

SCOPE OF WORK

PROJECT SPECIFIC Construction Inspection

PROJECT # BR 0252-407

PROJECT CODE # 17783

PROJECT NAME: I-25/US 85 Interchange Improvement

LOCATED ON I-25 at US 85

MP 207 to MP 209

Denver, Colorado

Date: October 12, 2010

Region 6

THE COMPLETE SCOPE OF WORK INCLUDES THIS DOCUMENT, ATTACHMENTS AND ANY REFERENCES IDENTIFIED WITHIN, AND AS AMENDED BY TASK ORDER.

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SECTION 1

General Requirements:

1.1 General Scope of Work Description:

CDOT is requesting proposals for the construction inspection for the reconstruction of the interchange of I-25 at US 85, as further described in this document. The project is estimated to begin in July 2011 and estimated to extend through July 2014.

1.2 Definitions

CDOT Resident Engineer - The CDOT Resident Engineer, or designee, is responsible to the Region Program Engineer for the quality and successful completion of a transportation project. The Resident Engineer authorizes interim and final payments and all changes to Contracts for all Consultants and Contractors.

CDOT Project Engineer - The CDOT Project Engineer reports to the CDOT Resident Engineer.

Contractor - The individual, firm or corporation contracting with CDOT to construct the transportation project.

Consultant Assistant Project Engineer (CAPE) – The Consultant Assistant Project Engineer reports to the CDOT Project Engineer to assist in the administration and satisfactory completion of the project under contract. The CAPE works directly for the CDOT Project Engineer. The duties of the CAPE are limited to those duties in the scope of work and as delegated by CDOT Project Engineer and the CDOT Resident Engineer.

Consultant Office Manager – The Consultant’s employee who is responsible for the organization of the daily records, communications, file keeping, project paperwork necessary during the project. The Consultant Office Manager shall be assigned to the project field office full time during the project.

Consultant Inspector, Materials Testing Technician - The Consultant's employees who perform inspection and testing services under the responsible charge of the CDOT Project Engineer or CDOT Resident Engineer.

1.3 Project Description and Location

ARRA Federal Aid Project # **BR 0252-407 (17783)** is described as the reconstruction of the I-25/ US 85 Interchange, MP 207 to MP 209 for a total project length of 2 miles.

The proposed project includes reconstruction of I-25 from the Broadway Viaduct to Alameda Avenue, construction of a new I-25 bridge over US 85, construction of a new flyover structure from NB US 85 to NB I-25, and reconstruction of portions of US 85 at I-25, installation of storm sewer, inlets and outlet structures, construction of detention ponds, caissons, and retaining walls.

1.4 Work Duration

The estimated time period for the work described in this scope of work covers an estimated three year period beginning approximately July 2011, but the duration will depend on the Contractors schedule as proposed in the Cost + Time Bidding Specification (A+B). The project has an estimated construction completion of July 2014. The Consultant shall provide full inspection services during the construction phase of the work unless otherwise directed by the Resident Engineer.

Work may be required night and/or day, on weekends, holidays and/or on a split shift basis. Work weeks may be in excess of or less than the standard 40-hour week.

1.5 Staffing Needs

The Project will require, at a minimum, a construction staff for the project as follows:

- 1 Assistant Project Engineer
- 3 Inspectors
- 1 Materials Tester

Actual staff size during the project may be modified by the Resident Engineer as required by the work load.

All Consultant construction personnel shall remain assigned to the project site during the construction, unless otherwise directed by the Resident Engineer.

1.6 Submittals by the Consultant

The Consultant shall, as part of their submittal, propose the number of personnel needed to adequately staff the project.

The Consultant's staffing shall be composed of personnel, experienced in CDOT project procedures and methods, bridge construction, concrete pavement construction, concrete pipework, drainage, utility construction, materials testing and inspection, schedule review and analysis, and all types of roadway construction. Resumes and three references are required for all personnel proposed for the project.

1.7 Interviews

CDOT will not conduct interviews with the top three (3) rated firms short-listed from this initial selection. CDOT will award the contract based solely on the SOI and Work Plan (No Interview).

1.8 General Work Initial Project Meeting

Project BR 0252-407 (17783) will be administered by the CDOT Resident Engineer unless otherwise changed by the Program Engineer. All support construction staff will be either CDOT or Consultant personnel as assigned by the Resident Engineer. CDOT reserves the right to replace Consultant personnel with available CDOT personnel as CDOT staffing allows.

The Consultant and CDOT project personnel shall meet weekly to coordinate and schedule the required work. The Consultant shall submit a schedule of the Consultant's required scope of work for the project to CDOT for approval. The Consultant shall complete all work in accordance with the approved schedule or as approved by the CDOT Program Engineer or the CDOT Resident Engineer.

1.9 Authorization to Proceed

Work shall not commence until the written Notice to Proceed is received by the Consultant, and shall be completed in the time specified.

1.10 Routine Billing & Reporting

The Consultant shall provide the following on a regular basis:

- 1.) Monthly billing formats, suitable to the CDOT Resident Engineer, for all contract activities performed by the Consultant staff. The Consultant shall submit CDOT Form 10s or a timesheet format approved by CDOT for all Consultant personnel assigned to the project with each monthly billing.
- 2.) Periodic reports and billings required by CDOT Procedural Directive 400.2

1.11 Status of Contract

The consultant shall monitor the fiscal status of the contract and advise the CDOT Resident Engineer on a weekly basis of any need for supplementing their contract or negotiating an additional task order. Failure to monitor contract status and provide timely notification may result in discontinuation of the consultant's services on the project until a supplemental agreement can be affected.

1.12 Project Standards

All construction management and documentation shall be in accordance with the latest applicable versions of the Colorado Department of Transportation's manuals, e.g., Construction Manual, Field Materials Manual, Colorado Department of Transportation Inspector's Checklist, Standard Specifications for Road & Bridge Construction, the Supplemental Specifications, applicable M & S Standards, and the plans and specifications currently in use when the construction project is advertised or revised under advertisement. Call CDOT's Bid Plans Room at (303) 757-9313 to order or obtain additional information. All consultant construction management, inspection, or testing activities performed shall be as authorized by the CDOT Resident Engineer.

For the purposes of this document, Construction Management, Inspection, and Testing shall be known as "the work" and references to "the specifications" shall include all applicable CDOT Standard Specifications for Road and Bridge Construction including Supplemental Specifications, Project Standard Revisions and Project Special Provisions, and project plans and specifications.

The Consultant shall maintain onsite copies of all applicable CDOT Standard Specifications for Road and Bridge Construction including Supplemental Specifications, Project Standard Revisions and Project Special Provisions, and project plans and specifications.

1.13 Labor, Materials, Vehicles & Equipment

The Consultant Assistant Project Engineer and inspectors shall be thoroughly familiar with CDOT's specifications, manuals, forms, documentation.

The Consultant shall provide each of their project staff members a written copy of the approved task order to ensure that they understand their duties and requirements for the project.

Personnel provided by the Consultant who do not meet all of the specified requirements, or who fail to perform their work in an acceptable manner, shall be removed from the project when determined and directed by the CDOT Resident Engineer. If it is discovered that a consultant project employee is non-certified, CDOT will not pay for the Consultant employee's time incurred during the non-certification period.

The Consultant shall furnish all personnel, materials, equipment and transportation required to perform the work. Consultant personnel shall have appropriate vehicles (equipped with flashing amber beacon, proper personal protection safety equipment, and a cellular phone with a local phone number), computer and miscellaneous equipment (calculator, office supplies, safety equipment, etc.) required to perform the work. Computer equipment shall have MS Word, MS Excel, MS Project and/or *Primevera, a communications package capable of transmitting and receiving electronic messages, an internet email address, and sufficient memory to load CDOT SiteManager and the most current versions of CDOT QPM programs . Office space will be provided by Contractor pay item or provided by CDOT. The Consultant shall provide cell phones for the Resident Engineer, Project Coordinator, and any additional CDOT personnel assigned to the project.

(*if Primevera is used, the Consultant will obtain a license for use from CDOT)

Personnel qualifications, staffing level, and number and types of vehicles shall be subject to the approval of the CDOT Resident Engineer. The Consultant shall assign personnel for the duration of the Contract subject to the approval of the Resident Engineer.

1.14 Documentation

Each of the Consultant's personnel shall maintain a daily diary for each day they perform work on the project on an approved form. CDOT's Form 103 or Automated Form 103a - Project Diary and Site Manager Diary (when Site Manager is used on the associated project). The contents of the diary shall be brief using 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 available for the CDOT Resident Engineer within one working day of its date.

SECTION 2

Construction Management Requirements:

The following checklist shall be utilized to establish the Construction Management responsibilities of the individual parties for this project.

Description of Task	Consultant CDOT	
1. Schedule, conduct, and prepare minutes of all Project Meetings as follows:		
(a). Weekly Project Meetings	X	X
(b). Pre Survey Conference:	X	X
(c.) Construction Communications	X	X
(d.) Pre Work Conferences	X	X
(e.) Contractor Weekly Safety “Tool Box” Meeting	X	X
(f.) Utility Coordination meetings	X	X
(g.) Traffic Management meetings	X	X
(h.) Environmental and Erosion Control meetings	X	X
2. Construction Management:		
a. Professional Engineer (PE) registered in Colorado, who will be “in responsible charge of construction “.		X
b. Approval of Consultant PE		X

3. Public Relations		
(a.) Prepare and coordinate with CDOT and others to publish and distribute public notices of all planned construction activities and schedules to the media, property owners, local residents, tenants, and any other appropriate stakeholders affected by the project.	X	X
(b.) Perform public relation tasks with appropriate individuals as requested by CDOT.	X	X
(c.) Explain Construction and work with adjacent property owners to resolve issues that arise during construction.	X	X
(d.) Review and comment on Contractor's Public Information Plan	X	X

4. Construction Submittals:		
Note: This list is not all-inclusive and other submittals may require action as directed by CDOT.		
(a.) CDOT Form #205 – Sublet Permit Application, - Review, comment and approve after Form #713 has been checked by the Region EEO Administrative Program Specialist.	X	X
(b.) Method of Handling Traffic – Review and approve	X	X
(c.) Progress Schedules- Review and approve	X	X
(d.) Method statements – Review and comment	X	X
(e.) Shop drawings per 105.02 – Review and submit to specialty unit	X	X
(f.) Working drawings per 105.02 – Review and submit to specialty unit	X	X
(g.) Other submittals per 105.02 – Review and submit to specialty unit	X	X
(h.) All EEO, Labor compliance requirements – Review and comment	X	X
(i.) Other submittals as directed – Review, comment and/or approve as needed.	X	X
(j.) Traffic Control Management plans – Review and approve	X	X
(k.) Construction inspection including calculations, measurements, and documentation of interim and final pay quantities – Review, comment and approve.	X	X
(l) Prepare CDOT Form 105 – Construction Memo for review, comment and approval.	X	X

5. Perform required EEO/AA/DBE/OJT or labor compliance tasks as requested as follows:		
(a) Conduct Contractor/Subcontractors reviews to ensure conformance with the Equal Employment Opportunity (EEO)/Affirmative Action (AA)/DBE/OJT requirements contained in the Contract. (Standard Special Provisions, Project Special Provisions, and FHWA Form 1273)	X	X
(b) Complete and submit to the CDOT Region EEO Administrative Program Specialist the required number of CDOT Form #280 - Equal Employment Opportunity and Labor Compliance Verification.	X	X
(c) Monitor DBE participation to ensure compliance with the "Commercially Useful Function" requirements.	X	X
(d) Complete and submit to the CDOT Region EEO Administrative program Specialist the applicable number CDOT Form #200 - OJT Training Questionnaire, when project utilizes OJTs.	X	<u>X</u>
(e) Check certified payrolls to verify compliance with Contract requirements. The checking shall be completed by project personnel trained in payroll checking. (Contact the Region EEO Administrative Program Specialist for training requirements.)	X	X
(f) Coordinate submittals by Contractor and all subcontractors of FHWA Form 1391 (Highway Construction Contractor's Annual EEO Report) to the CDOT Region EEO Administrative Program Specialist. The Report is due to the Region EEO Administrative Program Specialist by August 10 for all construction projects active during the last complete week of July.	X	X

6. Materials:		
(a) CDOT Form #250 - Materials Documentation Record:		X
I) Fill out and distribute CDOT Form #250 before the Contractor commences work.		X
II) Complete Form #250 after work is completed. Consultant Project Engineer shall stamp and sign final Form #250. Distribute per instructions in CDOT Materials Manual.	X	X
(b) Approve changes to typical section (requires a CMO).		X
(c) Development, Checking, and Design mix approvals:		X
I) Concrete		X

II) Hot Mix Asphalt (HMA)		X
(d) Acceptance of manufactured products.	X	X
(e) Inspecting fabrication of structural steel and prestressed concrete structural components. PE inspects after delivery to site.	X	X
(f) Inspecting fabrication of bearing devices. PE inspects after delivery to site.	N/A	N/A
(g) Laboratory Check testing	X	X
(h) Acceptance testing	X	
(i) Independent assurance testing (Region Materials Laboratory will develop, complete, and distribute CDOT Form #379 - Project Independent Assurance Sampling Schedule.)		X
(j) Approve sources of materials in consultation with Region Lab.	X	X
(k) Ensure that COCs and CTRs have been submitted prior to installation.	X	

7. Maintain time counts	X	X
8. Maintain Project files for all documentation	X	
9. Obtain, accept, and approve all required contractor submittals	X	X
10. Review and submit shop drawings to specialty units	X	X
11. Perform Traffic Control Inspections	X	X
12. Approve traffic signal equipment	X	X
13. Monitor Construction surveying	X	X
14. Monitor ROW monumentation	X	X

15. Prepare monthly estimates of the Contractor's work performed, materials placed or stockpile materials on hand in accordance with the Contract.	X	X
<u>NOTE: Only the CDOT Resident Engineer can approve and sign vouchers for interim and final Contractor pay estimates.</u>		
16. Review interim and final billings for Utility relocation work.	X	X
<u>NOTE: Only the CDOT Resident Engineer can prepare, approve and sign vouchers for interim and final Utility Company billings.</u>		

17. Prepare CDOT Form #90 - Contract Modification Order (CMO) and/or CDOT Form #94 Minor Contract Revision (MCR) including letter of explanation for CMO/MCR as requested by CDOT PE.	X	X
<p><u>NOTE: The Consultant may negotiate costs for extra work but only CDOT can approve costs. Only the CDOT Resident Engineer can approve and sign MCR/CMOs for modifying CDOT's Contract or paying the contractor.</u></p> <p><u>Only CDOT or FHWA can approve Federal-Aid funding for MCRs/CMOs.</u></p>		

18. Monitor project financial status and submit monthly, in a format acceptable to the Resident Engineer, such as CDOT Form #65a - Project Financial Status Report.	X	X
19. Prepare and submit monthly progress reports to the Resident Engineer: CDOT Form #110a - Status of Active Construction Projects, and CDOT Form #517a - Status of Construction Project Finals.	X	X
20. Prepare appropriate responses to Contractor, Subcontractor or supplier requests for information, submittals, disputes, claims, change notices, or other correspondence.	X	X
21. Prepare response for CDOT Resident Engineer regarding Status of Claim.	X	X
22. Prepare complete claim record.	X	
23. Give oral or written presentation to the Resident Engineer, Program Engineer and the Region Director for claims	X	X

24. Give presentation for Dispute Review Board or AAA Arbitration board.	X	X
25. Conduct routine, random project reviews to ensure the project is being administered in accordance with the terms of the construction Contract.	X	X
26. Conduct final project inspection of completed or unacceptable work and prepare punch list for final acceptance.	X	X
27. Complete and sign CDOT Form #473	X	X
28. Complete the CDOT Form # 1199 check list at the project level	X	X
29. Prepare and submit CDOT Form #1212a - Final Acceptance Report.	X	X
30. Prepare final project acceptance letter and distribute per procedures in the CDOT Construction Manual.	X	X

31. Advertise for final settlement. (CDOT Staff Construction when CDOT is responsible.)		X
32. Maintain accurate as constructed notes and prepare and distribute final as constructed plans per procedures in the Construction Manual.	X	X
33. Check final quantities, final plans, and the final pay estimate.	X	X
<u>NOTE: Only CDOT can sign final pay estimate sheets and voucher</u>		
34. Generate or verify final earthwork quantities.	X	X
35. Check material records on a weekly basis.	X	X
36. Submit final materials certification (CDOT Form # 473)	X	X
37. Obtain and review CDOT Form #17 - Contractor DBE Payment Certification from the Contractor and submit to Region Finals Engineer.	X	X
38. Complete and submit CDOT Form #950 - Project Closure.		X
39. Submit original of all project records to the CDOT Resident Engineer for review. Required revisions will be completed by the CPE. (CDOT will retain the project records for <u>six</u> years from date of project closure.)	X	X

SECTION 3

Inspection Requirements:

3.1 General Work Description

The consultant shall provide support to the CDOT and Consultant project staff through assignment of personnel to construction inspection responsibilities. Inspection work shall conform to the CDOT Construction Manual, the Inspector Checklist and SiteManager (when applicable on the project). Inspection responsibilities include but are not limited to the following:

3.2 Personnel Qualifications

Consultant inspectors shall meet the certification requirements as listed in *Table A* located at the end of this document, and as follows:

- The inspector (s) must be certified per Chief Engineer's letter dated August 24, 2005. Copies of current certifications must be provided to the Resident Engineer prior to acceptance to the project.

The qualification program can be accessed at:

<http://www.dot.state.co.us/CHREmpCorner/empdev.cfm>

- The inspector (s) must report with the following equipment; 25ft. tape measure, 100ft. tape measure, measuring wheel, 4ft. level, 10 ft. straight edge, digital camera, round and flat shovel, string line, calculator, July 2006 M&S Standards, 2005 Standard Specifications for Road and Bridge Construction, MUTCD Part 6, CDOT Construction Manual including all revisions and updates., and a set of Project plans and Specifications. This list may to be amended as needed for specific needs on the project.

3.3 Construction Inspection Requirements

The consultant Inspector shall assist the CPE in performance of the following Construction activities:

Prepare and transmit updates of construction activities to the CDOT Public Information Office.

Periodic reports and billings required by CDOT Procedural Directive 400.2.

Perform initial, in-progress, and final inspections of work in progress including interim and final field measurements.

Monitor contractor payroll compliance.

Participate in weekly progress meetings with contractor, subcontractors, utility

companies and other interested parties.

The following environmental related items shall be monitored on a daily basis.

- Project compliance with Environmental Requirements to minimize all construction related impacts to the unique, natural, visual, and cultural characteristics of the environment. Activities to be monitored will include drilling and blasting, shotcrete application, environmental monitoring of turbidity, staining and seeding and planting.
- Wetlands protection and encroachment.
- Environmental conditions and BMPs, ensuring that the Stormwater Management plans are properly implemented and maintained.

Check project documentation from the contractor.

Ensure that material certifications are submitted by the Contractor and approved prior to installation.

Anticipate potential project problems and recommend solutions to the CDOT PE and the CDOT Resident Engineer.

Review drawings and data submitted by the construction contractor and suppliers for conformance with the project specifications.

Inform and obtain concurrence as needed from the CDOT PE regarding changed conditions/situations in the field, and maintain relative documentation for project records.

Maintain accurate notes reflecting actual construction details to be used in preparation of “As-Constructed” plans.

Communicate with adjacent landowners as required to resolve issues that arise due to construction.

Ensure compliance with the Traffic Management Plan.

Monitor compliance with and taking appropriate action to preserve safety on the project for all workers and traveling public in accordance with Method of Handling Traffic (MHT) and the Manual of Uniform Traffic Control Devices (MUTCD), OSHA, the project plans and specifications.

Initial, follow up, and final inspections of work in progress including interim and final measurements.

Photo document inspections during the course of the work.

Notify contractors and CDOT PE of non-compliance with the contract plans and specifications.

Perform special tests, investigations, or monitoring as required to document project item acceptance.

Prepare and complete inspection documentation required for development of progress payments for the contractor in accordance with prescribed CDOT procedures.

Submit standard documentation reports no later than the following working day.

Prepare routine correspondence to the contractor, CDOT Staff, local agencies, etc.

Provide liaison and communication to Contractor field crews.

Assist in preparing punch lists of uncompleted work, non-conformance reports, and deficiency reports.

Prepare final “As Constructed” plans during construction and upon project completion.

Miscellaneous related duties as requested by the CDOT PE.

Assist in preparing responses to contractors' and suppliers' requests for information, submittals, change notices, claims, and correspondence.

Some inspection activities will require the coordination with CDOT Environmental staff.

3.4 Documentation

CDOT’s Automated Form 103a – Project Diary shall be used, unless otherwise approved by the Engineer. The contents of the diary shall be brief and accurate statements of the 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 Engineer within one working day of the date on the diary.

The Consultant’s project assigned personnel shall each maintain notes, workbooks, records, or other documentation, on an ongoing basis, for the duration of the project.

The Consultant’s project assigned personnel shall submit all documentation as described in the Construction Manual prior to Contractor pay estimates being generated.

3.5 Submittal of Documentation

Documentation required at project end or suspension shall be submitted to the CDOT Resident Engineer within 20 working days after the date of work ending. Failure to submit the required final documentation may result in the withholding of Consultant’s payments until the documentation is received.

Appendix 1

Table A

Required Qualifications for Inspectors and Testers

Consultant Personnel	WAQT C Soils	ACI Field Testing Technician	ACI Transportation Construction Inspector		CRMCA Pavement Inspector	ACI Lab Technician	ACI Strength Technician	Tester CAPA LabCat	Inspector CAPA Inspector	CDOT Core Curriculum 3 Testing Elements	Erosion Control Supervisor
			In-Training	Inspector							
Tester	X	X				X	X	X			
Inspectors	X	-		*X	*X				X	X	X

*Certification in either the ACI Transportation Construction Inspector program or the CRMCA Pavement Inspector program is acceptable.

**ACI Strength Testing Technician certification is required to conduct flexural strength testing.

ACI Laboratory Aggregate Testing Technical or LabCat Level E certification is required to conduct sand equivalent testing.