

**NON-PROJECT / NON-TASK SPECIFIC CURB RAMP GENERAL ENGINEERING AND CONSTRUCTION MANAGEMENT SCOPE OF WORK –  
Colorado Department of Transportation Region 4 CONTRACT**

**ADMINISTRATION:**

Contract Administration:

Katrina Kloberdanz, Region 4 Local Agency and Traffic Design Resident Engineer  
10601 W. 10<sup>th</sup> Street  
Greeley, CO 80634

Day to Day Project Administration:

To Be Determined- Based on Scope of Work and the Program Area Being Served:  
Program Areas- To be assigned to Resident Engineers based on Geographic area or specific county limits.

General administration of this contract will be delegated to the respective Resident Engineer involved with this consultant selection process. Active day to day administration and monitoring of contract task orders will be delegated to the Region 4 ADA Curb Ramp Representative, Region Program Engineers and their respective Design Team Managers and Resident Engineer responsible for the work described within each task order. Some of these services must be provided under the direct supervision of a Colorado-licensed Professional Engineer (PE) or Professional Land Surveyor (PLS).

**Background**

In keeping with our goal of providing mobility and accessibility to all users of the transportation system, CDOT's Executive Management Team (EMT) has expressed a strong desire to aggressively increase ADA accessibility and move forward with a strategic and programmatic approach to achieving full compliance. The EMT's intent is to bring CDOT into full compliance with the ADA curb ramp requirements within five years.

A key element of this initiative is the adoption of the Public Right-of-Way Accessibility Guideline (PROWAG). PROWAG is the state of the art in accessibility for transportation facilities, unlike previous standards which were more oriented towards buildings. CDOT has updated CDOT standards and specifications utilizing PROWAG for best practices and guidance. The adoption of PROWAG will provide criteria that are better suited to the transportation environment while also providing better accessibility to the disabled community.

**Scope**

This contract will provide General Engineering support for projects as part of the R4 ADA Curb Ramp Transition Program with scope that include survey, right-of-way (ROW), utilities, environmental, preliminary and final design and construction. This contract will provide general engineering services for the development of plans, specifications, and cost estimates for ADA curb ramp projects throughout Region 4. These may include standalone curb ramp projects as well as individual ramp plans to be inserted into other project plan sets.

Type of work may include all or parts of the following activities:

- A. General Engineering Services** -The scope for general engineering services may include but shall not necessarily be limited to:
1. Provide conceptual drawings, graphs, data collection, or charts for the Region's planning, environmental, or other units as needed.
  2. Conduct or update studies for curb ramp compliance, transportation, environmental, NEPA etc.
  3. Provide support for region planning activities, including assistance with public meetings.
  4. Provide drafting support or CADD services. All CADD work for CDOT will be conducted using Bentley products including Microstation, Inroads Software, and ProjectWise latest versions used by CDOT.
  5. Provide support research or search county, state or other areas for records or documents relevant to the project or task. This includes right of way documentation.
  6. Provide scoping services.
  7. Provide scheduling in MS Project or other scheduling software as requested.
  8. Provide or acquire design services as required to complete tasks not specifically defined in the outline, but that may be required by specific task order.
  9. Provide Constructability Reviews.
  10. Provide meeting minutes for project development meetings (Scoping, FIR, ROWPR, FOR, etc.)
  11. Preconstruction site photos and preconstruction condition report/analysis.
  12. ADA Compliant Pedestrian detour routes, signage, striping and other items to accommodate construction.
- B. Roadway Design Activities** -The scope of work for roadway design activities may include but shall not necessarily be limited to:
1. Provide design services including quantity calculations for the various components of roadway construction, which could include curb ramps, pedestrian movements, and relocation of utilities, traffic signals, and pedestrian signals.
  2. Conduct plan, specification, and cost estimate checking and/or quality control.
  3. Furnish detailing and drafting services utilizing MicroStation and Inroads Software, latest CDOT adopted versions utilizing CDOT format. Other software products required for design services and communication of information are Microsoft Office products such as Word, Excel, Power Point. In addition Project Wise, Sharepoint, or FTP sites may be required for file sharing. Other formats or software products may be required for specific tasks such as traffic modeling or truck turning movements.
  4. Attend and/or conduct meetings as needed such as scoping reviews, design office reviews, field inspection reviews, and final office reviews and provide minutes as appropriate.
  5. Prepare (PS&E Package) final plans, specifications and provide the CDOT project manager with detailed estimates that can be entered into CDOT Transport application system at any point in the project.
  6. Prepare revisions under-advertisement to plans or specifications when necessary.
- C. Hydrology Activities** -The scope of work for the hydrology activities may include but shall not necessarily be limited to:
1. Collect historical drainage data.

2. Establish drainage basin data.
3. Select run-off parameters and predict peak flow.

**D. Hydraulics Design Activities** -The scope of work for hydraulics design activities may include but shall not necessarily be limited to:

1. Furnish the size and location of drainage structures.
2. Furnish storm sewer design.
3. Furnish erosion protection design and NPDES requirements.
4. Furnish design and quantity calculations for drainage structures including irrigation and permanent BMP's for surface drainage.
5. Design of water and waste water systems.
6. Irrigation system designs including, but not limited to, typical ditches, traveling gun irrigation systems and other center pivot systems.
7. Design, advise, or plan for MS4 compliant facilities and calculations and/or plan preparation as needed.
8. FEMA Flood Mapping Revisions and Amendments

**E. Traffic Engineering Activities** -The scope of work for traffic engineering activities may include but shall not necessarily be limited to :

1. Perform in-field inventories of traffic control device locations and conditions (existing and what is needed to be fully in compliance with ADA requirements).
2. Furnish design and quantity calculations necessary to prepare signal, signing or pavement marking plans.
3. Furnish detailing and drafting services.
4. Attend meetings such as field inspection and final office review or others as requested.
5. Prepare construction signing plans and schedules.
6. Prepare final plans and specifications.

**F. Landscape Architectural Activities** -The scope of work for landscape architectural activities may include but shall not necessarily be limited to :

1. Coordinate all special permits that may be required.
2. Coordinate ROW requirements.
3. Prepare Storm Water Management Plan (SWMP) Sheets with BMP locations and quantity calculations for each phase of construction.

**G. Materials and Geotechnical Services for Design** -The scope of work for design services may include but shall not necessarily be limited to :

1. Material Design for constructing curb ramps and associated intersection items including: Signal poles (traffic and pedestrian)

**H. Environmental Services** -The scope of environmental services consist of conducting scoping, recommend applicable environmental compliance requirements, process, and permitting to Region environmental staff. Assist Regional staff in completing environmental documentation and coordination necessary to approve and permit the project. This will include steps necessary to obtain a NEPA approval as well as construction permitting under Section 404 and for Construction Discharge Permit System.

Additional environmental services include, address` monitoring wells and other hazardous waste concerns identified on projects to eliminate environmental impedance on CDOT projects to allow construction activities to proceed while complying with environmental regulations.

The scope of work for these environmental services may include but shall not be necessarily be limited to:

1. Review and document environmental conditions, and apply the expected scope of work to determine applicable compliance requirements.
2. Prepare and/or review environmental surveys, impact assessment and compliance documentation.
3. Coordinate with Region environmental staff to ensure acceptance of scope of environmental surveys, impact assessment and documentation.
4. Assist Regional staff with any required external agency coordination.
5. Deliver draft compliance documents, including one review and revision cycle to finalize documents.
6. Assist Region Environmental Staff in the development of any necessary permit applications.
7. Ensure familiarity with specific site logistics that may pose challenges to completion of highway improvements and when requested by the Region, determine what outside resources are required to provide services, estimates and complete activities to allow CDOT construction work to proceed, and comply with regulations.
8. When requested by Region manage the logistics, schedule and administrative duties for; site investigations, drilling and collection analysis, review of analytical data in reports files and consult other regulatory agencies, preparing material management reports and estimates.

**I. Utility Services** -The scope of work for Utility Services may include but shall not necessarily be limited to:

1. Survey/Research existing utilities.
2. Map existing and relocated utilities.
3. Assist or facilitate utility agreements.
4. Coordinate and discuss utility impacts with utility companies.
5. Prepare exhibits or other support as needed for utilities.

**J. Right of Way/Surveying** -The scope of work for surveying activities conforming to the latest version of CDOT's Survey manual that may include, but shall not necessarily be limited to:

1. All surveying services shall be completed utilizing MicroStation and Inroads Software, latest CDOT adopted versions utilizing CDOT format.
2. Obtain Right of Entry forms if needed.
3. Obtain a Highway Survey Permit from CDOT Utility Engineer/Inspector.
4. Perform surveys related to the horizontal and vertical alignment of the project.
5. Perform GPS control survey and Geo reference the project control.
6. Perform topographical surveys.
7. Perform cross section surveys.
8. Perform utility surveys (includes potholing).
9. Perform wetland survey.
10. Prepare project control diagram.

11. Perform LIDAR surveys.
12. Perform unmanned aerial surveys.
13. Perform supplemental survey.
14. Attend pre-survey conferences.
15. Perform Monumentation
16. Photogrammetric Mapping.
17. Perform staking of Right of Way and parcel points for property inspections.

**K. Right-of-Way Plan Preparation** -The scope for right of way plan preparation is conforming to CDOT’s latest Right of Way manual may include, but shall not necessarily be limited to:

1. Retrieve recorded and un-recorded documents necessary to determine ownership and encumbrances, and property boundaries
2. Upon request of Region, prepare scope of services and procure services for Title Commitments and updates as required for development of right-of-way plans.
3. Upon request of the Region, confer with parties and perform unconventional research when evidence of ownership is not well defined by a conveyance instrument to determine extent of prescriptive use and rights.
4. Determine parcel boundaries for properties affected by ROW acquisition, and create boundaries of parcels to be acquired.
5. Write parcel legal descriptions.
6. Determine parcel size of ROW acquisitions, and provide total area of “parent” parcels.
7. Prepare R.O.W. ownership tabulation sheet.
8. Prepare R.O.W. plan sheets.
9. Calculate and plot existing R.O.W. lines.
10. Geo-reference all Microstation drawings.
11. Prepare monument tabulation sheets.
12. Prepare land survey control diagram.
13. Prepare total ownership maps.
14. Attend and prepare meeting minutes for R.O.W. plan review meetings and other required project meetings as requested.
15. Upon request by Region, Finalize R.O.W. plans and deposit appropriate documents in County Records
16. Upon request of the Region, research records and obtain information from water users, including but not limited to ditch companies to determine users, flow, use and other information required when irrigation structures are altered or flow and use affected. Obtain and/or prepare ditch agreements, permits and licenses at the direction of Region.
17. Upon request of the Region, develop engineer cost estimates for property and improvements to be acquired and Right of way budgets.

**L. Construction Management** –

The Consultant Project Management services shall support CDOT’s project staff through management of CDOT construction projects. The Consultant Project Manager shall be a Professional Engineer registered in the State of Colorado and will be in responsible charge of Construction Observation.

This Engineer shall certify in writing that all inspection, materials, materials testing, and Construction Management conforms to the plans, specifications and purpose of design. Further, upon submittal of each monthly construction contractor pay estimates to the CDOT Resident Engineer, this Engineer shall provide written certification that “The construction on this project is being conducted in reasonable close conformance with the plans and specifications.” This Engineer shall be available to review work, resolve problems and make decisions in a timely manner as requested by CDOT. The Consultant Project Manager shall be experienced and competent in road and bridge construction management, inspection and materials testing.

The CDOT Resident Engineer shall be the final authority regarding acceptance of work not conforming to the plans and specifications. The CDOT Project Engineer, or Resident Engineer in the absence of the CDOT Project Engineer, shall be responsible for signature approval of all construction contract modification orders (CDOT FORM 90) and all construction contract payments.

The Consultant Inspector(s) shall assist the CDOT Project Engineer in performance of construction inspection activities and other project-related activities, as directed by the CDOT Project Engineer. Inspection responsibilities may include but are not limited to the following:

- Assist CDOT Project Engineering in the performance of construction inspection activities;
- Review periodic reports and billings;
- Preparing and transmitting updates of construction activities to CDOT’s Public Information Office;
- Participation in weekly progress meetings with contractor, subs, utilities, and other interested parties;
- Anticipating project problems and suggesting solutions to the CDOT Project Engineer;
- Monitoring 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 and the Manual of Uniform Traffic Control Devices;
- Initial, follow-up, completion, and final inspections of work in progress, including interim and final measurements;
- Notifying contractor and 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;
- Completing inspection documentation using CDOT forms for the development of progress payments for the contractor in accordance with CDOT’s prescribed procedures;
- Submittal of standard documentation reports no later than the following working day;
- Preparation of routine correspondence to the contractor, CDOT Staff, local agencies, etc.;
- Providing liaison and communication to contractor field crews;
- Assisting in preparing punch lists of uncompleted work, non-conformance reports, and deficiency notices.
- Maintaining accurate field notes during construction reflecting actual construction details to be used in preparation of the as-constructed plans;
- Miscellaneous project-related duties as directed by the CDOT Project Engineer.

Inspection observations shall be documented and approved by the CDOT Project Engineer in accordance with the references cited below under PROJECT STANDARDS. Project specific work will be defined by task order, prior to work commencing.

The following certifications and/or classes shall be required:

Class/Certification	Consultant Project Manager	Consultant Inspectors	Consultant Materials Testing Technician
Basic Highway Math	X *	X	X
Basic Construction Surveying	X *	X	X
Basic Highway Plan Reading	X *	X	X
Storm water Management and Erosion Control	X	X	
CCA Traffic Control Supervisor	X	X	
<b>Specialty Certifications</b>			
LabCAT Level A&B		Level A	X
Asphalt Paving Inspection LabCAT Level I		X	X
WAQTC		X	X
ACI Field Testing Tech I		X	X
ACI Concrete Strength			X
Sitemanager Materials and LIMS-Tester Training			X
Certified Nuclear Gauge Operator Certification			X

\* Not required if the Consultant Project Manager or Assistant Project Manager is a licensed Professional Engineer.

## MANAGEMENT OF CONSULTANT PROJECT CONSTRUCTION INSPECTION

The consultant, CDOT Project Engineer, and Resident shall meet, coordinate and schedule the required work. The consultant shall complete all work in accordance with their approved schedule.

### PROJECT STAFFING AUTHORITY:

The CDOT Project Engineer is in direct charge of the work and is responsible for administration of the project contract as defined in the CDOT Standard Specifications. This includes approving and setting work hours for both project construction and inspection.

### PROJECT STANDARDS:

All inspection and documentation shall be in accordance with the *Colorado Department of Transportation (CDOT) Field Materials Manual, Construction Manual, CDOT M&S Standards, CDOT Inspector's Checklist* and applicable Project and Standard Special Provisions in the construction project contract and the applicable *CDOT Standard Specifications for Road and Bridge Construction*. The applicable *CDOT Field Materials Manual*, including *Colorado Procedures and Colorado Procedure-Laboratory*, shall be the one currently in use when the construction project is advertised. If the required method is not described in the *CDOT Field Materials Manual*, the required work shall be completed in accordance with the *current AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing* (as revised and supplemented) or the *ASTM Standards and Tentatives*. Proposed work procedures shall be coordinated with the CDOT Project Engineer prior to the start of work.

### LABOR, MATERIALS, AND EQUIPMENT:

The consultant shall furnish all personnel, materials, and equipment required to perform the work in a timely manner:

- Computer with appropriate software
- Clipboard, string line, 4-foot carpenter level
- Miscellaneous equipment to include calculator, office supplies, and personal safety equipment
- Cell phone
- Project transportation

### SPECIAL QUALIFICATIONS FOR CONSTRUCTION PROJECT INSPECTORS

The construction inspector(s) must possess a current and valid Colorado Driver's license. The construction inspector(s) must be certified in the areas of inspection to be performed by the CDOT Construction Inspector Qualification Program.

### SUBMITTAL OF FINAL DOCUMENTATION:

Final pay documentation shall be submitted to the CDOT Project Engineer within 20 working days after completion of the construction project work. Consultant shall be available to assist Project



Engineer and Finals Engineer in correcting documentation and as-constructed plans during the final checking process.

A completed CDOT Form 250 shall be submitted to the CDOT Project Engineer no more than 14 calendar days after the Consultant has been notified of final quantities. Failure to submit final documentation as required will result in withholding of Consultant payments.

**M. Materials Testing**

The consultant, CDOT Project Engineer, Resident Engineer and Residency Head Tester shall follow the requirements of CP-16 to meet, coordinate and schedule the required work. The consultant shall complete all work in accordance with their approved schedule. The consultant materials testing evaluation form shall be completed by the CDOT project engineer and head tester, and distributed as described in CP-16. The CDOT Project Engineer shall forward a copy of the completed Pre-Testing Meeting Agenda for Consultant Materials Testing to the Region Materials Engineer.

**PROJECT STAFFING AUTHORITY:**

The CDOT Project Engineer is in direct charge of the work and is responsible for administration of the project contract as defined in the CDOT Standard Specifications. This includes approving and setting work hours for both project construction and the materials testing.

**PROJECT STANDARDS:**

All sampling, testing, and documentation shall be in accordance with *the Colorado Department of Transportation (CDOT) Field Materials Manual, Construction Manual, CDOT M&S Standards and applicable Project and Standard Special Provisions in the construction project contract and the applicable CDOT Standard Specifications for Road and Bridge Construction*. The applicable *CDOT Field Materials Manual*, including *Colorado Procedures and Colorado Procedure-Laboratory*, shall be the one currently in use when the construction project is advertised. If the required method is not described in the *CDOT Field Materials Manual*, the required work shall be completed in accordance with the current *AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing* (as revised and supplemented) or the *ASTM Standards and Tentatives*. Proposed work procedures shall be coordinated with the CDOT Project Engineer prior to the start of work.

**LABOR, MATERIALS, AND EQUIPMENT:**

The consultant shall furnish all personnel, materials, and equipment required to perform the work. CDOT will provide a field laboratory for many of the construction projects and the required traffic control for all of the construction projects. The CDOT Project 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. When the consultant is required to use his own facility, he shall follow the Laboratory Qualification Program requirements contained in the applicable CP-10.

The following equipment and supplies shall be furnished by the consultant for each project in sufficient quantity to ensure performance of all work required in a timely manner. Such equipment and supplies shall remain the property of the consultant.

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. Cell Phone for each tester
13. Computer and printer for each test lab (CDOT or Consultant). This equipment needs to have capability to operate all current CDOT project software as defined in the current migration plan. This includes Site Manager.
14. Ignition Oven for determining asphalt binder content meeting specifications of CPL 5120.

Personnel staffing level and qualifications of testing personnel and laboratories for the project shall be subject to the approval of the CDOT Project Engineer. The CDOT Project Engineer shall receive and review the testing personnel and consultant laboratory qualifications prior to commencement of testing on the project.

Sampling and testing personnel qualifications shall be in conformance with the requirements of the applicable CP-10. Additionally the tester must possess a current and valid Colorado Driver's license.

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 only work to be stamped will be the summary sheets; i.e., CDOT Forms 6, 9, 58, 69, 212, 250, and 554. The Project 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 CDOT Project Engineer, and must be experienced and competent in road and bridge construction materials testing.

Copies of the tester's required certifications and a resume, with references, including his/her materials testing experience shall be provided to the CDOT Project Engineer. The materials testing technician(s) shall be thoroughly familiar with CDOT testing procedures, forms and documentation requirements. If oversight is necessary, the consultant shall provide the supervision and guidance needed for completion of the work. Oversight required by the consultant will not be paid for by CDOT. The materials testing technician(s) and inspector(s) shall be thoroughly familiar with CDOT forms and documentation requirements.

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 Project Engineer. Failure to perform the testing and documentation processes may result in termination of the task order as determined by the Task Order Administrator (Project Manager).

#### SPECIFIC TESTING 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 (Quality Assurance)** 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 Project Engineer shall be required to review project quantities on a monthly 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 Project Engineer. 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 to the CDOT Central Laboratory that are required to be tested by CDOT regardless of pre-inspection or pre-testing responsibilities. The items and test frequencies of Department tested materials shall be in accordance with the column titled "Central Laboratory" in the SCHEDULE.

#### 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 as approved by the CDOT Project Engineer. The contents of the diary shall be brief and accurate statement 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 CDOT Project Engineer within three working days 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's Project Manager and field tester(s) 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 may use CDOT worksheets or worksheets approved by the CDOT Project Engineer. CDOT Forms and worksheets are available through the Residency Head Tester at no cost to the consultant.

The consultant shall furnish the CDOT Project Engineer with 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 CDOT Project Engineer and the contractor within 12 hours for any material found to be out of compliance with the specifications.

The consultant shall coordinate the schedule for Independent Assurance Tests for the project in accordance with CDOT Form 379, with the Residency Head Tester, or directly with the Region IAT person.

#### SUBMITTAL OF FINAL DOCUMENTATION:

Final documentation shall be submitted to the CDOT Project Engineer within 20 working days after project acceptance. A completed CDOT Form 250 shall be submitted to the CDOT Project Engineer 14 calendar 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.

### **General Work Description for Region Materials Laboratory Testing:**

This work consists of materials testing at the Regional Materials Laboratory (potentially located anywhere in Region or an approved laboratory furnished by consultant). Materials testing could involve a wide range of projects consisting of, but not limited to, the resurfacing, reconstruction, maintenance and new construction projects. When the consultant is required to use his own facility, he shall follow the Laboratory Qualification Program requirements contained in the applicable CP-10.

### **MANAGEMENT OF CONSULTANT REGION LABORATORY MATERIALS TESTING:**

The consultant, CDOT Region Materials Engineer and CDOT Region Materials Lab Manager shall meet, coordinate and schedule the required work. The consultant shall complete all work in accordance with their approved schedule.

### **PROJECT STAFFING AUTHORITY:**

The CDOT Region Materials Engineer is in direct charge of the work and is responsible for administration of the project contract as defined in the CDOT Standard Specifications. This includes approving and setting work hours for the materials testing.

### **PROJECT STANDARDS:**

All sampling, testing, and documentation shall be in accordance with *the Colorado Department of Transportation (CDOT) Field Materials Manual, Construction Manual, CDOT M&S Standards and applicable Project and Standard Special Provisions in the construction project contract and the applicable CDOT Standard Specifications for Road and Bridge Construction*. The applicable *CDOT Field Materials Manual*, including *Colorado Procedures and Colorado Procedure-Laboratory*, shall be the one currently in use when the construction project is advertised. If the required method is not described in the *CDOT Field Materials Manual*, the required work shall be completed in accordance with the current *AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing* (as revised and supplemented) or the *ASTM Standards and Tentatives*. Proposed work procedures shall be coordinated with the CDOT Project Engineer prior to the start of work.

The consultant tester(s) must meet the requirements of Chapter 800 of the Field Materials Manual, be a minimum of 19 years of age and possess a personnel-monitoring device. Personnel staffing level and qualifications of testing personnel and laboratories for the project shall be subject to the approval of the CDOT Project Manager. The CDOT Project Manager shall receive and review the testing personnel qualifications prior to commencement of the work. When required, the consultant tester's work may be required to be under the direction of a Professional Engineer in the State of Colorado. The Professional Engineer shall be available to review work, resolve problems, and make decisions in a timely manner as requested by the Region Materials Engineer. Personnel Staffing level and qualifications of testing personnel and laboratories for this work shall be subject to the approval of the Region Materials Engineer. The

Region Materials Engineer shall receive and review the testing personnel and consultant laboratory qualifications prior to commencement of testing.

Activities will include sampling, sample reducing, and testing materials supplied to and/or produced on the projects. This includes but is not limited to performing the following tests:

1. Rice Test (CP 51)
2. Gradations of aggregate (CP 31)
3. Bulk Specific Gravity of cores and/or compacted mix (CP 44 and CP-L 5103)
4. Fine aggregate angularity (CP-L 5113)
5. Hveem Stability (CP-L 5106)
6. Lottman Testing (CP-L 5109)
7. AC Content by Nuclear Method (CP 85)
8. AC Content by Ignition Method (CP-L 5120)
9. Sand Equivalent Test (AASHTO T-176)
10. Liquid Limit and Plasticity Index of Soils (AASHTO T-89, T-90)
11. Moisture Density Relations of Soils (AASHTO T-99, T-180)

Assist with documentation, general cleanup and routine laboratory equipment upkeep as needed. The consultant may enter results into a computer database. The tester(s) may assist the Region Materials lab personnel (using mobile drill rig) in the collection of soil profile data and samples. Tests will be performed in accordance with the applicable CDOT Field Materials Manual, CDOT Laboratory Manual of Test Procedures, and/or AASHTO Test Procedures. The Region Materials Engineer will determine testing frequency.

The contract tester(s) may be allowed the use of Region Materials Laboratory and all equipment, except for nuclear moisture density gauges, in order to conduct the required testing, when deemed necessary by the Region Materials Engineer. Unless designated, the consultant tester will conduct his/her testing services in the lab provided.

The Region Materials Engineer may designate a member of his staff to represent him in the contract.

#### SPECIAL QUALIFICATIONS OF REGION LABORATORY MATERIALS TESTER(S)

Tester(s) must have a working knowledge, a minimum of 320 hours relevant experience, and possess and maintain current relevant certifications in the following programs for the duration of the task order:

- *CAPA (LABCAT) asphalt technician* Certification in Levels A and B
- *WAQTC Embankment & Base Testing Technician* Certification
- Tester(s) must possess a current and valid Colorado Driver's License

- N. **Other Services** -As requested by the Regions and specified in the task orders other services not specified above may be requested on an as needed basis. The scope of work for these services will include the details of the needs.

#### Timeframe and Deliverables

Timeframes and deliverables will be determined on a task by task basis at the time each task order is developed under this contract.