

**EXHIBIT “A”**  
**SPTC FORNI RD TO MISSOURI FLAT RD CLASS 1 BIKE PATH DESIGN PHASE 1**  
**SCOPE OF SERVICES – PRELIMINARY DESIGN/EVALUATION**  
**CUNNINGHAM ENGINEERING CORPORATION**

**SCOPE OF SERVICES**

The Cunningham Engineering Corporation (CEC) team proposes to perform the tasks listed below related to the Class 1 Bike Path Design and Engineering for the SPTC Forni Road to Missouri Flat Road corridor. This proposed scope of services is based on the referenced RFP prepared by the County and our site visit in May 2007 and our Project Understanding in our Proposal dated May 31, 2007. Our Client is the County of El Dorado (County).

The primary purpose of the Scope of Services is to provide Preliminary Design/Evaluation and 30% Plans, Specifications, and Estimates (PS&E) and related documents to begin the design process and aid in preliminary budgeting and funding. The scope of services has been tailored to meet the needs of the County and the community.

**Tasks To Be Performed By County**

In order for CEC to effectively perform necessary services for this project, there are a number of coordination and performance issues that need to be overseen by the County. It is assumed the County will provide, or direct others to provide, the following information and services, and CEC shall be able to rely on such information during the course of its work under this Scope of Services:

- 1) Access to any available site surveys, in electronic format (AutoCad 2000 or later).
- 2) Project programming information of County, funding agencies and community groups.
- 3) Current title report for the corridor with exception documents.
- 4) Existing right-of-way information for the corridor, Forni Road and Missouri Flat Road.
- 5) Improvement plans for Forni Road and Missouri Flat Road.
- 6) Routing designs and/or progress improvement plans in electronic format (AutoCad 2000 or later) for the proposed Missouri Flat Connector that affect the corridor.
- 7) Copy of any drainage studies conducted for any of the existing drainage sheds/culverts along the alignment, if available.
- 8) Existing utility pothole/elevation information if available.
- 9) Project specific environmental documents.
- 10) Electronic formats for Contract Documents in County standard format.

11) Contact information for known Caltrans personnel for funding administration, DOT Missouri Flat Connector project manager and other key personnel that will need to be contacted for project coordination.

12) If required, negotiations and/or enforcement with adjacent property owners for issues that effect the project, such as illegal drainage.

## **Tasks To Be Performed By CEC Project Team**

### **A. PRELIMINARY DESIGN/EVALUATION PHASE**

1. Project Management: Throughout the design process CEC will provide project management services. This will include but not be limited to coordination with the design team, the County and applicable agencies, aid in permitting, meeting attendance, and project documentation. In addition to active management the following services would be provided for project management:

a. Kickoff Meeting: Members of the CEC design team will attend a project kickoff meeting to confirm the County's objectives for the project, to establish parameters for the design effort, and to confirm interim and final deliverables.

b. Monthly Progress Reports: Reports will be submitted on a monthly basis to document the design progress, schedule, and decisions made addressing the design and schedule, a list of deliverables for said month, and encountered or anticipated problems that may affect the schedule, budgets and/or work products. A summary of any recommendations to address pending issues will be included.

c. Critical Path Method Schedule: Prepare a comprehensive critical path schedule from preliminary design through construction award. The schedule will be updated on a monthly basis and will include individual task start/completion dates, responsibilities, and dependencies. Planned and actual dates will be included. Format will be Microsoft Project and will be provided to the County electronically and via color hard copy. A preliminary schedule is attached.

d. Identify Documents Required by Caltrans: Caltrans, as the lead agency administering the Federal TE funding, will require technical reports and documents related to the project. CEC will identify said documents and prepare, direct team members to prepare, or verify that the County and/or their contracted environmental consultant (ESP) is preparing said documents. Specific documents to be prepared are included in this scope.

e. Adjacent Project Coordination: The CEC project manager will coordinate with the project manager for the Missouri Flat Connector project to coordinate design efforts with the pathway. If identified by the County during the preliminary design process CEC will coordinate with other adjacent proposed projects in the planning stages.

f. Permit Coordination: Coordinate permits on an as needed basis, such as encroachment permitting for work within the County rights-of-way and entry permits for investigations within wetlands areas. We have assumed that if specific 404 permits are required from the Army Corps of Engineers that ESP will obtain them for the project.

g. Meeting Attendance and Documentation: Attend monthly meetings (more frequently as necessary, especially during Preliminary Design) with County Staff, environmental consultant, Caltrans representative and the design team throughout the Preliminary Design, and 30% PS&E phase to update project progress, facilitate key decisions, and track action items. Prepare agendas and minutes for the meetings. For the purpose of this proposal a total of 6 meetings have been assumed (although not necessarily over a period of 6 months).

h. Gather Background Information: Gather background information and data for the project including record data and plans, relevant reports, design standards, etc.

## 2. Surveying and Base Mapping

a. Data Gathering/Project Coordination: CBC Surveys will obtain pertinent record information for conducting control surveys, topographic design surveys, and right of way engineering surveys. Sources from which this record information shall be obtained include: the National Geodetic Survey (NGS); the El Dorado County Assessor's Parcel Maps; deeds, Parcel Maps, Final Maps, and Records of Survey filed in the Office of the Recorder for El Dorado County; and the El Dorado County Department of Transportation.

b. Control Surveys: Research of the NGS database indicates that horizontal and vertical control exists within a few miles of the project. CBC Surveys will employ differential GPS methods to make ties to a commensurate number of these monuments to enable the utilization of the least squares survey analysis and adjustment software STAR\*NET, and to ensure proper positioning of the project on the California State Plane Coordinate System, Zone II, North American Datum of 1983 (NAD83) and the National Geodetic Vertical Datum of 1929 (NGVD29). This will be critical for coordination with the Missouri Flat Connector project.

c. Preliminary Right-of-Way Engineering: The RFP indicates that the alignment of the final PS&E shall be within the existing right of way. Prior to the commencement of conducting topographic design surveys, office survey personnel will construct a land net from record data, sources of which include: the El Dorado County Assessor's Parcel Maps; recorded Records of Surveys; Parcel Maps; Final Subdivision Maps; deeds; and roadway improvement plans. This Scope of Work includes a level of effort to construct the landnet and spend two (2) two-man field crew days recovering primary evidence such as section corners, quarter corners, etc. to which the right of way or adjoiner's properties may be referenced. This effort will serve the Team by showing the relationship between the existing alignment and the right of way limits. This level of effort should be sufficient assuming that the improvements stay along the former rail alignment. Where improvements deviate significantly from the former rail alignment more precise right-of-way engineering may be necessary. That additional required effort is not included in this scope.

d. Photogrammetric Mapping: Imagery to create base mapping at a scale of 1" = 50' with a 1-foot contour interval will be taken at a photo scale of 1:3600. Targets shall be of the minimum size required for the altitude of the photography, and under no circumstances shall the target material or the placement of targets cause damage to private property.

e. Supplemental Topographic Surveys & Base mapping Compilation: CBC Surveys crew will conduct supplemental topographic field surveys of areas, if any, designated by Cunningham Engineering that were unable to be mapped photogrammetrically. Information gathered in the supplemental survey may include but not be limited to: the location of natural ground features; roadway features; existing structures; fences; walls; driveways; control systems; surface evidence of utilities; storm drain manhole and catch basin pipe sizes and invert elevations; sanitary sewer manhole pipe sizes and invert elevations; drainage structures; signs; poles; streetlights; and other pertinent improvements. This Scope of Work assumes a level of effort to conduct four (4) additional days in the field along with the necessary office processing for this effort.

#### Survey Deliverables:

- Photo control monuments and subsequent control densification set for supplemental topographic surveys along and in proximity to the corridor will later serve as control for the construction of the project. A comma-delimited ASCII point file in Point, Northing, Easting, Elevation, Description format of points gathered in the field together with an accompanying control diagram.
- Aerial base mapping along the centerline of the existing corridor, approximately 100ft in width, compiled at a mapping scale of 1" = 50' with 1-foot contour interval on CD-ROM in AutoCAD 2005 format with one set of 9"x 9" black and white contact prints.
- Integrated digital terrain model composed from aerial and terrestrial topographic mapping with planimetrics at a scale of 1" = 40' with 1-foot contour interval of the project corridor on CD-ROM in AutoCAD 2005 format.
- Digital incorporation of land net compiled from field ties and record data into project base mapping. List of affected properties including assessors parcel numbers, owner's name, owner's address, parcel address, and a map locating any affected parcels relative to the proposed project limits.

3. Geotechnical Engineering Investigation: The geotechnical investigation assumes that there is no need or desire to evaluate the foundations for the bridge and thus permits to enter Weber Creek will not be necessary. The purpose of the geotechnical services will be to evaluate prevailing subgrade soil conditions for the alignment, measure existing gravel section thickness, provide structural pavement section design, and grading recommendations for the proposed bike path and trestle improvements. Services will include a field exploration program, geotechnical laboratory testing, engineering analysis, and report preparation. More specifically the scope will consist of the following:

- a. Perform a limited geologic literature review to aid in evaluating the geologic conditions present at the site.
- b. Review available project plans to aid in selecting exploratory excavation locations.
- c. Perform a site reconnaissance to review project limits, determine equipment access and mark out exploratory excavation locations for subsequent utility clearance.
- d. Notify subscribing utility companies via Underground Service Alert (USA) a minimum of 48 hours (as required by law) prior to performing exploratory excavations at the site.
- e. Perform approximately 15 exploratory trenches with a rubber-tire backhoe to a maximum depth of approximately 3 feet, based on conditions encountered. Obtain representative material samples from the exploratory excavations.
- f. Log the excavations in accordance with the Unified Soil Classification System.
- g. Backfill and compact excavations with excavated materials.
- h. Perform laboratory tests to characterize pertinent geotechnical parameters.
- i. Prepare a summary report with our conclusions and recommendations. The report will include (but not be limited to) the following:
  - i. Site plan showing the locations of the exploratory excavations
  - ii. Logs of the exploratory excavations, including depth to groundwater (if encountered)
  - iii. Laboratory test results
  - iv. A detailed discussion of our findings, conclusions, and recommendations, including (but not limited to):
    - (1) Site preparation, grading recommendations, and excavation characteristics
    - (2) Flexible asphalt concrete pavement sections in accordance with applicable Caltrans design procedures based on Traffic Indices or a minimum desired section provided by the County.
    - (3) Trestle seismic design parameters in accordance with Caltrans criteria
- j. Provide engineering consultation support during preparation of geotechnical aspects of the project plans and specifications. Attend pre-bid meeting in the event that geotechnical-related questions arise.

4. Alignment Programming, Constraints and Opportunities Assessment: Conduct a Programming Assessment by meeting with the County at the first meeting after the kickoff meeting (or at the kickoff meeting if time permits), to determine any preliminary information regarding pathway development, and gathering all information necessary to prepare the preliminary design. Many of the key issues and constraints described in the previous section of this proposal would be evaluated with the County staff.

5. Programming Technical Memo: Compile a technical memo outlining the design parameters for the alignment and identify additional immediate information/input and/or decisions that will be needed from the County staff to complete the project design.

6. Preliminary Horizontal Alignment/Geometric Approval Drawing: Upon completion of the programming assessment and receipt of the base mapping a preliminary horizontal alignment will be prepared and submitted to the County as a Geometric Approval Drawing (GAD) for comment and/or approval. The alignment will be presented at a scale of 1" = 50' and will include, but not be limited to preliminary parking areas, identification of the proposed centerline of the pathway, culvert crossings, proposed rest locations (if part of the programming), identification of roadway crossings and any key constraints identified at that time. The purpose of the GAD is to facilitate a more efficient PS&E process because the potential for alignment changes during the more detailed design are essentially eliminated.

7. Weber Creek Trestle Bridge Inspection and Limited Development of As-built Bridge Plans: A field inspection will be conducted to thoroughly assess the current condition of the bridge. This will include inspecting the railroad ties for signs of rot, assessing the general condition of the steel members for corrosion, and inspecting the bridge abutment and pier supports for adequacy during a seismic event. The condition of the existing deck members, including the beams which support the galvanized steel grates and bridge railing posts, will be evaluated to determine if they are adequate for re-use in the rehabilitated bridge deck. During the inspection, accurate measurements of the existing bridge deck members and existing steel beams will be taken for later use in development of the deck rehabilitation plans. These measurements will also be used for the development of deck replacement alternatives. A brief summary report will be submitted to the County documenting the field findings.

8. Utility Identification: Review available as-built utility and improvement plans provided by the City. Coordinate with private utility companies (electric, gas, telephone, and cable) to confirm existing utility locations, and identify any possible utility conflicts with the proposed underground improvements.

9. Utility Potholing: Shallow utilities that would be in possible conflict with the proposed improvements are not anticipated to be present throughout most of the alignment. However, conflicts with proposed signage and bollard foundations are possible at each end of the project and at the roadway crossings along the alignment. The scope and budget presented in this proposal includes the coordination and performance of a maximum of eight utility potholes, if necessary.

## B. DESIGN AND ENGINEERING SERVICES – 30% Plans & Construction Cost Opinion

Incorporating staff input and information obtained from the Preliminary Design/Evaluation Phase, the design team will prepare 30% plans at a level of detail to clearly illustrate the project to the County and Caltrans and for use in the environmental documents. The purpose of the 30% drawings is to eliminate any necessity for major design changes during the preparation of contract documents. Weber Creek trestle options will be presented at this phase of the design along with a cost opinion such that an alternative can be selected by the County. The 30% phase and drawings scope will include:

1. Civil Improvement Plans: Civil improvement plans for the 30% submittal will include a title sheet, survey control sheet, preliminary plan and profile sheets at a scale of 1" = 50' (per the RFP requirements), preliminary typical sections, preliminary parking area layout and grading plan, and schematic drainage improvements.

2. Weber Creek Bridge Trestle Modification Alternatives: Develop deck and railing rehabilitation/modification alternatives which will address the following issues:

- Safety
- Economics
- Structural Efficiency
- Ability to Construct
- Standardization
- Aesthetics/Historic Issues (as needed)

a. The following bridge deck alternatives will be investigated:

- i. Utilizing timber railroad ties to form a solid bridge deck
- ii. Filling in gaps between the existing ties with 4"x13" beams
- iii. Utilizing the existing ties to support the new timber deck
- iv. Placing corrugated steel pans on the existing ties and filling with asphalt concrete (AC)
- v. Removing the existing ties and utilizing corrugated steel pans and AC
- vi. Removing the existing ties and utilizing precast concrete panels

b. Suitable bridge railing alternatives will be identified and presented to the County. Potential alternatives will include:

- i. Cable railing
- ii. Cyclone fence
- iii. Timber railing

iv. Metal railing similar to that utilized in the City of Folsom;

c. Each of the above alternatives was explained further in the “Key Weber Trestle Issues, Opportunities” section of this proposal. For each alternative, an approximate cost will be determined and a basic sketch of the alternative will be made. A brief report will be submitted to the County detailing the alternatives, associated costs, and advantages and disadvantages of each alternative.

3. Preliminary Construction Cost Opinion: Prepare a preliminary construction cost opinion based on the 30% plans. The cost opinion will be prepared in a format (as provided/directed by the County) such that it can be readily included in the final contract documents (e.g. individual bid line items with associated quantities). A separate cost opinion for the bridge deck modification alternatives will be submitted as discussed above to aid in a County decision of the preferred alternative.

4. Meeting Attendance: Attend and document meetings on a monthly basis as described under Task A.

5. Funding and Environmental Assistance: Coordinate and provide information and drawings as needed to the County, Caltrans, and ESP for Federal funding requirements and CEQA/NEPA evaluations as needed for this Phase of the project.

Deliverables for 30% submittal:

- Three sets each of 22” x 34” plans and 11” x 17” (bond copies) for County review and comments
- Electronic AutoCAD/Land Development 2005 format submittal of the plans for County review and comments
- Two copies of the engineer’s estimate for construction
- Two copies of Design notes and calculations
- Map indicating pothole locations verifying locations and elevations of existing utility facilities that may have been or are in conflict with proposed trail improvements (if completed with 30% submittal).
- Utility High/Low Risk form per Caltrans Right of Way Manual, if applicable



## C. EXCLUSIONS

Our scope specifically excludes the following. Please note that we can provide, or help coordinate, some of the services listed below, as an additional work task.

1. Agency and permit fees (to be paid by County).
2. Revisions of completed or partially completed designs that incur cost to Consultant and which are the result of action by the County or otherwise necessitated by factors beyond the Consultant's control. If required, this additional work shall be paid for in accordance with the Consultant's then current Schedule of Fees.
3. Subsequent (65%, 95% and final) PS&E submittals.
4. Soundwall wall design or layout.
5. Attendance at public meetings.
6. Services related to existing underground storage tanks and/or sites of potential contamination. Services related to unsuitable soils.
7. Wetlands permits
8. Preparation of easement, right-of-way or land dedication documents.
9. Area-wide drainage studies.
10. Preparation of Stormwater Pollution Prevention Plans
11. Traffic control plans unless required to perform the design work.
12. Negotiations or meetings with adjoining property owners.
13. Landscape or lighting design.
14. Design of post-construction stormwater interceptors, vegetative swales, sand filters, except as specifically called out in the tasks above.
15. Participation in value-engineering processes or revisions to our plans to incorporate changes emanating from value engineering.
16. Payment of prevailing labor rates for field or office work, except for the surveying subconsultant.