

**TOWN OF CASTLE ROCK  
SERVICES AGREEMENT  
(6400 South Tributary Stabilization Project – Design Engineering/Permitting)**

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**DATE:** \_\_\_\_\_, 2020.

**PARTIES:** **TOWN OF CASTLE ROCK**, a Colorado municipal corporation, 100 N. Wilcox Street, Castle Rock, Colorado 80104 (“Town”).

**AECOM TECHNICAL SERVICES, INC.**, a Delaware corporation, 6200 South Quebec Street, Greenwood Village, Colorado 80111 (“Consultant”).

**RECITALS:**

- A. The Town issued a Request for Proposals from qualified firms with expertise in professional design engineering and permitting services.
- B. Consultant timely submitted its proposal.
- C. Town wishes to engage Consultant to provide the services more fully described in the following Agreement and Exhibits.

**TERMS:**

**Section 1. Scope of Services.** Consultant shall provide professional design engineering and permitting services related to the 6400 South Tributary Stabilization Project in accordance with the scope of work attached as ***Exhibit 1*** and Consultants Proposal attached as ***Exhibit 2*** (“Services”).

**Section 2. Payment.** Consultant shall invoice Town for the Services rendered upon the completion of each task in accordance with the rate and fee scheduled identified in ***Exhibit 2***. Town shall pay such invoices within 30 days’ receipt of such invoice. In no event shall the cumulative payment to Consultant exceed \$309,855, unless authorized in writing by Town.

**Section 3. Completion.** Consultant shall commence the Services upon execution of this Agreement and complete the Services not later than September 30, 2021. Consultant shall devote adequate resources to assure timely completion of the Services.

Town shall have the right to terminate this Agreement at any time with 30 days’ written notice to Consultant. In addition, this Agreement shall terminate December 31, 2020 in the event funds to support payment for calendar year 2021 are not appropriated. The Town’s only obligation in the event of termination shall be payment of fees and expenses incurred up to and including the effective date of termination. Consultant shall turn over all work product produced up to the date of termination.

**Section 4. Performance of Services.** Consultant shall complete the Services in accordance with the agreed upon time frame. Consultant shall devote adequate resources to assure timely completion of the Services. Consultant shall perform the Services under this Agreement using the customary standard of care, skill and diligence ordinarily used by reputable professionals performing the same services in the same location and at the same time under circumstances similar to those required by this Agreement. The full extent of Consultant's responsibility with respect to the Services shall be to perform in accordance with the above standards and to remedy any material deficiencies or defects in the deliverables at Consultant's own expense, provided that Consultant is notified by Town, in writing, of any such deficiency or defect within a reasonable period after discovery thereof. CONSULTANT MAKES NO OTHER REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, INFORMATIONAL CONTENT OR OTHERWISE.

**Section 5. Subcontractors.** Consultant may utilize subcontractors to assist with specialized works as necessary to complete the Services. Consultant will submit any proposed subcontractor and the description of their services to the Town for approval.

**Section 6. Assignment.** This Agreement shall not be assigned by Consultant without the written consent of the Town.

**Section 7. Notice.** Any notice required or permitted by this Agreement shall be in writing and shall be deemed to have been sufficiently given for all purposes if sent by certified mail or registered mail, postage and fees prepaid, addressed to the party to whom such notice is to be given at the address set forth on the first page of this Agreement, or at such other address as has been previously furnished in writing to the other party or parties. Such notice shall be deemed given when deposited in the United States mail.

**Section 8. Prohibition Against Employing Illegal Aliens.** Consultant shall not knowingly employ or contract with an illegal alien to perform work under this contract. Consultant shall not enter into a contract with a subcontractor that fails to certify to the Consultant that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this contract.

Consultant has confirmed the employment eligibility of all employees who are newly hired for employment to perform work under the public contract for services through participation in either the E-verify program or the Department program, as defined in C.R.S. §§ 8-17.5-101(3.3) and 8-17.5-101(3.7), respectively. Consultant is prohibited from using the E-verify program or Department program procedures to undertake pre-employment screening of job applicants while this contract is being performed.

If Consultant obtains actual knowledge that a subcontractor performing work under this Agreement for services knowingly employs or contracts with an illegal alien, Consultant shall:

A. Notify the subcontractor and the Town within three days that the Consultant has actual knowledge that the subcontractor is employing or contracting with an illegal alien; and

B. Terminate the subcontract with the subcontractor if within three days of receiving notice required pursuant to this paragraph the subcontractor does not stop employee or contracting with the illegal alien; except that the Consultant shall not terminate the contract with the subcontractor if during such three days the subcontractor provides information to establish that the subcontractor has not knowingly employed or contracted with an illegal alien.

Consultant shall comply with any reasonable request by the Department of Labor and Employment made in the course of an investigation that the Department is undertaking pursuant to the authority established in C.R.S. §8-17.5-102(5).

If Consultant violates a provision of this Agreement required pursuant to C.R.S. §8-17.5-102, Town may terminate the Agreement for breach of contract. If the Agreement is so terminated, the Consultant shall be liable for actual and consequential damages to the Town.

**Section 9. Insurance.** Consultant agrees to procure and maintain, at his own cost, the following policy or policies of insurance. Consultant shall not be relieved of any liability, claims, demands or other obligations assumed pursuant to this Agreement by reason of its failure to procure or maintain insurance, or by reason of its failure to procure or maintain insurance in sufficient amounts, durations, or types.

A. Consultant shall procure and maintain, and shall cause each subcontractor of the Consultant to procure and maintain a policy with the minimum insurance coverage listed below. Such coverage shall be procured and maintained with forms and insurers acceptable to the Town. All coverage shall be continuously maintained from the date of commencement of services hereunder. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage.

1. Workers Compensation insurance to cover obligations imposed by the Workers Compensation Act of Colorado and any other applicable laws for any employee engaged in the performance of Work under this contract, and Employer's Liability insurance with minimum limits of FIVE HUNDRED THOUSAND DOLLARS (\$500,000) each accident, FIVE HUNDRED THOUSAND DOLLARS (\$500,000) disease-policy limit, and FIVE HUNDRED THOUSAND DOLLARS (\$500,000) disease-each employee.

2. Comprehensive General Liability insurance with minimum combined single limits of ONE MILLION DOLLARS (\$1,000,000) each occurrence and ONE MILLION DOLLARS (\$1,000,000) aggregate. The policy shall be applicable to all premises and operations. The policy shall include coverage for bodily injury, broad form property damage (including for contractual and employee acts), blanket contractual, independent contractors, products, and completed operations. The policy shall contain a severability of interests' provision.

3. Comprehensive Automobile Liability Insurance with minimum combined single limits for bodily injury and property damage of not less than ONE MILLION DOLLARS (\$1,000,000) each occurrence and ONE MILLION DOLLARS (\$1,000,000) aggregate with respect to each of Consultant's owned, hired and/or non-

owned vehicles assigned to or used in performance of the services. The policy shall contain a severability of interests' provision.

4. Professional Liability insurance with minimum limits of ONE MILLION DOLLARS (\$1,000,000) per claim and ONE MILLION DOLLARS (\$1,000,000) aggregate.

B. The policies required above, except Workers' Compensation insurance, Employers' Liability insurance and Professional Liability insurance shall be endorsed to include the Town, its officers and employees, as an additional insured. Every policy required above, except Workers' Compensation and Professional Liability insurance, if applicable, shall be primary insurance, and any insurance carried by the Town, its officers, or its employees, shall be excess and not contributory insurance to that provided by Consultant. The additional insured endorsement for the Comprehensive General Liability insurance required above shall not contain any exclusion for bodily injury or property damage arising from completed operations. The Consultant shall be solely responsible for any deductible losses under each of the policies required above.

C. Certificates of insurance shall be completed by Consultant's insurance agent as evidence that policies providing the required coverage, conditions and minimum limits are in full force and effect, and shall be subject to review and approval by the Town. Each certificate shall identify the Project and shall provide that coverage afforded under the policies shall not be cancelled, terminated or materially changed until at least 30 days' prior written notice has been given to the Town. If the words "endeavor to" appear in the portion of the certificate addressing cancellation, those words shall be stricken from the certificate by the agent(s) completing the certificate. Upon request by Town, Consultant shall make available the insurance policies and any endorsements thereto, in redacted form if necessary to protect confidential information.

D. Failure on the part of Consultant to procure or maintain policies providing the required coverage, conditions, and minimum limits shall constitute a material breach of contract upon which at the Town's discretion may procure or renew any such policy or any extended connection therewith, and all monies so paid by the Town shall be repaid by Consultant to the Town upon demand, or the Town may offset the cost of the premiums against any monies due to Consultant from the Town.

E. The parties understand and agree that the Town is relying on, and does not waive or intend to waive by any provision of this contract, the monetary limitations (presently \$387,000 per person, \$1,093,000 for two or more persons, per occurrence) or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, §24-10-101, *et seq.*, C.R.S., as from time to time amended, or otherwise available to Town, its officers, or its employees.

**Section 10. Indemnification.** Consultant expressly agrees to indemnify and hold harmless Town or any of its officers or employees from any and all claims, damages, liability, or court awards including attorney's fees that are or may be awarded as a result of any loss, injury or damage sustained or claimed to have been sustained by anyone, including, but not

limited to, any person, firm, partnership, or corporation, to the extent caused by the negligent acts, errors or omissions of Consultant or any of their employees or agents in performing work pursuant to this Agreement. In the event that any such suit or action is brought against Town, Town will give notice within ten (10) days thereof to Consultant.

**Section 11. Delays.** Any delays in or failure of performance by any party of his or its obligations under this Agreement shall be excused if such delays or failure are a result of acts of God, fires, floods, strikes, labor disputes, accidents, regulations or orders of civil or military authorities, shortages of labor or materials, or other causes, similar or dissimilar, which are beyond the control of such party.

**Section 12. Additional Documents.** The parties agree to execute any additional documents or take any additional action that is necessary to carry out this Agreement.

**Section 13. Entire Agreement.** This Agreement represents the entire agreement between the parties and there are no oral or collateral agreements or understandings. This Agreement may be amended only by an instrument in writing signed by the parties. If any other provision of this Agreement is held invalid or unenforceable, no other provision shall be affected by such holding, and all of the remaining provisions of this Agreement shall continue in full force and effect.

**Section 14. Time of the Essence.** Time is of the essence. If any payment or any other condition, obligation, or duty is not timely made, tendered or performed by either party, then this Agreement, at the option of the party who is not in default, may be terminated by the non-defaulting party, in which case, the non-defaulting party may recover such damages as may be proper.

**Section 15. Default and Remedies.** In the event either party should default in performance of its obligations under this agreement, and such default shall remain uncured for more than 10 days after notice of default is given to the defaulting party, the non-defaulting party shall be entitled to pursue any and all legal remedies and recover its reasonable attorney's fees and costs in such legal action. In addition, no Party will be entitled to lost profits, economic damages, or actual, direct, incidental, consequential, punitive or exemplary damages in the event of a default.

**Section 16. Waiver.** A waiver by any party to this Agreement of the breach of any term or provision of this Agreement shall not operate or be construed as a waiver of any subsequent breach by either party.

**Section 17. Governing Law.** This Agreement shall be governed by the laws of the State of Colorado.

**Section 18. Independent Contractor.** Consultant and Town hereby represent that Consultant is an independent contractor for all purposes hereunder. As such, Consultant is not covered by any worker's compensation insurance or any other insurance maintained by Town except as would apply to members of the general public. Consultant shall not create any indebtedness on behalf of the Town.

**Section 19. No Third Party Beneficiaries.** It is expressly understood and agreed that enforcement of the terms and conditions of this Agreement, and all rights of action relating to such enforcement, shall be strictly reserved to Town and Consultant, and nothing contained in this Agreement shall give or allow any such claim or right of action by any other third party on such Agreement. It is the express intention of the parties that any person other than Town or Consultant receiving services or benefits under this Agreement shall be deemed to be an incidental beneficiary only.

**ATTEST:**

**TOWN OF CASTLE ROCK**

\_\_\_\_\_  
Lisa Anderson, Town Clerk

\_\_\_\_\_  
Jason Gray, Mayor

**Approved as to form:**

**Approved as to content:**

\_\_\_\_\_  
Robert J. Slentz, Town Attorney

\_\_\_\_\_  
Mark Marlowe, Director of Castle Rock Water

**CONSULTANT:**

**AECOM TECHNICAL SERVICES, INC.**  
a Delaware corporation

By: \_\_\_\_\_

Its: \_\_\_\_\_



**REQUEST FOR PROPOSALS  
TO PROVIDE  
ENGINEERING DESIGN SERVICES  
FOR THE**

**6400 SOUTH TRIBUTARY STABILIZATION PROJECT**

**CASTLE ROCK WATER  
RFP NO. SW-2020-04**

**October 2019**

## **GENERAL INFORMATION**

### **Project Description**

The Town of Castle Rock (Town) is seeking a Consultant Team to provide engineering design and permitting services for the **6400 South Tributary Stabilization Project**. This project is located in the Meadows Subdivision near Castle View High School and the new Arapahoe Community College Campus. The design reach begins at the confluence with East Plum Creek and ends at Meadow Pkwy. for a total stream length of 5,000 linear feet. The design reach is in need of restorative grade control structures, bank protection and channel grading to restore a healthy and safe stream corridor that protects property, infrastructure and the public. This project is funded through the Stormwater Enterprise. (see Attachment 1 for Project Site Map).

Expertise for this project is solicited in surveying, geotechnical investigation, alternative analysis, natural stream drainage design, construction drawings, temporary erosion and sediment control, hydraulic modeling, technical specifications, construction cost estimation, ecological impacts and mitigation, environmental permitting, and subsurface utility engineering certification and relocations.

### **Project Objectives**

The Town has multiple project objectives, including, but not limited to:

- Analyze the 6400 South Tributary channel within the project limits for stability and capacity to convey flood flows, and design improvements as needed to address deficiencies.
- Evaluate and refine Master Plan recommendations to identify the optimal design with the most value at the greatest benefit through engineering alternatives analysis.
- Preserve valuable and sensitive riparian and forest habitat, apply stream reclamation approaches on problem areas and hot spots, and develop a comprehensive planting and revegetation plan to mitigate for temporary impacts.
- Remap the floodplain within the project limits to reflect the proposed/constructed improvements and secure approval from FEMA.
- Design improvements to provide long-term protection of adjacent property and infrastructure.

### **Milestone Schedule**

This project will generally follow the milestone schedule below.

- Consultant Selection: November 2019
- Consultant Contracting: December 2019
- Phase I: January 2020 – April 2020
- Phase II:
  - Preliminary Design May 2020 – July 2020
  - Permitting Coordination August 2020
  - SUE August 2020
- Phase III:
  - Final Design September 2020 – December 2020
  - Permitting October 2020 – June 2021
  - Utility Relocations October 2020 – June 2021
  - Easements October 2020 – June 2021
- Bidding: June 2020 – July 2020
- Construction Contracting: August 2020 – September 2020
- Construction: October 2020 – April 2021
- Planting: May 2021

### **Town Project Team**

Project Manager – Castle Rock Water

- Jim Swanson, JRS Engineer Consultant, [jim@jrsec.com](mailto:jim@jrsec.com)



## Stakeholders

### Castle Rock Water

- David Van Dellen, Stormwater Manager
- Jeanne Stevens, Engineering Manager (water and wastewater)
- Shawn Griffith, Operations Manager

### Parks & Recreation Department

- Rich Havel, Trails Planner

### Public Works

- Brian Kelley, Engineering Manager

### Development Services

- Keith Johnston, Development Review Manager

### External Agencies

- Castle Rock Development Company, R.C. Hanisch

## **Coordination and Meetings**

The Consultant shall attend a design kick-off meeting and regular monthly progress meetings throughout the duration of the project and supply meeting agendas and minutes to the Town. Additional review meetings may be necessary as part of the alternatives analysis, 30% and 90% submittals. Monthly progress meetings and review meetings may be consolidated when applicable.

The Consultant shall coordinate and attend meetings, as needed, with respective stakeholders and agencies to achieve the project objectives and scope of work.

The Consultant shall attend up to two public meetings and provide applicable exhibits to communicate the project objectives and solicit public input.

## **PHASE I: SURVEYING, SITE INVESTIGATION & ALTERNATIVES ANALYSIS**

### **Survey**

The Consultant shall complete a topographic survey of the design project area as generally depicted on the project site map. The surveying shall include: existing improvements, property pins, underground utility locations, structures, trees, wetland delineation, topography including high and low points (one foot contours), and horizontal & vertical project control and any other information necessary to generate necessary easements and complete the scope of work as described herein. The Consultant shall be responsible for identifying limits of survey required for adequate design and upstream and downstream floodplain modeling tie-ins. It may be advantageous to postpone a portion of the surveying until the preliminary design phase, following selection of the preferred alternative. The Town will work with the selected Consultant to determine the appropriate timing of this task.

Vertical Datum: All elevations used shall be on the NAVD 88 Datum; no conversion equation is allowed.

Horizontal Benchmark and coordinates: The horizontal benchmark shall be specified. All surveys shall be in the State Plane NAD83, Colorado Central Zone coordinate system and include the coordinates of a known property corner on or adjacent to the site.

The Consultant shall be responsible for obtaining all dry utility mapping information from respective agencies in helping to determine potential conflicts with proposed improvements.

## **Geotechnical**

The Consultant shall provide all geotechnical investigation services required to support the design and project objectives. This shall include soil borings and a geotechnical report as needed to support the project improvements.

There are no existing geotechnical reports available for this area.

## **Alternatives Analysis**

The Consultant shall develop three design alternatives that include conceptual level design, schematic drawings and cost estimates for Town consideration. The Consultant shall provide a selection matrix that discusses pros and cons of each alternative along with the Consultant's recommended alternative selection. The Town will select a preferred alternative, or combination of alternatives, based on project objectives, opinion of probable cost, and physical constraints.

Alternatives should incorporate the following considerations: A review of master plan assumptions and recommendations; stakeholder input; environmental permit requirements, including hydraulic and ecological impacts; stream dynamics including geomorphology; project objectives; cost; water quality and other benefits; and other outside influences such as utility and transportation systems and adjacent land uses. Potential utility conflicts shall be identified and discussed in the Alternative Analysis.

In the event of delays on the survey and geotechnical investigation due to weather, the Consultant may be asked to prepare the alternatives analysis using best available data and other data made available through the Town.

## **Phase I Deliverables**

- Alternatives Memorandum (PDF)
- Conceptual level plan and profile drawings included as an appendix to the Alternatives Memo (PDF & AutoCAD)
- Conceptual Level Opinion of Probable Costs included as an appendix to the Alternatives Memo (PDF & Excel)
- Topographic and property boundary survey plan sheet(s) (PDF & AutoCAD)
- Geotechnical Report (PDF)

## **Provided Resources & Data from the Town**

- Town Boundary, Property Parcels, Right-of-Way and Trail Alignment (GIS shapefile & AutoCAD)
- Existing Water, Sewer and Storm Utility Mapping (GIS shapefile)
- Aerial Imagery (available to download)
- 2014 Topographic Data (1' contours available to download)
- Existing Hydrology & Hydraulic Modeling (CUHP/SWMM & HEC-RAS)
- Existing Record Drawings and Reports (PDF)

## **PHASE II: PRELIMINARY DESIGN**

The Consultant shall provide a 30% progress submittal based on the selected alternative, or combination of alternatives, for Town review in accordance with Town Criteria.

### **30% Construction Drawings**

The Consultant shall provide Preliminary Construction Drawings including:

- Cover Sheet
- Overall Site Improvements Sheet

- Project Control and Survey Sheet
- Plan & Profile Sheets
- Preliminary Hydraulic Design Detail Sheets
- Preliminary Planting/Revegetation Plan
- Preliminary Construction Access Plan

### **Preliminary Hydraulic Calculations**

The Town will supply the necessary information to support the Hydrologic design. The Consultant is to review this information and discuss any concerns or gaps in the data that should be addressed prior to final design. In general, this information should be consistent with FEMA published flow rates.

The Consultant shall provide hydraulic analysis and calculations to support the preliminary design in accordance with the Town's Storm Drainage Design and Technical Criteria Manual. Preliminary calculations shall be sufficient to determine whether a CLOMR or No-Rise Certification is required and sufficient to support the preliminary hydraulic design of the proposed improvements.

### **Environmental Permitting Coordination**

The Consultant shall coordinate with the U.S. Army Corps of Engineers and U.S. Fish and Wildlife Service as needed to determine the appropriate level of permitting and submittal application requirements necessary to obtain approval based on the selected alternative. Additionally, this coordination shall include an estimation of review timelines to ensure approval prior to the scheduled bid release date for construction.

### **30% Engineer's Opinion of Probable Cost Estimate**

The Consultant shall provide preliminary construction cost estimates to the Town included with the 30% submittal.

### **Subsurface Utility Engineering (SUE)**

The Consultant shall design improvements to avoid underground utility conflicts within proposed excavation areas to the maximum extent practicable.

The Consultant shall prepare a SUE Plan and Report in accordance with the requirements of ASCE 38-02, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, and Colorado Subsurface Utility Law (SB18-167). Potholing and/or other equivalent field investigation methods shall be employed, if necessary, to accurately locate existing utilities and potential conflicts within the project limits.

### **Phase II Deliverables**

- 30% Construction Drawings (PDF & AutoCAD, 22"x34" printable on 11"x17")
- 30% Preliminary Hydraulic Calculations (PDF & working files)
- 30% preliminary floodplain work map (PDF & AutoCAD)
- 30% Engineer's Opinion of Probable Cost (PDF & working files)
- Certified SUE Plan and Report (PDF & AutoCAD)

## **PHASE III: FINAL DESIGN & FLOODPLAIN MODIFICATION APPROVAL**

The Consultant shall provide a 90% progress submittal for Town review and 100% Bid Set submittal in accordance with Town Criteria.

## **Construction Drawings**

The Consultant shall provide Construction Drawings including:

- Cover Sheet
- General Notes Sheet
- Project Control and Survey Sheet
- Overall Site Improvements Sheet, including: river stationing, property boundaries, easements, plan improvements, floodplain and RCZ
- Channel Plan & Profile Sheets
- Detailed Plan Sheet for each grade control structure or other improvement
- Detailed Cross-Sections, including: upstream, downstream and through each grade control structure, and through low flow realignment and bank protection as applicable
- Standard Detail Sheets
- Planting/Revegetation Plan
- Construction Access Plan
- Traffic and Pedestrian Control Plan

## **Temporary Erosion and Sediment Control (TESC)**

The Consultant shall prepare a TESC Plan and Report for the project in accordance with the Town of Castle Rock TESC Manual. The TESC Plan and Report shall meet the requirements of a SWMP for use by the contractor in obtaining a Construction Discharge Permit with WQCD. The Consultant shall prepare a water control plan as part of the TESC Report.

The Consultant shall submit a 90% progress set for Town review and 100% Bid Set based on Town comments.

## **Drainage Calculations Memorandum**

The Consultant shall prepare an engineering memorandum to document the proposed design and include all applicable engineering calculations. A 90% progress submittal shall be provided for Town review and a 100% final document for Town records.

## **Conditional Letter of Map Revision (CLOMR) or No-Rise Certification**

The Consultant shall provide a CLOMR (or No-Rise Certification) Report and all applicable analysis, calculations, and details to support the final design in accordance with the Castle Rock's Storm Drainage Design and Technical Criteria Manual and FEMA regulations. The CLOMR (or No-Rise Certification) Report and application are to be submitted with 90% and 100% Construction Drawings.

The Consultant shall submit the CLOMR application as required by FEMA and address comments as needed to obtain approval. The Consultant shall include a discussion of the alternatives evaluation in the CLOMR report (per 44 CFR 65.12) and documentation of Environmental Species Act (ESA) compliance. The CLOMR shall be prepared in final form for Town review, prior to issuance to FEMA, with the 90% submittal. If a "no-rise" condition is achieved, a CLOMR will not be required. The CLOMR review fee should be included as a separate line item in the proposal. It is expected that the Consultant will submit the CLOMR on behalf of the Town via FEMA's online LOMC site.

## **Environmental Permitting**

The Consultant shall prepare a U.S. Army Corps of Engineers (USACE) Section 404 Permit Application as required by the USACE. Application shall be routed through the Town for concurrence prior to submittal. Consultant shall address comments as needed to obtain approval.

The project is located within the limits of the Douglas County Habitat Conservation Plan (DCHCP). U.S. Fish and Wildlife Service (USFWS) approval will be required. The Consultant shall prepare the necessary letter and/or exhibits to obtain USFWS concurrence under applicable covered activities as

authorized in the Douglas County Habitat Conservation Plan for the Preble's Meadow Jumping Mouse (DCHCP).

### **Utility Relocations**

The Consultant shall coordinate with applicable utility agencies and submit the necessary applications to implement the required utility relocations prior to the scheduled bid release date. Fees associated with utility permits and applications shall be paid for by the Town.

### **Technical Specifications**

The Consultant shall prepare technical specifications. Consultant shall work with Town staff to select the appropriate standard specifications to meet the Town of Castle Rock's objectives. Generally, this will include applicable Town and Mile High Flood District (MHFD) specifications.

The Consultant shall submit a 90% progress set for Town review and 100% Bid Set.

### **Technical Criteria Variance related to Water Quality Exclusion(s)**

The Consultant shall prepare a Technical Criteria Variance (TCV) for exclusions to permanent water quality enhancements in accordance with the Town's Storm Drainage Design and Technical Criteria Manual along with the 90% submittal for Town review and approval.

### **Engineer's Opinion of Probable Cost Estimate**

The Consultant shall submit a 90% construction cost estimate for Town review and 100% Bid Estimate.

### **Bid Schedule**

The Consultant shall provide a bid schedule with the 100% submittal to be included in the bid and contract documents package prepared by the Town.

### **Easement Legal Descriptions and Exhibits**

The Consultant shall provide permanent drainage, access and temporary construction easements, as needed, to support the proposed design including 90% progress set for Town review and 100% signed and sealed documents. Easements are anticipated on Castle Rock Development Company land downstream of the railroad.

### **Phase III Deliverables**

- Construction Drawings (PDF & AutoCAD, 22"x34" printable on 11"x17")
- TESC Plan and Report (PDF, AutoCAD & Word)
- Drainage Calculation Memorandum (PDF & working files)
- CLOMR (or No-Rise Certification) Report and Application (PDF & working files)
- 404 Permit Application (PDF)
- Memo and Exhibit(s) for USFWS Concurrence Request (PDF & working files)
- Utility Relocation Agreements, as applicable (PDF)
- Technical Specifications (PDF & Word Document)
- Technical Criteria Variance (PDF & Word Document)
- Engineer's Opinion of Probable Cost (PDF & working files)
- Bid Schedule (Excel or Word Document)
- Easement Legal Descriptions and Exhibits (PDF & AutoCAD)

## **PROPOSAL INSTRUCTIONS**

## **Proposal Submittals**

Relevant to the services requested, submittals shall be clear, accurate, and comprehensive. Submittals shall be limited to 15 pages, exclusive of section dividers, references and resumes. Minimum font size shall be 11 point. 11"x17" exhibits are allowable and will be counted as one (1) page each. Excessive or irrelevant material will not be favorably received.

The Consultant shall supply three (3) hard copies of the proposal in a sealed package and one (1) electronic copy (PDF) containing the following information:

Submittals shall be organized and numbered in the order presented below.

### **Section 1 Project Team Qualifications and Related Experience.**

List all key personnel, define their specific roles, and provide brief resumes. If sub-consultants are included, identify their role, prior experience working with them as a team, and summarize their qualifications. The Town expects that key personnel identified in the proposal will remain on the project through its entire duration.

### **Section 2 Response to Scope of Work.**

Provide a response to the primary objectives of the project, project description, key technical design issues, key tasks identified and other items of consideration for completing the scope of work.

### **Section 3 Action Plan and Schedule.**

Develop a work breakdown structure (WBS) including person-hour estimates by task for all phases of the work, a detailed schedule showing how the tasks will be completed, and a draft drawing list.

### **Section 4 Summary of Similar Projects.**

Include project description, consultant's personnel involved, tasks performed, budget/actual costs, schedule/completion date and client contact information.

### **Section 5 Request for Proposal Confidentiality**

Please specify those portions of the proposal you request to remain confidential and provide a copy of the signed RFP Confidentiality Statement & Letter of Indemnification as provided herein.

Proposals submitted to the Town for consideration shall be subject to the Colorado Open Records Law, Section 24- 72-201, et seq., C.R.S. Any confidential information in the Submitter's proposal shall be identified as such. If any information is considered to be confidential, the Submitter shall agree to indemnify the Town for any and all attorney fees that the Town may incur in defending the withholding of such information by signing and returning the letter found in the Appendix of this RFP. Should the Town receive a request for the release of any information in the consultant's proposal in accordance with the Open Records Law, the Town will release only that information which has not been identified as confidential so long as the Letter of Indemnification has been signed and returned by the Submitter along with the proposal. Should the Submitter choose not to sign and return Letter of Indemnification, all information in the Submitter's proposal shall be considered releasable by the Town. Submitter will be notified of any open records requests prior to the release of such information. If, in the opinion of Town's legal counsel, the Town is nonetheless compelled to disclose any portion of such information to anyone or else stand liable for contempt or suffer censure or penalty, the Town may disclose such information without liability.

## **Fee Schedule**

In addition to the proposal, the Respondent shall submit one copy of their proposed fee schedule in a sealed envelope labeled "6400 South Tributary Stabilization Project Proposal – Fee Schedule". At the completion of the proposal evaluation, the fee schedule will be opened and reviewed, not for 'low bid', but for a reasonable and appropriate level of effort from each team member.

The Consultant's fee schedule shall include the man-hour estimates, and labor and expense costs associated with each major task, with a sub-total for each phase, as outlined in the scope of work. The Bidding and Construction Engineering and Post-Construction support services will be identified and negotiated and awarded under a separate agreement and are not included in this request.

### **Pre-Proposal Meeting**

A **MANDATORY** Pre-Proposal will be held on **Thursday, October 24, 2019 at 3:00 p.m.** at the address listed below.

Castle Rock Water  
175 Kellogg Court  
O&M Building 183  
Castle Rock, Colorado 80109

Note: Please enter and exit the site through Gate C. Parking is available to the west and south of Building 183. The entrance to Building 183 is on the west side.

### **Request for Clarification**

Requests for clarification concerning the RFP shall be submitted in writing, by **email**, and must be received by close of business Friday, November 1, 2019. Requests submitted via telephone will not be accepted. All requests for clarifications shall be directed by email to: Jim Swanson at [jim@jrsec.com](mailto:jim@jrsec.com)

Responses to requests for clarifications will be provided in writing and distributed by close of business on Thursday, November 7, 2019 to all Respondents in the form of an addendum, and without identification of the source of any inquiry.

### **Location, Date, and Time for Submittal of the Proposal**

The proposals must be enclosed in a sealed package and received by the Town by **3:00 p.m. Thursday, November 14, 2019** at the address listed below. Each package must be legibly marked with the name and address of the respondent. No late proposals will be accepted. **Emailed and faxed submittals will not be accepted.**

Castle Rock Water  
175 Kellogg Court  
Castle Rock, Colorado 80109

Attention: David Van Dellen, Stormwater Manager  
Proposal: 6400 South Tributary Stabilization Project

## **SELECTION PROCESS**

### **Proposal Evaluation and Selection**

The Town of Castle Rock reserves the right to reject any or all proposals, or accept any presented, which are deemed in the best interest of the Town of Castle Rock. The Town of Castle Rock is not bound to accept the low proposal. The Town has the sole authority in awarding this Project. The Town reserves the right to waive any formalities and reject any or all proposals, including and without limitation, the right to reject any or all nonconforming, nonresponsive, unbalanced or conditional proposals and to reject the proposal of any Consultant if the Town believes that it would not be in the best interest of the Town to make an award to that Consultant. The Town reserves the right to select the team or firms it feels are the most appropriate for this project. The Town further reserves the right to cancel this selection process, or select an alternate course of action. The Town of Castle Rock reserves the right to make an award based solely on the proposals received or to negotiate further with one or more of the respondents. Multiple awards will not be made.

The Consultant selected for the award will be chosen on the basis of greatest overall benefit to the Town of Castle Rock. The following factors will be used to evaluate proposals. The order of the listed criteria is not indicative of their priority, weighting, or importance.

- Team/Sub-consultant qualifications (as they relate to the scope of work);
- Understanding of objectives and completeness of project approach to satisfy scope of work, including constraints and concerns that are anticipated during performance of services, and suggested approaches to address these problems;
- Complete and reasonably thought out action plan, including work breakdown structure with person-hour estimates for all tasks, and ability to meet identified milestone schedule;
- Previous experience with similar projects, including ability to meet or exceed client expectations on similar projects within the past five years, and;
- Cost of services.

To receive consideration, all responses shall be received before the closing date and time specified in the Proposal Instruction portion of this RFP. Proposal evaluations will occur following the RFP closing date. The Town may elect to conduct interviews if there are two or more closely ranked proposals.



**ATTACHMENT 1**  
**PROJECT SITE MAP**







**TOWN OF CASTLE ROCK, CASTLE ROCK WATER**  
**6400 South Tributary Stabilization Project**  
**RFP No. SW-2020-04**  
**RFP Addendum No. 1**  
**November 4, 2019**



**To: All Pre-Proposal Meeting Attendees**

Addendum No. 1 includes the Pre-Proposal Meeting Attendance Sign-in Sheet and other clarifications. These addenda items shall be incorporated into the Request for Proposal No. SW-2020-04, dated October 2019.

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**1. Pre-Proposal Meeting Attendance Sign-in Sheet.**

The Pre-Proposal Attendance Sign-in Sheet is attached.

**2. Milestone Schedule Update:**

The Milestone Schedule shall be changed as follows:

- Bidding June 2021 – July 2021
- Construction Contracting August 2021 – September 2021
- Construction October 2021 – April 2022
- Planting May 2022

**3. Letter of Indemnification:**

The Letter of Indemnification doesn't count in the maximum RFP page limit criteria.

**4. Subsurface Utility Engineering (SUE).**

The SUE quality level for this project is anticipated to be either "B" and/or "A", depending on the utility type, relative location to the project improvements and other site conditions. Avoidance is recommended if possible. The Consultant should provide a discussion of their assumptions and findings in the RFP and propose an associated fee relative to that described level of effort. Review of proposals will weigh heavily on the Consultant's approach and scope of services for the SUE with the fee commensurate to the approach and scope. A Professional Engineer's seal is required on the utility plan.

**5. Alternative Analysis.**

An alternative analysis will be required. Channel degradation and area site development has occurred since completion of the Master Plan. It is anticipated the lower reach will require full reconstruction; whereas the upper reach may only require a surgical approach. All alternatives shall coordinate with existing and proposed utilities and trails. Coordination is required with the developer (landowner) on the east side of the railroad tracks.

**6. CLOMR.**

It is anticipated a CLOMR will be required. List the CLOMR as a separate line item in the fee proposal. Please note, the Consultant shall include the cost of the application fee in their proposal. Reimbursement of the application fees will be made to the Consultant by the Town.

**7. Budget.**

The total design, permitting and construction budget estimate totals \$2.2 M.

**8. Easements and/or License Agreements.**

Easements and/or License Agreements will be required with landowners along the channel reach.

**9. Questions Received / Responses.**

- a. Q - Visiting all of these sites, all of them have a bike path or pedestrian path that runs along all or portions of each reach. During design, can these bike paths be relocated on a different alignment? *R – This concept, where proposed, will be addressed during the Alternative Analysis phase of the project design. The Town Parks and Recreation Department is a project stakeholder and will participate in the evaluation of alternatives and selection of the preferred alternative.*

**End of Addendum No. 1**

## Pre-Proposal Meeting 10/24/19

## 2020 Stormwater Design Projects

Sign-In								
Name	Firm	Phone	email	6400 East	Omni	EPC	6400 South	McMurdo
David Van Dellen	Castle Rock Water	720-733-6029	<a href="mailto:dvandellen@crgov.com">dvandellen@crgov.com</a>	x	x	x	x	x
Kate Malers	Water & Earth Tech	970 225-6080	<a href="mailto:kmalers@wetec.us">kmalers@wetec.us</a>	x	x	x	x	x
Melissa Brennan	Water & Earth Tech	970 237 0118	<a href="mailto:mbrennan@wetec.us">mbrennan@wetec.us</a>	x	x	x	x	x
Chris Hodyl	Jacobs	720-557-9569	<a href="mailto:chris.hodyl@jacobs.com">chris.hodyl@jacobs.com</a>	x	x	x	x	x
Kiersten Hines	Jacobs	7196515230	<a href="mailto:kiersten.hines@jacobs.com">kiersten.hines@jacobs.com</a>	x	x	x	x	x
Jason Albert	Anderson Consulting	970-226-0120	<a href="mailto:jason.albert@acewater.com">jason.albert@acewater.com</a>	x	x	x	x	x
Kristin Barnett	Watervation	720-273-9183	<a href="mailto:nicole.babbitt@water-vation.com">nicole.babbitt@water-vation.com</a>	x	x	x	x	x
Jared Lee	Bohannon Huston	303-799-5103	<a href="mailto:jlee@bhinc.com">jlee@bhinc.com</a>	X	X	X		
Sarah Houghland	Enginuity	303-257-2423	<a href="mailto:shoughland@enginuity-es.com">shoughland@enginuity-es.com</a>	X	X	X	X	
Deb Ohlinger	Olsson	303-237-2072	<a href="mailto:dohlinger@olsson.com">dohlinger@olsson.com</a>	X	X	X	X	
Jennifer Green	ICON Engineering	303-221-0802	<a href="mailto:jgreen@iconeng.com">jgreen@iconeng.com</a>	x	x	x	x	
Lee Riseb	RESPEC	720-775-6399	<a href="mailto:lee.rosen@respec.com">lee.rosen@respec.com</a>	X	X	X	X	
Rifka Wine	Bohannon Huston	303-799-5103	<a href="mailto:rwine@bhinc.com">rwine@bhinc.com</a>	X	X			
Amanda Sparks	Kumar & Associates, Inc	303-742-9700	<a href="mailto:asparks@kumarusa.com">asparks@kumarusa.com</a>	X	X	X	X	X
Danny Elsner	Dewberry	303.951.0639	<a href="mailto:eelsner@dewberry.com">eelsner@dewberry.com</a>	x	x	x	x	
Haley Heinemann	Dewberry	720-308-0920	<a href="mailto:hheinemann@dewberry.com">hheinemann@dewberry.com</a>	x	x	x	x	
Chris Castelli	Kiowa Eng Corp	720-330-2553	<a href="mailto:ccastelli@kiowaengineering.com">ccastelli@kiowaengineering.com</a>	x	x			
Brian Thomasen	NV5, Inc.	269-519-8390	<a href="mailto:brian.thomasen@nv5.com">brian.thomasen@nv5.com</a>	x	x	x	x	x
Brent Kaslon	Valerian llc	303-656-8934	<a href="mailto:brent@valerianllc.com">brent@valerianllc.com</a>	X	X	X	X	X
Joe Allison	KLJ	303-522-0952	<a href="mailto:joe.allison@kljeng.com">joe.allison@kljeng.com</a>	x	x	x	x	x
Vanessa Brown	LT Environmental, Inc.	303-483-5588	<a href="mailto:vbrown@ltenv.com">vbrown@ltenv.com</a>	x	x	x	x	x
Chris Tagert	Michael Baker	720-514-1128	<a href="mailto:ctagert@mbakerintl.com">ctagert@mbakerintl.com</a>	x	x	x	x	x
Will Carrier	AECOM	719-426-1755	<a href="mailto:will.carrier@aecom.com">will.carrier@aecom.com</a>	x	x	x	x	x
Adam Lacey	RESPEC	719-283-7672	<a href="mailto:adam.lacey@respec.com">adam.lacey@respec.com</a>	x	x		x	
Karin Mcshea	Pinyon Environmental	720-441-9811	<a href="mailto:mcshea@pinyon-env.com">mcshea@pinyon-env.com</a>	x			x	
John Yager	Muller Engineering	303-988-4939	<a href="mailto:jyager@mullereng.com">jyager@mullereng.com</a>			x		x
Rigel Rucker	AECOM	575-545-1107	<a href="mailto:rigel.rucker@aecom.com">rigel.rucker@aecom.com</a>	x	x	x	x	x
Tristan Bonser	JR Engineering	303-267-6171	<a href="mailto:tbonser@jrengineering.com">tbonser@jrengineering.com</a>		x	x		
Emily Magnuson	Kimley Horn	719-216-4054	<a href="mailto:emily.magnuson@kimley-horn.com">emily.magnuson@kimley-horn.com</a>	x	x	x	x	x
Josh Root	Stanley Consultants	720-460-4740	<a href="mailto:rootjosh@stanleygroup.com">rootjosh@stanleygroup.com</a>				x	



November 14, 2019

AECOM  
6200 South Quebec Street  
Greenwood Village, CO 80111  
www.aecom.com

303.694.2770 tel  
303.694.3946 fax

Mr. Jim Swanson  
Stormwater Project Manager  
Castle Rock Water  
175 Kellogg Court  
Castle Rock, CO 80109

**RE: Proposal for Engineering Design Services for the 6400 South Tributary Stabilization Project RFP No. SW-2020-04 and Addendum 1**

Dear Mr. Swanson and Members of the Selection Committee:

AECOM is pleased to offer our resources for the 6400 South Tributary Stabilization Project. This project will provide much-needed stabilization to a stream experiencing erosion issues near infrastructure and recreational facilities that could compromise public safety. The AECOM team assembled for this project provides:

- **Local Presence and Knowledge** – AECOM's team is comprised of local and national experts that live in and around the Town of Castle Rock (Town) and are familiar with the Town's water resources issues. These experts include Project Manager Rigel Rucker, Hydrology and Hydraulics (H&H) Lead Joe Roerkohl, and Utilities Specialist Bill Wemmert, who have many years of experience working with the Town in and around the 6400 South Tributary, completing hydrology and hydraulics, stream stabilization, and floodplain map updates. This experience provides the team with intimate knowledge of the area and the 6400 South Tributary as well as familiarity with Town expectations for developing projects on time and within budget.
- **Technical Team's Project-Specific Qualifications** – Our team includes experts in all disciplines related to the anticipated project needs across the full lifecycle of project phases, including hydrology and hydraulics; stream stabilization; and temporary erosion and sediment control (TESC); stormwater and environmental permitting; flood mitigation; and construction engineering. We have local expertise in channel stabilization along East Plum Creek and the 6400 West Tributary and have a thorough understanding of the constraints and challenges to successfully designing a stable channel section. In addition, we have local expertise in environmental permitting that will support the successful delivery of this project.
- **Project Delivery and Performance** – The AECOM team provides the expertise to deliver the project on schedule, within budget, and with excellent quality to the Town. Our team includes key team members who successfully completed the 6400 West Tributary project and are available for this project. Their experience will be leveraged for the 6400 South Tributary Stabilization project.

We are confident that our team is uniquely qualified to successfully undertake this project based on our experience with the Town and our technical capabilities. AECOM has proposed a team of surface water and restoration personnel who are committed to making Castle Rock's waterways resilient with the appropriate amount of engineered controls. Please direct any questions to Rigel Rucker at (575) 545-1107 or [rigel.rucker@aecom.com](mailto:rigel.rucker@aecom.com).

Sincerely,  
AECOM Technical Services, Inc.

Rigel L Rucker, PE, CFM  
Project Manager

Kevin Klimek, PE  
Project Director

## Section 1: Project Team Qualifications and Related Experience

### Introduction

The 6400 South Tributary in Castle Rock is experiencing significant erosion and degradation, potentially causing embankment erosion and undermining issues to nearby infrastructure; this has been identified by the Town of Castle Rock (Town) as a key project protecting local infrastructure and enhancing the riparian corridor. AECOM has assembled a team of stream restoration, hydraulic and hydrologic modeling, and Flood Insurance Rate Map (FIRM) update experts to support the Town in efficiently designing and implementing solutions for the stabilization and restoration of the 6400 South Tributary.

### AECOM's Team of Specialists

If selected, our Project Manager, Rigel Rucker, local to Castle Rock, will work with Mr. Jim Swanson, Town Stormwater Project Manager, to successfully execute the 6400 South Tributary project. Rigel will be supported by specialized staff from AECOM and our partner firms, who are also local to Castle Rock. Our team is further strengthened by specialized staff from Shannon & Wilson, Inc. (S&W), Pinyon Environmental, Inc. (Pinyon), and T2 Utility Engineers (T2). The selected project team is comprised of members that are vested in the Town and will strive to provide value and innovative solutions for the 6400 South Tributary. In addition to being familiar with local concerns, the team is also familiar with applicable state and national procedures.

We have a proven track record of providing specialized experience and technical competence in planning, feasibility, preliminary and final engineering analyses, compliance with Federal Emergency Management Agency (FEMA) requirements, inspections, designs, cost estimates, plans, specifications, and construction services for water resources projects involving flood control, river restoration, and utility design.

Much of AECOM's surface water expertise is located in Colorado. Our local Colorado-based experts provide innovative solutions for stream restoration, hydraulic structures, hydrology, master planning, sediment challenges, advanced hydraulic modeling, and an industry-leading risk management practice. Several key individuals including Rigel Rucker, Kevin Klimek, Joe Roerkohl, and Chris Romeyn have been instrumental in generating the Upper Big Thompson Resilience Master Plan, 6400 West Tributary, and Sellars Gulch. AECOM's environmental staff has successfully completed 404 and sensitive habitat permitting for multiple local projects, including in Colorado Springs and El Paso County. Our expertise working with the U.S. Army Corps of Engineers (USACE) and U.S. Fish and Wildlife Service (USFWS), and understanding the permitting process will be paramount in keeping the project on schedule. Our stream stabilization experts have designed a multitude of channel restorations within the Town and throughout the front range, and our knowledge will aid in the implementation of value-oriented solutions that will provide long-term stability and efficient maintenance.



S&W has worked with civil engineering and planning firms, government agencies, and private industry for many years on stream evaluation and stabilization projects. They understand the geomorphic, geologic, and geotechnical information that design professionals need to complete a project. Further, their understanding of slope processes, such as surface erosion and landslides, combined with an understanding of channel processes assists in providing a complete picture. S&W has completed numerous projects requiring the geomorphic and hydrologic characterization of stream and river systems, including bank protection, stream restoration, and levee design and evaluation projects. Since 1954, S&W has delivered comprehensive engineering and environmental solutions for many challenging infrastructure planning, design, permitting and construction conditions.



Pinyon's institutional knowledge of local agency processes and extensive experience with local, state, and federal regulators allows them to deliver cost and time savings, innovative risk assessments,



#### Benefits of the Project Team

- ✓ Relevant local design and implementation project experience.
- ✓ Local staff committed to the duration of the project.
- ✓ Reliable, established, and well-connected project team
- ✓ Unique expertise in ecological restoration and applied geomorphic river engineering solutions.
- ✓ Expertise working with federal permitting and FEMA CLOMR/LOMR requirements.
- ✓ Established working relationship with S&W, Pinyon, and T2, having successfully completed prior projects together.

and a streamlined project workflow. By understanding project needs from an environmental context, regulatory framework, and engineering limitations, Pinyon addresses issues with the client to provide projects that are designed with the least impact, while meeting environmental regulations and requirements. Pinyon also works with clients, interested parties, and regulators to clarify scope, determine environmental permitting requirements, and oversee construction to help mitigate impacts from the construction actions.

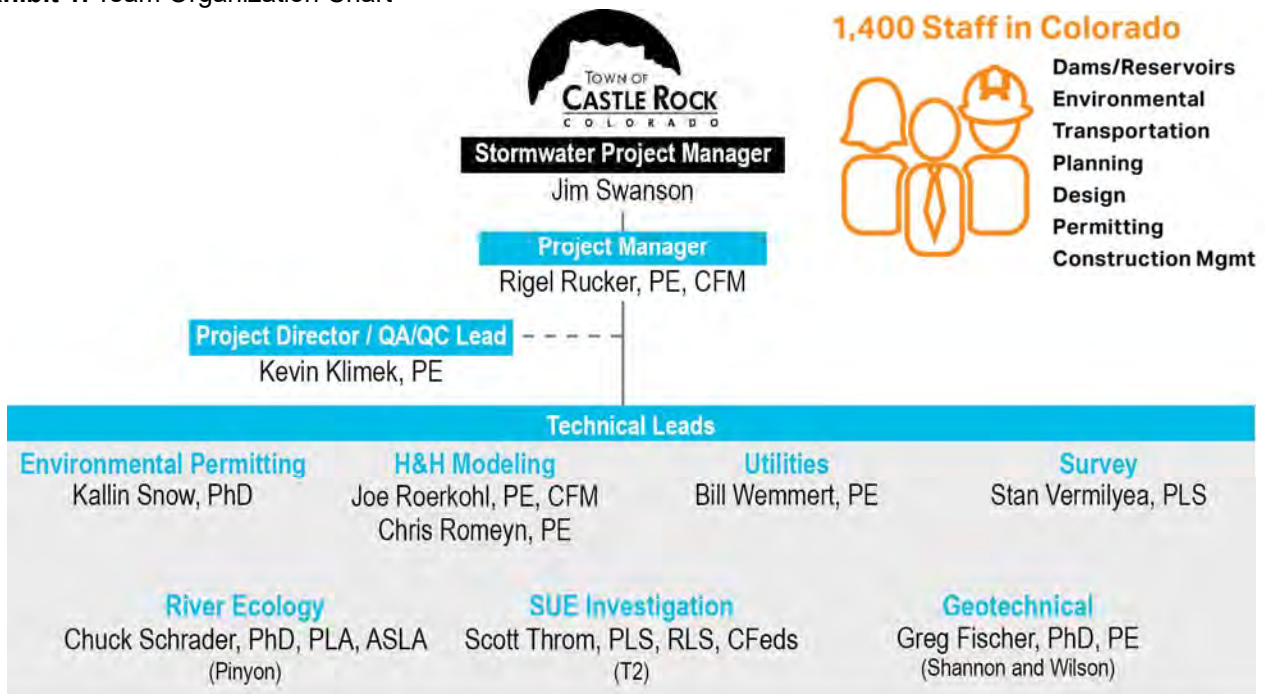


T2 is a multidisciplinary company that provides expertise related to utility infrastructure, including Subsurface Utility Engineering (SUE), utility mapping, CCTV, utility coordination, utility design, and surveying for local cities, counties, municipalities, and state Departments of Transportation (DOTs) throughout the United States and Canada. Their staff and project managers have extensive experience successfully completed numerous subsurface utility investigations for projects of varying size and complexity while satisfying program and project goals.

## Organization Chart and Proposed Staff

Key project leads shown in the organizational chart (**Exhibit 1**) will work with a core staff of engineers, planners, scientists, and technicians to produce project documents and deliverables. Given the broad resource network from which we are able to draw between AECOM, S&W, Pinyon, and T2, the core project team will engage additional staff/services as needed to meet project goals while keeping a consistent core group that works with the Town for this project.

**Exhibit 1.** Team Organization Chart



## Key Staff

**Rigel Rucker, PE, CFM** | Project Management and FEMA Compliance, AECOM

**Responsibilities:** Rigel will be responsible for the successful completion of this project on time and within budget. Rigel will actively communicate with the Town and the program team to deliver a successful project. He has managed multiple projects with accelerated schedules requiring multidisciplinary teams. Rigel will also leverage his experience with the FEMA floodplain analysis for Conditional Letter of Map Revision (CLOMR) creation and submittal.



**Background:** Rigel is a Project Manager and Water Resources Engineer. He has a diverse range of expertise, including serving as the Deputy Project Manager for the Colorado Water Conservation Board's (CWCB) Colorado Hazard Mapping Program (CHAMP), which is generating new floodplains for over 700 miles of stream in Colorado. In this program, he oversees all technical aspects of the program including the final FEMA Physical Map Revisions (PMRs). Prior to working on CHAMP, Rigel served as Regional Service Center (RSC) coordinator for FEMA Region 6, and Program Manager for a map modernization joint venture to update FIRMS in multiple states.



## Joe Roerkohl, PE, CFM | H&H Modeling, AECOM



**Responsibilities:** Joe will serve as the technical lead for the H&H analysis and design. He will leverage his stream stabilization expertise from previous projects in Colorado Springs.

**Background:** Joe is a Colorado Springs-based engineer experienced in delivering water quality, open channel, and roadway drainage projects. He has 12 years of engineering experience in hydrologic, hydraulic, floodplain, and scour analyses, as well as revetment design and post-fire mitigation. Joe provides these services for multiple municipalities along the front range and for the Colorado Department of Transportation (CDOT). His channel design experience includes Doherty Channel, Waldo Canyon, Bennett Channel, Chipita Park, and Austin Bluffs Bridge over Cottonwood Creek. He is familiar with

highly erosive and high velocity channels and applicable countermeasures through his work on Doherty, Waldo Canyon, Chipita Park, and Austin Bluffs.

## Chris Romeyn, PE | Geomorphology, AECOM



**Responsibilities:** Chris will serve as the technical lead for the geomorphic assessment and will support the hydraulic design of the proposed improvements.

**Background:** Chris brings 18 years of experience, specializing in geomorphology, water resources engineering, stream restoration design, hydraulic design, hydraulic and floodplain modeling, hydrologic analysis and modeling, sediment transport analysis, water rights analysis, drainage, and debris flow mitigation. He has specialized experience in geomorphic evaluation and flood damage assessment. Chris's diverse environmental background makes him uniquely qualified to work on complex, multidisciplinary ecosystem projects.

## Kallin Snow, PhD | Environmental Permitting, AECOM



**Responsibilities:** Kallin will lead the Section 404 Nationwide Permitting with the USACE and consultation with the USFWS to obtain an Incidental Take Permit for Preble's Meadow jumping mouse in compliance with the Douglas County Habitat Conservation Plan.

**Background:**

Kallin is a project manager and senior environmental scientist with more than 14 years of experience.

She specializes in managing complex environmental permitting projects requiring coordination with multiple resource agencies in support of the National Environmental Policy Act (NEPA), Section 404 of the Clean Water Act, and the Endangered Species Act (ESA). She has served as the environmental lead on multiple channel improvement and transportation projects in Colorado. For the State Highway 14 Permanent Flood Repair Project's Biological Assessment, Kallin addressed potential impacts to the Preble's Meadow jumping mouse.

Team Member   Title	Relevant Experience and Why Selected
Kevin Klimek, PE Project Director / QA/QC Lead, AECOM 22 Years of Experience	<ul style="list-style-type: none"> <li><b>Relevant Experience:</b> Extensive stabilization and improvement experience.</li> <li><b>Why Selected:</b> Because of his experience working with the Town and other similar projects, Kevin will serve as the Project Director. Additionally, Kevin will serve as an alternate point of contact for the Town to address any issues that could potentially arise during the project.</li> </ul>
Stan Vermilyea, PLS Survey 37 Years of Experience	<ul style="list-style-type: none"> <li><b>Relevant Experience:</b> Former CDOT survey and right-of-way (ROW) supervisor, now leads AECOM's Colorado survey and ROW operations. Experience in virtually all phases of surveying and ROW.</li> <li><b>Why Selected:</b> Led the survey effort on the Craig &amp; Gould South; Vermijo Ave. &amp; Sierra Madre St.; Centennial Blvd Ext.; and Pikes Peak Ave. Reconstruction.</li> </ul>
Bill Wemmert, PE Utilities 36 Years of Experience	<ul style="list-style-type: none"> <li><b>Relevant Experience:</b> Previous utility design experience in Castle Rock.</li> <li><b>Why Selected:</b> Served as Project Manager for Craig &amp; Gould projects within the Town, supported the 2015 East Plum Creek water line crossing protection.</li> </ul>

Team Member   Title	Relevant Experience and Why Selected
Subconsultants	
<p><b>Greg Fischer, PhD, PE</b> <b>Geotechnical (S&amp;W)</b> 31 Years of Experience</p>	<ul style="list-style-type: none"> <li>• <b>Relevant Experience:</b> Geotechnical Engineer for water projects in Colorado, including Westerly Creek Flood Control Improvements, and First Creek Restoration.</li> <li>• <b>Why Selected:</b> Greg has more than 31 years of geotechnical engineering experience related to water engineering projects. His experience includes designing shallow and deep foundation support for structures; designing preloads and surcharges for soft ground conditions; and providing recommendations for shoring systems.</li> </ul>
<p><b>Chuck Schrader, PhD, PLA, ASLA</b> <b>Planting and Revegetation (Pinyon)</b> 40 Years of Experience</p>	<ul style="list-style-type: none"> <li>• <b>Relevant Experience:</b> Oversaw the environmental plan for Columbine Open Space Bridge and Plum Creek Road Bridge, North Meadows Parkway</li> <li>• <b>Why Selected:</b> Chuck has provided technical expertise, conducted field studies and prepared reports documenting impacts on biological and visual resources. He has experience with visual analysis, environmental education, native vegetation restoration, flood recovery projects, stream channel restoration and cultural landscape management.</li> </ul>
<p><b>Scott Thom, PLS, RLS, CFeds SUE (T2)</b> 20 Years of Experience</p>	<ul style="list-style-type: none"> <li>• <b>Relevant Experience:</b> AECOM is currently working with T2 on I-25 South, Craig &amp; Gould, Academy Boulevard, Rex Road</li> <li>• <b>Why Selected:</b> Scott currently serves as the Director/Branch Manager for SUE and surveying services for the entire Rocky Mountain Region for T2. He has a substantial utility and survey background, having completed over 67 projects following Colorado Senate Bill 167 and the American Society of Civil Engineers (ASCE) 38 Standards (Quality Level's D, C, B &amp; A).</li> </ul>

## Section 2: Response to the Scope of Work

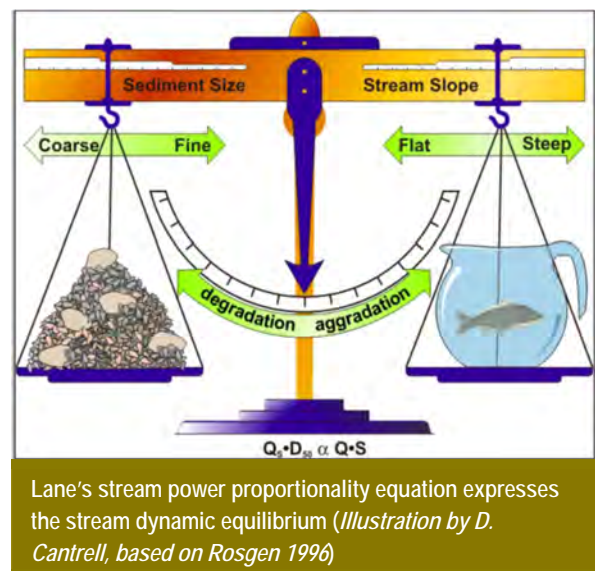
### Project Understanding and Approach

#### Primary Objectives and Project Description

This project will aim to reduce ongoing degradation and erosion along the 6400 South Tributary that, if allowed to continue, could compromise critical habitat and nearby infrastructure such as Sabercat Way, the Union Pacific Railroad (UPRR), and East Plum Creek Trail. We understand that the Major Drainageway Master Plan (Master Plan) outlined a plan for the stabilization of the 6400 South Tributary. AECOM will evaluate this plan and recommend additional upgrades, as applicable, to incorporate the addition of Sabercat Way and the Intermountain Rural Electric Association's (IREA) new road crossing, as well as any other updates to the area that need to be considered.

#### Geomorphic Setting

Rivers and creeks are dynamic by nature, and this dynamic nature creates healthy, resilient ecosystems. Over time, a natural stream will move towards a state of dynamic equilibrium. Geomorphologists define dynamic equilibrium as the amount of sediment delivered to the channel (from the watershed) being in balance with the capacity of the stream to transport that sediment. This relationship between sediment supply and sediment transport is described in an equation developed by Lane (Figure 1). When one of the variables, discharge (Q), channel slope (S), sediment discharge (Qs), or sediment size (D<sub>50</sub>), is changed, the system responds to correct the imbalance.



**Figure 1 - Lane's Balance**

The current condition of the 6400 South Tributary is a result of its natural history and the region's anthropogenic history. Throughout the region, trapping and ranching activities contributed significantly to the loss of riparian habitat. More recently, urbanization has also had an impact on the dynamic equilibrium of the 6400 South Tributary and increasing stream erosion and degradation. Upstream development has increased imperviousness with a corresponding increase to the peak flow, volume, and frequency of runoff. This increased runoff, in combination with upstream detention, has caused the addition of sediment-starved flows into the target reach, which has caused extensive erosion throughout the reach.

The presence of healthy riparian vegetation provides resistance to flow, which reduces shear stress and a stream's ability to erode and transport sediment. The loss of this vegetation due to land use practices and upstream development also reduces riparian vegetation, exposing more of the channel banks to erosion, thereby increasing sediment supply. The loss of riparian vegetation can result in increased velocities that are capable of moving more, and larger, sediment, leading to head cutting, infrastructure failure, and channel incision.

While the current condition of the 6400 South Tributary watershed and channel have been impacted by recent development/urbanization, historic aerial photos show that 6400 South Tributary had started degrading through the Holocene and Pleistocene alluvium zones as early as 1937 due to ranching practices. By the time the Town was developed west of I-25, road and house construction likely provided an increase in runoff that led to the incisions extending through the silty/sandy material laterally, creating a larger meander. In 2005, a detention pond was installed upstream of Meadows Boulevard. The channel was effectively straightened and eliminated a majority of the bed and wash load that was present in the channel as well as the hydrology within the basin. The geomorphic impacts of these hydrological changes will need to be investigated to determine their impacts on the continued erosion of the channel as is observed today.



**Figure 2– 6400 South Tributary Channel Comparisons**

### *Channel Stabilization*

For the development of stabilization alternatives, AECOM will approach the project by breaking the 6400 South Tributary reach in two main reaches based on fixed points along the channel including the UPRR crossing and Meadows Boulevard. AECOM and our teaming partners will include the Town in the development of alternatives that incorporate the key priorities of each of the stakeholders:

#### **Downstream Reach – Confluence with East Plum Creek, upstream to the UPRR**

This lower reach has experienced the greatest amount of erosion and bank stability issues largely attributable to the shortening of the channel due to the 1965 flood moving the East Plum Creek channel 280 feet south of its previous position. Reducing the length of the 6400 South Tributary required the attempt to reestablish equilibrium in the channel by downcutting to meet the new channel thalweg of East Plum Creek.

This reach has two primary issues that need to be addressed. During a recent field visit by AECOM, a collapse of part of the East Plum Creek Trail was observed near the ongoing IREA road construction. The safety concerns due to the trail collapse and its proximity to the UPRR and impending constructed road crossing make this a key area to implement stream stability improvements.



**Figure 3 - Collapsed Trail and Eroded Stream**



IREA's completed project will need to be considered in the design the channel improvements, as they are planning to include riprap and other channel modifications.

The other location of major concern is a significant meander bend upstream of the confluence with East Plum Creek. The bend has been present for many years and was relatively stable between 1937 and 1955, as exhibited by a comparison of aerials taken in 1937 and in 2017. After 1955, the bend began to migrate west but maintained a stable channel geometry until 2016. Since 2016, the channel appears to have widened significantly and become more incised after the Master Plan was completed. The channel meander has eroded significantly, and without addressing the erosion, the channel will likely cut through the remaining narrow stretch of embankment and straighten the channel. If this occurs, increased velocity and erosion will occur through the reach as the channel degrades in an attempt to develop a new equilibrium through a shorter channel. There is also an existing drainage channel that discharges into the 6400 South Tributary from the south. This channel conveys flow from the south to the north between the large bend along the Plum Creek Trail. Continued erosion of 6400 South Tributary would eventually cut off the discharge from this channel.



**Figure 4 - Erosion Near Downstream Confluence**

AECOM has identified two general possibilities at this location that build upon the Master Plan recommendations. The first is to eliminate or soften the bend to reduce future potential erosion. This could be accomplished by straightening the channel through the large meander. This alternative would require a significant cut within the project reach, but an import/export balance would be analyzed to reduce the amount of material that would need to be brought into the project site. By removing the meander, additional grade control would need to be considered to reduce velocities within the channel and to restore the pre-eroded channel slope. The velocity reduction would help to promote vegetation within the channel and reduce the potential for future erosion. Additional consideration would need to be taken to maintain the current conveyance from the channel into the 6400 South Tributary.

The second alternative is to preserve the existing channel geometry but raise the channel back to the pre-eroded condition and provide bank protection. This would be accomplished through the placement of grade control throughout the project reach. To eliminate the undercutting currently occurring, sloping or benching back the banks would also be investigated along with the grade control.

AECOM will coordinate with the Town stakeholders and adjacent property owners to understand future development and property drainage considerations. The channel design should take into consideration proposed development in the area that might impact realignment of the channel. Future development adjacent to the channel could also impact changes to channel side slopes. AECOM will work with the Town and property owners to obtain maintenance easements for long-term care of the channel.

During the alternatives analysis phase, it is anticipated that each of these alternatives will be investigated including an alternative that combines the softening of the meander along with raising the channel back to pre-eroded conditions. Each alternative will also investigate the addition of bank protection as identified in the Master Plan. Each alternative will start with the recommendations identified in the Master Plan but will be modified to reflect the current channel conditions, changes within the reach, Town stakeholder priorities, and property owner priorities. AECOM believes a successful project is built by developing buy-in from stakeholders impacted by the project. In addition to the improvements along the 6400 South Tributary, any future plans for East Plum Creek near this location will need to be considered. AECOM will coordinate to determine potential future elevations at this area and may identify improvements near the confluence to accommodate the future design of the East Plum Creek plan and profile due to ongoing projects.

#### **Upstream Reach – UPRR, upstream to Meadows Boulevard**

This area consists mainly of an alluvium channel meandering through pine trees and riparian vegetation. This portion of the project does not seem to demonstrate significant issues as those identified in the downstream reach. It is anticipated that minimal mitigation measures are likely needed through this reach, and the mitigation measures suggested in the



**Figure 5 - Upstream Reach with Some Slope Protection**

Master Plan are likely adequate with minimal changes; however, the existing grade control structures should be investigated. They were likely installed as a result of the detention pond installation, thereby reducing the sediment supply within the reach. The reduction in sediment has likely led to headcutting that was addressed through the installation of the grade control. Additional assessment of the reach will be completed to determine the future incision risk.

An existing conditions hydraulic model will be used to identify areas of high velocity and potential erosion that will help to guide the location of the recommended improvements. This analysis will also be used to determine impacts to the existing trail and pedestrian bridges. Maintaining access to these pedestrian conveyance structures will be critical due to their proximity to Castle View High School.

The downstream section of this reach includes Sabercat Way, which was constructed after the Master Plan was completed. While the roadway is not anticipated to have a major impact on the channel improvements, the velocities downstream of the culvert will need to be investigated to determine their impacts on the eroded section of channel immediately downstream of the UPRR bridge.

## Riparian Habitat

Pinyon will lead the effort for planting and revegetation to help stabilize the channel by designing vegetation and habitat improvements and bioengineering measures for streambed stabilization, erosion control, and channel protection. Pinyon's experiences in ecological planting design in wetland, riparian, and upland systems have focused on enhancing ecological diversity, increasing environmental quality, and restoring biological functions in stream ecosystems. Pinyon staff have extensive experience preparing Preble's Meadow jumping mouse mitigation plans, which provide wildlife habitat as well as riparian restoration, native vegetation enhancement, erosion control, and visual quality improvements. Pinyon has extensive experience in conducting ecological field assessments, planning, design, and construction management, and will apply this experience to meeting project objectives. These objectives – preserving valuable and sensitive riparian and forest habitat, applying stream reclamation approaches, and developing comprehensive planting and revegetation plans to mitigate for temporary impacts – will provide the conceptual guide for planting and revegetation efforts. Pinyon's goal is to integrate and coordinate the restoration design plans with these overall project objectives by preparing a comprehensive package of planting plans, specifications, and details. Pinyon is particularly skilled at navigating the overall project design within the context of the regulatory environment and then considering those elements through construction and long-term maintenance. Pinyon's staff is well versed in considering all the steps required for successful project delivery for the entire project lifecycle from concept development through construction and stabilization.

## Planning and Permitting

One of the key critical path elements that will drive the schedule for this project will be the CLOMR/Letter of Map Revision (LOMR) process. As a preferred provider of floodplain mapping and LOMR and CLOMR services for multiple clients across Colorado, including the CWCBC, AECOM's team will provide extensive knowledge of modeling, mapping, and FEMA criteria to help expedite the CLOMR process. AECOM has extensive knowledge of the FEMA process and will provide a schedule to avoid delays and potential loss of funding. Since this stream has a regulatory floodway, it is anticipated that a CLOMR or no-rise certification will be required during the design phase and will form a critical path element for the design. A LOMR will be required post-construction and will also be incorporated into the schedule.

The key to successfully deliver the 6400 South Tributary project within budget and on the Town's schedule is to quickly review and address comments on design elements, while incorporating Town and property holder feedback, in conjunction with constructability reviews. AECOM previously utilized this approach on the Waldo Canyon and Bennett Channel projects to meet the Emergency Watershed Protection (EWP) 220-day project schedules. By approaching the project with design, functionality, and constructability in mind, our team will deliver a cost-efficient design that addresses:

- ✓ Construction cost minimization and constructability improvement;
- ✓ Natural and geomorphic channel stabilization to the extent practicable;
- ✓ Protection of existing infrastructure and utility crossings;
- ✓ Minimization of impacts to the surrounding habitat, including critical species and historical artifacts; and
- ✓ Enhancement of channel aesthetics and natural function.

The below sections identify our approach to provide a successful project.

## Project Management

Rigel Rucker will provide proactive and proven management skills to complete a technically sustainable, high quality project on schedule and within budget. AECOM's project coordination objectives between the project team and the Town are as follows:

- ✓ Focus on key project risks
- ✓ Define project elements that impact design and budget
- ✓ Collaborate with team on timely decisions
- ✓ Deliver a quality project – within the schedule and budget

AECOM's management philosophy is embodied in the phrase ***"Plan the work and work the plan"***. At the beginning of the project, Rigel will assign budgets, develop the baseline schedule, and communicate all work requirements to all team members. He will regularly review the progress of the work relative to the plan and will make adjustments in resource allocations, as necessary, to maintain budgets and schedules, while still producing the high-quality work products. All specific aspects of project management are directed toward supporting this philosophy.

Providing a solid project kickoff is essential to a successful partnership between the AECOM team and the Town. AECOM will schedule and conduct a kickoff workshop within 15 days of receipt of the Notice to Proceed (NTP) for the project. During the kickoff meeting, the 6400 South Tributary project objectives will be clarified and prioritized. This kickoff exercise will help to streamline the development of design alternatives. The primary agenda items to be addressed during the kickoff meeting will be the Project Management Plan and the alternatives evaluation. Additional workshops following project milestones will be determined at the kickoff meeting.

AECOM will develop a critical path schedule for approval by the Town. Realistic durations for each task will be assigned, with time allowances for a collaborative progression of tasks while meeting the project goals. Schedule progress will be reviewed by Rigel and communicated to the team at regular team meetings and with the Town at progress meetings. We have the ability to add resources or modify the work plan as needed to prioritize critical path work items.

The AECOM Project Manager and Design Leads (as applicable) will meet with the Town on a scheduled regular basis to communicate recent progress, coordinate key decisions, and discuss next steps. AECOM will provide an agenda and minutes documenting decisions. AECOM Design Leads may also serve as an extension of Town staff in coordinating project details with stakeholders and communicating with the public.

AECOM understands the importance of managing projects with a focus on documented compliance. AECOM is an ISO 9001-certified company and employs a Quality Management System (QMS) designed to promote client satisfaction, manage technical risk, and deliver quality documents to our clients. This system mandates that all projects include project work plans, project-specific design criteria, design task protocols, and quality assurance/quality control (QA/QC) documentation.

### Deliverables

- ✓ Meeting Agendas and Minutes
- ✓ Health & Safety Plan
- ✓ Project Management Plan
- ✓ Schedule

## Phase I: Surveying, Site Investigation & Alternatives Analysis

The conceptual design tasks are the most important to meeting the schedule and budget for the 6400 South Tributary project. The primary objective of Phase I is to develop up to three conceptual design alternatives. The secondary objective is to gather background data needed to evaluate the design alternatives and provide recommended improvements and prioritization based on a selection matrix.

AECOM has reviewed available information and completed a site walk to identify key issues that will need to be addressed as part of the alternatives analysis phase:

- ✓ Protection of utilities
- ✓ Steep cut banks and unstable channel reaches
- ✓ Preble's Meadow jumping mouse habitat coordination
- ✓ Protection of pedestrian paths and bridges
- ✓ Protection of adjacent properties

### Project Management and Meetings

- ✓ Project Management and Quality Assurance/Control Plan
- ✓ Schedule Development, Maintenance, and Reporting
- ✓ Budget Monitoring and Reporting
- ✓ Invoicing and Progress Reporting



The AECOM Team is 100 percent committed to the success of this project.

Our key personnel were selected not only for their expertise but also their availability to work on this project. With our local depth and breadth, we have the ability to staff thoroughly, mobilize quickly, and complete projects on time and within budget.



Survey, environmental, and geotechnical data will be collected during this phase. Additionally, hydraulic modeling for each alternative will be completed and compared against existing conditions. Conceptual level plans, profile drawings, and cost estimates will be developed and submitted to the Town in this phase. An alternatives memorandum will discuss recommendations and provide a selection matrix.

The following section outlines the key technical subtasks in the Phase I design phase.

### **Survey**

The AECOM team will complete a topographic survey of the design area. The survey shall include existing improvements, channel cross sections, property pins, underground utility locations, structures, trees, wetland delineation, topography, including high and low points (one-foot contours), and horizontal and vertical project control. In addition, the survey will pick up utility locations. AECOM will utilize their existing control network within the Town to save time while establishing new control within the project area.

### **Geotechnical (S&W)**

A geotechnical investigation is required to determine existing conditions and provide design information to identify effective stabilization techniques for 6400 South Tributary. S&W will conduct geotechnical investigations and include results in a report to support the channel design and utility protection design efforts. They will perform up to 9 borings. AECOM will work with Greg Fischer and his staff to determine appropriate grade control and embankment measures based on the observed site conditions.

### **Hydrology and Hydraulics**

HEC-RAS will be utilized to evaluate the three proposed alternatives. The FEMA regulatory model will be obtained and used as the baseline for the hydraulic analysis for compliance with CLOMR and LOMR requirements. It will then be updated with new data to form a corrected effective model. Each alternative will then be added as a separate model to determine the impacts of the proposed changes to the floodplain. Results will be plotted on exhibits and compared to FEMA's effective floodplain. The AECOM team is experienced in this work having recently completed a similar effort for the Bennett Channel project.

It is anticipated that hydrology revisions will not be completed as part of this project. Established flows for 6400 South Tributary will be provided by the Town and compared against the regulatory flow rates. If the flow rates are different, AECOM will discuss modeling alternatives with the Town and address the flow rates prior to final design. It is anticipated that the release rate from the upstream detention pond will be the controlling hydrologic factor for the channel.

Channel stabilization techniques that focus on natural function and sound geomorphological principles will be evaluated based geotechnical and hydraulic recommendations. With continual coordination between each member of the team, design alternatives meeting the Town's objectives will be developed.

### **Permitting**

AECOM has successfully developed and implemented permitting strategies for the Town in previous projects. Advanced planning, comprehension of the potential environmental issues, and early coordination with applicable agencies will facilitate successful permitting for the project. ***AECOM will compare the permitting requirements for each of the three alternatives to evaluate if regulatory requirements would potentially result in schedule or budget issues.*** When a selected alternative is identified, AECOM will develop a permitting summary technical memorandum that identifies federal, state, and county regulatory requirements (e.g., lead times, fees, etc.) as well as the responsible party (e.g., the Town or construction contractor) for obtaining required permits. Initial agency coordination may be conducted to verify permitting requirements and timeframes for scheduling purposes. The information documented in a permitting summary technical memorandum will be integrated into the design and construction processes, as appropriate. For example, permit conditions and mitigation requirements will be incorporated into design specifications. Additionally, key permitting milestones as well as seasonal constraints will be incorporated into the design and construction schedules.

### **Floodplain Permitting**

The 6400 South Tributary is mapped as a Zone AE floodplain as shown on Panel 08035C0167G of the FIRM for Douglas County and Incorporated Areas, dated March 16, 2016. There are also mapped Zone As adjacent to the floodplain in the upstream portion from incoming tributaries. To maintain compliance with the requirements of the National Flood Insurance Program, the Town and Douglas County require a Floodplain Development Permit for any construction within the floodplain areas.

Additionally, should any above-ground facilities be proposed for construction within the floodplain that might result in an increase in flood



**Figure 6 - Effective Floodplain**

heights, such as access roads, a CLOMR submittal may be required to obtain FEMA's comments on the project. Based on the Town's guidance, AECOM has assumed that a CLOMR will be needed in addition to Douglas County's Floodplain Development Permit, and we have planned our efforts accordingly. Based on our experience with the Town and other Colorado communities, we understand that it typically takes approximately six months to obtain FEMA's approval for CLOMRs and LOMRs, assuming one round of comments from FEMA.

#### 404 Permitting

Our team is experienced with obtaining 404 permits and will coordinate with USACE as needed to determine the appropriate level of permitting and type of permit application required to obtain approval. Based on preliminary desktop analysis, it is anticipated that the project may qualify for a Nationwide Permit 31 – Maintenance of Existing Flood Control Facilities. Our team will perform a desktop analysis and field survey of the project area and prepare a wetland delineation report. We will conduct a pre-consultation site visit with USACE prior to preparing the permit application. From recent project experiences in El Paso County and Colorado Springs, the site visit is highly beneficial as the project can be discussed and real-time feedback is received from USACE as to the type of permit to submit and any specific instructions or documentation to include.

Cultural resources clearance is required for Section 404 permit approval. Our team will conduct a desktop analysis and pedestrian survey for cultural resources with the assumption that there will not be any cultural sites that will need to be documented via Inventory Forms. Results of the survey will be detailed in a cultural resources technical memorandum.

#### Stream Restoration

Pinyon will coordinate with the AECOM team on conceptual design alternatives to support the identification of the optimal restoration plan design. Additionally, Pinyon will support the team in identifying optimal mitigation strategies for meeting permitting requirements.

#### Preble's Meadow Jumping Mouse

AECOM routinely consults with USFWS regarding project activities that occur within Preble's Meadow jumping mouse habitat. Because the project is located within the limits of the Douglas County Habitat Conservation Plan (DCHCP) and located in an area identified as mitigation land, Section 10 of the ESA approval from USFWS will be required. Compliance with ESA is also required as part of the CLOMR/LOMR process described for floodplain permitting. AECOM will perform a desktop analysis for special status species, conduct a field survey, and prepare a biological resources report.

#### Alternative Analysis

Up to three design alternatives will be developed that include conceptual level design, drawings, and cost estimates. During the alternative analysis, AECOM will evaluate data collected to create design alternatives that address the key objectives previously outlined. AECOM will develop an alternatives matrix outlining the benefits, disadvantages, estimated construction costs, and additional factors for each of the alternatives and work with the Town to select a preferred alternative that will be advanced through preliminary design.

Prior to submitting the final alternatives analysis to the Town, AECOM will meet with the Town to present the alternatives and review the draft alternative matrix to make sure additional analysis or design considerations are not warranted prior to submitting the final alternatives analysis.

#### Phase I Deliverables

- |                               |                                             |
|-------------------------------|---------------------------------------------|
| ✓ Alternatives Memorandum     | ✓ Conceptual Plan and Profiles              |
| ▪ Up to three alternatives    | ✓ Conceptual Level Opinion of Probable Cost |
| ▪ H&H Considerations          | ✓ Survey Base File                          |
| ▪ Federal Permit Requirements | ✓ Geotechnical Report                       |

### **Phase II: Preliminary Design**

Based on the selected alternative, conceptual design and drawings will be advanced to the 30% design level. The intent of the 30% design drawings is to provide adequate design direction and details such that the stakeholders have concurrence to freeze design components and continue to advance the design. This facilitates an efficient direction and completion path for the subsequent 100% bid set drawings.

#### 30% Construction Drawings

AECOM will complete preliminary construction drawings in accordance with Town criteria.

#### Preliminary Hydraulic Calculations

AECOM will advance the selected alternative and refine the hydraulic modeling. The model will be completed in accordance with applicable Castle Rock Storm Drainage Design and Technical Criteria Manual requirements in order to complete a Floodplain Modification Study (FMS).



## ***Environmental Permitting Coordination***

### ***Section 404 Permitting***

Our team will proactively coordinate with the Town to prioritize schedules and timelines to facilitate obtaining Section 404 approval prior to the scheduled bid release date for construction. Our team will prepare a nationwide permit application. For cultural resources, a concurrence letter will be prepared for the Town to submit to the State Historic Preservation Office (SHPO).

### ***Stream Restoration***

Pinyon will coordinate with team to develop a conceptual planting and revegetation plan and mitigation strategies.

### ***Preble's Meadow Jumping Mouse***

AECOM will prepare the letter and/or exhibits needed to obtain an Incidental Take Permit under the DCHCP from the USFWS. *Our team will coordinate with applicable agencies to define required mitigation strategies, collaborate with the engineering team to minimize impacts to design, and incorporate mitigation strategies into the design.*

## ***30% Engineer's Opinion of Probable Cost***

We have a seasoned staff of construction management professionals, with experience on projects throughout the South Metro area and I-25 corridor. We will prepare cost estimates at the 30% milestone to supply the Town with actionable information needed to make budgetary decisions.

## ***Subsurface Utility Engineering (SUE)***

T2 will meet with the AECOM team to outline the preferred alternative and impacts to utilities located within the project. Based on the preferred alternative, T2 will perform records research and a geophysical investigation. A survey of the existing utilities will be completed and depicted in utility plans in accordance with the ASCE 38 standard. An initial review of the utilities in the area include three crossings of the creek. Quality Level A test holes will be completed only in locations where the channel will be drilled or excavated below existing ground. A signed and sealed plan set detailing utilities within the project limits will be provided.

## ***Phase II Deliverables***

- |                                                                                                                                        |                                           |
|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| ✓ 30% Preliminary Construction Drawings <ul style="list-style-type: none"><li>▪ Plan and Profile sheets</li><li>▪ PDF format</li></ul> | ✓ 30% Preliminary Floodplain Work Map     |
| ✓ 30% Preliminary Hydraulic Calculations                                                                                               | ✓ 30% Engineer's Opinion of Probable Cost |
|                                                                                                                                        | ✓ Certified SUE Plan and Report           |

## ***Phase III: Final Design & Floodplain Modification Approval***

Following the decisions made during the alternatives analysis and 30% design phases, the 90% and 100% design phases will fully detail the design and provide specific requirements for the construction contractor. At each of these phases, AECOM will prepare requisite plans and specifications for review by the Town, including the Temporary Erosion and Sediment Control (TESC) plans and report, and the Phase III Drainage Report. AECOM will subsequently conduct a workshop with Town staff to convey the project information, answer questions, and identify necessary document revisions. Each of these document deliverable review workshops is critical in obtaining concurrence on the design and design features and identifying any conflicts or issues that may not have been previously fully addressed.

## ***Construction Drawings***

Preliminary design will be refined and advanced to final design and preparation of construction documents. All drawings required to form a complete picture for a construction contractor to bid and construct the project will be included in the construction drawing set. This will include an overall site plan; plans, profiles, cross sections, details of the channel improvements, and other required sheets identified in the Request for Proposal (RFP) for this project.

## ***Temporary Erosion and Sediment Control (TESC)***

AECOM will complete a TESC plan and report in accordance with the Town's requirements. The TESC plan and report will meet the requirements of a Stormwater Management Plan (SWMP) for use by the construction contractor in obtaining a Construction Discharge Permit with the Water Quality Control Division (WQCD). AECOM will prepare a water control plan as part of the TESC report.

## ***Drainage Calculations Memorandum***

AECOM will finalize the FMS and all applicable analysis, calculations, and details to support the final design. The information will be submitted to FEMA for review and approval.

### ***Conditional Letter of Map Revision (CLOMR) or No-Rise Certification***

AECOM will finalize the FMS and all applicable analysis, calculations, and details to support the final design. This information will be submitted to FEMA for review and approval. There is a fee for the FEMA review, which is included in the AECOM fee.

### ***Environmental Permitting***

AECOM will work with our partners at Pinyon to prepare a Mitigation Plan to satisfy on-site wetland mitigation requirements that will provide stream restoration details. For cultural resources, our team will provide consultation support with SHPO to document findings and to obtain concurrence. For Preble's Meadow jumping mouse, our team will provide consultation support with USFWS to obtain an Incidental Take Permit under the DCHCP.

### ***Stream Restoration***

Pinyon will prepare final design plans, specifications, and details necessary to meet engineering requirements and satisfy applicable environmental permitting clearances. Pinyon will provide support during construction to supervise planting operations and provide guidance on plant selection, location, and installation.

### ***Utility Relocations***

AECOM does not anticipate any utility relocations. However, if utilities need to be relocated, AECOM will coordinate with the applicable agency and submit any necessary applications. *AECOM will coordinate plan reviews with IREA and others as necessary.*

### ***Technical Specifications***

Technical specifications will be prepared that generally include Town, Mile High Flood District (MHFD), and/or CDOT specifications.

### ***Technical Criteria Variance related to Water Quality Exclusion(s)***

AECOM will prepare a variance, if needed, in accordance with the Town's criteria. Exclusions will be discussed, and recommended variances will be included. AECOM is familiar with the Town's MS4 and water quality requirements through the work on the Town's Craig & Gould project.

### ***Engineer's Opinion of Probable Cost Estimate***

Cost estimates will be provided to the Town for 90% and 100% submittals.

### ***Bid Schedule***

AECOM will prepare a bid schedule with the 100% submittal to be included in the bid contract documents package prepared by the Town.

### ***Easement Legal Descriptions and Exhibits***

AECOM will prepare legal descriptions and exhibits for permanent drainage, access, and/or temporary construction easements as needed to support the proposed design.

### ***Phase III Deliverables***

- |                                                           |                                            |
|-----------------------------------------------------------|--------------------------------------------|
| ✓ Construction Drawings                                   | ✓ Utility Relocation Agreements            |
| ✓ TESC Plan and Report                                    | ✓ Technical Specifications                 |
| ✓ Drainage Calculation Memorandum                         | ✓ Technical Criteria Variance              |
| ✓ CLOMR (or No-Rise Certification) Report and Application | ✓ Engineer's Opinion of Probable Cost      |
| ✓ 404 Permit Application                                  | ✓ Bid Schedule                             |
| ✓ Memo and Exhibit for USFWS Concurrence Request          | ✓ Easement Legal Descriptions and Exhibits |

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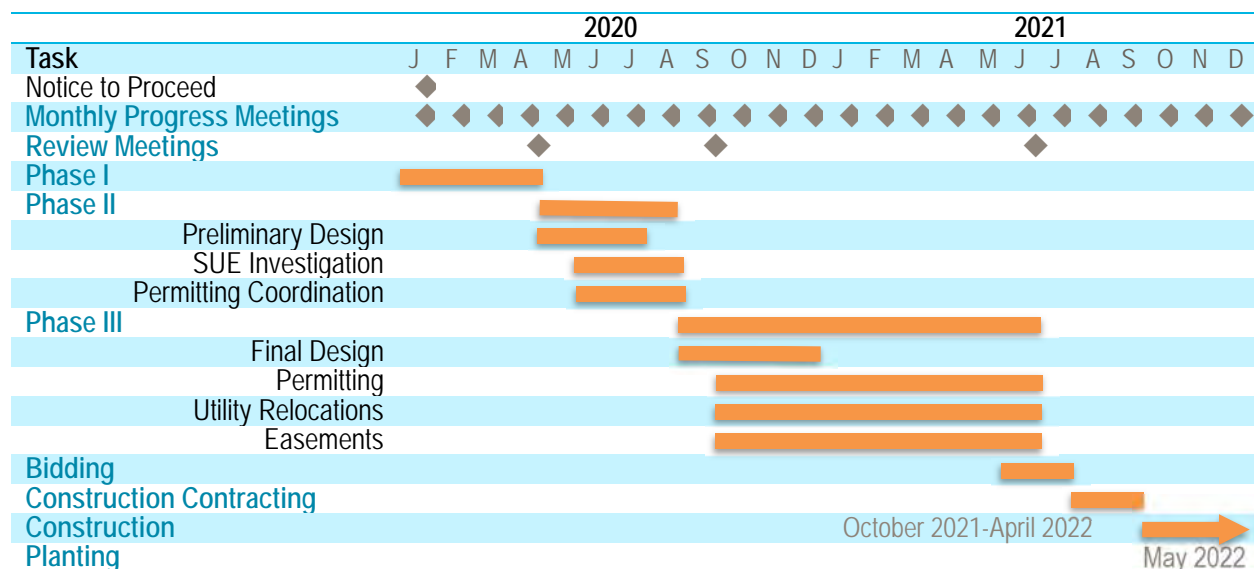
## **Section 3: Action Plan and Schedule**

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The following schedule presents AECOM's approach to completion of the project activities, highlighting the project tasks and subtasks, schedule, and project goals. AECOM will combine the schedule below with the approach identified above to execute an action plan to meet project objectives and deliver a quality project on schedule. AECOM anticipates optimizing the schedule and working with the Town to bring the project to conclusion within the Town's timeframe. Regularly scheduled meetings will keep the Town informed of progress and decisions made.

## Schedule

AECOM recognizes the importance of completing our design on schedule and within budget. Our proposed schedule identifies the estimated duration of tasks key milestones for the project. We are committed to minimizing costs and proactively reducing design and potential construction obstacles by using internal technical resources and leveraging our past experiences on similar projects.



## Section 4: Summary of Similar Projects

AECOM has widespread geomorphological experience and a history of successfully providing stream restoration designs for urban and natural streams. Our team provides a blended approach of both hard-engineered stability solutions with softer, natural bioengineered solutions to improve stream stability, water quality, and aesthetics, and has a successful track record of guiding projects with similar technical requirements and context. We have provided several examples of similar project completed in Colorado Springs and on the Front Range that highlight the experience of the team, approach to innovative solutions, and successful delivery of similar projects.

Project	6400 West Tributary, Town of Castle Rock, CO
Client, Contact, Phone	David Van Dellen, Town of Castle Rock, (720) 733-6029
Key Staff	Kevin Klimek, Stan Vermilyea, Joe Roerkohl
<b>Project Description:</b> AECOM (as URS) provided horizontal and vertical channel stabilization for approximately 2,500 feet of the 6400 West Tributary. An engineered channel was designed for approximately 1,500 feet of the tributary. The design included four grouted boulder grade control structures and three fill-type grouted boulder grade control structures. The project footprint was optimized for reduced impact to existing vegetation, reduced ROW acquisition, reduced use of erosion control and revetment, and for cost savings. A CLOMR was submitted for this project. Construction was completed in 2012 and a LOMR was completed in 2015.	



Project	<i>Waldo Canyon Cascade Lower Channel, Cascade, CO</i>
Client, Contact, Phone	<i>John Chavez, El Paso County 719.520.6826</i>
Key Staff	<i>Kevin Klimek, Joe Roerkohl, Stan Vermilyea</i>
<p>The June 2012 Waldo Canyon Wildfire burned approximately 18,000 acres in Northeast Colorado Springs and portions of El Paso County. The fire altered the hydrology and hydraulic characteristics of the burn area and, as a result, storm events in this area exhibited increased flows with substantial debris. AECOM provided alternatives analysis and design to mitigate the flooding impacts to the Town of Cascade. Design included an off-line detention pond that could be used to accumulate sediment and debris during minor storm events, preventing downstream clogging of infrastructure that could exasperate flooding issues. Flows were discharged into a culvert under Pyramid Mountain Road. Downstream of the culvert, a riprap dissipation pad was installed to reduce erosion and scour of the existing channel that was directly adjacent to residences. HEC-RAS analysis was completed for approximately 2,500 feet of Cascade Creek to determine the best location for channel improvements. A blended set of improvements were designed that would work together including drop structures to flatten the slope of the stream and reduce the sediment carrying velocity, bendway weirs to protect vulnerable channel bends and to naturally rebuild banks, and debris basins for areas downstream of the detention pond to continue providing accessible areas for debris management and removal.</p>	
Project	<i>Bennett Channel Creek Repair, El Paso County, CO</i>
Client, Contact, Phone	<i>Alissa Werre, El Paso County 719.520.6873</i>
Key Staff	<i>Rigel Rucker, Joe Roerkohl, Stan Vermilyea</i>
<p>AECOM evaluated alternatives and prepared a channel design that mitigated the erosion and downstream sediment transport issues causing bank instabilities and channel incision along Bennett Creek. The AECOM team worked closely with El Paso County and NRCS staff to establish the baseline conditions while in the field and worked closely with those stakeholders to complete a compliant analysis and develop approved stabilization alternatives that would achieve the goals of the project. Three alternatives with varying meanders and drop structures were presented to the project stakeholders and a single channel alignment was selected for refinement and design. The selected alternative included a single channel alignment that utilized stream meanders, riprap revetment, and grade control structures for meeting project objectives of minimizing the project footprint while provide a stable channel design. A HEC-RAS analysis was completed to understand areas of excessive velocity and potential erosion and to compare the proposed stream Water Surface elevations to the existing water surface elevations and the FEMA effective regulatory water surface elevations to support a no-rise certification.</p>	



## Section 5: Request for Proposal Confidentiality

No exceptions taken, therefore no indemnity form has been provided.

## Fee Schedule

See separate cost estimate as required by the RFP titled "6400 South Tributary Stabilization Project Proposal – Fee Schedule."



2019 Castle Rock Design Services for 6400 S. Tributary Stabilization Project  
Castle Rock CO

November 14th 2019  
RFP  
Engineering Fee Estimate

Role	LABOR HOURS BY CLASSIFICATION																			HOURS	Budget	Geotech	Landscape Architecture	SUE	Mileage and Fees	COST
	Project Manager	Project Director and QA/QC	Environmental Manager	Environmental	Environmental	Archaeologist	H&H Lead	H&H Design	H&H Design	Hydraulics Geotech	Utilities Lead	Utilities Design	Survey	Survey	Survey	Survey	Project Administration	Project Controls	Procurement							
Name	Rucker	Klimek	Snow	Moreno	Jones	Tucker	Roerkohl	Romeyn	Rodriguez	Zusi	Wemmert	Smokeoff	Vermilyea	Brown	Cody	Eric V	Pharo	Webb	Dugosh	TOTAL	LABOR	SUB	SUB	SUB	ODC	TASK
Billing Rate	\$191	\$265	\$191	\$84	\$125	\$150	\$150	\$145	\$90	\$230	\$230	\$105	\$230	\$180	\$69	\$90	\$85	\$111	\$133							
Task / Scope																										
Project Management and Meetings																										
Project Setup & PM Documents	4	2																	30	36	\$5,280					
Prepare Project Financials/Invoicing	24	2																36		62	\$9,110					
Monthly Progress Meetings with Town	36	2					28	2												68	\$11,900					
H&S Plan	2	1														4				7	\$1,010					
Sub Total	66	7	0	0	0	0	28	2	0	0	0	0	0	0	0	4	0	36	30	173	\$27,300		\$0	\$0	\$0	\$27,300
Phase I: Surveying and Site Investigation & Alternatives Analysis																										
Survey							4						8	60	254	34				360	\$33,826				\$1,200	
Geotechnical							2	2												4	\$590	\$27,864				
Alternative Analysis and Memo	4						12	22	60	4	1	8								111	\$13,144				\$1,000	
Conceptual Plan and Profile Drawings	4						16	8	60											88	\$9,224		\$2,456			
Conceptual Engineer's Opinion of Probable Cost							4	2	8											14	\$1,610					
Environmental Permitting			48	43	38	23														152	\$20,980					
QA/QC		4					8	4			1									17	\$3,070					
Sub Total Phase I	8	4	48	43	38	23	46	38	128	4	2	8	8	60	254	34	0	0	0	746	\$82,944	\$27,864	\$2,456	\$0	\$2,200	\$115,464
Phase II: Preliminary Design																										
Preliminary Construction Drawings	1						32	20	195	4										252	\$26,361		\$3,323			
Preliminary Drainage Report	1						12	4	32									4		53	\$5,791					
Environmental Permitting			58	20	38	10														128	\$19,308				\$900	
Engineer's Opinion of Probable Cost	2						4		8											14	\$1,702					
Subsurface Utility Engineering (SUE)	2						2		8											12	\$1,402			\$20,918		
Legal Descriptions							2		8				3	16						29	\$4,590					
QA/QC		4					12	4												20	\$3,440					
Sub Total Phase II	6	4	58	20	38	10	66	28	251	4	0	0	3	16	0	0	4	0	0	508	\$62,594	\$0	\$3,323	\$20,918	\$900	\$87,735
Phase III: Final Project Design																										
Final Construction Drawings	1						24	16	100		1	4								146	\$15,761		\$4,683			
TESC	1						24		80											105	\$10,991					
Drainage Report	1						8		20											33	\$3,531					
CLOMR or No Rise Certification	4						20		60											84	\$9,164				\$6,500	
Environmental Permitting			35			5	2													42	\$7,735					
Utility Relocations									8		1	8								17	\$1,790					
Technical Specifications	1						8	4	40		1	4								58	\$6,221					
Technical Criteria Variance	1						4		8											13	\$1,511					
Engineer's Opinion of Probable Cost	1						4		8											18	\$2,161					
Bid Schedule	1						4		8		1	4								18	\$2,161					
Easement Legal Descriptions and Exhibits							2		8					8						18	\$2,161					
QA/QC		4					12	4												20	\$3,440					
Planting																										
Sub Total Phase III	11	4	35	0	0	5	112	24	340	0	5	24	0	8	0	0	4	0	0	572	\$66,926	\$0	\$1,246	\$0	\$6,500	\$79,355
Totals	91	19	141	63	76	38	252	92	719	8	7	32	11	84	254	38	8	36	30	1999	\$239,764					
																				Subconsultant Costs						
																				ODC's						
																				Project Total						