Salmon River Canal Company
Canal Lining Project

Reclamation WaterSMART Water and Energy Efficiency Grant Proposal

Funding Opportunity Announcement No. BOR-DO-19-F004

Prepared by

SALMON RIVER CANAL COMPANY

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March 13, 2019

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SECTION 1

Technical Proposal

1.1 Executive Summary

Date: March 13, 2019

Applicant: Salmon River Canal Company

City/County/State: Twin Falls, Twin Falls County, Idaho

This application is for funding by the U.S. Bureau of Reclamation's (Reclamation) WaterSMART: Water and Energy Efficiency Grants for FY 2019 Funding Opportunity Announcement (FOA) No. BOR-DO-19-F004. This application from the Salmon River Canal Company (Canal Company) is seeking $300,000 in federal funding assistance for Federal Funding Group I. The funding will be used to line 10,694 lineal feet (LF) of the Main Canal which is an earthen canal in the Canal Company's canal system to increase water conservation and water-use efficiency by significantly reducing seepage losses. The project will provide notable benefits within Evaluation Criteria A – Quantifiable Water Savings - as defined by Reclamation's FOA. The project is located on Bureau of Land Management (BLM) lands and construction will be limited to the Canal Company's right-of-way. When complete, the Canal Lining Project (project) will result in an annual water savings of at least 3,919 acre-feet (AF) and improved overall water management. The requested funds ($300,000) comprise 49 percent of the $607,943 total project cost and will provide the resources needed to assist the Canal Company with implementing the project. Canal lining will begin in fall 2019 following the irrigation season and will be complete by spring 2020.

1.2 Background Data

The Canal Company was formed in 1910 to operate the Salmon Falls Dam and Reservoir. The Canal Company is a non-profit company and has 169 shareholders, who hold a total of 60,050.65 shares. The Canal Company's primary purpose is to deliver irrigation water to its shareholders on the irrigation project known as the Salmon Tract. The Salmon Tract is located south of Twin Falls, Idaho, and is known for its fertile soils and excellent crops. Primary crops grown are hay, beans, grains, and corn under a combination of pivots, sprinklers, and gravity irrigation systems.

Salmon Falls Dam is a concrete gravity arch dam 223.5 feet high with a crest length of 450 feet and is owned and operated by the Canal Company. When full, the reservoir has an area of about 3,400 acres and a length of approximately 15 miles. The main purpose of Salmon Falls Dam is for irrigation storage; additional benefits are derived from recreation.

The water conserved by constructing the project will be used to satisfy existing irrigation demands in the northern part of the Canal Company system. The Canal Company serves approximately 13,000 irrigated acres. The Canal Company has not expanded beyond historical service area boundaries and has no intentions to expand.

1.2.1 Water Supply, Water Rights, Water Delivery System, and Current Water Uses

1.2.1.1 Water Supply

The Canal Company's water supply comes from surface water sources. The majority of surface water is derived from the Salmon Falls Creek basin, which drains portions of Elko County in Nevada

and Owyhee and Twin Falls Counties in Idaho. The Salmon Falls Creek watershed spreads across approximately 2,103 square miles.

The typical growing season is 120 days and water is typically delivered from May 1 through mid-September. In dry water years, such as in 2014, water deliveries can end as early as mid-July.

Table 1 summarizes the Canal Company's annual water supply from 2004 through 2018.

TABLE 1
Canal Company Annual Water Supply

Year	Annual Supply (AF)
2004	51,796
2005	63,780
2006	81,669
2007	83,772
2008	69,654
2009	73,107
2010	72,898
2011	85,243
2012	81,661
2013	57,290
2014	40,253
2015	47,091
2016	77,252
2017	90,679
2018	83,529
AVERAGE	**70,645**

1.2.1.2 Water Rights

The Canal Company has water rights for and is obligated to deliver 1.167 AF per share of stock when water is available. Table 2 summarizes historical average water deliveries per share.

TABLE 2
Canal Company Historical Water Allotments

	Allotment Delivered (AF per share)	Percentage of Full Water Allotment	Number of Years Full Allotment was Delivered
5-year Average Allotment (2014-2018)	0.749	64	1 out of 5
10-year Average Allotment (2009-2018)	0.766	66	2 out of 10
25-year Average Allotment (1994-2018)	0.741	64	6 out of 25
50-year Average Allotment (1969-2018)	0.845	72	18 out of 50

Canal Company-owned surface water rights are summarized in Table 3.

TABLE 3
Canal Company Surface Water Rights

Type	Source	Diversion Rate (cfs)	Diversion Volume (AF)	Priority
Natural flow	Salmon Falls Creek	1.55	388	1874
Natural flow	Salmon Falls Creek	19.414	4,629	1894
Natural flow	Salmon Falls Creek	7.321	2,447	1874
Natural flow	Salmon Falls Creek	2.744	542	1874
Natural flow	Salmon Falls Creek	10.17	3,061	1874
Natural flow	Salmon Falls Creek	25.786	9,910	1897
Natural flow	Salmon Falls Creek	8.583	2,189	1894
Natural flow	Salmon Falls Creek	1,250	-	December 29, 1906
Natural flow	Salmon Falls Creek	500	-	August 22, 1906
Natural flow	Salmon Falls Creek	1,000	-	September 7, 1909

cfs = cubic feet per second

1.2.2 Water Delivery System and Current Uses

1.2.2.1 Diversion and Storage Facilities

Water is diverted from the Salmon Falls Creek at Salmon Falls Dam, which is owned and operated by the Canal Company.

1.2.2.2 Distribution System

From the Salmon Falls Creek Reservoir, water is diverted through a tunnel and into an open-channel canal system. There are approximately 300 miles of main line canal and laterals that deliver water to approximately 13,000 acres that are served by the Canal Company. As the water flows through the main line canals and diversion laterals, it is delivered to farmland via metal headgates with either open concrete structures or closed pipeline systems. All headgates are equipped with a weir measuring system or a flowmeter. Any unused water not attributed to loss is stored at one of three storage ponds at the tail-end of the various canal systems.

1.2.3 Existing and Previous Reclamation Partnerships

1.2.3.1 Small Reclamation Projects Act

In 1966 the Canal Company applied and was approved for a $900,000 loan from Reclamation under the Small Reclamation Projects Act. The funds were released by Congress in 1971 and were subsequently used to construct a new siphon and improvements on the A-line Canal through Deep Creek as well as to install several miles of concrete lining and a Parshall flume at the beginning of the Canal Company's system. Construction was completed in the fall of 1973 and the loan was paid in full in June of 1988.

1.2.3.2 WaterSMART

In 2015 the Canal Company applied and was approved for $300,000 in federal funding through Reclamation's WaterSMART: Water and Energy Efficiency Grant program. The funding was used to line 19,619 LF of earthen canal to increase water conservation. As part of the project, the capacity of the canal segment was also increased to facilitate future improvements that were estimated to double the water savings of the original canal lining project by eliminating additional seepage losses after abandoning an adjacent canal lateral (Lateral 213) and increase energy efficiency by eliminating the need for pumping following installation of pressure pipelines. Canal lining and grading was completed in spring 2016.

Following the 2015 Canal Lining and Energy Conservation Project, all the pressure pipelines shown on Figure 1 were completed by April 2018. The pressure pipelines were not included as part of the original 2015 project and the cost associated with installation was paid by the Canal Company and its shareholders outside of the WaterSMART grant; however, pipeline construction was made possible through completion of grading (increased canal capacity) associated with the 2015 project. Lateral 213 was abandoned at the start of the 2018 irrigation season following installation of the pressure pipelines.

In 2015 the Canal Company estimated the seepage rate in Lateral 214 to be 11.7 gallons per square foot per day (gal/ft^2/day), which equates to 2,201 AF/year in seepage losses over an average 120-day growing season. Table 4 presents the same methodology that was used to estimate losses in 2015 but shows monthly water supplies, deliveries, and calculated losses for Lateral 214 following completion of the canal lining project. The average monthly seepage rate for 2018 is estimated to be 1.2 gal/ft^2/day, which equates to only 304 AF/year in seepage losses, which represents an 86 percent water savings for Lateral 213

was estimated to be 9.2 gal/ft^2/day, which equates to 1,904 AF/year over the average growing season. Therefore, following completion of the 2015 lining project and the associated canal improvements that allowed the Canal Company to subsequently abandon Lateral 213, the estimated annual water savings is 3,801 AF/year following completion of the 2015 canal lining project, in addition to reduced pumping costs.

TABLE 4
Monthly Water Supply, Delivery and Calculated Losses Following Completion of Lateral 214 Canal Lining Project

Lateral 214	Supply (AF)	Deliveries (AF)	Total Losses (AF)	Average Pan Evaporation (inches/day)	Evaporation Losses (AF)	Seepage Losses (AF)	Seepage Rate (gal/ft^2/d)
May	379	288	91	0.28	8.0	83	1.4
June	378	292	86	0.31	9.0	77	1.2
July	598	507	81	0.33	10.1	81	1.2
August	546	452	94	0.29	9.0	85	1.3
September	175	112	63	0.22	6.6	57	0.9
ANNUAL	**2,076**	**1,651**	**425**	-	**43**	**383**	-
AVERAGE	-	-	-	-	-	-	**1.2**

1.3 Project Location

The Canal Company is located in southcentral Idaho in Twin Falls County. Canal Company headquarters are located in the city of Hollister, Idaho. Canal Company lands begin at the Salmon Falls Dam diversion on the Salmon Falls Creek, a tributary to the Snake River. The total project service area is approximately 20 miles long by 9 miles wide.

The project latitude is 42°18'34" N and longitude is 114°37'55" W.

1.3.1 Area Map and Project Map

Figure 2 shows an area map that depicts the Canal Company's service area, approximately 20 miles long by 9 miles wide. There are approximately 110 miles of main line canals within the service area.

Figure 1 shows the overall project area, including the proposed project and features from the Lateral No. 214 canal lining project completed with WaterSMART funding:

- **Proposed Project** – 10,694 LF of canal lining on the Main Canal (see immediate project area in Figure 3)
- **Completed Canal Lining and Energy Conservation Project (2015)** (See Section 1.2.3.2)
  - 19,619 LF of canal lining and grading on Lateral No. 214
    - Pressure pipelines installed following completion of the 2015 Canal Lining and Grading Project
    - Abandoned Lateral 213 following completion of the 2015 Canal Lining and Grading Project

FIGURE 1

Salmon River Canal Company Project Map with Completed 2015 Canal Lining and Energy Conservation Project Features

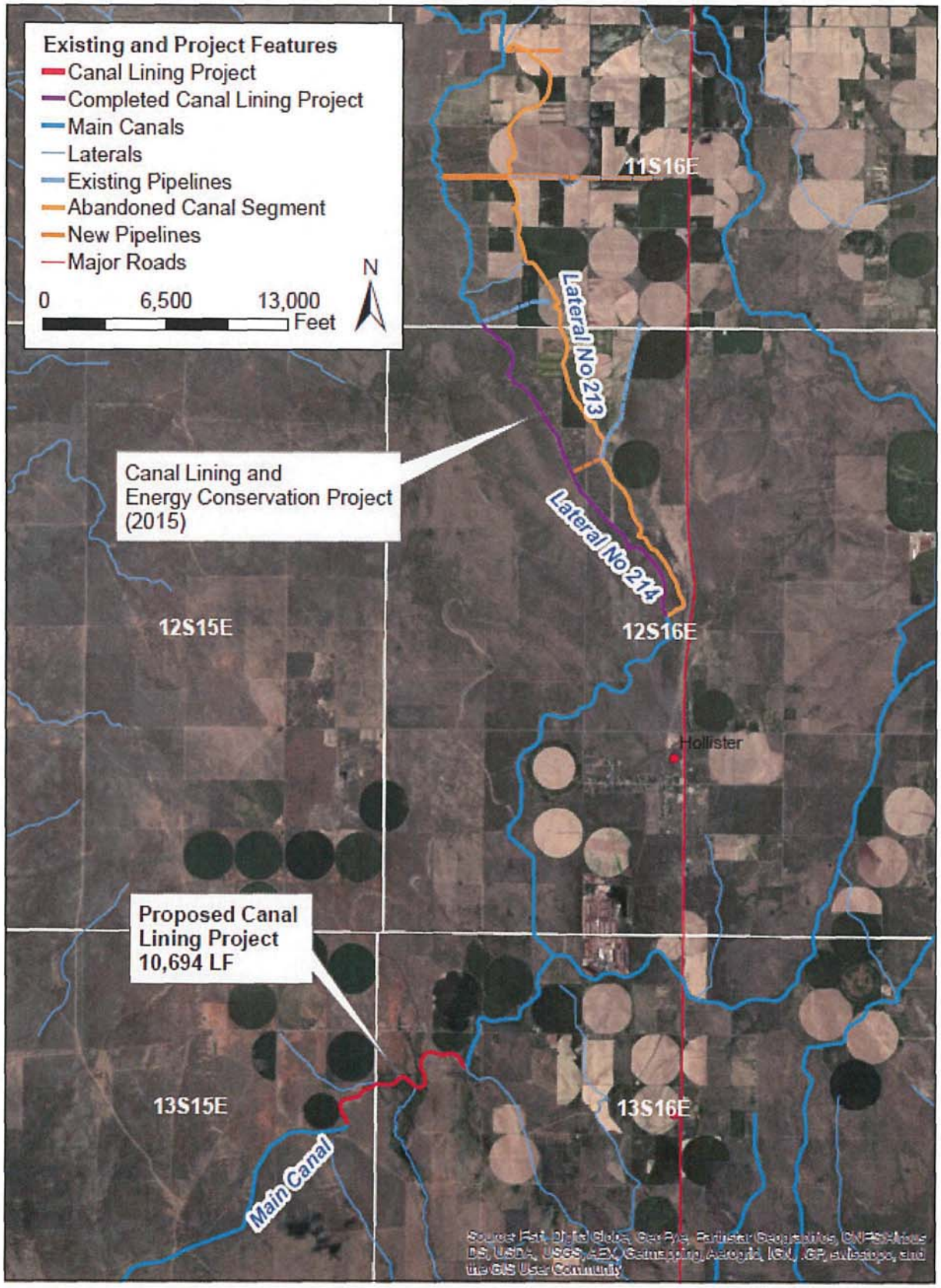


FIGURE 2
Salmon River Canal Company Area Map

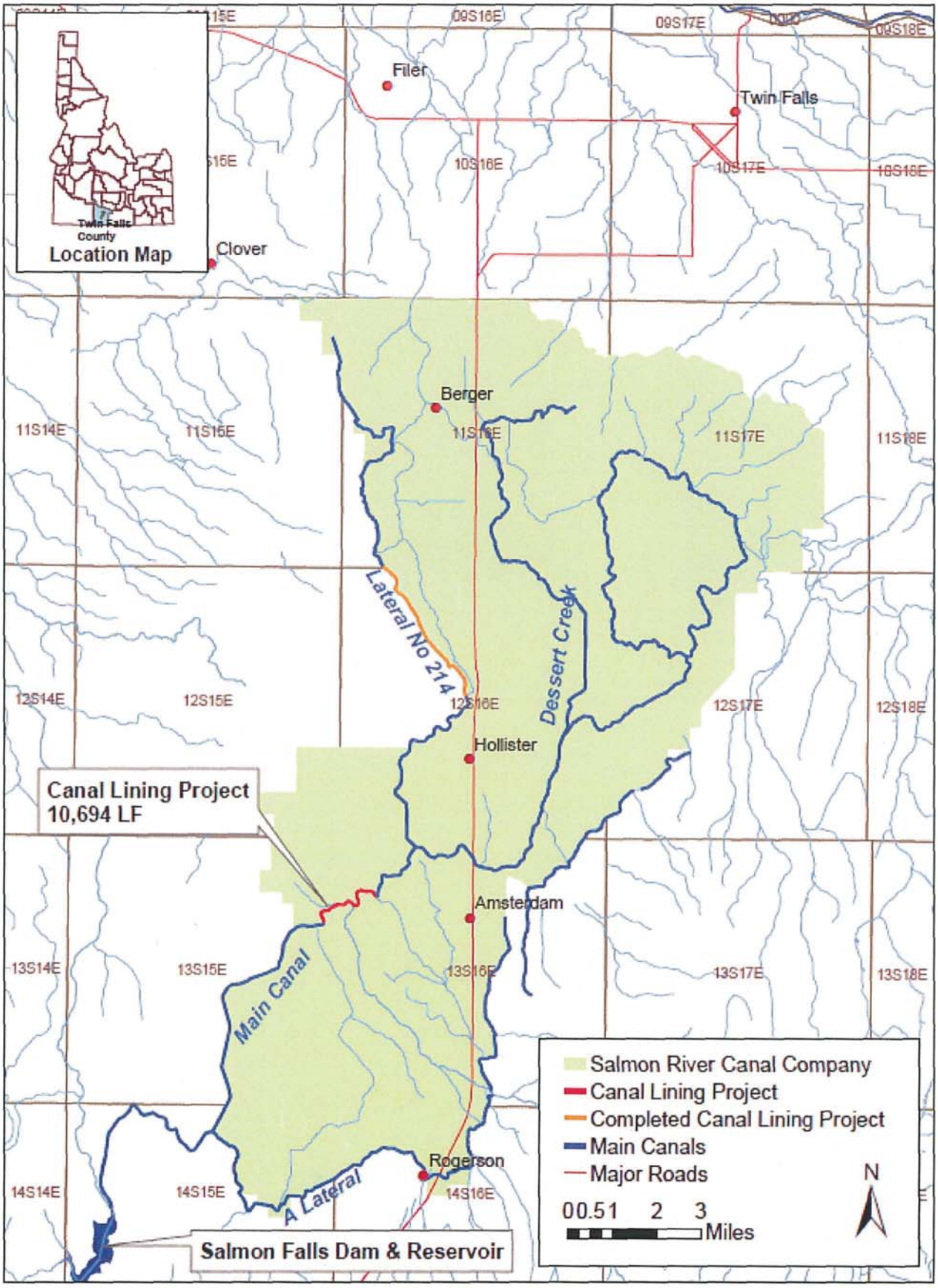
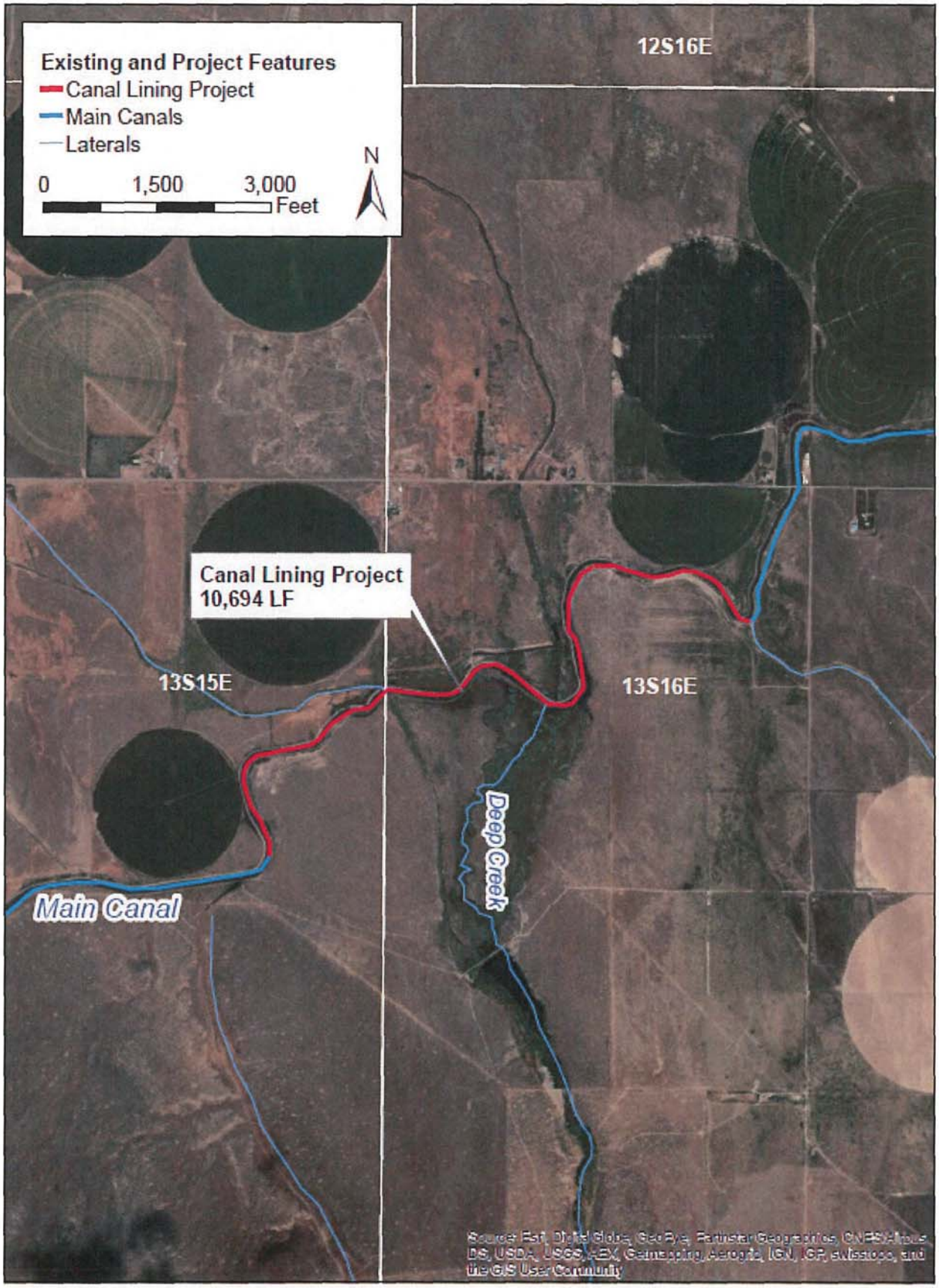


FIGURE 3
Salmon River Canal Company Project Map



1.4 Technical Project Description

This section includes a technical description of the project based on project planning completed to date. The project will significantly reduce seepage losses. Water conservation benefits from the project will be immediate, and expected savings will result in enhanced water management.

The existing canal bottom on the Main Canal is earth-lined, and many sections of the bottom are solid rock while others have some silt. Seepage losses have been apparent for many years based on annual water measurements, visual observations of seepage through the canal banks and frequent bank repairs, and vegetation growth downslope of the canal banks. The limits of the project were determined based on visual observations of where the seepage is the most extensive based on ponding, and extensive vegetation growth downslope of the banks, as can be seen in the aerial photograph on Figure 3. Seepage is so extensive within this reach that one shareholder can pump ponded seepage to operate an irrigation pivot.

The proposed project will install a 60-mil high-density polyethylene (HDPE) geomembrane liner in the Main Canal for a length of 10,694 LF.

1.4.1 Planning to Date

1.4.1.1 Project Funding

If awarded the WaterSMART grant, the Canal Company will have the required funds to complete this high-priority project.

1.4.1.2 Canal Lining

The existing canal section of the Main Canal has a bottom width of about 40 feet and approximate top width of 60 feet. The Canal Company plans to use a 60-mil HDPE geomembrane to line the Main Canal. This material was selected because of its durability and ease in making repairs. This material has a projected 50-year lifespan.

Refer to Sections 2.3.1 and 2.3.4 for a detailed description of personnel and equipment needs to complete the project.

1.4.1.3 Canal Structures

Two 36-inch metal headgates will be installed as part of the project. Currently there are two wooden radial gates that open into a flood control channel. These gates were part of the original canal construction and have not functioned properly for many years. Additionally, the wooden gates do not seal well, resulting in leakage. Replacing the gates with metal headgates will reopen a historic flood control channel and reduce water losses in the project reach.

A 72-inch corrugated metal pipe will be installed directly across from the two new headgates on the Main Canal so that equipment can access that side of the canal during liner preparation and installation. The new 72-inch corrugated metal pipe is located within the Canal Company's right-of-way.

1.5 Evaluation Criteria

1.5.1 Evaluation Criterion A: Quantifiable Water Savings

The Canal Company's long-term goal is to ensure adequate deliveries.

Describe the amount of water saved. For projects that conserve water, state the estimated amount of water conserved in AF per year as a direct result of this project.

The project is expected to conserve at least 3,919 AF on an annual basis, which represents 5.5 percent of the average annual supply. The one-time investment of $607,943 is expected to save approximately 195,937 AF over a 50-year period. Table 5 summarizes the estimated daily water losses that could be conserved from the project.

Where is that water currently going (i.e., back to the stream, spilled at the end of the ditch, seeping into the ground, etc.)?

The water is returning to the ground. Any unused water not lost to seepage or evaporation is collected at one of three storage ponds at the tail-end of the system. No water is spilled at the end of the system or returned for beneficial use by other water users.

Where will the conserved water go?

Reduced canal seepage loss will result in less draw from stored water in Salmon Falls Creek Reservoir. Conserved water will remain in the Salmon Falls Creek watersheds instead of being diverted. Less draw on stored water will extend the irrigation for its water users. The water conserved by constructing the project will be used to satisfy existing irrigation demands in the northern part of the Canal Company system.

What is the applicant's average annual acre-feet of water supply?

The Canal Company's average annual water supply is 70,645 AF (see Table 1 in Section 1.2.1.1).

Summary of Water Savings Calculations and Methodology

How has the estimated average annual water savings that will result from the project been determined?

During the 2018 irrigation season the Canal Company contracted with WaterWorks ULTD to measure discharge immediately upstream and downstream of the proposed canal lining segment in preparation of the grant application to estimate water losses. WaterWorks ULTD took measurements using a Teledyne RD Instruments StreamPro Acoustic Doppler Current Profiler (ADCP). Table 5 presents daily water supply for the proposed canal lining segment as calculated with the upstream and downstream discharge measurements, deliveries between the two measurement points, and calculated losses for the Main Canal. Total losses include both seepage and evaporation.

Evaporation losses were estimated using the average pan evaporation for the period of record (1963-2005) at the Twin Falls WSO climate station. The average pan evaporation was adjusted by a factor of 0.75 to more closely estimate the evaporation from natural waterbodies. The monthly evaporation was calculated based on the surface area of the canal lining segment.

Seepage losses account for the remainder of the total losses in the Main Canal. On average for the days measured during the 2018 irrigation season, seepage losses in the Main Canal account for 74 percent of the supply.

The average monthly seepage rate was calculated based on the surface area of the canal lining segment. The average seepage rate is 19.3 gal/ft^2/day. This high seepage rate is indicative of the rocky, earth-lined canal. Based on the average irrigation season of 120 days, annual seepage losses are estimated to be 4,557 AF/year.

A case study evaluating various synthetic lining products demonstrated the potential for a 94 percent reduction in seepage losses following canal lining. As described in Section 1.2.3.2, the

previous Lateral No. 214 canal lining project resulted in an 86 percent reduction in seepage losses. Therefore, the conservative estimated water savings as a result of this project is 3,919 AF/year, which is 86 percent of the total annual seepage losses in the Main Canal, but savings could be greater. These water savings account for 5.5 percent of the Canal Company's total annual water supply (70,645 AF).

TABLE 5
Daily Water Supply, Delivery, and Calculated Losses for the Main Canal Lining Project Reach

Measurement Date	Supply[a] (AF)	Deliveries (AF)	Total Losses (AF)	Average Pan Evaporation (in/day)	Evaporation Losses (AF)	Seepage Losses (AF)	Seepage Rate (gal/ft²/d)
6/12/2018	57.5	7.9	49.6	0.31	0.28	49.3	25.0
6/26/2018	39.7	9.9	29.8	0.31	0.28	29.5	15.0
7/27/2018	42.4	16.4	26.1	0.33	0.30	25.8	13.1
9/5/2018	63.5	15.9	47.6	0.29	0.27	47.3	24.0
AVERAGE							**19.3**

[a] Daily water supply is the difference between the discharge and calculated daily volume immediately upstream and downstream of the proposed Main Canal lining segment.

How have average annual canal seepage losses been determined?

As previously described and presented in Table 5, the canal seepage rate in the Main Canal is estimated to be 19.3 gal/ft²/day, which equates to 4,557 AF/year in seepage losses.

What are the expected post-project seepage/leakage losses and how were these estimates determined (e.g., can data specific to the type of material being used in the project be provided)?

The post-project seepage/leakage losses are anticipated to be 638 AF, which is 14 percent of the average annual losses in the Main Canal. This estimate is based on a conservative 86 percent reduction in seepage losses following canal lining, as previously described.

What are the anticipated annual transit loss reductions in terms of AF per mile for the overall project and for each section of the canal included in the project?

The anticipated annual transit loss reduction as a result of canal lining associated with this project is 1,935 AF/mile for the 10,694-LF segment of canal based on annual water savings of 3,919 AF/year.

How will actual canal loss seepage reductions be verified?

Following construction, the Canal Company will take select daily discharge measurements to verify seepage reductions for the Main Canal using the same technology as was used to estimate the current losses (Teledyne RD Instruments StreamPro ADCP).

Include a detailed description of the materials being used.

Megaplast 60-mil HDPE liner is a durable, textured, single-sided geomembrane. In addition to the liner, installation will include an 8-ounce non-woven geotextile cushion liner to protect the

geomembrane and reduce the need for repairs associated with sharp subgrades. This material has a projected 50-year lifespan.

1.5.2 Evaluation Criterion B: Water Supply Reliability

Explain and provide detail of the specific issue(s) in the area that is impacting water reliability, such as shortages due to drought, increased demand, or reduced deliveries. Will the project directly address a heightened competition for finite water supplies and over-allocation?

Drought conditions continue to impact water users across the Magic Valley. It is not uncommon for early water shutoff. The Canal Company has water rights for and is obligated to deliver 1.167 AF per share of stock when water is available. As shown in Table 2, in the last 10 years the Canal Company has delivered only 66 percent of the full water allotment to its water users. Over the last 25 years the Canal Company has delivered a full allotment only 28 percent of the time. In addition, since 1999, water shutoff has occurred as early as July three times.

Describe how the project will address the water reliability concern? Describe where the conserved water will go and how it will be used (e.g., reduced pumping, reduce diversions, made available for transfer, left in the river).

Reduced canal seepage loss will result in less draw from stored water in Salmon Falls Creek Reservoir. Conserved water will remain in the Salmon Falls Creek watersheds instead of being diverted.

Describe the mechanism that will be used to put the conserved water to the intended use.

By conserving water that would normally be lost to seepage this project will make water available to alleviate water supply shortages resulting from drought. Water would remain in the storage system, which would extend the length of the water season.

Indicate the quantity of conserved water that will be used for the intended purpose.

Approximately 3,919 AF per year or, 5.5 percent, of the water used within the Canal Company's service area will be conserved. The total annual water supply is based on the average annual water supply over the last 15 years.

$$\frac{\text{Estimated Amount of Water Conserved} = 3{,}919\ \text{AF}}{\text{Average Annual Water Supply} = 70{,}645\ \text{AF}} = 5.5\%$$

Will the project make water available to achieve multiple benefits or to benefit multiple water users (e.g., agriculture, municipal and industrial, environmental, recreation, others)?

Water savings resulting from canal lining will primarily benefit agricultural users in a rural community. The project will minimize economic losses from drought conditions by improving the reliability of water supplies during times of drought.

In addition, less draw on stored water will enhance recreational activities. The Salmon Falls Creek Reservoir is a popular destination for fishing and boating, and recreation sites have been developed by Twin Falls County Parks and Waterways and the Bureau of Land Management. The Salmon Falls Creek Reservoir is considered by some to be one of the most plentiful fisheries in southern Idaho. Many fish are stocked in the reservoir, including brown trout, chinook salmon, kokanee salmon (landlocked sockeye), yellow perch, black crappie, channel catfish, and smallmouth bass.

Does the project promote and encourage collaboration among parties in a way that helps increase the reliability of the water supply (e.g., widespread support, collaboration/support, prevent a water-related crisis or conflict).

There is widespread support to increase water conservation efforts to increase the reliability of the water supply. In low-water years there is tension among water users.

1.5.3 Evaluation Criterion E: Department of the Interior Priorities

Creating a Conservation Stewardship Legacy

With implementation of the proposed conservation improvements, the draw on irrigation water supplies will be reduced by 3,919 AF per year (5.5 percent of the Canal Company's average annual water supply). Canal lining is a sustainable solution for long-term water savings to conserve water for the future.

Utilizing our Natural Resources

Water conservation projects will make more water available to alleviate water supply shortages resulting from drought by conserving water that would normally be lost to seepage. Water would remain in the storage system, which would extend the length of the water season. These projects will minimize economic losses from drought conditions by improving the reliability of water supplies during times of drought.

Restoring Trust with Local Communities

Water conservation projects will help establish trust with our local communities by making conserved water available in times of drought, along with providing a reliable source of irrigation water to the Canal Company's water users.

Striking a Regulatory Balance

Preliminary environmental review shows that there will be minor or no negative environmental impacts to earth (soils), air, plants, animals, energy, natural resources, environmental health (health hazards and noise), land use, housing, aesthetics, recreation, historic and cultural preservation, transportation, public services, and utilities.

Any work will be limited to the Canal Company's existing right-of-way; adjacent lands have been grazed or cultivated in prior decades. No known environmental or cultural resources of special value exist. Therefore, it is expected that activities required for National Environmental Policy Act of 1969 (NEPA), National Historic Preservation Act (NHPA), and Endangered Species Act (ESA) compliance will be minimal when the project is ready for construction.

Modernizing our Infrastructure

Canal lining as a conservation measure is a proven technology and is implemented through standard construction practices. Continued modernization of the historic earthen canal system through canal lining is an effective way to reduce water losses, stretch water supplies, and avoid conflicts over water.

1.5.4 Evaluation Criterion F: Implementation and Results

Subcriterion No. F.1 – Project Planning

Project planning to date has included the following:

- Determination of location for canal lining
- Verification of existing water losses
- Selection of liner manufacturer and material
- Planning for equipment and personnel needed to complete the project

Subcriterion No. F.2 – Performance Measures

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water saved, increased energy efficiency).

Following construction, the Canal Company will take select daily water measurements in the Main Canal using the same technology as was used to estimate water losses in 2018. Post-project discharge data at the head and tail of the Main Canal, along with deliveries along this segment, will be compared to pre-project data.

Subcriterion No. F.3 – Readiness to Proceed

Describe the implementation plan of the proposed project. Include a project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

A $1.00-per-share assessment was implemented in 2004 to save funds for future improvements. If awarded the WaterSMART grant, the Canal Company will have the required funds to complete this project.

If awarded the WaterSMART grant by August 2019, the Canal Company will obtain permits and have the funding for construction by fall 2019, following the irrigation season, and have the project completed by spring 2020.

Describe any permits that will be required, along with the process for obtaining such permits.

Federal approvals for the project include NEPA, NHPA, and ESA compliance. If successful in obtaining the WaterSMART grant, the Canal Company will work with Reclamation to determine the appropriate level of NEPA compliance. Any work will be limited to the Canal Company's right-of-way; adjacent lands have been grazed or cultivated in prior decades. No known environmental or cultural resources of special value exist. Therefore, it is expected that activities required for NEPA, NHPA, and ESA compliance will be minimal. If awarded the WaterSMART grant by August 2019, the Canal Company is confident that the necessary approvals can be secured by fall 2019.

There are no state or local permitting requirements.

Identify and describe any engineering or design work performed specifically in support of the proposed project.

In the summer 2018 the Canal Company hired WaterWorks ULTD to take water measurements immediately upstream and downstream of the proposed canal lining segment to verify water losses. Costs associated with water measurements to verify existing losses are not included as part of this grant application.

Describe any new policies or administrative actions required to implement the project.

There are no new policies or administrative actions required.

Describe how the environmental compliance estimate was developed. Has the compliance cost been discussed with the local Reclamation office?

It is expected that activities required for NEPA, NHPA, and ESA compliance will be minimal, therefore, the budget estimate for environmental compliance has be estimated to be approximately 1 percent of the total project budget. The budget assumes 5 days for Reclamation review and 6 days for the Canal Company to complete compliance documents and develop mitigation measures.

1.5.5 Evaluation Criterion G: Nexus to Reclamation Project Activities

Is the proposed project connected to Reclamation project activities (e.g., receive Reclamation project water, in the same basin as Reclamation project, project will contribute water to a basin where a Reclamation project is located, benefit to tribes)?

The project is located on BLM lands and the Canal Company does not have storage rights in any Reclamation facilities; however, the Canal Company's water conservation mission is consistent with the U.S. Department of the Interior's mission to stretch scarce water supplies and avoid conflicts over water.

1.5.6 Evaluation Criterion H: Additional Non-Federal Funding

The non-federal funding portion of the total project cost is 51 percent, assuming a WaterSMART grant in the amount of $300,000.

$$\frac{\text{Non-Federal Funding} = \$307,943}{\text{Total Project Cost} = \$607,943}$$

SECTION 2

Project Budget

2.1 Funding Plan

This project will leverage $300,000 of federal investments against $307,943 of non-federal investments. No federal funds have been requested or received from federal sources aside from Reclamation. There are no additional funding sources; therefore, no letters of support are included.

The Canal Company has the necessary funds for the non-federal cost share with operating accounts and regular assessments, as well as savings from the pipeline water conservation fund that comes from the $1.00-per-share additional assessment.

TABLE 6
Summary of Non-Federal and Federal Funding Sources

Funding Sources	Funding Amount
Non-Federal Entities	
Salmon River Canal Company	$307,943
Non-Federal Subtotal	$307,943
Requested Reclamation Funding	$300,000
Total Project Funding	$607,943

2.2 Budget Proposal

The assembled cost of the project has been estimated to be $607,943. The project estimate is based on reasonable and allowable costs; quotes from a local equipment rental company; input from engineering professionals; equipment usage rates outlined by the U.S. Army Corps of Engineers (USACE); and historical costs and production rates. These costs were assembled with the intent for construction to begin in fall 2019 and be completed by spring 2020.

The detailed project budget is provided in Attachment A. A summary of non-federal and federal funding sources is shown in Table 7.

TABLE 7
Summary of Non-Federal and Federal Funding Sources

Funding Sources	Percent of Total Project Cost	Total Cost by Source
Recipient Funding	51	$307,943
Reclamation Funding	49	$300,000
Total Project Funding	100	$607,943

2.3 Budget Narrative

2.3.1 Salaries and Wages

As described in the budget table in Attachment A, the Canal Company expects to make an in-kind investment of $45,889 in salaries and wages. Salaries for 2020 have not yet been established so, for the purpose of the budget estimate, the Canal Company has assumed a 3 percent raise from 2019 rates. These investments support the project, as follows:

- Project planning and implementation from November 2018 through spring 2019
- Construction and oversight associated with canal lining from fall 2019 through spring 2020
    - Preparation for canal lining includes removing excess material from the canal, excavating the liner anchor trench, removing rock, and shaping the canal banks. The Canal Company estimates that it will take 30 days to prepare the canal for liner placement. Canal Company personnel that will be part of the preparation include the Manager, Assistant Manager, Operator 1, and Operator 2 (240 hours each in 2019).
    - For canal lining, it is assumed that the production rate for placing the liner will be 500 LF per day. Canal Company personnel that will be part of the liner installation include the Manager, Assistant Manager, and Operators 1 through 4 (86 hours each in 2019 and 86 hours each in 2020).

In-kind investments exclude general administration outside the project.

2.3.2 Fringe Benefits

As described in the budget table in Attachment A, the Canal Company expects to make an in-kind investment of $23,492 in fringe benefits. These investments provide for social security, Medicare, state pension, workers compensation, housing, mileage and phone allowances (where applicable), sick leave, and health insurance premiums.

2.3.3 Travel

There are no travel-related costs associated with the project.

2.3.4 Equipment

The Canal Company owns equipment necessary for project completion. The project budget includes Canal Company-owned equipment in excess of $5,000 and having a useful life of more than 1 year. Hourly rates were adjusted for depreciation per USACE guidelines. Owner-owned equipment that will be used for the canal lining project includes the following:

- Excavator 1 (Caterpillar 312E Model Year 2005)
- Excavator 2 (Kobelco SK260 LC LR Model Year 2007)
- D4 Dozer (Caterpillar D4K-XL Model Year 1989)
- Road Grader (John Deere 770G Model Year 1977)
- Backhoe (John Deer 410J Model Year 2007, equivalent model Caterpillar 420F)
- Front Loader (John Deere 544J Model Year 2005, equivalent model Caterpillar 953-D)

During preparation for canal lining, Excavator 1 and Excavator 2 (Canal Company-owned equipment) will remove excess material from the canal, excavate the anchor trench, remove rock, and shape the canal banks. The Canal Company will rent an excavator with a hydraulic hammer for

2 weeks (Excavator 3) that will be used for rock excavation as part of canal grading. The cost of the rental is based on a written quote provided by a local equipment rental.

During the liner installation Excavator 2 will be used to unroll and drag liner across the canal and Excavator 1 will be used to fill the anchor trench and begin covering the liner. During the liner installation the Canal Company will rent an additional excavator (Excavator 4) with a long reach for 2 weeks to assist with the installation. All three excavators will finish burying the liner. The D4 dozer (Canal Company-owned equipment) will be used to help level the bottom of the canal; after installation, it will compact and level the cover material. The road grader will finish leveling the bottom of the canal prior to and after installation. Additionally, it will level and finish the top of the canal bank after installation. The front loader (Canal Company-owned equipment) will be used to haul gravel that will be used to bury the liner where native material is unavailable.

The backhoe (Canal Company-owned equipment) will be used to remove the wooden radial gates and cement structure. The backhoe will also be used to install the new headgates and finish compacting the ground around the new structure.

2.3.5 Materials and Supplies

The materials needed to complete this project include the 60-mil HDPE geomembrane liner and 8 ounces of non-woven geotextile (cushion liner). The budget estimate assumes the liner will be approximately 60 feet in width and extend from the top of the bank on each side of the canal channel. The length of the canal improvements is 10,694 LF. The HDPE liner is 23 feet in width and one roll is 370 feet in length. The cost of the HDPE liner and cushion liner is $0.49/SF ($323,137) and $0.089/SF ($57,106), respectively, based on a February 2019 manufacturer quote.

As described in Section 1.4.1.3, two wooden radial gates will be replaced with two 36-inch metal headgates with concrete headwalls.

The Canal Company estimates that they will need 5,000 yards of gravel to bury the liner in areas that do not contain enough native material to do so.

A detailed breakdown of the materials needed is provided in Attachment A.

2.3.6 Contractual

There are no contractual costs associated with the project.

2.3.7 Environmental and Regulatory Compliance Costs

For purposes of this budget proposal, environmental and regulatory compliance costs are estimated at approximately 1 percent of the total project cost. The Canal Company anticipates minimal environmental and regulatory compliance costs. The budget assumes 5 days for Reclamation review and 6 days for the Canal Company to complete compliance documents and develop mitigation measures. The total budgeted amount for environmental and regulatory compliance costs for the project is $7,151.

It is anticipated that any environmental costs incurred would be related to time spent by the Canal Company and Reclamation for time required for approvals or permits and to determine the level of environmental compliance required for the project; prepare any necessary NEPA, NHPA, and/or ESA environmental compliance documents or reports; and review any environmental compliance documents.

2.3.8 Other – Reporting

This line item includes costs to be incurred while reporting to federal funders. In accordance with the FOA requirements, the Canal Company will prepare and submit to Reclamation an SF-425 Federal Financial Report, interim performance reports (three total), and a final performance report.

2.3.9 Indirect Costs

For this project, the recipient will not have any indirect costs. All costs associated with the project are direct and can be documented as such.

2.3.10 Total Costs

The estimated total project cost is $607,943. The requested federal share is $300,000; the total non-federal share is $307,943. A copy of the completed SF 424C, Budget Information – Construction Programs, is provided in the application with the Federal Forms.

Please refer to the Detailed Project Budget provided in Attachment A.

SECTION 3

Environmental and Cultural Resources Compliance

Will the project impact the surrounding environment (i.e., soil [dust], air, water [quality and quantity], animal habitat, etc.)? 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.

The project will have minimal impacts on the surrounding environment. The project site will be accessed and all work will occur within the Canal Company's right-of-way. Excavation in soil and some rock will be required for liner installation and anchoring. During construction, best management practices, such as sprinkling the ground surface for dust control, will be maintained in ground-disturbance areas.

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

No known environmental resources of special value occur, including rivers, streams, lakes, fisheries, threatened plant and animal communities, spawning grounds, or flyways.

Are there wetlands or other surface waters inside the project boundaries that potentially fall under Federal Clean Waters Act jurisdiction as "waters of the United States?" If so, please describe and estimate any impacts the project may have.

No wetlands or other surface waters that could fall under Clean Water Act jurisdiction exist in the project area.

When was the water delivery system constructed?

Construction of Salmon Falls Dam began in 1908 with the first delivery in 1911. System improvements have been made to the present day.

Will the 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.

Original structures within the project reach include two wooden radial gates that were constructed in approximately 1910. The gates serve to allow flood control in a section where Deep Creek flows into the canal. The gates have not functioned properly in many years and have significant leakage. As part of the canal lining project these gates will be replaced with two new 36-inch metal headgates with a concrete headwall.

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

The land adjacent to this project has been grazed or cultivated in prior years and does not likely represent historic conditions. No aboveground structures are present.

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

No identified or known cultural resources of significance exist within the Canal Company service area.

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

The project will not have a disproportionally high and adverse effect on low income or minority populations. No communities exist adjacent to the project area.

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

This project will not limit access to and ceremonial use of Indian sacred sites.

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

The project will not contribute to the spread of noxious weeds or non-native invasive species.

SECTION 4

Required Permits or Approvals

4.1 Federal Permitting

Federal approvals for the project include NEPA, NHPA, and ESA compliance. Earthwork will be limited to the right-of-way and there are no known environmental or cultural resources of special value; therefore, it is expected that activities required for NEPA, NHPA, and ESA compliance will be minimal.

- It is anticipated that the project does not have significant impacts on the environment and will fit within a recognized Categorical Exclusion to NEPA. Environmental impacts will be minimized during construction using best management practices.
- Federal cultural resource laws and regulations, including the NHPA and Native American Trust Assets, must also be reviewed prior to project construction. The Canal Company will cost-share with Reclamation to conduct all necessary field surveys and literature reviews. It is anticipated that the project does not have the potential to cause effects to historic properties and that the findings will be concluded in the Section 106 process.
- It is anticipated that there are no endangered or threatened species or designated critical habitat in the project area and that no further compliance measures are required.

If awarded the WaterSMART grant by August 2019, the Canal Company is confident that necessary approvals can be secured by fall 2019.

4.2 State Permitting

There are no state permitting requirements.

4.3 Local Permitting

There are no local permitting requirements.

SECTION 5

Letters of Support

The Canal Company plans to fully fund the non-federal portion of project costs; therefore, no letters of project support are included.

SECTION 6

Official Resolution

The Canal Company is committed to the financial and legal obligations associated with the receipt of financial assistance under the WaterSMART Grants Program. The Canal Company has the resources and capability to provide the amount of funding for contributions specified in the funding plan. The Canal Company will work with Reclamation to meet the established deadlines to enter into a cooperative agreement.

An official resolution that identifies the official with legal authority to enter into agreement was adopted by the Canal Company Board of Directors at its meeting on February 28, 2019 (see Attachment B).

Attachment A
Budget Proposal

Attachment A - Budget Proposal

Budget Item Description	Computation $/Unit	Quantity	Unit	Total Cost
Salaries and Wages				
PLANNING AND DESIGN				
John Shetler, Manager (2019)	$ 31.52	40	hour	$ 1,261
Shawn VanTassel, Assistant Manager (2019)	$ 21.21	20	hour	$ 424
Jeanette Fuller, Office Manager (2019)	$ 21.32	40	hour	$ 853
CONSTRUCTION AND CONSTRUCTION MANAGEMENT				
Canal Lining				
John Shetler, Manager (2019)	$ 31.52	326	hour	$ 10,261
John Shetler, Manager (2020)	$ 32.47	86	hour	$ 2,777
Shawn VanTassel, Assistant Manager (2019)	$ 21.21	326	hour	$ 6,905
Shawn VanTassel, Assistant Manager (2020)	$ 21.85	86	hour	$ 1,869
Andy Shetler, Equipment Operator 1 (2019)	$ 17.84	326	hour	$ 5,808
Andy Shetler, Equipment Operator 1 (2020)	$ 18.38	86	hour	$ 1,572
Ed Pastoor, Equipment Operator 2 (2019)	$ 18.00	326	hour	$ 5,860
Ed Pastoor, Equipment Operator 2 (2020)	$ 18.54	86	hour	$ 1,586
Jeanette Fuller, Equipment Operator 3 (2019)	$ 21.32	86	hour	$ 1,824
Jeanette Fuller, Equipment Operator 3 (2020)	$ 21.96	86	hour	$ 1,879
Brad Stinson, Equipment Operator 4 (2019)	$ 17.33	86	hour	$ 1,483
Brad Stinson, Equipment Operator 4 (2020)	$ 17.85	86	hour	$ 1,527
Subtotal				$ 45,889
Fringe Benefits				
PLANNING AND DESIGN				
John Shetler, Manager (2019)	$ 14.77	40	hour	$ 591
Shawn VanTassel, Assistant Manager (2019)	$ 12.09	20	hour	$ 242
Jeanette Fuller, Office Manager (2019)	$ 11.00	40	hour	$ 440
CONSTRUCTION AND CONSTRUCTION MANAGEMENT				
Canal Lining				
John Shetler, Manager (2019)	$ 14.77	326	hour	$ 4,808
John Shetler, Manager (2020)	$ 15.21	86	hour	$ 1,302
Shawn VanTassel, Assistant Manager (2019)	$ 12.09	326	hour	$ 3,936
Shawn VanTassel, Assistant Manager (2020)	$ 12.45	86	hour	$ 1,065
Andy Shetler, Equipment Operator 1 (2019)	$ 11.53	326	hour	$ 3,754
Andy Shetler, Equipment Operator 1 (2020)	$ 11.88	86	hour	$ 1,016
Ed Pastoor, Equipment Operator 2 (2019)	$ 10.03	326	hour	$ 3,265
Ed Pastoor, Equipment Operator 2 (2020)	$ 10.33	86	hour	$ 884
Jeanette Fuller, Equipment Operator 3 (2019)	$ 11.00	86	hour	$ 941
Jeanette Fuller, Equipment Operator 3 (2020)	$ 11.33	86	hour	$ 969
Brad Stinson, Equipment Operator 4 (2019)	$ 13.77	86	hour	$ 1,178
Brad Stinson, Equipment Operator 4 (2020)	$ 14.18	86	hour	$ 1,213
Subtotal				$ 25,604

Attachment A - Budget Proposal Continued

Budget Item Description	Computation $/Unit	Quantity	Unit	Total Cost
Materials/Supplies				
Canal Lining				
60-mil HDPE Liner	$ 0.49	659,463	SF	$ 323,137
8 oz Non-Woven Geotextile	$ 0.089	641,640	SF	$ 57,106
Gravel	$ 8.00	5,000	YD	$ 40,000
Canal Structures				
Concrete	$ 130	60	YD	$ 7,800
36-in Headgate	$ 2,500	2	EA	$ 5,000
72-in CMP Culvert	$ 2,500	1	EA	$ 2,500
Subtotal				$ 435,543
Equipment				
Site Preparation				
Excavator 1 (Caterpillar 312E Model Year 2005)	$ 44.55	240	hour	$ 10,692
Excavator 2 (Kobelco SK260 LC LR Model Year 2007)	$ 62.07	240	hour	$ 14,897
Installation				
Excavator 1 (Caterpillar 312E Model Year 2005)	$ 44.55	171	hour	$ 7,622
Excavator 2 (Kobelco SK260 LC LR Model Year 2007)	$ 62.07	171	hour	$ 10,621
D4 Dozer (Caterpillar D4K-XL Model Year 1989)	$ 32.71	171	hour	$ 5,597
Road Grader (John Deere 770G Model Year 1977)	$ 47.78	171	hour	$ 8,175
Backhoe (Caterpillar 420F Model Year 2007)	$ 30.24	40	hour	$ 1,209
Front Loader (Caterpillar 953-D Model Year 2005)	$ 61.80	40	hour	$ 2,472
				$ 61,286
Contractual/Construction				
CONSTRUCTION				
Equipment				
Site Preparation				
Excavator 3 (with Hydraulic Hammer)	$ 256.25	16	hour	$ 4,100
Installation				
Excavator 4 (John Deere 250G)	$ 234.46	112	hour	$ 26,259
Subtotal				$ 30,359
Environmental and Regulatory Compliance				
Reclamation Cost Share	$ 140.00	40	hour	$ 5,600
Recipient Cost Share - Compliance Documents	$ 32.32	24	hour	$ 776
Recipient Cost Share - Mitigation Measures	$ 32.32	24	hour	$ 776
Subtotal				$ 7,151
Other				
Reporting (2 Reports in 2019 @ 8hr/report)	$ 32.32	32	hour	$ 1,034
Reporting (2 Reports in 2020 @ 8hr/report)	$ 33.61	32	hour	$ 1,076
Subtotal				$ 2,110
Total Direct Costs				**$ 607,943**
Indirect Costs - __%				0%
Total Project Costs				**$ 607,943**

Attachment B
Official Resolution

SALMON RIVER CANAL COMPANY, LTD.

HOLLISTER, IDAHO

2700 HWY 93, TWIN FALLS, IDAHO 83301

PHONE: 208-655-4220

PRESIDENT
Lance Griff

MANAGER
John Shetler

SALMON RIVER CANAL COMPANY, LTD.

RESOLUTION NO. 2

SALMON RIVER CANAL COMPANY, LTD.

WHEREAS, The Board of Directors of the Salmon River Canal Company has reviewed and is in support of the SRCC WaterSMART Grant financial assistance.

WHEREAS, The Salmon River Canal Company is capable of providing the amount of funding with in-kind contributions, specified in the funding plan; and

WHEREAS, The Salmon River Canal Company will work with the Bureau of Reclamation to meet all established deadlines for entering in to a cooperative agreement.

NOW THEREFORE, BE IT RESOLVED that the Board of Directors agrees and authorizes this resolution to approve and support this grant application and project:

NOW THEREFORE the Manager John Shetler, is authorized, empowered and directed to execute and deliver, in the name and on behalf of company, the Grant agreement if so awarded by Bureau of Reclamation.

DATED: February 28, 2019

Lance Griff

President

Luke E Fuller

Secretary

Directors: Lance Griff, Mike Courtnay, Tony Kevan, Jon McGregor, and Luke Fuller