



CENTRAL COLORADO WATER CONSERVANCY DISTRICT

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August 2, 2017

Anna Mauss, P.E.
Colorado Water Conservation Board
1313 Sherman St #718
Denver, CO 80203

RE: Request for Feasibility Study Grant for the Central Colorado Water Conservancy District, Klug Lake Storage Evaluation

Dear Ms. Mauss,

We have submitted preliminary application for a CWCB grant to rehabilitate Klug Lake, and have hired Civil Resources to perform the required engineering. We request a grant, in a maximum amount of \$16,500, to pay for up to 50% of the cost of the Feasibility Study for the project. The study would be in accordance with the CWCB Guidelines, and would follow the format of the Sample CWCB Feasibility Study you have provided us.

The engineering scope of work and cost estimate are attached.

Sincerely,

Randy Ray, Executive Director
Central Colorado Water Conservancy District

EXHIBIT 1: Scope-of-Services

Civil Resources, LLC. proposes the following scope of services in completing the technical work required to complete a Feasibility Study for reconstruction of Klug Reservoir. Civil Resources has identified the following scope of work:

Task 1 – Base Mapping

Civil Resources will process available topographic data and estimate property boundaries based on public record to create a base map for the project and build a base model to use in calculating earth volumes and associated project costs. Additional surveying may be recommended to include property boundaries, titlework, utilities and more accurate topography. If authorized, the additional survey will be billed to the Client as a direct expense.

Task 2 – Preliminary Geotechnical Investigation

The geotechnical investigation at the site will be focused on obtaining bulk material samples (from augers) and general classification of the soils to evaluate potential leakage and assess the appropriateness of the Site for use as water storage. Areas within the property that could be used as borrow sources for the dam fill material will also be preliminarily identified based on a limited laboratory testing program on samples collected using 4" solid stem augers or 8" hollow stem augers. Approximately 4 to 6 geotechnical borings up to fifty (50) feet deep are proposed in this scope of work. The bulk samples will be collected from the auger cuttings and will be placed in 50 pound rice bags for sieve and Atterburg analysis at the lab. Standard Penetration Tests (SPTs) will also be obtained at 5- to 10-foot intervals.

Bedrock samples will be collected in split spoons or California Barrels at 5' foot intervals for ten feet if encountered within the top 40 feet and these samples will sent to the lab for in-situ properties, such as natural moisture, plasticity index, liquid limit, and minus 200 sieve.

Task 3 – Water Storage Alternative Analysis

Civil Resources, LLC will generate a letter report summarizing the lab results and provide the client with a site map and detailed drawings of the geotechnical borings.

The publicly available Site topography and data from the geotechnical investigation will be the basis upon which Civil Resources will propose two alternative geometric configurations for the reservoir. The first configuration will be based on a repair of the existing facility with no enlargement in the dam and a second configuration will propose an enlargement scenario. Civil Resources will provide an opinion of construction cost and finished water storage that is available at the site. The costs associated with each option will be compared on a cost per acre-foot basis.

Task 4 – Project Management

Coordination and preparation for meetings with CCWCD. This task also includes Civil Resources internal project management including weekly project meetings, budget monitoring and invoices.

Cost Estimate

Following is a cost estimate that has been prepared according to the effort we believe will be required. The total cost of these services is as set forth in the following table:

Klug Reservoir Feasibility Study CCWCD		
Scope of Services		Total Cost Estimate
1.	Base Mapping	\$2,200
2.	Prelim. Geotechnical Investigation	\$13,000
3.	Water Storage Alternative Analysis	\$13,000
4.	Project Management	\$4,000
Expenses (equipment, printing, mileage, film, copies, etc.)		\$800
TOTAL COST ESTIMATE		\$33,000

* The Scope of Work specifically excludes field surveying unless authorized by Client to contract a surveying sub-consultant to complete detailed survey. Any sub-consultant costs will be passed along direct (no markup) to the Client.

Schedule

The following schedule summarizes the approximate schedule breakdown:

<u>Task #</u>	<u>Work</u>	<u>Start Date</u>	<u>Finish Date</u>
1	Base Mapping	Jul, 2017	Jul, 2017
2	Prelim. Geotech. Invest.	Jul, 2017	Aug, 2017
3	Water Storage Alt. Anal.	Jul, 2017	Sep, 2017
4	Project Management	Jul, 2017	Sep, 2017

Project Management Plan

Brad L. Hagen, P.E. will be the Project Manager for the project and will also be active in the technical analyses and presentation of data. Andrew Rodriguez, P.E. will work closely with Mr. Hagen in finalizing the engineering report associated with the project. Other support staff may also help prepare technical analyses and trial preparation documents as necessary.

This scope of work is approved for completion under the Terms & Conditions identified in the Agreement signed and dated February 10, 2009 with the updated Rate Schedule attached:

Authorized CCWCD Representative Signature

Date