RESOURCE CONSERVATION & DEVELOPMENT COUNCIL

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Statement of Work

WATER ACTIVITY NAME – Hartland Diversion Fish Passage Feasibility Study

GRANT RECIPIENT – Painted Sky Resource Conservation and Development Council

FUNDING SOURCE – Colorado Water Conservation Board
Gunnison Basin Account

TOTAL REQUEST - $22,100

INTRODUCTION AND BACKGROUND

The Hartland diversion dam, serving the Hartland Ditch, is located on the Gunnison River near Delta, CO. The diversion consists of a low head dam that is currently a barrier to fish and boat passage. The purpose of this project is to develop a conceptual plan for to allow for fish passage while maintaining diversion capabilities into the Hartland Ditch. A secondary benefit of the completed passage structure will be improved boater safety at this location.

This work will build upon previous efforts performed by Tetra Tech in 2000 that included analysis of three alternatives for fish passage at the Hartland Dam. The 2000 work was performed under contract with the Bureau of Reclamation, in conjunction with the Upper Colorado Endangered Fish Recovery Program. The previous effort focused primarily on fish passage and resulted in the development of three alternatives, one of which would also accommodate boat passage. The goal with this new work is to develop an additional, affordable alternative with current cost estimate that also accommodates both fish and boat passage.

Services for this effort will include a conceptual layout and grading of the additional alternative; basic design information to support the final design process including hydraulics, hydrology, and mapping; cost estimates; and recommendations to assist in the development of the final design. Final design/build is scheduled for January through March of 2010, with support from the Federal agency, the U.S. Fish and Wildlife Service.

OBJECTIVES:
Develop a conceptual alternative that accommodates fish and boat passage while considering the following objectives:

1. Maintain diversion capabilities at the Hartland Ditch.
2. Incorporate fish passage criteria of native species.
3. Maintain or minimize increased flooding risks to adjacent properties.

TASKS
Except where noted, this effort will incorporate and utilize data and information developed in the 2000 study including base mapping, the hydraulic analyses, and hydrology. The following details the proposed task descriptions.

TASK 1 – Site Visit and Kick-off Meeting

Description of Task: Tetra Tech (Tt) will meet with the Project Management Committee (PMC) to expand on the project objectives. This will include establishing specific design criteria on diversion requirements, including a discussion on ditch operations; fish passage parameters and target species identifications; and boating requirements.

A site visit will also be conducted to identify specific issues related to design of the project, construction, and consideration of the adjacent property owners' concerns. Property owners will be contacted ahead of time to solicit input and arrange to meet on site.

Method/Procedure: The kick-off meeting will be scheduled in advance to ensure key representation from the Hartland Ditch Company, USFWS and the members of the project team.

Deliverable: Meeting notes will be prepared and distributed to attendees, all project team members and the State of Colorado project manager.

TASK 2 – Project Drawings

Description of Task: This task includes efforts to update the existing base mapping available from the 2000 effort, and utilizing it to develop the conceptual alternative. The following steps are anticipated:

a. Field surveying will be conducted to gather additional survey points upstream of the existing diversion dam in the vicinity around the existing island. This work is flow-dependent and will be conducted when river flows are low, in conjunction with irrigation diversions.

b. Add additional survey information to the existing base sheets.

c. Prepare conceptual alternative at a 'sketch-level' design. Distribute to the PMC for review and comments.

d. Update conceptual alternative based on review comments. Incorporate revisions as required to accommodate the hydraulic analysis outlined below.

e. Finalize conceptual drawing. Develop conceptual details as required. It is anticipated the details will also be conceptual in nature, consistent with the details presented in the 2000 effort.

Method/Procedure: Survey information will be performed with either a total station or GPS. Project drawings will be prepared using Auto CAD.

Deliverable: A paper copy will be provided on an 11" x 17", appended to the Technical Memorandum. See Task 5.

TASK 3 – Hydraulic Analysis

Description of Task: Tt will perform a hydraulic evaluation of the existing conditions and a hydraulic evaluation of the conceptual alternative. The evaluation will include diversion hydraulics for the Hartland ditch, comparison of existing versus proposed flood elevations and identification of depth and velocities for use in evaluating fish passage under various flow conditions. For this task the existing hydraulic analysis prepared in 2000 will be utilized and modified to include the additional survey information at the upstream island. Six flows will be evaluated: late summer conditions during irrigation season, average runoff flows, bankfull flows, and the 2-year, 10-year and the 100-year flow.

Method/Procedure: The hydraulic analysis will be conducted using HECRAS.

Deliverable: A table of flow conditions will be prepared and incorporated into the Technical Memorandum. The hydraulic analysis will also be made available electronically.

TASK 4 – Quantities and Costs

Description of Task: Utilizing the final conceptual plan, prepare quantity estimates and a preliminary cost estimate.

Method/Procedure: Quantities will be estimated from the conceptual plans and include estimates of relevant materials such as riprap volume, earthwork, concrete etc. Costs will be based on available unit prices, typical for the Delta County area.

Deliverable: Cost estimates and quantities will be incorporated into the Technical Memorandum.

TASK 5 – Technical Memorandum

Description of Task: A technical memorandum will be prepared summarizing the work effort. Specifically the technical memorandum will include the drawings as an attachment, a summary of the hydraulic evaluation, and cost estimates. In addition

issues related to the development of construction plans that are unveiled as a result of this scope of work will be presented. This may include needs for additional surveys, easement research, construction related restrictions etc.

Method/Procedure: Not applicable.

Deliverable: Five (5) paper copies will be provided including the 11" x 17" drawing. An electronic copy, 'pdf' will also be provided.

REPORTING AND FINAL DELIVERABLES

Painted Sky shall provide CWCB with a progress report every 6 months, beginning from the date of the executed contract. The progress report shall describe the completion or partial completion of the tasks identified in the scope of work including a description of any major issues that have occurred and any corrective action taken to address these issues.

Final Deliverable: At completion of the project, the applicant shall provide the CWCB a final report that summarizes the project and documents how the project was completed. This report will contain photographs, summaries of meetings and engineering reports/designs.

BUDGET / NARRATIVE

The majority of charges in the budget below reflect various personnel employed by TetraTech of Breckenridge, Colorado, with additional specialized staff time as required to meet specified deliverables. TetraTech Principal Peggy Bailey will work with an associate Project Engineer, Hydraulic Engineer, and Draftsman to produce initial and revised drawings, execute HECRAS hydraulic modeling, and itemize rock and other material quantities and costs, in support of the final technical memorandum.

The Clerical and Project Manager hours reflect Painted Sky's estimated direct costs in administration, meeting management, communications, grant management and reporting, and total $2015 for the project. Vehicle mileage includes both TetraTech and Painted Sky personnel travel reimbursements. 'Repro' refers to drawing and other deliverable reproduction. Total costs of identified tasks, including both TetraTech and Painted Sky costs, are given in the far-right column.

In-kind contributions of partners, including U.S. Fish and Wildlife service staff, NRCS staff, Colorado DOW staff, as well as private organization and volunteers serving as members of the Earth Team program, are not given in table; however, these contributions could be valued at approximately 75% of requested funds, or roughly $15,000.

TASK	DESCRIPTION	Principal	Project Engineer	Hydraulic Engineer	Civil Engineer	Draftsman (CAD)	Clerical	Project Manager	Other direct costs			Total
									Per diem per day	Vehicle miles	Report	Cost by Task
	Rates	$156.00	$100.00	$85.00	$85.00	$80.00	$ 65.00	$ 35.00	$ 100.00	$ 0.45	1	
Task	Additional conceptual design											
1	Site visit and kick off meeting	8	8	0	0	0	2	12		400	$ 5.00	$2,775
2	Project Drawings	12	40	0	0	25	2	8	1	400	$ 5.00	$8,555
3	Hydraulic analysis	8	0	16	0	0	1	3				$2,770
4	Quantities and costs	6	18	7	0	0	1	4				$3,530
5	Prepare technical memorandum	12	16	0	0	4	4	12			$10.00	$4,470
TOTAL		46	82	23	0	29	10	39	1	800	$20.00	$ 22,100

SCHEDULE

For maximum flexibility, the proposed project is scheduled for a six-month timeframe; however, a shorter timeframe is likely, due to the parameters of U.S. Fish and Wildlife funding which has been allocated for fish passage implementation. See the attached overall project schedule, including the 40% design supported with CWCB funds, as well as development of construction-ready design drawings, permitting and the construction timeframe. Sub-tasks (a) through (e) itemized above in Task 2 will be completed beginning in Month 2, and milestones for this Task will be completed by the end of each subsequent month. The timeframe for the project is ideally July through December, 2009.

	Month	1	2	3	4	5	6
Task	Additional conceptual design						
1	Site visit and kick off meeting						
2	Project Drawings						
3	Hydraulic analysis						
4	Quantities and costs						
5	Prepare technical memorandum						

PAYMENT

Payment will be made based on actual expenditures and invoicing by the applicant. Invoices from any other entity (i.e. subcontractors) cannot be processed by the State. The request for payment must include a description of the work accomplished by major task, and estimate of the percent completion for individual tasks and the entire water activity in relation to the percentage of budget spent, identification of any major issues and proposed or implemented corrective actions. The last 5 percent of the entire water activity budget will be withheld until final project/water activity documentation is completed. All products, data and information developed as a result of this grant must be provided to the CWCB in hard copy and electronic format as part of the project documentation. This information will in turn be made widely available to Basin Roundtables and the general public and help promote the development of a common technical platform.

PROJECT ACTIVITY	TIMELI 2009-2010 APRIL MAY	JUNE JULY	AUGUST SEPT	OCT NOV	DEC JAN	FEB MAR	APR MAY	LEAD(S)
Publicity for rock donation; Staging								DCD (Jessen); Painted Sky(Harding); FWS (Matt Kales)
Re-submit CWCB request for $20K								Painted Sky (Harding)
Sign CWCB Grant								Painted Sky; NRCS (Van
USFWS Grant Agreement Signed								USFWS (Elmer): Painted Sky(Harding)
Survey data								FWS (Stancil)
30-35% Engr Design; HydroModel;Cost est								Tetra Tech (Bailey) and Sub (Crane), FWS(Stancil)
Peer Review of 30-35% Engr Design								USFWS (Stancill); NRCS (Lucero)
Value Engineer Study if > 1M$								FWS(Engineering)
100% Engr Design; Stnds/Specs; Cost								NRCS (Lucero); FWS (Stancil)
100% Hydrological Modeling								USFWS (Stancill)
Initiate permitting; 404/Sec7/SHPO etc								DCD (Kautsky); USWFS
Advertise, Interview, Select Proj Mngr								Painted Sky
Write Draft Language for Bid Solicitation								Painted Sky;NRCS
Open Bid Period								Painted Sky
Contractor Selection; Signed Contract								Painted Sky
Construction								Selected Contractor
Construction Supervision								NRCS?
Ribbon Cutting								Painted Sky; NRCS; FWS; Commisions