

Boise Project Board of Control

Automation of the Kuna Canal



Application for:

WaterSmart Grants: Small-Scale Water Efficiency Projects

Notice of Funding Opportunity No. R21AS00300

March 18, 2021

Submitted by:

Boise Project Board of Control
2465 Overland Road
Boise, Idaho 83705-3155

Bob Carter, Project Manager
bcarter@boiseproject.org
Phone: 208-344-1141
Fax: 208-344-1437

3/18/21
1124

Table of Contents

Executive Summary3

Background Data.....3

Table 1: Allotment4

Project Location6

Technical Project Description6

E.1.1. Evaluation Criterion A—Project Benefits7

E.1.2 Evaluation Criterion B – Planning Efforts Supporting the Project8

E.1.3. Evaluation Criterion C—Project Implementation.....8

Table 2: Estimated Project Schedule.....9

E.1.4. Evaluation Criterion D—Nexus to Reclamation10

Funding Plan10

Table 3: Total Project Cost Table.....11

Budget Proposal11

Official Resolution12

Unique Entity Identifier and System for Award Management.....12

Environmental and Cultural Resources Compliance.....13

Attachments:

Proposed Budget – Attachment A.....16

Official Resolution – Attachment B.....18

March 18, 2021
Boise Project Board of Control
Boise, Idaho
Automation of the Kuna Canal
Ada County

Executive Summary

The Boise Project Board of Control (BPBC) submits this application for Notice of Funding Opportunity Announcement No. R21AS00300 through the WaterSMART Grants: Small-Scale Water Efficiency Projects from the Bureau of Reclamation (USBR). Through this application, the Boise Project Board of Control, under Category A, is seeking \$33,445.00 in federal funding assistance. The funding will be used to automate two of the four manual 36 inch flat sided gates at the headwaters of the Kuna Canal. The gates will be connected to a Supervisory Control and Data Acquisition system to provide remote sensing and control of the gate operations. The goal of the project is to stabilize and more precisely control flows at the headwaters of the Kuna Canal to improve efficiency of use of the water in the irrigation system and to prevent loss from spills and over deliveries. The proposed project is expected to begin in August 2022 and continue through to April 2023. The Kuna Canal is an USBR federal facility, operated and maintained by the Boise Project Board of Control.

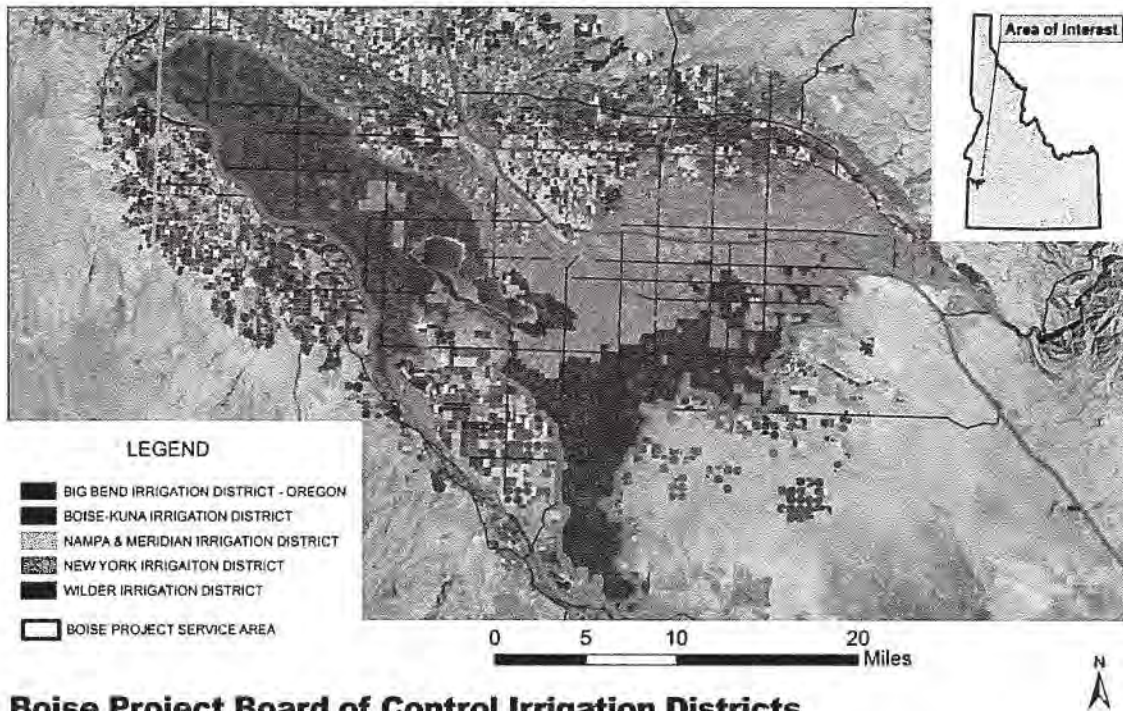
Background Data

Boise Project Board of Control

The Boise Project Board of Control delivers irrigation water on behalf of five (5) irrigation districts established in the early 20th Century to serve irrigators with waters made possible by the development of the Arrowrock Division of the Boise Project by the United States Department of Interior, Bureau of Reclamation (USBR). The five districts consist of:

- Big Bend Irrigation District (Malheur County, OR)
- Boise-Kuna Irrigation District (Ada and Canyon Counties, ID)
- Nampa-Meridian Irrigation District (Ada and Canyon Counties, ID)
- New York Irrigation District (Ada County, ID)
- Wilder Irrigation District (Canyon County, ID)

BPBC delivers irrigation water to approximately 167,000 acres from both Boise River rights and reservoir storage rights in Anderson and Arrowrock Reservoirs held by the USBR in trust for the Districts. The delivery system comprises of over 1,500 miles of canals, laterals and sub-laterals, more than 10,000 individual structures including headgates and check structures, and is operated by a full-time staff of approximately 100 dedicated employees. BPBC currently has 24 automated headwaters and 3 automated check structures. Improvements on the canals and laterals are done on a yearly basis and including but not limited to piping, lining and recleaning.



Boise Project Board of Control Irrigation Districts

Approximately 30,000 users are served by BPBC. The major crops irrigated by the Boise Project Board of Control consists of alfalfa hay, wheat, sugar beets, hops, corn, onion, mint, lavender, apples, grapes and pasture. There are also many dairy farms and livestock facilities in the area that use the irrigated grains to feed their animals. Along with the agricultural use, residents in the urbanized areas use water for lawn and garden irrigation. Though the main canals and laterals are open channels, there is a diverse mix of ditches, gravity irrigation pipelines, pressurized pipelines and pressurized sprinkler systems throughout the project.

With the exception of 2017, which followed a high precipitation winter, the water supply does not meet the demand, especially following a low snowpack and precipitation year. With a high agricultural acreage, water conservation is an extreme necessity. When storage water is used for irrigation instead of the natural flow of the Boise River, BPBC sets an allotted amount of water per acre. The following table shows the water allotment for the 2012 to 2020 irrigation seasons:

Table 1: Allotment

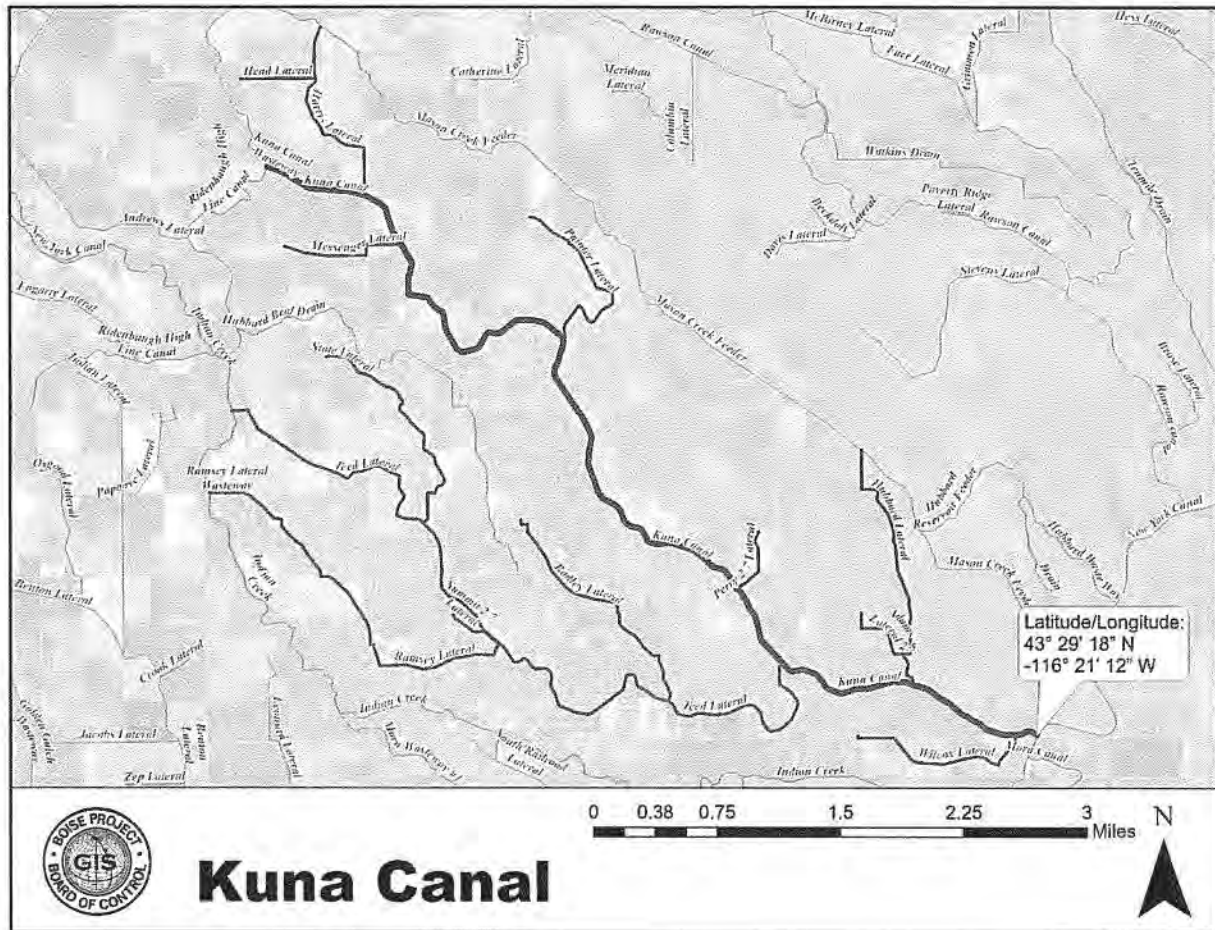
YEAR	ALLOTMENT (acre feet per acre)	DATE
2012	1.90	August 1
2013	1.00	April 22
	1.40	June 5
2014	2.25	June 18
2015	1.65	April 16
	2.35	June 3
	2.95	June 12
2016	2.60	June 15

2017	2.45 2.60	July 14 July 26
2018	2.65	June 15
2019	2.70	July 3
2020	2.75	June 25

The Boise Project Board of Control delivery system begins with the New York Canal, approximately 7 miles southeast of Boise, is over 40 miles long and was designed to deliver a capacity of approximately 2800 cfs of surface irrigation water, with a large portion delivered to Lake Lowell, an off-stream reservoir further downstream. The Kuna Canal (approximately 7 miles long) carries up to 185 cfs of water to irrigate 7,900 acres, and its 6,700 water users which includes the laterals and canals that divert off of the Kuna. The Kuna Canal provides irrigation water for 13 additional laterals which irrigates 5,685 acres.

BPBC was formed to operate and maintain federally financed and owned facilities built under the Reclamation Act of August 30, 1890 and would not exist apart from the efforts of the Federal Government. Its entire history is closely intertwined with the USBR. It was created by the forerunner of the USBR to operate and maintain the federal facilities constructed as part of the Boise Project on behalf of the five irrigation districts established as part of the Boise Project. Irrigation of the lands that BPBC serves would not be possible without the reservoir storage made possible by the Arrowrock and Anderson Ranch reclamation projects.

BPBC has been the recipient of several grants from the Bureau of Reclamation including a grant in 2016 to replace 300 lineal feet of lining in the New York Canal near Roosevelt Street, 2017 for Automation of the Platt & Miller Checks, in 2018 for the Automation on the Deer Flat Low Line #3 and in 2019 & 2020 for the New York Lining Phases 6 and 7, replacing a total of 1200 feet of canal lining.



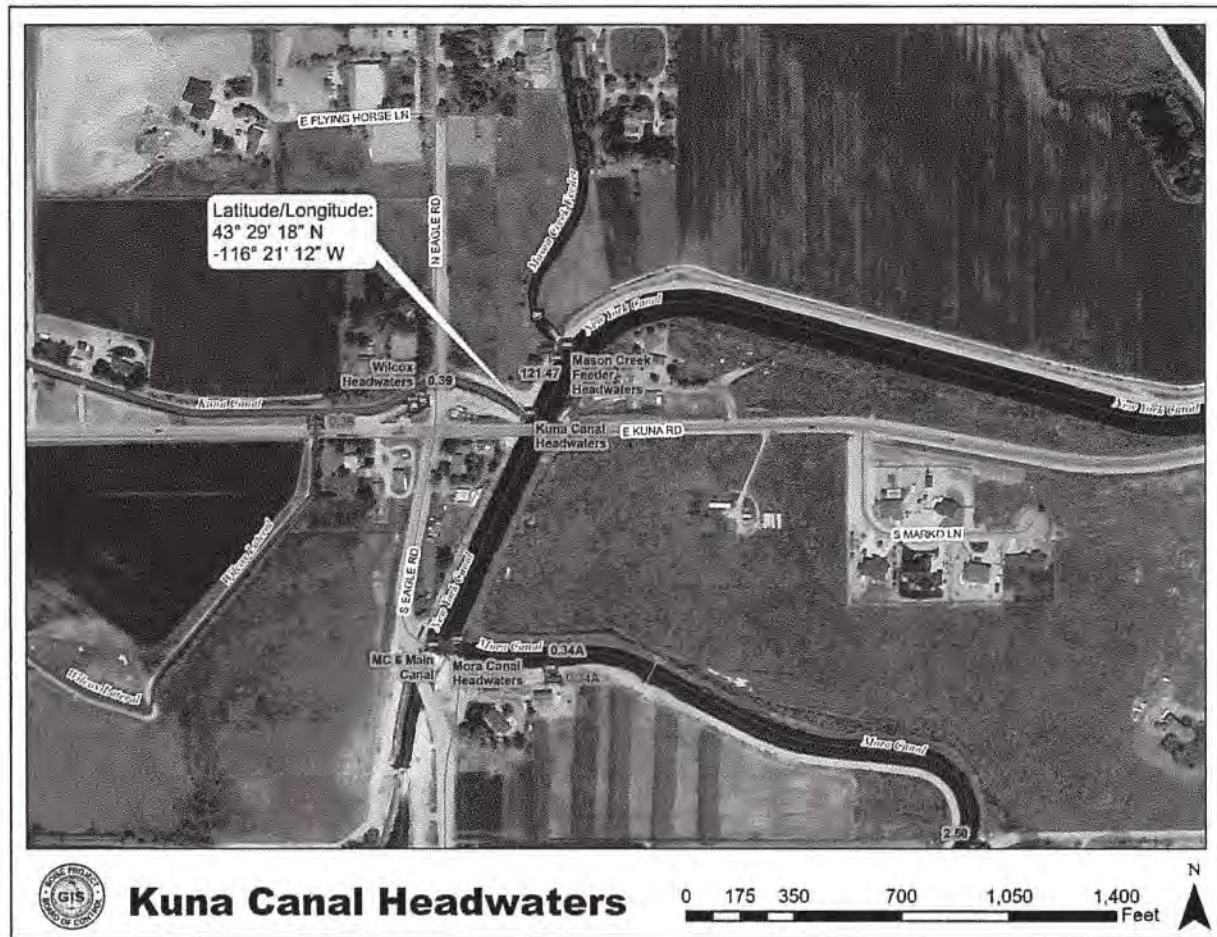
Project Location

The headwaters of the Kuna Canal is located in Ada County, Idaho, south of Boise. The project latitude is 43°29'18" N and longitude is -116°21'12" W.

Technical Project Description

The proposed project consists of installing automation on the headwaters of the Kuna Canal. The Kuna headwaters currently consists of four 36-inch manually operated flat-sided gates. The project proposes to automate two of the existing flat-sided gates and install a walkway with a handrail for safety. The gates will be connected to a Supervisory Control and Data Acquisition system which provides around the clock remote sensing of the headwaters.

Project planning, procurement and coordination efforts are scheduled to begin in August, 2022. Shop fabrication of mounting frames, supports, walkway with a safety rail and gates will take place in November and December. Field installation of the motors, stems, mounting frames, supports and walkway will begin in March 2023. Programming, calibration of the communications, and final testing will be completed after the start of the 2023 irrigation season, approximately April 1, 2023.



E.1.1. Evaluation Criterion A—Project Benefits

Describe the expected benefits and outcomes of implementing the proposed project.

The installation of automation of the Kuna Canal allows BPBC management to make necessary changes to the height of the gate levels due to increase/decrease in water deliveries, obstructions or problems, and to monitor the water elevations and the changes. Therefore, conserving water and making the conserved water available to waterusers for irrigation. Safety is also a benefit with the installation of a new walkway and handrail.

- **What are the benefits to the applicant’s water supply delivery system?**
 There are many benefits to the water supply delivery system: supplies irrigation water to farmers for crop production and to the urbanized areas for lawns and gardens.
- **Extent to which the proposed project improves overall water supply reliability**
 The goal of the project is to allow BPBC to maintain a constant water level on the Kuna Canal, assisting in accurate deliveries both above and below the structure therefore eliminating over deliveries, the need for carrying water, losses from spills with an improvement to response time if the water levels change unexpectedly. Changes to the height of the gates are currently done manually daily and dependent on the number of

deliveries scheduled for the next day, twice a day. By automating the Kuna, this will eliminate the need for a ditchrider and/or nightrider to make those changes.

- **The expected geographic scope benefits from the proposed project (e.g., local, sub-basin, basin)**

The expected geographic scope benefits from the proposed project will affect the entire Boise Project Board of Control service area. As water levels in the Kuna Canal are maintained at appropriate levels for deliveries downstream, the proposed project will assist in preventing over deliveries, allowing for an increase in water conservation and water to remain in the reservoirs until needed.

- **Extent to which the proposed project will increase collaboration and information sharing among water managers in the region**

This project does increase collaboration and information sharing among the five irrigation districts the BPBC delivers water for on their behalf. Each district has at least one member on the Board of Directors.

- **Any anticipated positive impacts/benefits to local sectors and economies (e.g., agriculture, environment, recreation, tourism)**

Water conservation has a positive impact and benefits everyone within the Boise Project service area. The local farmers will receive the benefit of having more water available for irrigation. With boating and fishing on the Arrowrock, Anderson and Lucky Peak Reservoirs, along with Lake Lowell, the recreationists will receive the benefits of the conserved water remaining in the reservoirs and the lake, which also benefits the local economy and tourism.

E.1.2 Evaluation Criterion B – Planning Efforts Supporting the Project

Describe how your project is supported by an existing planning effort.

- **Does the proposed project implement a goal or address a need or problem identified in the existing planning effort?**

The BPBC adopted a Water Conservation Plan in 2010. This plan addresses installation of appropriate water measurement devices to assure water is not being lost to excess deliveries. This project implements a portion of the Project's Water Conservation Plan, Objective #4.

- **Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures**

The Kuna Canal is one of the largest diversions off of the New York Canal. The Kuna Canal has a capacity of 185 cfs and delivers irrigation water for over 7,900 irrigated acres, including the laterals and canals which are diverted off of the Kuna. Boise Project began automating various sites throughout the service area in 2009, beginning with the headwaters of the New York Canal the largest canal in the BPBC system. Boise Project currently has 24 automated sites.

E.1.3. Evaluation Criterion C—Project Implementation

- **Describe the implementation plan for the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.**

The preparation for the project will begin in August 2022 before the end of the irrigation season, with planning, environmental study, and procurement of materials to be completed by October 2022. Fabrication of the mounting frames, security box, battery box, gate and walkway with a safety rail will be done off-site during the winter in November-December. Once fabrication is complete, the actuator, walkway, safety rail, gate and electrical mechanics, will be installed on site in early Spring 2023. Integration into the existing SCADA program will begin by March 2023 with final testing to be completed after the start of the 2023 irrigation season.

Table 2: Estimated Project Schedule

Planning and coordination	August 2022
Environmental Study & Clearance	September 2022
Procurement	October 2022
End of Irrigation Season	Mid-October 2022
Fabrication of mounting frames, supports, walkway, safety rail and gates	November – December 2022
Field installation of gates, walkway and electrical work	February - March 2023
Install stilling well	March 2023
SCADA integration	March 2023
Final Testing & Site Operational	April 2023
Beginning of Irrigation Season	April 2023

- **Describe any permits that will be required, along with the process for obtaining such permits.**
With the project site entirely within BPBC and USBR facilities and easements, no permits are required.
- **Identify and describe any engineering or design work performed specifically in support of the proposed project.**
BPBC will install new stems to current gates and install a new walkway with a handrail for safety.
- **Describe any new policies or administrative actions required to implement the project.**
There are no new policies or administrative actions required to implement the project.
- **Describe the timeline for completion of environmental and cultural resource compliance. Was the timeline for the completion of environmental and cultural resource compliance discussed with the local Reclamation office?**
Once we receive the notice of award, we will contact the local Reclamation office to begin the environmental and cultural resource compliance process.

E.1.4. Evaluation Criterion D—Nexus to Reclamation

- **Is the proposed project connected to a Reclamation project or activity?**
The irrigation districts served by the BPBC are parties to repayment agreements pursuant to the Water Supply Act of 1958 and thus are obligated under Section 210 to the Reclamation Reform Act of 1982 to plan and implement water conservation measures.

- **Does the applicant receive Reclamation project water?**
Yes, BPBC receives the majority of its water from the reservoir storages in Arrowrock and Anderson Ranch reservoirs and Boise River water rights.

- **Is the project on Reclamation project lands or involving Reclamation facilities?**
Yes, the Kuna Canal is a Reclamation facility.

- **Is the project in the same basin as a Reclamation project or activity?**
Yes, the Kuna Canal is located in the Boise River Basin, a Reclamation project.

- **Will the proposed work contribute water to a basin where a Reclamation project is located?**
Yes, the conserved water will remain in the Boise River Basin.

- **Will the project benefit any tribe(s)?**
No, there are no Indian tribes in this area.

D.2.2.5 Project Budget

Funding Plan

Please identify the sources of the non-Federal cost share contribution for the project, including:

- Any monetary contributions by the applicant towards the cost-share requirement and sources of funds (e.g. reserve account, tax revenue, and/or assessments)

Non-Reclamation funding for the proposed project comes from the five irrigation districts served by BPBC. Authorization for this funding is made by the Board of Directors of BPBC, which endorses and supports this grant proposal as evidenced by the Official Resolution included in this application. As taxing authorities, the irrigation districts are legally enabled to assess the users in their districts for the costs of operations, maintenance and improvements. Idaho State Code grants, in considerable detail, the ways in which districts may make such assessments and the ramifications for taxpayers who become delinquent.

- Any costs that will be contributed by the applicant:

BPBC is seeking a 50/50 share-cost all expenses with funding of this application. Please see the proposed budget for all costs.

- Any third-party in-kind costs (i.e., goods and services provided by a third party):

BPBC is not seeking any third-party in-kind costs

- Any cash requested or received from other non-Federal entities

No assistance from any other non-Federal entities is being sought.

- Any pending funding requests (i.e. grants or loans) that have not yet been approved, and explain how the project will be affected if such funding is denied.

No other funding requests have or will be requested for this project.

- Please provide whether the budget proposal includes any project costs that have been or may be incurred prior to award.

No pre-award costs are expected to be incurred.

Table 3: Total Project Cost Table

Funding Sources	Funding amount
Costs to be reimbursed with the Federal Funding	\$ 33,445.00
Costs to be paid by the applicant	\$ 33,447.00
Value of third-party contributions	\$ 0
TOTAL PROJECT COST	\$ 66,892.00

Budget Proposal

The proposed budget for this project is presented in Attachment A. The budget established for this project is based on a similar project performed in the Fall/Winter of 2019/2020.

Budget Narrative

Salaries & Wages

The following key personnel from BPBC will be charging time on this project:

- Rick Martin, Hydromaster – will oversee, procure materials, program and test the automation and manage the project
- Derek Fitzwater, Foreman – will assist the Hydromaster and supervise the laborers and equipment operators.
- BPBC full time laborers will provide the bulk of the labor for this project.
- Reporting requirements: 20 hours
- As required by the NOFO, this certifies the labor rates include in the budget proposal represent the actual labor rates as of March 2021 with a projected 2% pay increase effective January 1, 2022. Furthermore, these rates are consistently applied to Federal and non-Federal activities.

Fringe Benefits

Fringe benefits include payroll taxes, health insurance and retirement.

Payroll taxes – Social Security/Medicare: 7.65%

Retirement: 11.94%

Health Insurance projected for 2022: \$707.65 a month

Equipment

All equipment used for this project is owned by BPBC and will be charged at the equipment usage rates outlined by the United States Army Corps of Engineers and their Construction Equipment and Operating Expense Schedule. The following equipment is projected to be utilized:

2011 Caterpillar Mini-Rubber Track Excavator

Trailmax trailer

2020 Ford Pickup

Materials and Supplies

Procurement of materials will begin in August 2022. Prices used in this proposal are based on a similar project done in the Fall/Winter of 2019/2020. An itemized list is provided in the proposed budget in Attachment A.

Contractual

None

Third-Party In-Kind Contributions

None

Environmental and Regulatory Compliance Costs

No costs are expected.

Other Expenses

None.

Indirect Costs

De minimis – 10% of all allowable costs

Official Resolution

The Board of Directors of the Boise Project Board of Control met on March 3, 2021 at which the Official Resolution was approved and signed by the Chairman of the Board. See Attachment B.

Unique Entity Identifier and System for Award Management

The BPBC is registered with System for Award Management (SAM). The Unique Entity Identifier is 085321768. Registration in SAM will remain active.

Environmental and Cultural Resources Compliance

Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

Modification of the headwaters will have minimal earth disturbing construction and have little effect to the surrounding environment. All construction activities, including welding, will be located within the canal and/or easements. The project will take place after the completion of the 2022 irrigation season when temperatures are lower and increased precipitation levels will help reduce the potential of dust. Should dust become an issue, BPBC will apply water applications to ensure dust abatement.

• Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?

There are no known endangered or threatened species in the project site.

• Are there wetlands or other surface waters inside the project boundaries that potentially fall under Clean Water Act (CWA) jurisdiction as “Waters of the United States?” If so, please describe and estimate any impacts the proposed project may have.

Wetlands are not present within the vicinity of the proposed sites.

• When was the water delivery system constructed?

The water delivery system was constructed in 1908.

• Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

Some minor modifications will occur to the structure, with the installation of the automation and a walkway with a handrail for safety. The current structure will remain intact.

• Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places?

There are no buildings, structures or features listed or eligible for listing on the National Register of Historic Places in the project site.

• Are there any known archeological sites in the proposed project area?

There are no archeological sites within the project area.

• Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?

No, the project will not have any effect on any population.

• Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?

The project site is not within tribal lands.

• Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?

The proposed project sites will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area.

Attachment A				
BUDGET PROPOSAL - AUTOMATION OF THE KUNA CANAL - Boise Project Board of Control				
Budget Item Description	Computation			
	\$/Unit	Unit	Quantity	Total Cost
SALARIES AND WAGES				
Rick Martin, Project Supervisor	\$ 30.35	hr	10	\$ 303.50
Derek Fitzwater, Foreman	\$ 22.53	hr	80	\$ 1,802.40
Laborers - 2 employees	\$ 17.34	hr	170	\$ 2,947.80
Reporting Requirements	\$ 24.55	hr	10	\$ 245.50
Subtotal - Salaries & Wages			270	\$ 5,299.20
FRINGE BENEFITS				
Rick Martin, Project Supervisor	\$ 10.02	hr	10	\$ 100.20
Derek Fitzwater, Foreman	\$ 8.49	hr	80	\$ 679.20
Laborers - 2 employees	\$ 7.48	hr	170	\$ 1,271.60
Reporting Requirements	\$ 8.89	hr	10	\$ 88.90
Subtotal - Fringe Benefits			270	\$ 2,139.90
EQUIPMENT				
2011 Cat Crawler Mini-Excavator Model 304D	\$ 13.30	hr	4	\$ 53.20
Trailmax Trailer	\$ 4.47	hr	1	\$ 4.47
2020 Ford F350	\$ 26.14	hr	1	\$ 26.14
Subtotal-Equipment				\$ 83.81
MATERIALS				
Data Logger CR1000	\$ 1,750.00	ea	1	\$ 1,750.00
Pressure Transducer	\$ 860.60	ea	1	\$ 860.60
Cell Modem	\$ 675.00	ea	1	\$ 675.00
Display Keypad	\$ 595.00	ea	1	\$ 595.00
Modem Cable	\$ 5.14	ea	1	\$ 5.14
Antenna	\$ 71.78	ea	1	\$ 71.78
Solid State Relays	\$ 43.41	ea	4	\$ 173.64
Solar Panel 200 watt	\$ 260.00	ea	1	\$ 260.00
Solar Charger	\$ 157.00	ea	1	\$ 157.00
Solar Panel mount	\$ 139.00	ea	1	\$ 139.00
Wiring/Cable	\$ 18.36	ea	1	\$ 18.36
Lightening arrestor	\$ 26.67	ea	1	\$ 26.67
Gate Actuators	\$ 19,746.00	ea	2	\$ 39,492.00
Stems	\$ 3,214.00	ea	2	\$ 6,428.00
Bushing Stock	\$ 66.78	ea	2	\$ 133.56
Batteries	\$ 122.90	ea	8	\$ 983.20
Piano Hinges	\$ 19.80	ea	2	\$ 39.60
Battery Breakers	\$ 55.50	ea	2	\$ 111.00
Buss Bar br mounts	\$ 127.99	ea	2	\$ 255.98
Nema Enclosure	\$ 276.77	ea	1	\$ 276.77
Conduit - 1 inch PVC	\$ 0.90	ft	175	\$ 157.50
Conduit Connectors - miscellaneous pieces	\$ 30.00	ea	1	\$ 30.00
Flex Conduit	\$ 75.00	50ft	1	\$ 75.00
Paint	\$ 31.99	gallon	2	\$ 63.98
Steel for Walkway and Handrail	\$ 3,800.00	various	1	\$ 3,800.00
Miscellaneous materials	\$ 300.00		1	\$ 300.00
Subtotal-Materials				\$ 56,878.78
ENVIRONMENTAL AND REGULATORY COSTS				n/a
Subtotal-Environmental				\$ -
OTHER EXPENSES				
None				\$ -
Subtotal-Other Expenses				\$ -
Indirect Costs		10%		\$ 2,490.97
Total Project Costs				\$ 66,892.66

GALE MASLONKA
CHAIRMAN OF THE BOARD
RICHARD DURRANT
VICE CHAIRMAN OF THE BOARD
ROBERT D. CARTER
PROJECT MANAGER
THOMAS RITTHALER
ASSISTANT PROJECT MANAGER
APRYL GARDNER
SECRETARY-TREASURER
MARY SUE CHASE
ASSISTANT SECRETARY-TREASURER

BOISE PROJECT BOARD OF CONTROL

(FORMERLY BOISE U.S. RECLAMATION PROJECT)

2465 OVERLAND ROAD
BOISE, IDAHO 83705-3155

OPERATING AGENCY FOR 167,000
ACRES FOR THE FOLLOWING
IRRIGATION DISTRICTS

NAMPA-MERIDIAN DISTRICT
BOISE-KUNA DISTRICT
WILDER DISTRICT
NEW YORK DISTRICT
BIG BEND DISTRICT

TEL: (208) 344-1141
FAX: (208) 344-1437

OFFICIAL RESOLUTION FOR WATERSMART GRANTS: SMALL-SCALE WATER EFFICIENCY PROJECTS


WHEREAS, The U. S. Bureau of Reclamation is seeking proposals from irrigation districts who want to leverage their money and resources by cost sharing with Reclamation on small-scale on-the-ground projects that seek to conserve, better manage, or otherwise make more efficient use of water supplies.

WHEREAS, the Boise Project Board of Control desires to apply for funding through Reclamation's WaterSMART Small-Scale Water Efficiency Grant Program;

NOW THEREFORE BE IT RESOLVED that the Board of Directors of the Boise Project Board of Control agree and authorize the following:

1. The Board has reviewed and supports this proposal for modifying the Headwaters of the Kuna Canal with solar powered automation with connectivity to SCADA program.
2. The Boise Project Board of Control is capable of providing the amount of funding and/or in-kind contributions as specified in the funding plan; and
3. If selected for the WaterSMART Grant, the Boise Project Board of Control will work with Reclamation to meet established deadlines for entering into a cooperative agreement.
4. Bob Carter, Project Manager, has the legal authority to sign and enter into the agreement

Passed and adopted by the Board of Directors of the Boise Project Board of Control during its regular meeting on the 3rd day of March, 2021.



Gale Maslonka
Chairman of the Board