Bureau of Reclamation
WaterSMART Grants:
Small-Scale Water Efficiency Projects, 2017

Galena Groundwater District (original applicant was water district 37/37M)

The Wood River Basin, Idaho

Water Measurement and Conveyance projects prioritized by water users and the Wood River Water Collaborative

Submitted by:

Galena Groundwater District (revised applicant)
206 Sunrise Drive
Sun Valley, Idaho 83353
Phone: (208) 481-2566

Table of Contents

Executive Summary

January 17, 2018 (original submission) March 11, 2017 (re-submit with new applicant)
Applicant: Pat McMahon, Chairman, Galena Groundwater District
Blaine County, Idaho (project takes place in Lincoln and Shoshone counties)

Galena groundwater district are applying for a small-scale water efficiency grant in partnership with the Wood River Water Collaborative. The Wood River Water Collaborative (WRWC) consists of over seventy diverse water users that came together at a critical juncture in our basin's 140-year water history to address decreasing water supplies and increasing demand. Work funded by this proposal will set the stage for water projects

outlined in an anticipated settlement term sheet agreed upon by water users. Over the past decade as ground and surface water supplies in the Wood River watershed have steadily declined, consumptive ground water use has increased and conflicts between ground and surface water users increased. The Wood River Water Collaborative is participating in an effort to develop a "term sheet" which would outline commitments from all water users to, in various ways, reduce water demand and improve water management. Funding from this grant would be used for: 1.) automated and real time irrigation water flow measurement to improve water delivery, 2.) a water delivery/conveyance project that would keep approximately 10 cfs in the river to be delivered to downstream senior water users.

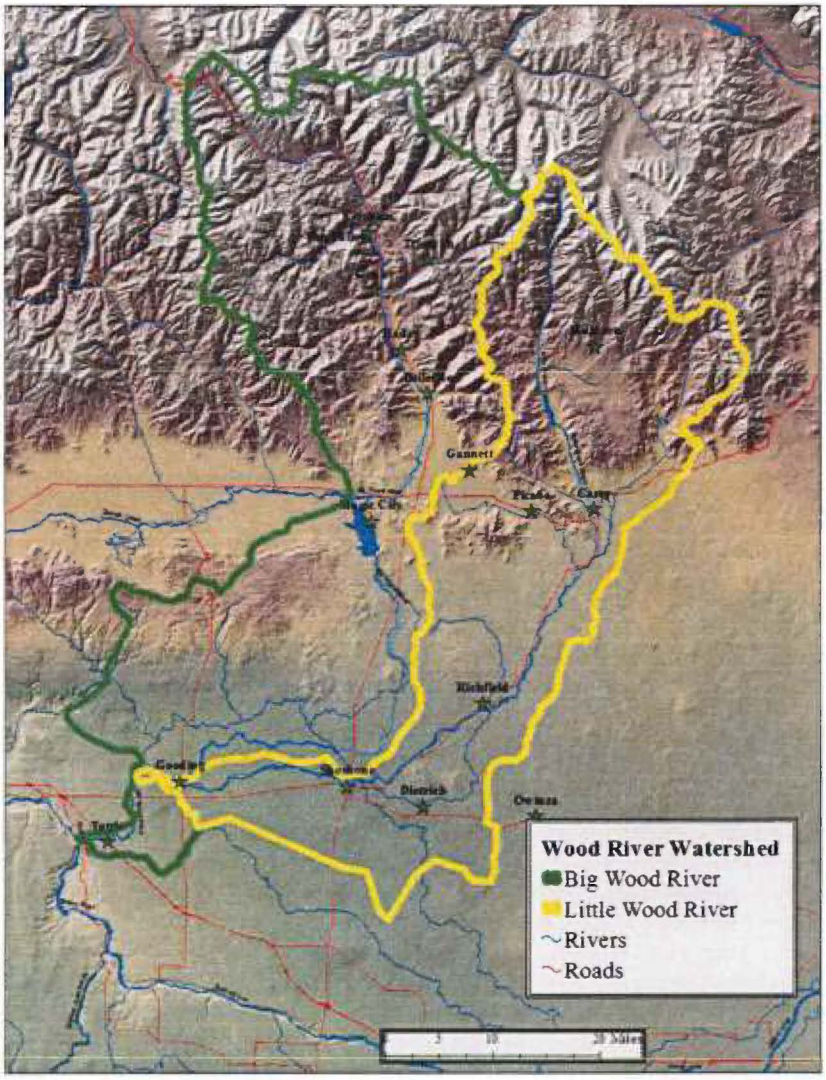
This project would begin in the spring of 2017 with the installation of measurement devices and conclude in the fall of 2017 with the final stream work completed prior to the 2018 irrigation season. The project is not located on a Federal facility.

Background Data

Narrative Description of Watershed

The Big Wood basin comprises approximately 3,000 square miles ranging in elevation from 8,700 feet at Galena summit near its headwaters to 3,500 feet before reaching its confluence with the Malad River. It includes the Big Wood, Little Wood, and Silver and Camas Creek sub basins. The entire basin is situated in a high desert environment receiving approximately 26 inches of annual precipitation in the higher elevations and as little as 8 inches in the lower elevations. The majority of land cover is sagebrush steppe or grasslands with a portion of developed land consisting of approximately 120,000 acres of irrigated land; a majority of which is farm and ranch land.

The watershed can be separated into 3 main parts. The upper watershed is a relatively narrow valley with a maximum width of 2 miles. This part of the watershed is very developed and supports a robust recreation and tourism economy reliant upon groundwater supplies to meet the majority of water demand. The middle watershed opens into a broad alluvial fan consisting of irrigated farmland and Silver Creek, a blue ribbon spring fed trout fishing destination. In this section of the watershed water is split between the Silver Creek aquifer and the Big Wood River above Magic reservoir. The lower watershed is dotted with small communities and the majority of the farmland in the watershed.



(Note: Cities of Sun Valley, Hailey and Bellevue are in the northern reach of the watershed).

Water Supply

Mountain snowpack is the primary source of water supply for the rivers, streams, and aquifers which support fish, wildlife, and human needs throughout the watershed. As water flows from the upper watershed into the middle section of the basin a significant proportion of this water seeps into the ground and gives rise to Silver Creek, a primary tributary to the Little Wood River. Remaining flow in the Big Wood River, along with Camas Creek, are captured as surface water storage in Magic Reservoir. During the irrigation season surface flow in the Big Wood River below Magic Reservoir is limited to an approximate 2-mile reach. Its entire flow is then diverted by the Richfield Canal and allocated to meet water demand for area farmers.

Water Right Administration

Surface water affected by this Grant is allocated to water users with water rights administered by Water District 37/37M and the Big Wood Canal Company (BWCC). Water District 37 encompasses the Big Wood River and its tributaries other than Camas Creek. Water District 37M encompasses Silver Creek and all of its tributaries and the lower Little Wood River and all of its tributaries. Both river systems (Big and Little Wood) come together to form the Malad River, which is a tributary to the Snake River. Water Districts (37 & 37M) are managed by the Basin 37 water master. Storage water from Magic Reservoir is managed and allocated by the Big Wood Canal Company and services water users in the lower-most areas of the watershed. There are two groundwater districts in the area, the South Valley Groundwater district which includes groundwater users in the Bellevue triangle (Gannett and Picabo area on map) area and the Galena groundwater district which includes groundwater users from Bellevue north to Sun Valley.

The majority of water is used for agricultural irrigation throughout the watershed with a smaller portion dedicated to municipalities, subdivisions, and recreational uses in the upper watershed. In the upper and middle portion of the watershed over half of the irrigation water applied is surface water delivered via typical surface water low head diversions and a network of irrigation canals; surface water use is supplemented and in some cases supplanted entirely by groundwater pumping. This contrasts sharply with the lower watershed where 95% of the water used is surface water either from storage or natural flow.

The lower watershed receives its water either by Magic Reservoir which is filled by runoff from Camas Creek and the Big Wood River or by surface flow from the Little Wood River. The primary crops cultivated include alfalfa, irrigated pasture, corn and barley. To a lesser extent other crops include malting barley, wheat, potatoes and sugar beets. There are also some industrial uses of water within Water Districts 37 & 37M, but much of the industrial use is non-consumptive. Over the last 5 years, total water use in Water District 37 & 37M has peaked at around 437,000 acre feet per year. he last five years have been below average in water supply, but even in the best water years, water users are curtailed because of insufficient supply.

Lingering water shortages has led to conflicts between lower watershed surface water users and upper watershed ground water users. The downstream surface water users have filed a water call with the Idaho Department of Water Resources to curtail groundwater pumping in the upper watershed to meet senior downstream demand. This has led to litigation and caused much anxiety throughout the watershed.

As a result of these challenges the Conservancy and its partners established the Wood River Water Collaborative (WRWC) in 2015 to create an improved water management system

and develop relationships and relevant projects to resolve water conflicts. The objective of the WRWC is to create a process to resolve limited water supply demands while preserving community values which include – preserving safe, clean drinking water to meet the needs of the watersheds; ensuring sustainable water use for farming and ranching; and conserving riparian and river habitat for fish and wildlife that rely on the Big Wood River and Silver Creek. The means for achieving this objective include providing tools for water managers and creating incentives for water users to change the way they utilize and think about the basin's water resources.

Silver Creek and Little Wood System

Silver Creek is a unique high desert spring creek system known worldwide for its fishing and other wildlife and scenic values, surrounded by fertile agricultural ground in the Wood River Watershed. Silver Creek flows into the adjacent Little Wood Watershed and the Little Wood River itself. For decades, conservation groups (primarily the Land Trust and The Conservancy) have worked with local communities and farmers on restoration efforts, modifying agricultural practices and establishing conservation easements to protect this unique resource. These efforts have benefited the area's wildlife habitat, improved water quality, and increased land values. Despite this success, a recent study commissioned by The Conservancy also suggests that Silver Creek's health remains threatened by a wide range of stressors, including high summer water temperatures directly related to decreased flows.

The Big Wood River

The Big Wood River originates from snow pack in the upper valley and flows down valley, exiting to the west (on the west side of the geologic divide, Silver Creek is the east side) into Magic Reservoir. The river also attracts visitors from all over the world because of its scenic beauty and robust fishery, and its proximity to the resort towns of Sun Valley and Ketchum, Idaho. The Big Wood above Magic reservoir is primarily impaired by habitat conditions rather than low flows. The loss of proper floodplain function has resulted in increased lateral channel erosion and sedimentation. In addition, existing rock sills and bank armoring (riprap) maintain reduced aquatic habitat conditions and inappropriate channel form" (Biota 2016).

Project Description

This project will address two major problems in the water delivery system for the Big and Little Wood watershed. The first one is that junior water users are being curtailed in the peak season when water is indeed available because of lower downstream demand and senior water users shutting off the junior user's irrigation. Because there are few measuring devices, and even fewer real time devices, the water master is not immediately aware of this imbalance. If he were aware that the downstream need was being met; he could continue delivering water to the more junior users upstream.

Second, there is a section of Silver Creek where the banks have eroded and water is spilling from the stream channel into old agricultural fields creating wetland conditions year round; including during the middle of the summer when most area wetlands are dry and downstream water demand is high. The flooded areas are located near the Craters of the Moon landscape where old lava tubes and porous geology are common. The water leaves the creek, floods the fields, and disappears into the ground. It is estimated that approximately 10 cfs of flow lost in this reach. Our proposal is to repair the banks of Silver Creek to keep water in the river using wood revetments and native shrubs providing cover for shading, decreasing stream temperature, increasing dissolved oxygen benefiting the fishery. Concurrent goals are to repair the riparian area for habitat and long term stability and to install weirs to allow for seasonal flooding of the wetlands. This would maintain the riparian and wildlife habitat while providing downstream irrigation water to the users during the peak irrigation season.

Needs:

We will be installing seven double ultrasonic water pressure sensors with dual data loggers and single cell modems, seven Seametrics devices and repairing one old submerged orifice in the Little Wood River at fifteen different locations. These devices will allow for instantaneous flow readings available on line, twenty-four hours a day. This will allow for much better water allocation by the Water master.

For the Hwy 93, Silver Creek project, we will be repairing approximately 2,200 feet of bank that has degraded over time. We will be planting riparian vegetation to stabilize the banks along approximately 3,200 feet of bank. We will be installing weirs to ensure the existing wetlands are maintained during the spring and the fall when wetland habitat is most crucial. Preliminary flow measurements have been taken above and below the site that indicates approximately 6-10 cfs is lost through this reach of Silver Creek. While the primary goal of this project is irrigation water delivery, we are proposing to enhance the riparian areas in order to ensure the long term health of the entire Silver Creek system. Preliminary engineering designs are complete but will be modified in the spring of 2017 once wetland delineation and habitat assessments are complete.

Expected outcomes:

Measurement outcome: In a two-week period during August at the height of water use and need, it is estimated that if immediate flow measurements were readily accessible, water would be available between 7-10 days more often for junior water users. In addition, this will add reliability to Little Wood water rights, taking pressure off of American Falls Reservoir (a Bureau of Reclamation facility) where many junior water users find supplemental water during times of curtailment.

Hwy 93 Silver Creek outcome: An additional 10 cfs in Silver Creek would be kept in-stream enhancing fish, wetlands, and wildlife habitat and increasing water delivery to Little Wood irrigators.

Combined outcomes: Combining real time measurement capabilities with enhanced water delivery will provide more reliable water for senior and junior users.

Environmental issues and cultural resources

Overall-allocation of water for agricultural, municipal and industrial use can severely deplete stream flow, degrading aquatic and riparian ecosystems, impacting wildlife and fisheries, and posing economic risks to sectors that depend on reliable water supplies. The springs at Silver Creek and the Big and Little Wood Rivers have been severely impacted by over-allocation. Voluntary water transactions, automated head gates, telemetry, habitat restoration, water management changes and water agreements all present significant opportunities to increase in-stream flows and restore and enhance water supply reliability within the prior appropriation system.

The work conducted on Silver Creek will follow an erosion control plan, the surrounding air and water will not be adversely effected. There are no endangered or listed species near the project site with the exception of Sage Grouse and this project will only benefit them by improving the health of the wetlands along Silver Creek. Yellow Billed Cuckoo critical habitat has been identified above Magic Reservoir on the Big Wood River and Wood River sculpin are found throughout the system above Magic.

There are no buildings or structure near the site listed in the National Register of Historic Places. There are no known archaeologic sites at the project sites. However, we will conduct an archaeological analysis prior to work beginning. There will be no impact to low income or minority populations because of this work. Access to ceremonial Indian sacred sites or other tribal lands. Seeding of disturbed areas and weed control are part of the restoration plan to eliminate the potential spread of noxious weeds.

Evaluation Criteria

Evaluation Criteria E.1.1: Planning efforts supporting the project

Existing planning effort:

The Big Wood Canal Company is operating under a 2002 Water Management and Conservation Plan that calls for increased irrigation water measurement and improved efficiencies throughout the system. It identifies the main goals of the district are to: 1.) minimize system losses; 2.) eliminate return flows, and 3.) maintain good water quality. It identifies one of the three problems inhibiting meeting these goals is the "slow response to regulate flows within the canal system." This project would be a step in eliminating this

barrier and addressing the main goals of their plan. Senior water users typically have water rights from the Big Wood and the Little Wood, so any added reliability in Little Wood use takes pressure off of the Big Wood use.

In addition, the Wood River Water Collaborative (WRWC) planning effort that has been mentioned previously in this application has identified the goals of the collaborative as: 1.) Ensuring sustainable water use for farming and ranching, 2.) Preserving safe, clean drinking water to meet the needs of the Wood River watersheds, 3.) Conserving riparian and river habitat for fish and wildlife that rely on the Big Wood River, Silver Creek, Little Wood River and their tributaries.

The Wood River Collaborative has vetted many projects for implementation to meet the demands of a water call and meet the goals listed above. The criteria for vetting includes: cost, permanency, ensuring senior water rights are met, meeting habitat needs of Silver Creek. These two projects will lay the foundation for many other projects by keeping more water in the system and increase delivery flexibility. Both project ranked high in the criteria worksheet under development by the Collaborative that includes criteria such as impact to other water rights, benefit to the community, habitat improvements, cost, longevity. The Silver Creek project scored 68 and the measurement project scored a 73. Other project evaluated with the criteria were showing results between 40-60 points.

The WRWC's activities directly support the programs established by the Idaho Water Resource Board in the 2012 State Water Plan. And, the work proposed in this application is consistent with the Idaho Water Resource Board's Eastern Snake Plain Aquifer Comprehensive Aquifer Management Plan (ESPA CAMP).

E.1.2.- Project benefits

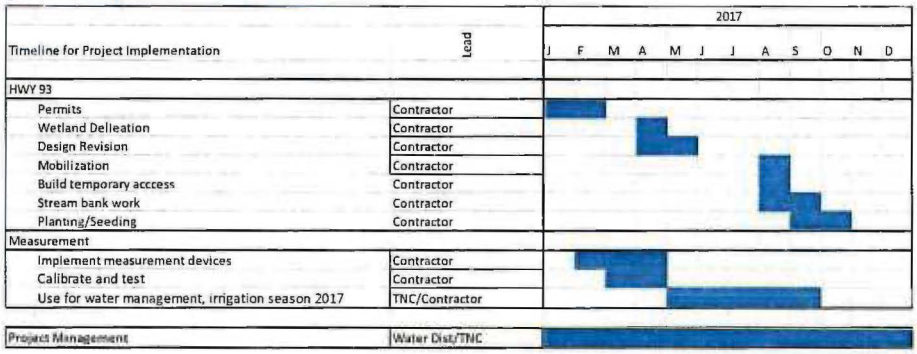
Explain benefits including: improving the management of water supplies, the significance of the anticipated water management benefits, the public benefits of the project, and any expected environmental benefits.

- Water delivery system benefits: Yes, as described above. This project would not only keep water in Silver Creek for irrigation use downstream but improve the reliability and extend the season of water delivery for junior users.
- Overall water supply reliability: Yes, as described above. The overall reliability will improve because more accurate accounting will allow for junior use when senior use has been satisfied. The upgrade to fifteen head gates which are 30 years old (no automation or telemetry) will significantly improve water management opportunities. In the height of irrigation season, knowing what water we have where will reduce the demand for supplemental water from American Falls

reservoir because Silver Creek and Little Wood water will be more abundant and easily tracked.

- Scope of impacts: Primarily the Little Wood and Big Wood basins.
- Increase collaboration and information sharing: Yes, this is by nature a collaborative project because the two main priorities for 2017 have been identified by a collaborative group that includes representatives from all water users, municipalities and other stakeholders. Information from the measurement devices will be available publicly.
- Benefits to local sector and economics: Yes, improved water supply for senior and junior water users will improve the reliability and productivity of agriculture in the basin. Long term agriculture will be more appealing to the next generation because of the improved reliability and assurance.
- Environmental benefits: Yes, we will see improved flows in Silver Creek and Little Wood benefitting fish, riparian, wildlife and wetland through habitat restoration and enhancement. This project will be a model for projects that benefit nature and people for the long term.

E.1.3- Project implementation



E.1.4 Nexus to Reclamation

- Little Wood users do get water from American Falls as supplemental water. This project will take pressure off American Falls Reservoir.

Required Permits or Approvals

Permits have been submitted for the stream work along Silver Creek and are pending approval upon the completion of a wetland delineation and some minimal design revisions in the spring of 2018.

Official Resolution

See attached resolution signed by the Galena groundwater district on March 7, 2017.

Unique identifier

DUNS # 0801250950000, SAMS number will be submitted within 30 days of application.

Position Descriptions

Staff time is minimal but is required for project management. Salaries are based on actual known salaries and are reasonable given the type of work, geography and in comparison with similar positions.

Kevin Lakey, Water District 37/37M Water Master, $40/ hour at 20 hours.

- Coordination of implementation of measuring devices.

Dayna Gross, Senior Conservation Manager, The Nature Conservancy (Partner) $40.00/hour for 80 hours.

- Project management for HWY 93 Silver Creek Project
- Support the Water Master in water user outreach and coordination

Fringe Benefits

- *Fringe benefits are rolled up in the hourly wage rates listed above.* The costs of all of the fringe benefits allocated to employees are then divided by total payroll to arrive at a benefit rate. The rate used for this project is 22.5%

Contractual:

The majority of the work to be conducted for the HWY 93 Silver Creek project will be contracted to a restoration specialist with experience working on systems like Silver Creek. The contractor will have or rent their own equipment and charge for earthwork and grading by the cubic yard. We estimate about 7,600 cyds at $5.14/ cubic yard for a total of $39,064. In addition, the mobilization costs are estimated at $8,700. A temporary road for construction will be installed at a cost of approximately $2,200. Total construction costs are $49,964 (USBR $29,964 and Silver Creek Alliance $20,000). Permitting, design, and a wetland delineation will be match at $13,500.

Materials and Supplies:

Plants will be native and consist of willows and dogwoods. They will come from a nursery where native plant stock is a priority. Willow stingers with stakes will be planted, 400 for $19 each including installation for a total of $7,600. Larger willows and dogwoods will be planted throughout the stream reach, 65 for $45/ each including installation for a total of $2,925. The entire area will be seeded with native wetland grasses and forbs at $.04/ sqft (24,000 sqft) for a total of $960. Total planting and seeding will be $11,485.

The measurement project consists of developing 15 diversions that will be equipped with telemetry to read and report diversion rates every 15 minutes to the water district office. Water District 37 will pay for telemetry on 9 diversions with single sensing units at a cost of $1475 each. Six diversions with submerged orifices will be fitted with double sensing devices at a cost of $2350 each. Total cost of sensing devices and telemetry for the project will be $27375.00.

RESOLUTION OF THE BOARD OF DIRECTORS OF THE GALENA GROUND WATER DISTRICT IN SUPPORT OF WATER DISTRICT 37'S FUNDING REQUEST FOR WATERSMART GRANT FOR SMALL SCALE WATER EFFICIENCY PROJECTS

WHEREAS, the Bureau of Reclamation, U.S. Department of Interior, WaterSMART: Water and Energy Efficiency Grant Program is soliciting proposals for and may provide financial assistance to irrigation districts, water districts and other organizations to implement projects that save water, improve energy efficiency, address endangered species and other environmental issues, and facilitate transfers to new uses.

WHEREAS, the Galena Ground Water District recognizes that the accurate measurement of water use is critical to ensure fair and accurate mitigation values, and proper metering of irrigation uses is necessary and prudent.

WHEREAS, the Galena Ground Water District was formed under the State of Idaho Ground Water District Act, to provide for collective management of irrigators' water rights in the face of water delivery calls.

WHEREAS, by focusing on monitoring and better water management, the Galena Ground Water District will help mitigate water use conflicts generated by the most recent water call from senior water rights holders.

WHEREAS, the Galena Ground Water District is committed to developing a comprehensive water conservation efficiency program to benefit future generations in the Wood River Valley.

WHEREAS, Water District 37 has submitted a proposal to the Bureau of Reclamation for partial funding of a Pilot Telemetry Project under the WaterSMART: Water and Energy Efficiency Grant Program.

NOW THEREFORE, BE IT RESOLVED that the Galena Ground Water District Board of Directors agree and authorize the sponsorship and submission of Water District 37's application to the Bureau of Reclamation, U.S. Department of Interior, WaterSMART: Water and Energy Efficiency Grant program for partial funding of a Pilot Telemetry Project.

Dated this 7th day of March, 2017.

Pat McMahon, Chairman

Karl Nichols, Treasurer

Judd McMahan, Secretary

The Nature Conservancy
Protecting nature. Preserving life.

The Nature Conservancy in Idaho
116 First Avenue North
Hailey, ID 83333

Tel (208) 788-8988
Fax (208) 788-9040

nature.org

January 10, 2017 revision on March 14, 2017

Bureau of Reclamation
Attn: Mr. Darren Olson
Mail Code: 84-27852
P.O. Box 25007 Denver,
CO 80225

Re: USBR Water Smart Efficiency Grant Application

Dear Mr. Olson:

The Nature Conservancy intends to provide funding for irrigation measurement if landowners are unable to contribute to this project up to $17,600. We will assist Galena Groundwater District and Water District 37/37M in outreach to individual landowners with the hope that they will contribute to the project. However, if they are unable to contribute financially, The Nature Conservancy will cover their costs. We currently have a private foundation grant of $135,000 that is available for projects of this sort. There are no time constraints on this funding and it is available immediately.

We acknowledge that non-Federal match used to meet the USBR WaterSmart program requirements may not be included as contribution for any other federally assisted project or program.

Sincerely,

Mark Davidson
Director of Conservation Initiatives
The Nature Conservancy in Idaho

Silver Creek Alliance

Dedicated to the Preservation of Silver Creek, Idaho

January 4, 2017 (revision, March 2017)

Bureau of Reclamation

Small Scale Water Efficiency Grant, Water District 37/37M (re-submit with Galena GWD as applicant)

To whom it may concern:

I have been working diligently all year in the design and permitting application process on the rehabilitation of Silver Creek above the Highway 93 bridge south of Carey in Blaine County, Idaho. Last summer Brockway Engineering and Watermaster, Kevin Lakey independently measured the Creek flow above and below the rehab area and determined the water loss was between 12 and 15 sec ft from holes in the banks of the reach. Repairing this reach of the creek so it can effectively delivery water is an important project for irrigators in the region.

Below is an estimated budget of the cost of the project:
Estimated cost of bank construction and repair and bank stabilization, planting, and general construction: $82,000
Permitting cost: $5,000
Wetlands delineation: $2,000
Total project costs: $89,000
Amount paid to date: $12,000
Amount in hand by Silver Creek Alliance: $20,000
Amount pledged: $20,000
Amount needed: $37,000

In 2015, a nonprofit group called the Silver Creek Alliance of which I am the president was formed to priorities and fund projects on Silver Creek. To date $20,000 has been raised to fund this project. The funding is available immediately and there are no timing restrictions on the funding. We have pledges for another $20,000. Therefore, we respectfully request $37,000 from the Bureaus of Reclamation as reflected in the application by Water District 37/37M.

Sincerely,

Nick Purdy
President Silver Creek Alliance