COLORADO
Colorado Water Conservation Board
Department of Natural Resources

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TO: Colorado Water Conservation Board Members

FROM: Anna Mauss, P.E., Project Manager
Kirk Russell, P.E., Finance Section Chief

DATE: September 21-22, 2016 Board Meeting

AGENDA ITEM: 17a. Water Project Loans and Water Supply Reserve Fund (WSRF) Grants
Grand Valley Water Users Association – Government Highline Canal Lining

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Introduction

The Grand Valley Water Users Association (Association), is applying for a loan and grant for the Government Highline Canal Lining (Project). The Association is the managing entity for the Bureau of Reclamation's Grand Valley Project. A part of the Grand Valley Project is the Grand Valley Diversion Dam, also known as the Roller Dam, on the Colorado River in De Beque Canyon. Through a recently completed master plan, the Association identified its top rehabilitation needs at the Roller Dam. This Project, lining the first 500 feet of canal immediately below the Roller Dam, was identified as the most immediate need. The total Project cost is estimated to be $800,000. The Association is requesting a loan from the CWCB for approximately 19% of the Project cost and a WSRF grant for approximately 38% of the Project cost. The balance will be funded with cash from the Association and a $296,000 WaterSMART Grant from the Bureau of Reclamation. See attached Project Data Sheet for a location map and Project summary.

Staff Recommendation for CWCB Loan

Staff recommends the Board approve a loan not to exceed $151,500 ($150,000 for Project costs and $1,500 for the 1% service fee) to the Grand Valley Water Users Association, for costs related to the Government Highline Canal Lining Project, from the Construction Fund. The loan terms shall be 30 years at a blended interest rate of 1.55% per annum. Security for the loan shall be in compliance with CWCB Financial Policy #5.

Staff Recommendation for WSRF Grant

Staff recommends approval of up to $285,000 from the Statewide Account and $15,000 from the Colorado Basin Account to the Grand Valley Water Users Association for costs related to the Government Highline Canal Lining Project.

Background

The Association is the managing entity of the federally-owned Grand Valley Project. The Grand Valley Project facilities include the Roller Dam, the 55-mile-long Government Highline Canal, 150 miles of project-operated laterals, 100 miles of drainage ditches, and a hydroelectric power plant. Water diverted at the Roller Dam irrigates approximately 23,500 acres under the Government Highline Canal and 15,000 acres under the Mesa County Irrigation District, Palisade Irrigation District, and Orchard Mesa Irrigation District (a co-participant in this Project). The water is also used for power production at the Grand Valley Power Plant and to maintain critical habitat stream flows set by the U.S. Fish and Wildlife Service as part of the Upper Colorado River Endangered Fish Recovery Program for a critical river segment called the 15-Mile Reach. This reach of the Colorado River is habitat for the Colorado pikeminnow, Humpback chub, Bonytail, and the Razorback sucker, all listed as endangered fish.

Diversions at the Roller Dam for irrigation and hydropower purposes are done so under senior water rights that collectively make up the "Cameo Call." The Cameo Call also assists the state in complying with its obligations under the Colorado River Compact, and in maintaining acceptable lake levels in Lake Powell.

The embankment immediately below the Roller Dam is relatively narrow and separates the Government Highline Canal from the Colorado River. This section of canal was constructed around 1915. Over the last 100 years the embankment has slumped, settled and degraded. Occasional erosion within the embankment has led to material loss and sinkholes. As a result of canal degradation, water flow is restricted and the canal cross section has been reduced, causing a reduction in capacity of the canal.

The Roller Dam Rehabilitation was listed in the Colorado Basin Implementation Plan as a "Top Priority." Consequently, the Association received a WSRF grant in September 2015 for the Dam and Canyon Facilities Master Plan. The master plan was completed in August 2016. Within the plan, the canal lining Project was identified as the top rehabilitation need.

Loan Feasibility Study

Angie Fowler, P.E. of SGM, Inc., prepared the Loan Feasibility Study, titled "Loan Feasibility Study – Grand Valley Project – Government Highline Canal Top 500 Feet Lining Project – Canyon Canal Improvement Project," dated July 29, 2016. The feasibility study was prepared in accordance with CWCB guidelines and includes an analysis of alternatives, preliminary engineering design, and construction cost estimates. Frederick Busch, P.E., of the Bureau of Reclamation provided the preliminary design and cost estimates and will ultimately deliver the final design and specifications. The firm of Chadwick, Steinkirchner, Davis & Co. P.C. prepared the financial statements.

Borrower – Grand Valley Water Users Association

The Association is a non-profit corporation formed in 1905 to manage the Bureau of Reclamation's Grand Valley Project. There are 1,754 shareholders in the Association's service area. Water is allocated to the land through "Subscription for Stock" agreements. These agreements were entered into by the Association and owners of irrigable lands in the early 1900s and were recorded with the Mesa County Clerk and Recorder's office. When land ownership changes, water rights remain with the land and cannot be sold separately.

Assessments are billed annually based on allotments for individual parcels of land. Each parcel is assessed a fee per acre, plus an additional assessment of $100 per account to cover the additional costs incurred from work on the Roller Dam, laterals, and other entities.

The Association is governed by an eleven-member board of directors. The board has the authority to make and levy all assessments, and has the power to enforce collection of assessments. It also has the power to make and enforce all rules and regulations concerning the distribution of water within the

system. The board may authorize indebtedness up to $1 million. Anything above that amount must be approved by two-thirds of the shareholders.

The Association and Orchard Mesa Irrigation District share in the cost of operation and maintenance of the canal at 71.6% and 28.4%, respectively, per a 1955 agreement. Daily operation of the Roller Dam and canyon facilities are performed by the Association.

Water Rights

The water rights of the Grand Valley irrigation systems that comprise the Cameo Call are listed in Table 1.

TABLE 1: WATER RIGHTS

Owner	Amount (CFS)	Appropriation Date	Adjudication Date	Use
Association	730	2/27/1908	7/22/1912	Irrigation
Association	400(summer)/ 800(winter)	2/27/1908	7/25/1941	Hydroelectric
Association	220	2/27/1908	7/25/1941	Domestic & Livestock
Orchard Mesa Irrigation District	450	10/25/1907	7/22/1912	Irrigation
Orchard Mesa Irrigation District	10.2	10/01/1900	7/22/1912	Irrigation
Palisade Irrigation District	23.5	6/01/1918	7/25/1941	Irrigation
Palisade Irrigation District	80	10/01/1889	7/22/1912	Irrigation
Mesa County Irrigation District	40	7/06/1903	7/22/1912	Irrigation

Average annual diversions are 1,730 cfs during the irrigation season and 800 cfs during the non-irrigation season. On average 260,000 AF is diverted at the Roller Dam.

Project Description

The canal capacity is currently physically restricted to approximately 1,600 cfs, while the water rights are for 1,730 cfs; therefore, the goal of this Project is to improve the hydraulic efficiency of the first 500 feet of the Government Highline Canal. This will increase the diversion capacity and efficiency during times of low flow on the Colorado River.

Alternative 1 – No Action: This alternative was considered unacceptable as continued degradation of the canal could lead to the inability to divert and deliver water. This canal is critical to agricultural and hydropower production in the area and also to the stream health of the 15-Mile Reach of the Colorado River.

Alternative 2 – Line Canal and Construct a Vertical Retaining Wall on South Side: This design alternative would involve constructing a vertical retaining wall on the south side of the canal. It also includes lining the canal with a PVC liner and geotextile fabric and placing a layer of shotcrete on top. This alternative would have the benefit of providing additional accessible area at the top of the embankment between the canal and Colorado River. The cost of this alternative was in excess of $800,000 and was therefore not chosen as Alternative 3 achieves the same goal at a lower cost.

Selected Alternative 3 – Line and Return Canal to Original Shape: This alternative would involve returning the canal to its original shape with 1 ½:1 side slopes and a 38-foot bottom width. A liner

would be installed consisting of PVC and geotextile fabric on each side with a layer of shotcrete on top. This type of lining has been utilized in other Reclamation projects and has an anticipated lifespan of at least 50 years. This alternative will also have the benefit of providing additional accessible area at the top of the embankment between the canal and Colorado River for operation and maintenance activities. Currently this area is challenging for maneuvering, even with small vehicles. This design could provide up to seven feet of additional maintenance area at a cost of $800,000.

TABLE 2: PROJECT COST

Task	Cost
Construction	$508,000
Permitting	$23,000
Engineering & Professional Services	$104,000
Construction Management	$51,000
Contingency	$114,000
TOTAL	$800,000

TABLE 3: PROJECT FUNDING SUMMARY

Entity	Cash	In-Kind	Total
Association	$42,000	$12,000	$54,000
CWCB Loan	$150,000	n/a	$150,000
WaterSMART grant	$296,000	n/a	$296,000
Sub-total matching funds	**$488,000**	**$12,000**	**$500,000**
Colorado Basin Account	$15,000	n/a	$15,000
WSRA Statewide Account	$285,000	n/a	$285,000
Total	**$788,000**	**$12,000**	**$800,000**

The Association has paid $33,012 to date in engineering and permitting fees. As invoices are submitted for the remainder of the project cost, 20% of each invoice will be paid by the CWCB loan, 40% will be paid by the WSRA grant, 39% will come from the WaterSMART grant, and 1% will come from the Association's cash match.

Permitting: The Association is working on the following permits:

- NEPA Environmental Assessment – Cultural assessment work is complete and no mitigation work is required.
- U.S. Army Corp of Engineers – The Association is communicating with Corps staff regarding the Nationwide Permits for the Project.
- U.S. Fish and Wildlife Service – Flora and fauna consultations have been conducted with the Fish and Wildlife Service.

Schedule: Permitting and final design are scheduled for completion by March 2017. Construction is anticipated in summer and fall of 2017.

Water Supply Reserve Fund Grant

Applicant & Fiscal Agent: Grand Valley Water Users Association

Water Activity Name: Government Highline Canal Lining Project

Water Activity Purpose: Agricultural/Environmental

County: Mesa

Drainage Basin: Colorado

Water Source: Colorado River

At the July 2016 Colorado Basin Roundtable meeting, the Roundtable recommended approval of the Government Highline Canal Lining Project application request for the following Basin and Statewide Funds:

Amount Requested/Source of Funds:

$15,000	Colorado Basin Account
$285,000	Statewide Account
$300,000	Total Grant Request

Matching Funds: Basin Account Match: $15,000 = 5% of total grant request (meets 5% min);
Basin Account & Applicant Match: $515,000 = 172% of total grant request (meets 25% min);
Applicant Match: $500,000 = 63% of total project costs ($800,000)

Objective: The objective of this grant is to fund repairs to the Government Highline Canal to support both agricultural and non-consumptive water users including deliveries to the Colorado River through the 15-Mile Reach.

Discussion: This Project was included in the Colorado Basin Implementation Plan. Protection of the Cameo Call and rehabilitation of the Roller Dam and facilities was one of the top projects in the plan. The Project also aligns with the Colorado Water Plan as described in Section 6.5 Municipal, Industrial, and Agricultural Infrastructure Projects and Methods.

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:
Staff has reviewed and evaluated the applicant's grant documents and determined that they satisfy the Evaluation Criteria. Please refer to WSRF Application for applicant's detailed response.

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 shall 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.

CWCB Loan Program

Financial Analysis

Based on agricultural acres (90%) and non-agricultural acres (10% at middle-income municipal) in the Association's service area, the Association qualifies for a blended interest rate of 1.55% for a 30-year term. Table 4 provides a summary of the Project's financial aspects.

TABLE 4: FINANCIAL SUMMARY

Total Project Cost	$800,000
Borrowers Contribution and Grants	$650,000
CWCB Loan Amount	$150,000
CWCB Loan Amount (Including 1% Service Fee)	$1,500
CWCB Annual Loan Payment	$6,535
CWCB Annual Loan Obligation (1st Ten Years)	$6,988
Number of Shares	1,754
Annual Loan Obligation per Share	$3.98
Current Assessment	$116/acre to $154/acre
Annual Roller Dam Assessment*	$100/share

* In 2014 the Association began collecting $100 per account to help cover costs associated with anticipated Roller Dam improvements. That increase is expected to cover the CWCB debt service and no additional increase in assessments is expected for this Project.

Creditworthiness: The Association has no existing debt. It anticipates future debt service with the CWCB for costs associated with the reconstruction of the Grand Valley Power Plant and additional rehabilitation work at the Roller Dam.

TABLE 5: FINANCIAL RATIOS

Financial Ratio	Past 3 Years	Future w/ Project
Operating Ratio (revenues/expenses) weak: <100% - average: 100% - 120% - strong: >120%	103% (average) $2.52M/$2.44M	103% (average) $2.52M/$2.45M
Debt Service Coverage Ratio (revenues-expenses)/debt service weak: <100% - average: 100% - 120% - strong: >120%	N/A	1159% (strong) ($2.52M-$2.44M) $6.9K
Cash Reserves to Current Expenses weak: <50% - average: 50% - 100% - strong: >100%	21% (weak) $522K/$2.44M	19% (weak) $480K/$2.52M
Annual Operating Cost per Acre-Foot (260,000 AF) weak: >$20 - average: $10 - $20 - strong: <$10	$9.38 (strong) $2.44M/260,000AF	$9.69 (strong) $2.52M/260,000AF

Collateral: Security for this loan will be a pledge of the Association's assessment revenues backed by an assessment covenant and evidenced by annual financial reporting. This is in compliance with the CWCB Financial Policy #5 (Collateral).

cc: Mark Harris, General Manager, Grand Valley Water Users Association
Susan Schneider/Jennifer Mele /Derek Turner, Colorado Attorney General's Office

Attachments: Water Project Loan Program – Project Data Sheet
WSRF Application

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Government Highline Canal Lining

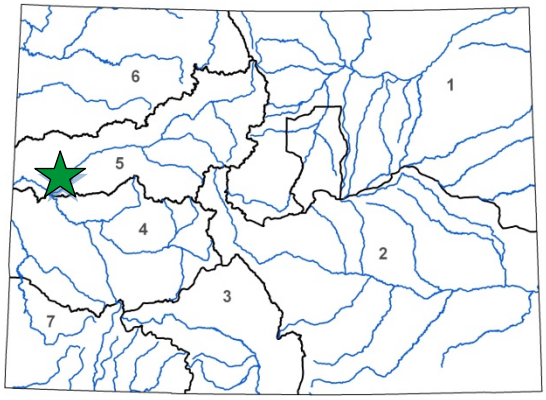
Grand Valley Water Users Association

September 2016 Board Meeting

LOAN DETAILS	
Project Cost:	$800,000
CWCB Loan (with Service Fee):	$151,500
Loan Term and Interest Rate:	30 Years @ 1.55%
Funding Source:	Construction Fund

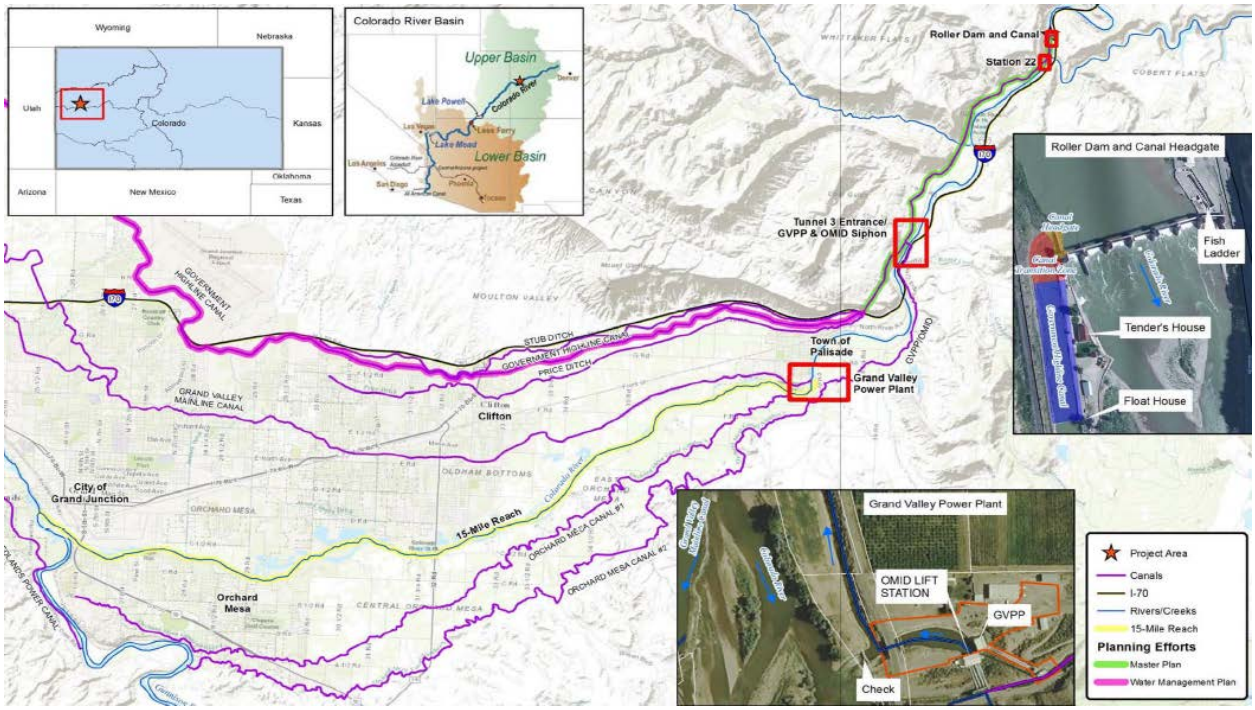
BORROWER TYPE		
Agriculture	*Municipal*	*Commercial*
90%	0% Low - 10% Mid - 0% High	0%

PROJECT DETAILS	
Project Type:	Ditch Rehabilitation
Average Annual Delivery:	260,000 AF



LOCATION			
County:			Mesa
Water Source:			Colorado River
Drainage Basin:			Colorado
Division:	5	*District:*	72

The Grand Valley Water Users Association (Association), is requesting funding for the Government Highline Canal Lining Project. The Association is the managing entity of the Bureau of Reclamation's Grand Valley Project. The Grand Valley Project facilities include the Grand Valley Diversion Dam (also known as the Roller Dam) on the Colorado River in De Beque Canyon, the 55-mile-long Government Highline Canal,150 miles of project operated laterals, 100 miles of drainage ditches, and a hydroelectric power plant. The embankment immediately below the Roller Dam is relatively narrow and separates the Government Highline Canal from the Colorado River. This section of canal was constructed around 1915. Over the last 100 years the embankment has slumped, settled and degraded. Occasional erosion within the embankment has led to material loss and sinkholes. As a result of canal degradation, water flow is restricted and the canal cross section has been reduced, causing a reduction in capacity of the canal channel. The canal is currently physically restricted to approximately 1,600 cfs while the water rights are for 1,730 cfs. To increase the capacity, the Association intends to improve first 500 feet of the canal. Permitting and final design are scheduled for completion by March 2017. Construction is anticipated in summer and fall of 2017.



COLORADO WATER CONSERVATION BOARD

WATER SUPPLY RESERVE ACCOUNT APPLICATION FORM

Today's Date: May 10, 2016

Grand Valley Project – Government Highline Canal Top 500 Feet Lining Project – Canyon Canal Improvement

Name of Water Activity/Project

Grand Valley Water Users Association (GVWUA)

Name of Applicant

Colorado River Basin Roundtable

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

Amount from Statewide Account: $285,000

Amount from Basin Account(s): $15,000

Total WSRA Funds Requested: $300,000

FEIN: 84-0402700

Application Content

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Water Rights, Availability, and Sustainability	page 10
Related Studies	page 10
Signature Page	page 12

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

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

1. Applicant Name(s): Grand Valley Water Users Association (GVWUA)

Mailing address: 1147 24 Road
Grand Junction, CO 81505-9639

FEIN #: 84-0402700

Primary Contact: Mark Harris Position/Title: General Manager

Email: mharris@gvwua.com

Phone Numbers: Cell: 970-261-1616 Office: 970-242-5065

Alternate Contact: Angie Fowler, SGM Position/Title: Project Manager

Email: angief@sgm-inc.com

Phone Numbers: Cell: 970-618-9973 Office: 970-384-9027

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

[ ] 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.

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

[X] 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.

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

3. Provide a brief description of your organization

The Grand Valley Water Users Association is the managing entity for a portion of the federally owned Grand Valley Project. These Grand Valley Project facilities include the Grand Valley Diversion Dam, also known as the Roller Dam, on the Colorado River in DeBeque Canyon, the 55-mile-long Government Highline Canal, 150 miles of project operated laterals, 100 miles of drainage ditches and a hydroelectric power plant. In recent years, approximately 130 miles of the laterals have been re-constructed into pressure piped laterals.

GVWUA first delivered water in 1917 to Reclamation's Grand Valley Project and since then has furnished a full supply of irrigation water to approximately 23,500 irrigated acres under the Government Highline Canal and over 15,000 irrigated acres under the Mesa County, Palisade, and Orchard Mesa Districts and diverts the water for the Grand Valley Power Plant year round. It is important to recognize that this project also supports the delivery of water to the urban and suburban populations in the Grand Valley.

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

Not Applicable

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.

Not Applicable

Water Supply Reserve Account – Application Form
Revised October 2013

Part II. - Description of the Water Activity/Project

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

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

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

This Canal Lining Project (Project) will address non-consumptive needs, including Recovery Program issues; environmental concerns; water supply and water rights issues, including significant quantities of Pre-Compact water; Compact compliance and related obligations; commercial agricultural use; as well as, urban, suburban, and municipal/industrial uses. This Project will also directly benefit Mesa County, Palisade, and Orchard Mesa Irrigation Districts. This Project is one of many that GVWUA has initiated using a collaborative approach in an effort to address the pressing issues facing all of these areas and those with the Colorado River. Sustains and facilitates the use of the Orchard Mesa Check Case.

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

	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)
	Length of Stream Restored or Protected (linear feet)
X	Length of Pipe/Canal Built or Improved (linear feet)
X	Efficiency Savings (**acre-feet/year** OR dollars/year – **circle one**)
	Area of Restored or Preserved Habitat (acres)
X	Other -- Explain: Canal lining; See #5 below

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

Latitude: 39.18897 Longitude: -108.28126

See also Exhibit B for Project Area Maps and Figures.

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.

The Grand Valley Water Users Association (GVWUA) is the managing entity for the federally owned Grand Valley Project. The Grand Valley Project facilities include the Grand Valley Diversion Dam, known as the Roller Dam, on the Colorado River in DeBeque Canyon; an attendant headgate diversion structure; five miles of Canyon Canal and related facilities, including endangered fish recovery facilities; the Stub Ditch pump station; the 55-mile-long Government Highline Canal; 150 miles of project laterals; 100 miles of drainage ditches; and the Grand Valley Hydroelectric Power Plant (GVPP) which is operated under a Lease of Power Privilege (LOPP) with Bureau of Reclamation (Reclamation). These facilities 1) provide irrigation water to Orchard Mesa Irrigation District (OMID), Palisade Irrigation District (PID), Mesa County Irrigation District (MCID) with combined acreages of over 15,000; 2) deliver water through GVWUA's Government Highline Canal which provides irrigation water to approximately 23,500 acres in the Gravity Division of the Grand Valley Project; 3) deliver water year round water to the 3.5 megawatt (MW) GVPP; and 4) maintain critical stream flows in the 15 Mile Reach of the Colorado River, which is critical habitat for four species of endangered fish.

GVWUA and OMID are proposing to improve the hydraulic efficiency of the top 500 feet of the Canyon Canal by installing a PVC liner and a shotcrete wear surface. These improvements are expected to result in the accommodation of at least 100 cfs more of the legal water rights adjudicated for this structure and increase the diversion ability and efficiency during times of river flow below 2,250 cfs. Significant project planning has been completed including design work and National Environmental Policy Act (NEPA) related compliance issues.

The overarching benefits realized through this project include, but are not limited to:

- **Complying with obligations to those that receive water from the Roller Dam: OMID, PID, and MCID; and the GVPP and with the Orchard Mesa Check case which benefits Grand Valley Irrig. Co. (GVIC).**
- **Allowing GVWUA to better maintain adequate flows in the 15 Mile Reach.**
- **Providing consistent and uniform delivery of water throughout the 50 mile Grand Valley system.**
- **Complying with contractual obligations of GVWUA to Reclamation for adequate O&M.**
- **Reducing Compact issues by supporting a sustainable balance between Lakes Powell and Mead.**
- **Helping implement provisions of the CRCA and benefits all of the signers.**
- **Staying above the power generation level in Powell benefits not just irrigation users, but all power users in the West.**
- **Supporting Colorado River recreation opportunities by moving irrigation water down the Grand Valley and beyond.**
- **Improving wildlife habitat through conservation of water at the Roller Dam and in the Colorado River.**

- **Supporting economic development in the Grand Valley via efficient irrigation water systems.**

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]

   This project is consistent with Section 37-75-102 of the Colorado Revised Statues.

   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.

   Pending CBRT approval and letter.

   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.

Pending CBRT approval and letter.

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 by 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)

Table 1 provides a breakdown of the proposed project budget (also included in Exhibit A).

Table 1. Summary of Project Funds.

Funding Sources	Funding Amount
Non-Federal entities	
GVWUA Cash	$42,000 (5.25%)
GVWUA In-Kind Services	$12,000 (1.50%)
Colorado Water Supply Reserve Account Loan	$150,000 (18.7%)
Colorado Water Supply Reserve Account Grant	$300,000 (37.5%) ($15,000 Basin Funds+ $285,000 Statewide Funds)
Non-Federal Subtotal:	$504,000
Other Federal Entities	
N/A	$0
Requested Reclamation Funding	
Requested Reclamation Funding (*Pending*)	$296,000 (37%)
TOTAL PROJECT FUNDING	$800,000

The Reclamation WaterSMART Grant for $296,000 is in the process of being secured. The application was submitted in January 2016. Notification of award is anticipated in June 2016. The Colorado Water Supply Reserve Account Loan for $150,000 has not formally been approved although funding staff at the CWCB have expressed interest in assisting GVWUA and have toured the facility this past summer. Should funding from the grants fall through additional funding sources may be approached and/or additional loan amounts will be requested from the CWCB.

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.**

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).

This Project supports commercial agriculture, benefits non-consumptive water users; and encourages collaborative solutions to water sustainability issues.

Commercial agriculture - While all of these efforts are of great value to multiple beneficiaries, the Grand Valley Project (GVP) continues to deliver significant volumes of water to commercial agriculture. The fresh fruit, vegetable, wine, nursery, corn, wheat, dry bean, seed, alfalfa, pasture grass, beef, and equine industries in the Grand Valley all depend upon reliable, consistent deliveries of irrigation water in face of the challenges of climate change, periods of drought, and population pressure. The efficiencies and flexibility gained by the Canyon Canal Improvement Project support the GVP's continued delivery of the most fundamental supporting input to production agriculture in the Grand Valley water.

Non-consumptive water uses - The Canyon Canal Improvement Project assures continued delivery of significant water to the 15 Mile Reach and beyond. The Grand Valley Project system has been successful in far exceeding the expected forgone diversions from the improvements that have been made to the system, while at the same time not reducing system deliveries. To continue to do will require increased attention to all facets of canal facilities, management, and operations in the future such as this Canyon Canal Improvement Project. These deliveries to the Colorado River through the 15 Mile Reach also benefit recreational use, wildlife habitat, and the beauty and overall aesthetic value of a large section of the Grand Valley that is receiving increasing attention from the community.

<u>Encouraging collaborative solutions to water sustainability issues</u> – GVWUA is working to address water supply sustainability in the face of changing demographic and environmental concerns exacerbated by increasing urbanization locally and regionally. Water conservation and the concerns over increasing pressure on water supplied by the Colorado River require that GVWUA stay ahead of the demands and plan for demographic changes and drought and climate changes.

GVWUA and OMID must blend the need for improvements to the Grand Valley Project and the needs and potential benefits of other resource and economic communities. By developing comprehensive, prioritized, flexible water management and facilities improvements GVWUA and OMID can protect the interests of the Grand Valley Project while expanding the number of water users who benefit from improvements in the facilities and operations of the Grand Valley Project. Such benefits may be of sufficient magnitude that they are of monetary value to others. Improved canal facilities, administration, and operations can lead to maximizing water availability for all the Grand Valley Project partners and beneficiaries. Maximizing effectiveness, efficiency, and stewardship of water management have long term positive benefits to the environment, recreation and irrigation users, and the economies and general social and civic well-being of the entire Grand Valley, and indeed the entire Colorado River system and those who rely upon it.

GVWUA and OMID want to continue their progress in incorporating their rights and responsibilities into the goals and objectives of Reclamation, the Colorado River Cooperative Agreement and other contractual and policy obligations, and of others who may be potential beneficiaries of improved water practices. They also want to prepare our organizations, and those who depend upon our productive management of the water resources in our trust, for the environmental, social, and political changes taking place in Colorado 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.

GVWUA, Reclamation, Recovery Program staff, OMID, PID, MCID, Grand Valley water users, Colorado Water Conservation Board, Colorado River Water Conservation District, and Colorado Basin Roundtable stakeholders coordinate regularly regarding the overarching needs of the Colorado River Basin both within Colorado and the entire Upper and Lower Basin system. The coordination focused on meeting the objectives of the various stakeholders, while realizing the importance of the Basin Study's action items, in addition to the Colorado Water Plan's objectives and needs. The design of this project is an attempt to take action on meeting the multiple objectives of the various stakeholders.

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.

The success of the Upper Canal Lining Project provides continued support for the protection of the Cameo Call and the Grand Valley Project facilities. The protection of the Cameo Call is viewed as a Top Basinwide Project as identified in the Basin Implementation Plan (BIP) of the Colorado Basin Roundtable and GVWUA has received funds to begin planning future upgrades to the Roller Dam and Canyon facilities to avoid a water-related conflict and litigation over Colorado River water availability and issues. The protection and maintenance of the Cameo Call is also critical for the success of the water banking and system conservation efforts discussed in other sections of this grant application.

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).

Funding from the Basin and Statewide Accounts will reduce the uncertainty that this Project will be implemented in that it will allow GVWUA and OMID to fund other rehabilitation needs of the Dam and Canyon facilities. It should also be noted that this Project was identified as the top need in the ongoing Dam and Canyon Facilities Master Plan project. The Master Plan is the first step to understanding the rehabilitation needs of the Dam and Canyon facilities which aims to: 1) identify and prioritize the rehabilitation needs (structural, cosmetic, additional hydropower potential, environmental, etc.) and 2) develop implementation plans for each prioritized need, specifically addressing the costs, funding opportunities, timeline, and list of potential teaming partners and sponsors. Implementation of this Project will support further rehabilitation of these facilities.

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.

The table below outlines the matching funds planned for this Project.

Funding Sources	Funding Amount
Non-Federal entities	
GVWUA Cash	$42,000 (5.25%)
GVWUA In-Kind Services	$12,000 (1.50%)
Colorado Water Supply Reserve Account (WSRA) Loan	$150,000 (18.7%)
Colorado Water Supply Reserve Account Grant	$300,000 (37.5%)
Non-Federal Subtotal:	$504,000
Other Federal Entities	
N/A	$0
Requested Reclamation Funding	
Requested Reclamation Funding	$296,000 (37%)
TOTAL PROJECT FUNDING	$800,000

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.

This Project supports commercial agriculture, non-consumptive, and sustainable solutions.

Commercial agriculture - While all of these efforts are of great value to multiple beneficiaries, the Grand Valley Project (GVP) continues to deliver significant volumes of water to commercial agriculture. The fresh fruit, vegetable, wine, nursery, corn, wheat, dry bean, seed, alfalfa, pasture grass, beef, and equine industries in the Grand Valley all depend upon reliable, consistent deliveries of irrigation water in face of challenges of climate change, periods, of drought, and population pressure. The efficiencies and flexibility gained by the Canyon Canal Improvement Project support the GVP's continued delivery of the most fundamental supporting input to production agriculture in the Grand Valley water.

Non-consumptive water uses - The Canyon Canal Improvement Project assures continued delivery of significant water to the 15 Mile Reach and beyond. The Grand Valley Project system has been successful in far exceeding the expected forgone diversions from the improvements that have been made to the system, while at the same time not reducing system deliveries. To continue to do will require increased attention to all facets of canal facilities, management, and operations in the future such as this Canyon Canal Improvement Project. These deliveries to the Colorado River through the 15 Mile Reach also benefit recreational use, wildlife habitat, and the beauty and overall aesthetic value of a large section of the Grand Valley that is receiving increasing attention from the community.

Encouraging collaborative solutions to water sustainability issues – GVWUA is working to address water supply sustainability in the face of changing demographic and environmental concerns exacerbated by increasing urbanization locally and regionally. Water conservation and the concerns over increasing pressure on water supplied by the Colorado River require that GVWUA stay ahead of the demands and plan for demographic changes and drought and climate changes.

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.

This Project provides water and water rights benefits to multiple parties. The efficient management and use of Grand Valley Project water protects a large volume of Pre-Compact rights, promotes Compact compliance, furthers Intrabasin agreements to which the State of Colorado is obligated, and improves reservoir management for the Historic Users Pool (HUP) in Green Mountain Reservoir and the efficient management of all related reservoirs on the Colorado system, while causing no damage to water rights and water users within or without Grand Valley Project. This Upper Canal Lining Project also supports and protects the Fish Recovery Program (see section h below for more information).

All water users within the Grand Valley Project (all Pre-Compact water rights) will benefit from the Canyon Canal Improvement Project. The Irrigation Districts are direct beneficiaries of the improved hydraulic efficiencies created. Via the Orchard Mesa Check Case Grand Valley Irrigation Company is the indirect beneficiary of increased Canyon Canal and related hydraulic efficiencies.

Local municipal providers will continue to have increasing benefits from a steady supply of irrigation water for their customers thus reducing the need for collection and treatment of increased amounts of domestic water.

Improved identification measurement, management, and stewardship of Project water supplies will help assist GVWUA in the search for productive solutions to the pressing problems created by population growth and climate change. The Canyon Canal Improvement Project supports continued and enhanced benefits for environmental interests, Recovery program objectives, wildlife, and those seeking to preserve the scenic beauty of the Colorado River.

Overall, this Project will reduce Compact issues by supporting a sustainable balance between Lake Powell and Lake Mead.

h. The water activity assists in the recovery of threatened and endangered wildlife species or Colorado State species of concern.

This Project will benefit the four endangered fish federally-recognized in the 15 Mile Reach of the Colorado River (

Table 2). This Project will directly support the recovery of threatened or endangered species or address designated critical habitats.

Table 2. Endangered Fish in the 15 Mile Reach.

Species	Listing
Colorado pikeminnow *Ptychocelius Lucius*	Endangered
Humpback chub *Gila cypha*	Endangered
Bonytail *Gila elegans*	Endangered
Razorback sucker *Xyrauchen texanus*	Endangered

Overall, this Project will allow GVWUA and OMID to better maintain adequate flows in the 15 Mile Reach to aid in the Colorado River Endangered Fish Recovery Program and to support and protect the current and continuing investments the state is making in the Program and to enable continued investments in the future.

i. The water activity provides a high level of benefit to Colorado in relationship to the amount of funds requested.

This water activity does provide a high level of benefit to Colorado as described in Criteria g above.

j. The water activity is complimentary to or assists in the implementation of other CWCB programs.

This Project is complimentary to many CWCB, regional and Colorado Basin system-wide planning efforts including, but not limited to:

- **Colorado Basin Implementation Plan (BIP) 2013 (https://www.colorado.gov/pacific/sites/default/files/CBIP-April-17-2015.pdf)**
- **Colorado Water Plan (CWP) 2015 (http://coloradowaterplan.com/)**
- **Colorado Drought Mitigation and Response Plan (DMRP) 2012 (http://www.usbr.gov/lc/region/programs/crbstudy.html)**
- **Colorado River Basin Water Supply and Demand Study (Study) under Reclamation's Basin Study Program 2013 (http://www.usbr.gov/lc/region/programs/crbstudy.html)**
- **GVWUA Water Management Plan 2015**
- **Reclamation's Sustainable Energy Mission 2012 (https://www.usbr.gov/power/Reclamation%20Sustainable%20Energy%20Strategy%20.pdf)**
- **Colorado River Cooperative Agreement 2013 (http://www.denverwater.org/SupplyPlanning/Planning/ColoradoRiverCooperativeAgreement/)**
- **Master Plan for the (BIP) Roller Dam Rehabilitation 2015**
- **GVPP Rehabilitation Project**

<u>Colorado Basin Implementation Plan (BIP) 2013</u>

The Colorado BIP identified how future municipal, industrial, agricultural, recreational and environmental water needs will be met through existing or new projects, policies, and processes to the year 2050. The CBRT members worked alongside citizens and Colorado River Basin stakeholders to identify top projects across the basin and within each of the seven subregions. Projection of the Cameo Call and rehabilitation of the Roller Dam and facilities was one of the top projects. This Project is one of the first steps in meeting the needs of the Colorado Basin users and protecting the Cameo Call.

<u>Colorado Water Plan (CWP) 2015</u>

The CWP is a roadmap that leads to a productive economy, vibrant and sustainable cities,

productive agriculture, a strong environment, and a robust recreation industry. It sets forth the measurable objectives, goals, and actions by which Colorado will address its projected future water needs and measure its progress—all built on our shared values. Just as it was created, this plan will be implemented by working collaboratively with the basin roundtables, local governments, water providers, other stakeholders, and the general public. It includes a set of policies and actions that all Coloradans and their elected officials can support and help implement. The benefits of this Project were realized through the process that developed the CWP.

Colorado Drought Mitigation and Response Plan (DMRP) 2012

Drought is real and the reality of water supply planning in the Project area. The DMRP was developed in response to drought conditions, Federal agencies and stakeholders throughout the Basin have been working together to find creative ways to reduce the effects of the drought on the people and resources that rely on water from the Colorado River. GVWUA is part of these conversations and efforts. The 2013 DMRP is incorporated into the Colorado Water Plan which is a blueprint for how to mitigate drought impacts. This Project was initiated as a result of these realizations (of drought) and the need to promote protection of the Cameo Call in light of the pending reality of less water.

Colorado River Basin Water Supply and Demand Study (Study) under Reclamation's Basin Study Program 2013

This Project meets the four actions that must take place to move closer towards implementing solutions to resolve imbalances in the Basin. These are summarized below:

- **First, significant uncertainties related to water conservation, reuse, water banking, and weather modification concepts must be resolved in order to adequately implement these approaches.**

  This Project promotes the implementation of this action by addressing the water efficiency and conservation of water diverted at the Roller Dam which will promote firming of water rights associated with the Cameo Call, which will provide benefits for and assist the Recovery Program, water quality improvements and water banking efforts.

- **Second, costs, permitting issues, and energy needs relating to large-capacity augmentation projects need to be identified and investigated through feasibility-level studies.**

  This Project promotes the implementation of this action through continued investigations and feasibility studies, specifically efforts to promote the capacity of the Grand Valley Power Plant and associated Canyon Canal and Power Canal

efficiencies.

- **Third, opportunities to advance and improve the resolution of future climate projections should be pursued and enhancements to the operational and planning tools used in the Colorado River system to better understand the vulnerabilities of the water-dependent uses, including environmental flows, should be explored.**

  This Project promotes the implementation of this action through its Water Banking conversations and improvements to the delivery of allocated water.

- **Fourth, as projects, policies, and programs are developed, consideration should be given to those that provide a wide-range of benefits to water users and healthy rivers for all users.**

  This Project promotes the implementation of this action through continued investigations and feasibility studies, active involvement in the Colorado Basin Roundtable and Statewide Colorado Water Plan implementation through the Water Management Plan, Master Plan, and GVPP projects.

GVWUA Water Management Plan

The goal of this WMP is to evaluate the prioritized facility needs and potential operational enhancements of GVWUA within the Gravity Division of the Grand Valley Project. This Project is addressing both the facility needs and considers the benefits of providing additional water via improve Canyon Canal efficiencies to the Grand Valley Project.

Reclamation's Sustainable Energy Strategy FY 2013-2017

Reclamation has developed six long-term strategic objectives to further Reclamation's Sustainable Energy Mission including Strategic Objective #1 – Increase Renewable Energy Generation from Reclamation Projects. This Project supports the objectives of this study through the continued rehabilitation of the GVP.

Colorado River Cooperative Agreement 2013

This agreement provides for:

- **Resolution of historic conflicts and a holistic approach to resolving Colorado water disputes.**
- **Cooperative, long-term efforts to improve the health of the Colorado River mainstem and its tributaries.**
- **Additional water supply for those who live, work and play on the West Slope and for customers of Denver Water.**

- **Complies with CRCA committments by signatories to engage in actions leading to improved water efficiency, conservation, and improved water resource stewadship.**

This Project aligns with the Colorado River Cooperative Agreement and GVWUA and OMID are both signatories to the agreement.

Master Plan for the (BIP) Roller Dam Rehabilitation 2015

The overall purpose of this project is to protect the water rights associated with the "Cameo Call" by outlining and prioritizing the rehabilitation needs of the Roller Dam and the portion of the Government Highline Canal immediately below the Roller Dam (collectively referred to as the 'Dam and Canyon facilities'). Exercise of these water rights and the continued operation of the Dam and Canyon facilities provide predictability to river flows and associated environmental and cultural benefits. These benefits include more reliable flows in the upper portions of the Colorado River which improves water quality in the lower portions of the basin. The flows generated by the Cameo Call help provide water for recreational activities on the Colorado River and for riparian habitat and aesthetic values along the entire Colorado River corridor. Flows generated by the Cameo Call also assist the state in complying with its obligations under the Colorado River Compact and in maintaining acceptable lake levels in Lake Powell.

The Dam and Canyon Facilities Master Plan is the first step to understanding the rehabilitation needs of the Dam and Canyon facilities which aims to 1) identify and prioritize the rehabilitation needs (structural, cosmetic, additional hydropower potential, environmental, etc.); and 2) develop implementation plans for each prioritized need, specifically addressing the costs, funding opportunities, timeline, and list of potential teaming partners and sponsors.

This Project is the first rehabilitation need being addressed as part of the Master Plan.

GVPP Rehabilitation Project

The purpose of the Grand Valley Hydroelectric Power Plant (GVPP) feasibility project is to restore the facility to an economically and operationally sustainable condition. The maximum production at the plant currently is limited to 3.5 MW due to the current interconnect and power sales agreements. Sorenson Engineering, Inc. was retained in 2015 to provide recommendations for increasing the maximum generation output from 2.75 MW to 4.1MW without requiring additional flows. The increased generation will be a result of the increased turbine and generator efficiencies, as well as the increased head on the power plant due to reducing the tailrace elevation by one foot. This project included collaboration among stakeholders including Reclamation, GVWUA, and OMID. The project is currently in the NEPA planning process and is anticipated to be constructed during the 2017-2018 winter season, concurrently with other Grand Valley Projects.

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.

This Project is expected to result in the accommodation of at least 100 cubic feet per second (cfs) more of the legal water rights adjudicated for this structure and increase the diversion ability and efficiency during times of river flow below 2,250 cfs.

The water rights of the Grand Valley irrigation systems that comprise the "Cameo Call" are diverted from the Colorado River and, along with the water rights of the Shoshone Hydropower Plant upstream near Glenwood Springs, control administration of the Colorado River basin within Colorado. The flows generated by the "Cameo Call" help provide water for recreational activities on the Colorado River and for riparian habitat and aesthetic values along the entire Colorado River corridor. Flows generated by the Cameo Call also assist the state in complying with its obligations under the Colorado River Compact and in maintaining acceptable lake levels in Lake Powell. Water rights comprising the Cameo Call are for irrigation; power and domestic use as described in Table 2. Irrigation water is tied to specific lands within the Grand Valley Project and provides full and supplemental service. The domestic water right is a small water right primarily used for livestock watering purposes during non-irrigation season and has not been needed to be used for several years.

GVWUA was a co-Applicant in Case No. 91CW247 ("Check Case"), District Court, Water Division. The other co-applicants were OMID and the United States. Details of the Check Case are available upon request.

All water users within the Grand Valley Project will benefit from better management of the Grand Valley Project, including the lining of the top 500 feet of the Canyon Canal. The Irrigation Districts will see additional benefits with this project as it aims to maintain the critical delivery of water to their users. The Grand Valley Irrigation Providers directly impacted by this project include:

- **Grand Valley Water Users Association**
- **Mesa County Irrigation District**
- **Orchard Mesa Irrigation District**
- **Palisade Irrigation District**

The Historical Users Pool (HUP) and Resevoir operations will potentially benefit from the Upper Canal Lining Project through improved management of hydriaulic enhancements to the Canyon Canal.

Table 3. Summary of Cameo Water Rights.

Owner	Amount (cfs)	Adjudication Date	Appropriation Date	Use
GVWUA/United States	730	7/22/1912	2/27/1908	Irrigation
GVWUA/United States	400/800	7/25/1941	2/27/1908	Hydro-electric Power
GVWUA/United States	220	7/25/1941	2/27/1908	Domestic & Livestock
Orchard Mesa Irrigation District	450	7/22/1912	10/25/1907	Irrigation
Orchard Mesa Irrigation District	10.2	7/22/1912	10/1/1900	Irrigation
Palisade Irrigation District	23.5	7/25/1941	6/1/1918	Irrigation
Palisade Irrigation District	80	7/22/1912	10/01/1889	Irrigation
Mesa County Irrigation District	40	7/22/1912	7/6/1903	Irrigation

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

The following provides a summary of the existing and expected agreements, easements, and permits for this project. Note some of this information is subject to change pending the NEPA process and cultural findings.

Existing Agreements

- **Lease of Power Privilege – GVWUA and OMID worked directly with Reclamation to obtain a LOPP and Funding Agreement from Reclamation**
- **Several Reclamation operation agreements**

Permits and Approvals

- **Environmental Assessment**

The Reclamation and GVWUA have developed a Memo of Understanding (MOU) detailing the identified environmental and regulatory compliance requirements. Due to the cultural sensitivities of the canal facilities additional cultural assessments may be required. Post July 1, 2015, a cultural assessment was conducted to assess the culturally sensitive areas with further cultural assessment work expected as the project nears final design and construction.

Depending on final design of the canal the Reclamation identified potential mitigation efforts may

be required on the historically significant features. Permitting with U.S. Army Corp of Engineers as well as habitat assessments remain as potential environmental components of the project and are currently in progress.

- **State of Colorado via Mesa County Building Permit for Electrical**

GVWUA is going to trench the overhead powerline as part of this project and will need to coordinate with Mesa County Building Department and the State of Colorado Electrical inspector as part of this activity.

Cultural Assessment

The results from a Class III project inventory conducted by Alpine Ecological Consultants, Inc. (2015) resulted in additional documentation to two linear sites and the rerecording of four, temporally associated structures that are now consolidated under one Smithsonian site number. This report is available upon request.

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 provide a detailed statement of work using the template in Exhibit A. Additional sections or modifications may be included as necessary. Please define all acronyms and include page numbers.

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: Mark Harris

Print Applicant's Name: Mark Harris

Project Title: General Manager, GVWUA

Date: May 13, 2016

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-STATEMENT OF WORK, BUDGET & SCHEDULE

GRAND VALLEY PROJECT - GOVERNMENT HIGHLINE CANAL TOP 500 FEET LINING PROJECT-CANYON CANAL IMPROVEMENT PROJECT
MESA COUNTY, COLORADO

Applicant
Grand Valley Water Users Association (GVWUA)
1147 24 Road
Grand Junction, Colorado 81505
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970-242-5065 (phone)
970-243-4871 (fax)

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1.0 Statement of Work

1.1 Executive Summary

Date: May 23, 2016
Applicant name: Grand Valley Water Users Association (GVWUA)
City: Grand Junction
County: Mesa
State: Colorado
Estimated Project Start: November 1, 2017
Project Length: 6-8 weeks
Estimated Project Completion: March 15, 2018 (no later than)

The Grand Valley Water Users Association (GVWUA) is the managing entity for the federally owned Grand Valley Project. The Grand Valley Project facilities include the Grand Valley Diversion Dam, known as the Roller Dam, on the Colorado River in DeBeque Canyon; an attendant headgate diversion structure; five miles of Canyon Canal and related facilities, including endangered fish recovery facilities; the Stub Ditch pump station; the 55-mile-long Government Highline Canal; 150 miles of project laterals; 100 miles of drainage ditches; and the Grand Valley Hydroelectric Power Plant (GVPP) which is operated under a Lease of Power Privilege (LOPP) with Bureau of Reclamation (Reclamation) (Figure 1 and Figure 2). These facilities 1) provide irrigation water for Orchard Mesa Irrigation District (OMID), Palisade Irrigation District (PID), Mesa County Irrigation District (MCID) with combined acreages of over 15,000; 2) deliver water through GVWUA's Government Highline Canal which provides irrigation water to approximately 23,500 acres in the Gravity Division of the Grand Valley Project; 3) deliver water year round water to the 3.5 megawatt (MW) GVPP; and 4) maintain critical stream flows in the 15 Mile Reach of the Colorado River, which is critical habitat for four species of endangered fish.

GVWUA and OMID are proposing to improve the hydraulic efficiency of the top 500 feet of the Canyon Canal by installing a PVC liner and a shotcrete wear surface. These improvements are expected to result in the accommodation of at least 100 cubic feet per second (cfs) more of the legal water rights adjudicated for this structure and increase the diversion ability and efficiency during times of river flow below 2,250 cfs.

Significant project planning has been completed including design work and National Environmental Policy Act (NEPA) related compliance issues.

The overarching benefits realized through this project include, but are not limited to:

- Complying with obligations to those that receive water from the Roller Dam: Orchard Mesa Irrigation District, Palisade Irrigation District, Mesa County Irrigation District, and the Grand Valley Power Plant and with the obligations of the Orchard Mesa Check case which also benefits Grand Valley Irrigation Company.
- Allowing GVWUA to better maintain adequate flows in the 15 Mile Reach to aid in the Colorado River Endangered Fish Recovery Program.
- Providing consistent and uniform delivery of water throughout the 50 mile Grand Valley delivery system.
- Complying with contractual obligations of GVWUA to Reclamation for adequate maintenance and operation.
- Reducing Compact issues by supporting a sustainable balance between Lake Powell and Lake Mead.
- Helping implement provisions of the Colorado River Cooperative Agreement and benefits all of the signers of that Agreement.
- Staying above the power generation level in Powell benefits not just irrigation users, but nearly all power users in the West.
- Supporting Colorado River recreation opportunities by moving irrigation water down the Grand Valley and beyond.
- Improving wildlife habitat through the ability to conserve water at the Roller Dam and in the Colorado River.
- Supporting economic and civic development of approximately 40,000 customers throughout the Grand Valley through effective and efficient irrigation water systems.

1.2 Project Background

The purpose of this project is to improve the hydraulic efficiency of the top 500 feet of the Canyon Canal by installing a PVC liner and a shotcrete wear surface immediately below the Roller Dam as part of an effort to improve the overall integrity of the canal and firm up the water rights associated with the Roller Dam. The embankment between the canal and Colorado River is degrading and sinkholes develop on occasion. Also, the left side of the canal (looking downstream) has sloughed and is thereby restricting flows. This section of canal has minimal freeboard and has overtopped in the past.

In addition to the direct economic benefits in supporting the agricultural economy of the Grand Valley, this project will promote the full exercise of the “Cameo Call” water rights, support the continued operation of the Roller Dam and canyon facilities, provide reliability to Colorado River flows in the Upper and Lower Colorado River Basins, provide for more efficient operation of the GVPP and the production of more renewable energy from that facility, provide benefits for endangered fish, and provide associated environmental and cultural benefits.

1.3 Water Delivery System

The Roller Dam diverts water into the Government Highline Canal for irrigation and hydropower purposes under very senior water rights that collectively make up the "Cameo Call" from the Colorado River. The irrigation water is provided to four irrigation entities: GVWUA and the Orchard Mesa, Palisade and Mesa County Irrigation Districts (Irrigation Districts), which provide irrigation water to approximately 39,000 acres of land in the Grand Valley. The hydropower water is used to produce hydropower at the GVPP, which has a capacity of approximately 800 cfs and a current electrical generation capacity of about 3.5 MW.

GVWA and OMID share in the cost of operation and maintenance of the Canyon Canal per a 1955 agreement, at 71.6% and 28.4%, respectively. Daily operation of the Roller Dam and canyon facilities are performed by GVWUA. OMID conducts the daily operations of its facilities and of the GVPP, with each organization paying one-half of the associated operation and maintenance cost of the GVPP.

Return flows from the GVPP return to the Colorado River at the head of the 15 Mile Reach, which helps maintain flows in that reach for the Colorado pikeminnow, Humpback chub, Bonytail, and the Razorback sucker, all listed as endangered fish (

Table 1).

There are no direct municipal uses associated with the water in the canal; however irrigation water is delivered to urban/suburban customers via the Irrigation Districts.

Table 1. Endangered Fish in the 15 Mile Reach.

Species	Listing
Colorado pikeminnow *Ptychocelius lucius*	Endangered
Humpback chub *Gila cypha*	Endangered
Bonytail *Gila elegans*	Endangered
Razorback sucker *Xyrauchen texanus*	Endangered

1.4 Project Need

The embankment immediately below the Roller Dam is relatively narrow and separates the Canyon Canal from the Colorado River. This section of canal was constructed between 1913 and 1915. Over the last 100 years of use the embankment has slumped, settled and degraded. Occasionally water has induced piping erosion within the embankment and led to material loss and sinkholes. This process further destabilized the area and most likely contributed to some of the slumping. Over the years, measures have been taken to control and prevent these processes from escalating. One such action which can still be observed is shotcrete lining along the side slope.

However, the movement of the bank continued and led to cracking and displacement of the shotcrete. These actions have resulted in a reduced canal cross section. In addition, the degraded shotcrete as well as displaced masonry stone and riprap has created a very rough surface which restricts water flow. The combination of the reduced cross section and roughened surface has created a “choke” in the flow in the canal (Figure 3 and Figure 4).

Measurements of the canal cross section were taken at several locations along the top 500 foot section. Manning’s formula was used to calculate theoretical flow values for a full canal and it verified readings being taken by GVWUA’s flow gauge. The canal is being restricted to approximately 1,600 cfs while the water rights are for 1,730 cfs. An additional 100 cfs to 150 cfs is needed to operate the new fish screen located downstream in the canal. Again using Manning’s formula, it was determined if the canal were returned to its original cross section and lined with shotcrete; it would be capable of conveying all of the water entitled to be diverted under the Cameo Call water rights and the water needed to operate the fish screen.

Another way of describing this is by looking at normal depth. Normal depth is the depth of water flow when it is continuous, uniform and steady. Again, Manning’s formula was utilized for computing the following information. The existing rough and reduced cross section has a normal depth of approximately 12 feet with 1,580 cfs water flow. If the cross section were returned to its original design and lined with shotcrete, the depth of flow for the 1,880 cfs (combination of the water rights and fish screen requirements) would result in a normal depth of just over 6 feet. However, it is important to consider other possible restrictions downstream which would induce a backwater effect. These other restrictions could produce a normal depth equal to the existing conditions even with the improved cross section, but by lining this area it would no longer be contributing to the reduction in flow.

Two conceptual designs were developed for the lining Project. Both designs would begin where the concrete transition structure of the Roller Dam ends. Both designs would end at the float-house structure approximately 500 feet downstream of the transition structure (Figure 5).

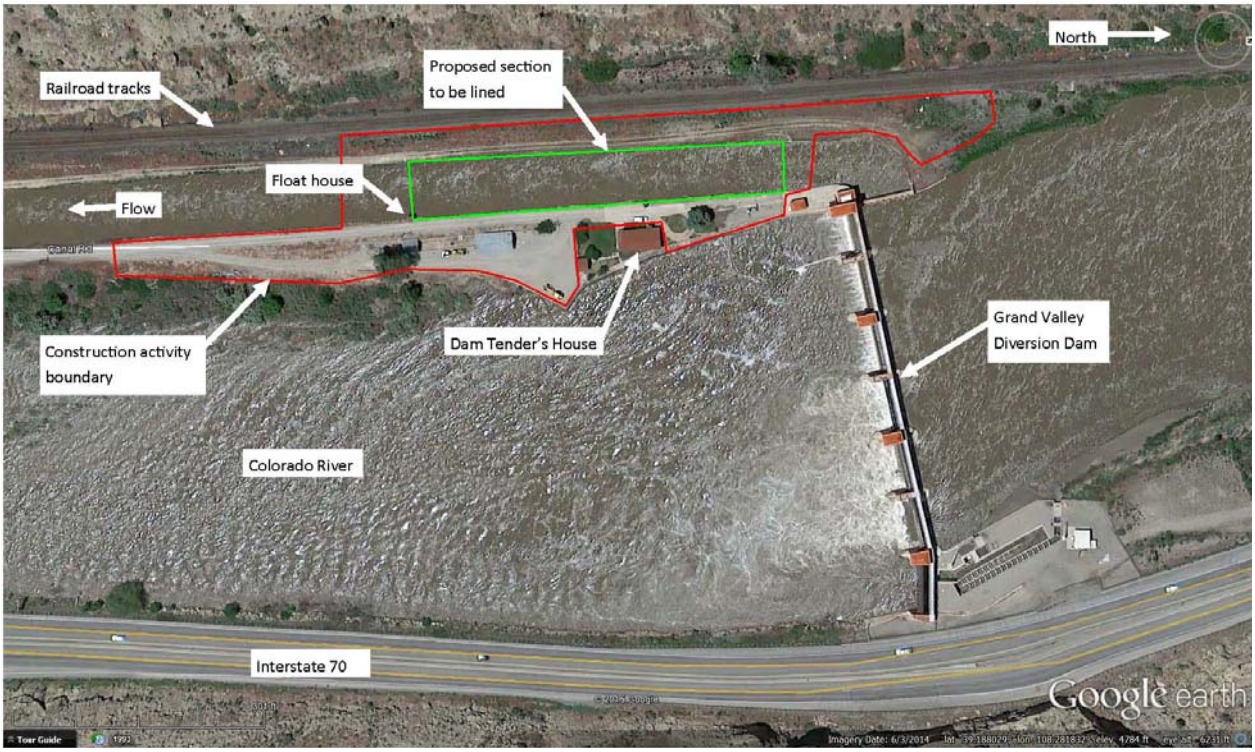


Figure 5. Aerial View of the Roller Dam (Grand Valley Diversion Dam) and Top 500 Feet of the Canyon Canal to be Lined.

1.5 Design Alternatives Considered

The first design alternative would involve returning the canal to its original shape with 1 ½:1 side slopes and a 38 foot bottom width. The unsuitable material would need to be excavated from the current prism for this to occur. Once suitable mineral soil is reached, free draining pit run material would be brought in and compacted to achieve the desired cross-section. A toe drain would be installed to control groundwater pressure. A liner would be installed consisting of 30-mil PVC with 10 ounce geotextile fabric on either side. A 3 inch thick layer of shotcrete would be placed onto the top layer of geotextile. The shotcrete will provide a wearing surface as well as ultraviolet protection for the liner. This type of lining has been utilized in other Reclamation projects and has an anticipated lifespan of at least 50 years.

The second design alternative would involve constructing a vertical retaining wall on the left side of the canal instead of a sloped side. The transition structure from the canal head gates to the earth lined section of canal has vertical walls. The transition from vertical walls to 1 ½:1 side slopes occurs where the proposed lining would begin. Therefore, the vertical section in the transition structure would be extended

for a majority of the first 500 feet. The bottom width and right side of the canal would be constructed as described in the first design. The advantage of having a vertical retaining wall on the left side would be to provide additional area at the top of the embankment between the canal and Colorado River for operation and maintenance activities (Figure 6 and Figure 7). Currently this area is challenging to maneuver in even with smaller vehicles. This design could provide up to 15 feet of additional width.

The shotcrete over liner with a 1 ½:1 side slope for the canal prism was the selected design. The same hydraulic improvements can be achieved, it is more cost effective, and 10 feet of additional embankment will be gained.

1.6 Electric Service

The electric service for the Roller Dam is currently comprised of poles with overhead lines. This creates additional complications for operation and maintenance activities. Therefore, GVWUA proposes to bury the electric service within the canal embankment during this Project.

2.0 Schedule

Table 2 provides the estimated schedule for this project.

Table 2. Canyon Canal Improvement Project Estimated Project Schedule.

	2015		2016				2017				2018	Milestones and Dates
Task	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	
Reclamation Coordination	■	■	■	■	■	■	■	■	■	■	■	
1. Secure Funding (Commitments)			■	■	■							Secure commitments; loan
2. NEPA Compliance	■	■	■	■	■	■	■					
Cultural Inventory and Survey	■	■										Class III Cultural Resource Inventory
- SHPO Review & Findings Concurrence		■	■	■								Concurrence
- ACHP Coordination and MOA				■	■							MOA
- Submit Cultural Mitigation Document					■	■	■					Approval
3. Final Project Design												
Survey				■	■							
Develop 100% CDs						■	■					
4. Develop Bid Package and Contract Documents							■	■				
Secure Contractor								■				
5. Permitting												
Electrical Permit							■	■				
6. Approval to Start Construction							■	■				
7. Construct Project									■	■		

3.0 Funding Plan and Project Budget

Non-federal cost share for the Project will be sought through a State funded loan through the CWCB, non-federal grants from the CWCB and GVWUA cash and in-kind contributions. GVWUA is contributing cost share to the project of $12,000 via in-kind contributions related to the development, implementation and management of the project. GVWUA cash contributions of $42,000 will be split between GVWUA and OMID at a ration consistent to the cost share agreement. OMID will be responsible for the $11,928 which will be allocated from their reserve accounts.

Table 3. Summary of Non-Federal and Federal Funding Sources.

Funding Sources	Funding Amount
Non-Federal entities	
GVWUA Cash	$42,000 (5.25%)
GVWUA In-Kind Services	$12,000 (1.50%)
Colorado Water Supply Reserve Account (WSRA) Loan	$150,000 (18.7%)
Colorado Water Supply Reserve Account Grant	$300,000 (37.5%)
Non-Federal Subtotal:	$504,000
Other Federal Entities	
N/A	$0
Requested Reclamation Funding	
Requested Reclamation Funding	$296,000 (37%)
TOTAL PROJECT FUNDING	$800,000

The Colorado Water Supply Reserve Account Loan for $150,000 has not formally been approved although funding staff at the CWCB have expressed interest in assisting GVWUA and have toured the facility this past summer. Should funding from the grants fall through additional funding sources may be approached and/or additional loan amounts will be requested from the CWCB.

Table 4. Funding Sources.

Funding Sources	Percent of Total Project Costs	Total Cost by Source
Recipient Funding	63%	$504,000
Reclamation Funding	37%	$296,000
Other Federal Funding	0%	$0
Totals	100%	$800,000

The numbers reflected in Table 5 represent Reclamation's design and project cost estimates.

Table 5. Sample Budget Proposal.

#	ITEM DESCRIPTION	QUANTITY	UNIT	EXPLANATION	$/UNIT	ITEM COST
1	Mobilization, Demobilization & Prepatory Work	1	LS		$35,000.00	$35,000
2	Water for Dust abatement	30	Day	1 off highway 6,000 gal water truck rented by the month and used 4hrs/day	$ 742.63	$22,279
3	Removal of water	1	LS	Providing, maintaining and attending pump for removing water in canal invert	$20,000.00	$20,000
4	Erosion control	2000	LF	Silt fence, polypropylene, 3' high	$ 2.24	$4,480
5	Excavation of canal - waste material	4000	CY	Muck in canal to be removed	$ 4.24	$16,960
6	Haul of waste material	4000	CY	Assume 10 CY truck @ 1 round trip/hr	$ 10.15	$40,600
7	Placing fill material	2900	CY	Placed fill material in canal prism and compact	$ 5.73	$16,617
8	Borrow Material	2900	CY	Material to be purchased and hauled from borrow source	$ 34.07	$98,803
9	Side slope compaction	10	Day	Excavator with Ho-pac, 8 hour day	$ 1,472.40	$14,724
10	Underdrain excavation	50	CY	Trench 1.5' x 1.5'	$ 13.54	$677
11	Underdrain geotextile	3800	SF	Placed in trench with overlapped top after filled with pipe and gravel	$ 0.30	$1,140
12	Underdrain perforated pipe	500	LF	Furnishing and laying 6" diameter perforated pipe for canal underdrain system	$ 8.54	$4,270
13	Gravel for canal underdrain system	50	CY	1/4" Chat	$ 48.80	$2,440
14	Daylight underdrain	1	EA		$15,000.00	$15,000
15	Furnishing and placing PVC lining (30 mil)	42000	SF	Furnishing and placing PVS lining	$ 0.75	$31,500
16	Geotextile - Upper layer	42000	SF	Furnishing and placing geotextile	$ 0.30	$12,600
17	Geotextile - Lower layer	42000	SF	Furnishing and placing geotextile	$ 0.30	$12,600
18	Shotcrete Lining	4120	SY	Shooting shotcrete on canal prism including material cost and labor (3" thick)	$ 36.44	$150,133
19	Gravel surfacing	670	SY	3" of crushed 3/4" gravel for road and surface on one side of canal, 12 ft wide	$ 5.95	$3,987
20	Safety Ladder	2	EA		$ 2,300.00	$4,600
					Construction Subtotal	$508,409
	NON-CONSTRUCTION COSTS					
21	Construction Management & Testing				10%	$ 50,841
22	Survey				0.5%	$ 2,542
23	Professional Assistance (legal, audit, and compliance)				2.5%	$ 12,710
24	Reporting				1%	$ 5,084
25	Construction Contingency				20%	$ 101,682
26	NEPA - EA (Habitat, Cultural, Mitigation, USACE Permitting)				5%	$ 22,878
27	Detailed Design Engineering				10%	$ 50,841
					Professional Services Subtotal	$ 246,578
28	Pre-Award Costs: NEPA - Enviornmental Assessment (Cultural)					$ 14,835
29	Pre-Award Costs: WaterSMART grant and securing additional funding - Consultants					$ 10,977
30	Pre-Award Costs: WaterSMART grant and securing additional funding - GVWUA					$ 7,200
					Pre-Award Subtotal	$ 33,012
31	In-Kind Service - GVWUA (Post Award)					$ 12,000
					Total Costs	**$ 800,000**

*Construction cost values were derived from RSMeans 2015 and have been indexed to 2017 construction dollars

GVWUA will bid the construction portion of the project to several prequalified construction companies. The contractual costs shown (Table 5) are estimates for each of the components to furnish and install all the equipment. Generally, the low bidder will be selected based on a determination of acceptable qualifications. The construction contractor will be hired to perform mobilization, erosion control, excavation of canal waste, shaping canal prism, excavating and installing an underdrain, furnishing and placing PVC lining and geotextile layer, and installing shotcrete lining.

Consultants will be secured for each of the non-construction costs including: Construction management & testing, Survey, Overhead & Project Management, Reporting, NEPA related efforts, and detailed design engineering.

3.1 Environmental and Regulatory Compliance Costs

The Reclamation and GVWUA have developed a pending Memo of Understanding (MOU) detailing the identified environmental and regulatory compliance requirements. Due to the cultural sensitivities of the canal facilities additional cultural assessments may be required. Post July 1, 2015, a cultural assessment has begun to address the culturally sensitive areas with further cultural assessment work expected as the project nears final design and construction.

Depending on final design of the canal the Reclamation identified potential mitigation efforts may be required on the historically significant features. Permitting with U.S. Army Corp of Engineers as well as habitat assessments remain as potential environmental components of the project.

A total of 5% of the construction costs has been budgeted for environmental and regulatory compliance associated with the project which is approximately $22,878 of the project costs. Pre-Award costs already spent by consultants to address the environmental and regulatory compliance total to $14,835. Pre-Award costs by GVWUA staff in addressing the environmental and regulatory compliance has not been included in the project costs and are over and above the identified project budget.

3.2 Other Expenses

Professional assistance will be required to address legal, audit and compliance matters related to the project. All assistance related to this task will be through the use of consultants. The budgeted amount for professional assistance is 2.5% of the construction costs for a total of $12,710.

3.3 Indirect Costs

No indirect costs have been identified with this Project.

3.4 Total Costs

Total project cost for construction and implementation is $800,000 of which $504,000 will be supplied by non-Federal sources and $296,000 will be supplied through the Federal WaterSMART Grant (pending approval).

EXHIBIT C – LETTERS OF SUPPORT

Palisade Irrigation District
Colorado River Water Conservation District
The Nature Conservancy
Orchard Mesa Irrigation District Board of Directors
GVWUA Board of Directors

PALISADE
IRRIGATION DISTRICT

777 35 3/10 Road, Palisade, CO 81526
970-464-4700 / Fax 970-464-1337

January 11, 2016

Bureau of Reclamation
Attn: Ms. Janeen Koza
Mail Code: 84-27852
P.O. Box 25007
Denver, Colorado 80225

Dear Ms. Koza,

The Palisade Irrigation District is pleased to voice our support of the Grand Valley Water Users Association's (GVWUA) and Orchard Mesa Irrigation District's (OMID) application to the WaterSMART: Water and Energy Efficiency Grants for FY 2016 for the Government Highline Canal (Canyon Canal) Top 500 Feet Relining Project in Mesa County, Colorado. The Canyon Canal supplies water to our District and this project will help improve the reliability of our junior water right by improving the hydraulic efficiency of the top 500 feet of the Canyon Canal. Palisade Irrigation District has engaged in significant project planning and stakeholder involvement in support of the project.

This project will allow other downstream water users within the Grand Valley Project and the Upper Colorado Basin the opportunity to fulfill the commitment to the Colorado River Cooperative Agreement (CRCA). Our District supports the GVWUA and OMID in their dedication to improve water use efficiency on the Colorado River.

Sincerely,

/Dan Crabtree/, Superintendent
Palisade Irrigation District

Office – PID – date\Office\Letterhead - 2015

Colorado River District
Protecting Western Colorado Water Since 1937

January 13, 2016

Bureau of Reclamation
Attn: Ms. Janeen Koza
Mail Code: 84-27852
P.O. Box 25007
Denver, Colorado 80225

Dear Ms. Koza:

On behalf of the Colorado River Water Conservation District (River District), I am pleased to write in support of Grand Valley Water Users Association's (GVWUA) and Orchard Mesa Irrigation District's (OMID) application to the WaterSMART: Water and Energy Efficiency Grants for FY 2016 for the Government Highline Canal (Canyon Canal) Top 500 Feet Relining Project in Mesa County, Colorado. This project will allow the GVWUA and OMID to improve the hydraulic efficiency of the top 500 feet of the Canyon Canal by installing a new PVC liner and a shotcrete wear surface, potentially resulting in the accommodation of at least 100 cubic feet per second (cfs) more of the legal water rights adjudicated for this structure, ultimately increasing the diversion ability and efficiency during times of river flow below 2,250 cfs. Significant project planning and stakeholder involvement has been conducted to date including design work and NEPA related coordination with the Bureau of Reclamation (BOR).

This project will help inform the BOR and allow downstream water users within the Grand Valley Project and within the Upper Colorado Basin the opportunity to fulfill the commitment to the Colorado River Cooperative Agreement (CRCA) as well as its agreements with the BOR. The River District supports the GVWUA and OMID in their dedication to address the water needs of our area.

Sincerely,

Daniel R. Birch, P.E.
Deputy General Manager

201 Centennial Street / PO Box 1120 • Glenwood Springs, CO 81602
(970) 945-8522 • (970) 945-8799 Fax
www.ColoradoRiverDistrict.org

The Nature Conservancy
Colorado River Program
2424 Spruce St.
Boulder, CO 80302

nature.org/coloradoriver

January 16, 2016

Bureau of Reclamation
Attn: Ms. Janeen Koza
Mail Code: 84-27852
P.O. Box 25007
Denver, Colorado 80225

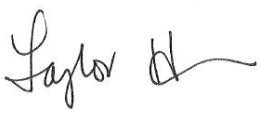
Dear Ms. Koza,

The Nature Conservancy is pleased to write in support of Grand Valley Water Users Association's (GVWUA) and Orchard Mesa Irrigation District's (OMID) application to the WaterSMART: Water and Energy Efficiency Grants for FY 2016 for the Government Highline Canal (Canyon Canal) Top 500 Feet Relining Project in Mesa County, Colorado.

Modernizing how agricultural water is used and managed is an important goal of the Conservancy's work in the Colorado River Basin, and this project will allow the GVWUA and OMID to significantly improve their system. Furthermore, the Conservancy has been engaged with GVWUA and OMID in a multi-stakeholder planning process that has identified and prioritized repairs and improvements to the Government Highline Canal.

Continued improvements to the Government Highline Canal support efforts to maintain and improve river flows in the 15-mile reach, a critical stretch of river for the endangered fish species. This project will also help inform the BOR and allow downstream water users within the Grand Valley Project and within the Upper Colorado Basin the opportunity to fulfill the commitment to the Colorado River Cooperative Agreement (CRCA) as well as its agreements with the BOR. The Conservancy is committed to working in partnership to meet the water needs of both people and nature and fully supports the GVWUA and OMID in their dedication to address the water needs of the area.

Sincerely,



Taylor Hawes
Director, Colorado River Program

OFFICIAL RESOLUTION

RESOLUTION NO. 2016 – 202

Grand Valley Water Users Association

NOW THEREFORE, BE IT RESOLVED that the Board of Directors of Grand Valley Water Users Association has approved the application for funding from the Colorado River Conservation District for the Improvement of the Top 500' of the Canyon Canal (Canyon Canal Improvement Project) of the Government Highline Canal.

Dated: Feb 11, 2016 Joseph C. Bard president

D. Kim Albertson Sec.

Authorized Signature(s)

RESOLUTION

At a duly called special meeting of the Board of Directors (the "Board") of Orchard Mesa Irrigation District (the "District"), held on February 11, 2016, the Board adopted the following Resolution:

RECITALS

A. The District operates and manages the Orchard Mesa Division of the Grand Valley Project, a federal reclamation project.

B. The District's water rights are diverted from the Colorado River primarily at the Grand Valley Diversion Dam, also known as the Roller Dam. Once diverted, the District's water flows in a canal known as the Canyon Canal to a siphon under the Colorado River and into the Orchard Mesa Power Canal. The Grand Valley Water Users Association ("GVWUA") operates and manages the Gravity Division of the Grand Valley Project and operates the Roller Dam for the benefit of the Orchard Mesa and Gravity Divisions.

C. The top 500 feet of the Canyon Canal is in need of significant improvements. The District and GVWUA desire to obtain a grant from the Colorado River Water Conservation District ("River District"), in the amount of $50,000 to help fund the Grand Valley Project - Government Highline Canal Top 500 Feet Project in Mesa County, Colorado (the "River District Grant").

NOW, THEREFORE, the Board of Directors of the District resolves as follows:

1. The Manager of the District is authorized to execute and submit an application on behalf of the District, as a co-applicant with GVWUA, to the River District for the River District Grant, and to execute all additional documents and take all further actions as may be necessary to process such application to conclusion.

THIS RESOLUTION has been passed, approved and adopted as of the date set forth above.

ORCHARD MESA IRRIGATION DISTRICT

ATTEST:

Bobbie Talbott
Secretary, Board of Directors
for secretary

Bruce Talbott
President, Board of Directors

RESOLUTION

At a duly called special meeting of the Board of Directors (the "Board") of Orchard Mesa Irrigation District (the "District"), held on February 11, 2016, the Board adopted the following Resolution:

RECITALS

A. The District operates and manages the Orchard Mesa Division of the Grand Valley Project, a federal reclamation project.

B. The District's water rights are diverted from the Colorado River primarily at the Grand Valley Diversion Dam, also known as the Roller Dam. Once diverted, the District's water flows in a canal known as the Canyon Canal to a siphon under the Colorado River and into the Orchard Mesa Power Canal. The Grand Valley Water Users Association ("GVWUA") operates and manages the Gravity Division of the Grand Valley Project and operates the Roller Dam for the benefit of the Orchard Mesa and Gravity Divisions.

C. The top 500 feet of the Canyon Canal is in need of significant improvements. The District and GVWUA desire to obtain a WaterSmart grant from the U.S. Department of the Interior, Bureau of Reclamation ("Reclamation"), in the amount of $296,000 to help fund the Grand Valley Project - Government Highline Canal Top 500 Feet Lining Project – Canyon Canal Improvement Project in Mesa County, Colorado (the "WaterSmart Grant").

NOW, THEREFORE, the Board of Directors of the District resolves as follows:

1. The Manager of the District is authorized to execute and submit an application on behalf of the District, as a co-applicant with GVWUA, to Reclamation for the WaterSmart Grant, and to execute all additional documents and take all further actions as may be necessary to process such application to conclusion.

THIS RESOLUTION has been passed, approved and adopted as of the date set forth above.

ORCHARD MESA IRRIGATION DISTRICT

ATTEST:

Bobbie Talbott
Secretary, Board of Directors
for secretary

Bruce Talbott
President, Board of Directors

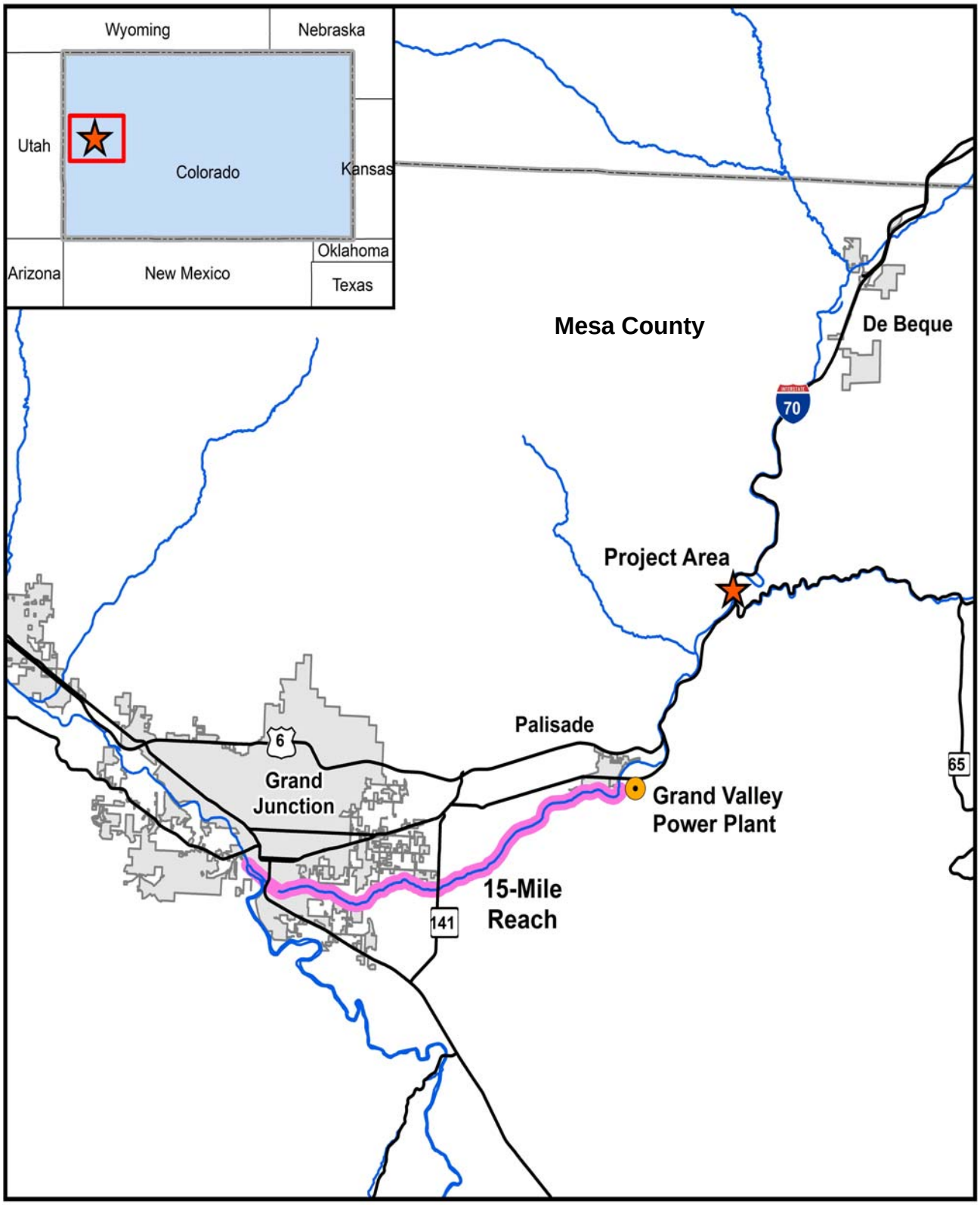


Figure 1. Project Geographic Location.

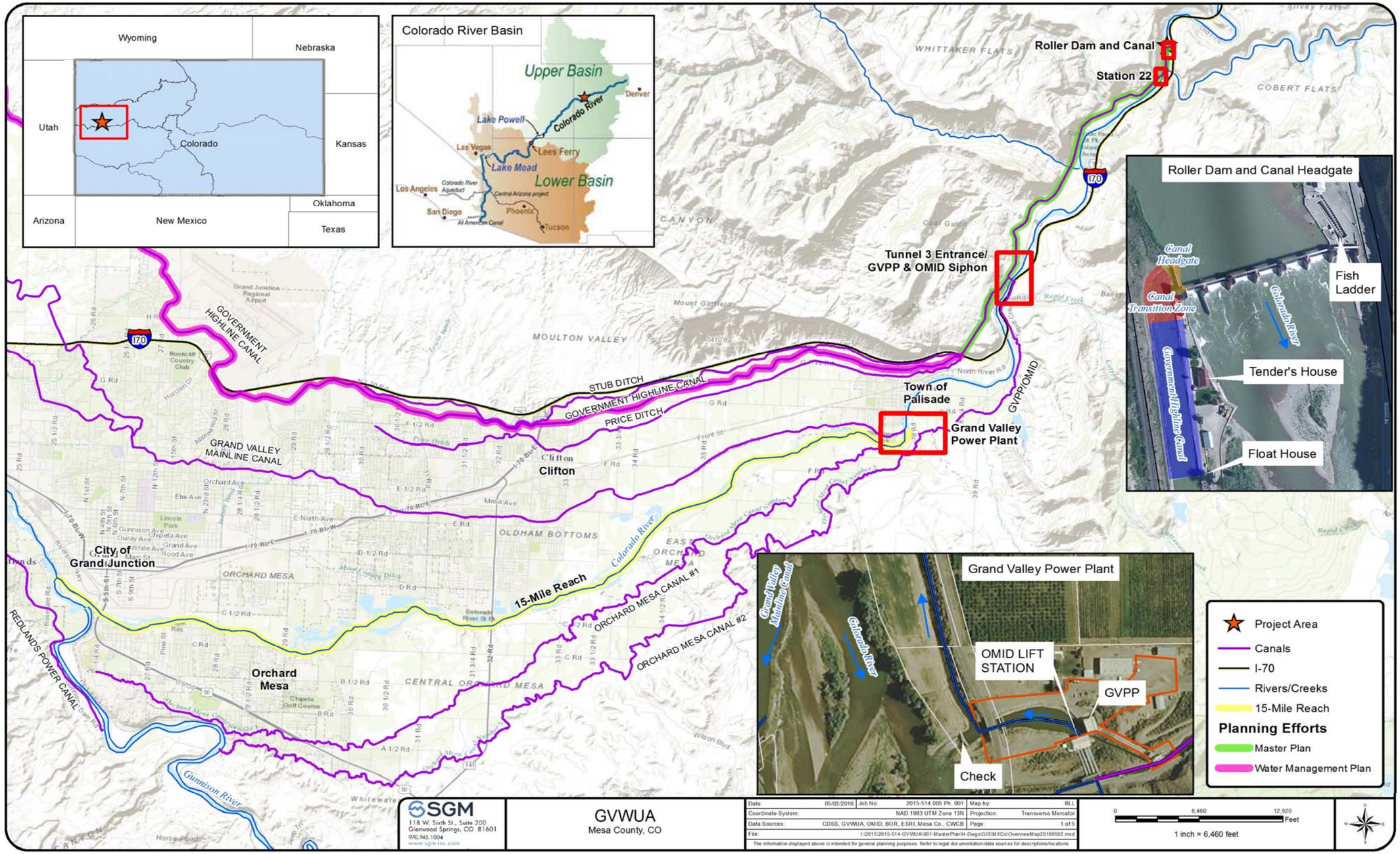


Figure 2. Project Area Map.

Figure 3. General setting and existing condition of the top 500 feet of the Canyon Canal; looking down canal.

Figure 4. General setting and existing condition of the top 500 feet of the Canyon Canal; looking down canal.

Figure 6. Aerial View of the Canal Section with Varying Widths (Excerpt from Reclamation Drawing, 2015).

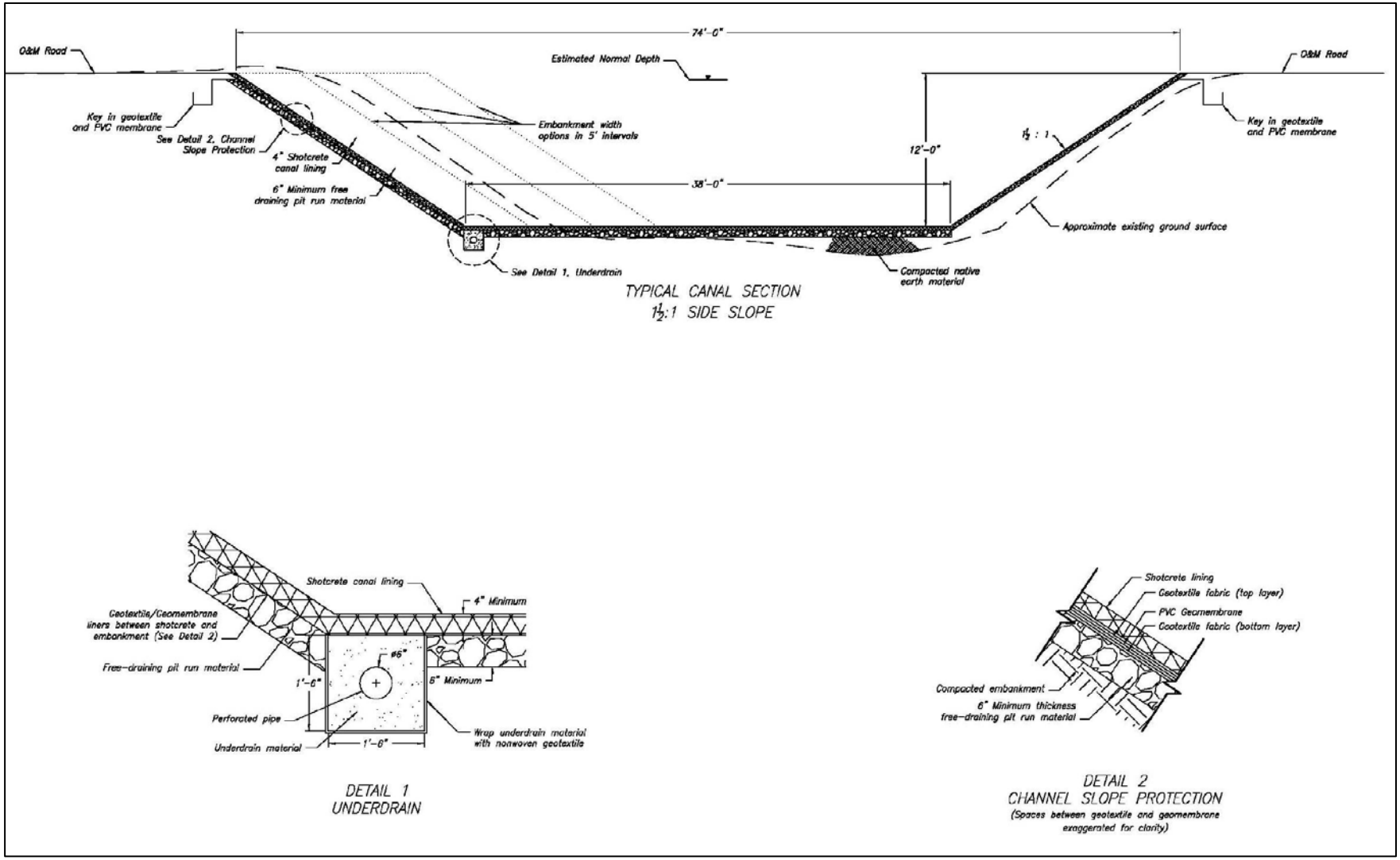


Figure 7. Typical Section for Proposed Canal Alternatives (Excerpt from Reclamation Drawing, 2015).