

Last Updated: July 5, 2017

Colorado Water Conservation Board	
Water Plan Grant - Exhibit A	

Statement Of Work	
Date:8/1/2017	
Name of Applicant:	Trout Unlimited
Name of Water Project:	Windy Gap Reservoir Bypass Project
Funding Source:	CWP Grants
<p>Water Project Overview: Please provide a summary of the proposed water project (200 words or less). The same summary can be used from Page 5 of the CWP Grant Application.</p> <p>The Bypass Project involves the construction of a new river channel (nearly a mile in length) that will reconnect the Colorado River upstream and downstream of Windy Gap Reservoir to allow for movement of fish and macroinvertebrates and cobbles needed for aquatic habitat, and to improve stream temperature. The reservoir will be reduced in size, with a new berm to be constructed to separate it from the new channel. (See Concept Plan, Exhibit C). A structure to regulate flows into the reservoir, equipped with a fish screen, will be installed. The channel will be constructed to mimic a natural channel and will include aquatic habitat features. In addition, two diversion structures upstream and downstream of the reservoir will be improved to further improve fish passage. The project is expected to significantly improve aquatic habitat conditions in the face of additional diversions through the Windy Gap Firing Project and Moffat Collection System Project.</p> <p>Preliminary engineering (approximately 25% design) has been completed for the project and the results are reported in TetraTech's <i>Final Report, Windy Gap Reservoir Modification Study</i> (February 2015) and <i>Supplemental Report for the Windy Gap Reservoir Modification Study</i> (June 2017).</p> <p>Requested CWP funds will be used to develop final design and engineering and construction of the Bypass.</p>	
<p>Objectives: List the objectives of the project.</p> <p>(1) Re-establish connectivity with upstream tributaries, expanding available habitat and range for fish, macroinvertebrates and other aquatic life, (2) Re-establish transport of coarse sediment from the upstream river reaches past reservoir to alleviate downstream gravel depletion and armoring, (3) Improve water quality by moderating water temperatures, (4) Reduce nutrient loading by taking the existing shallow reservoir off-line, and (5) Reduce the transport of aquatic vegetation from the reservoir that has degraded downstream riverine habitats.</p>	

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Tasks
Provide a detailed description of each project task using the following format:
Task 1 – NEPA and Watershed Management Plan
Description of Task:
<p>Conduct environmental impacts review as required by NEPA. Significant funding from NRCS has been committed for the project and such funding requires preparation of a Watershed Management Plan. No funds are being requested under this grant application to complete Task 1.</p>
Method/Procedure:
<p>An environmental assessment will be prepared and public meetings and outreach conducted. An economic impacts analysis will be prepared as required by NRCS.</p>
Grantee Deliverable: Describe the deliverable the grantee expects from this task
<p>Watershed Management Plan and NEPA document (EA or other as required)</p>
CWCB Deliverable: Describe the deliverable the grantee will provide CWCB documenting the completion of this task
<p>Watershed Management Plan and NEPA document (EA or other as required)</p>

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Tasks
Task 2 – Final Investigations, Design and Engineering
Description of Task:
<p>Conduct final investigations, design and engineering to enable construction of the various components of the Bypass Project, including:</p> <ul style="list-style-type: none"> • Complete geotechnical investigation to determine thickness and extent of unsuitable materials below the proposed berm, foundation soil conditions, and available borrow sources and material properties for berm soils • Complete hydrology and floodplain analysis for submittal to the State Engineers Office (SEO) • Final design and engineering of diversion structure and associated structures • Final design and engineering of reservoir modifications • Final design and engineering of bypass channel • Channel hydraulics and floodplain design
Method/Procedure:
<ol style="list-style-type: none"> a. Geotechnical investigation: conduct new borings along proposed embankment alignment and along the existing embankment; dig test pits along proposed channel; prepare seepage analysis; prepare soils report with recommendations for final design b. Hydrology and floodplain analysis: Prepare a hydrology report for submittal to the SEO; review the incremental flood study prepared by IEC (IEC 1980); coordinate with SEO to determine if updates will be required; review FEMA floodplain mapping and determine if mapping revisions are required. c. Diversion structure: assess use of a shorter lateral weir; assess use of a short bridge over weir; final design and engineering of diversion and associated structures d. Reservoir modification: review pumping operations, assess reservoir volumes to reduce excavation; complete final design and engineering e. Channel hydraulics and floodplain design: prepare final channel hydraulics and assess and detail pool design for stability, hydraulics and habitat enhancement; develop details for channel bank to create enhanced habitat, while providing stability; assess floodplain hydraulic characteristics and develop a floodplain grading plan, with secondary channels, disconnected oxbows and a roughened overbank; evaluate and design confluence area with Habitat Project reach for hydraulic and sediment continuity, fish passage and suitability for aquatic habitat (cover).
Grantee Deliverable: Describe the deliverable the grantee expects from this task
Hydrology and Floodplain Analysis Report; Soils Report; Final Design and Engineering report
CWCB Deliverable: Describe the deliverable the grantee will provide CWCB documenting the completion of this task

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Tasks
Hydrology and Floodplain Analysis Report; Soils Report; Final Design and Engineering
Provide a detailed description of each project task using the following format:
Task 3 – Construction
Description of Task:
Construct the components of the Bypass Project
Method/Procedure:
<p>General sequence of construction is presented below. This sequencing is subject to modification pending the completion of final design, construction plans, and project bid and award.</p> <ol style="list-style-type: none"> 1. Lower the reservoir to about elevation 7820 with the use of the auxiliary and bypass outlets. 2. Construct a temporary coffer dam. 3. Excavate and remove unsuitable material for embankment. 4. Construct slurry wall and clay core. 5. Clear, grub and strip areas 1, 2, and 3 and borrow material for use as embankment shell. 6. Place the embankment shell material and embankment protection. 7. Excavate reservoir and place material to dry in areas 1, 2 and 3. Once dry stockpile for use as topsoil. 8. Prune willows for clipping, transplant willows and cut sod mats for the proposed channel and floodplain within the existing reservoir footprint. 9. Construct the portion of the proposed channel located within the existing reservoir footprint. 10. Strip, clear and grub remaining portions of the proposed channel and floodplain. Stockpile material for use in floodplain topsoil. 11. Construct remainder of proposed channel and floodplain. 12. Place embankment for the tailrace and spillway runout restoration area and grade. 13. Construct sod mats and soil wraps along the connectivity channel. 14. Transplant willows and willow clippings into the new floodplain and spillway runout restoration area. 15. Construct spillway runout channel. 16. Construct new channel from diversion structure to reservoir. 17. Construct connectivity channel from confluence to the diversion structure. 18. Divert flows into the connectivity channel. 19. Complete floodplain revegetation. 20. Perform final site clean-up and demobilize <p>In addition to the site work, a diversion structure, upstream fish structure and restoration of existing Granby diversion structure will be completed at any time in the sequence.</p>

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Tasks
Grantee Deliverable: Describe the deliverable the grantee expects from this task
Final construction report
CWCB Deliverable: Describe the deliverable the grantee will provide CWCB documenting the completion of this task
Final construction report.
Task 5 – Administration
Description of Task:
Method/Procedure:
<p>Oversee grant implementation and payments to consultants to complete the work</p> <p>Coordinate in-kind work to be conducted by the partners</p> <p>Coordinate NEPA and permitting</p> <p>Reporting</p>
Grantee Deliverable: Describe the deliverable the grantee expects from this task

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Tasks
Delivery of final reports outlined above
CWCB Deliverable: Describe the deliverable the grantee will provide CWCB documenting the completion of this task
Delivery of final reports outlined above
Task 6 - Monitoring
Description of Task:
Method/Procedure:
<p>a. Biological monitoring. Project outcomes will be evaluated by comparing baseline conditions with post-project conditions. Monitoring will include electrofishing operations to evaluate changes in fish growth, abundance, and species composition in the post-bypass environment, and macroinvertebrate evaluations to see how the bypass affects aquatic insect life, and how species abundance and composition progresses through time. Monitoring may also include stocking of marked fish to determine movement patterns and reseeding of insect populations into upstream locations and PIT tagging of fish and subsequent electronic monitoring of their movements from below Windy Gap dam upstream past the new diversion structure, and their return to downstream locations.</p> <p>b. The newly constructed Bypass channel will be monitored annually for the first five years and after significant flood events. Ocular surveys will be conducted of the channel banks, treatment (wood, rock and vegetated), instream structures, overbanks and the diversion structure. Monitoring cross sections will be established with end points to survey during the monitoring period to assess lateral stability, degradation and aggradation. Vegetation will be inspected following the first full growing season and then yearly thereafter. Photo points will be established and used for photo documentation of site conditions in the channel and on the floodplain overbanks. Temperature monitoring has been ongoing by both the Subdistrict and GCWIN providing valuable temperature baseline data.</p>
Grantee Deliverable: Describe the deliverable the grantee expects from this task

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Monitoring plan as part of the Final Report
CWCB Deliverable: Describe the deliverable the grantee will provide CWCB documenting the completion of this task
Monitoring plan as part of the Final Report

Budget and Schedule

This Statement of Work shall be accompanied by a combined Budget and Schedule that reflects the Tasks identified in the Statement of Work and shall be submitted to CWCB in excel format.

Reporting Requirements

Progress Reports: The applicant shall provide the CWCB a progress report every 6 months, beginning from the date of issuance of a purchase order, or the execution of a contract. The progress report shall describe the status of the tasks identified in the statement of work, including a description of any major issues that have occurred and any corrective action taken to address these issues. The CWCB may withhold reimbursement until satisfactory progress reports have been submitted.

Final Report: At completion of the project, the applicant shall provide the CWCB a Final Report on the applicant's letterhead that:

- Summarizes the project and how the project was completed.
- Describes any obstacles encountered, and how these obstacles were overcome.
- Confirms that all matching commitments have been fulfilled.
- Includes photographs, summaries of meetings and engineering reports/designs.

The CWCB will withhold disbursement the last 10% of the budget until the Final Report is completed to the satisfaction of CWCB staff. Once the Final Report has been accepted, and final payment has been issued, the purchase order or grant will be closed without any further payment.