**Water Supply Reserve Account – Grant and Loan Program**
**Water Activity Summary Sheet**
**January 25-26, 2015**
**Agenda Item 24(a)**

| | |
|---|---|
| **Applicants:** | Windy Gap Bypass Committee & Trout Unlimited |
| **Fiscal Agent:** | Trout Unlimited |
| **Water Activity Name:** | Windy Gap Reservoir Modification Project (Bypass Project) – Engineering |
| **Water Activity Purpose:** | Multipurpose |
| **County:** | Grand |
| **Drainage Basin:** | Colorado |
| **Water Source:** | Colorado River |
| **Amount Requested/Source of Funds:** | $30,000 Colorado Basin Account (total grant request) |
| **Matching Funds:** | Applicant Match: $355,500 (cash & in kind) =92.2% of the total project cost of $385,500<br>(refer to *Funding Summary/Matching Funds* section below) |

| **Staff Recommendation:** |
|---|
| Staff recommends approval of up to $30,000 from the Colorado Basin Account to help fund the project titled: Windy Gap Reservoir Modification Project (Bypass Project) – Engineering. |

**Water Activity Summary:** WSRA funds, if approved, will be expended to fund the project titled Windy Gap Reservoir Modification Project (Bypass Project) – Engineering. Windy Gap Reservoir is located along the Colorado River approximately 4 miles west of the town of Granby, in Grand County, Colorado. Aquatic habitat of the Colorado River in the vicinity of Windy Gap is suboptimal. The Gold Medal trout fishery appears to be in decline over recent years and fish passage is blocked by the dam and impeded in places by shallow riffles. Water temperatures commonly exceed standards set by the Colorado Department of Public Health and Environment during portions of the summer, and recent studies suggest key bio-indicator species are nearly extirpated for many miles below the reservoir.

The Windy Gap Bypass Committee is a stakeholder group whose goal is to ensure the construction of the Windy Gap Reservoir Bypass, a project designed to re-connect the Colorado River and its habitat by restoring approximately one mile of the river currently inundated by the Windy Gap Dam and Reservoir by constructing a bypass channel around the reservoir. Members of the Bypass Committee include Northern Colorado Water Conservancy District & Municipal Subdistrict, Colorado Parks and Wildlife, Grand County, Colorado River Water Conservation District, Middle Park Water Conservancy District, Upper Colorado River Alliance, and Trout Unlimited.

The primary objective of the Project is to facilitate the recovery of aquatic species by improving existing conditions and physical processes impacted by Windy Gap. Specifically, the primary Project objectives are to:

- Improve sediment transport around or through the reservoir,
- Reduce stream bed armoring downstream of the reservoir,
- Moderate elevated stream temperatures,
- Provide connectivity for aquatic life and fish passage, and
- Enhance aquatic habitat.

The next step in the Project is to conduct field work, preliminary engineering of the major design components, and initiate permitting. Work will include:

- Wetlands delineation, Endangered Species Act assessment, and historic/cultural assessment needed for 404 permit
- Topographic and existing conditions mapping
- Channel design and hydraulic assessments
- Preliminary diversion structure plans
- Refine opinion of probable cost

**Discussion:** The Colorado Basin Roundtable identified this project as a priority project for the Grand County region in the final Basin Implementation Plan (BIP).

Additionally, this project meets several critical actions as identified in Chapter 10 of Colorado's Water Plan:

- **A: Supply – Demand Gap**
  - **1.** Support and assist the basin roundtables in moving forward priority municipal, industrial, environmental, and agricultural projects and methods identified in their BIPs through technical, financial and facilitation support when requested by a project proponent and the pertinent BRT.
- **E: Storage**
  - **2.** Prioritize grants and loans to support the implementation of BIP-identified multipurpose projects and methods, taking into consideration locally identified geographic and seasonal gaps.
- **F: Watershed Health, Environment, and Recreation**
  - **7:** Prioritize and implement projects identified in master planning efforts.

**Issues/Additional Needs:** No issues or additional needs have been identified.

**Threshold and Evaluation Criteria:** The application meets all four Threshold Criteria.

**Tier 1-3 Evaluation Criteria:** n/a

**Funding Summary/Matching Funds:**

| | **Cash** | **In-kind** | **Total** |
|---|---|---|---|
| Committee members | $355,500 | n/a | $355,500 |
| WSRA Colorado Basin Account | $30,000 | n/a | $30,000 |
| **Total** | **$385,500** | **n/a** | **$385,500** |

**CWCB Project Manager:** Brent Newman

# *THE COLORADO BASIN ROUNDTABLE*

***C/O P.O. BOX 1120***
***GLENWOOD SPRINGS, COLORADO***
***81602***

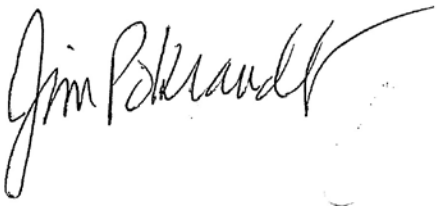
Nov. 30, 2015

**Craig Godbout**
**Colorado Water Conservation Board**
**Water Supply Planning Section**
1313 Sherman Street
(303) 866-3441, ext 3210 (office)
(970) 218-9407 (cell)
craig.godbout@state.co.us

Dear Craig:

The Colorado Basin Roundtable voted unanimously on Nov. 30, 2015 by email balloting to support the Windy Gap Reservoir Modification Project request for $30,000 in CBRT WSRA Basin account funds. Trout Unlimited will be the fiscal agent for the Windy Gap Bypass Committee, which seeks to reconnect the Colorado River around the Windy Gap Reservoir in Grand County. The requested money will leverage $355,500 in other secured funding. The project is a multi-basin effort that has the support of Northern Water and its Municipal Subdistrict. One of the benefits of the project is to improve the Municipal Subdistrict's conveyance of a water supply to Northern Colorado.

At the Basin level, the project advances the CBRT's Basin Implementation Plan by addressing our theme/finding of Ecosystem Health while improving recreational values. The project is designed to re-connect the Colorado River by restoring approximately one mile of the river currently inundated by the Windy Gap Dam and Reservoir by constructing a bypass channel. Aquatic habitat of the Colorado River in the vicinity of Windy Gap is suboptimal. The Gold Medal trout fishery appears to be in decline over recent years and fish passage is blocked by the dam. Water temperatures commonly exceed standards during portions of the summer. This project is listed in the BIP and is one of four priority projects for the Grand County Region.



Jim Pokrandt
Chair, Colorado Basin Roundtable

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 will help promote the development of a common technical platform. In accordance with the revised WSRA Criteria and Guidelines, staff would like to highlight additional reporting and final deliverable requirements. The specific requirements are provided below.

**Reporting:** The applicant shall provide the CWCB 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 may contain photographs, summaries of meetings and engineering reports/designs.

**Engineering:** All engineering work (as defined in the Engineers Practice Act (§12-25-102(10) C.R.S.)) performed under this grant shall be performed by or under the responsible charge of professional engineer licensed by the State of Colorado to practice Engineering.

# COLORADO WATER CONSERVATION BOARD

## WATER SUPPLY RESERVE ACCOUNT APPLICATION FORM

**Today's Date: November 4, 2015**

Windy Gap Reservoir Modification Project (Bypass Project) - Engineering

**Name of Water Activity/Project**

Windy Gap Bypass Committee: Northern Colorado Water Conservancy District (NCWCD) Municipal Subdistrict, Colorado River Water Conservation District (CRWCD), Grand County, Middle Park Water Conservancy District (MPWCD), Trout Unlimited, Upper Colorado River Alliance (UCRA), Colorado Parks and Wildlife (CPW)

**Name of Applicant**

Colorado River Basin Roundtable

**Amount from Statewide Account:** $ 0

**Amount from Basin Account(s):** $ 30,000

**Total WSRA Funds Requested:** $ 30,000

**Approving Basin Roundtable(s)**
*(If multiple basins specify amounts in parentheses.)*

**FEIN:**

## Application Content



**Required Exhibits**

A. Statement of Work, Budget, and Schedule
B. Project Map
C. As Needed (i.e. letters of support, photos, maps, etc.)

**Appendices – Reference Material**

1. Program Information
2. Insurance Requirements
3. WSRA Standard Contract Information (Required for Projects Over $100,000)
4. W-9 Form (Required for All Projects Prior to Contracting)

## Instructions

To receive funding from the Water Supply Reserve Account (WSRA), a proposed water activity must be approved by the local Basin Roundtable **AND** the Colorado Water Conservation Board (CWCB). The process for Basin Roundtable consideration and approval is outlined in materials in Appendix 1.

Once approved by the local Basin Roundtable, the applicant should submit this application **with a detailed statement of work including budget and schedule as Exhibit A** to CWCB staff by the application deadline.

WSRA applications are due with the roundtable letter of support 60 calendar days prior to the bi-monthly Board meeting at which it will be considered. Board meetings are held in January, March, May, July, September, and November. Meeting details, including scheduled dates, agendas, etc. are posted on the CWCB website at: http://cwcb.state.co.us Applications to the WSRA Basin Account are considered at every board meeting, while applications to the WSRA Statewide Account are only considered at the March and September board meetings.

When completing this application, the applicant should refer to the WSRA Criteria and Guidelines available at: http://cwcb.state.co.us/LoansGrants/water-supply-reserve-account-grants/Documents/WSRACriteriaGuidelines.pdf. In addition, the applicant should also refer to the Supplemental Scoring Matrix applied to Evaluation Criteria Tiers 1-3 for Statewide Account requests .

The application, statement of work, budget, and schedule **must be submitted in electronic format** (Microsoft Word or text-enabled PDF are preferred) and can be emailed or mailed on a disk to:

Craig Godbout - WSRA Application
Colorado Water Conservation Board
1313 Sherman St., Room 721
Denver, CO 80203
Craig.godbout@state.co.us

If you have questions or need additional assistance, please contact Craig Godbout at: 303-866-3441 x3210 or craig.godbout@state.co.us.

**Water Supply Reserve Account – Application Form**
**Revised October 2013**

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**Part I. - Description of the Applicant** (Project Sponsor or Owner);

1.

| | | | |
|---|---|---|---|
| Applicant Name(s): | Windy Gap Bypass Committee: NCWCD Municipal Subdistrict, CRWCD, Grand County, MPWCD, Trout Unlimited, UCRA, CPW | | |
| Mailing address: | TU: 1777 N. Kent Street, Suite 100<br>Arlington, VA 22209<br><br>TU Local contact: P.O. Box 1544, Pagosa Springs, Colorado 81147 | | |
| FEIN #: | | | |
| **Primary Contact**: | Mely Whiting | Position/Title: | Legal Counsel, Colorado |
| Email: | mwhiting@tu.org | | |
| Phone Numbers: | Cell: 720-470-4758 | Office: | |
| **Alternate Contact**: | Lurline Curran | Position/Title: | Grand County Consultant |
| Email: | lucurran@co.grand.co.us | | |
| Phone Numbers: | Cell: 970-531-3714 | Office: | |

2. Eligible entities for WSRA funds include the following. What type of entity is the Applicant?

[X] Public (Government) – municipalities, enterprises, counties, and State of Colorado agencies. Federal agencies are encouraged to work with local entities and the local entity should be the grant recipient. Federal agencies are eligible, but only if they can make a compelling case for why a local partner cannot be the grant recipient.

[X] Public (Districts) – authorities, Title 32/special districts, (conservancy, conservation, and irrigation districts), and water activity enterprises.

[ ] Private Incorporated – mutual ditch companies, homeowners associations, corporations.

[ ] Private individuals, partnerships, and sole proprietors are eligible for funding from the Basin Accounts but not for funding from the Statewide Account.

[X] Non-governmental organizations – broadly defined as any organization that is not part of the government.

3. Provide a brief description of your organization:

The Windy Gap Bypass Committee is a stakeholder group whose goal is to ensure the construction of the Windy Gap Reservoir Bypass, a project designed to re-connect the Colorado River and its habitat by restoring approximately one mile of the river currently inundated by the Windy Gap Dam and Reservoir by constructing a bypass channel around the reservoir. Members of the Bypass Committee include Northern Colorado Water Conservancy District, Municipal Subdistrict, Colorado Parks and Wildlife, Grand County, Colorado River Water Conservation District, Middle Park Water Conservancy District, Upper Colorado River Alliance, and Trout Unlimited.

4. If the Contracting Entity is different then the Applicant (Project Sponsor or Owner) please describe the Contracting Entity here.

Trout Unlimited will be the contracting entity. Trout Unlimited is a national, non-profit organization with over 150,000 members nation-wide, approximately 11,000 members in Colorado. Our volunteers and staff engage in partnerships and stakeholder driven efforts with the goal of conserving, protecting, and restoring cold water fisheries and their habitat in a cooperative, constructive setting.

5. Successful applicants will have to execute a contract with the CWCB prior to beginning work on the portion of the project funded by the WSRA grant. In order to expedite the contracting process the CWCB has established a standard contract with provisions the applicant must adhere to. A link to this standard contract is included in Appendix 3. Please review this contract and check the appropriate box.

[X] The Applicant will be able to contract with the CWCB using the Standard Contract

[ ] The Applicant has reviewed the standard contract and has some questions/issues/concerns. Please be aware that any deviation from the standard contract could result in a significant delay between grant approval and the funds being available.

6. The Tax Payer Bill of Rights (TABOR) may limit the amount of grant money an entity can receive. Please describe any relevant TABOR issues that may affect the applicant.

Trout Unlimited will be the contracting entity. TU is a non-governmental organization and is not subject to TABOR.

## Part II. - Description of the Water Activity/Project

1. What is the primary purpose of this grant application? (Please check only one)

| | |
|---|---|
| X | Nonconsumptive (Environmental or Recreational) |
| | Agricultural |
| X | Municipal/Industrial |
| | Needs Assessment |
| | Education |
| | Other Explain: |

2. If you feel this project addresses multiple purposes please explain.

The primary goal and effect of the project is to improve aquatic habitat and the overall health of the Colorado River. However, the project will also improve the efficiency of Windy Gap municipal/industrial diversions.

3. Is this project primarily a study or implementation of a water activity/project? (Please check only one)

| | | | |
|---|---|---|---|
| X | Study | X | Implementation |

4. To catalog measurable results achieved with WSRA funds can you provide any of the following numbers?

| | |
|---|---|
| | New Storage Created (acre-feet) |
| | New Annual Water Supplies Developed, Consumptive or Nonconsumptive (acre-feet) |
| | Existing Storage Preserved or Enhanced (acre-feet) |
| 5,280 | Length of Stream Restored or Protected (linear feet) |
| | Length of Pipe/Canal Built or Improved (linear feet) |
| | Efficiency Savings (acre-feet/year OR dollars/year – **circle one**) |
| | Area of Restored or Preserved Habitat (acres) |
| | Other -- Explain: |

4. To help us map WSRA projects please include a map (Exhibit B) and provide the general coordinates below:

Latitude: N40° 6’ 17.99” Longitude: E105° 58’ 52.95”

5. Please provide an overview/summary of the proposed water activity (no more than one page). Include a description of the overall water activity and specifically what the WSRA funding will be used for. A full **Statement of Work** with a detailed budget and schedule is required as **Exhibit A** of this application.

Windy Gap Reservoir is located along the Colorado River approximately 4 miles west of the town of Granby, in Grand County, Colorado. Aquatic habitat of the Colorado River in the vicinity of Windy Gap is sub-optimal. The Gold Medal trout fishery appears to be in decline over recent years and fish passage is blocked by the dam and impeded in places by shallow riffles. Water temperatures commonly exceed standards set by the Colorado Department of Public Health and Environment during portions of the summer, and recent studies suggest key bio-indicator species are nearly extirpated for many miles below the reservoir.

The primary objective of the Project is to facilitate the recovery of aquatic species by improving existing conditions and physical processes impacted by Windy Gap. Specifically, the primary Project objectives are to:

- Improve sediment transport around or through the reservoir,
- Reduce stream bed armoring downstream of the reservoir,
- Moderate elevated stream temperatures,
- Provide connectivity for aquatic life and fish passage, and
- Enhance aquatic habitat.

The next step in the Project is to conduct field work, preliminary engineering of the major design components, and initiate permitting. Work will include:

- Wetlands delineation, Endangered Species Act assessment, and historic/cultural assessment needed for 404 permit
- Topographic and existing conditions mapping
- Channel design and hydraulic assessments
- Preliminary diversion structure plans
- Refine opinion of probable cost

The estimated cost of this work is $385,500. The Bypass Committee has secured funding in the amount of $355,500 and is requesting $30,000 from the basin roundtable.

See Exhibit A for a full Statement of Work. See Exhibit C for a Budget and Schedule.

## Part III. – Threshold and Evaluation Criteria

1. Describe how the water activity meets these **Threshold Criteria.** (Detailed in Part 3 of the Water Supply Reserve Account Criteria and Guidelines.)

   a) The water activity is consistent with Section 37-75-102 Colorado Revised Statutes.[1]

   The Project is consistent with the statute in that it will not supersede, abrogate or otherwise impair the system of allocating water in the State.

   b) The water activity underwent an evaluation and approval process and was approved by the Basin Roundtable (BRT) and the application includes a description of the results of the BRTs evaluation and approval of the activity. At a minimum, the description must include the level of agreement reached by the roundtable, including any minority opinion(s) if there was not general agreement for the activity. The description must also include reasons why general agreement was not reached (if it was not), including who opposed the activity and why they opposed it. Note- If this information is included in the letter from the roundtable chair simply reference that letter.

   See letter from Roundtable Chair

   c) The water activity meets the provisions of Section 37-75-104(2), Colorado Revised Statutes.[2] The Basin Roundtable Chairs shall include in their approval letters for particular WSRA grant applications a description of how the water activity will assist in meeting the water supply needs identified in the basin roundtable's consumptive and/or non-consumptive needs assessments.

[1] 37-75-102. Water rights - protections. (1) It is the policy of the General Assembly that the current system of allocating water within Colorado shall not be superseded, abrogated, or otherwise impaired by this article. Nothing in this article shall be interpreted to repeal or in any manner amend the existing water rights adjudication system. The General Assembly affirms the state constitution's recognition of water rights as a private usufructuary property right, and this article is not intended to restrict the ability of the holder of a water right to use or to dispose of that water right in any manner permitted under Colorado law. (2) The General Assembly affirms the protections for contractual and property rights recognized by the contract and takings protections under the state constitution and related statutes. This article shall not be implemented in any way that would diminish, impair, or cause injury to any property or contractual right created by intergovernmental agreements, contracts, stipulations among parties to water cases, terms and conditions in water decrees, or any other similar document related to the allocation or use of water. This article shall not be construed to supersede, abrogate, or cause injury to vested water rights or decreed conditional water rights. The General Assembly affirms that this article does not impair, limit, or otherwise affect the rights of persons or entities to enter into agreements, contracts, or memoranda of understanding with other persons or entities relating to the appropriation, movement, or use of water under other provisions of law.

[2] 37-75-104 (2)(c). Using data and information from the Statewide Water Supply Initiative and other appropriate sources and in cooperation with the on-going Statewide Water Supply Initiative, develop a basin-wide consumptive and nonconsumptive water supply needs assessment, conduct an analysis of available unappropriated waters within the basin, and propose projects or methods, both structural and nonstructural, for meeting those needs and utilizing those unappropriated waters where appropriate. Basin Roundtables shall actively seek the input and advice of affected local governments, water providers, and other interested stakeholders and persons in establishing its needs assessment, and shall propose projects or methods for meeting those needs. Recommendations from this assessment shall be forwarded to the Interbasin Compact Committee and other basin roundtables for analysis and consideration after the General Assembly has approved the Interbasin Compact Charter.

This project is listed in the Colorado River Basin Roundtable's Implementation Plan (BIP) and is one of four priority projects for the Grand County Region. Its primary purpose is to protect and restore healthy streams, rivers, lakes and riparian areas (Theme 1). The project is also expected to improve Northern Municipal Subdistrict's conveyance of a water supply to Northern Colorado through the Windy Gap Project. This is a "Tier 1" project in that it is supported by both East and West slope entities.

d) Matching Requirement: For requests from the **Statewide Fund**, the applicants will be required to demonstrate a **25 percent** (or greater) match of the total grant request from the other sources, including but not limited to Basin Funds. A minimum match of 5% of the total grant amount shall be from Basin funds. A minimum match of 5% of the total grant amount must come from the applicant or 3rd party sources. Sources of matching funds include but are not limited to Basin Funds, in-kind services, funding from other sources, and/or direct cash match. Past expenditures directly related to the project may be considered as matching funds if the expenditures occurred within 9 months of the date the contract or purchase order between the applicant and the State of Colorado is executed. Please describe the source(s) of matching funds. (NOTE: These matching funds should also be reflected in your Detailed Budget in **Exhibit A** of this application)

No funds are being requested from the Statewide Fund. Matching funds for this phase of the project are being provided as follows:

| | |
|---|---|
| Gates Family Foundation | $250,000 |
| Grand County | $ 55,000 |
| Colorado River Water Conservation District | $ 20,000 |
| Upper Colorado Landowners Alliance | $ 30,000 |

The Northern Municipal Subdistrict has contributed over $300,000 for the feasibility study leading to the selection of the Bypass Project and has committed $2 million for its construction. The CWCB has committed an additional $2 million from its construction fund, also for construction.

2. For Applications that include a request for funds from the **Statewide Account**, describe how the water activity/project meets all applicable **Evaluation Criteria.** (Detailed in Part 3 of the Water Supply Reserve Account Criteria and Guidelines and repeated below.) Projects will be assessed on how well they meet the Evaluation Criteria. **Please attach additional pages as necessary.**

**N/A**

**Evaluation Criteria** – the following criteria will be utilized to further evaluate the merits of the water activity proposed for funding from the Statewide Account. In evaluation of proposed water activities, preference will be given to projects that meet one or more criteria from each of the three "tiers" or categories. Each "tier" is grouped in level of importance. For instance, projects that meet Tier 1 criteria will outweigh projects that only meet Tier 3 criteria. The applicant should also refer to the Supplemental Scoring Matrix applied to Evaluation Criteria Tiers 1-3 for Statewide Account requests. WSRA grant requests for projects that may qualify for loans through the CWCB loan program will receive preference in the Statewide Evaluation Criteria if the grant request is part of a CWCB loan/WSRA grant package. For these CWCB loan/WSRA grant packages, the applicant must have a CWCB loan/WSRA grant ratio of 1:1 or higher. Preference will be given to those with a higher loan/grant ratio.

Tier 1: Promoting Collaboration/Cooperation and Meeting Water Management Goals and Identified Water Needs

a. The water activity addresses multiple needs or issues, including consumptive and/or non-consumptive needs, or the needs and issues of multiple interests or multiple basins. This can be demonstrated by obtaining letters of support from other basin roundtables (in addition to an approval letter from the sponsoring basin).

b. The number and types of entities represented in the application and the degree to which the activity will promote cooperation and collaboration among traditional consumptive water interests and/or non-consumptive interests, and if applicable, the degree to which the water activity is effective in addressing intrabasin or interbasin needs or issues.

c. The water activity helps implement projects and processes identified as helping meet Colorado's future water needs, and/or addresses the gap areas between available water supply and future need as identified in SWSI or a roundtable's basin-wide water needs assessment.

Tier 2: Facilitating Water Activity Implementation

d. Funding from this Account will reduce the uncertainty that the water activity will be implemented. For this criterion the applicant should discuss how receiving funding from the Account will make a significant difference in the implementation of the water activity (i.e., how will receiving funding enable the water activity to move forward or the inability obtaining funding elsewhere).

e. The amount of matching funds provided by the applicant via direct contributions, demonstrable in-kind contributions, and/or other sources demonstrates a significant & appropriate commitment to the project.

Tier 3: The Water Activity Addresses Other Issues of Statewide Value and Maximizes Benefits

f. The water activity helps sustain agriculture & open space, or meets environmental or recreational needs.

g. The water activity assists in the administration of compact-entitled waters or addresses problems related to compact entitled waters and compact compliance and the degree to which the activity promotes maximum utilization of state waters.
h. The water activity assists in the recovery of threatened and endangered wildlife species or Colorado State species of concern.
i. The water activity provides a high level of benefit to Colorado in relationship to the amount of funds requested.
j. The water activity is complimentary to or assists in the implementation of other CWCB programs.

Continued: Explanation of how the water activity/project meets all applicable **Evaluation Criteria**.
**Please attach additional pages as necessary.**

**Part IV. – Required Supporting Material**

1. **Water Rights, Availability, and Sustainability** – This information is needed to assess the viability of the water project or activity. Please provide a description of the water supply source to be utilized, or the water body to be affected by, the water activity. This should include a description of applicable water rights, and water rights issues, and the name/location of water bodies affected by the water activity.

   The Project will occur in the Colorado River and is not expected to impact water rights.

2. Please provide a brief narrative of any related studies or permitting issues.

   The Bypass Project was selected out of several evaluated alternatives to facilitate the recovery of aquatic species below Windy Gap Reservoir. The description of the alternatives, including the Bypass Project, is described in the Final Report for Windy Gap Reservoir Modification Study (Tetra Tech 2015)(Exhibit D).

   The Bypass Committee held a preliminary meeting with the U.S. Army Corps of Engineers to discuss 404 permitting. Pending the outcome of required field work, the project may qualify for either a nationwide or a regional 404 permit.

3. Statement of Work, Detailed Budget, and Project Schedule

   The statement of work will form the basis for the contract between the Applicant and the State of Colorado. In short, the Applicant is agreeing to undertake the work for the compensation outlined in the statement of work and budget, and in return, the State of Colorado is receiving the deliverables/products specified. **Please note that costs incurred prior to execution of a contract or purchase order are not subject to reimbursement**. All WSRA funds are disbursed on a reimbursement basis after review invoices and appropriate backup material.

   Please see Exhibit A.

## REPORTING AND FINAL DELIVERABLE

Reporting: The applicant shall provide the CWCB 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 statement of work including a description of any major issues that have occurred and any corrective action taken to address these issues.

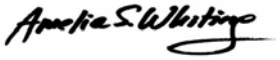
Final Deliverable: At completion of the project, the applicant shall provide the CWCB a final report that summarizes the project and documents how the project was completed. This report may contain photographs, summaries of meetings and engineering reports/designs.

## 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 10 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.

The above statements are true to the best of my knowledge:

**Signature of Applicant**:
**Print Applicant's Name**: Amelia (Mely) Whiting, Trout Unlimited



**Project Title**: Windy Gap Reservoir Modification (Bypass Project)
**Date**: November 5, 2015

**Return an electronic version (hardcopy may also be submitted) of this application to**:

Craig Godbout – WSRA Application
Colorado Water Conservation Board
1313 Sherman St., Room 721
Denver, CO 80203
303-866-3441, ext. 3210 (office)
303-547-8061 (cell)
craig.godbout@state.co.us

# Exhibit A
# Windy Gap Reservoir Modification
# Preliminary Design Services
# Scope of Work and Fee Estimate
# May 8, 2015
# Revised June 25, 2015

## BACKGROUND

This scope of work is based on conclusions and recommendations from the *Final Report, Windy Gap Reservoir Modification Study*[1] (Study) prepared for the Northern Colorado Water Conservancy District and Colorado Division Parks and Wildlife, dated February 2015 (Tetra Tech et al., 2015). In the Study Alternative 3 was identified as the alternative most likely to achieve the project objectives of providing benefit to the Colorado River, while being cost effective compared to the other alternatives. Alternative 3 separates the river from the reservoir with a new channel located through the southern half of the existing reservoir and a diversion structure to route flows from the river into the reservoir.

A preliminary scope of work was prepared and distributed to the TAT for review on May 8, 2015, after which a sub-group of the TAT met with the USACE to discuss permitting. We met with Rena Brand and Kiel Downing at the USACE office in Littleton and they provided guidance on the permit application. This amended scope of work includes services to prepare a 404 permit application in accordance with their guidance and suggestions and is outlined in Task IA.

## OBJECTIVES

The purpose of this scope of work is to complete the assessment for Alternative 3 and prepare plans to a preliminary level of detail to facilitate review of the major design components of the project. This scope of work generally follows the tasks identified as 'Next Steps' in the Study with some minor modifications as noted below:

1. Evaluate the material in the reservoir for suitability in constructing the berm. Evaluate the need for a cutoff wall in the berm.
2. Extend hydraulic analyses upstream of the railroad bridge to investigate bridge capacity and assess overtopping along the railroad. Assess and route the probable maximum flood (PMF) through the proposed river and modified reservoir.
3. Refine the channel cross section design to incorporate riffles, runs, pools and sinuosity; update and refine the hydraulic analysis for further balancing the high-water overflow with the required flows for sediment transport. In addition, assess the hydraulic conditions for Alternative 3 proposed channel alignment.
4. Collect additional data to verify and refine the inflowing sediment load rating curves.
5. Evaluate potential for utility conflicts. Determine power requirements for operating the diversion structure.
6. Develop preliminary plans, with grading and details. Refine grading as required to balance earthwork.
7. Prepare preliminary technical specifications (limited to materials and the selection of appurtenances only, as required to prepare preliminary opinion of probable costs).
8. Refine opinion of probable costs.
9. Consult with permitting agencies.

[1] Tetra Tech and HabiTech, Inc., 2015. *Final Report, Windy Gap Reservoir Modification Study*. Prepared for Colorado Division of Parks and Wildlife and Northern Colorado Water Conservancy District. Granby, Colorado, February 2015.

## SCOPE OF WORK

### Task 1A: Prepare 404 Permit Application

*Consult with state and federal agencies*
Tetra Tech will consult by phone with the USACE, USFWS and CPW prior to fieldwork. Consulting with the USACE will confirm wetland survey designs and the permitting process. USFWS and CPW will be consulted to confirm biological survey design, information on federally listed as threatened and endangered species as well as state species of concern. Communication will be maintained with the agencies to ensure the efficiency of the permitting process.

*Field surveys*
Existing information will be reviewed for documented wetlands and the preferred habitats for federally listed as threatened and endangered species as well as state species of concern with the potential to occur in the project prior to the field surveys. Tetra Tech will also prepare field survey maps, data sheets, photo logs, and health and safety protocols prior to field work.

*Wetland Determination and Delineation*
A wetland determination and delineation will be conducted for each of the locations listed following USACE guidelines. Wetlands will be delineated following the procedures in the *U.S.* Army *Corps of Engineers Wetlands Delineation Manual (1987)*. Included in this task will be a determination of the Ordinary High Water Mark (OHWM) for identifying the jurisdictional boundary of waters of the US. The OHWM and any wetlands found will be recorded with datasheets, photos and GPS data. This task is estimated to require a 2-day field effort, plus travel to and from the project area.

*Biological Habitat Evaluation*
During the field visit, a biological survey will be conducted to identify the general habitat characteristics and to identify potential federal or state listed threatened or endangered species in the area. This survey is part of the requirement for a USACE permit. The biological field survey will be conducted using meandering transects across the project area, focusing on areas of potential sensitive plant or animal habitat. This task will be conducted during the wetland delineation field survey and is included in that cost estimate.

*Wetland and Biological Reports*
Tetra Tech will provide two reports in support of the USACE permit application: Wetland Determination/Delineation OHWM Report and Biological Summary Report. The Wetland Determination/Delineation OHWM Report of the determination and delineation of wetlands within the project will be prepared after the field work is completed. The report will include a description of each wetland delineated including a recommended jurisdictional determination as well as a description of waterbody's encountered with a calculated OHWM. The report will include figures with the locations and sizes of each delineated wetland as well as photographic documentation of each wetland. The Biological Summary Report summarizing the general habitat conditions as well as the potential for impacts to federal or state listed as threatened or endangered species will be prepared upon completion of the field survey.

*Cultural resource survey and report*
Tetra Tech will conduct a site file search and literature review to determine if previously recorded cultural resources are present within the project area. The site file search will be conducted through the Colorado Historic Society Office of Archaeology and Historical Preservation (OAHP) Colorado Cultural Resource On-line Database (Compass), which includes records of all archaeological investigations that have been conducted and all cultural resources (prehistoric and historic archaeological sites) that have been previously recorded. Also included are records of properties listed on the National Register of Historic Places (NRHP). Tetra Tech will also review historic General Land Office (GLO) records and the Glenn R. Scott Historic Trail Maps to determine whether vestiges of trails, transportation routes, homesteads, or other historic resources may be present in the study corridor.

Following the completion of the site file search, Tetra Tech will conduct a pedestrian survey of the approximately 2.25 mile-long Project area corridor to determine if cultural resources are present and make recommendations of NRHP eligibility and mitigation measures. The pedestrian survey will be conducted in accordance with methods approved by the OAHP. The survey will consist of two staff archaeologists walking the Project area corridor spaced no more than 15 meters apart. Artifacts and archaeological features will be flagged, recorded, measured, photographed, and plotted via a sub-meter GPS recorder.

All potential cultural resource information will be documented on OAHP site forms and summarized in a report that will meet the report guidelines of the OAHP. For purposes of estimation this Scope of Work (SOW) is based upon the anticipation that the survey will require two staff archaeologists, and no more than two new cultural resources (sites and/or isolated finds) will be encountered. No subsurface testing or artifact collection is included in this task.

Following the completion of the above mentioned tasks, a Cultural Resources Inventory Report will be written to document each task's results, including all previously recorded sites, sites visible and identified on cartographic resources, and sites discovered during the pedestrian survey. The report will include results of the inventory and recommendations to avoid, minimize, and/or mitigate impacts to the cultural resources that are recommended as eligible for the NRHP. The report will follow OAHP's recommended format.

*Permit Application*
Upon completion of the field summary reports, a permit application will be prepared for submittal to the USACE. A meeting was held on May 27, 2015 to discuss permitting for this project. Rena Brand and Kiel Downing from the USACE, members of the Technical Advisory Team (project sponsors), and Peggy Bailey from Tetra Tech were present during the meeting. Ms. Brand and Mr. Downing were supportive of the project and under the preliminary design descriptions thought the project could be permitted under either a Nationwide Permit 27 (Aquatic Habitat Restoration, Establishment, and Enhancement Activities), Regional General Permit 12 (Aquatic Habitat Improvement for Stream Channels in Colorado) or a combination of the two. This cost estimate assumes the project will qualify for permitting under one of these options based on this initial preliminary discussion. The use of the nationwide permit will likely require the submittal of a Preconstruction Notification (PCN) in lieu of a permit application. A PCN includes the following items:

- Project description and purpose
- Quantity and type of dredged or fill material (determined with site plan development)

- Discussions on the direct and indirect effects caused by the activity
- Discussion of the cumulative impacts
- Design drawings
- Location maps
- Wetland delineation
- Cultural resource evaluation
- Threatened and endangered species review
- Explanations for compliance under each of the general conditions under the NWP

Assumptions: This scope assumes the USACE will issue a Nationwide Permit (NWP 27 and/or RGP 12) and mitigation will not be required. This scope also assumes a Biological Assessment will not be required.

Deliverables: A Wetland Determination/Delineation OHWM Report, a Biological Summary Report, a Cultural Resources Inventory Report, and the PCN all as described above will be prepared and submitted to the TAT for review. Final version will be included in the permit application submitted to USACE. We anticipate the USACE will submit the Biological Summary Report to the USFWS and CPW for review. Tetra Tech anticipates one round of review from the agencies prior to submittal of the final PCN.

**Task I: Topographic and existing conditions mapping**

Existing available topographic mapping developed for the previous Study will be utilized, coupled with additional GPS field surveys to extend the base mapping and bathymetric data. The surveyor will also look for existing property corners or rights-of-way monuments in the project area to help confirm property line information, however, a property boundary survey is not part of this scope of services.

We will coordinate with the utility companies that will likely have utilities within the project footprint to obtain their mapping information and incorporate this information into the project base map. Utility locates will also be requested. Survey crews will spend an estimated 5 days in the field collecting additional survey data including the following:

- Topographic data collection along the railroad bed and bathymetric surveys in the river upstream of the railroad bridge for use in the hydraulic analysis,
- Supplemental topographic and bathymetric data at the proposed diversion location for use in detailing the diversion structure,
- Supplemental topographic data downstream of the dam at the downstream tie-in locations,
- Additional survey data in the south floodplain for use in the channel design,
- Survey data at the gaging station to support the fish passage design, and
- Utility locates that are visible above ground, or below ground marked by the utility locator.

Assumptions: This task assumes permission can be obtained from the Railroad and adjacent property owners to access property to complete these surveys. In addition, we are assuming the river flow is low enough for the survey crew to wade and collect bathymetric data around the railroad bridge and immediately upstream of the measurement weir.

Deliverables: The deliverable for this task includes topographic base mapping, expanded and updated to include the additional surveys.

**Task II. Channel design and hydraulic assessments**

*Proposed Channel*
The channel will be developed to a preliminary design level which will include a grading plan with one (1) foot contours and site features. Working with the Colorado Parks and Wildlife, we will refine the channel alignment and cross sectional design; incorporate riffles, runs, pools and sinuosity; develop the grading and site plans and details for the tie-in locations (upstream at the confluence of Fraser and Colorado Rivers and the diversion structure and downstream below the dam where the new channel connects back to the Colorado River). This effort includes the preparation of typical details for cover and pool habitat, bank stabilization and revegetation. Plans and typical details will be submitted to the TAT (and CPW's TAT representatives) for review and comment. Plans and details will be revised based on feedback and input.

This task includes two meetings with CPW. The first meeting will be a work session to discuss plan details and establish objectives. The second meeting will be to review plans and discuss CPW comments.
grading plans for

*Hydraulic Analyses*
Using the updated topographic information and river and reservoir grading plans (see Task IV), the proposed conditions hydraulic model (2-dimensional SRH-2D software) will be revised to reflect the configuration of Alternative 3. The proposed Alternative 3 conditions will be modeled over a range of flows and the results will be compared to the previous assessments for incipient motion. The hydraulic parameters of the proposed conditions river channel will be refined to ensure continuity between the existing river channel upstream and downstream of the project.
The 2-yr, 10-yr, 50-yr, 100-yr, 500-yr and PMF will be assessed and modeled through the proposed river channel, modified reservoir, and river channel downstream of the dam face to the County Road 578 Bridge. Additionally, the hydraulic conditions at the diversion structure, lateral weir, and at the confluence of the Fraser and Colorado Rivers will assessed for sediment continuity through the project and possible areas of sediment deposition.

*Fish Passage Design*
Prepare preliminary plans for fish passage at the gaging station. Develop base mapping from topographic surveys and prepare a preliminary plan and profile of the proposed passageway. Develop conceptual-level details.

Assumptions: This task assumes that CPW will provide general guidance on channel planform and habitat improvements for advancing the channel design. The channel design will be added/represented in the hydraulic model for the assessment of flooding, incipient motion and sediment transport.

Deliverables: A technical memorandum will be developed to document the design of the channel, and the results of the floodplain modeling. Mapping will also be prepared to show the 100-yr flood.

**Task IIa. Verify and refine the inflowing sediment load rating curves**

*Sediment loading*
Sediment sampling should be performed during spring runoff. Depending on the timing of implementation for the services described herein, the sediment sampling may not be possible until the spring of 2016. Sediment sampling informs on the total load of sediment moving through the system and with this information we are able to estimate the degradation that might occur at the diversion structure, which in turn, informs on the frequency of maintenance. Thus, depending on timing it is our suggestion that we move forward on the hydraulic analysis of Alternative 3, including incipient motion, the flood events and bankfull design, and implement the sediment sampling and sediment analysis when conditions allow.

We propose to collect sediment samples from the cableway at the measuring weir, operated by Northern Colorado Water Conservancy District (with appropriate authorization and assuming the cable trolley can be outfitted with the USGS bedload and suspended load sampling reels). The County Road 57 Bridge (approx. 1.5 miles upstream) could be used as an alternative sediment sampling location if the cableway at the measuring weir cannot be used. Five or six measurements at medium to high flows should provide sufficient data to verify or supplement the 1980 Ward data used for the sediment transport analysis. In addition we will collect suspended sediment samples.

The results of the data collection will be compared to 1980 Ward data (used in the 2014 sediment transport study for Alternative 1) and either used to fill in the gaps in the Ward data or develop an updated sediment transport rating curve. This updated rating curve will be used to define the inflowing sediment load for the hydraulic analysis. The updated sediment transport rating curve developed from the bedload and suspended load sampling will be used to define the inflowing sediment load for the 2D modeling. The proposed Alternative 3 conditions will be modeled over a range of flows and the results will be compared to the previous assessments for both sediment transport.

Assumptions: This task assumes that sediment collection will be performed from either the cable at the measuring weir or upstream from the project at from the County Road 57 Bridge over the Fraser River.

Deliverables: Model results summary including a mapping and report.

**Task III. Geotechnical assessments**

The goal of the geotechnical assessment will be to evaluate the material in the reservoir for suitability in constructing the berm, the floodplain and the river channel; and to evaluate the need for a cutoff wall in/below the berm to address seepage issues.

Samples from the reservoir will be collected and analyzed for required soil properties (sieve analysis, hydrometer test, Atterberg limits, organic content, sulfates, chlorides and pH, standard Proctor, pinhole dispersion, permeability, unconfined compression, and direct shear and/or CU triaxial w/ pore pressure measurements (depending on soil props). Soil boring and subsurface field investigation will rely on published geologic mapping of the area, existing geologic/geotechnical investigations of the site, and other information that is available, particularly from the original Windy Gap design, to estimate the engineering properties of the foundation and embankment soils. This desk top analysis will be combined with gradation and testing of samples taken from the reservoir for further analysis.

Steady state and transient, finite element seepage models will be constructed using the SEEP/W module of Geostudio. A generalized maximum section will be constructed for high and low flow scenarios, with and without a slurry wall. Vertical and horizontal gradients will be calculated and results will be coupled with a SLOPE/W model to evaluate the berm performance under a range of conditions. Proposed slopes will be evaluated and minimum factors of safety will be calculated for end of construction, steady state, and rapid drawdown conditions, with and without pseudo-static loading.

Assumptions: For the purpose of this proposal we are assuming that the reservoir samples will be collected by the Subdistrict. We recommend a minimum of five samples, each approximately 5 gallons in volume, taken in appropriate and representative locations where sediment accumulation has occurred and should be removed to restore storage. Subsurface borings and investigations will be based on existing available information as discussed above.

Deliverables: A report or technical memorandum will be prepared which will summarize the results of our literature review, present engineering properties of the soils used in our analyses including the input and output values for computer models, and present our opinions, conclusions and recommendations regarding the channel and berm from a geotechnical point of view. If appropriate, our report will present recommendations for additional investigations needed during subsequent design phases.

**Task IV. Prepare preliminary site plans**

A preliminary plan set will be developed to a level of sufficient detail to evaluate the major design features, identify issues for advancing to construction-level design and to develop a preliminary 'opinion of probable cost.' The plan set and design considerations will likely include the following:

*Base Mapping*
Base sheet mapping will be prepared at a scale of 1"=100' using the topographic surveys and mapping prepared for the original study. Base mapping will show existing features across the project site, including property lines (provided by the County GIS department), utility information, and dam facilities.

*Demolition Plan*
A plan sheet will be prepared showing the major site features and reservoir areas that will be removed as part of the project.

*Site Plan*
Prepare a site plan showing the proposed improvements including limits of river reconstruction, the diversion structure, limits of dam removal, the existing and proposed facilities and road right of way, lots and easements affected by the project, and the proposed maintenance road. Prepare a typical berm cross section and profile. Develop preliminary grading for the river, floodplain and berm with 2-foot contours and finish grade spot elevations for key elements of the proposed improvements. Finish grade will tie into existing contours around the proposed improvements. Include a preliminary layout plan for the utilities required to operate the proposed diversion structure and other utilities that are required to be relocated for the project.

*Channel Layout Plan and Profile*

Prepare a preliminary channel layout plan with planform geometry, habitat features and details. River profiles will also be set up for the new river alignment at 1"=100 horizontal and 1"=10' vertical. The river plan and profile sheets will show the vertical profile grade of the river thalweg and horizontal location of the river.

*Reservoir Excavation Plans*
Prepare a reservoir excavation plan with proposed contours for excavation in the existing reservoir. Run storage volume calculations and compare to storage requirements established in the Study. Prepare earthwork computations to evaluate cut-and-fill volumes and develop an implementation strategy to allow for staging the work including river diversions and dewatering dredged material. For purposes of this proposal, two revisions are included in order to allow for review by the Technical Advisory Team (TAT) and to develop a plan that best meets the goals of the project while balancing material requirements.

*Access Road Plan and Profile*
Develop a preliminary plan and profile for the access from US Highway 40 to the diversion structure location. Preliminary layout, profile and elevations will be provided as part of this task.

Assumptions: Two plan sets will be prepared. The first will be a draft-level plan set for review and comment from the TAT, permitting agencies and municipalities. The second will be final preliminary plans incorporating comments. No formal approvals from agencies or municipalities is anticipated for this work effort.

Deliverables: Twenty paper copies of the preliminary plan set as well as an electronic copy (pdf) for use in the reproduction of additional copies. A technical memorandum will also be prepared highlighting assumptions made in the development of the plan set and an outline of steps needed to proceed to final design and the preparation of construction drawings.

**Task V. Prepare preliminary diversion structure plans**

A preliminary plan set will be developed to evaluate the structural, mechanical and electrical design features of the diversion structure to a level of detail that will support a preliminary 'opinion of probable cost.' The design will include a layout plan, identification of equipment, and determination of power requirements. The plan set and design considerations will likely include the following:

*Diversion Structure Layout*
Prepare a plan sheet of the diversion structure with the lateral weir diversion, online weirs and the bridge crossing. The plan will show the foundation slab and wall layout for the diversion gate, sluice gates and the access bridge. Cross sections at the diversion gate, a typical sluice gate and access bridge will also be developed showing required wall and slab thicknesses. Foundation piles and wing walls will be shown if required. The drawings will be developed to a preliminary engineering level showing major concrete outlines and used to develop structural concrete quantities to refine the cost estimate. The lateral weir diversion structure will be designed for the PMF and seismic is assumed not to control.

*Diversion and Sluice Gates Mechanical and Electrical Components*
Mechanical and electrical equipment necessary for operation of the diversion and sluice gates will be located on a plan sheet of the diversion structure. Preliminary gate sizes and operator requirements will be

established and costs will be derived from cut sheets from manufactures/suppliers. Layouts for mechanical equipment and fish screens (for optional installation if needed in the future) will be provided. The electrical layouts will include the basic power and controls interfacing requirements to establish construction costs.

**Task VI. Prepare opinion of probable cost**

A preliminary-level opinion of probable cost will be prepared to determine an approximate anticipated cost for construction. Cost estimates will be prepared using the preliminary designs, construction costs from past projects and other readily available cost information for construction of such facilities.

Assumptions: The opinion of probable costs will be based on unit prices estimates available from recent construction costs, and published data and sources.

Deliverables: A technical memorandum summarizing the opinion of probable costs.

**Task VII. Meetings and coordination**

This task includes time to coordinate efforts with the project team and meet with the TAT. We proposed three progress meetings be conducted with the TAT. The first meeting will be held following the completion of the site plan and reservoir excavation plan, completion of the updated hydraulic assessment, and completion of the geotechnical assessments. The second meeting will be held to review the draft plan set and opinion of probable cost. The final meeting will be held after the final plan set is completed.

This task also includes time to coordinate with Grand County to coordinate on requirements of a 1041 permit, and the Federal Emergency Management Agency (FEMA) to discuss floodplain regulations. Coordination with the State Engineers Office will be handled by the Subdistrict to identify requirements for modifying the dam.

Assumptions: The TAT meetings will be attended by a maximum of three project team members; the project manager, up to two other primary technical members and one junior engineer or support staff. The specific staffing will depend on the focus of the meeting. The meeting location will be in the Front Range, likely at the Tetra Tech Golden, Colorado office.

Deliverables: Schedule and conduct the TAT meeting. Prepare meeting notes and distribute to the TAT for review. Finalize the meeting notes.

**SCHEDULE**

The revised recommended sequence for implementing this work effort is to 1) prepare preliminary channel design and the Section 404 permit application, 2) develop base mapping and conduct the hydraulic assessment for the full range of flows including the PMF, 3) collect and assess the soil properties of the reservoir sediments and review Windy Gap geotechnical information, 4) prepare preliminary plans, and 5) prepare the opinion of probable costs.

This schedule assumes a start date by or before the fall of 2015. The sediment data collection and sediment transport analysis would be conducted in spring, 2016. Thus loading and discussions on maintenance and sediment removal would be done concurrently with the last several tasks as noted below.

Schedule to be determined

**Exhibit A**
**Windy Gap Reservoir Modification**
**Preliminary Design Services**
**Scope of Work and Fee Estimate**
**May 8, 2015**
**Revised June 25, 2015**

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## FEE SUMMARY

Tetra Tech staff and the entire Project Team are committed to completing this project expeditiously and within the proposed fee estimate. This estimate includes indirect costs for such things as survey equipment, travel, laboratory sampling, etc. A summary is provided below.

# Exhibit A
# Windy Gap Reservoir Modification
# Preliminary Design Services
# Scope of Work and Fee Estimate
# May 8, 2015
# Revised June 25, 2015

| TASK | total cost by task |
|---|---|
| **TASK IA – 404 PERMIT APPLICATION*** | **$ 32,652** |
| Develop preliminary proposed channel alignment and planform (with CPW) | |
| Wetland delineation and permit application | |
| ESA, historic/cultural/wetlands | |
| **TASK I – TOPOGRAPHIC AND EXISTING CONDITIONS MAPPING** | **$ 23,109** |
| Coordination for access, prep for field | |
| Call for locates, acquire available utility information | |
| Field surveys | |
| Update topography mapping | |
| **TASK II – CHANNEL DESIGN AND HYDRAULIC ASSESSMENTS** | **$ 70,700** |
| complete preliminary proposed channel alignment and planform (with CPW) | |
| Hydraulic analyses | |
| Conceptual fish passage design | |
| **Task IIa-Verify and refine the inflowing sediment load rating curves** | **$ 18,565** |
| **TASK III - GEOTECHNICAL INVESTIGATIONS** | **$ 22,817** |
| Test material in reservoir | |
| Field borings along berm alignment | |
| Berm design for seepage | |
| **TASK IV – DEVELOP PRELIMINARY DRAWING SET** | **$ 37,055** |
| Base mapping | |
| Draft-level | |
| *Site plan* | |
| *Grading and earthwork* | |
| *Utility Plan* | |
| *Berm plan and profile* | |
| *Site plan for diversion* | |
| Final preliminary plans | |
| **TASK V – DEVELOP PRELIMINARY DIVERSION STRUCTURE PLANS** | **$ 127,821** |
| Bridge concept design | |
| *Layout and structural design* | |
| *Prepare plans, sections, elevations* | |
| Document analysis - bridge | |
| Gate Design | |
| *Structure selction, loading* | |
| *concept design* | |
| *Mechanical and electrical drawings* | |
| Document analysis - gates | |
| **TASK VI – OPINION OF PROBABLE COST, IMPLEMENTATION STRATEGIES** | **$ 12,834** |
| Quantities and unit price development; prepare opinion of probable cost | |
| Implementation strategies | |
| **TASK VII – MEETINGS AND COORDINATION** | **$ 39,951** |
| Meet and coordinate with agencies and municipalities | |
| Coordination and project management | |
| Project team meetings | |
| QA QC | |
| TAT meetings | |
| | |
| **Total** | $ 385,504 |

## KEY PROJECT TEAM MEMBERS

### Peggy Bailey, PE
### Project Manager

Peggy Bailey will serve as the project manager for the Windy Gap Reservoir Modification, Preliminary Design Services. Ms. Bailey served at Project Manager for the alternatives development for the Windy Gap Modification study and as such is very familiar with the project, the objectives, stakeholders and design

constraints. Ms. Bailey is a Senior Hydraulic Engineer and Project Manager in the Breckenridge office of Tetra Tech Inc. She has a diverse range of experience specializing in water resources, hydraulic engineering and civil design. Her primary expertise is in hydrology, hydraulics, aquatic restoration, site planning, and civil engineering. Ms. Bailey has assisted and overseen numerous projects involving river restoration, flood control, wetlands creation, hydraulic structures, stormwater runoff analysis, environmental and feasibility studies, comprehensive planning and engineering for multi-phase development, applications for permits, interfacing with municipalities, preparation of construction documents and construction observation.

**Robert Mussetter, P.E, PhD**
**Hydraulic and Sediment Transport**

Dr. Bob Mussetter will be responsible for aspects of the project involving hydraulic and sediment transport analysis. Dr. Mussetter has over 30 years of experience in river engineering and fluvial geomorphology in a wide variety of environments throughout the U.S. and internationally, Much of his work has involved eco-hydraulic analysis, the objective of which is to understand and quantify the linkages between hydraulic and sediment transport processes and aquatic habitat. He supported the Windy Gap Reservoir Modifications Study, specifically evaluating sediment transport. Dr. Mussetter is currently Project Manager for a long-term contract to support the California Department of Water Resources and the other members of the Restoration Team that includes the U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, CA Department of Fish and Game and other agencies and stakeholders to implement a settlement agreement to restore habitat for salmonids and other native fish species to a 150-mile reach of the San Joaquin River. He has also had significant involvement over the past two decades in efforts to recover the four endangered fish species in the Upper Colorado River basin, and has completed numerous other studies related to the linkage between hydraulic and sediment transport processes and instream and riparian habitat. It may also be of interest to the review panel that, early in his career, Dr. Mussetter designed the Fraser River measurement weir that is located at the head of the study reach.

**Tom Wesche, PhD**
**Fisheries**

Dr. Thomas A. Wesche, Professor Emeritus of Water Resources at the University of Wyoming and Principal Scientist with HabiTech, Inc. has 40 years of research and consulting experience in river ecology and restoration throughout the western U.S. Dr. Wesche is a Fisheries Professional Emeritus, certified by the American Fisheries Society, and a Professional Hydrologist, certified by the American Institute of Hydrology. Since 1973, he has authored numerous publications regarding trout stream ecology in the Rocky Mountain region, including the evaluation of salmonid habitat, stream flow – habitat relationships, and the influence of stream habitat quality on fish populations. He has also designed, permitted and provided oversight for many trout stream restoration projects. Dr. Wesche has worked with Peggy Bailey and Tetra Tech since 2007 on developing the Grand County Stream Management Plan, with primary responsibilities being the evaluation of aquatic habitat throughout Grand County, the development of environmental flow recommendations, and the identification of stream restoration needs. For the Windy Gap By-Pass Project, Dr. Wesche will continue to lead the aquatic community and habitat evaluation effort and will work closely with the other project scientists and engineers to develop and evaluate alternatives.

**Chris Ansari**
**Biologist**

Mr. Ansari has over 15 years of experience conducting biological resource surveys. Mr. Ansari served as the lead for Section 404 permitting projects and is proficient in USACE protocol wetland delineations

having conducted delineations in Colorado, Wyoming, Idaho, Oregon, Nevada, Arizona, Virginia, and West Virginia. Mr. Ansari conducts biological surveys for threatened and endangered flora and fauna. His experience ranges across the western United States and includes serving as a biologist for the National Park Service as well as the U.S. Forest Service. Mr. Ansari has conducted wildlife surveys for the Mojave desert tortoise, Washington ground squirrel, 3-toed woodpecker, and burrowing owls in addition to presence/absence surveys for migratory birds and raptors. Mr. Ansari has conducted species specific surveys for the federally listed Ute ladies-tresses orchid (*Spiranthes diluvialis*) as well as rare plant habitat surveys in Wyoming, Idaho, Nevada, Arizona, and Oregon.

**Stephen Anderson, M.A. R.P.A**
**Archaeologist**

Mr. Anderson is a cultural resource specialist for projects in the Intermountain West, Southwest, Great Plains, Midwestern Plains, and the Pacific Northwest. Mr. Anderson has experience working on archaeological projects in Colorado, Wyoming, Montana, Oregon, Idaho, Alaska, Utah, Iowa, South Dakota, North Dakota, Arizona, California, Nevada, Texas, Illinois, Oklahoma, and Kansas. He is a Registered Professional Archaeologist (RPA) and is permitted as a Principal Investigator in eleven western and Midwestern states and/or federal agencies and meets the Secretary of Interior standards. Mr. Anderson has extensive experience working on Federal Energy Regulatory Commission (FERC), US Army Corps of Engineers (USACE), Bureau of Land Management (BLM), US Forest Service (USFS), National Park Service (NPS), Federal Emergency Management Agency (FEMA), and US Department of Agriculture (USDA) Rural Utility Service (RUS) projects. His responsibilities include developing cost estimates and scopes of work for archaeological proposals, conducting site file searches, pedestrian surveys, construction monitoring, recording of sites, obtainment of Smithsonian numbers, assessment of resources for eligibility for inclusion in the National Register of Historic Places, and the mitigation of sites for proposed undertakings. Additionally, he is responsible for the supervision and coordination of the Tetra Tech, Inc. western states survey/excavation crews, managing GIS data and plan map graphics for site forms and reports, and writing technical reports.

**Chris Durloo, PE, LEED BD+C**
**Civil Engineering**

Mr. Durloo is a civil engineer located in the Breckenridge office of Tetra Tech. He has over 18 years of project experience primarily focused in the mountain region of Colorado. Mr. Durloo has performed as Senior Engineer and Project Manager on many projects for private, governmental and commercial clients. Mr. Durloo has broad experience over various types of civil engineering projects including large scale earthwork and development sites, transportation and utility design. Mr. Durloo will be the civil engineering design lead for the Windy Gap Reservoir project including the design of grading plans, utilities, earthwork and project phasing requirements.

**Erik Flickinger, P.E.**
**Mechanical Engineering**

Erik Flickinger will provide mechanical engineering support for the specification of the gates and gate operators. Eric is experienced in the field of Mechanical Engineering providing conceptual and detail design services of flood protection, pump stations, water control gates, cranes, hoist and mechanical operating machinery. Eric has experience with multi-disciplinary design integration, design optimization through

finite element analysis, designing large-scale mechanical systems, inspection and analysis of existing mechanical machinery, retrofit of ageing mechanical systems, and developing detailed design documents.

### Albert Barnes, P.E.
### Electrical Engineering

Albert Barnes will provide electrical engineering for the controls and remote operation of the gates. Albert has experience in the planning, designing, managing, constructing, and commissioning of the electrical and controls portions of multi-discipline industrial projects. His experience includes defining project scope, writing design criteria, estimating capital and labor costs, project management, design calculations, permitting, reviewing budgets, writing specifications, reviewing construction bid documents, reviewing shop drawings, PLC programming, construction supervision, shop and site inspections, and commissioning.

Extensive design experience includes detailed drawings for power distribution including substations, motor controls including variable frequency drives, grounding, lighting, grounding, conduit and cable tray layout, instrumentation and panel layouts, schematics and wiring diagrams. He has provided electrical and controls leadership for design, bid, construction, and commissioning on numerous multi-million dollar projects.

### Brian Twitchell, P.E.
### Structural Engineering

Brian Twitchell will provide structural engineering for the diversion structure and Access Road Bridge. Brian has structural engineering experience that includes design and analysis of bridges, tunnels, retaining walls, locks, dams and other navigation and flood control structures. Brian specializes in design of hydraulic concrete structures using in-the-wet construction methods and has experience designing steel, concrete, prestressed concrete and post tensioned concrete structures. Brian's analysis and design experience includes conceptual level through final plans and specifications. Brian is also experienced in providing engineering support during construction and performing construction inspection.

**Exhibit C**

**Windy Gap Reservoir Modifications Preliminary Design Schedule and Fee Estimate**

| TASK | Estimated fee by task | Aug-15 | Sep-15 | Oct-15 | Nov-15 | Dec-15 | Jan-16 | Feb-16 | Mar-16 | Apr-16 | May-16 | Jun-16 | Jul-16 | Aug-16 | Sep-16 | Oct-16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Task I – Topographic and existing conditions mapping, 404 permit preparation | $ 55,760 | | | | | | | | | | | | | | | |
| Task II – Channel design and hydraulic assessments | $ 70,700 | | | | | | | | | | | | | | | |
| Task IIa-Verify and refine the inflowing sediment load rating curves | $ 18,565 | | | | | | | | | | | | | | | |
| Task III - Geotechnical Assessments | $ 22,820 | | | | | | | | | | | | | | | |
| Task IV – Prepare preliminary site plans | $ 37,055 | | | | | | | | | | | | | | | |
| Task V – Prepare preliminary diversion structure plans | $ 127,820 | | | | | | | | | | | | | | | |
| Task VI – Prepare opinion of probable cost | $ 12,830 | | | | | | | | | | | | | | | |
| Task VIII – Meetings and coordination | $ 39,950 | | | | | √ | | √ | | | | | | | | |
| Total fee | $ 385,500 | | | | | | | | | | | | | | | |

# Exhibit B
# Vicinity Map