WaterSMART

Water and Energy Efficiency Grants for FY 2019

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

Funding Group II

Samaria Canal Enclosure Project

Samaria, Idaho

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March 19, 2019

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Technical Proposal and Evaluation Criteria

Executive Summary

The executive summary should include:

- *The date, applicant name, city, county, and state*
- *A one paragraph project summary that specifies the work proposed, including how funds will be used to accomplish specific project activities and briefly identifies how the proposed project contributes to accomplishing the goals of this FOA*
- *State the length of time and estimated completion date for the proposed project*
- *Whether or not the project is located on a Federal facility*

Date: Application due date is March 19, 2019

Applicant: Samaria Water and Irrigation Company
Samaria, Oneida County, Idaho

Project Title: Samaria Canal Enclosure Project

Project Summary:

The Samaria Water and Irrigation Company provides irrigation water to approximately 7,000 acres of agricultural land near Malad City, Idaho. The Samaria Canal is the primary conveyance canal owned by the irrigation company. The purpose of this project is to enclose approximately 9 miles of the Samaria Canal and install a pump to inject water from Warm Springs into the pipeline. The canal has a capacity of 22 cubic feet per second (cfs) and diverts water from the Malad River. Water records from the irrigation company indicate that the canal loses nearly 36.5% of the water diverted through seepage and evaporation. The significant water losses have a negative impact on company shareholders and the general economy of the community. A grant from Reclamation would make this project financially feasible and it is unlikely the project will move forward without Reclamation's assistance. The project contributes to accomplishing the goals of this FOA by conserving approximately 3,075 acre-feet of water annually.

Approximate Length: 27 months

Completion Date: December 2021

Federal Facility: This project is not located on a Federal facility.

Background Data

Applicant's Water Supply

As applicable, describe the source of water supply, the water rights involved, current water uses (e.g., agricultural, municipal, domestic, or industrial), the number of water users served, and the current and projected water demand. Also, identify potential shortfalls in water supply. If water is primarily used for irrigation, describe major crops and total acres served.

Samaria Water and Irrigation Company is a non-profit irrigation company that provides water to agricultural users in and around the town of Samaria. The company owns several water rights to irrigate approximately 7,000 acres of agricultural land. Water is diverted from the Malad River, Big Malad Spring (also known as Illum Spring), Warm Springs, Dry Pine Spring, Rosebud Spring, and Thomas Davis Springs. The concept of the proposed project is to enclose approximately 9 miles of the Samaria Canal, the primary conveyance canal owned by the company.

The Samaria Canal diverts approximately 5,533 acre-feet of water per year from the Malad River. In addition, Warm Springs provides water to the lower segment of the canal. While originally the springs provided year-round flows, recently the springs have dried up in late summer months. The flow from the springs varies each month and year based on snowmelt and groundwater levels. Drought has continually affected the water users in the area. According to the company's water master, water users can only expect two to three turns per season, whereas roughly five years ago, farmers could expect four to five turns per season. Water records from the irrigation company indicate the canal loses nearly 36.5 percent of the water diverted through seepage and evaporation. This project is anticipated to conserve approximately 3,075 acre-feet of water based on water losses in the upper and lower segments with the addition of Warm Springs flows in the lower segment. The primary crop irrigated is alfalfa. The company water rights diverted into the Samaria Canal are shown in the table below. The period of use for all water rights, excluding 15-4009, is the irrigation season from April through October. Water Right 15-4009 has a period of use from November through March for stock water purposes. The irrigation company has 80 shareholders.

Table 1: Water Rights diverted into the Samaria Canal

Water Right	Source	Flow (cfs)	Volume (ac-ft)	Type	Priority
15-2023	Warm Springs	3	1088.9	License	3/1/1940
15-2024	Warm Springs	3.5	1270.4	License	8/28/1940
15-2025	Malad River	22	7985.6	License	9/6/1940
15-2074	Malad River		500	License	9/27/1937
15-2075	Big Malad Spring/Illum Spring		700	License	4/18/1947
15-4009*	Warm Springs	6.5		Statutory Claim	11/1/1925

**This water right is for stockwater, the other rights are for irrigation.*

Water Delivery System

Describe the applicant's water delivery system as appropriate. For agricultural systems, please include the miles of canals, miles of laterals, and existing irrigation improvements (e.g., type, miles, and acres). For municipal systems, please include the number of connections and/or number of water users served and any other relevant information describing the system.

Samaria Water and Irrigation Company's main delivery canal is Samaria Canal, which is approximately 9 miles in length and has a capacity of 22 cfs. The company diverts water from the Malad River into the Samaria Canal where it is then distributed to the shareholders via turnouts from the main canal. Warm Springs contributes water to the lower half of the conveyance system. There are currently 34 turnouts that serve 80 water users. To maximize water usage and increase the local agricultural economy, the irrigation company intends to pipe their entire conveyance system to eliminate seepage and evaporation losses of approximately 36.5%. This amounts to approximately 3,075 acre-feet of water savings each year. As part of this project, meters will be installed on every lateral to improve water management and efficiency. A pump will be installed to pump water from Warm Springs into the proposed pipeline during the irrigation season. Warm Springs' flows will release into the ditch during the winter months to be used for stock water. The company also holds water rights to additional springs to supplement water needs during the late irrigation season.

Hydropower or Energy Efficiency

If the application includes hydropower or energy efficiency elements, describe existing energy sources and current energy uses.

The project does not include any renewable energy or energy efficiency elements.

Prior Work with Reclamation

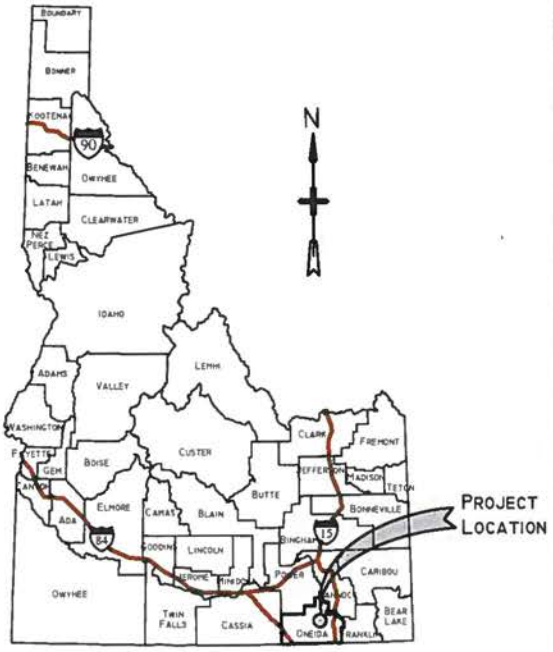
Identify any past working relationships with Reclamation. This should include the date(s), description of prior relationships with Reclamation, and a description of the project(s).

There have been no direct working relationships between Samaria Water and Irrigation Company and Reclamation.

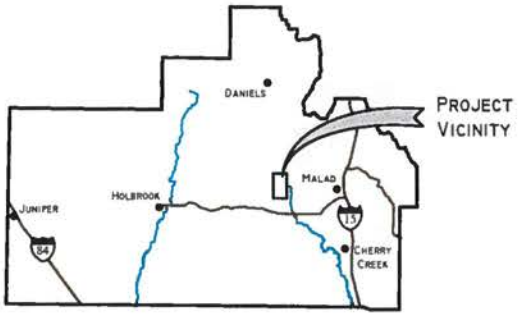
Project Location

Provide specific information on the proposed project location or project area including a map showing the geographic location. For example, {project name} is located in {state and county} approximately {distance} miles {direction, e.g. northeast} of {nearest town}. The project latitude is {##°##'N} and longitude is {###°##'W}.

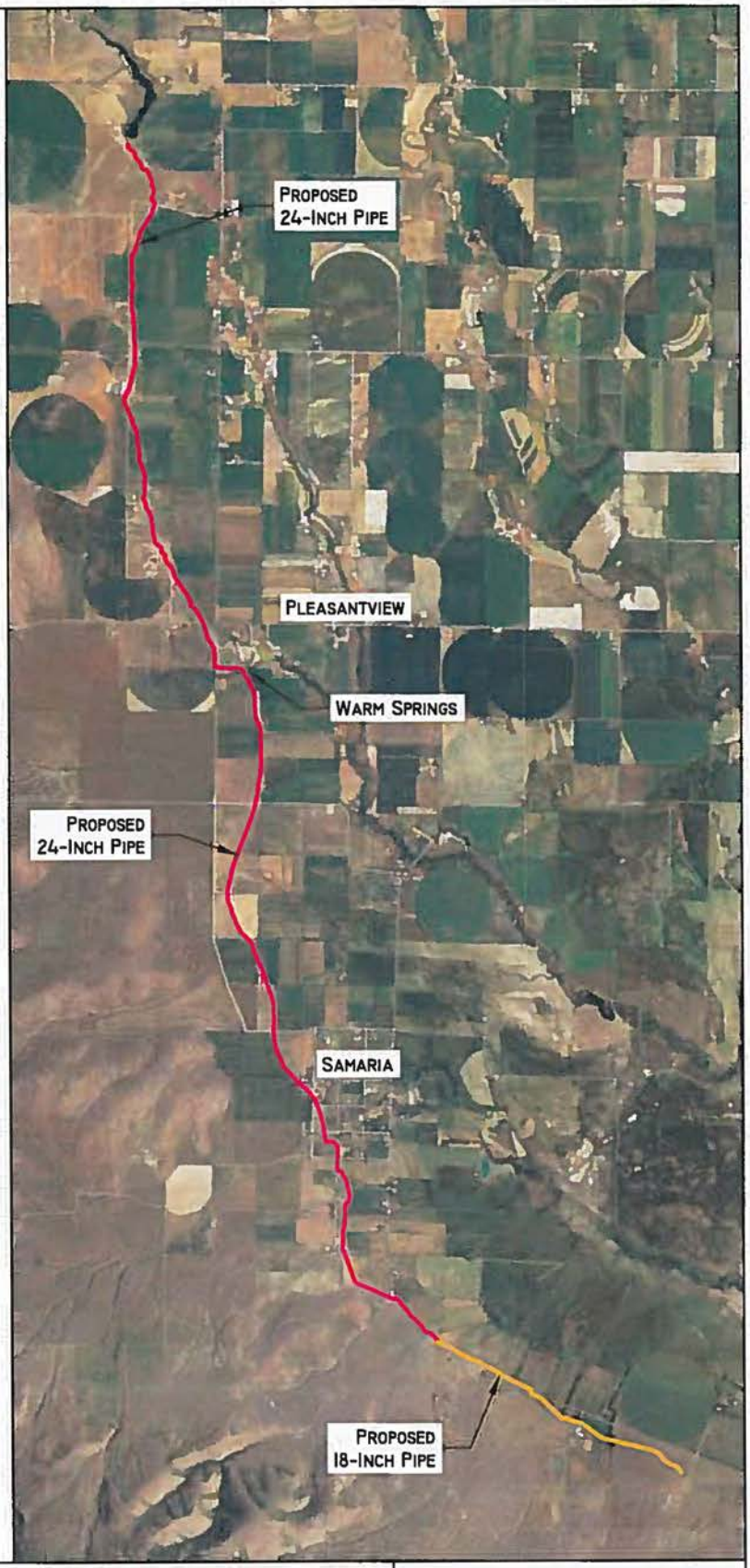
The Samaria Canal Enclosure Project is located in and around Samaria, Oneida County, Idaho. The project latitude is 42°11'40"N and longitude is 112°21'39"W. See Figure 1.



State of Idaho



Oneida County



FRANSON CIVIL ENGINEERS

DATE: MARCH 14, 2019

SCALE:

Project Area Map.dwg

P:\ID\Samaria Water & Irrigation Company\3 - Drawings

SAMARIA WATER AND IRRIGATION COMPANY

SAMARIA WATERSMART APPLICATION

FIGURE 1

PROJECT AREA MAP

Technical Project Description

The technical project description should describe the work in detail, including specific activities that will be accomplished. This description shall have sufficient detail to permit a comprehensive evaluation of the proposal. Please note, if the work for which you are requesting funding is a phase of a larger project, please only describe the work that is reflected in the budget and exclude description of other activities or components of the overall project.

If a grant from Reclamation is received, the irrigation company will submit a loan application to Idaho Division of Water Resources for approval. Once funding is secured, an engineering design criteria report will be prepared to define the best alignment options, pipe sizes, pipe type, design flows, and easement and permitting requirements. Design will proceed to the point where alternatives can be evaluated during NEPA compliance. Once the environmental clearance has been obtained, the final engineering design and construction documents will be prepared. It is anticipated the pipeline will follow the existing canal corridor. Preliminary design shows that the pipeline would vary in size from 24 inches to 18 inches in diameter. A pump will be installed near Warm Springs to pump spring water into the pipeline. Easements will be acquired from the appropriate landowners and state authorities.

Polyvinyl chloride (PVC) pipe will be used to replace the earthen canal. The pipeline will be designed to handle a flow capacity of 15.7 cfs and shall not exceed the National Resources Conservation Service (NRCS) recommended velocity of 5 feet per second. A hydraulic model will be prepared based on the determined design flows to evaluate surges and to verify sizing and pressure requirements. Air valves, flow control valves, pressure reducing valves, drains, fittings, and pertinent pipe appurtenances will be installed at appropriate locations to ensure the proper operation of the pipeline. The pipeline will be drained at the end of the irrigation season to prevent freezing during the cold winter months. The pump installed at Warm Springs will be designed for a capacity of 6 cfs with a minimum 80 percent efficiency.

The complete design of the pipeline will be done by a professional engineering firm to ensure the system meets minimum standards of quality. All design drawings will be stamped by a professional engineer and be available to Reclamation for review.

Upon completion of the project, the irrigation company will be able to efficiently deliver water to their shareholders, manage their resources, and conserve water. The conserved water will allow for better crop growth and improve the economy. It is anticipated the project will be completed in time for the 2021 irrigation season.

Evaluation Criteria

Evaluation Criterion A: Quantifiable Water Savings

Up to 30 points may be awarded for this criterion. This criterion prioritizes projects that will conserve water and improve water use efficiency by modernizing existing infrastructure. Points will be allocated based on the quantifiable water savings expected as a result of the project. Points will

be allocated to give greater consideration to projects that are expected to result in more significant water savings. All applicants should be sure to address the following:

Water Savings

Describe the amount of estimated water savings. *For projects that conserve water, please state the estimated amount of water expected to be conserved (in acre-feet per year) as a direct result of this project.*

This project is anticipated to conserve 3,075 acre-feet of water per year. Starting at the beginning of the irrigation season and continuing through the beginning of July, the irrigation company diverts approximately 17 cfs into the Samaria Canal. Starting in July and continuing through the end of the season, flows diverted decrease to 5 cfs or less.

The Samaria Water and Irrigation Company water master conducted inflow/outflow tests along the Samaria Canal. The canal was divided into two segments: the upper segment is from the inlet of the canal to approximately halfway down the alignment, just before Warm Springs enters the system, and the lower segment runs from the Warm Springs entry point to the end of the system.

Measurements for the upper segment were read at Parshall flumes at the inlet and at the end of the upper segment of the canal, just before the addition of water from Warm Springs. Because the flow in the lower segment of the canal is typically estimated using the water master's best judgment. The best judgment is used because there is only one weir right after the Warm Springs not a second measuring device to calculate flow. Instead, because the soil along the entire length of the canal is the same (see the soil map from WSS in Appendix C), it was assumed that the percent of water lost along the lower segment would be the same as the upper segment.

The total flow released into the canal as read on the Parshall flume, minus the flow diverted in turnouts in the upper segment, minus the outflow at the end of the upper segment, resulted in the losses for the canal's upper segment. The average loss for the upper segment was 36.5%. Because loss data on the lower segment is not as reliable and the soil type is the same as the upper segment, it was assumed that the lower segment losses were also 36.5%. Total losses were calculated by combining the upper and lower segment losses.

This loss estimate of 36.5% is not surprising since the soil in the area is silt loam and considered well-drained according to soil data from the NRCS Web Soil Survey. Table 2 shows the data gathered by the water master after it was converted from miner's inches.

Warm Springs runs year-round but will not be injected into the system during the winter months. The shareholders with water rights for stock water from Warm Springs will continue to take water from the open ditch.

Table 2: Potential Water Conservation Amount in Upper Segment

Month	Flow Released into Samaria Canal (ac-ft)	Flow Diverted in Turnouts (ac-ft)	Total Outflow from Upper Segment (ac-ft)	Total Losses (ac-ft)
April	1,328	483	360	485
May	1,328	483	360	485
June	924	374	260	290
July	996	187	412	397
August	413	122	142	150
September	362	151	79	132
October	181	76	40	66
Total	**5,533**	**1,876**	**1,652**	**2,005**

Table 3: Potential Water Conservation Amount in Lower Segment

Month	Inflow from Upper Segment (ac-ft)	Warm Springs Flow Released into Canal (ac-ft)	Total Losses (ac-ft)
April	360	302	242
May	360	302	242
June	260	242	183
July	412	76	178
August	142	211	129
September	79	97	64
October	40	48	32
Total	**1,652**	**1,277**	**1,070**

It is anticipated that the piped system will eliminate all seepage and evaporation losses in such a way that the water savings will be equal to the current water losses. According to the data from the irrigation company's water master, the average annual volume of water released into the upper segment of the transmission system is 5,533 acre-feet from the Malad River. After losses and deliveries, 1,652 acre-feet are released into the lower segment along with 1,277 acre-feet of inflow from Warm Springs. Based on measured and calculated water losses from both segments, the water savings resulting from this project will be approximately 3,075 acre-feet annually. The conserved water will be used to remediate on-farm shortages during the irrigation season. Any excess water will be left in the Malad River to improve the environmental habitat.

The data used to calculate water losses was gathered in 2016. Since then, there have been no significant changes to the canal. The alignment, size, soil type, etc., remain the same. As such, we expect water losses today to be very similar to the data gathered in 2016. To verify, we have analyzed portions of 2018 flow data and confirmed that the losses are very similar.

Current Water Losses

Describe current losses: *Please explain where the water that will be conserved is currently going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?*

The 3,075 acre-feet of water currently lost in the system is seeping into the ground and evaporating into the atmosphere.

Support/Documentation of Water Savings

Describe the support/documentation of estimated water savings: *Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations. Note: projects that do not provide sufficient supporting detail/calculations may not receive credit under this section. Please be sure to consider the questions associated with your project type (listed below) when determining the estimated water savings, along with the necessary support needed for a full review of your proposal.*

As described above and detailed in Appendix C, the water master kept records of measurements from Parshall flumes at the canal inlet and right before the addition of Warm Springs. Warm Springs inflows were estimated using a box culvert immediately downstream of the springs. Water delivered to users was also quantified and recorded. Upper segment losses were determined by taking the total water diverted at the inlet, subtracting the water discharged into the lower segment, and subtracting the water delivered to users. The average loss percentage was calculated as 36.5%. Because measurements on the lower segment are unreliable and the soil type is the same as the upper segment, it was assumed that the same loss percentage is experienced on the lower segment. The discharge from the upper segment to the lower segment was then added to the inflows from Warm Springs and multiplied by the loss percentage of 36.5%. The addition of the losses from the upper segment and the lower segment resulted in the overall water losses.

Project Types

Please address the following questions according to the type of infrastructure improvement you are proposing for funding. See Appendix A: Benefit Quantification and Performance Measure Guidance for additional guidance on quantifying water savings.

(1) ***Canal Lining/Piping:*** *Canal lining/piping projects can provide water savings when irrigation delivery systems experience significant losses due to canal seepage. Applicants proposing lining/piping projects should address the following:*

a. *How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.*

As described above, the water savings will be equal to the amount of water that is currently lost through seepage and evaporation.

b. *How have average annual canal seepage losses been determined? Have ponding and/or inflow/outflow tests been conducted to determine seepage rates under varying*

conditions? If so, please provide detailed descriptions of testing methods and all results. If not, please provide an explanation of the method(s) used to calculate seepage losses. All estimates should be supported with multiple sets of data/measurements from representative sections of canals.

As indicated above, the Samaria Water and Irrigation Company Water Master conducted inflow/outflow tests to measure seepage rates. Flow measurements were taken using existing flumes at the beginning and end of the upper segment of the canal and estimated on the lower segment using the percentage calculated on the upper segment. Measurements of the diverted flow in turnouts were estimated by counting operating sprinklers being used on the irrigated farms and estimating flood irrigation usage. The measurements indicated that the canal loses between 21% and 50% of its flows through seepage and evaporation. The average loss per segment of the canal was determined to be approximately 36.5%.

c. *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)?*

Seepage losses will be eliminated completely because the transmission system will be replaced with PVC pipe. With good construction practices, leakage losses from pipe sections and joints will be near zero.

d. *What are the anticipated annual transit loss reductions in terms of acre-feet per mile for the overall project and for each section of canal included in the project?*

The transit loss reduction is approximately 342 acre-feet per mile each year for the overall system. This was determined by dividing the 3,075 acre-feet of conserved water by the 9 miles of the delivery system that will be replaced with a pipeline. For the upper segment, the transit loss reduction is approximately 608 acre-feet per mile. This was determined by dividing the 2,005 acre-feet of conserved water in the upper segment by its length of 3.3 miles. For the lower segment, the transit loss reduction is approximately 181 acre-feet per mile. This was determined by dividing the 1,070 acre-feet of annual conserved water by its length of 5.9 miles.

e. *How will actual canal loss seepage reductions be verified?*

Canal flow measurements will be taken at the inlet of the pipe and at the outlet. The flow diverted for irrigating crops will be metered at each turnout. These measurements will be used to calculate any losses and verify seepage reductions. Measurements will be recorded daily for diversions and recorded at the meter each time water is delivered to a turnout. Details on this process are described in Subcriterion F.2.

f. *Include a detailed description of the materials being used.*

Preliminary design indicates that the canal will be enclosed using 24-inch and 18-inch PVC pipe. An inlet structure, isolation valves, and flow meters will be included in the design. A pump will be installed to pump water from Warm Springs into the pipeline. The metering and pipeline will conserve water and improve water management and operation efficiency.

Evaluation Criterion B: Water Supply Reliability

Up to 18 points may be awarded under this criterion. This criterion prioritizes projects that address water reliability concerns, including making water available for multiple beneficial uses and resolving water related conflicts in the region.

Please address how the project will increase water supply reliability. Proposals that will address more significant water supply shortfalls benefitting multiple sectors and multiple water users, will be prioritized. General water supply reliability benefits (e.g., proposals that will increase resiliency to drought) will also be considered. Please provide sufficient explanation of the project benefits and their significance. These benefits may include, but are not limited to, the following:

1. Will the project make water available to address a specific water reliability concern? Please address the following:

- *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 (e.g., population growth)?*

The U.S. Drought Monitor website indicates that the project area has experienced moderate drought in the past four years. The irrigation company experiences water shortages nearly every year, resulting in irrigable land drying out, which economically impacts the shareholders as well as the economy of Malad City since the majority of the town's inhabitants are farmers. As water becomes scarce during drought years and late-season shortages, there is heightened competition between shareholders within the same irrigation company. This can lead to tension and conflict within the irrigation company and community.

This project will conserve the available water diverted into the Samaria Canal, reducing the amount of dry irrigable land.

- *Describe how the project will address the water reliability concern? In your response, please address where the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversion or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.*

Because water shortages due to drought or seepage loss decrease the water supply reliability and lead to negative economic impacts and sometimes conflict, utilizing conserved water to supplement shortages is critical. All conserved water resulting from this project will be used to serve shareholders throughout the irrigation season, hopefully delivering as close to full allocations as possible. As shareholders receive their full allotment per their water share, they will be able to grow the crops they need for their livelihood while avoiding the build-up of tension within the company as well as the community.

In addition, if there is excess water once all water share allotments have been delivered, the remaining water in the pipeline will be left as instream flows. Any remaining flows in the pipeline will eventually drain into the Malad River which then enters the Bear River and eventually terminates

at the Great Salt Lake. These instream flows will contribute to local habitats and provide more water for the downstream migratory bird refuge operated by the U.S. Fish and Wildlife Service.

- *Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.*

The water that is currently being lost is seeping into the ground or evaporating along the length of the existing open canal. After installing the pipeline, the same amount of water will be diverted but instead of being lost to seepage and evaporation, it will stay in the pipe with the remaining delivered water. As such, normal operation of the system by the water master will ensure the conserved water is delivered to shareholders or left in the pipe to flow into the Malad River. If the conserved water is of such a quantity that diverting the same amount from the reservoir results in significant excess water, the water master can reduce diversions from the reservoir, storing the water for the late season and following irrigation season.

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

All 3,075 acre-feet of conserved water will be delivered to shareholders for their crop irrigation use up to the point where the water share allotment is met. Once the full water right flow is delivered, the remaining water will be sent to the Malad River.

2. Will the project make water available to achieve multiple benefits or to benefit multiple water users? Consider the following:

- *Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?*

The project directly benefits the agricultural sector by saving water that can then be delivered to attain full water share allotments. This additional water allows irrigators to increase their crop yield, while providing increased reliability that water will be available when needed. Indirectly, the success of each irrigator's crops affects the local economy. If local irrigators are successful, they will stay in business in the area and the community will continue to thrive, which will boost the local municipalities.

In addition, the environmental sector is improved when additional water is available downstream in the Malad River to enhance and improve local habitats. It will also boost the morale of a community when they live in an environmentally-pleasing area, partially facilitated by fully-planted fields where crops are able to grow. If water can be stored in the reservoir, local recreation will be improved along the reservoir, including fishing and boating activities.

- *Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state listed species, or a species of particular recreational, or economic importance)? Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project.*

The Endangered Species Act (ESA) Species List identifies one threatened mammal species and one recovery mammal species in the project area. The Canada Lynx is listed as threatened, but its critical

habitat is not within the project area. The Gray Wolf was originally listed as threatened in Idaho but was delisted due to recovery efforts. There are no critical habitats identified within the project area.

The relationship between the species and the water supply is not known at this time. However, according to the ESA Species Occurrence, the species does not populate the project area and should not be impacted by the project.

- *Will the project benefit a larger initiative to address water reliability?*

While the state of Idaho does not have any statewide water conservation initiatives, the Idaho State Water Plan adopted in 2012, specifically focuses on implementing a "dynamic set of policies which guides our use, management, development, and conservation of water for all citizens." It acknowledges that competing demands have increased conflicts, but that they have also resulted in positive innovative solutions. Of the six main goals established by the plan, this project aligns directly with three: water management, economic development, and environmental quality.

Within the water plan, water use efficiency is listed as a specific conservation policy pursued by the state. The plan states, "Water conservation and water use efficiency should be promoted." Defined in the plan, water conservation practices indicate any effort that results in a diversion less than the authorized quantity while maintaining the full beneficial use of the water right. Examples include reducing consumptive use, conveyance losses, and seepage losses at the place of use. The ultimate goal of this project is to serve all shareholders completely while retaining excess water to leave instream to provide additional environmental and statewide benefits. By reducing conveyance losses via the installation of a pipeline, this project directly meets the water plan goals. Additionally, a large part of the motivation for the shareholders to support this project is the potential opportunity to make on-farm improvements which will meet another water plan goal of reducing seepage losses at the place of use.

- *Will the project benefit Indian tribes?*

The project will not impact Indian tribes.

- *Will the project benefit rural or economically disadvantaged communities?*

The U.S. Department of Health and Human Services defines rural communities as those with less than 2,500 people. Samaria is a town near Malad City which has a population of approximately 2,060 people according to the U.S. Census Bureau and is considered a rural community. Samaria has not been included in the U.S. Census Bureau and is significantly smaller than Malad City. This project will conserve water for the farmers in this rural community and allow them to continue sustaining their crops and economy.

- *Describe how the project will help to achieve these multiple benefits in your response, please address where the conserved water will go and where it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.*

The benefits listed above will be achieved by replacing an open canal with a pipeline, resulting in conserved water and improved water management. The conserved water will address drought-year and late-season shortages, increasing crop yields, and increasing the reliability of full water deliveries. Ultimately, if adequate on-farm improvements are made in conjunction with, or because of this project, total diversions for the company will decrease while the quantity of water for use in the Malad River increases.

3. Does the project promote and encourage collaboration among parties in a way that helps increase the reliability of the water supply?

In order for the project to be a success, there needs to be internal support from shareholders, local NRCS support for additional conservation efforts, funding agency support, and assistance from the neighboring irrigation company who recently enclosed their open ditch. This project promotes the collaboration and support of all these entities to strive to adhere to the Idaho State Water Plan and increase the local water supply reliability.

Company shareholders understand that by constructing this project, they are likely to mitigate late-season and drought-year shortages. It will also allow, and even encourage them to make on-farm improvements that will increase efficiencies, enabling them to better manage the water they receive to get the most benefit from f it. Without the need for a pump, many irrigators have already expressed interest in upgrading their irrigation systems, especially with potential NRCS funding.

One of the shareholders works for the NRCS and has seen firsthand the funding available to local irrigators for on-farm improvements supported by the USBR-funded St. John's Canal Enclosure Project. Thirteen funding awards, as stated in the letter of support signed by the NRCS, have already been granted to local irrigators in neighboring irrigation companies and the Samaria shareholders wish to join in. This is evident in the letters of support received from local shareholders and the NRCS office stating their support and intent to make improvements and utilize available funding.

As seen in the state water plan, conservation efforts require collaboration with, and support from, local entities such as the Samaria Water and Irrigation Company. The company wants to develop partnerships with the Idaho Division of Water Resources (DWR), the local NRCS office, Oneida County and USBR to promote the goals stated in the state water plan. Because St. John's Irrigating Company received a loan from the Idaho DWR for their recent project, we believe that the DWR wants to see conservation efforts continue to expand with the Samaria project.

- *Is there widespread support for the project?*

In addition to the shareholders' support and desire to make system-wide and on-farm improvements, the local NRCS office also supports and encourages this project and similar efforts. They are currently funding nine on-farm improvements for the St. John's Bureau project which was completed two years ago and expect to be able to fund Samaria on-farm projects as well. These on-farm projects would not be funded without first enclosing the canal. In addition, the state water plan indicates that partnership development with non-governmental organizations is a key implementation strategy. Milestones for conserving water include the number of partnerships developed and the effects of conservation efforts quantified, both of which are direct byproducts of this project.

- *What is the significance of the collaborations/support?*

Samaria Water and Irrigation Company could not successfully complete this project on their own since they do not have adequate resources to do so. This means that they are suffering from the occurring water losses due to the way the current system operates. The support of the Idaho DWR in providing loan monies and the NRCS providing grant funding for on-farm improvements will allow the company to make this project a reality. This will also encourage shareholders to make individual improvements sparked by this project and made possible with grant funding.

- *Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?*

As discussed and demonstrated by voting for this application at the annual shareholders meeting of the company, water users are motivated to support this project in order for them to make additional conservation improvements while also making the most of their water and efforts. It is also likely that neighboring irrigation companies will want to follow suit and complete similar conservation projects as well. This project is a prime example, they saw neighboring St. John's Irrigating Company receive a WaterSMART grant and pipe for their canal and now they are trying to pursue a similar conservation project.

- *Will the project help to prevent a water-related crisis or conflict? Is there frequently tension of litigation over water in the basin?*

Samaria is in an area designed by Idaho DWR as a Groundwater Management Area. Aquifer reductions are ongoing in this area. All of Samaria's water rights are surface water rights. This is important because this means that Samaria is not drilling into the aquifer that is being reduced. There is a moratorium on well drilling in this aquifer, therefore it is imperative that water be conserved without having to drill new wells. There are no immediate significant water-related conflicts in the area. However, internal side-comments about water management and deliveries will always exist. It is anticipated that this project will relieve some of the internal tensions by taking action to conserve water, improve overall management, and benefit all users.

- *Describe the roles of any partners in the process. Please attach any relevant supporting documents.*

There are currently no partners involved in the project. However, if grant funding is awarded, the company will work with the Idaho DWR to obtain a loan to provide the necessary remaining funds for the project. This commitment of funds will not occur until grant awards are announced. In addition, while the NRCS will strive to provide funds for on-farm improvements, this is not directly connected to the project.

4. Will the project address water supply reliability in other ways not described above?

All benefits anticipated from this project are detailed above and include conflict mitigation, entity collaboration and support, increased water supply reliability, improved environmental habitats, and improved water management in the project area.

Evaluation Criterion C: Implementing Hydropower

Not applicable.

Evaluation Criterion D: Complementing Future On-Farm Irrigation Improvements

Up to 10 points may be awarded for projects that describe in detail how they will ***complement on-farm irrigation improvements*** *eligible for NRCS financial or technical assistance.*

If the proposed projects will complement an on-farm improvement eligible for NRCS assistance, please address the following:

- *Describe any planned or ongoing projects by farmers/ranchers that receive water from the applicant to improve on-farm efficiencies.*
  - *Provide a detailed description of the on-farm efficiency improvements.*
  - *Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects, or do they plan to in the future?*
  - *If available, provide documentation that the on-farm projects are eligible for NRCS assistance, that such assistance has or will be requested, and the number or percentage of farms that plan to participate in available NRCS programs.*
  - *Applicants should provide letters of intent from farmers/ranchers in the affected project areas.*

Provided the NRCS continues to provide funding for on-farm improvements as they have done for other local irrigators, Samaria shareholders are planning to install sprinkler systems to replace flood irrigating practices. Some will utilize wheel lines while other will use center pivots or linear systems. These will be designed to increase watering efficiency while conserving water at the place of use (per the state water plan). Irrigators have not requested assistance yet but plan to once the project is underway and pressurized irrigation water will be available. Neighboring irrigators in the St. John's Irrigating Company have already received NRCS grand funds and are currently implementing projects. A total of 13 on-farm users have received grant money from the NRCS with 9 on-farm users pending approval for the neighboring irrigation company.

The anticipated on-farm improvements are eligible for NRCS assistance as several local irrigators have already received funding for similar projects. Refer to the letters of support demonstrating shareholder interest in pursuing on-farm improvements.

- *Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.*
  - *Will the proposed WaterSMART project directly facilitate the on-farm improvement? If so, how? For example, installation of a pressurized pipe through WaterSMART can help support efficient on-farm irrigation practices, such as drip-irrigation.*

    OR
  - *Will the proposed WaterSMART project complement the on-farm project by maximizing efficiency in the area? If so, how?*

The proposed project will directly facilitate planned on-farm improvements, such as conversion from flood irrigation to sprinkler irrigation via center pivots, wheel lines, and linear systems. By providing pressurized irrigation water to each user, many users will reduce or eliminate pumping costs to support these improvements, thus eliminating additional cost and effort to users. In addition, local NRCS funding has shown that it will be available for these improvements.

- *Describe the on-farm water conservation or water use efficiency benefits that are expected to result from any on-farm work.*
    - *Estimate the potential on-farm water savings that could result in acre-feet per year. Include support or backup documentation for any calculations or assumptions.*

Specific volumes of conserved water resulting from on-farm improvements will vary depending on how many shareholders convert, the size of their property and the type of crops they grow. However, the NRCS estimates that sprinkler systems are typically 60 to 85 percent efficient, whereas flood irrigation is only 15 to 60 percent efficient. As indicated by Zimmatic, a popular sprinkler system manufacturer, crop yields can increase anywhere from 3 to 19 percent with some as high as 70 percent while using 13 to 25 percent less water. While exact estimates are not available, water savings are expected to be significant, increasing the likelihood of additional instream flows.

Evaluation Criterion E: Department of the Interior Priorities

Up to 10 points may be awarded based on the extent that the proposal demonstrates that the project supports the Department of the Interior priorities. Please address those priorities that are applicable to your project. It is not necessary to address priorities that are not applicable to your project. A project will not necessarily receive more points simply because multiple priorities are addressed. Points will be allocated based on the degree to which the project supports one or more of the priorities listed, and whether the connection to the priority(ies) is well supported in the proposal.

1. *Creating a conservation stewardship legacy second only to Teddy Roosevelt*
    a. *Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment;*
    b. *Examine land use planning processes and land use designations that govern public use and access;*
    c. *Revise and streamline the environmental and regulatory review process while maintaining environmental standards.*
    d. *Review DOI water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity;*
    e. *Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands;*
    f. *Identify and implement initiatives to expand across to DOI lands for hunting and fishing;*
    g. *Shift the balance towards providing greater public access to public lands over restrictions to access.*

This project is implementing proven technology utilizing science to better manage local water resources in the Malad, Idaho, area. The company understands the scarcity of water and wants to provide for the future. As the company works to conserve water, shareholders are exemplifying the

value they place in maintaining water resources, boosting the economy, and providing a legacy for their posterity.

2. *Utilizing our natural resources*
    a. *Ensure American Energy is available to meet our security and economic needs;*
    b. *Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications;*
    c. *Refocus timber programs to embrace the entire 'healthy forests' lifecycle;*
    d. *Manage competition for grazing resources.*

Not applicable.

3. *Restoring trust with local communities*
    a. *Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands;*
    b. *Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities.*

There is often a rift between individual irrigators and regulators even though they both often want the same outcomes. By collaborating on this individual project, the USBR and Samaria Water and Irrigation Company can build a relationship, see the big picture, and take tangible steps to meet their common goals. In addition, this project will expand the communication between the local irrigation company, NRCS offices, Idaho DWR offices, local water authorities, and USBR offices, allowing them all to work together to conserve water and build trust. Trust breeds cooperation which is critical in planning for the future.

4. *Striking a regulatory balance*
    a. *Reduce the administrative and regulatory burden imposed on U.S. industry and the public;*
    b. *Ensure that Endangered Species Act decisions are based on strong science and thorough analysis.*

Not applicable.

5. *Modernizing our infrastructure*
    a. *Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure;*
    b. *Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs;*
    c. *Prioritize DOI infrastructure needs to highlight:*
        1. *Construction of infrastructure;*
        2. *Cyclical maintenance;*
        3. *Deferred maintenance.*

The intent of this project is to conserve water by modernizing local infrastructure based on proven modern technology. By modernizing infrastructure via the conversion of open ditches to pipelines and flood irrigation to sprinklers, this project is directly pursuing this USBR priority. By working

toward this common goal, the local Samaria Water and Irrigation Company and USBR can build trust knowing each wants the best outcome for the future.

Evaluation Criterion F: Implementation and Results

Up to 6 points may be awarded for these subcriteria.

Subcriterion No. F.1 – Project Planning

Points may be awarded for proposals with planning efforts that provide support for the proposed project.

Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place? *Please self-certify or provide copies of these plans where appropriate to verify that such a plan is in place.*

Provide the following information regarding project planning:

(1) Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, Drought Contingency Plan or other planning efforts done to determine the priority of this project in relation to other potential projects.

The need for this project was originally identified by board members and shareholders as they saw neighboring companies making significant improvements with long-term benefits to their company and community. Additional discussions led to the confirmation that making conservation a priority would benefit the economy and local operations while also aligning with the state water plan. This motivated the shareholders to pursue options for making this project happen, if it was feasible.

This project aligns with the Idaho State Water Plan approved in 2012 which provides a "dynamic set of policies which guides our use, management, development, and conservation of water for all citizens." Of the six objectives identified in the plan, this project directly supports three of them:

1. **Water Management** – Encourage the quantification of water supplies, water uses, and water demands for all water rights within the state.
2. **Economic Development** – Encourage and support economic development through the optimum use of water resources.
3. **Environmental Quality** – Maintain and, where possible, enhance water quality and water-related habitats.

In addition to these overall goals, the plan states that "water conservation and water use efficiency should be promoted." The plan defines "water conservation practice" as any means whereby diversions are less than the authorized quantity of water while maintaining the full beneficial use of the water right. Examples of these practices include reducing consumptive use, conveyance losses, and surface and seepage losses occurring at the place of use.

Samaria Water and Irrigation Company does not have a Water Conservation Plan or System Optimization Review. A Water Conservation Plan will be prepared if it is required for obtaining funds from the State of Idaho.

(2) Describe how the project conforms to and meets the goals of any applicable planning efforts and identify any aspect of the project that implements a feature of an existing water plan(s).

This project meets the Fly-listed Idaho State Water Plan goals by including the installation of meters on every turnout as well as the intake of the pipeline. This will allow the company to measure what water is diverted into the system and used by each shareholder. These records quantify their water supply, individual water usage, and overall company water demands. In addition, by optimizing the use of their water supply, both via the delivery system and future on-farm improvements, farmers will increase their crop yields which will help to boost the local economy. As the system becomes more efficient and conserves water, excess water will be used to improve water-related habitats downstream from the project, including the migratory bird refuge and fish habitats for both the Malad and Bear Rivers.

In addition to meeting the overall goals, this project also satisfies the specific water use efficiency implementation strategies by eliminating conveyance losses and promoting on-farm improvements. This will help to reduce consumptive use and seepage losses during crop irrigation. As shown earlier, many irrigators desire to make these on-farm improvements with NRCS funding and are seeking to make these loss reductions. As the entire system begins and continues to conserve water and operate more efficiently, diversions should decrease.

The Idaho State Water Plan for the Bear River Basin emphasizes water conservation and efficient management of developed water supplies as key strategies in providing for the present and future water needs in the state. The specific goals achieved by this project include water conservation, water use efficiency, better water management, and protection of state river systems.

Subcriterion No. F.2 – Performance Measures

Points may be awarded based on the description and development of performance measures to quantify actual project benefits upon completion of the project.

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 or better managed, energy generated or saved). For more information calculating performance measure, see Appendix A: Benefit Quantification and Performance Measure Guidance.

Company shareholders are anxious to see the results of this project. In order to improve the overall management and implement a structured recording system, the following method will be utilized to quantify the success of the system and provide useful data for planning and evaluation purposes.

1. **Daily Inflow/Outflow Measurements** – Each day, the water master will field-measure the flow entering the pipeline via the inlet structure and the flow discharged from the outlet structure. The difference between these measurements will indicate how much water was used or lost in the system that day.

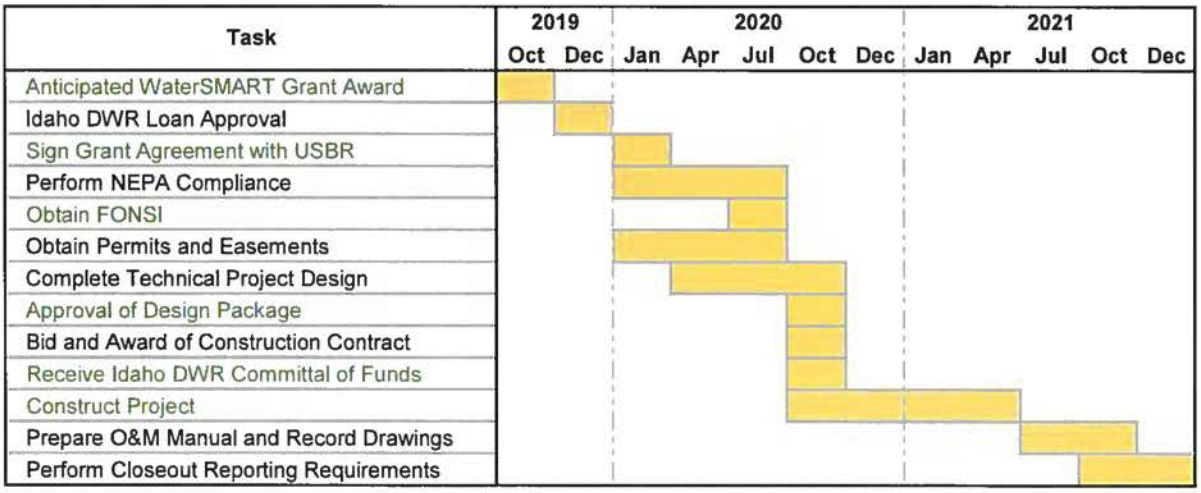
2. **Shareholder Use Measurements** – A flow meter will be installed on every turnout to monitor the water delivered to each shareholder. These meters will be read each time water is delivered via that turnout. The difference between the initial reading (valve opened) and the final reading (valve shut) will indicate how much water was delivered to that shareholder.
3. **Total Water Delivered** – The summation of daily meter readings will indicate how much water was delivered to shareholders.
4. **Total Water Losses** – The difference between the total daily water used in the system (1) and the total water delivered (3) will indicate losses in the system. The water master will evaluate the system for leaks, unapproved water deliveries, or other potential causes. This will allow the water master to improve water management once all diverted water has been accounted for.
5. **Total Water Savings** – Once actual water losses are determined, they can then be compared to the previously-calculated pre-project water losses to determine the actual water savings. This is the key measurement for evaluating the project success in relation to water conservation.
6. **Pump Records** – In addition to the other measurements, pump usage, including total flow pumped, operational efficiency, and energy used, will be recorded for future improvements and better system management.

Subcriterion No. F.3 - Readiness to Proceed

Points may be awarded based upon the extent to which the proposed project is capable of proceeding upon entering into a financial assistance agreement.

- *Describe the implementation plan of 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 follow schedule is proposed for the completion of the project (milestones are marked in green). The critical path depends on the date the grant is awarded and loan funding is secured. Additionally, the time it takes to complete the EA may require schedule modifications. However, it is anticipated that adequate time has been allotted for the proposed tasks.



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

Coordination with Oneida County will be needed for county road crossings. Coordination with the State of Idaho will be required if the alignment ends up going through State-owned land. Where necessary, easements will be obtained from property owners along the alignment. Once the project receives approval and cultural and environmental clearances have been obtained, Samaria Water and Irrigation Company will work with the necessary stakeholders to obtain the permits and easements. No major problems are anticipated with those acquisitions. A preliminary check of the National Register of Historic Places and the National Wetlands Inventory indicates no apparent issues. All applications will be submitted via the process set up by each governing agency.

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

Preliminary engineering design work has been completed to determine pipeline alignment, capacity, and material type. This work has included site visits and preliminary design criteria parameters. All completed design work indicates that this project is viable. Final engineering design can begin as soon as the company receives a committal of funds from the USBR and Idaho DWR.

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

No new policies are needed to implement the project. Shareholder approval, already received at the annual shareholders' meeting, provides the legal justification needed to move forward with the project.

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

The estimate was based on the cost for the environmental compliance efforts required for the St. John's Canal Enclosure Project, which received a 2015 WaterSMART WEEG award. This project is very similar to the proposed project and located in the project vicinity. It is anticipated that any environmental issues or concerns would be very similar to the St. John's project.

Evaluation Criterion G: Nexus to Reclamation Project Activities

Up to 4 points may be awarded if the proposed project is in a basin with connections to Reclamation project activities. No points will be awarded for proposals without connection to a Reclamation project or Reclamation activity.

- *Is the proposed project connected to Reclamation project activities?*
    - *Does the applicant receive Reclamation project water?*
    - *Is the project on Reclamation project lands or involving Reclamation facilities?*
    - *Is the project in the same basin as a Reclamation project or activity?*
    - *Will the proposed work contribute water to a basin where a Reclamation project is located?*

The project has no direct ties to a Reclamation project. However, there are numerous Reclamation projects within the Bear River Basin including, but not limited to, the St. John's Canal Enclosure, Preston Bench Project, Preston-Whitney Interconnect Project, West Lewiston Pressurized Irrigation Project, Richmond Upper High Creek Canal Enclosure and Hydropower Project, Middle Ditch Water Conservation and Renewable Energy Project, Newton Project, and Hyrum Project. In particular, the St. John's project is in close proximity to the proposed project and has greatly influenced the Samaria Water and Irrigation Company in pursing this project. In addition, farmers in these project areas have already received NRCS funding for on-farm improvements and are implementing improved sprinkler designs.

- *Will the project benefit any tribe(s)?*

The project will not impact any tribes.

Evaluation Criterion H: Additional Non-Federal Funding

Up to 4 points may be awarded to proposals that provide non-Federal funding in excess of 50 percent of the project costs. State the percentage of non-Federal funding provided using the following calculation:

$$\frac{\textit{Non-Federal Funding}}{\textit{Total Project Cost}} = \frac{\$\ 1{,}431{,}450}{\$\ 2{,}862{,}900} = \mathbf{50\%}$$

Project Budget

Project costs for environmental and cultural compliance and engineering/design that were incurred or are anticipated to be incurred prior to award should be included in the proposed project budget.

If the proposed project is selected, the awarding Reclamation Grants Officer will review the proposed pre-award costs to determine if they are consistent with program objectives and are allowable in accordance with the authorizing legislation. Proposed pre-award costs must also be compliant with all applicable administrative and cost principles criteria established in 2 Code of Federal Regulations (CFR) Part 200, available at www.ecfr.gov, and all other requirements of this FOA. ***In no case will costs incurred prior to July 1, 2018 be considered for inclusion in the proposed project budget.***

Funding Plan and Letters of Commitment

Describe how the non-Federal share of project costs will be obtained. Reclamation will use this information in making a determination of financial capability.

Project funding provided by a source other than the applicant shall be supported with letters of commitment from these additional sources. Letters of commitment shall identify the following elements:

- *The amount of funding commitment*

- *The date the funds will be available to the applicant*
- *Any time constraints on the availability of funds*
- *Any other contingencies associated with the funding commitment*

Commitment letters from third party funding sources should be submitted with your application. If commitment letters are not available at the time of the application submission, please provide a timeline for submission of all commitment letters. Cost-share funding from sources outside the applicant's organization (e.g., loans or State grants), should be secured and available to the applicant prior to award.

Reclamation will not make funds available for an award under this FOA until the recipient has secured non-Federal cost-share. Reclamation will execute a financial assistance agreement once non-Federal funding has been secured or Reclamation determines that there is sufficient evidence and likelihood that non-Federal funds will be available to the applicant subsequent to executing the agreement.

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 source of funds (e.g., reserve account, tax revenue, and/or assessments)*
- *Any costs that will be contributed by the applicant*
- *Any third party in-kind costs (i.e., goods an services provided by a third party)*
- *Any cash requested or received from other non-Federal entities*
- *Any pending funding request (i.e., grants or loans) that have not yet been approved and explain how the project will be affected if such funding is denied*

The total cost of the project is $2,862,900. Samaria Water and Irrigation Company will apply for a loan from the Idaho Division of Water Resources for $1,431,450. The loan will be repaid with revenue from assessments to the shareholders. The State of Idaho has requested that loan applications not be submitted unless grant funding is awarded and the project is confirmed to move forward. A letter of commitment from the State will be available as soon as the loan is approved following the grant award. If the grant requested from USBR is not approved, it is unlikely this project will be implemented because the company cannot afford to borrow the full amount required for this project.

In addition, please identify whether the budget proposal includes any project costs that have been or may be incurred prior to award. For each cost, describe:

- *The project expenditure and amount*
- *The date of cost incurrence*
- *How the expenditure benefits the project*

No project costs are anticipated to accrue prior to grant award.

Please include the following chart to summarize all funding sources. Denote in-kind contributions with an asterisk (*).

Table 4: Summary of Non-Federal and Federal Funding Sources

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
1. Idaho Division of Water Resources	$1,431,450
Non-Federal Subtotal	**$1,431,450**
Other Federal Entities	
1. N/A	$0
Other Federal Subtotal	**$0**
REQUESTED RECLAMATION FUNDING	**$1,431,450**

Budget Proposal

The total project cost (Total Project Cost), is the sum of all allowable items of costs, including all required cost sharing and voluntary committed cost sharing, including third-party contributions, that are necessary to complete the project.

Table 5: Total Project Cost Table

SOURCE	AMOUNT
Costs are reimbursed with the requested Federal Funding	$1,431,450
Costs to be paid by the applicant	$1,431,450
Value of third party contributions	$0
TOTAL PROJECT COST	**$2,862,900**

The budget proposal should include detailed information on the categories listed below and must clearly identify ***all*** *items of cost, including those that will be contributed as non-Federal cost share by the applicant (required and voluntary), third-party in-kind contributions, and those that will be covered using the funding requested from Reclamation, and any requested pre-award costs. Unit costs must be provided for all budget items including the cost of services or other work to be provided by consultants and contractors. Applicants are strongly encouraged to review the procurement standards for Federal awards found at 2 CFR §200.317 through §200.326 before developing their budget proposal.*

It is also strongly advised that applicants use the budget proposal format shown below in Table 2 or a similar format that provides this information. If selected for award, successful applicants must submit detailed supporting documentation for all budgeted costs. Additional information regarding

the types of documentation that will be necessary to support budgeted costs can be found in Attachment 1 to this FOA.

Table 6: Budget Proposal

Budget Item Description	Computation		Quantity Type	Total Cost
	$/Unit	Quantity		
Legal Services	$200/hr	100	Hours	$20,000
Environmental Services	See Appendix F		Hours	$35,000
Engineering Services & Construction Management	See Appendix D			$260,000
Construction Contract	See Appendix E			$2,527,900
Reclamation Reporting and Coordination	$100/hr	200	Hours	$20,000
Total Project Costs				**$2,862,900**

Budget Narrative

Submission of a budget narrative is mandatory. An award will not be made to any applicant who fails to fully disclose this information. The budget narrative provides a discussion of, or explanation for, items included in the budget proposal. The types of information to describe in the narrative include, but are not limited to, those listed in the following subsections. Costs, including the valuation of third-party in-kind contributions, must comply with the applicable cost principles contained in 2 CFR Part §200, available at the Electronic Code of Federal Regulations (www.ecfr.gov).

Samaria Water and Irrigation Company board members and employees will not earn salary, wages, fringe benefits, or reimbursements from funding obtained to implement this project. All contributions by the irrigation company board members and employees will be voluntary or funded by the company's general fund and be in-kind contributions to the project.

All funding secured from Reclamation and the Idaho Division of Water Resources will be used to pay contractual agreements for implementing the project, including the construction contract and fees for legal, engineering, and environmental services as described below.

Contractual

Identify all work that will be accomplished by consultants or contractors, including a breakdown of all tasks to be completed, and a detailed budget estimate of time, rates, supplies, and materials that will be required for each task. For each proposed contract, identify the procurement method that will be used to select the consultant or contractor and the basis for selection.

All funding obtained for the project will be used to pay consultants as well as construction contractors and subcontractors. These include legal and administrative services, environmental services, engineering design, construction management, and construction services. Detailed tasks to be completed, rates, and materials for each task are outlined in the appendices as follows:

Appendix D – Engineering Design & Construction Management
Appendix E – Construction Services
Appendix F – Environmental Services

The costs shown in the appendices were prepared by a professional engineering firm. Costs for construction services were estimated using bid abstracts from similar projects. A narrative for the unit costs in the construction services cost estimate is included in the appendix. The estimates for engineering design, construction management, and environmental services have been broken down into various tasks and employee types to provide a more detailed estimate. The cost for legal and administrative services is outlined in Table 6.

The engineering design and construction management contract will be completed by a qualified engineering firm selected through a competitive procurement method. The construction services will be rendered by a contractor selected through a competitive procurement process. The environmental services will be completed by the previously-selected engineering firm, including a cultural resource specialist subconsultant whose contract will fall under the micro-purchase threshold.

Environmental and Regulatory Compliance Costs

Prior to awarding financial assistance, Reclamation must first ensure compliance with Federal environmental and cultural resources laws and other regulations ("environmental compliance"). Every project funded under this program will have environmental compliance costs associated with activities undertaken by Reclamation and the recipient.

To estimate environmental compliance costs, please contact compliance staff at your local Reclamation Office for additional details regarding the type and costs of compliance that may be required for your project. Note, support for your compliance costs estimate will be considered during review of your application. Contact the Program Coordinator (see Section G. Agency Contacts) for Reclamation contact information regarding compliance costs and requirements.

Environmental compliance costs are considered project costs and must be included as a line item in the project budget and will be cost shared accordingly.

The amount of the line item should be based on the actual expected environmental compliance costs for the project, including Reclamation's cost to review environmental compliance documentation. Environmental compliance costs will vary based on project type, location, and potential impacts to the environment and cultural resources.

How environmental compliance activities will be performed (e.g., by Reclamation, the applicant, or a consultant) and how the environmental compliance funds will be spent, will be determined pursuant to subsequent agreement between Reclamation and the applicant. The amount of funding required for Reclamation to conduct any environmental compliance activities, including Reclamation's cost to review environmental compliance documentation, will be withheld from the Federal award amount and placed in an environmental compliance account to cover such costs. If any portion of the funds budgeted for environmental compliance is not required for compliance activities, such funds may be reallocated to the project, if appropriate.

Costs associated with environmental and regulatory compliance must be included in the budget. Compliance costs include costs associated with any required documentation of environmental compliance, analyses, permits, or approvals. Applicable Federal environmental laws could include NEPA, ESA, NHPA, CWA, and other regulations depending on the project. Such costs may include, but are not limited to:

- *The cost incurred by Reclamation to determine the level of environmental compliance required for the project*
- *The cost incurred by Reclamation, the recipient, or a consultant to prepare any necessary environmental compliance documents or reports*
- *The cost incurred by Reclamation to review any environmental compliance documents prepared by a consultant*
- *The cost incurred by the recipient in acquiring any required approvals or permits, or in implementing any required mitigation measures*

The applicant is planning to conduct environmental compliance with the assistance of consultants and in consultation with Reclamation. A total of $35,000 is budgeted for environmental services as shown in Appendix F. It includes the cost for the cultural resources survey and report as well as Reclamation's efforts for NEPA compliance. The budgeted amount is approximately 1.2% of the total project cost. Specific tasks and employees performing those tasks are included in the appendix.

The budget for reporting and coordination with Reclamation has been estimated at $20,000 based on labor hours and hourly rates.

Total Costs

Indicate total amount of project costs, including the Federal and non-Federal cost-share amounts.

The total project cost is $2,862,900.

Required Permits or Approvals

Applicants must state in the application whether any permits or approvals are required and explain the plan for obtaining such permits or approvals.

Coordination with Oneida County will be needed for county road crossings. Coordination with the State of Idaho will be required if the alignment ends up going through State-owned land. Where necessary, easements will be obtained from property owners along the alignment. Once the project receives approval and cultural and environmental clearances have been obtained, Samaria Water and Irrigation Company will work with the necessary stakeholders to obtain the permits and easements. No major problems are anticipated with those acquisitions. A preliminary check of the National Register of Historic Places and the National Wetlands Inventory indicates no apparent issues.

Letters of Support

Please include letters from interested stakeholders supporting the proposed project. To ensure your proposal is accurately reviewed, please attach all letters of support/partnership letters as an appendix. Letters of support received after the application deadline for this FOA will not be included with your application.

Letters of Support are included in Appendix A.

Official Resolution

Include an official resolution adopted by the applicant's board of directors or governing body, or for State government entities, an official authorized to commit the applicant to the financial and legal obligations associated with receipt of a financial assistance award under this FOA, verifying:

- *The identity of the official with legal authority to enter into an agreement*
- *The board of directors, governing body, or appropriate official who has reviewed and supports the application submitted*
- *The capability of the applicant to provide the amount of funding and/or in-kind contributions specified in the funding plan*
- *That the applicant will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement*

An official resolution meeting the requirements set forth above is mandatory. *If the applicant is unable to submit the official resolution by the application deadline because of the timing of board meetings or other justifiable reasons, the official resolution may be submitted up to 30 days after the application deadline.*

The signed Official Resolution is shown in Appendix B.

Unique Entity Identifier and System for Award Management

All applicants (unless the applicant has an exception approved by Reclamation under 2 CFR §25.110[d]) are required to:

(i) Be registered in the System for Award Management (SAM) before submitting its application;

(ii) Provide a valid unique entity identifier in its application; and

(iii) Continue to maintain an active SAM registration with current information at all times during which it has an active Federal award or an application or plan under consideration by a Federal awarding agency.

A SAM account has been created and the entity has been registered under the name of Samaria Water and Irrigation Company with DUNS number 034647948 and CAGE code 7RYN2. The company will maintain an active SAM registration as required.

Appendix A

Letters of Support

USDA

United States Department of Agriculture

March 11, 2019

Mr. Josh Paskett
President
Samaria Water and Irrigation Company
4889 South 4400 West
Malad, Idaho 83252

Re: Samaria Canal Enclosure

Dear Josh Paskett:
I write this letter to show support of the Natural Resource Conservation Service (NRCS) regarding the efforts made by the Samaria Irrigation Company pursuing funding through the United State Bureau of Reclamation's (USBR) WaterSMART grant program to enclose the Samaria Canal. Both conserving water and providing reliable water delivery to the agricultural users in the State of Idaho is one of our utmost priorities.

If this project is awarded funding and completed, the NRCS hopes for the opportunity to work with the local farmers and ranchers by providing financial and technical assistance. This will help make on-farm upgrades that will improve conservation, help the environment, and support agricultural operations.

For a previously funded USBR WaterSMART project (St. John's Canal Enclosure) the local Malad NRCS office provided grant money for on-farm improvements for 13 farmers and is trying to secure additional on-farm funding for 9 applicants. The Malad office would be the same office in which Samaria farmers would apply for on-farm grant funding.

Sincerely,

Laren Nalder

Laren Nalder
District Conservationist, Malad City, ID
Natural Resources Conservation Service
United States Department of Agriculture

Natural Resources Conservation Service
137 North 100 West, Malad City, ID 83252
Voice: (208) 766-4748 Fax: (208) 766-4738

Oneida Co. Commission
Bill Lewis, Chairman
Robert F. Stokes
Bob Christophersen

State of Idaho
10 Court Street
Malad City, Idaho 83252

Matthew L. Colton
Clerk, Auditor & Recorder

March 11, 2019

Mr. Josh Paskett
President
Samaria Water and Irrigation Company
4889 South 4400 West
Malad, Idaho 83252

Re: Samaria Canal Enclosure

Dear Mr. Josh Paskett

The Oneida County Commissioners support the efforts made by the Samaria Irrigation Company to pursue funding through the USBR's WaterSMART grant program to enclose the Samaria Canal.
Both conserving water and providing reliable water delivery to the agricultural users in the County is a priority for us as County Commissioners. We believe this project will greatly benefit our community.

Sincerely,
Oneida County Commissioner,
Malad City, ID 83252

Bill Lewis, Chairman

Robert Stokes, commissioner

Robert C Christophersen
Robert Christophersen, commissioner

IDAHO WATER RESOURCE BOARD

March 14, 2019

Mr. Josh Packett, President
Samaria Water and Irrigation Company
4889 South 4400 West
Malad, Idaho 83252

Re: Samaria Canal Pipeline Project

Dear Mr. Paskett:

It is the Idaho Water Resource Board's (IWRB) understanding that the Samaria Water and Irrigation Company is seeking funding through the United States Bureau of Reclamation (USBR) WaterSMART grant program to fund the Samaria Canal Pipeline project. The project proposes to pipe the existing Samaria Canal to eliminate water losses in the canal, and provide a reliable, long-term water delivery system to the shareholders. The IWRB is supportive of the proposed project.

In the past, the IWRB has looked favorably upon approving loan funding to irrigation and canal companies that were seeking funding through the USBR WaterSMART program for water conservation and efficiency projects. If the Samaria Canal Pipeline project was awarded a USBR WaterSMART grant, the IWRB would consider funding of the project.

Sincerely,

Brian Patton
Executive Officer
Idaho Water Resource Board

322 East Front Street • P.O. Box 83720 • Boise, Idaho 83720-0098
Phone: (208) 287-4800 Fax: (208) 287-6700 Website: idwr.idaho.gov/IWRB/

Oneida Soil and Water Conservation District

137 N. 100 W., Malad City, Idaho 83252
oneidaswcd@gmail.com 208-766-4748

March 11, 2019

Mr. Josh Paskett
President
Samaria Water and Irrigation Company
4889 South 4400 West
Malad, Idaho 83252

Re: Samaria Canal Enclosure

Dear Josh Paskett:

I write this letter to show support of the Oneida Soil and Water Conservation District (SWCD) regarding the efforts made by the Samaria Irrigation Company pursuing funding through the United State Bureau of Reclamation's (USBR) WaterSMART grant program to enclose the Samaria Canal. Both conserving water and providing reliable water delivery to the agricultural users in the State of Idaho is one of our utmost priorities.

If this project is awarded funding and completed, the Oneida SWCD hopes for the opportunity to work with the local farmers and ranchers by providing financial and technical assistance. This will help make on-farm upgrades that will improve conservation, help the environment, and support agricultural operations.

For a previously funded USBR WaterSMART project (St. John's Canal Enclosure) the Oneida SWCD office provided assistance for shareholders improvements and look forward to working with additional shareholders with the Samaria Canal.

Sincerely,

Loyd Briggs
Chairman of the Board of Supervisors
Oneida Soil and Water Conservation District

Mr. Josh Paskett
President
Samaria Water and Irrigation Company
4889 South 4400 West
Malad, Idaho 83252

Re: Samaria Canal Enclosure Project.

Dear Mr. Josh Paskett:

I am writing this letter to show my support for pursuing the enclosure of the Samaria Irrigation Canal through funding from the Bureau of Reclamation. The project will be beneficial to me personally and to our community.

If this project were to proceed and be completed, I will seek to make on-farm improvements through personal and/or NRCS funding.

Sincerely,

Josh Paskett Josh Paskett
Sign and Write Name

3-14-19
Date

Mr. Josh Paskett
President
Samaria Water and Irrigation Company
4889 South 4400 West
Malad, Idaho 83252

Re: Samaria Canal Enclosure Project.

Dear Mr. Josh Paskett:

I am writing this letter to show my support for pursuing the enclosure of the Samaria Irrigation Canal through funding from the Bureau of Reclamation. The project will be beneficial to me personally and to our community.

If this project were to proceed and be completed, I will seek to make on-farm improvements through personal and/or NRCS funding.

Sincerely,

Dale W Price Dale Price

Sign and Write Name

Dale W Price

3/14/19

Date

Mr. Josh Paskett
President
Samaria Water and Irrigation Company
4889 South 4400 West
Malad, Idaho 83252

Re: Samaria Canal Enclosure Project.

Dear Mr. Josh Paskett:

I am writing this letter to show my support for pursuing the enclosure of the Samaria Irrigation Canal through funding from the Bureau of Reclamation. The project will be beneficial to me personally and to our community.

If this project were to proceed and be completed, I will seek to make on-farm improvements through personal and/or NRCS funding.

Sincerely,

Luke Waldron

Luke Waldron
Sign and Write Name

3/13/19
Date

Mr. Josh Paskett
President
Samaria Water and Irrigation Company
4889 South 4400 West
Malad, Idaho 83252

Re: Samaria Canal Enclosure Project.

Dear Mr. Josh Paskett:

I am writing this letter to show my support for pursuing the enclosure of the Samaria Irrigation Canal through funding from the Bureau of Reclamation. The project will be beneficial to me personally and to our community.

If this project were to proceed and be completed, I will seek to make on-farm improvements through personal and/or NRCS funding.

Sincerely,

Clint Price Clint Price
Sign and Write Name

3/14/19
Date

Mr. Josh Paskett
President
Samaria Water and Irrigation Company
4889 South 4400 West
Malad, Idaho 83252

Re: Samaria Canal Enclosure Project.

Dear Mr. Josh Paskett:

I am writing this letter to show my support for pursuing the enclosure of the Samaria Irrigation Canal through funding from the Bureau of Reclamation. The project will be beneficial to me personally and to our community.

If this project were to proceed and be completed, I will seek to make on-farm improvements through personal and/or NRCS funding.

Sincerely,

Douglas Atkinson
Douglas Atkinson
Sign and Write Name

14 MAR 2019
Date

Mr. Josh Paskett
President
Samaria Water and Irrigation Company
4889 South 4400 West
Malad, Idaho 83252

Re: Samaria Canal Enclosure Project.

Dear Mr. Josh Paskett:

I am writing this letter to show my support for pursuing the enclosure of the Samaria Irrigation Canal through funding from the Bureau of Reclamation. The project will be beneficial to me personally and to our community.

If this project were to proceed and be completed, I will seek to make on-farm improvements through personal and/or NRCS funding.

Sincerely,

Caprice Payne

Sign and Write Name

CAPRICE Payne

3/11/2019

Date

Mr. Josh Paskett
President
Samaria Water and Irrigation Company
4889 South 4400 West
Malad, Idaho 83252

Re: Samaria Canal Enclosure Project.

Dear Mr. Josh Paskett:

I am writing this letter to show my support for pursuing the enclosure of the Samaria Irrigation Canal through funding from the Bureau of Reclamation. The project will be beneficial to me personally and to our community.

If this project were to proceed and be completed, I will seek to make on-farm improvements through personal and/or NRCS funding.

Sincerely,

Lonny & Camille Schow
Sign and Write Name
Lonny & Camille Schow

11 March 2019
Date

Mr. Josh Paskett
President
Samaria Water and Irrigation Company
4889 South 4400 West
Malad, Idaho 83252

Re: Samaria Canal Enclosure Project.

Dear Mr. Josh Paskett:

I am writing this letter to show my support for pursuing the enclosure of the Samaria Irrigation Canal through funding from the Bureau of Reclamation. The project will be beneficial to me personally and to our community.

If this project were to proceed and be completed, I will seek to make on-farm improvements through personal and/or NRCS funding.

Sincerely,

Blake Love Blake Love
Sign and Write Name

3/10/19
Date

Appendix B

Signed Official Resolution

OFFICIAL RESOLUTION
OF THE
Samaria Water and Irrigation Company

RESOLUTION NO. 2019 - 1

WHEREAS, the United States Department of the Interior, Bureau of Reclamation has announced the *WaterSMART Water and Energy Efficiency Grants* in order to prevent water supply crises and ease conflict in the western United States, and has requested proposals from eligible entities to be included in the WaterSMART Program, and

WHEREAS, the Samaria Water and Irrigation Company has need for funding to complete an irrigation project that will enclose the Samaria Canal. This project is intended to conserve water and efficiently deliver water to company shareholders.

NOW, THEREFORE, BE IT RESOLVED that the Samaria Water and Irrigation Company Board of Directors agrees and authorizes that

1. The Samaria Water and Irrigation Company Board of Directors has reviewed and supports the application submitted;

2. The applicant is capable of providing the amount of funding and/or in-kind contributions, specified in the funding plan; and

3. If selected for a WaterSMART Grant, the applicant will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement.

DATED: 3/14/19

Josh Paskett, President
Samaria Water and Irrigation Company

ATTEST:

Lane Peirce, Project Manager
Franson Civil Engineers

Appendix C

Water Savings Calculations

Ditch Loss Measurements

Data provided by Samaria Water Master (Rhonda Kunz)

Parley's = first flume in system, just after diversion; Seth's = second flume in the system, just before Warm Sp

Data from lower segment was not accurately measureable so the loss % calculated from the upper segment was applied to the lower segment because they have the same soil type per the NRCS Web Soil Survey.

Upper Segment						Lower Segment			
Date	Parley's	In Use in North	Seth's	Loss	% Loss	Water Entering South Segment	Warm Springs Inflow	% Loss	Loss
	inches	inches	inches	inches		inches	inches	inches	inches
6/28/2016	765	310	215	240	31.4%	215	200	36.5%	151.57
7/21/2016	850	175	341	334	39.3%	341	63	36.5%	147.55
7/24/2016	800	135	341	324	40.5%	341	63	36.5%	147.55
8/3/2016	357	120	125	112	31.4%	125		36.5%	45.65
8/9/2016	320	75	131	114	35.6%	131	175	36.5%	111.76
8/16/2016	367	75	140	152	41.4%	140		36.5%	51.13
8/22/2016	338	110	109	119	35.2%	109		36.5%	39.81
8/28/2016	329	125	81	123	37.4%	81		36.5%	29.58

Convert data from miner's inches to cubic feet per second. $1\ cfs = 50\ miner's\ inches$

Upper Segment						Lower Segment			
Date	Parley's	In Use @ Seth's	Seth's	Loss	% Loss	Water Entering South Segment	Warm Springs Inflow	% Loss	Loss
	cfs	cfs	cfs	cfs		cfs	cfs		cfs
6/28/2016	15.3	6.2	4.3	4.8	31.4%	4.3	4.0	36.5%	3.03
7/21/2016	17.0	3.5	6.8	6.7	39.3%	6.8	1.3	36.5%	2.95
7/24/2016	16.0	2.7	6.8	6.5	40.5%	6.8	1.3	36.5%	2.95
8/3/2016	7.1	2.4	2.5	2.2	31.4%	2.5		36.5%	0.91
8/9/2016	6.4	1.5	2.6	2.3	35.6%	2.6	3.5	36.5%	2.24
8/16/2016	7.3	1.5	2.8	3.0	41.4%	2.8		36.5%	1.02
8/22/2016	6.8	2.2	2.2	2.4	35.2%	2.2		36.5%	0.80
8/28/2016	6.6	2.5	1.6	2.5	37.4%	1.6		36.5%	0.59
				AVERAGE	**36.5%**				

Water Loss Calculations

Convert data from cubic feet per second to acre-feet per month. $1\ cfs = 60.37 \frac{acre\ feet}{month}$

For months without available data, the loss was assumed as 36.5% for each segment. Estimated diversions and usage was based on adjacent months' readings and the Water Master.

For the upper segment, where data was not available, it was assumed that 22 cfs was diverted and 8 cfs was used by irrigators during the early summer months (spring runoff). During the late summer months, it was assumed that 6 cfs was diverted and 2.5 cfs was used by irrigators.

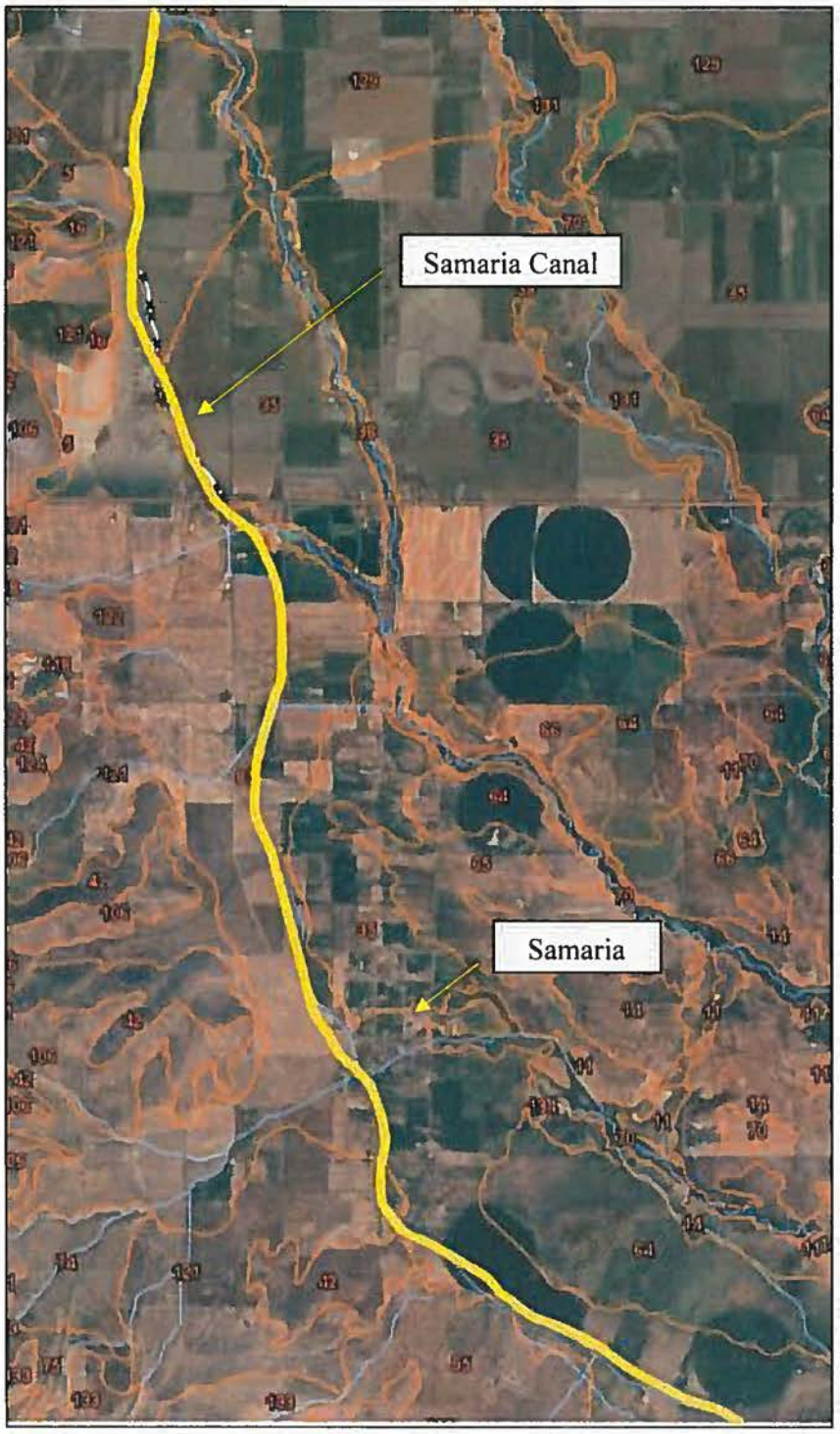
For the lower segment, where data was not available, it was assumed that 5 cfs was added from Warm Springs during the early summer months (spring runoff). During the late summer months it was assumed that 1.6 cfs was added from Warm Springs.

Upper Segment						Lower Segment			
Date	Parley's	In Use @ Seth's	Seth's	Loss	% Loss	Water Entering South Segment	Warm Springs Inflow	% Loss	Loss
	AF	AF	AF	AF		AF	AF		AF
April	1328.1	483.0	360.4	484.8	36.5%	360.4	301.9	36.5%	241.87
May	1328.1	483.0	360.4	484.8	36.5%	360.4	301.9	36.5%	241.87
June	923.7	374.3	259.6	289.8	31.4%	259.6	241.5	36.5%	183.00
July	996.1	187.1	411.7	397.2	39.9%	411.7	76.1	36.5%	178.15
August	413.2	121.9	141.5	149.7	36.2%	141.5	211.3	36.5%	128.85
September	362.2	150.9	79.1	132.2	36.5%	79.1	96.6	36.5%	64.16
October	181.1	75.5	39.5	66.1	36.5%	39.5	48.3	36.5%	32.08
TOTAL:	**5532.5**	**1875.7**	**1652.3**	**2004.6**		**1652.3**	**1277.4**		**1070.0**

IRRIGATION SEASON:

Total Water Diverted from Malad River =	5532.5	acre-feet
Total Water Added from Warm Springs =	1277.4	acre-feet
Water Loss during Irrigation Season =	3074.6	acre-feet
Total Water Loss =	**3074.6**	**acre-feet**

The soil map for the Samaria area was generated using the Web Soil Survey (WSS) available from the NRCS. The soil in the area the canal is located is identified as 85 Parleys silt loam.



Estimated Ditch Loss

P.1

6/26: @ Parleys: 765"

- 310" in use N. of Seth's

455"

- 215 @ Seth's

240" in loss North

215 @ Seth's

310 in use South

? 200+ Warm Springs ?

20" Max excess

7/01: 850" @ Parleys

- 175" in use N of Seths

675"

- 341" @ Seth's

334" in loss North

341" @ Seth's

185" in use South

? 50-75? Warm Springs?

20" Max excess

7/24: 800" @ Parleys

- 135" in use N. of Seth's

665"

- 341" @ Seth's

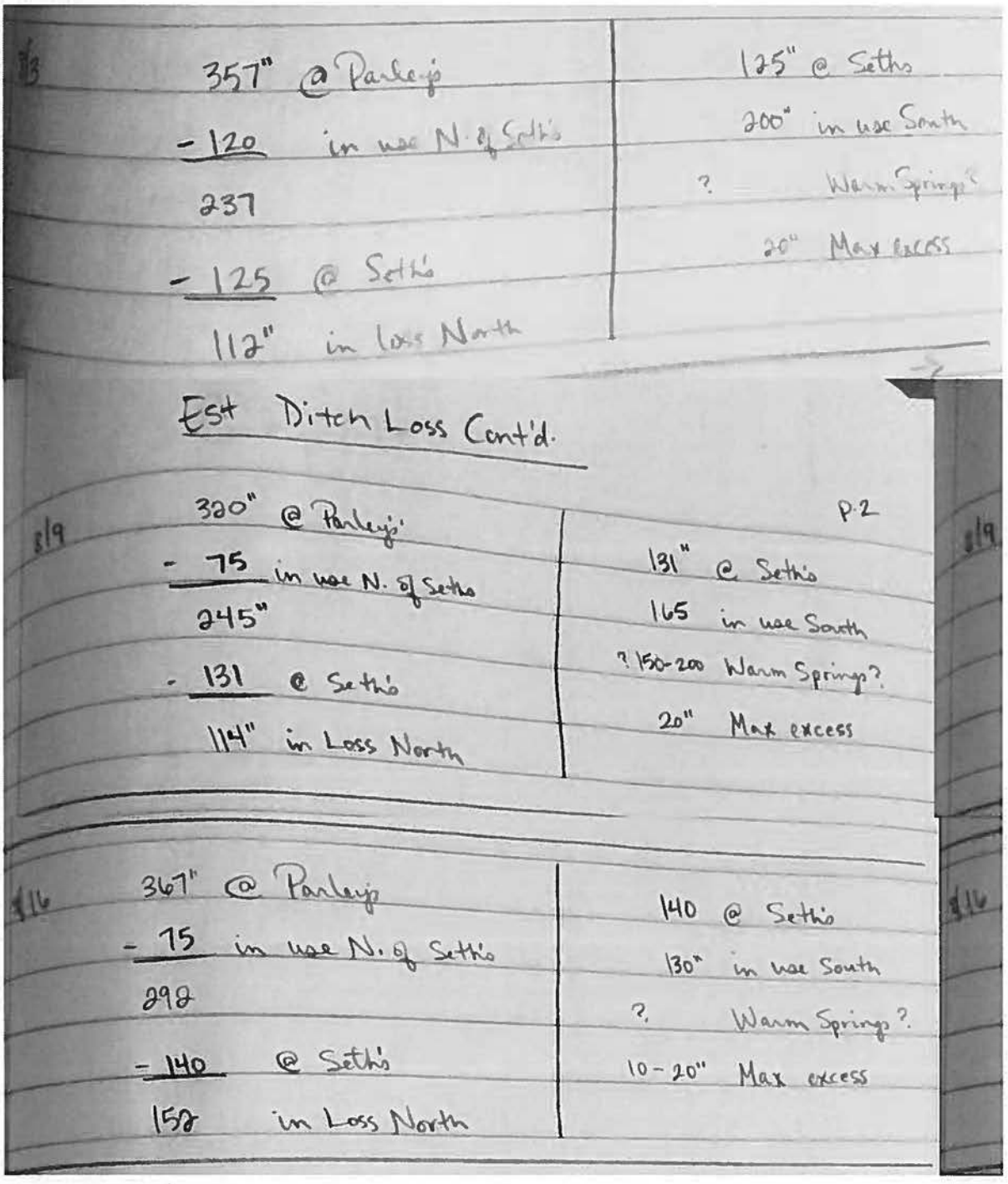
324" in loss North

341" @ Seth's

260 in use South

? 50-75? Warm Springs?

10" Max excess



8/3

357" @ Parley's
- 120 in use N. of Seth's
237
- 125 @ Seth's
112" in Loss North

125" @ Seths
200" in use South
? Warm Springs?
20" Max excess

Est Ditch Loss Cont'd.

8/9

330" @ Parley's
- 75 in use N. of Seths
245"
- 131 @ Seth's
114" in Loss North

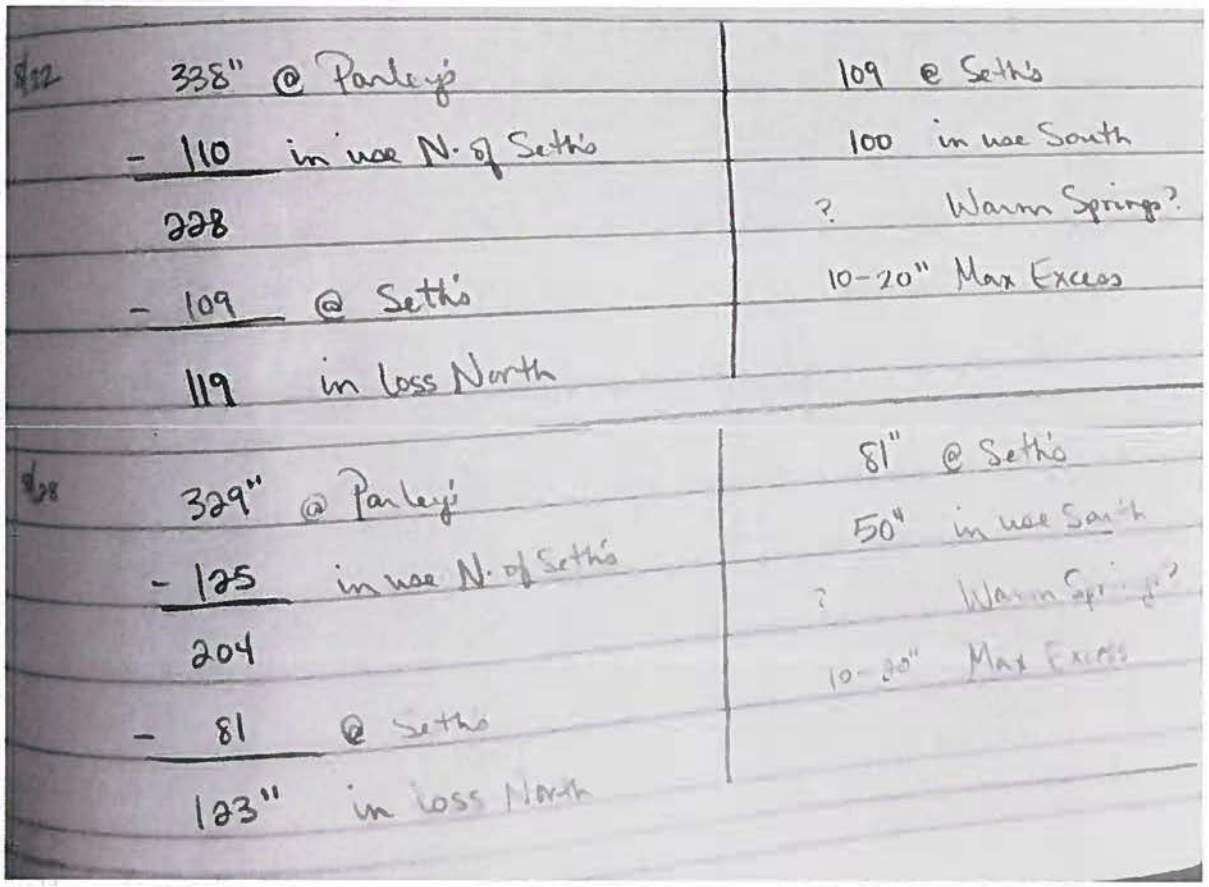
P.2

131" @ Seth's
165 in use South
? 150-200 Warm Springs?
20" Max excess

8/16

367" @ Parley's
- 75 in use N. of Seth's
292
- 140 @ Seth's
152 in Loss North

140 @ Seth's
130" in use South
?, Warm Springs?
10 - 20" Max excess


8/22
338" @ Parley's
- 110 in use N. of Seth's
228
- 109 @ Seth's
119 in loss North
109 @ Seth's
100 in use South
? Warm Springs?
10-20" Max Excess
8/28
329" @ Parley's
- 125 in use N. of Seth's
204
- 81 @ Seth's
123" in loss North
81" @ Seth's
50" in use South
? Warm Sp's?
10-20" Max Excess

Appendix D

Probable Cost for Engineering Services

(Engineering Design and Construction Management)

Samaria Water and Irrigation Company

Probable Cost Opinion for Engineering Services
(Rate Table Attached)

Task Description	Hours By Personnel Category						Total Hours	Total Labor Charges	Other Direct Costs	Total Fee
	2	3	7	6	9	11				
	Senior Manager	Senior Engineer	Engineer I	Senior Designer	Engineering Assistant	Office Assistant				
Phase 1 - Project Management & Coordination										
Task 1. General Project Management Tasks	5	30	15			5	55	$6,460	$50	$6,510
Task 2. Client Coordination Meetings		30	15				45	$5,385	$500	$5,885
Task 3. Environmental Coordination		20	15	5			40	$4,565	$50	$4,615
Task 4. Coordination with Division of Water Resources		20	10			5	35	$3,900	$100	$4,000
Task 5. Coordination with Shareholders		20	10				30	$3,590	$100	$3,690
Task 6. Loan Closing & Legal Coordination		20			10	5	35	$3,840	$100	$3,940
SUBTOTAL	**5**	**140**	**65**	**5**	**10**	**15**	**240**	**$27,740**	**$900**	**$28,640**
Phase 2 - Engineering Design										
Task 1. Design Team Management	5	20	20	5			50	$5,795		$5,795
Task 2. Site Visits/Surveying		25	10	5			40	$4,765	$1,500	$6,265
Task 3. Design Criteria Contract	5	10	5			5	25	$2,870		$2,870
Task 4. Coordination with Client & Shareholders		25	5			5	35	$4,100		$4,100
Task 5. Hydraulic Analysis and Model	5	20	40	10			75	$8,165		$8,165
Task 6. Surge Analysis and Protection	5	20	30				55	$6,215		$6,215
Task 7. Air-Valves Sizing	5	10	5				20	$2,560		$2,560
Task 8. Inlet Structure Design	5	15	5				25	$3,225		$3,225
Task 9. Road Crossing Design and Coordination	5	10	5				20	$2,560		$2,560
Task 10. Pump Design	10	25	10				45	$5,785		$5,785
Task 11. Construction Drawings Draft	10	45	30	100	10		195	$21,375	$200	$21,575
Task 12. Construction Drawings Final	10	45	30	100	10	5	200	$21,685	$200	$21,885
Task 13. Construction Specifications	10	25	40		10	5	90	$9,755	$200	$9,955
Task 14. Bid & Award Coordination		20	10		5		35	$4,025	$500	$4,525
SUBTOTAL	**75**	**315**	**245**	**220**	**35**	**20**	**910**	**$102,880**	**$2,600**	**$105,480**
Phase 3 - Construction Management										
Task 1. Construction Team Management	20	70	50				140	$17,020		$17,020
Task 2. On-Site Observation and Documentation		550					550	$73,150	$5,000	$78,150
Task 3. Submittal Reviews		50					50	$6,650		$6,650
Task 4. Contractor Coordination		60					60	$7,980		$7,980
Task 5. Record Drawings Preparation		10	10	30	10		60	$6,190		$6,190
Task 6. O&M Manual	10	15	15		10	5	55	$6,100	$200	$6,300
Task 7. Project Closeout		10	10		10	10	40	$3,750	$100	$3,850
SUBTOTAL	**30**	**765**	**85**	**30**	**30**	**15**	**955**	**$120,840**	**$5,300**	**$126,140**
Project Totals	110	1220	395	255	75	50	2,105	$251,460	$8,800	$260,260

Appendix E

Probable Cost for Construction Services

Samaria Water and Irrigation Company

Probable Cost Estimate for Construction

No.	Item	Quantity	Unit	Unit Cost	Total Cost
1	Mobilization	1	LS	$ 177,000.00	$ 177,000.00
2	Furnish and Install 24-inch P.I.P. Pipe	40,400	LF	$ 36.00	$ 1,454,400.00
3	Furnish and Install 18-inch P.I.P. Pipe	8,200	LF	$ 25.00	$ 205,000.00
4	Furnish and Install Inlet Structure	1	LS	$ 75,000.00	$ 75,000.00
5	Furnish and Install Outlet Structure	1	LS	$ 10,500.00	$ 11,000.00
6	Furnish and Install Service Laterals with Meters	25	EA	$ 11,500.00	$ 287,500.00
7	Furnish and Install 3-inch Air Valves	25	EA	$ 3,400.00	$ 85,000.00
8	Asphalt Repairs	200	SY	$ 167.00	$ 33,000.00
9	Furnish and Install Pump	1	EA	$ 200,000.00	$ 200,000.00
				Construction Total:	$ 2,527,900.00
				Legal/Bonding:	$ 20,000.00
				Environmental Compliance & Permits:	$ 35,000.00
				Engineering Design & Construction Observation:	$ 260,000.00
				Reporting & Coordination with Reclamation:	$ 20,000.00
				Project Total:	$ 2,862,900.00

Budget Narrative

All unit costs were estimated based on actual construction bids from recent projects. Engineering judgment was used when comparable items were not available. Variances from bid costs are identified in the narrative below. Very limited preliminary design work was completed to identify pipe sizes and lengths needed since this has the greatest impact on the cost. The unit costs for the pipe are the most accurate for the same reason. Other bid items and their respective quantities have been included based on experience working on other projects similar in scope to this project. For each bid item referenced, the average of all the bidders was calculated and used for the cost estimate. All total costs were rounded the nearest $1,000. The bid abstracts referenced include:

- Benson Canal Enclosure – September 2018
- St. John's Canal Enclosure Project – August 2016
- Upper High Creek Canal Enclosure Project – July 2015

The bid abstracts are available for review upon request. More detail is provided below:

Bid Item 1

The mobilization cost is approximately 7% of the total construction costs. The percentage was calculated based on the Upper High Creek bid abstract average of 7.3%.

Bid Items 2 and 3

Pipe material and installation costs were obtained from the Benson construction bid abstract. Prices for 24-inch PIP pipe ranged from $32 to $48 so an average estimate of $40 was used for this estimate. Prices for an 18-inch pipe averaged to be approximately $25 which was used for this estimate.

Bid Item 4

The inlet structure is similar to the inlet structure on the St. John's Canal Enclosure Project and the inlet structure on the Benson Canal Enclosure. The St. John's structure was approximately $110,000 and the Benson structure was approximately $98,000, therefore a conservative estimate of $100,000 was used for this estimate.

Bid Item 5

The outlet structure was based on the Upper High Creek bid abstract with a similar structure. Values were rounded to the nearest hundred dollars.

Bid Item 6

The cost to furnish and install service laterals with meters was based on the Upper High Creek, St. John's, and Benson bid abstracts.

Bid Item 7

The cost for air valves was based on the Upper High Creek, St. John's, and Benson bid abstracts.

Bid Item 8

The cost of asphalt repairs was based on the St. John's bid abstract.

Bid Item 9

The cost to furnish and install a pump at Warm Springs was based on the cost of a pump purchased for the North Summit Pressurized Irrigation Project completed in 2016 and located in Hoytsville, Utah. It is expected the pump will have very similar pressure requirements to the Hoytsville pump but is expected to have a lower flow range. In addition, a screen, wet well and building were incorporated into the cost for the best design in this environment. This cost was confirmed by the Benson project which also had estimates of pump costs that aligned with the Hoytsville project.

Appendix F

Probable Cost for Environmental Services

(Environmental and Cultural Resources Compliance)

Samaria Water and Irrigation Company

Probable Cost Opinion for Environmental Services

Task Description	Hours By Personnel Category					Total Hours	Total Labor Charges	Other Direct Costs	Total Fee
	2	3	7	6	9				
	Senior Manager	Senior Engineer	Engineer I	Senior Designer	Engineering Assistant				
Environmental Services									
Task 1. Cultural Resources Survey/Report[1]		5	4			9	$985	$8,000	$8,985
Task 2. Preparation of Environmental Assessment Draft	2	30			6	38	$4,550	$153	$4,703
Task 3. Coordination with Reclamation[2]		15				15	$1,875	$10,000	$11,875
Task 4. Coordination with Other Agencies		6				6	$750		$750
Task 5. Preparation of Environmental Assessment Final Report	2	25			6	33	$3,925	$154	$4,079
Task 6. FONSI	2	6				8	$1,040		$1,040
Task 7. Stream Alteration Permitting	2	2	24	2	2	32	$3,068	$500	$3,568
PROJECT TOTALS	**8**	**89**	**28**	**2**	**14**	**141**	**$16,193**	**$18,807**	**$35,000**

[1] *A cost of $8,000 was budgeted for the Cultural Resources Survey/Report that will be prepared by a registered archeologist.*

[2] *A cost of $10,000 was budgeted for Reclamation's effort on NEPA Compliance.*