2024

SUNNYDELL CANAL WATER EFFICIENCY IMPROVEMENT PROJECT

BUREAU OF RECLAMATION

WaterSMART Grants:

Water and Energy Efficiency Grant Application

FISCAL YEAR 2024

R24AS00052

Title Page

WaterSMART Water and Energy Efficiency Program
Fiscal Year 2024
Funding Opportunity Announcement No. R24AS00052

Project Title
Sunnydell Canal Water Efficiency Improvement Project

Project Location
Sunnydell Canal
Madison County, Idaho

Applicant
Sunnydell Irrigation District
11477 South Snake River Road
Rexburg, ID 83440

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February 22, 2024

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Executive Summary

Date:	February 22, 2024
Applicant Name:	Sunnydell Irrigation District
City, County, and State:	Rexburg, Madison County, Idaho
Applicant Category:	Category A (Irrigation District)
Estimated Project Duration:	22 Months
Estimated Completion Date:	December 2025
Located on Federal Facility:	No

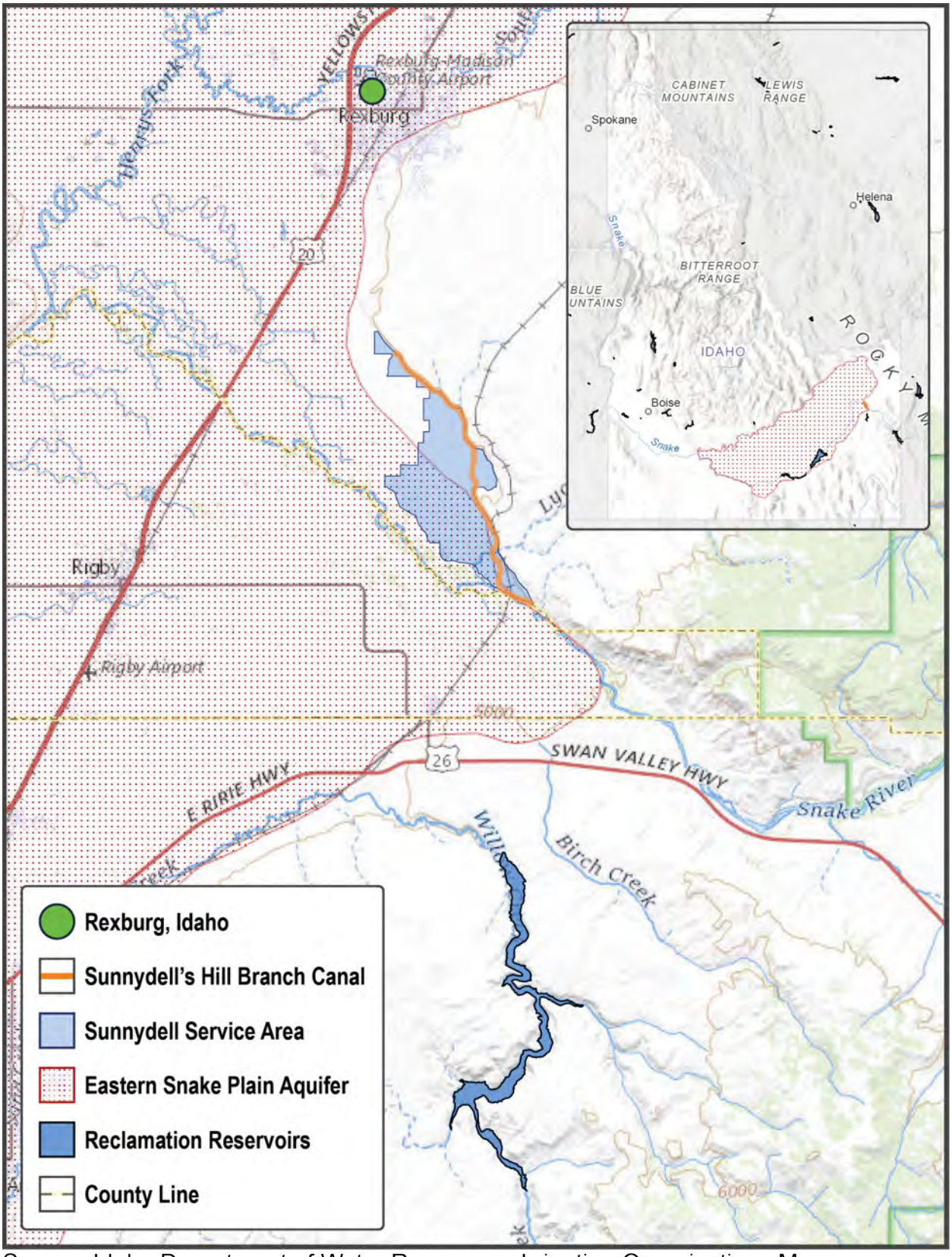
Project Summary

The Sunnydell Irrigation District uses the Sunnydell Canal to distribute natural flow from the Snake River in order to irrigate 4,120 acres of productive agricultural land in Madison County near Rexburg, Idaho. The canal is an open channel, unlined, earthen canal that has suffered considerable damage because it runs along a fault line. This makes it prone to developing sinkholes which has resulted in significant amounts of water being lost to seepage year after year. Current estimates, based on historical usage, indicate approximately 33% of the water diverted is lost to seepage each year. To address this seepage loss, Sunnydell is proposing to install a high-density polyethylene (HDPE) canal liner along the Hill Branch; a 6.7-mile section of the canal. The project also involves replacing the old, manual field headgates with solar-powered electric actuated headgates and installing water measurement devices to increase delivery efficiency, eliminate excess spills, and optimize flow rates. This project is expected to result in an immediate water savings of approximately 6,057 acre-feet annually (afa) during the typical 183-day irrigation season for the 2,064 acres irrigated by the Hill Branch. This water savings will significantly improve the sustainability of agriculture in Idaho's Upper Snake River Valley. It will also enhance flows in the Snake River which will improve water quality and increase water supplies for downstream users as well as others in the region.

Project Location

The proposed project is located within the Upper Snake River Basin in an unincorporated area of Madison County, Idaho. The project starts about 10 miles south of the city of Rexburg near the intersection of South Snake River Road and East 10000 South which is located at approximately 43° 41' 4'' N and 111° 44' 39'' W. It continues north for about 6.7 miles along the existing canal alignment to the project endpoint which is located about five miles south of Rexburg at approximately 43° 44' 45.99'' N and 111° 47' 31.91'' W (**Figure 1. Project Vicinity Map**).

Figure 1. Project Vicinity Map



Source: Idaho Department of Water Resources, Irrigation Organizations Map.

Project Description

The proposed project consists of two major project components:

Component 1: Water Conveyance Improvements

This project component involves installing a high-density polyethylene (HDPE) liner along the most problematic section of the Sunnydell canal system. This section is known as the Hill Branch and is approximately 6.7 miles long. The Hill Branch starts near the intersection of South Snake River Road and East 10000 South which is located at approximately 43° 41' 3.88" N and 111° 44' 39.37" W. It then continues along the historical Sunnydell Canal alignment to the project endpoint which is located about five miles south of Rexburg at approximately 43° 44' 45.99" N and 111° 47' 31.91" W.

Component 2: Water Delivery Improvements

This project component involves replacing the old, manual field headgates (i.e., turnout or delivery gates) with solar-powered electric actuated headgates and water measurement devices as a means of regulating and measuring the flow of irrigation water to farmer fields.

The conceptual design drawings are included as **Appendix A. Conceptual Design Drawings**.

Project Approach

Construction work consisting of excavation, earthwork, and liner installation will be performed in sections and work will advance incrementally along the canal. As discussed in the budget narrative, all construction work will be performed by a general contractor that is qualified and experienced in earthwork and canal lining projects. Contractor selection will be made as part of a bid selection process. All staff, equipment, and materials required to complete the construction work will be provided by the selected contractor.

Brook Bybee, Eric Sutton, and Blake Mortenson are members of the Sunnydell board and will manage this project for Sunnydell. They will be responsible for ensuring each of the following tasks are completed on time and within the proposed budget.

Sunnydell has selected Ardurra on a qualifications basis to develop the final design. As the hydraulics project engineer, Hattie Zobott, PE will serve as the technical lead and project manager for this project. She will also work closely with the designated construction manager. A copy of her resume is included with **Appendix B. Supporting Calculations and Documentation**.

Project Task Summary

1. Surveying and Design
A detailed topographic survey will be completed in order to identify existing high-water marks, document data needed to define the canal geometry, and identify other critical topographic data necessary for final design. The survey data will be used by the engineer to develop a hydraulic model and design drawings.

2. Environmental and Cultural Resources Compliance
Sunnydell will work with Reclamation's Snake River area office to ensure all environmental and cultural resource compliance requirements are completed prior to project construction.

3. Permitting and Approvals
A jurisdictional determination regarding Waters of the United States will be completed as part of the permitting and approval process. All required permits or approvals will be completed prior to project construction.

4. Easements and Rights-of-Way
The majority of the project work will occur within Sunnydell’s existing canal easement, and we are currently working with an adjacent landowner to secure an easement necessary to complete the project.

5. Excavation and Site Preparation
The canal will be dewatered and excavated to remove any existing silt, debris, or similar materials from the bottom and sides, and the canal will be reshaped to install the liner. The canal will then be allowed to dry prior to completing backfill and earthwork.

6. Backfill and Earthwork
The existing canal will be graded, backfilled, and compacted to meet grade requirements of final design and ensure proper soil density and moisture levels. Final grade will be checked against the construction survey stakes.

7. Liner Placement
This project requires a total of 904,464 square feet of high-density polyethylene (HDPE) canal liner which will be placed in accordance with the plan drawings and specifications.

8. Installation of Field Headgates, Measurement Devices, and Solar Arrays
Irrigation turnout connections will be installed according to the drawings using pre-cast concrete structures. The existing field headgates will be removed and replaced with electric actuated headgates along with measurement devices and solar arrays. The pre-cast gate structures will include slots for trash screens as well as outlet controls to reduce the potential for downstream erosion.

System Overview

Sunnydell diverts water from the Snake River as natural flow to irrigate 4,120 acres of productive agricultural land in Madison County near Rexburg, Idaho. The canal system begins at the canal inlet on the Snake River which is located at approximately 43° 38' 55.84" N and 111° 42' 16.55" W. The canal generally follows alongside South Snake River Road as it travels north until it reaches the intersection of East 10000 South which is located at approximately 43° 41' 4" N and 111° 44' 39" W. This is the point where the Hill Branch begins, and it continues for about 6.7 miles along the existing canal alignment to the project endpoint which is located about five miles south of Rexburg at approximately 43° 44' 45.99" N and 111° 47' 31.91" W.

The canal is an open channel, unlined earthen irrigation ditch that was constructed in 1882. It feeds directly from the Snake River near the Heise area and extends nearly seven miles north-northeast to farms located along the southwestern border of Madison County. The maximum flow through the Hill Branch canal is estimated at 143 cubic feet per second (cfs). According to data provided by Water District No. 1, the average flow rate in the canal is estimated to be 50 cfs.

Improvement Needs

The Sunnydell Canal experiences significant water loss due to seepage along the Hill Branch because it was constructed more than 140 years ago along a fault line. The Hill Branch is prone to developing sinkholes and has sustained significant damage (**Figure 2**). These holes appear throughout the system and are not isolated to any particular vicinity. This problem is so severe that water has been observed draining through these holes with such velocity that vortices develop.

Figure 2. Canal Sinkhole

Sources of Water Supply

Sunnydell's primary source of water supply is natural flow from the Snake River. As a result of the high level of variability to this water supply, Sunnydell must also rely on storage water provided from a Reclamation reservoir when its water rights for natural flow are out of priority.

Natural Flow Water Rights

As shown in **Table 1**, Sunnydell's natural flow water rights total 235 cubic feet per second (cfs) with the Hill Branch accounting for approximately 117 cfs which about half of the total diversion. Typically, these water rights are out of priority in July.

Table 1. Natural Flow Water Rights

Source	Priority Date	Diversion Rate
Snake River	7/1/1882	0.64 CFS
Snake River	6/1/1885	2.18 CFS
Snake River	6/1/1886	0.71 CFS
Snake River	6/1/1887	1.03 CFS
Snake River	6/1/1888	16.40 CFS
Snake River	6/1/1889	44 CFS
Snake River	6/1/1891	30 CFS
Snake River	4/14/1902	140 CFS
Total Natural Flow Water Rights		**235 CFS**
Approximate Average Hill Branch Diversion		**117 CFS**

Storage Water Rights

After our water rights for natural flow are out of priority, the company is completely reliant on its storage water rights at two Reclamation reservoirs. As shown in **Table 2**, the total volume of storage water available to Sunnydell from both Reclamation reservoirs is 9,966 afa.

Table 2. Storage Water Rights

Reclamation Reservoir	Available Volume
Jackson Lake Reservoir	3,666 AFA
Palisades Reservoir	4,920 AFA
Palisades Reservoir (Winter Water Storage)	1,380 AFA
Total Storage Water Available	**9,966 AFA**

Historical Diversion Rates

Historical records retrieved from the online water rights accounting system maintained by the Idaho Department of Water Resources show Sunnydell has diverted an average of 36,709 afa per year this past decade to meet the needs of all the farmers who rely on this water supply. The Hill Branch accounts for approximately 18,441 afa which is roughly half of the diversion. These diversion rates are shown in **Table 3** and reflect the amount of water diverted at the Snake River for the entire Sunnydell system.

Table 3. Historical Diversion Rates

Year	Natural Flow (afa)	Storage (afa)	Total (afa)	Days Diverted
2014	41,499	576	42,075	184
2015	39,902	7,442	47,344	195
2016	35,901	7,937	43,838	186
2017	21,653	1,013	21,653	188
2018	27,215	5,608	32,823	218
2019	33,447	5,671	39,118	204
2020	29,268	5,760	35,028	181
2021	33,307	8,637	41,944	186
2022	25,016	4,329	29,345	123
2023	26,112	7,805	33,917	161
Average	**31,332**	**5,478**	**36,709**	**183**
		Hill Branch	**18,441**	**183**

Evaluation Criteria

A. Criterion A—Quantifiable Water Savings

1. Describe the amount of estimated water savings.

Sunnydell will be able to conserve an estimated 6,057 acre-feet annually (afa) during the typical 183-day irrigation season as a direct result of lining the canal and installing solar-powered electric actuated headgates and water measurement devices.

2. Describe current losses. Please explain where the water that will be conserved is currently going and how it is being used.

Current estimates based on historical usage indicate approximately 33% of the water diverted is lost to seepage as a result of sinkholes that have developed throughout the entire Hill Branch as a result of it being built along a fault line as well as other water losses due to delivery inefficiencies. Additional losses are the result of current operational inefficiencies, spillage. These losses may potentially be going to other water users. The seepage problem is so severe that water has been observed draining through these holes with such velocity that vortices develop. These losses are seeping into the ground, and it is unknown how this water is being used or if it is being put to a beneficial use. The aquifer below the area is small and isolated from the regional Eastern Snake Plains Aquifer. The estimated annual losses for the lined canal is estimated to be zero. These calculations are summarized in **Table 4**.

Table 4. Seepage Rate Calculations

	Total Acres	Peak Consumptive Use (afa/acre)	Total Diversion for Flood Irrigation (afa/acre)	Hill Branch Diversion per Acre (afa)	Losses per Acre (afa)	Total Annual Losses (afa)
Hill Branch	2,064	3.0	6.0	8.9	2.9	6,057

Are there any known benefits associated with the current losses?

There are no significant benefits associated with current losses. As shown in **Figure 1**, the Idaho Department of Water Resources map of the Eastern Snake Plain Aquifer (ESPA) indicates there is very little overlap of the aquifer and the Hill Branch. As a result, it is assumed only a small percentage of water lost to seepage along this section of the canal may potentially be entering the aquifer to become available as groundwater.

3. Describe the support and documentation of estimated water savings.

The estimated water savings for the conveyance and automation improvements was determined using historical records from 2014–2023. These records were kept by the watermaster for the Irrigation District and reported to Water District No. 1. In Idaho, irrigation districts are organized government entities created and supervised by the counties they reside in. They distribute water consistent with water rights on record with IDWR. These records were retrieved from the water rights accounting page of the IDWR website and are summarized in **Table 3. Historical Diversion Rates**. Additional details and calculations supporting how current seepage losses and water savings were determined are included in **Appendix B. Supporting Calculations and Documentation**.

4. Please address the following questions according to the type of infrastructure improvement you are proposing for funding.

(1) Canal Lining:

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

An analysis was conducted to determine the estimated average water savings that will result from the proposed conveyance and automation improvements. The baseline used in this analysis was the average amount of water Sunnydell diverted at the Snake River for 2014–2023. These amounts were recorded and reported by the watermaster for the Irrigation District and reflect diversion rates for the entire Sunnydell Canal system (**Table 3.** Historical Diversion Rates**)**.

The estimated water losses were calculated by taking the total water diverted per acre on average less the maximum consumptive use per acre (including losses attributable to irrigation efficiency). The total average acre-feet per acre was determined by dividing the total average diversion by the number of acres for the Hill Branch. The resulting average diversion per acre was found to be 8.9 acre-feet per acre. The consumptive use of three acre-feet per acre for alfalfa (peak, no cutting) was used to represent the maximum consumptive use possible for Sunnydell water users (Trezza, Robinson, Kelly, & Allen, 2017). This is a conservative estimate because not all 2,064 acres irrigated by the Hill Branch are alfalfa. The irrigation efficiency was assumed to be 50% for flood irrigation. Again, this value is conservative because not all acreage within the Hill Branch are irrigated by flood irrigation. The resulting required diversion for the Hill Branch for alfalfa, flood irrigated acreage, is 6.0 acre-feet per acre. The surplus water diverted represents the average loss per acre of 33%. The estimate of 33% is conservative because less than 1/3 of the Hill Branch is flood-irrigated alfalfa.

b. How have average annual canal seepage losses been determined?

The seepage rate was determined by dividing the previously described losses by the length of the canal that will be lined. The inflow is based on historical diversion rates for the system as measured at the headgate and reported to the Idaho Department of Water Resources. The ratio of water diverted for the Hill Branch was determined by mapping the irrigation area for the Hill Branch of the Sunnydell Canal. It was determined that the Hill Branch is used to irrigate approximately 2,064 acres which represents about half of the entire Sunnydell service area. There are not any measurement devices on the Sunnydell system beyond the initial headgate at the Snake River. All calculations are based on the total average diversion. Spill loss is included in the seepage calculation and is not quantified. The automated headgates will eliminate spill loss and allow us to regulate diversions.

c. What are the expected post-project seepage/leakage losses and how were these estimates determined?

The post project seepage losses are anticipated to be zero afa. This result was determined based on data provided by the manufacturer of the impermeable liner.

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 annual transit loss reductions are anticipated to be 904 acre-feet per mile.

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

The actual canal loss seepage reductions will be verified by performing inflow/outflow testing. This testing will be performed using an existing measurement device located at the canal inlet and the new measurement devices to be installed at each delivery or outlet.

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

A high-density polyethylene (HDPE) canal liner will be used to line the canal. This material was selected because neighboring canal companies have found it to be effective, durable, and affordable. A copy of the technical data sheet for the liner is included with **Appendix B. Supporting Calculations and Documentation.**

(2) Irrigation Flow Measurement:

The Sunnydell Irrigation District does not measure flow on the Hill Branch. Water users are provided water within a two-week rotation based on demand from the water users. The proposed project will install water measurement devices at the inlet, all diversions, and the outfalls of the Hill Branch. The proposed flow measurement devices are ultrasonic water level sensors that measure the discharge at the outlet of the headgate. Technical data sheets for these products are included as **Appendix B. Supporting Calculations and Documentation**.

B. Criterion B—Renewable Energy

1. Subcriterion B.2—Increasing Energy Efficiency in Water Management

a. Please indicate whether your energy savings estimate originates from the point of diversion or whether the estimate is based upon an alternate site of origin.

Energy savings is based on eliminating the need for the watermaster to make daily trips to each of the field headgates. These trips are estimated at approximately 15 miles per day each way for a total reduction of 2,745 miles driven per 183-day irrigation season. The assumed gas millage is 22.2 miles per gallon as per EPA estimates.

b. Will the project result in reduced vehicle miles driven, in turn reducing greenhouse gas emissions? Please provide supporting details and calculations.

By installing automated headgates, the watermaster will no longer need to make daily trips to the canal structure. According to the U.S. EPA's Greenhouse Gas Equivalencies Calculator, even simply cutting these trips in half will save approximately 200 gallons of gas per year and **reduce emissions by 2,46 pounds of carbon dioxide per year** (U.S. Environmental Protection Agency, 2023). Additionally, using solar arrays to power the headgates will further reduce energy use and eliminate the need for power poles to be installed to power the automated headgates.

A copy of these calculations is included in **Appendix B. Supporting Calculations and** Documentation.

c. Describe any renewable energy components that will result in minimal energy savings (e.g., installing small-scale solar as part of a SCADA system).

This project includes installing small-scale solar arrays as part of a SCADA system to power the automated headgates and measurement devices. This will result in minimal energy savings and eliminate the need for power lines to be installed at each headgate.

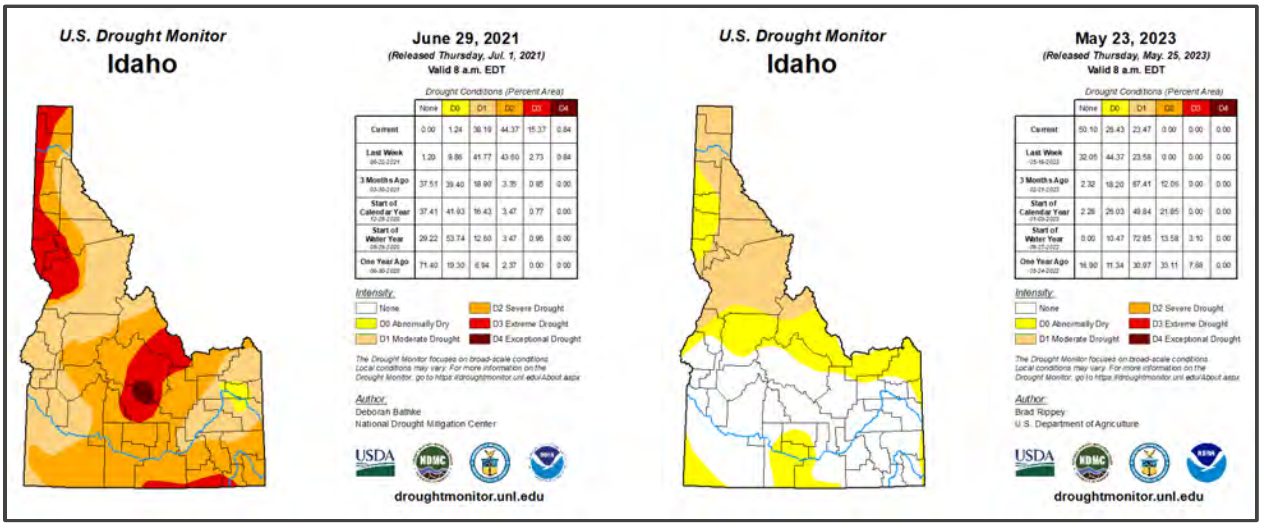
C. Criterion C—Other Project Benefits

1. Resilience and Sustainability Benefits. Will the project address a specific water and/or energy sustainability concern?

a. Explain and provide detail of the specific issue(s) in the area that is impacting water resilience and sustainability.

Ongoing drought conditions continue to be a critical problem throughout Idaho. This is especially true for Madison County where the project will be located. The Idaho Department of Water Resources (IDWR) has issued declarations of drought emergencies eight times for Madison County since 2001. The most recent drought emergency was declared for Madison County June 14, 2021, and was approved by Governor Brad Little June 16, 2021. At the time the drought emergency was declared, stream flow volume for the Snake River near Heise was forecasted to be only 69% of average for June through September (Idaho Department of Water Resources, 2022). According to the U.S. Drought Monitor (USDM), it took Madison County almost two years to recover from these extreme drought conditions while recovery took even longer for the rest of Idaho (**Figure 3**) (National Drought Mitigation Center at the University of Nebraska-Lincoln, U.S. Department of Agriculture, National Oceanic and Atmospheric Administration, 2024).

Figure 3. Idaho Drought Conditions (2021–2023)



Given Idaho's history experiencing multiple droughts impacting agriculture, water supply, hydropower, tourism and recreation, fisheries, and wildland fire regimes these past two decades, as well as the recent, prolonged, multi-year drought, there is a high potential for future drought conditions and water scarcity in the project area.

Additionally, water experts and public officials who attended the Idaho Governor's Water Summit in August 2023 recognized that water levels in Idaho have been declining since 1935, and population growth, outdated water infrastructure, and climate change present challenges in reversing this decades-long trend. At this event, the governor stressed the importance of modernizing Idaho's aging water infrastructure because this is vital in helping to stretch water supplies through efficiency savings and will result in improved water quality (Office of the Governor, 2023). This project was recently selected by the Idaho Water Resource Board (IWRB) to receive an Aging Infrastructure Grant because it was identified as a project that will help ensure long-term water resource stability and sustainability for Idaho.

Sunnydell is overusing water resources per acre as demonstrated by the previous water loss calculations. The increase in efficiency will enable water to be available to downstream users in the form of natural flow or storage water leases. Idaho recognizes that water efficiency improvements are necessary to provide for long-term sustainability of agriculture (Idaho Water Resource Board, 2009).

b. Please describe how the project will directly address these concerns.

This project consists of two major project components that will help Sunnydell conserve water, increase water reliability, and improve operational flexibility by optimizing flow rates, reducing seepage, and increasing delivery efficiency. These improvements will allow Sunnydell to employ methods identified in the *Idaho Drought Plan* as essential in helping to ensure long-term water resource stability and sustainability. This plan, which was developed in 2001 by the Idaho Department of Water Resources, discusses the importance of water rental pools for addressing drought conditions because they allow water users to redistribute water where it is needed (Idaho Department of Water Resources, 2001).

Sunnydell is a member of the water rental pool managed by Water District No. 1 which plays an essential role in allowing water supplies to be put to the highest beneficial use. This project will reduce demand for natural flows from the Snake River, benefit Reclamation's Upper Snake River Basin water supply, and increase water available to other users through this rental pool. This will be a long-term benefit of this project.

Additionally, this project will also implement two important water management strategies identified in the *Eastern Snake Plain Aquifer (ESPA) Comprehensive Aquifer Management Plan*. This plan was developed by the IWRB and passed into law by the Idaho State Legislature in 2009. The strategies identified in this plan include demand reduction and conservation of surface water to meet the long-term needs of Idaho water users. As part of the demand reduction and conservation strategy, this plan recommends that companies evaluate can structures for opportunities to conserve water and then explore federal grants to leverage state monies and reduce cost to canal companies for making any related improvements (Idaho Water Resource Board, 2009). This is the exact objective of this proposal and the exact purpose of this project.

c. Will the project directly result in more efficient management of the water supply? For example, will the project provide greater flexibility to water managers, resulting in a more efficient use of water supplies?

The proposed project will directly result in more efficient water supply management. The planed conveyance and automation improvements will allow for improved efficiency, increased operational flexibility, and improved management of storage water. Sunnydell will be able to reduce diversions needed to support the delivery network and react to any water delivery or shutoff requests in real time. Combined, these improvements will facilitate leasing and rental of the storage and natural flow waters Sunnydell manages. Every drop of water conserved benefits Idaho water users.

d. Please address where any conserved water as a result of the project will go and how 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.

Natural flow will be left in the river system to meet the needs of other intended downstream uses. Storage water conserved through the project will be leased or rented to other users to address water shortages on existing acreages. The conserved water may be used to offset groundwater pumping or address shortages as a result of drought. The water will not be transferred or used to develop new acreage. It is important to note that Water District No. 01 rental rules prevent the development of new irrigated acreage as the result of a storage water lease.

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

This project is expected to result in an immediate water savings of approximately 6,057 acre-feet per year. This water will be available as natural flow or storage water within the Upper Snake River system and will be available to meet the needs of water users for use in crop production or as needed for regional water stability.

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

Natural flow from the Snake River is measured and allocated by the watermaster. Any reductions in natural flow water usage as a result of this project will be allocated according to priority date and made available to downstream users.

Water District 01 also manages storage water. Storage water is allocated and used based on the rules established for the rental pool.

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

There are several ongoing water-related conflicts and lawsuits in Idaho. Water rights are particularly contentious for water users in the Snake River Basin; especially between surface water and groundwater users. Decades of back-to-back drought conditions and decreased river flows have only served to make these legal battles more commonplace.

According to the *Eastern Snake Plain Aquifer (ESPA) Comprehensive Aquifer Management Plan*, the state expects an escalation of conflict between water users and increased litigation if the water management strategies and conservation measures outlined in the plan are not implemented (Idaho Water Resource Board, 2009). This project will help Sunnydell to conserve a significant amount of water which will reduce water shortages for Sunnydell farmers and will help to increase water supplies available for other water users.

2. Ecological Benefits

a. 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 or is subject to a recovery plan or conservation plan under the Endangered Species Act (ESA).

This project will benefit federally-listed Snake River sockeye salmon (*Oncorhynchus nerka*), Snake River spring/summer Chinook salmon (*Oncorhynchus tshawytscha*), Snake River fall Chinook salmon (*Oncorhynchus tshawytscha*), and Snake River Basin steelhead trout (*Oncorhynchus mykiss*). The U.S. Bureau of Reclamation has adopted an operating strategy that incorporates the recommendations of the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) to help protect these and other non-listed species. This strategy includes releasing water from storage during migration season to support recovery of these species when natural flows recede. Reclamation uses water from the Water District No. 01 rental pool to meet flow augmentation goals and to maintain minimum stream flows throughout the Columbia River Basin and the Snake River. Sunnydell is a participating member in this rental pool, and the proposed project will increase the amount of storage water available to help Reclamation meet established flow objectives for the Snake River (Bonneville Power Administration, U.S. Bureau of Reclamation, U.S. Army Corps of Engineers, 2001).

b. Will water remain in the system for longer periods of time? If so, provide details on current/future durations and any expected resulting benefits (e.g., maintaining water temperatures or water levels, recreational benefits, etc.).

The proposed project will allow Sunnydell to conserve 6,057 acre-feet of surface water annually. This in turn will reduce Sunnydell's dependance on water stored within Reclamation's Upper Snake River Basin water storage system and allow this water to remain in the reservoirs for longer periods of time. This water could also be made available to other participants in the Water District No. 01 rental pool—a significant source of water during periods of drought.

c. Will the proposed project reduce the likelihood of a species listing or otherwise improve the species status?

As previously stated, this project will improve the habitat of federally-listed Snake River sockeye salmon (Oncorhynchus nerka), Snake River spring/summer Chinook salmon (Oncorhynchus tshawytscha), Snake River fall Chinook salmon (Oncorhynchus tshawytscha), and Snake River Basin steelhead trout (Oncorhynchus mykiss).

d. Please describe any other ecosystem benefits as a direct result of the project.

This project will allow Sunnydell to use sound hydrological strategies to create a more efficient and responsive water delivery system which will significantly reduce water loss. This will result in improved natural flows in the Snake River which will benefit its dynamic ecosystem and help to improve water quality. Gravel-bed river floodplains like the Snake River ecosystem are among the most ecologically important habitats on the continent. Their subterranean habitat is the foundation of a food chain that creates biodiversity in the entire valley, by nourishing microbes and aquatic insects, and plant life such as willows, cottonwood, and aspen, which in turn sustain fish, birds and beavers, elk and caribou, and consequently wolves and grizzly bears (F. Richard Hauer et al., 2016).

3. Climate Change

a. Describe how the project addresses climate change and increases resiliency.

This project will directly improve long-term drought resiliency for the farmers who rely on Sunnydell for their water supply by eliminating seepage losses and through improved water management. Conserving this water will relieve stress on local water supplies which will also help the community during drought conditions. Reducing the amount of water Sunnydell diverts from the Snake River will increase the amount of natural flow water available to downstream water users and allow this water to be used for more productive purposes. Water demands are high on the Snake River, and this conservation of surface water will help meet the long-term needs of other water users in the region.

This project will also reduce Sunnydell's dependance on water stored within Reclamation's Upper Snake River Basin water storage system. This will increase climate change resiliency for other participants in the Water District No. 1 rental pool because this water can be made available to other water users during low water years and during drought conditions.

Additionally, this project supports methods for improving drought resiliency that were identified in both the *Idaho Drought Plan* and the *Eastern Snake Plain Aquifer (ESPA) Comprehensive Aquifer Management Plan.* In the *Idaho Drought Plan*, the Idaho Department of Water Resources identified water rentals and leases as two important mechanisms for improving drought resiliency (Idaho Department of Water Resources, 2001). In Idaho's *Eastern Snake Plain Aquifer (ESPA) Comprehensive Aquifer Management Plan,* the state identifies demand reduction through surface water conservation and dry-year water leases as two methods for improved drought resiliency (Idaho Water Resource Board, 2009).

b. Does the project seek to improve ecological resiliency to climate change?

This project will improve ecological resilience to climate change by increasing natural flows in the Snake River. This will help fish, wildlife, plants, and the surrounding ecosystem survive prolonged periods of drought and cope with other impacts of climate change. This project will also help by increasing the amount of water available to the Water District No. 1 rental pool which is used by Reclamation for flow augmentation (Bonneville Power Administration, U.S. Bureau of Reclamation, U.S. Army Corps of Engineers, 2001).

c. Does the proposed project seek to reduce or mitigate climate pollutions such as air or water pollution?

This project will help to improve water quality in the Snake River because it will result in increased natural flows. Low flows during summer months negatively impact water quality and often results in higher water temperatures as well as increased levels of nitrogen, phosphorus, pesticides, and sedimentation. These conditions can promote the development of harmful algae that prefer warm, stagnant water with a high nutrient load. The local fish and wildlife populations will benefit from increased stream flows and improved water quality.

This project will also help to reduce air pollution because the watermaster will no longer need to make daily trips to the canal structure as a result of installing automated headgates and measurement devices.

d. Does the proposed project include green or sustainable infrastructure to improve community climate resilience?

Yes, this project includes installing solar-powered automated headgates and measurement devices which will result in improved water management, reduced energy demand, and reduced greenhouse gas emissions. This is especially important during the summer months when high demand and high temperatures already strain the region's electricity grid.

Installing automated headgates will also help reduce impacts of flooding events on the Snake River by providing Sunnydell with the ability to quickly and efficiently divert flood flows into the canal to lower flood risk. The flood flows can then be dispersed throughout the delivery network and onto fields.

D. Criterion D—Disadvantaged Communities, Insular Areas, and Tribal Benefits

1. Disadvantaged Communities

This water efficiency improvement project is expected to result in an estimated water savings of 6,134 afa. Conserving this water will result in substantial benefits for the state, region, and especially for users located downstream of the project area. This project will increase the water supply, improve water quality, and provide numerous economic benefits for several nearby disadvantaged communities which include areas of Rexburg and Idaho Falls as well as Jefferson and Freemont counties.

The area that Sunnydell serves, as well as the nearby disadvantaged communities, are sparsely populated and rural areas with relatively few economic opportunities. This project will preserve local jobs and be an economic benefit to these communities. **In Idaho, agriculture is responsible, directly or indirectly, for one in every eight jobs and for 12.5% state's gross domestic product (GDP)** (Wilder, Du, & Taylor, 2022). In Madison County, about 65% of its 469 square miles is farmed and approximately 94% of those farms are family farms (U.S. Department of Agriculture, National Agricultural Statistics Service, 2019).

This project will also increase the water supply for downstream users which will help reduce the likelihood of water curtailment and the possible loss of their irrigation rights. The economic impacts of curtailment would be devastating given that agriculture is the top industry in Idaho and one of the primary sources of income in Southeast Idaho where this project is located. Additionally, curtailment may force water these farmers to fallow their land. This would increase the potential for soil erosion and the introduction of invasive species which would negatively impact water quality and local wildlife habitat (U.S. Department of Agriculture, 2006).

2. Tribal Benefits

a. Does the proposed project directly serve or benefit a Tribe? Will the project increase water supply sustainability for an Indian Tribe? Will the project provide renewable energy for an Indian Tribe?

The proposed project will indirectly benefit the Shoshone-Bannock Tribes of Fort Hall as it will increase the amount of water available in the Fort Hall area by reducing the amount of storage water needed for Sunnydell farmers and by increasing the amount of water available as water rentals and leases.

b. Does the proposed project support Tribal led conservation and restoration priorities, or incorporate or benefit indigenous traditional knowledge and practices?

Idaho Tribes have long advocated for the restoration of salmon and steelhead populations in the Snake River—the largest tributary in the Columbia River. This project will benefit these federally-listed fish populations as well as other, non-listed species by allowing for increased natural flows in the Snake River. It will also result in increased storage water being available to Reclamation for flow augmentation when natural flows recede (The White House, 2023).

c. Does the proposed project directly support tribal resilience to climate change and drought impacts or provide other Tribal benefits such as improved public health and safety through water quality improvements, new water supplies, increased renewable energy, or economic growth opportunities? Does the proposed project support Reclamation's Tribal trust responsibilities or a Reclamation activity with a Tribe?

As part of the Columbia and Snake River Salmon Recovery Program, Reclamation's responsibilities as part of the Nez Perce Settlement include modifications to hydro system operations and specific actions to improve tributary habitat and hatcheries for salmon and steelhead (Bureau of Reclamation). One of the components of this program includes leasing up to 427,000 acre-feet of water from Idaho water banks for Snake River flow augmentation. These flows will provide for future domestic, commercial, municipal, and industrial uses and will allow for a certain level of future development of other water uses (Native American Rights Fund, 2004).

E. Criterion E—Complementing On-Farm Irrigation Improvements

1. Describe any planned or ongoing projects by farmers/ranchers that receive water from the applicant to improve on-farm efficiencies.

Common on-farm practices implemented in the region were discussed with the District Conservationist for NRCS. The most common practice is for farmers to convert from flood irrigation to center pivot irrigation. This conversion requires pressurized water for sprinkler application. Access to three phase power is a limiting factor for some farmers. About 20% of the farmers in the Sunnydell service area are requesting NRCS EQIP funding to convert to sprinklers in order to improve on-farm efficiency.

a. Provide a detailed description of the on-farm efficiency improvements.

For sprinkler implementation, the detailed on-farm efficiency improvements include center pivot sprinklers, sumps, pumps, mainline pipes, Low Elevation Sprinkler Application (LESA) packages, no-end guns, intermediate or advanced irrigation management (control system for the pivot), and variable frequency drives. For those farmers who must maintain flood irrigation, the most common on-farm efficiencies include land leveling, siphon tube conversion to headgates, and rebuilding ditches.

b. Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects, or do they plan to in the future?

Many of the farmers within the Sunnydell water delivery area plan to request technical and financial assistance from NRCS to implement future on-farm efficiency projects.

c. 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.

There is a lot of competition in this region for funding from the NRCS assistance programs. This competition has prevented many of the local farmers from applying for this funding. Therefore, Sunnydell will petition the East and West Soil Conservation District to be designated a priority area within their service area to increase the assistance rate. Being selected for this WaterSMART grant would enable prioritization through the NRCS for EQIP funding through a complementary WaterSMART funding mechanism.

d. Applicants should provide letters of intent from farmers/ranchers in the affected project areas.

Letters of intent were not collected for this grant application.

2. Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.

The proposed project will complement on-farm improvement by measuring water delivered to each farmer as a result of automation. The reliability of the water source will make it easier to convert to sprinklers.

a. Will the proposed WaterSMART project directly facilitate the on-farm improvement? If so, how? For example, installing a pressurized pipe through WaterSMART can help support efficient on-farm irrigation practices, such as drip-irrigation.

The project will directly support on-farm irrigation practices by allowing us to automate water deliveries to our farmers. Metered deliveries will increase awareness of water usage and encourage and increase in on-farm water conservation practices.

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

The proposed project will complement on-farm water efficiency projects by maximizing water delivery efficiency at the headgates. Sunnydell can react to any water delivery or shutoff requests in real time which will reduce diversions needed to support the delivery network.

3. Describe the on-farm water conservation or water use efficiency benefits that are expected to result from any on-farm work.

Measuring and controlling water delivery through automation will incentivize the use of on-farm efficiency improvements.

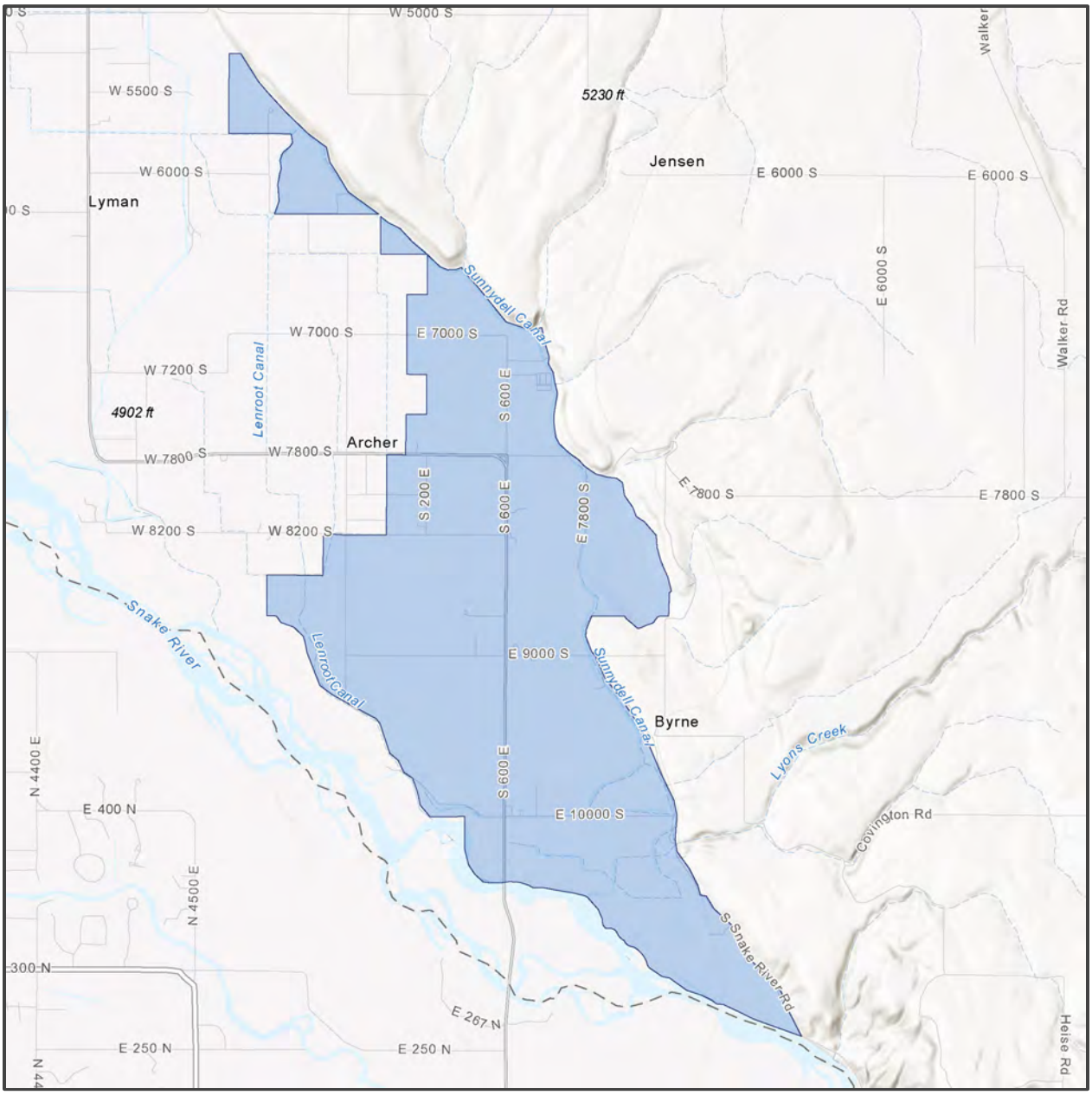
a. Estimate the potential on-farm water savings that could result in acre-feet per year. Include supporting documentation for any calculations or assumptions.

Based on historical diversion rates, the current average diversion rate per acre for Sunnydell is 8.9 afa. The typical consumptive use for alfalfa (peak, no cutting) near Rexburg, Idaho, is determined to be 3.0 afa (Trezza, Robinson, Kelly, & Allen, 2017). The acreage within the Hill Branch service area is 2,064 acres. The current application rate required for alfalfa using flood irrigation is 50% the consumptive use (Water Footprint, 2021). The application efficiency of LESA sprinklers is 97% (Peters, Neibling, Stroh, Molaei, & Mehanna, 2015). If 10% of the acreage converted to sprinkler irrigation, the water savings could result in water savings of 717 acre-feet per year. These calculations are summarized in **Appendix B. Supporting Calculations and Documentation**.

4. Please provide a map of your water service area boundaries. If your project is selected for funding under this NOFO, this information will help NRCS identify the irrigated lands that may be approved for NRCS funding and technical assistance to complement funded WaterSMART projects.

The Sunnydell service area is shown in **Figure 4**.

Figure 4. Sunnydell Service Area



Source: Idaho Department of Water Resources, Irrigation Organizations Map

F. Criterion F—Readiness to Proceed

1. Identify and provide a summary description of the major tasks necessary to complete the project.

If selected, Sunnydell is prepared to proceed as soon as funding is awarded. A conceptual design has been completed, and the conceptual design drawings are included as **Appendix A**. This project is estimated to take approximately 22 months to complete, and, depending on the timing of award funding, construction could begin as soon as October 2025. The estimated project schedule for the major tasks is as follows:

Task 1: Project Management and Administration

Sunnydell will meet with Reclamation to review and finalize the project schedule, required deliverables, and sign the grant agreement. Additional project management and administration duties include ongoing communication and coordination, invoicing, and processing payments as well as budget and schedule reviews.

Expected Deliverables: Signed grant agreement, invoices, payments, and any related deliverables.

Timeline: Approximately one month has been estimated for finalizing the grant agreement. All other deliverables will be completed as required on an ongoing basis until the project is complete, and the final reports have been submitted to Reclamation.

Task 2: Environmental and Cultural Resources Compliance

Environmental documentation meeting NEPA requirements will be completed prior to beginning any ground disturbing activities. The project description has been provided to the Reclamation Snake River Area Office. Reclamation staff will review and advise Sunnydell in its efforts to meet all environmental and cultural resource compliance requirements. This includes completing a cultural resources assessment, a biological assessment, and consultation with the U.S. Fish and Wildlife Service (USFWS), if necessary.

Expected Deliverables: A completed Categorical Exclusion (CE) or Environmental Assessment (EA) along with a Finding of No Significant Impact (FONSI).

Timeline: Coordination with the local Reclamation office will begin shortly after the grant agreement has been finalized. If Reclamation staff determine an CE is appropriate, this task will take an estimated two months to complete. However, if this project requires an EA, this task could take an additional two months to complete. All NEPA documentation and compliance requirements should be completed by February 2025.

Task 3: Permitting and Approvals

A jurisdictional determination regarding Waters of the United States will be completed as part of the permitting and approval process. Sunnydell will obtain all required permits and approvals as required by federal, state, territorial, tribal, and local laws, regulations, and codes before performing any ground-disturbing activities. Completion of the permitting and approval process for this project should be minimal and straightforward.

Expected Deliverables: Jurisdictional determination regarding Waters of the U.S.

Timeline: All required permits and approvals will be obtained by February 2025.

Task 4: Planning and Design

A conceptual design has been completed and was used to estimate costs and develop the initial schedule. Preparation of the final design, budget, and schedule can begin once the grant agreement has been finalized.

Expected Deliverables: Final design documents

Timeline: Completing the final design is estimated to take until approximately November 2024. Final documents, including budget, schedule, and Notice to Proceed, are anticipated to be completed by December 2024.

Task 5: Construction and Installation

The bidding process is anticipated to begin in December 2024, and construction is anticipated to begin in October 2025.

Expected Deliverables: Abstract of bids received; successful bid proposal; construction progress pay estimates; start-up and testing verification; Notice of Completion; and As-Built drawings.

Timeline: Bid solicitation is planned to begin December 2024 with the selection process completed by February 2025. Depending on the timing of award funding, construction is anticipated to begin in the fall or winter of 2025. Construction completion and project close-out is anticipated December 2025.

Task 6: Grant Reporting

Sunnydell is prepared to comply with these requirements as well as any additional reporting requirements specified in the grant agreement.

Expected Deliverables: Semi-annual SF-425 Federal Financial Reports; semi-annual performance reports indicating accomplishments, progress made on established milestones, and additional pertinent information; final performance report on project performance, goals and objectives, collaboration, and project photos along with the final SF-425 Federal Financial Report.

Timeline: Performance and financial reports will be submitted twice a year. Depending on when the grant agreement is finalized, these reports are anticipated for June 2024, December 2024, and June 2025 with the final report to be submitted by the end of September 2025.

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

The project will follow the existing canal easement and therefore permits should not be required.

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

A conceptual plan to line the canal with a high-density polyethylene (HDPE) liner has been completed. Design features include reducing the size of the canal based on deliveries to telescope the canal down to the appropriate width for each section of the canal. The conceptual design drawings are included as **Appendix A. Conceptual Design Drawings**.

4. Describe any new policies or administrative actions that will be required.

No new policies or administrative actions will be required to implement this project.

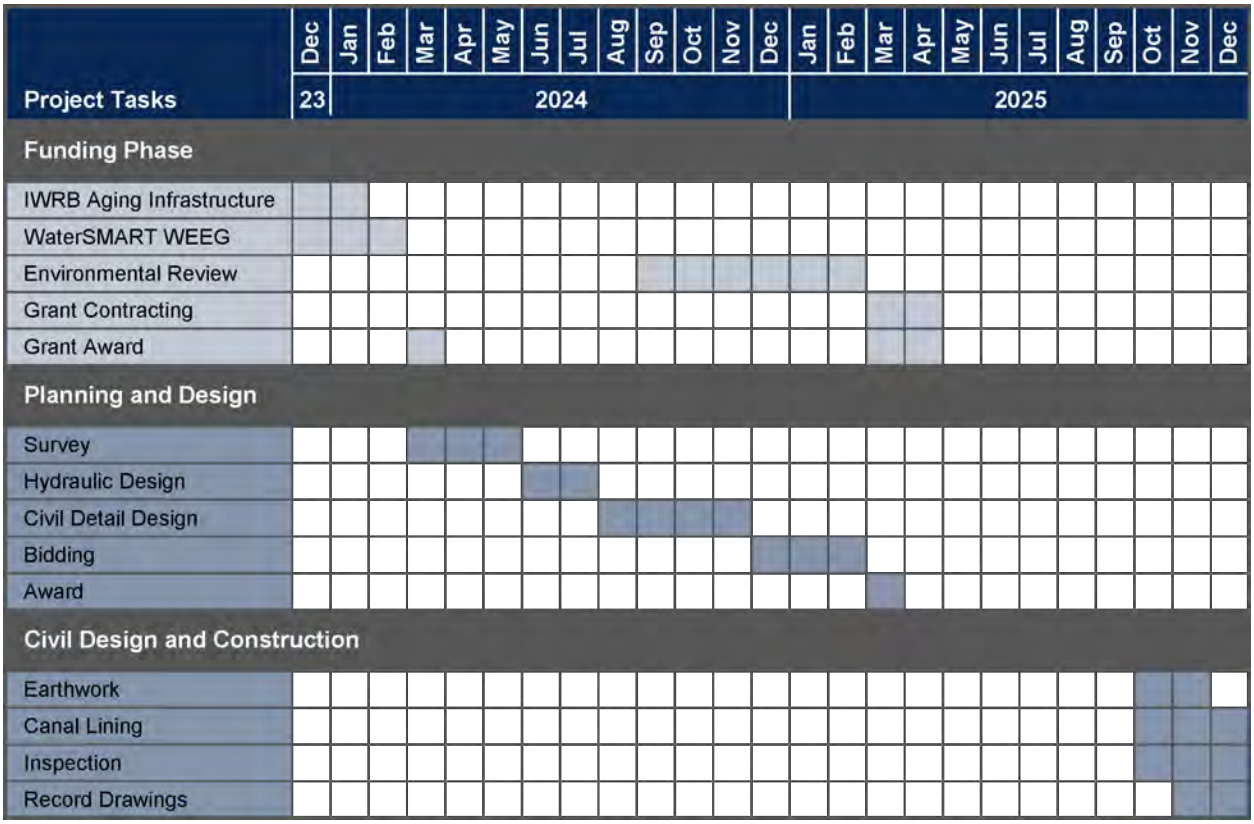
5. Describe the current design status of the project. If additional design work is required prior to construction, describe the planned process and timeline for completing the design work.

A preliminary conceptual plan has been completed. As shown in **Table 5**, additional survey and design work is required prior to construction. The survey of the project area is expected to take place between March–May of 2024. The hydraulic design is expected to take place between June–July of 2024. The civil detail design is expected to take place between August–November of 2024.

6. Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates. Milestones may include, but are not limited to, the following: complete environmental and cultural compliance; mobilization; begin construction/installation; construction/installation (50% complete);and construction/installation (100% complete). Was the expected timeline for environmental and cultural compliance discussed with the local Reclamation regional or area office?

The expected timeline for environmental and cultural compliance was discussed with the local Reclamation office. The resulting project schedule is shown in **Table 5. Project Schedule Gantt Chart**. However, this schedule is dependent on award timeline.

Table 5. Project Schedule Gantt Chart



G. Criterion G—Collaboration

Please describe how the project promotes and encourages collaboration.

1. Is there widespread support for the project? Please provide specific details regarding any support and/or partners involved in the project. What is the extent of their involvement in the process?

The Sunnydell Board of Directors and its water users fully support this project. The Idaho Water Resource Board (IWRB) also supports this project and recently selected to help fund it through its Aging Infrastructure Grant program. There is also broad support throughout all of Idaho for projects that conserve water. This is especially true for water users located along the Snake River and within the Upper Snake River Basin. This includes municipal, commercial, recreational, and agricultural water users. This is in addition to the support for projects of this nature included in the ESPA CAMP, the Idaho Water Plan, and the Idaho Drought Plan as well as support expressed by the Natural Resources Conservation Service and others.

2. What is the significance of the collaboration/support?

It was not easy to win over everyone who now supports this project. The broad support for this water conservation project reflects just how important it is to the local community and the farmers who rely on Sunnydell for their water supply. With the success of this project, it will increase support for future water conservation projects within the community of Idaho water users.

3. Will this project increase the possibility/likelihood of future water conservation improvements by other water users?

Success of this grant application and this project will absolutely increase the likelihood of other canal companies implementing similar water conveyance and automation improvements in Idaho. In addition, the increased operational flexibility will also allow Sunnydell farmers to install more efficient irrigation systems that have previously not been previously feasible.

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

Yes, this project will benefit several sectors such as municipal, industrial, environmental, recreational, and commercial that rely on the Snake River for water. The proposed project will directly benefit the farmers who rely on Sunnydell for irrigation water because it will also allow Sunnydell to be able to withdraw less water from the Snake River to irrigate the same acreage which will improve the sustainability of agriculture in the Sunnydell service area.

The proposed project will also indirectly benefit the wider community because the water conserved will remain in the river which will increase water supply and improve water quality of the Snake River and benefit downstream users.

Idaho’s robust recreation and tourism industry will also benefit from increased natural flows in the Snake River. The Snake River is valued for its natural, cultural, and recreational contributions to the region. However, low flows during summer months negatively impact water quality and often results in higher water temperatures as well as increased levels of nitrogen, phosphorus, pesticides, and sedimentation. These conditions can promote the development of harmful algae that prefer warm, stagnant water with a high nutrient load and make it unsafe for people to enjoy the many river-recreation activities Idaho is known for.

5. Please attach any relevant supporting documents (e.g., letters of support or memorandum of understanding).

Letters of support are included as **Appendix D**.

H. Criterion H—Nexus to Reclamation

Describe the nexus between the proposed project and a Reclamation project or Reclamation activity.

1. Does the applicant have a water service, repayment, or operations and maintenance (O&M) contract with Reclamation?

Sunnydell has a water service contract with Reclamation. Storage space is allocated to Sunnydell at both Jackson Lake and Palisades reservoirs through a space holder contract with Reclamation. The company also has a contract with Reclamation for winter water storage at Palisades Reservoir.

2. If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?

Storage space is allocated to Sunnydell at both Jackson Lake and Palisades reservoirs through a space holder contract with Reclamation. The company also has a contract with Reclamation for winter water storage at Palisades Reservoir.

3. Will the proposed work benefit a Reclamation project area or activity?

The proposed project will benefit Reclamation's Upper Snake River Basin area water supplies, reduce demand for natural flows from the Snake River, and increase the water available to other downstream users because Sunnydell is a participating member in Idaho's Water District No. 1 rental pool. During drought years, this rental pool is a key resource that helps Reclamation meet minimum stream flows and flow augmentation requirements.

4. Is the applicant a Tribe?

No, the applicant is not a Tribe.

Performance Measures

Performance Measure A.1: Canal Lining

Sunnydell will use inflow and outflow testing to quantify the actual benefits of the project. The testing method that will be used includes the following procedures:

- Sunnydell will measure the flow rate of water as its diverted into the canal reach and the flow rate out of the canal reach.
- Measurements of these flow rates will be taken twice per year. One measurement will be taken early in the irrigation season and a second measurement will be taken late in the season.
- Evaporation losses will be calculated based on weather data and then subtracted from the total loss measured by testing.
- Results will be provided both in terms of acre feet per year (AFY) of seepage and cubic feet per second of seepage per cubic feet per second of canal flow per mile of canal (cfs/sf/mile).
- Conveyance efficiency improvements will also be evaluated by analyzing yearly water accounting in comparison with previous years.
- Pre-project and post-project test results will be compared to calculate water savings.

Budget Narrative

The total estimated project costs are summarized in **Table 6**, and sources of project funding are listed in **Table 7**. A detailed project budget is included as **Appendix C. Detailed Project Budget**.

Table 6. Budget Summary

Summary			
6. Budget Object Category	Total Cost	Federal Estimated Amount	Non-Federal Estimated Amount
a. Personnel	$0		
b. Fringe Benefits	$0		
c. Travel	$0		
d. Equipment	$0		
e. Supplies	$0		
f. Contractual	$849,041		
g. Construction	$7,430,127		
h. Other Direct Costs	$0		
i. Total Direct Costs	$8,279,168		
i. Indirect Charges	$0		
Total Costs	$8,279,168	$4,139,584	$4,139,584
	Cost Share Percentage	50%	50%

Table 7. Sources of Project Funding

Project Funding	Amount	Percentage
Total Project Cost	**$8,279,168**	**100%**
Non-Federal Sources		
Idaho Water Resources Board (3rd-party contribution)	$2,000,000	24%
Sunnydell Irrigation District (IWRB loan)	$2,139,584	26%
Requested Federal Funding		
WaterSMART Water and Energy Efficiency Grant	$4,139,584	50%

a. Personnel

Project Management: Brook Bybee, Eric Sutton, and Blake Mortenson are members of the Sunnydell board and will manage this project for Sunnydell. As board members, they will volunteer their time for this project.

Contract Administration and Reporting: The secretary of the Sunnydell board will be responsible for ensuring all reporting requirements are met. This includes submitting financial reports, interim performance reports, and the final performance report. As a board member, they will volunteer their time for this project.

b. Fringe Benefits

Sunnydell is not seeking reimbursement for fringe benefits.

c. Travel

Sunnydell is not seeking reimbursement for travel costs.

d. Equipment

No equipment will be purchased as part of this project.

e. Supplies

All materials and supplies will be purchased and installed as part of construction-related activity and are included under construction costs.

f. Contractual

Sunnydell has selected Ardurra on a qualifications basis to complete all engineering services. This includes completing a survey of the project area, hydraulics, final design, preparation of construction contract bidding documents, construction oversight and inspection, and all other related services. Hattie Zobott, PE, will serve as the technical lead for this project and will also work closely with the project managers and the designated construction manager.

g. Construction

Construction Materials: The cost of the liner is based on vendor quotes. Costs for the headgates and measurement devices, piping, concrete structures, and erosion protection are based on actual bids received by Enterprize; a neighboring canal company that is currently completing a similar project.

Contractual Services: A general contractor qualified and experienced in earthwork and canal lining projects will be used for construction. Estimated costs for the liner and earthwork are based on bids received by the Grindstone Butte Canal Company; a neighboring canal company that is currently completing a similar project.

Environmental and regulatory compliance costs were estimated by the Bureau of Reclamation at $50,000.

h. Other Direct Costs

No other expenses are anticipated for the project.

i. Indirect Costs

No indirect costs are anticipated for the project.

Environmental and Cultural Resources Compliance

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

The proposed project will be constructed within the existing canal alignment and involves minimal ground disturbances, construction, or increases to human activity that would potentially impact the surrounding environment. The project will be located on previously-disturbed soils and lands that are currently under cultivation, are existing roadways, or used for water conveyance infrastructure. All impacts resulting from construction are anticipated to be temporary and would not have a significant impact on air quality, climate, water quality, or other environmental resources.

Best management practices can be used to reduce emissions, minimize the potential for fugitive dust, and prevent erosion as a result of construction activities. This includes limiting of unnecessary equipment idling, requiring vehicles and equipment to be kept in good working order, and, when possible, recycling of construction debris associated with the project.

In addition, all applicable environmental compliance measures will, at a minimum, be followed to ensure the environment and animal life are not improperly disturbed. This can include requiring contractors to follow a temporary erosion and sedimentation control (TESC) plan, a site-specific fugitive dust control plan, a storm water pollution prevention plan (SWPPP), a spill prevention, control, and countermeasures (SPCC) plan, or related prevention plans as required.

If necessary, all disturbed areas can be revegetated with native species, as applicable, to restabilize the soil in these areas, reduce erosion, and help to prevent sediment and pollutants from entering into nearby surface waters.

If necessary, Sunnydell will engage a qualified biologist to conduct a biological site survey prior to beginning construction activities to identify any biological resources on the project site, determine potential impacts, and recommend suitable mitigation measures. This includes identifying any special status species such as endangered or threatened wildlife or migratory birds as well as critical habitat that could potentially be impacted by the project. In addition, standard avoidance and minimization protocols will be included in the project specifications and will be followed during construction.

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

Based on review of the U.S. Fish and Wildlife Service's Information for Planning and Consultation (IPaC) online system, the following threatened or endangered species or designated critical habitat that potentially may be present in the project area:

- The grizzly bear (*Ursus arctos horribilis*) is a federally-listed, threatened species that may potentially be present in the project area.
- The North American wolverine (*Gulo gulo luscus*) is a federally-listed, threatened species that may potentially be present in the project area.
- The yellow-billed cuckoo (*Coccyzus americanus*) is a federally-listed, threatened species that may potentially be present in the project vicinity. However, this bird is a neotropical migrant that has historically occupied riparian ecosystems across the western United States. It requires thick, closed canopy riparian forests with an understory of dense brush measuring a minimum of 50 acres in size. These riparian forests are usually comprised of various species of willows and cottonwoods. The project area consists mostly of developed land, cultivated agriculture, and roads. Neither the species nor its habitat are likely to be found in the project area.
- Ute Ladies'-tresses (*Spiranthes diluvialis*) is a federally-listed, threatened plant species that may potentially be present in the project vicinity.

The project area is greatly disturbed, in constant agricultural use, and none of these species are currently known to occur within the project site. The proposed project would likely have No Effect on these species.

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

No, there are no wetlands or other surface waters inside the project boundaries. The site of the proposed project is a series of historical canals constructed separately from the natural drainages in the area.

4. When was the water delivery system constructed?

The existing water delivery system was constructed in 1882.

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

This project involves installing a liner along a 6.7-mile section of an open trench canal that was constructed in 1882. The headgates (i.e., turnout or delivery gates) along this section of the canal will also be replaced as part of this project. Broken headgates are repaired or replaced as part of the routine canal maintenance. The installation dates for each of the headgates ranges between 1930–2021. These updates are necessary to improve water delivery efficiency.

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

According to the mapping database of National Register of Historic Places (NRHP) provided by the Idaho State Historic Preservation Office (SHPO), there are no buildings, structures, or features located along the canal alignment that are listed or eligible for listing on the NRHP.

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

No, there are no known archeological sites located in the proposed project area.

8. Will the proposed project have a disproportionate and adverse effect on any communities with environmental justice concerns?

The proposed project will not have a disproportionate or adverse effect on any communities with environmental justice concerns. According to the U.S. Census Bureau, the population of Madison County is 93.4% white, and the poverty rate is 21.6%. However, construction of this project will support the important agricultural-based economy in Madison County and the surrounding areas that would also benefit from this project.

9. Will the proposed project limit access to, and ceremonial use of, Indian sacred sites or result in other impacts on Tribal lands?

No, the proposed project will not limit access to, or ceremonial use of, Indian sacred sites or result in other impacts on Tribal lands.

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

No, the proposed project will not contribute to the introduction, continued existence, or spread of noxious weeks or non-native invasive species known to occur in the area.

Required Permits or Approvals

Sunnydell has been in contact with local Reclamation staff to discuss National Environmental Policy Act (NEPA) requirements. Completion of the permitting and approval process for this project is expected to be minimal and straightforward. A jurisdictional determination regarding Waters of the United States will be completed as part of the permitting and approval process.

Mandatory Federal Forms

The following federal forms have been completed and submitted electronically:

- SF-424: Application for Federal Assistance
- SF-424C: Budget Information – Construction Programs
- SF-424D: Assurances – Construction Programs

Overlap or Duplication of Effort Statement

Sunnydell does not have any projects that overlap with the proposed project or any other active or anticipated proposal or projects in terms of activities, costs, or commitment of key personnel. This proposal does not in any way duplicate any proposal or project that has been or will be submitted for funding consideration to any other potential funding source.

Conflict of Interest Disclosure Statement

Sunnydell does not have any actual or potential conflicts of interest. Sunnydell will establish internal controls that include, at a minimum, procedures to identify, disclose, and mitigate or eliminate identified conflicts of interest. Sunnydell will notify the Financial Assistance Officer in writing of any conflicts of interest that may arise during the life of the award, including those that have been reported by sub recipients.

Uniform Audit Reporting Statement

Sunnydell has not received $750,000 USD or more in Federal award funds during a fiscal year.

Certification Regarding Lobbying

Sunnydell does not retain a state or federal lobbyist. It has not made or agreed to make payment to any lobbying entity for influencing or attempting to influence an officer or

employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action.

Letters of Support

Letters of support are included as **Appendix D**.

Official Resolution

An official resolution was adopted and approved by the Sunnydell Board of Directors. A copy of the official, signed resolution is included on the following page.

RESOLUTION OF THE BOARD OF DIRECTORS OF THE SUNNYDELL IRRIGATION DISTRICT

A RESOLUTION AUTHORIZING APPLICATION TO THE UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION WATERSMART GRANTS: WATER AND ENERGY EFFICIENCY GRANTS FOR FISCAL YEAR 2024 UNDER FUNDING OPPORTUNITY ANNOUNCEMENT No. R24AS00052

WHEREAS, the United States Department of the Interior, Bureau of Reclamation is seeking proposals for water conservation and renewable energy projects from organizations with water delivery authority through the WaterSMART Grants: Water and Energy Efficiency program for FY 2024; and

WHEREAS, Sunnydell has formulated a plan of improvements that will result in quantifiable and sustained water savings, implements renewable energy components, and supports broader sustainability benefits; and

WHEREAS, Sunnydell recognizes these improvements will increase water use efficiency and reliability through optimal flow rates, reduced leakage, and reduced operational losses; and

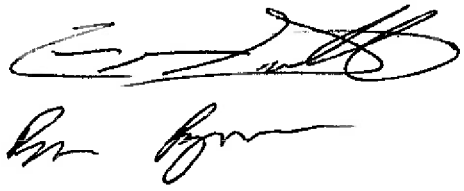
WHEREAS, Sunnydell has formulated a grant proposal to line a portion of the open canal to improve the existing conveyance and delivery infrastructure and install automated headgates with solar arrays to improve operational efficiency, referred to as the Sunnydell Canal Water Efficiency Improvement Project.

NOW, THEREFORE, BE IT RESOLVED THAT THE BOARD OF DIRECTORS AGREES AND AUTHORIZES THAT:

1. The Board's President, Eric Sutton, is hereby authorized to enter into an agreement with Reclamation on behalf of Sunnydell Irrigation District;
2. The Board has reviewed and supports the proposal submitted;
3. The Applicant is capable of providing the amount of funding specified in the funding plan; and
4. If selected for a WaterSMART Grant, the Applicant will work with Reclamation to meet established deadlines by entering into a cooperative agreement.

Dated:

Signed:



Letters of Funding Commitment

The total cost of the project is estimated to be $6,971,002. The non-federal share of these costs is estimated to be a total of $3,485,501. Sunnydell is pursuing a loan through the Idaho Water Resource Board to fund its share of the project costs. These funds will be secured and available prior to award of the WaterSMART grant. A letter of funding commitment confirming the availability of these funds will be provided to Reclamation.

Non-Federal Funding Partners

The Idaho Water Resources Board (IWRB) has committed a total of $2,000,000 in the form of an Aging Infrastructure Grant. A copy of the official signed resolution showing the IWRB award of these grants funds is included on the following pages in lieu of a letter of funding commitment.

Federal Funding Requested

Sunnydell is requesting $3,485,501 from the Bureau of Reclamation's WaterSMART Grants Program as part of this Water and Energy Efficiency Grant application. No other federal funds have been requested.

BEFORE THE IDAHO WATER RESOURCE BOARD

IN THE MATTER OF AGING INFRASTRUCTURE GRANTS	RESOLUTION TO AWARD FUNDS

WHEREAS, House Bill 1181 passed and approved in 2023 by the Idaho Legislature appropriated to the Idaho Water Resource Board's (IWRB) Water Management Account $50,000,000 to be used for expenditures, loans, or grants for water projects, including studies, to address water sustainability, rehabilitate or improve aging water infrastructure; and

WHEREAS, the legislature provided that no more than one-third of these moneys shall be used for grants, and directed the IWRB to develop criteria, taking into account the public's input for the expenditures of money for grants, which shall be competitive, matching grants that prioritize projects based on the public benefits they provide; and

WHEREAS, on May 19th 2023 the IWRB adopted criteria for the award of Aging Infrastructure grants and set an application deadline of December 1, 2023; and

WHEREAS, nineteen (19) Aging Infrastructure grant applications were received by the deadline and the applications were evaluated, scored and ranked according to the criteria adopted by IWRB; and

WHEREAS, on January 11, 2024 the Finance Committee met and discussed the projects, and recommended the IWRB approve Aging Infrastructure Grant awards as specified in the Attachment A included with the resolution; and

NOW, THEREFORE BE IT RESOLVED that the IWRB approves the award of Aging Infrastructure Grants from the Water Management Account as specified in Attachment A to this resolution.

DATED this 19th day of January 2024.

Jeff Raybould, Chairman
Idaho Water Resource Board

ATTEST
Dean Stevenson, Secretary

Resolution No. 03-2024 Page 1

Unique Entity Identifier

Sunnydell Irrigation District is registered in the System for Award Management (SAM) and will maintain this active SAM registration with current information throughout the project duration.

Unique Entity Identifier in SAM: MG22VHZM9VQ4

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Appendix D. Letters of Support

IDAHO WATER USERS ASSOCIATION

1010 W. Jefferson, Ste. 101, Boise, ID 83702 | www.iwua.org
P: 208-344-6690 F: 208-344-2744 E: iwua@iwua.org

February 13, 2024

Bureau of Reclamation
Financial Assistance Operations
ATTN: NOFO Team
P.O. Box 25007, MS 84-27133
Denver, Colorado 80225

RE: Letter of support for the Sunnydell Irrigation District Water Efficiency Improvement Project

To Whom It May Concern:

On behalf of the Idaho Water Users Association (IWUA), I write to express support for the grant application submitted by Sunnydell Irrigation District under the WaterSMART: Water and Energy Efficiency program. The proposed project is to construct efficiency and automation improvements in Madison County, Idaho.

IWUA is a non-profit corporation representing approximately 300 canal companies, irrigation districts, ground water districts, municipal and public water suppliers, hydroelectric companies, aquaculture interests, agri-businesses, professional firms and individuals throughout Idaho. Our purpose is to promote, aid, and assist in the development, control, conservation, preservation, and utilization of Idaho's water resources.

IWUA members regularly utilize Reclamation's WaterSMART grant program to improve water management in Idaho. Sunnydell's project is no different as it will achieve water and energy conservation benefits.

Because of the benefits this project will provide, IWUA supports the grant application filed by the Sunnydell Irrigation District.

Sincerely,

IDAHO WATER RESOURCE BOARD

February 20, 2024

U.S. Bureau of Reclamation
WaterSMART Water and Energy Efficiency Program

RE: Letter of support for the Sunnydell Irrigation District's WaterSMART Water and Energy Efficiency Program application.

Dear U.S. Bureau of Reclamation Reviewer:

I am writing regarding the proposal by the Sunnydell Irrigation District to improve water conveyance and reduce water losses due to seepage by utilizing the WaterSMART Water and Energy Efficiency Program.

The Sunnydell Irrigation District Water Efficiency Improvement project involves installing a high-density polyethylene (HDPE) liner along 6.7 miles of the historical canal alignment. This will eliminate seepage and improve water conservation, which is an identified natural resource concern for the area. The project also includes automated headgates, which will also improve delivery efficiency. This is critically important in improving water reliability in times of drought.

The Idaho Water Resources Board funded this project through the Aging Infrastructure Program. The IWRB is supportive of Sunnydell's project to improve their delivery system and to assist those producers served by the proposal to achieve their conservation objectives.

If you have any questions, please feel free to contact me.

Sincerely,

Brian Patton, P.E.
Executive Officer
Idaho Water Resources Board

IDAHO WATER USERS ASSOCIATION
1010 W. Jefferson, Ste. 101, Boise, ID 83702 | www.iwua.org
P: 208-344-6690 F: 208-344-2744 E: iwua@iwua.org

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IWUA members regularly utilize Reclamation's WaterSMART grant program to improve water management in Idaho. Sunnydell's project is no different as it will achieve water and energy conservation benefits.

Because of the benefits this project will provide, IWUA supports the grant application filed by the Sunnydell Irrigation District.

Sincerely,

Mitigation Inc.
7466 S 15th W
Idaho Falls, ID 83402

February 21, 2024

RE: Letter of Support for the Sunnydell Irrigation District Canal Water Efficiency Improvement Project

To Whom it May Concern:

I am writing on behalf of Mitigation, Inc., an Idaho corporation comprised of 76 individuals and entities who have water rights in the Upper Snake River Basin. Our entities divert water from Water District 1 in southeast Idaho.

Mitigation Inc. was formed subsequent to the 1990 Fort Hall Indian Water Rights Agreement. We are a contracting spaceholder with US Bureau of Reclamation for nearly 100,000 acre feet of storage in Palisades and Ririe Reservoirs. Our purpose is to mitigate impacted shareholders for the advancement in priority for water rights of the Shoshone Bannock Tribe. This advancement was part of the 1990 agreement. Our shareholders, all of whom are totally committed to take care of our area tribes and help them to have their water rights, rely on mitigation to help make themselves whole due to the 1990 agreement. As our tribal associates say, it is essential that we take care of our Mother Earth; and we at Mitigation Inc agree with them wholeheartedly.

Sunnydell Irrigation District is a shareholder of Mitigation Inc. We support any upgrades to members which will conserve or improve the delivery of water. We also support recharge and any efforts to improve aquifer levels in the upper Snake River region. Aquifer stabilization helps the supply of water to all water users in the region. Any grants or funding cost share programs are also supported. We commend the previous and continued efforts of Sunnydell Irrigation District to increase their overall efficiency and conservation. We would like to encourage your approval of the request for funding Sunnydell Irrigation District.

Thank you,

Alan D Kelsch

Treasurer, Mitigation Inc.

alankelsch@icloud.com

208-339-2307

ENTERPRIZE
CANAL COMPANY LTD.

P.O. Box 583
Ririe, ID 83443

4861 N 44th E
Idaho Falls, ID 83401

February 20, 2024

Dear Bureau of Reclamation (or to whom it may concern),

We, the board of the Enterprize Canal Company LTD, write to you to express our support of Sunnydell Irrigation District's Impvoved Conveyance project. Sunnydell is one of our neighbor canals and is one outlet from the Great Feeder Canal located in Ririe, ID.

Sunnydell has faced many struggles with their water supply due to a difficult location and a poor decree. For many years they have had enough funds to keep the canal functioning with annual maintenance, but not enough funds to make improvements to their system.

Several years ago, Enterprize began making some small improvements to our canal system to try and conserve water and improve our own conveyance. Each of our improvement efforts have been successful in conserving water which has improved our water savings and extended our watering season for our patrons.

We know from experience that these same efforts applied to Sunnydell's canal system will yield similar results. We applaud them and support them in their forward-thinking and efforts to improve their system

Thank you,

Darrel Ker
208.313.3492
darrelker@gmail.com
Board Member
Project Manager
Enterprize Canal Company LTD.