensure a clear understanding of the Contract. The Contractor shall submit its Project Schedule broken down to the WBS activities and proposed Work segments within 30 calendar days of receiving the Notice to Proceed.

The Accepted WBS shall be the basis for organizing all Work under the Contract, and shall be used to structure the Project Schedule, and other cost control systems.

The WBS Breakdown of Design and Construction Components shall include:

- I-70 Vail Pass Various Wall Repairs
  - Part A – Project Management
    - Contract Management
    - Quality Management
    - Safety Management
    - Public Information Management
    - Mobilization
    - Bonds and Insurance
  - Part B – Engineering and Construction
    - Design Services
    - Pavement
      - Hot Mix Asphalt
    - Walls
      - Retaining Walls
        - Wall R070A171042LRA
        - Wall R070A182489LRA
        - Wall R070A183086MCA
        - Wall R070A183555LRA
        - Wall R070A184163LRA
        - Wall R070A185113LRA
        - Wall R070A185409RRA
        - Wall R070A186429MCA

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- Traffic and Environmental
  - Maintenance of Traffic
  - Environmental Management – Water Quality
- Road Appurtenances
  - Guardrail
  - Roadway (Other)
  - Field Facilities – Sanitary Facility and Field Office

#### ***Work Activities***

The WBS breakdown shall include at a minimum the components listed above and shall be broken down into further subcomponents to accurately track production on the project. The Project Engineer shall have the discretion to request further breakdown of the WBS into the “level of detail” deemed fit. Monthly payment to the Contractor shall be based on the percent completed of each of the WBS work activities.

The Contractor shall prepare and submit to the CDOT Project Engineer the following schedules:

- Method Statements
- Project Critical Path Method (CPM) Schedule
- CPM Schedule Updates
- Job Progress Narrative Report

Each of the CPM schedules shall be cost loaded for the WBS indicated above.

#### ***Contract Pricing***

The cost of Water Quality / Environmental Management, and Public Information shall be paid by straight line calculation through the life of the project. The cost of Public Information shall not exceed \$25,000. The cost of Mobilization shall not exceed 10 percent of the Contract total. Field Facilities shall only include the cost of obtaining and maintaining the Field Facilities and not exceed 1 percent of the Contract total.

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#### **Methods Statement**

A Methods Statement shall be prepared for all the work activity listed in the schedule, for all safety critical elements, and for any feature not listed in the schedule that the Contractor considers a controlling factor for timely completion. The Methods Statement shall be completed in accordance with subsection 108.03 of the Standard Specifications for Road and Bridge Construction.

#### **Cost Management**

##### ***Progress Payment Calculations***

CDOT will base progress payments on the percent completed of each of the WBS work activities and not on measured quantities. The Contractor shall progress the activities identified on the Project Schedule for determining the Monthly Progress Schedule. The accepted Monthly Progress Schedule will determine the amount of the Contractor's progress payments, based on the work activities identified by the Contractor. Percent complete shall be calculated using project scheduling software meeting the requirements of this section, where progress is measured based on physical percent of work that is complete considering labor, materials equipment resources utilized, design hours, or other physical units acceptable to the CDOT Project Engineer. Such progress payments to the Contractor shall be computed accurately from the updates of the WBS schedule.

Partial payment for stockpiled materials shall only be made per subsection 109.07 of the Standard Specifications for Road and Bridge Construction. Payment shall not be made for stockpiled materials to be installed within 90 days.

The Contractor's invoice shall not include a request for payment for documented nonconforming work. The payment to the Contractor will be the amount shown on the Contractor's approved invoice as modified for appropriate price reductions for nonconforming work, if any, retainage, incentive/disincentive payments, and any deductions.

##### ***Payment Schedule***

The Contractor shall provide an additional payment schedule in accordance with Standard Special Provision Revision of Section 108 Payment Schedule (Single Fiscal Year).

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#### ***Invoice Submittals***

The Contractor shall submit invoices to the CDOT Project Engineer each month. Each monthly invoice shall first be submitted in draft form for review in a Progress Status Meeting on a date mutually agreeable to the Contractor and CDOT Project Engineer. Draft monthly invoice submittals shall be transmitted in electronic format.

The Contractor shall submit to the CDOT Project Engineer, for Approval, a final monthly invoice within five calendar days after each progress status meeting, defined below. Final invoice submittals shall include an electronic copy.

#### **Invoice Documents**

##### ***Invoice Content***

The invoice documents shall include:

1. Invoice Cover Sheet

The cover sheet shall indicate the following information:

- A. Project number and title
- B. Invoice number (numbered consecutively starting with “1”)
- C. Period covered by the invoice (specific calendar dates)
- D. Total earned to date for the Project as a whole and for each Work activity as a percentage of the total dollars expended to the total amount of the item. The breakdown is required because retainage will be calculated and withheld on each work item, and partially released upon achievement of item completion of each Work item. Provide percentages to three (3) decimal places.
- E. Date that invoice was signed

2. Updated Monthly Progress Schedule

No invoice shall be Approved, nor payment shall be made if there is not a current Accepted Monthly Progress Schedule in place. The status date of the Monthly Progress Schedule, coinciding with the payment invoice date, is the last date of each month. The data date for use in calculating the monthly progress schedule shall be the first Calendar Day of the following month.

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The Contractor shall make all corrections to the Monthly Progress Schedule requested by the CDOT Project Engineer and resubmit the Monthly Progress Schedule within seven calendar days. If the Contractor does not agree with the CDOT Project Engineer's comments, the Contractor shall provide written notice of disagreement within seven calendar days from the receipt of the comments. If necessary, the items in disagreement shall be resolved in a meeting held for that purpose.

No invoice will be reviewed or processed until all invoice documents are received by the CDOT Project Engineer.

### **Progress Status Meetings**

A progress status meeting shall be conducted each time a draft monthly invoice submittal is made. The meeting shall be used to verify, address and finalize the following:

1. Actual start dates
2. Actual and Planned Completion Deadlines
3. Earned value of Work that has been completed in-place
4. Activity percent complete
5. Incorporation of approved Change Orders
6. Status of outstanding Nonconforming Work
7. Completion of Value Engineering Change Proposals, if any
8. Work performance
9. Project Schedule narrative that discusses all changes from previous month
10. Critical Path(s)

Following the progress status meeting, and upon approval of the final monthly invoice, payment shall be Approved by the Project Engineer within seven calendar Days.

### **WBS Activities and Schedule Modifications**

When it becomes necessary to add, combine, eliminate, or modify Contract specified WBS Activities to reflect modifications to the Work, such changes shall be reviewed and Accepted by the CDOT Project Engineer in accordance with the Contract and shall be consequently reflected in subsequent schedule submittals.

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#### Field Facilities

The Contractor shall provide all office space or Field Office trailer and equipment as required for the Project.

The Contractor shall make available a fully operational Field Office facility three calendar days prior to beginning any Construction Activities. CDOT shall return possession of each to the Contractor no later than 20 calendar days after Final Acceptance of the Project.

The Contractor shall secure sites, obtain all site permits, install, set up, and provide utility services, and maintain the facilities as part of the Work. The Contractor may consult with the CDOT Project Engineer for the availability of suitable local sites. The Field Office shall be placed adjacent to the Contractor's Quality Control lab. These facilities shall be located within 1 mile of I-70 and within 10 miles of the project limits.

If office appurtenant facilities are stolen, destroyed, or damaged during the Work, the Contractor shall at its expense, repair or replace those items provided to their original condition within three calendar days.

The Contractor shall provide:

1 each – Field Office Class 2

1 each – Sanitary Facility for CDOT staff use

All field facilities shall conform to CDOT Standard Specifications and Standard Plans in effect at the time of bidding. In addition to the Standard Plans and Specifications the Field Office shall include the following:

1. High Speed Internet: The Contractor shall provide high speed internet service for field office computers and mobile devices. The Contractor shall install and maintain the internet service equipment in the Engineer's field office. Should the equipment require repair and be out of service for more than 24 hours, replacement equipment shall be supplied within 24 hours.
2. Field Office shall be provided with all-weather access with adequate area to accommodate at least six state vehicles.
3. The Field Office may be located within an existing building. It shall be lockable and have a minimum of 100 square feet.
4. The Contractor shall provide insurance for full replacement of all contents of the Field Office due to theft, fire or any other cause. Insurance shall be provided at all times that the office is on the Project.
5. The Field Office shall be cleaned twice monthly.

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#### Deliverables

The Contractor shall submit the following to the CDOT Project Engineer.

| <b>Deliverable</b>                                | <b>Acceptance or Approval</b> | <b>Schedule</b>                 |
|---|-------------------------------|---------------------------------|
| Project CPM Schedule                              | Approval                      | 30 days after Notice to Proceed |
| Method Statements                                 | Acceptance                    | 20 days Prior to Construction   |
| Schedule Updates including Job Progress Narrative | Acceptance                    | Monthly                         |
| Electronic Invoice Documents                      | Approval                      | Monthly                         |