

**I-70 EB Climbing Lane Vail & Straight Creek
Project Specific Construction Management Inspection & Materials Testing Services**

**Scope of work
January 2014**

**Project No.: IM 0703-395
Project Location: I-70 EB Climbing Lane Vail & Straight Creek
Subaccount: 19171**

Active day-to-day administration will be delegated to:

Grant Anderson
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Description of Project:

This Project is a resurfacing, guardrail and bridge joint/rail project on Interstate 70 located in Clear Creek, Summit, and Eagle Counties. The project length is approximately twenty two (22) miles and the work consists of: Asphalt Removal (Planing), Hot Mix Asphalt, Bridge Joint Repair/Replacement, Bridge Rail Repair/Replacement, Guardrail Type 4 Removal/Type 7 Installation, Epoxy Pavement Marking and Traffic Control.

An anticipated project starting date is May 1, 2014.

The expected duration of the project is approximately two (2) years.

Labor Force Summary:

Under this agreement the Consultant will provide a full team of personnel to perform Construction Management services. A list of personnel and qualifications will be submitted as part of the proposal. CDOT experience is a plus. The following labor needs are anticipated:

1. One Project Engineer (Registered Colorado Professional Engineer) will be utilized throughout active project construction and project finalization.
2. One Assistant Project Engineer/ Inspector-will be utilized throughout active project construction and Project finalization.
3. One Project Head Tester-will be utilized throughout active project construction.
4. One Erosion Control and Traffic Control Inspector/ Construction Inspector - will be utilized throughout active project construction.

All provided personnel shall meet the required qualifications as outlined below.

I. GENERAL REQUIRMENTS

Initial Project Meeting:

The Consultant and CDOT project personnel shall meet to coordinate and schedule the required work prior to active construction. The Consultant shall complete all work in accordance with the approved schedule or as approved by the Resident Engineer.

Work Duration:

The anticipated time period required for the work described in this scope is May 1, 2014 through December 31, 2015. Work will be required night and day, and may be required on weekends, holidays, or on a split shift basis. Work week may be in excess of or less than the standard 40 hour week. *The Consultant shall meet with the CDOT Resident Engineer if it is anticipated that their services may not be required for a period exceeding one week. A procedure shall be agreed upon at the Pre-work meeting to resolve this issue. A Winter Shutdown period is planned for this project. The second season may require less staff than the first season, depending on Contractor production.*

Authorization to Proceed:

Work shall not commence until the written notice to proceed is received by the Consultant. The work shall be completed in the time specified.

Routine Billing and Reporting:

The Consultant shall provide the following on a regular basis:

- Monthly billings formats suitable to the CDOT Resident Engineer for all contract activities performed by the Consultant's Project Engineer and Field Materials Testing Technician.
- Periodic reports and billing required by CDOT Procedural Directive 400.2.

Labor, Vehicles and Equipment:

The Consultant shall furnish all personnel, vehicles, cell phones, computers 2 gigahertz or better with CD ROM drive, Windows 7 or newer, printer and standard office software, and miscellaneous equipment (calculator, office supplies, etc.) required to perform the work. CDOT will furnish office space. Consultant shall be aware that conventional "high speed internet" telecommunications service may not be available at CDOT tunnel facilities and some other locations. Consultant shall be responsible to procure a local wireless Internet Service Provider (ISP) or similar compatible service.

Personnel qualifications, staffing level, and number and types of vehicles shall be subject to the approval of the CDOT Resident Engineer.

The materials testing technician(s) and inspector(s) shall be thoroughly familiar with CDOT forms and documentation requirements. This project will use the new SiteManager Materials and Laboratory Information Management System (SMM/LIMS) software. Materials Personnel will be required to document the Materials testing and procedures using the new software. Personnel provided by the Consultant who do not meet all of the specified requirements, or who fail to perform their work in acceptable manner, shall be removed from the project when determined and directed by the Resident Engineer.

II. GENERAL WORK DESCRIPTION FOR PROJECT ENGINEER:

Project Standards:

The Consultant will provide support to the CDOT Resident Engineer through assignment of personnel to construction management. Personnel will be required to work at the Project Engineer level. He or she shall be a Colorado Registered Professional Engineer. The Project Engineer shall perform the following Construction activities:

- Coordination of all construction contract activities and mentoring of the CDOT Assistant Project Engineer on a daily basis with the goal of transferring construction project management knowledge and work processes to the CDOT employee.
- Review, give comments, and acknowledge completeness of required submittal resulting from but not limited to:
 - CDOT 205 Permit to Sublet
 - Method of Handling Traffic (MHT)
 - Progress Schedule
 - Method Statements
 - All EEO requirements
- Provide the following documentation, reports and billing on a routine basis:
 - Periodic reports and billings required by CDOT Procedural Directive 400.2
 - Preparation of monthly progress estimates for monthly and final billings for consultant fees and construction contractor payments.
 - Maintaining of project files, project diaries and time counts.
 - Monitoring contractor payroll compliance.
 - Conducting weekly progress meeting with contractor, subcontractors, utilities and other interested parties.
 - Monitoring of project contractor for fulfillment of contract plans and specifications.
 - Securing all project documentation from the contractor.
- Preparation of all Contract Modification Orders (CMO) and Minor Contract Revisions (MCR) for the CDOT Resident Engineer's approval.
- Preparing and transmitting updates of construction activities to the CDOT's Public Information Office.
- Anticipating project problems and direct solutions to CDOT Resident Engineer.
- On-Site cursory review of drawings and data submitted by the construction contractor and suppliers for general conformance with the intent of the specifications. Inform and obtain concurrence as needed from the CDOT Resident Engineer and keep relative documentation for project records.
- Communicating with adjacent landowners as required resolving issues that arise due to construction.
- Monitoring traffic control and safety for compliance with the approved Method of Handling Traffic (MHT).
- Preparing a punch list of uncompleted work, non-conformance reports, and deficiency notices.
- Preparing responses to contractors' and suppliers' request for information, submittals, change notices, claims, and correspondence.

- The Project Engineer shall be well versed in Site Manager software. This project will use the new SiteManager Materials and Laboratory Information Management System (SMM/LIMS) software. The Project Engineer will be required to have a basic knowledge of the new procedures for the new software
- The Project Engineer shall have taken the ATTSA class.
- The Project Engineer shall have successfully completed an ECS training program authorized by the department.

Documentation:

The consultant Project Engineer shall maintain a daily diary for each day he or she performs work on the project. They shall use CDOT's Automated form 103a Project Diary unless otherwise approved by the Resident Engineer. The contents of the diary shall be brief and accurate statements of progress and conditions encountered during the prosecution of the work. Editorial comments should not be incorporated in the diaries or any written documentation applicable to the project. A copy of the daily diary shall be given to the CDOT Resident Engineer within one working day of its date if requested.

III. GENERAL WORK DESCRIPTION FOR ASSISTANT PROJECT ENGINEER:

The Consultant will provide support to the CDOT project through assignment of personnel to construction management. Personnel will be required to work at the Assistant Project Engineer level. He or she shall be either a Colorado Registered Professional Engineer or a non-licensed individual with demonstrable construction administrative experience. The Assistant Project Engineer shall assist the consultant Project Engineer in performing the following Construction activities:

- Coordination of all construction contract activities.
- Review, give comments, and acknowledge completeness of required submittal resulting from but not limited to:
 - CDOT 205 Permit to Sublet
 - Method of Handling Traffic (MHT)
 - Progress Schedule
 - Method Statements
 - All EEO requirements
- Provide the following documentation, reports and billing on a routine basis:
 - Periodic reports and billings required by CDOT Procedural Directive 400.2
 - Preparation of monthly progress estimates for monthly and final billings for consultant fees and construction contractor payments.
 - Maintaining of project files, project diaries and time counts.
 - Monitoring contractor payroll compliance.
 - Conducting weekly progress meeting with contractor, subcontractors, utilities and other interested parties.
 - Monitoring of project contractor for fulfillment of contract plans and specifications.
 - Securing all project documentation from the contractor.
- Anticipating project problems and direct solutions to consultant Project Engineer.
- On-Site cursory review of drawings and data submitted by the construction contractor and suppliers for general conformance with the intent of the specifications. Inform and obtain concurrence as needed from the Project Engineer and keep relative documentation for project records.
- Monitoring traffic control and safety for compliance with the approved Method of Handling Traffic (MHT).

- Preparing a punch list of uncompleted work, non-conformance reports, and deficiency notices.
- The Assistant Project Engineer shall be well versed in Site Manager software.
- The Assistant Project Engineer shall have taken the ATTSA class.
- The Assistant Project Engineer shall have successfully completed an ECS training program authorized by the department.

Documentation:

The consultant Assistant Project Engineer shall maintain a daily diary for each day he or she performs work on the project. They shall use CDOT's Automated form 103a Project Diary unless otherwise approved by the Resident Engineer. The contents of the diary shall be brief and accurate statements of progress and conditions encountered during the prosecution of the work. Editorial comments should not be incorporated in the diaries or any written documentation applicable to the project. A copy of the daily diary shall be given to the CDOT Project Engineer within one working day of its date.

IV. GENERAL WORK DESCRIPTION FOR PROJECT INSPECTORS:

Project Standards:

The Consultant will provide support to the project staff through assignment of personnel to inspection activities. Each Inspector shall be trained and qualified in accordance with CDOT's Construction Inspection Qualification Plan.

The Erosion Control and Traffic Control Inspector shall have ATTSA or CCA Traffic Control Supervisor certification. The Erosion Control and Traffic Control Inspector shall have successfully completed an ECS training program authorized by the department.

Responsibilities of inspectors will include the following:

- Participation in weekly progress meetings with contractor, subcontractors, utilities and other interested parties
- Securing project documentation from the contractor.
- Maintaining accurate notes reflecting actual construction details to be used in preparation of as constructed plans.
- Initial, follow up, and final inspections of work in progress including interim and final measurements.
- Notifying contractors and Project Engineer of non-compliance with the contract plans and specifications.
- Performance of special tests, investigations, or monitoring which are required to fulfill the intent of the CDOT inspection program.
- Preparation of inspection documentation for development of progress payments for the contractor in accordance with prescribed procedures.
- Submittal of standard documentation reports (such as Daily Work Report) no later than the following working day.
- Aiding in the preparation of routine correspondence to the contractor, CDOT Staff, Local agencies, etc.
- Providing liaison and communication to contractor field crews.
- Maintain accurate notes for preparation of final "As Constructed" plans upon project completion.

In addition to the duties listed above, Erosion Control and Traffic Control Inspector duties will include:

- Review of all submitted Methods of Handling Traffic (MHTs) and providing comments to and recommendations for acceptance to the Project Engineer.

- Monitoring compliance with the taking appropriate action to preserve safety on the project for all workers and traveling public in accordance with Method of Handling Traffic.
- Project compliance with CDPHE and all other environmental permits issued for the project.

It is anticipated that approximately 80% of the Erosion Control and Traffic Control Inspector's time will be dedicated to the primary duties of assuring compliance with Environmental permits and Traffic Control

Requirements. The other 20% of this individual's time will be dedicated to the other inspection duties.

Documentation:

Each of the Consultants Field Inspectors shall maintain a daily diary for each day they perform work on the project. They shall use CDOT's Automated form 103a Project Diary unless otherwise approved by the Resident Engineer. The contents of the diary shall be brief and accurate statements of progress and conditions encountered during the prosecution of the work. Editorial comments should not be in the diaries or any written documentation applicable to the project. A copy of the daily diary shall be given to the Project Engineer within one working day of its date.

V. GENERAL WORK DESCRIPTION FOR PROJECT MATERIALS TESTING:

Project Standards:

All inspection, sampling, testing and documentation shall be in accordance with the Colorado Department of Transportation (CDOT) Materials and Construction Manuals. Sampling and testing will be done in accordance with the Department's Minimum Sampling, Testing, and Inspection Schedule; the Special Notice to Contractors; and the Procedures; all contained in the Department's Field Materials Manual. When the method is not cited, the order of precedence for all sampling and testing is Colorado Procedures, AASHTO Procedures, and then ASTM Procedures. Unless otherwise designated, when the Department's Construction Manual, Materials Manual, AASHTO, ASTM, or other specifications, standards, or policies are cited, the reference shall be to the latest edition as revised or updated by approved supplements or interim editions published and issued prior to the date of advertising a specific construction project for bids.

Labor, Materials And Equipment

The consultant shall furnish all personnel, materials and equipment required to perform the work. CDOT's Contractor will provide a field laboratory for the construction projects and the required traffic control. The CDOT Resident Engineer will advise the consultant on the availability of the field laboratory. When a field laboratory is not provided, the consultant shall use his own facilities. Equipment for any project may include, but not be limited to, the following:

1. A.C. Content gauge and/or extraction equipment and solvents
2. Nuclear Moisture/Density gauge
3. Concrete air meter, slump cone, and other concrete testing equipment
4. Sieves for aggregates and soil gradations
5. Scales
6. Sample containers and small tools
7. Proctor equipment for soil curves and 1 point tests
8. Atterberg equipment
9. Sample drying equipment
10. Miscellaneous equipment for performing the required soils, concrete and asphalt field tests.

11. Concrete cylinder molds which conform to AASHTO requirements, except that PAPER MOLDS SHALL NOT BE USED, AND PLASTIC MOLDS SHALL NOT BE REUSED.

12. Concrete cylinder breaker for bridge or concrete paving projects.

The consultant's work shall be under the direction of, and shall be reviewed, stamped and signed by a Professional Engineer registered in the state of Colorado. The work to be stamped will be the summary sheets, including, but not limited to, Forms 6, 9, 58,69,212,250, and 554. The Resident Engineer may request that additional forms be stamped. The Professional Engineer shall be available to review work, resolve problems, and make decisions in a timely manner as requested by the Project Engineer, and must be experienced and competent in road and bridge construction and construction materials testing and inspection.

The materials testing and inspection technicians shall be permanently assigned to the project and shall be certified or have made application to and be working towards a Level 2 Certification under the National Institute for Certification in Engineering Technology (NICET) Certification Program. This certification must be in Construction Materials Testing and/or Construction for the types of work being performed, i.e., asphalt, concrete, soils, etc. A degree in an engineering related field may be substituted for the NICET requirement. A copy of the NICET Certification and/or Engineering degree shall be provided to the CDOT Resident Engineer. The technician(s) performing the testing and inspection must have a minimum of one year experience in each specialty field (soils, aggregates, asphalt paving, concrete, etc.) that is being tested or inspected. Technicians performing concrete tests shall be certified by the American Concrete Institute (ACI).

General Work Description:

The consultant shall sample, test and inspect those specified materials utilized in construction. Other services may be requested in writing by the CDOT Resident Engineer. Test results and inspection observations shall be documented by the consultant and approved by the Project Engineer in accordance with the references cited above in PROJECT STANDARDS.

Specific Testing And Inspection Requirements:

The consultant shall sample, test, inspect and document all materials generated and produced on the project. This includes: materials delivered to the project that are listed in the Summary of Approximate Quantities in accordance with the SCHEDULE in the Field Materials Manual; materials that may be added to the project through contract modification; and altered material quantities whether increased or decreased. The consultant's Project Manager, field tester(s) and CDOT's Assistant Project Engineer shall be required to review project quantities on a weekly basis to ensure that sufficient tests have been performed for the material placed to date. The consultant shall also provide any other services as requested by the CDOT Assistant Project Engineer, that are included in the scope of the specific project.

Testing of materials that are specifically designated to be pre-inspected or pretested by this or any other Department of Transportation shall remain the responsibility of CDOT. The consultant shall document and transport samples of any and all materials that are required to be tested by CDOT, regardless of pre-inspection or pre-testing responsibilities, to the CDOT Central or Region laboratory, as directed by the Project Engineer. The items and test frequencies of Department tested materials shall be in accordance with the column titled 'Central Laboratory' in the SCHEDULE, or as directed by the Project Engineer.

Documentation:

Each of the consultant's field testers shall maintain a daily diary for each day the tester performs work on the project. They may use CDOT's Form 103, Project Diary, or a form approved by the CDOT Resident Engineer.

The contents of the diary shall be brief and accurate statements of progress and conditions encountered during the prosecution of the work. Editorial comments are not to be incorporated in the diaries or on any written correspondence applicable to the project. A copy of the daily diary shall be given to the Project Engineer within one working day of its date.

Test results, sample submittals and inspection documentation transmitted to CDOT's Region or Central Laboratory shall be recorded on appropriate CDOT Forms. The consultant may use CDOT worksheets or worksheets approved by the Project Engineer. CDOT Forms and worksheets are available through the Project Engineer. The consultant shall furnish the Project Engineer with the original copies of all worksheets on a daily basis. The consultant shall also keep the CDOT Form 626 up to date at all times and provide copies of this form to the Project Engineer, or his designated representative, by the end of the shift for any material found to be non-specification. At the discretion of the Project Engineer, the consultant may also be required to provide the Form 626 to the contractor prior to the end of the shift for any material found to be non-compliant with the specification.

The consultant shall coordinate the schedule for Independent Assurance Tests for the project, in accordance with CDOT Form 379 with personnel designated by the CDOT Region Materials Engineer.

VI. ADDITIONAL WORK DESCRIPTION FOR PROJECT SCHEDULE REVIEW

The Consultant shall conduct an objective analysis of Contractor schedules and method statements based on the documents furnished to the Project Engineer. Each analysis shall assess the feasibility of the Contractor's project construction schedule and updates relative to the current stage of completion and the timely final completion according to the terms of the contract.

- Assemble and review updated as-built data to verify the accuracy of the Contractor's actual construction progress and schedule feasibility. Provide ongoing schedule review and evaluation support through project completion.
- Perform a schedule delay analysis and determine the amount of Contractor and/or CDOT excusable delays. Assess the liability associated with any changes, extra work and or delays in order to determine responsibility for impacts to the project schedule.
- Prepare written schedule reports and exhibits to assist in the evaluation of schedule delays and remaining as-planned work.
- Provide ongoing schedule review and evaluation support through project completion.
- Review the Contractor's planned schedule and method statements for compliance with contract requirements. Review all updated schedules and contract modifications.

VII. STATUS OF PROJECT:

The consultant shall monitor the status of the project, and advise the CDOT Resident Engineer of any potential for supplementing their contract. Failure to monitor project status and provide timely notification may result in discontinuing the consultant's services on the project until a supplemental agreement can be executed.

VIII. SUBMITTAL OF FINAL DOCUMENTATION:

Final documentation shall be submitted to the CDOT Resident Engineer within 20 working days after project acceptance. A completed Form 250 shall be submitted to the Project Engineer 10 working days after the consultant has been notified of final quantities. Failure to submit final documentation as required may result in withholding any and all consultant payments due, until this material is received.

Assurance Sampling and Testing

The MTT shall coordinate the schedule of the Independent Assurance Tests (IAT) for the project with the Region Materials Section in accordance with the CDOT Form 379. Advance notice of 48 hours is required for proper coordination.

Additional Construction Inspection and Materials Testing Requirements:

In addition to the qualifications, requirements set forth above, the following certifications will also be required:

Class/Certification	Consultant Inspector	Consultant Materials Testing Technician
Basic Highway Math	X	X
Basic Construction Surveying	X	
Basic Highway Plan Reading	X	X
Storm water Management and Erosion Control	X	
CCA Traffic Control Supervisor	X	
Concrete Transportation Construction Inspection	X	
SPECIALTY CERTIFICATIONS		
NICET Level IV in Highway Construction		
NICET Level III in Highway Construction		
NICET Level II in Construction Materials Testing & Inspection		
Colorado Asphalt Technician Certification LabCAT (Level C includes Volumetrics)	Level A	Level A,B,C
Asphalt Paving Inspection LabCAT Level I	X	X
WAQTC Soils Certification	X	X
ACI Field Testing Grade I (including: casting concrete cylinders)		X