



# **WaterSMART Water and Energy Efficiency Projects Fiscal Year 2022**

**Funding Opportunity Announcement No. R22AS00023**

## **Enterprize Canal Company Conveyance Improvement and Delivery Automation Proposal**

Prepared for:  
U.S. Department of the Interior  
Bureau of Reclamation  
Water Resources and Planning Office

**November 3, 2021**



## Title Page

### **WaterSMART Water and Energy Efficiency Program Fiscal Year 2022 Funding Opportunity Announcement No. R22AS00023**

#### **Project Title**

Enterprize Canal Company Water Conveyance Improvement and Delivery Automation

#### **Project Location**

Enterprize Canal Pipeline  
Bonneville County, Idaho

#### **Applicant**

Enterprize Canal Company, Ltd.  
266 Second West  
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Ririe, Idaho 83443

#### **Project Manager**

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**November 3, 2021**

# Table of Contents

## **Mandatory Federal Forms**

SF-424: Application for Federal Assistance

SF-424C: Budget Information – Construction Programs

SF-424D: Assurances – Construction Programs

<b>Title Page .....</b>	<b>i</b>
<b>Table of Contents .....</b>	<b>ii</b>
<b>Technical Proposal .....</b>	<b>1</b>
Executive Summary .....	1
Project Location .....	1
Technical Project Description .....	3
<b>Evaluation Criteria .....</b>	<b>13</b>
A. Quantifiable Water Savings .....	13
B. Renewable Energy .....	20
C. Sustainability Benefits .....	22
D. Complementing On-Farm Irrigation Improvements .....	30
E. Planning and Implementation .....	33
F. Collaboration .....	40
G. Additional Non-Federal Funding .....	41
H. Nexus to Reclamation .....	42
<b>Performance Measures .....</b>	<b>44</b>
<b>Project Budget .....</b>	<b>45</b>
Funding Plan and Letters of Commitment .....	45
Budget Proposal .....	46
Budget Narrative .....	48
<b>Environmental and Cultural Resources Compliance .....</b>	<b>50</b>
<b>Required Permits or Approvals .....</b>	<b>54</b>
<b>Letters of Project Support .....</b>	<b>55</b>
<b>Official Resolution .....</b>	<b>60</b>
<b>Unique Entity Identifier and System for Award Management .....</b>	<b>63</b>

## List of Figures

Figure 1. Project Location .....	2
Figure 2. Effects of Previous Conveyance Improvements.....	16
Figure 3. Reduced Diversion Rate by Source.....	18
Figure 4. Idaho Drought Conditions .....	24
Figure 5. Map of Enterprize Canal Company Water Service Area Boundaries .....	32
Figure 6. Location of Proposed Project and Nearby Reclamation Projects.....	42
Figure 7. 2019 American Community Survey (ACS) Data for Bonneville County, Idaho .....	52

## List of Tables

Table 1. Natural Flow Water Rights .....	4
Table 2. Storage Water Rights at Bureau of Reclamation Reservoirs.....	5
Table 3. Maximum Water Rights Combined.....	5
Table 4. Historical Diversion Rates for Enterprize Canal Company.....	6
Table 5. Excess Diversions (2017–2020).....	7
Table 6. Project Area Soil Types.....	8
Table 7. Water Savings as a Result of Previous Improvements.....	8
Table 8. Previous Improvements and Proposed Improvements.....	13
Table 9. Estimated Water Savings from Conveyance Improvements .....	15
Table 10. Potential On-Farm Water Savings .....	31
Table 11. Total Project Cost Summary .....	46
Table 12. Non-Federal Sources of Funding.....	46
Table 13. Enterprize Budget Proposal .....	47

## Appendices

Appendix A. Idaho Water Management Plans
Appendix B. Hydrographer and River Rider for Willow Creek Documentation
Appendix C. Supporting Calculations and Documentation
Appendix D. Detailed Budget and Letters of Commitment

## Technical Proposal

### D1.2.2.4.1. Executive Summary

**Date:** November 3, 2021  
**Applicant Name:** The Enterprize Canal Company, Ltd.  
**City and State:** Ririe, Idaho  
**County:** Bonneville  
**Applicant Category:** Category A, organization with water delivery authority

#### **Project Summary:**

The Enterprize Canal Company (Enterprize), which delivers water to more than 200 farmers who irrigate 5,436 acres of agriculture in eastern Idaho, is proposing a water conveyance improvement and delivery automation project. By upgrading from an open, unlined canal to an efficient pipeline conveyance system, it will prevent significant water losses due to excessive seepage resulting from the area's highly porous soil. The proposed project will help Enterprize conserve water, increase water reliability, and improve operational flexibility by optimizing flow rates, eliminating seepage, and increasing delivery efficiency while also eliminating a source of conflict.

A major source of ongoing conflict and potential litigation for Enterprize has been a water wheeling agreement with a neighboring canal company. This agreement, which was entered into in the 1930s after severe flooding washed out the canal, requires Enterprize to divert significantly more water than its users require—to the benefit of other company. Times have changed, and it has become vital for everyone to use water wisely. This project would allow Enterprize to finish rebuilding its independent canal system and conserve this excess water.

This project is a top priority for Enterprize and is expected to result in water savings of 7,267 acre feet per year. It involves installing 10,458 linear feet of one 48-inch pipeline along the historical canal alignment and installing solar-powered automated headgates and measurement devices. The total project costs are estimated to be \$3,933,028. The Enterprize Canal Company is requesting \$1,966,514 from the Bureau of Reclamation's WaterSMART program to help offset the cost of constructing this Water Conveyance Improvement and Delivery Automation project.

**Anticipated Start and Completion Dates:** September 2022–Summer 2023  
**Approximate Duration:** 20 months  
**Federal Facility:** This project is located downstream of the Ririe Reservoir but is not on a federal facility.

### D.2.2.4.2. Project Location

The Enterprize Canal Company Conveyance Improvement will begin approximately one mile southwest of Ririe, Idaho, at the latitude and longitude of 43°37'13.23"N, 111°47'8.98"W. It will continue alongside the existing canal ditch for approximately 2.0 miles. As shown in **Figure 1**, the project would reconnect the existing canal with downstream users via a pipeline along the historic Enterprize Canal right of way.

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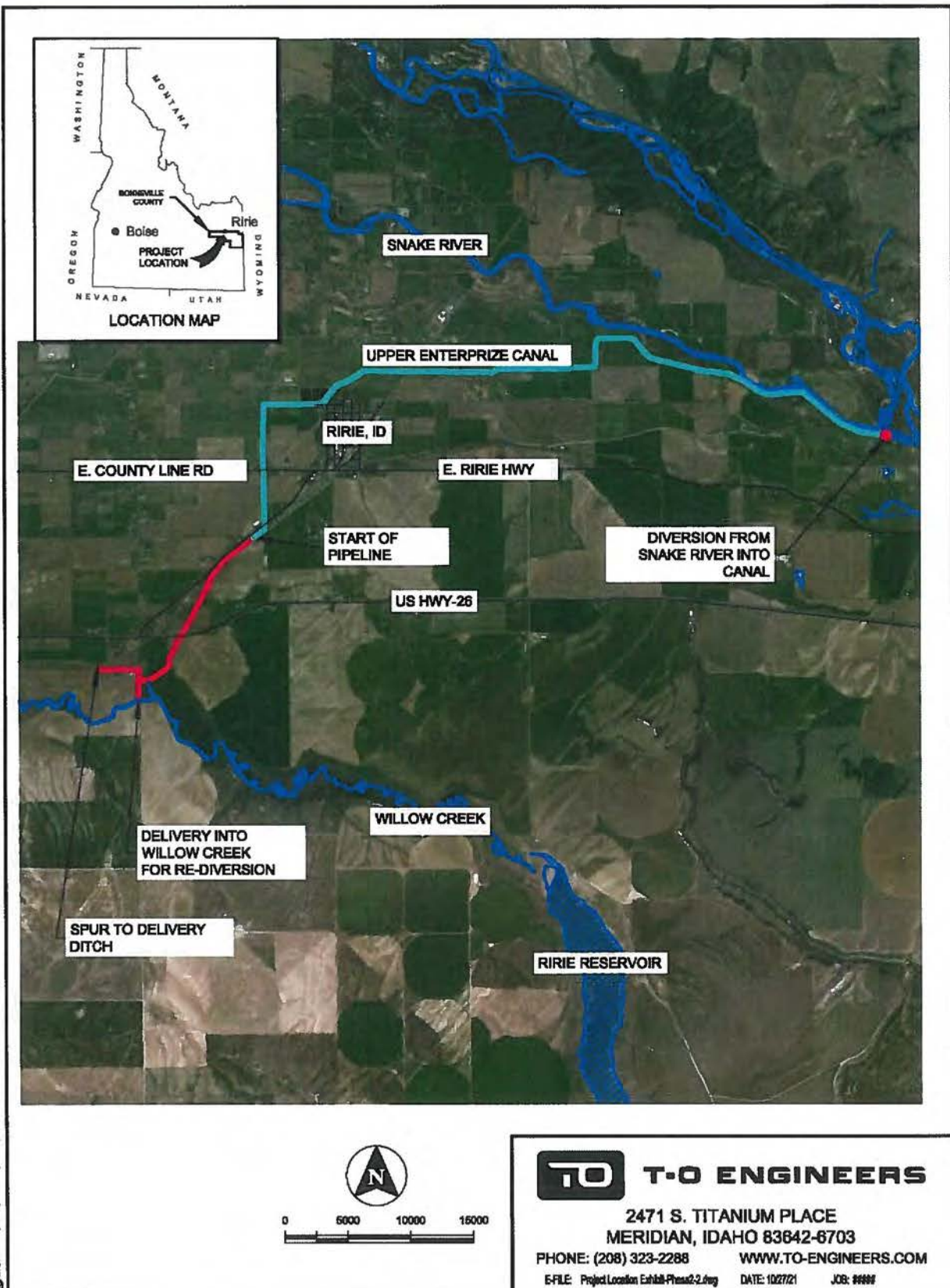


Figure 1. Project Location

### D.2.2.4.3. Technical Project Description

#### Background

The Enterprize Canal Company, Ltd. was established in 1910 and currently serves 204 water users who irrigate 5,436 acres of agriculture in eastern Idaho. Due to severe flooding in the 1930s that washed out the flume used to convey water to many of its users, the company has had to rely on a neighboring canal company for water delivery. With the agreement set to expire in 2024, the company will soon be unable to deliver water to many of the farmers who rely on Enterprize for irrigation water. With the majority of these customers being small, family farms, this could potentially cause undue hardships for these people.

The water wheeling agreement has been a source of ongoing conflict and potential litigation—especially during times of drought. This is because, in addition to the required fees, Enterprize is contractually obligated to a set diversion rate based on its water usage at the time it entered into this agreement. However, with the elimination of flood irrigation in favor of on-farm efficiencies, the amount of water required by the farmers located downstream of the comingled canal is now significantly less than the diversion rate specified by this agreement. This project would allow Enterprize to finish rebuilding its independent canal system before this contract expires. As a result, the source of the conflict will be eliminated—along with this unnecessary diversion of water.

In addition, converting from an open, canal to a pipeline—along with the automation components—will increase conveyance efficiency and operational flexibility. These improvements will provide additional water savings and allow Enterprize to further reduce water diversions while still meeting the needs of its farmers.

The proposed project consists of two major project components that will result in two main sources of water savings—the proposed conveyance and delivery improvements as well as improved water management.

- **Component 1: Water Conveyance Improvements**  
Constructing 10,458 linear feet of one 48-inch pipeline along the historical canal alignment.
- **Component 2: Water Delivery Improvements**  
Installing solar powered automated headgates and measurement devices.

The following subsections provide context for the proposed project by briefly discussing how Enterprize currently manages its water supply. This includes information regarding the sources of its water supply, historical diversion rates, and regional water management concerns as well as a discussion of how the quantifiable success of previous conveyance improvements justify the proposed improvements included in this project.

### System Overview

Enterprize diverts natural flow and storage water from the Snake River for irrigation purposes. The water is distributed with an upper canal that is 6.5 miles long and unlined. It is the main canal used to distribute water to half of the users (2,718 acres). The water is then delivered into a neighboring canal to be wheeled to Willow Creek. Water is comingled in Willow Creek along with water from neighboring canals and Ririe Reservoir storage water. The water wheeling agreement requires Enterprize to deliver a set flow rate based on historical diversions plus a 10% wheeling flow to the neighboring canal. The flow rate required by the wheeling agreement is 87.6 cfs regardless of the water usage of Enterprize users downstream. Conveyance and delivery efficiency improvements were made to the upper section of the canal in 2016–2020 which included grading, laser leveling, and the installation of automated headgates. These improvements were used as the basis for the conveyance water savings discussed in the water savings section.

### Sources of Water Supply

The primary source of Enterprize's water supply is natural flow from the Snake River. As a result of the high level of variability to this water supply, Enterprize must also rely on storage water at three Bureau of Reclamation (Reclamation) reservoirs when its water rights for natural flow are out of priority.

### Natural Flow

Enterprize has water rights for natural flow from the Snake River. As shown in **Table 1**, these water rights total 250 cubic feet per second (cfs). Based on the Conditions of Approval for these water rights, which specify a maximum of 5,436 acres can be irrigated for no more than four acre feet annually (afa) per acre (at the field headgate), there is a maximum volume available for consumptive use of 21,744 afa. (Additional water diverted is attributable to conveyance losses through the Enterprize system.) However, due to the annual variability of this water supply as well as the priority dates of these water rights, Enterprize must also use stored water to meet the needs of its customers. Typically, these water rights are out of priority in June.

**Table 1. Natural Flow Water Rights**

Priority Date	Diversion Rate	Source	Water Use	Owner
3/22/1895	120 cfs	Snake River	Irrigation	Enterprize
4/15/1898	68 cfs	Snake River	Irrigation	Enterprize
1/22/1916	62 cfs	Snake River	Irrigation	Enterprize
<b>250 cfs</b>		<b>Total Water Rights for Natural Flow</b>		

### Storage Water

After the company's water rights for natural flow are out of priority, the company is then completely reliant on its storage water rights at three Reclamation reservoirs. As shown in **Table 2**, the total volume of storage water available to Enterprize from Jackson Lake,

Palisades, and American Falls reservoirs is 39,859 afa. (Storage water is measured at the headgate at the Snake River and does not allow for additional conveyance losses in the system.)

**Table 2. Storage Water Rights at Bureau of Reclamation Reservoirs**

Reclamation Reservoir	Volume of Storage Water Available
Palisades Reservoir	11,000 afa
Jackson Lake Reservoir	8,000 afa
American Falls Reservoir	20,859 afa
<b>Total Storage Water Rights</b>	<b>39,859 afa</b>

### **Total Volume of All Sources**

As shown in **Table 3**, the company's maximum water rights from all sources that is available for consumptive use is a total volume of 61,603 afa.

**Table 3. Maximum Water Rights Combined**

Water Source	Maximum Volume
Natural Flow*	21,744 afa
Storage Water Rights	39,859 afa
<b>Total Volume</b>	<b>61,603 afa</b>

\*This is the maximum allowed to be delivered at the field headgate.

### **Historical Water Diversion Rates**

Historical records retrieved from the online water rights accounting system maintained by the Idaho Department of Water Resources show Enterprize diverts an average of 41,434 afa to meet the needs of all the farmers who rely on this water supply. These diversion rates are shown in **Table 4** and reflect the amount of water diverted at the Snake River for the entire Enterprize delivery system. The number of days is a function of how long the storage water will last after natural flow is out of priority.

**Table 4. Historical Diversion Rates for Enterprize Canal Company**

Year	Natural Flow (afa)	Storage (afa)	Total Diversion (afa)	Days Diverted
2000	26,629	34,668	61,297	188
2001	10,127	20,834	30,961	80
2002	22,981	18,699	41,680	105
2003	18,060	18,210	36,270	87
2004	25,873	15,905	41,778	108
2005	25,369	25,076	50,445	137
2006	27,274	22,426	49,700	136
2007	16,133	24,770	40,903	104
2008	33,208	16,779	49,987	132
2009	11,322	21,055	32,377	148
2010	7,494	23,127	30,621	133
2011	22,828	2,918	25,746	169
2012	26,106	22,165	48,271	147
2013	20,087	16,844	36,931	104
2014	40,313	11,266	51,579	180
2015	24,310	28,522	52,832	205
2016	23,865	19,514	43,379	149
2017	25,939	15,179	41,118	242
2018	11,952	21,811	33,763	180
2019	22,045	12,290	34,335	196
2020	11,622	24,509	36,131	175
<b>Average</b>	<b>21,597</b>	<b>19,837</b>	<b>41,434</b>	<b>148</b>

#### Excess Diversion Rates

The amount of water Enterprize is required to divert due to the water wheeling agreement has been carefully monitored and measured by the Willow Creek River Rider and Hydrographer since 2017. These measurements, which have been used to determine the difference between the amount diverted into the neighboring canal and the amount actually used by Enterprize water users, show the average amount of these excess diversions are 5,124 afa. This excess diversion rate was used as the basis for estimating water savings resulting from eliminating the water wheeling agreement with the neighboring canal company. These measurements, which are summarized in **Table 5**, only reflects diversions for the lower section of the canal where the proposed project will be located.

**Table 5. Excess Diversions (2017–2020)**

Year	Diversion Into Neighboring Canal	Amount Used by Enterprize Customers	Excess Diversions
2017	23,282 AF	13,409 AF	9,873 AF
2018	15,393 AF	13,612 AF	1,781 AF
2019	17,496 AF	11,564 AF	5,932 AF
2020	19,260 AF	16,351 AF	2,909 AF
<b>Average</b>	<b>18,858 AF</b>	<b>13,734 AF</b>	<b>5,124 AF</b>

### Project Area Soil Types

As previously discussed, Enterprize diverts, on average, a total of 41,434 afa. With 5,436 acres served, this means the diversion rate is 7.6 afa per acre. This diversion rate is more than twice the maximum consumptive use for crops in Idaho. In comparison, the typical consumptive use for alfalfa (peak, no cutting) grown in Rexburg, Idaho, is 3.2 afa per acre (Allen and Robison, 2012).

One of the main reasons for this high diversion rate is the highly porous soils in the project area. As shown in **Table 6**, the USDA Web Soil Survey indicates the majority of the soils located within the pipeline alignment is a very gravelly or extremely gravelly mixture. In general, these kinds of coarse-grained soils are more permeable than fine-grained soils and have a high fluid transmission capacity (USDA, NRCS, 2012). As a result, a significant amount of water is lost within the canal and delivery system and Enterprize must divert enough water to compensate for this delivery loss.

**Table 6. Project Area Soil Types**

Map Unit and Soil Name	USDA Texture Description	Depth (inches)	Classification		% of Pipeline
			AASHTO	Unified	
21—Paesl silty clay loam	Very gravelly loamy coarse sand, extremely gravelly loamy coarse sand	25–60	A-1	GC–GM GP–GC GW–GC GW	46%
28—Paul silty clay loam	Silty clay loam, silt loam	45–60	A-6 A-7	CL	29%
6—Bannock loam	Very gravelly sand, very gravelly coarse sand, extremely gravelly coarse sand	23–60	A-1	GP–GC GP, GW	15%
7—Bock loam	Extremely gravelly loamy sand, extremely gravelly coarse sand, very gravelly loamy sand	45–60	A-1	GC–GM GW–GM GW–GC GW	10%

(Note: This table does not include minor soil units.)

### Previous Improvements and Basis for Conservation Estimates

Enterprise previously improved approximately 6.2 miles of the upper portion of the canal system. These improvements, which were completed between 2016–2020, consisted of grading the canal bed and then adding a layer of bentonite to help control seepage. As shown in **Table 7**, these improvements allowed Enterprise to reduce diversions by 11% and conserve an average of 4,841 acre feet per year. This 11% water savings rate was used as the basis for estimating water savings resulting from the proposed conveyance and delivery automation improvements.

**Table 7. Water Savings as a Result of Previous Improvements**

Water Source	2000–2015	2016–2020	Difference	Percentage
Natural Flow	22,382 afa	19,085 afa	3,298 afa	15%
Storage Water	20,204 afa	18,661 afa	1,543 afa	8%
<b>Total Diversion</b>	<b>42,586 afa</b>	<b>37,745 afa</b>	<b>4,841 afa</b>	<b>11%</b>

(Please Note: The improvements made to the upper portion of the canal system still allow seepage.)

### Eastern Snake Plain Aquifer

As shown in **Figure 1**, Enterprise and its water users are located within the boundaries of the Eastern Snake Plane Aquifer (ESPA). The ESPA Comprehensive Aquifer Management Plan

(CAMP) was developed to help stabilize the aquifer and improve spring and river flows across the Eastern Snake Plain. It is the most recent water plan established by the state of Idaho. It was also legislatively ordered and developed through collaboration with multiple stakeholders. This plan identifies the ESPA as a regionally significant source of water that supports approximately 21% of all goods and services produced within Idaho; an estimated value of \$10 billion annually. It also includes methods and targeted goals for protecting this important water source (ESPA CAMP, 2009). It is also identified as a key water supply in the Idaho State Water Plan and the Idaho Drought Plan (IWRB, 2012; IWRB, 2001). The relevant sections of these plans are included as **Appendix A**.

### **History of ESPA Management**

The ESPA reached peak levels after decades of flood irrigation (a result of the many canals developed because of the Carey Act). However, groundwater levels began to decline due to persistent drought conditions caused by climate change and the declining use of flood irrigation. As a result, aquifer water levels are now closely monitored by the Idaho Department of Water Resources (IDWR). The IDWR uses a hydrological model called the Eastern Snake Plain Aquifer Model 2.2 (ESPAM 2.2) to help quantify how water use practices impact the aquifer. This includes monitoring the progress made toward the targeted goals included in the CAMP.

### **CAMP Demand Reduction Targets and Strategies**

The CAMP identifies specific implementation actions to help protect this water supply with demand reduction being a key component of this plan. Included in this plan is a long-term goal to reduce demand by approximately 250–350 kaf per year with approximately 50 kaf of this target amount to be completed by surface water users through voluntary efficiency improvements. The suggested method for achieving this goal is for surface water users (e.g., Enterprize) to check conveyance structures and related components to identify opportunities to conserve water and then explore federal and state grant opportunities to help those canal companies with the costs of those improvements (ESPA CAMP, 2009).

### **Idaho Water Rights**

Within Idaho, and especially within the ESPA and the Snake River system, water is carefully monitored to support water planning efforts. Water demands are defined through key legal challenges within the state and are referred to as Water Calls. This is when a senior water user “calls” for water that a junior water user is diverting. Water rights are allocated by priority date with senior rights having the first right to water supplies within Idaho.

### **Water Rentals**

The Idaho Drought Plan identified the use of water rentals as an important mechanism for drought management within the Snake River system (Idaho Drought Plan, 2001). The Water District No. 1 Rental Pool is the mechanism used to allocate stored water to other users that are not spaceholders in Reclamation reservoirs. Rules made by the Rental Pool Committee control the storage water usage for the rental pool in the state of Idaho. Enterprize participates in the Water District No. 1 rental pool. As a participant in this rental pool, Enterprize has the ability to positively impact water users located in the more drought-

stricken areas of central Idaho. For example, Reclamation often relies on its ability to rent water from this rental pool during drought years as needed to support minimum stream flows and flow augmentation required for the critically endangered anadromous species within the Snake and Columbia rivers. Making the water efficiency improvements included in this project will increase the amount of water Enterprize will be able to rent to the other participants in the rental pool.

### Project Details

As previously mentioned, the proposed project consists of two major project components that will help Enterprize conserve water, increase water reliability, and improve operational flexibility by optimizing flow rates, reducing seepage, and increasing delivery efficiency while also eliminating a source of conflict.

- **Component 1: Water Conveyance Improvements.** This project component involves installing a pipeline along the lower section of the canal system. The length of this section is approximately 10,458 feet or two miles of canal. The diameter of the proposed pipeline will be 48 inches with an estimated capacity of 60 cfs. As shown in **Figure 1**, the pipeline will begin just north of U.S. Highway 26 (where the previously improved section ends) and will continue along the historical Enterprize Canal alignment to deliver water to Enterprize customers located along Willow Creek.
- **Component 2: Water Delivery Improvements.** This project component involves installing the proposed water delivery improvements as a means of regulating and measuring the flow of irrigation water to farmer fields. This includes automated headgates (i.e., turnout or delivery gates), measurement devices, and solar arrays.

This project will result in water savings from the proposed conveyance and delivery improvements as well as improved water management with the elimination of the water wheeling agreement.

### Project Tasks

The proposed project has been broken into the following six tasks and deliverables. Darrel Ker is a member of the Enterprize Board of Directors who will serve as the project manager. He will be responsible for ensuring each of these tasks are accomplished so the proposed project can successfully be completed on time and within the proposed budget. This includes ensuring Enterprize successfully completes all grant reporting requirements.

Enterprize has selected T-O Engineers on a qualifications basis to develop the final design. As the hydraulics project engineer, Hattie Zobott, PE will serve as the technical lead for this project. She will also work closely with the project manager and the designated construction manager.

#### Task 1: Project Management and Administration

Project management and administration includes communication, organization, and coordination of all project activities including scheduling, invoicing, payments, and related administration activities.

**Deliverables:** Signed agreement, invoices, payments, and related deliverables.

**Task 2: Environmental and Cultural Resources Compliance**

Completing these compliance requirements could include a cultural resources assessment, a biological assessment, and consultation with the U.S. Fish and Wildlife Service (USFWS). Reclamation's Snake River Area Office will assist in ensuring all environmental and cultural resource compliance requirements are completed.

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

**Task 3: Permitting and Approvals**

This includes obtaining the permits listed as expected deliverables. If necessary, a Stormwater Pollution Prevention Plan, a Dust Control Plan, and other pollution mitigation plans will be prepared and implemented during construction.

The project is located exclusively within Enterprize's maintained rights-of-way. The process for obtaining the required permits and approvals necessary for pipeline construction and implementation of water delivery improvements is expected to be pretty straightforward.

**Deliverables:** Permits from the Idaho Transportation Department, WATCO Railroad, and the Bonneville Highway District as well as a jurisdictional determination regarding Waters of the United States.

**Task 4: Planning and Design**

Planning and design include preparation of a preliminary design as needed to estimate costs and approximate a schedule. The final design and plans need to be prepared prior to solicitation of bids for construction.

**Deliverables:** Final design documents and Notice to Proceed.

**Task 5: Construction and Installation**

Construction includes installation of the proposed pipeline, headgates, and all associated project components. A contract for this task will be awarded to the successful bidder.

Construction management includes advertisement for bids from qualified construction firms, field inspection, and contract administration tasks such holding a pre-construction conference and periodic coordination meetings, submittal reviews, progress payments, and contract change orders.

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

**Task 6: Grant Reporting**

Grant reporting includes preparing and submitting financial reports, interim performance reports, and the final performance report. Enterprize is prepared to

comply with these or any other reporting requirements specified in a grant agreement.

**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.

### **Project Phases Not Included in This Proposal**

Enterprize Canal Company worked with Connect Engineering to develop a conceptual design. This conceptual design specified a 60-inch water delivery pipeline. However, due to recent price increases, the current price of pipe is three to five times higher than normal. As a result, Enterprize has shifted to a design using two 48-inch pipelines and has decided to implement this project in two phases. Each phase is fully independent and functional as a stand-alone project.

**Phase I** is not discussed in this application and is not covered by the scope of this project. It includes installation of one 48-inch pipeline and construction of a 7.2-acre recharge basin. The recharge basin will also double as a reregulating reservoir to meet user demands during the peak irrigation season and allow for decreased diversions.

**Phase II** is the project proposed in this grant application. It includes installation of one 48-inch pipeline along with automated headgates, measurement devices, and solar arrays.

## D.2.2.4.4. Evaluation Criteria

### A. Quantifiable Water Savings

#### 1) Describe the amount of estimated water savings.

Enterprise will be able to conserve an estimated 7,267 acre feet per year as a direct result of this project. This includes an estimated 5,124 afa as a result of improved water management after eliminating the additional diversion required by the water wheeling agreement and an estimated 2,144 afa as a result of the proposed conveyance and delivery automation improvements.

#### 2) Describe current losses:

##### a. Explain where current losses are going.

The current losses include the excess diversions required by the water wheeling agreement, operational inefficiencies, and system losses such as evaporation, seepage, spillage, and leakage. These losses may potentially be going to other water users, Willow Creek, or the Eastern Snake Plain Aquifer. The current model of the aquifer's retention rate (ESPAM 2.0) indicates 50% of the seepage water is returned to the Snake River via spring flows within eight months.

##### b. If known, please explain how current losses are being used.

Current losses are potentially being used by the neighboring canal company and its users. The excess water is diverted to Willow Creek where it can be used by water users located downstream or stored in the Ririe Reservoir. Losses due to seepage enters the ESPA where it can then be pumped as groundwater or used as natural flow once it has returned to the Snake River via spring flows. The estimated current seepage losses were calculated based on the very gravelly type of soil within the project area. The average infiltration rate was assumed to be 0.8 inches per hour or 1.6 afa per acre per day (Cornell, 2021). The predicted seepage for the open canal is 853 acre feet per year. These calculations are summarized in **Table 8**.

**Table 8. Seepage Rate Calculations**

	Canal Length (feet)	Average Width (feet)	Surface Area (acres)	Average Irrigation Season (days)	Infiltration Rate (acre / day)	Seepage Rate (afa)	Miles Improved	Water Savings (afa / mile)
Proposed Improvements	10,458	15	3.6	148	1.6	853	1.98	431

**c. Are there any known benefits associated with where the current losses are going?**

Current modeling of the aquifer (ESPAM 2.0) indicates water is returned to the Snake River via spring flows. The current water management losses are returned to Willow Creek. It is assumed this is then used by others for irrigation.

**3) Describe the support/documentation of estimated water savings.**

The estimated average annual water savings was determined by calculating the amount of excess water required by the water wheeling agreement and the estimated savings that would result from installing conveyance and automation improvements.

Since 2017, daily measurements have been taken by the hydrographer and river rider for Willow Creek in order to track the excess amount of water Enterprize has been required to divert. Measurements were taken at the diversion into the neighboring canal using an ultrasonic depth transducer. Other measurements were taken according to guidelines outlined in the Watermaster Handbook published by the Idaho Department of Water Resources. Measurement totals were provided by the hydrographer and river rider for Willow Creek. This data is summarized in **Table 5** and included in **Appendix B**.

The estimated water savings for the conveyance and automation improvements was determined using records from 2000–2020. These records were kept by the watermaster for the Irrigation District and reported to Water District No. 1. In Idaho, water districts are organized government entities, created and supervised by the Idaho Department of Water Resources (IDWR), that 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 4**.

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

**(1) Canal Lining/Piping:**

**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.**

The estimated average annual water savings was determined by evaluating the benefits from having an independent water management system and from the proposed conveyance and automation improvements.

**Estimated Benefits of an Independent System**

As previously mentioned, the amount of water Enterprize is required to divert due to the water wheeling agreement has been carefully monitored and measured since 2017 to determine the difference between the amount of water the company is required to divert, and the amount of water actually used by Enterprize customers. An analysis of these measurements indicates the estimated average water savings from eliminating this agreement would be, on average, 5,124 acre feet per year.

This amount was determined by averaging the total diversions for 2017–2020 for the lower section of the canal as reported by the hydrographer and river rider for Willow Creek. These measurements are summarized in **Table 5** with copies of the documentation included as **Appendix B**.

#### **Estimated Benefits of Conveyance and Automation Improvements**

A before and after 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 Enterprise diverted at the Snake River for 2000–2015. These amounts, which were recorded and reported by the watermaster for the Irrigation District, are listed in **Table 4** and reflect diversion rates prior to any conveyance improvements were made to the upper section of the canal. As shown in **Table 7**, these improvements resulted in an 11% reduction to the diversion rate.

This 11% savings rate was then applied to the average amount of water diverted into the neighboring canal for 2017–2020. As shown in **Table 5**, this amount is 18,858 afa. When the 11% savings rate is applied, it indicates the estimated water savings from the conveyance and automation improvements will be 2,074 acre feet per year. These calculations are summarized in **Table 9**. The effects of the previous conveyance improvements are illustrated in **Figure 2**.

**Table 9. Estimated Water Savings from Conveyance Improvements**

Diversion Into Neighboring Canal	
Average Water Diverted into Neighboring Canal (2017–2020)	18,858 afa
Rate of Water Savings from Previous Project	11%
Anticipated Water Savings for Proposed Project	2,074 afa

It was assumed that the percent improvement would be the same for the proposed project. The previous improvements included automating the headgate at the river, measuring the inflow into the neighboring canal, and replacing two headgates located along the upper section of the canal. The improvements reduced seepage and improved measurement and delivery accuracy.

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

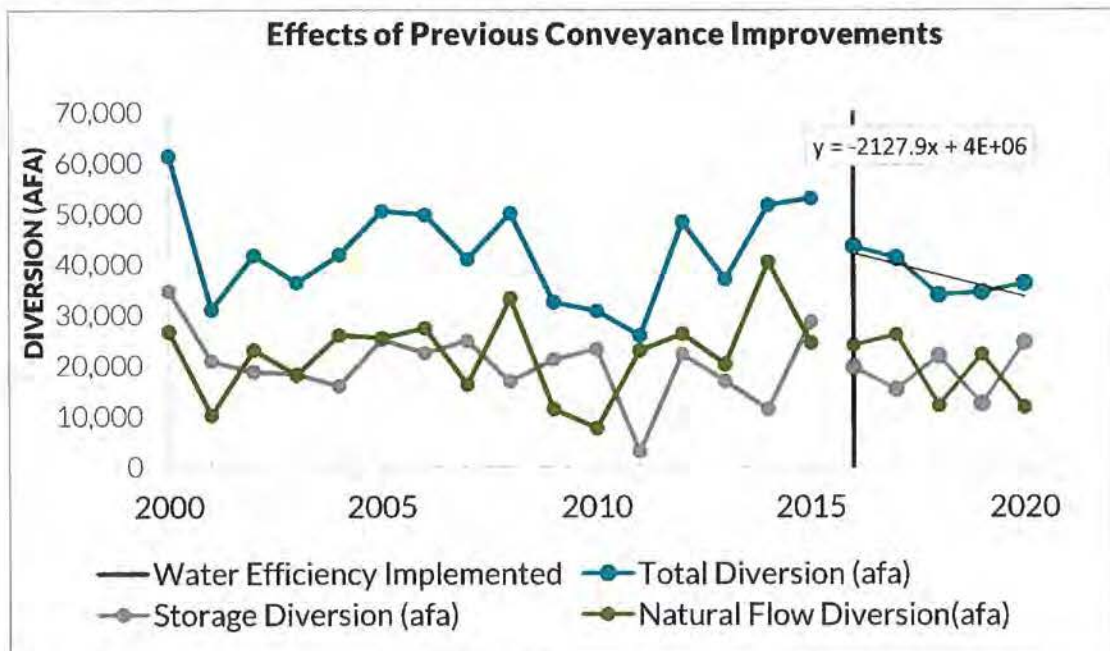
The average rate of canal seepage losses was determined using measurements taken at the initial inflow of diversions at the Snake River for a historical period of 2000–2015. The average diversion rate from this period was used as a baseline prior to any conveyance improvements were made to the upper section of the canal. This rate was then compared to the average amount diverted for 2017–2020. The difference in these two rates was determined to be the result of savings from conveyance improvements and used to calculate the seepage rate.

- 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)?**

The post project seepage losses are anticipated to be 0 afa. This result was determined based on a leak pressure test to 30 psi for the type of pipe to be installed.

- 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 anticipated transit loss reduction for the conveyance and automation improvements is 1,082 afa per mile. Please note, this does not include any losses as a result of not having an independent water delivery system. This anticipated transit loss reduction would be 2,587 afa per mile with a project total of 3,669 afa per mile.



**Figure 2. Effects of Previous Conveyance Improvements**

- 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 just upstream of the proposed project and the new measurement devices to be installed at each delivery or outlet.

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

The proposed material is 48-inch HDPE pipe. The material was selected based on the cost. The proposed flow measurement devices are ultrasonic water level sensors that measure the depth of flow at the outlet of the headgate.

(2) **Municipal Metering:** N/A

(3) **Irrigation Flow Measurement:**

- a. **How have average annual water savings estimates been determined? Please provide all relevant calculations, assumptions, and supporting data.**

This project will result in water savings from the proposed conveyance and delivery improvements as well as improved water management with the elimination of the water wheeling agreement. The estimated average annual water savings that will result from this project was determined by evaluating the benefits from having an independent water management system and from the proposed conveyance and automation improvements.

#### **Estimated Benefits of an Independent System**

As previously mentioned, the amount of water Enterprize is required to divert due to the water wheeling agreement has been carefully monitored and measured since 2017 to determine the difference between the amount of water the company is required to divert, and the amount of water actually used by Enterprize customers. An analysis of these measurements indicates the estimated average water savings from eliminating this agreement would be, on average, 5,124 acre feet per year.

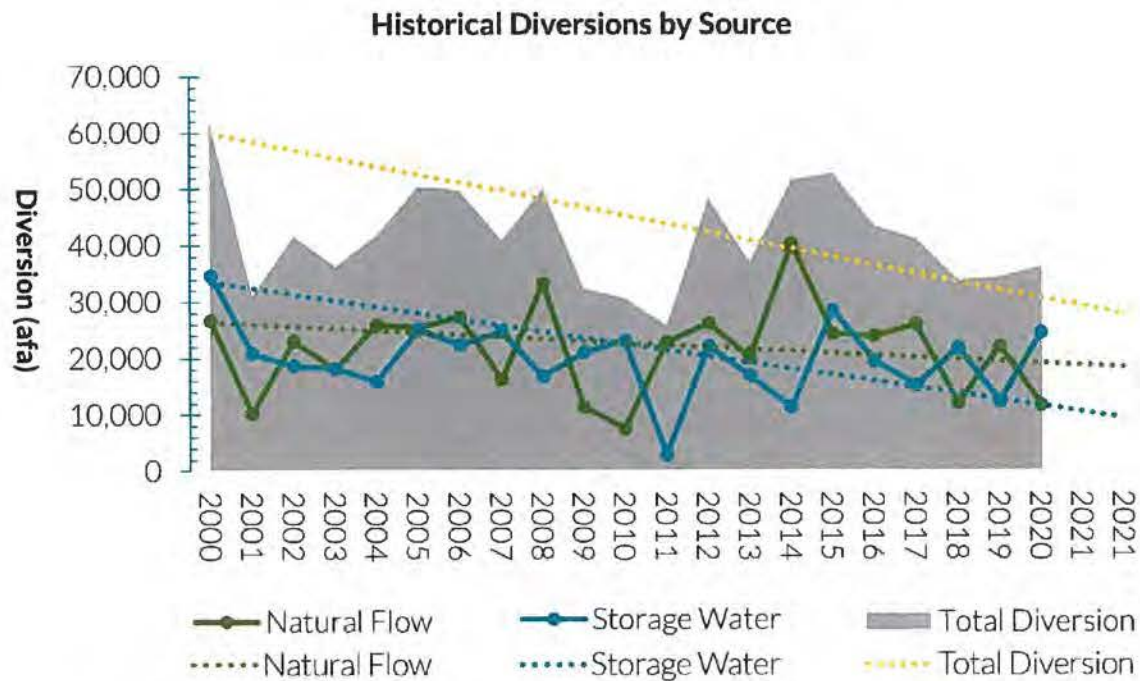
This amount was determined by averaging the total diversions for 2017–2020 for the lower section of the canal as reported by the hydrographer and river rider for Willow Creek. These measurements are summarized in **Table 5** with copies of the documentation included as **Appendix B**.

#### **Estimated Benefits of Conveyance and Automation Improvements**

A before and after 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 Enterprize diverted at the Snake River for 2000–2015. These amounts, which were recorded and reported by the watermaster for the Irrigation District, are listed in **Table 4** and reflect diversion rates prior to any conveyance improvements were made to the upper section of the canal. As shown in **Table 7**, these improvements resulted in an 11% reduction to the diversion rate.

This 11% savings rate was then applied to the average amount of water diverted into the neighboring canal for 2017–2020. As shown in **Table 5**, this amount is 18,858 afa. When the 11% savings rate is applied, it indicates the estimated water savings from the conveyance and automation improvements will be 2,074 acre feet per year. These calculations are summarized in **Table 9**. The result of the previous improvements, and the effect they had on each water source, is illustrated by **Figure 3**.

It was assumed that the percent improvement would be the same for the proposed project. The previous improvements included automating the headgate at the river, measuring the inflow into the neighboring canal, and replacing two headgates located along the upper section of the canal. The improvements reduced seepage and improved measurement and delivery accuracy.



**Figure 3. Reduced Diversion Rate by Source**

- b. Have current operational losses been determined? If water savings are based on a reduction of spills, please provide support for the amount of water currently being lost to spills.**

Water savings are based on measurements taken as water enters the system. Spill loss is not quantified but is assumed. The automated headgates will eliminate spill loss and stabilize the diversions.

- c. Are flows currently measured at proposed sites and if so, what is the accuracy of existing devices? How has the existing measurement accuracy been established?**

The existing devices used to measure flow at the proposed locations for the automated headgates are unlocked manual headgates. Measurement accuracy is determined by the type of device and the watermaster.

- d. Provide detailed descriptions of all proposed flow measurement devices, including accuracy and the basis for the accuracy.**

The proposed flow measurement devices are ultrasonic water level sensors that measure the depth of flow at the outlet of the headgate. The headgates will be constant head orifice weirs or sharp crested weirs. Weir type will vary based on the size of the diversion, but the targeted accuracy of these devices is within 2%. According to the manufacturer of these devices, the ultrasonic sensor measurement accuracy is typically within 0.5% of the range of the sensor. With the gauge set at a range of 0.33–3 feet, the accuracy would be within 0.18 inches.

**e. Will annual farm delivery volumes be reduced by more efficient and timely deliveries? If so, how has this reduction been estimated?**

Annual farm delivery volume reductions were not estimated for this project. However, the watermaster did indicate he will be able to reduce deliveries as a result of automation and the increased water-management flexibility provided by the independent delivery system.

**f. How will actual water savings be verified upon completion of the project?**

The actual water savings will be verified by comparing the average diversions into the neighboring canal for 2017–2020 in comparison to the diversion rates after the pipeline and automated components have been installed.

(4) **Turf Removal:** N/A

(5) **Smart Irrigation Controllers, Controllers with Rain Sensor Shutoff, Drip Irrigation, and High-Efficiency Nozzles:** N/A

(6) **High-Efficiency Indoor Appliances and Fixtures:** N/A

(7) **Commercial Cooling Systems:** N/A

## B. Renewable Energy

### Subcriterion No. B.1: Implementing Renewable Energy Projects Related to Water Management and Delivery

N/A

### Subcriterion No. B.2: Increasing Energy Efficiency in Water Management

1. **Describe any energy efficiencies that are expected to result from implementation of the water conservation or water efficiency project (e.g., reduced pumping).**  
 The pipeline will be a gravity pipeline with little pressure. It is not expected to reduce pumping.
  - a. **If quantifiable energy savings is expected to result from the project, please provide sufficient details and supporting calculations. If quantifying energy savings, please state the estimated amount in kilowatt hours per year.**  
 Using solar arrays to power the headgates will reduce energy demands and eliminate the need for power lines to be installed at each headgate.
  - b. **How will the energy efficiency improvement combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions.**  
 By installing automated headgates, the watermaster will no longer need to make daily trips to the canal structure. Just cutting these trips in half will save approximately 220.5 gallons of gas per year. According to the U.S. EPA's Greenhouse Gas Equivalencies Calculator, this is equivalent to 2.0 metric tons of carbon dioxide per year. Furthermore, using solar arrays to power the headgates will further reduce energy demands and eliminate the need for power poles to be installed to power the automated headgates.  
  
 In addition, recycling the excavated material to be used as pipe bedding material will reduce haul distances for pipe bedding material. This will eliminate the need for approximately 600 30-mile round trips with a ten cubic-yard dump truck to the nearest gravel pit. According to the U.S. EPA's Greenhouse Gas Equivalencies Calculator, this is equivalent to 20 metric tons of carbon dioxide emissions.  
  
 A copy of these calculations is included in **Appendix C**.
  - c. **If the project will result in reduced pumping, please describe the current pumping requirements and the types of pumps (e.g., size) currently being used.**  
 NA
  - d. **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.**  
 NA

- e. **Does the calculation include any energy required to treat the water, if applicable?**

NA

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

Yes, this project includes automated headgates. As a result, the watermaster will no longer need to make daily trips to the canal structure to make manual headgate adjustments. Just by cutting these trips in half, this project will save approximately 220.5 gallons of gas per year. According to the U.S. EPA's Greenhouse Gas Equivalencies Calculator, this is equivalent to 2.0 metric tons of carbon dioxide per year. Furthermore, solar arrays will be used to power the headgates and the water measurement devices which will further reduce energy demands and carbon emissions.

In addition, recycling the excavated material to be used as pipe bedding material will reduce haul distances for pipe bedding material. This will eliminate the need for approximately 600 30-mile round trips with a ten cubic-yard dump truck to the nearest gravel pit. According to the U.S. EPA's Greenhouse Gas Equivalencies Calculator, this is equivalent to 20 metric tons of carbon dioxide emissions.

- g. **Describe any renewable energy components that will result in minimal energy savings/production (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 which will result in minimal energy savings.

## C. Sustainability Benefits

### 1. Enhancing drought resiliency.

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

This project will directly improve long-term drought resiliency for the farmers who rely on Enterprize for their water supply by reducing seepage losses and improving the ability for both the company and its users to manage water usage. It will also improve drought resiliency for others by making the company less reliant on storage water retained in the Reclamation reservoir system which will make more of this water available to other participants in the Water District No. 1 rental pool. In addition, by reducing the amount of water it diverts from the Snake River, this will increase the amount of natural flow water available to downstream water users.

Water rentals and leases are two key mechanisms for improving drought resiliency identified by the Idaho Department of Water Resources in the 2001 Idaho Drought Plan (**Appendix A**). As stated in this plan, this practice, "...makes water available for use for more productive purposes."

This project will improve ecological resiliency to climate change by increasing natural flows in the Snake River and by increasing the amount of water available to the Water District No. 1 rental pool which is used by Reclamation for flow augmentation.

#### b. Will water remain in the system for longer periods of time?

The proposed project will conserve surface water diverted from the Snake River. This in turn will reduce Enterprize's dependence 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 01 Rental Pool—a significant source of water during periods of drought.

#### c. 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 salmon and steelhead. Reclamation uses water available through the Water District No. 1 for flow augmentation to maintain minimum stream flows throughout the Columbia River Basin and the Snake River during migration season. As Enterprize is a participating member in this rental pool, the proposed project will increase the amount of storage water available to all rental pool participants. As evidenced in the 2020 report, the 487,000 acre-feet target can already be difficult to achieve without the Extraordinary Circumstances provision, and the contributions to that rental allowed by this project will help to increase that water supply (Reclamation, 2019).

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

Surface water conservation of natural flow and storage water will benefit the ecology of the Snake River system by maintaining stream flows.

**e. Will the project directly result in more efficient management of the water supply?**

The proposed project will improve the management of water supplies through automation, improved efficiency, increased operational flexibility, and improved management of storage water. Enterprize will be able to react to any water delivery or shutoff requests in real time which will reduce diversions needed to support the delivery network.

Rebuilding its independent conveyance system will also provide Enterprize with improved operational flexibility. The current water wheeling relationship does not allow for water conservation, and it limits the options Enterprize has in maintaining deliveries. This project will also eliminate the surplus diversion required by this agreement. Combined, these improvements will facilitate leasing and rental of the storage and natural flow waters Enterprize manages. Every drop of water conserved or stored benefits Idaho water users.

**2. Addressing a specific water and/or energy sustainability concern(s).**

**a. Explain and provide detail of the specific issue(s) in the area that is impacting water sustainability, such as shortages due to drought and/or climate change, increased demand, or reduced deliveries.**

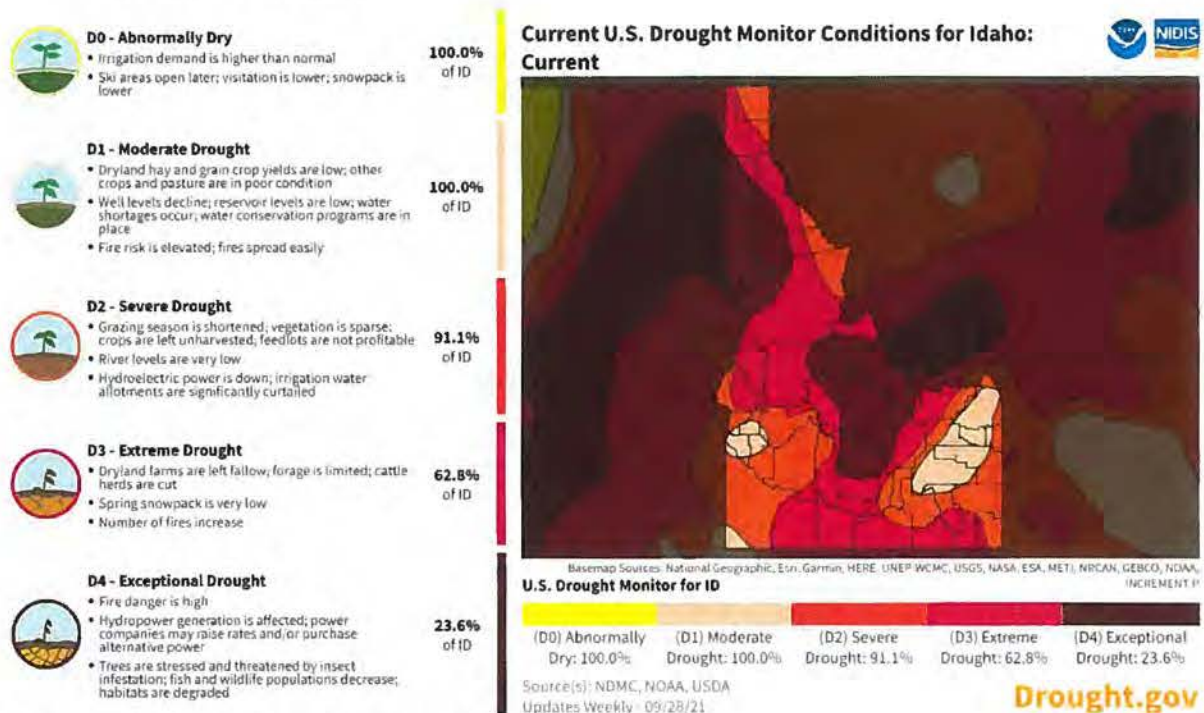
Ongoing drought conditions continue to be a critical problem throughout Idaho. This is especially true for Bonneville County where the project will be located. The Idaho Department of Water Resources (IDWR) declared a drought emergency for Bonneville County July 14, 2021. This was approved by Governor Brad Little July 20, 2021 (**Appendix C**). 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 the period June through September.

According to the U.S. Drought Monitor (USDM), 100% of Idaho is currently experiencing drought conditions categorized as D1: Moderate Drought and 87.8% is currently experiencing drought conditions categorized as D2: Severe Drought (**Figure 4**).<sup>1</sup> Typical impacts of moderate drought conditions include low dryland hay and grain crop yields, poor conditions for other crops and pastures, declining well levels, low reservoir levels, water shortages, water conservation programs are in place, fire risk is elevated, and fires spread easily.

Typical impacts of severe drought conditions include a shortened grazing season, sparse vegetation, crops are left unharvested, feedlots are not profitable, river levels are very low, hydroelectric power is down, and irrigation water allotments are

<sup>1</sup> U.S. Drought Monitor (USDM) data from the National Drought Mitigation Center, 08/31/21 <https://www.drought.gov/states/idaho> (accessed (September 7, 2021)

significantly curtailed.



**Figure 4. Idaho Drought Conditions**  
 (Source: Drought.gov)

- b. Explain and provide detail of the specific issue(s) in the area that is impacting energy sustainability, such as reliance on fossil fuels, pollution, or interruptions in service.**

N/A

- c. Please describe how the project will directly address the concern(s) stated above. For example, if experiencing shortages due to drought or climate change, how will the project directly address and confront the shortages?**

This project will employ a key method for addressing drought conditions identified in the Idaho Drought Plan. This plan, which was developed in 2001 by the Idaho Department of Water Resources, discusses the importance of water rental pools. The plan identifies rental pools as a key element in the administration and distribution of water resources because they allow water users to redistribute water where it is needed. This plan also discusses how rental pools have been an effective method for providing irrigation water when it was in short supply during drought years. Enterprize is a member of the rental pool managed by Water District No. 1, and this project will employ this method to help to address drought conditions in Idaho. This will be a long-term benefit of this project.

The Eastern Snake Plain Aquifer Comprehensive Aquifer Management Plan (ESPA CAMP) was developed by the Idaho Water Resource Board (IWRD) and passed into

law by the Idaho State Legislature in 2009. This plan provides for the implementation of water management strategies including demand reduction and conservation of surface water to meet the long-term needs of 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. This is the exact objective of this proposal and the purpose of the proposed project.

- 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 other intended uses downstream. Storage water conserved through the project will be leased or rented to users to address water shortages on existing acreage. The water may be used to offset groundwater pumping, address shortages as a result of drought, or as mitigation for other usage in the Snake River system. 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.

- e. **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.

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

It is estimated that an average of 7,267 acre feet per year will be available as natural flow or storage water. The water usage for natural flow and storage water are approximately equal for Enterprize. It is therefore assumed that an additional 3,633.5 afa will be available, on average, as natural flow and storage water within the Upper Snake River system.

### 3. Other project benefits.

#### (1) Combating the Climate Crisis: Please describe how the project will address climate change, including the following:

##### a. Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis.

According to the EPA, climate change may cause river floods to become larger or more frequent than they used to be (EPA, 2016). One benefit of this project is that it will reduce impacts of flooding events on the Snake River by allowing flood flows to be diverted into the canal. This water can then be delivered to a recharge/reregulating basin or diverted to open farmlands to be absorbed through infiltration. Flood flows can also be dispersed throughout the delivery network and onto fields to increase infiltration recharge or this project can be used to move water from the Snake River to Willow Creek.

Using canals to contain floodwaters was successful in Idaho in 2019 when Idaho's Upper Snake River reservoirs were at 87% capacity weeks ahead of the annual spring thaw after February precipitation levels were 310 higher than normal. Using canals in this manner is crucial in preventing loss of human life, damage to property, destruction of crops, loss of livestock, and the other impacts of flooding events.

This project will also help reduce water pollution because any excess water can be delivered to a recharge/reregulating basin where it will be treated through passive sedimentation before it enters Willow Creek. Once removed, the sediment will be returned to fields.

##### b. Does this proposed project strengthen water supply sustainability to increase resilience to climate change?

The proposed project will strengthen water supply sustainability and increase resilience to climate change by making additional water supplies available. Eliminating the excess diversion required by the water wheeling agreement and by installing the conveyance and automation improvements will increase the water supply available for other uses. Depending on the needs at the time, this water can then be used in a number of ways. This includes increasing flows in the Snake River or Willow Creek, recharging the aquifer which increases spring flows, or distributed to other water users through the use of water rentals.

##### c. Will the proposed project establish and utilize a renewable energy source?

Yes, one component of this project is to install solar arrays to power the automated headgates and measurement devices.

##### d. Will the project result in lower greenhouse gas emissions?

Yes, this project includes automated headgates that will reduce the amount of energy needed to manage water. By installing automated headgates, the watermaster will no longer need to make daily trips to the canal structure. Just by cutting these trips in half, this project will save approximately 220.5 gallons of gas per year. According to

the U.S. EPA's Greenhouse Gas Equivalencies Calculator, this is equivalent to 2.0 metric tons of carbon dioxide per year. Furthermore, solar arrays will be used to power the headgates and the water measurement systems which will further reduce energy demands and carbon emissions.

In addition, recycling the excavated material to be used as pipe bedding material will reduce haul distances for pipe bedding material. An estimated 600 loads of pipe bedding material will be used for the project. The closest gravel pit would be a 30-mile round trip for a ten cubic yard dump truck. The estimated fuel savings results in 20 metric tons of carbon dioxide emissions saved.

**(2) Disadvantaged or Underserved Communities:**

- a. Does the proposed project directly serve and/or benefit a disadvantaged or historically underserved community? Benefits can include, but are not limited to, public health and safety through water quality improvements, new water supplies, new renewable energy sources, or economic growth opportunities.**

This project will benefit the disadvantaged or historically underserved farmers that are members of the Enterprize Canal Company by eliminating the current seepage losses and the additional distribution required by the water wheeling agreement. By conserving water and energy, this project will result in reduced costs for these farmers while also improving the reliability of their water supply. The water saved by this project can then be put to more beneficial uses which could include water rentals, increased crop production, and improving the Snake River and Willow Creek water levels.

- b. If the proposed project is providing benefits to a disadvantaged community, provide sufficient information to demonstrate that the community meets the disadvantaged community definition in Section 1015 of the Cooperative Watershed Act, which is defined as a community with an annual median household income that is less than 100 percent of the statewide annual median household income for the State, or the applicable state criteria for determining disadvantaged status.**

As a community, Bonneville County is not considered to be disadvantaged or historically underserved. However, according to the 2017 Census of Agriculture, 96% of the farms in Bonneville County are family farms and 35% are between 1–9 acres in size. According to the USDA, approximately 76% of family farms made less than \$50,000 in gross sales in 2019. According to the U.S. Census Bureau, American Community Survey (ACS), the median household income in Idaho is \$55,785 (in 2019 dollars).

- c. If the proposed project is providing benefits to an underserved community, provide sufficient information to demonstrate that the community meets the underserved definition in E.O. 13985, which includes populations sharing a particular characteristic, as well as geographic communities, that have been**

**systematically denied a full opportunity to participate in aspects of economic, social, and civic life.**

E.O. 13985 defines underserved communities as populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life, as exemplified by the definition of equity. According to this E.O., the definition of equity includes persons who live in rural areas and persons otherwise adversely affected by persistent poverty or inequality. Enterprize water users are all farmers. According to the USDA, the size of the average farm in Idaho is 468 acres with an average net cash return of \$52,503 per year. As previously stated, 35% of these farms are small family farms between 1–9 acres in size. Furthermore, these farms are located in rural eastern Idaho. As of the 2010 census, the nearby city of Ririe, Idaho, was recorded as having a population of approximately 656 people. Idaho Falls, Idaho, which is located approximately 20 miles southwest of Ririe, has a population of approximately 62,888 people.

**(3) Tribal Benefits:**

- a. **Does the proposed project directly serve or benefit a Tribe? Will the project increase water supply sustainability 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 Enterprize Canal Company and by increasing the amount of water available as water rentals and leases.

- b. **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, or economic growth opportunities?**

**(4) Other Benefits: Will the project address water and/or energy sustainability in other ways not described above? For example:**

- a. **Will the project assist States and water users in complying with interstate compacts?**

N/A

- b. **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, including municipal, industrial, environmental, recreational, and commercial, that rely on the Snake River and the ESPA for water. The ESPA is a regionally significant aquifer that influences all aspects of Idaho's economy. Approximately one third of Idaho's population resides in the ESPA region, and it is the sole source of drinking water for most cities and residents (ESPA CAMP, 2009).

**c. Will the project benefit a larger initiative to address sustainability?**

The Idaho Legislature found that "extended drought...and groundwater pumping have resulted in reduced spring discharges and reach gains from the ESPA...and have resulted in insufficient water supplies to satisfy existing beneficial users (Idaho S.C.R. NO. 136). As a result of this legislation, the Idaho Water Resources Board prepared the ESPA CAMP which promotes demand reduction through surface water conservation and dry-year water leases. The proposed project will support both of these methods.

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

A major source of ongoing conflict and potential litigation for Enterprize has been the water wheeling agreement with a neighboring canal company. This project will allow Enterprize to rebuild its independent conveyance system and eliminate the source of the conflict. With the agreement set to expire in 2024, the company will soon be unable to deliver water to many of the farmers who rely on Enterprize for irrigation water. With the majority of these customers being small, family farms, this could potentially cause undue hardships for these people. The loss of conveyance will result in litigation within the canal company.

In addition, the ESPA CAMP states that, "...an escalation of conflict between water users and increased litigation" is expected if the water management strategies outlined in this plan are not implemented.

## D. 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. Several of the farmers who receive water from Enterprize have implemented pivot irrigation on their farms while others are leveling their fields and improving their flood irrigation practices 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 Enterprize 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, Enterprize will petition the East and West Soil Conservation District to be designated a priority area within their service area to increase the assistance rate.

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

Letters of intent were not collected for the 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, installation of 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 automating the deliveries to the constituents. Metered deliveries will increase awareness of water usage and encourage on farm practices that conserve water.

- 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 projects by maximizing water delivery efficiency at the headgates. Enterprize 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 support or backup documentation for any calculations or assumptions.**

Based on historical diversion rates, the current average diversion rate per acre for Enterprize is 7.6 afa. The typical consumptive use for alfalfa in Idaho is determined to be 3.2 afa (Allen and Robison, 2012). The acreage within the service area is 5,436 acres. The current application rate required for alfalfa using flood irrigation is twice the consumptive use (Water Footprint, 2021). The application efficiency of LESA sprinklers is 85% (Texas A&M, 2021). If 10% of the acreage converted to sprinkler irrigation, the water savings could result in water savings of 1,433 acre-feet per year. These calculations are summarized in **Table 10**.

**Table 10. Potential On-Farm Water Savings**

Application Method	Water Required
<b>Flood Irrigation Efficiency Rate</b>	<b>50%</b>
<b>Sprinkler Irrigation Efficiency Rate</b>	<b>85%</b>
Typical Consumptive Use for Alfalfa	3.2 afa
Flood Irrigation Application for Alfalfa	6.4 afa
Sprinkler Application Alfalfa	3.8 afa
<b>Potential On-Farm Water Savings</b>	<b>2.6 afa</b>
<b>Result of 10% of Current Acreage Converted to Sprinklers</b>	<b>1,433 afa</b>

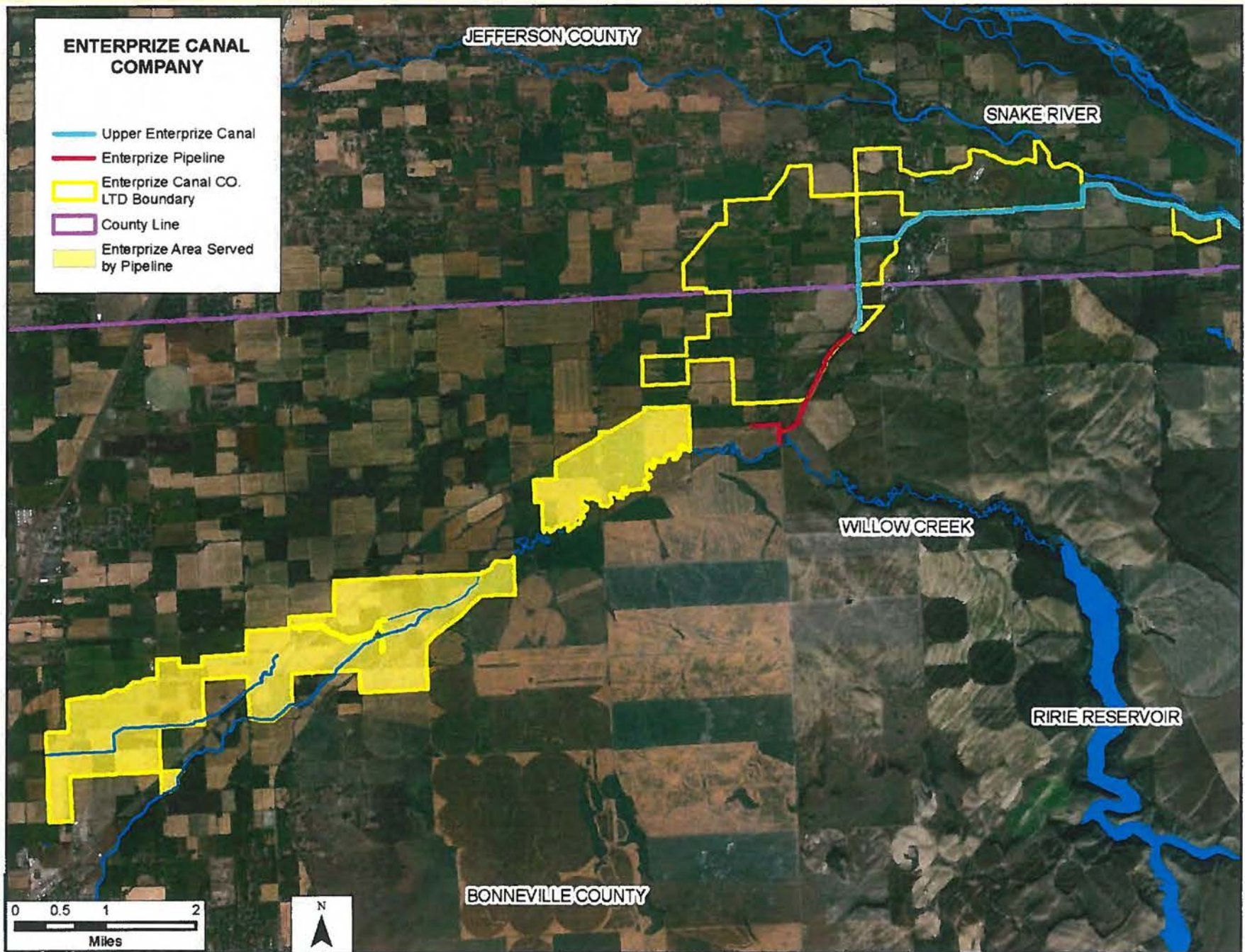


Figure 5. Map of Enterprize Canal Company Water Service Area Boundaries

## E. Planning and Implementation

### Subcriterion E.1—Project Planning

#### **Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place?**

No, Enterprize does not have a Water Conservation Plan or System Optimization Review in place.

#### **Does the project address an adaptation strategy identified in a completed WaterSMART Basin Study?**

Reclamation performed a basin study to assess current and future water supply demand in the Henry's Fork Basin and adjacent areas. While this project is located just outside of the study area (approximately 5-10 miles south), it is located within the ESPA boundaries. One of the major components of this study was an examination of the goals identified by the Eastern Snake Plain Aquifer (ESPA) Comprehensive Aquifer Management Plan (CAMP) and Idaho State Water Plan. One of the alternatives identified for optimizing water supplies was to implement water conservation methods which included installing automated canal headgates, piping, and agricultural demand reduction. The evaluation of this alternative stated the following:

##### **"Acceptability**

Water conservation is accepted by water users and conservation groups as a positive water management tool in the Henry's Fork River basin. Some water conservation and canal automation alternatives have similar water savings potential as the low-volume storage alternatives, such as Spring Creek Dam and Moody Creek Dam, but conservation alternatives may have fewer environmental impacts, and, in some cases, have lower implementation costs. There are several State and Federal programs specifically designed to support implementation of water conservation projects. Local sponsors' interested in moving water conservation alternatives forward could utilize State and Federal grant/financial assistance programs."

This is exactly the purpose of this proposal and the objective of this project. A copy of this study is included as **Appendix C**.

**Provide the following information regarding project planning:**

**(1) Identify any district-wide, or system-wide, planning that provides support for the proposed project.**

The Eastern Snake Plain Aquifer CAMP includes targeted goals to help meet the long-term needs of regional water users. One of the main management strategies discussed in this plan is to reduce demand. The long-term goal for this strategy is water savings of 250–350 thousand acre-feet (kaf) annually. Two of the methods for meeting this target are surface water conservation with a short-term target of 50 KAF annually and dry-year lease agreements with a short-term target of 40 KAF annually.

The proposed project is located within the boundaries of the ESPA and would make the most efficient use of the available surface water supply by reducing transmission losses and would support water rentals and leases as recommended in this plan.

Additional support for projects of this type is included in the Idaho Drought Plan developed by the Idaho Department of Water Resources. This plan identifies the need for demand reduction including the efficient use of available water supplies to provide for agricultural needs. It also states that "...farm activities must be planned with knowledge of anticipated water supplies." This plan also identifies water rental pools as an effective method for making water available to others that found their water supplies short in a particular year. It states, "Many canal companies hold natural flow rights with priorities that are adequate to provide a full supply of water except in years of low streamflow. In the good-to-high runoff years, the company finds itself with surplus water. It then must weigh the benefit to be received from renting the storage to another user against the risk that the storage space may not refill during the following season. If the risk is seen to be reasonable, the surplus is made available for other users."

**(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).**

One of the main water management strategies included in the ESPA CAMP is to reduce demand through conservation of surface water and dry-year lease agreements. One of the recommended actions included in this plan is for surface water users to voluntarily evaluate canal structures to identify potential opportunities to conserve water and reduce transmission losses. This is followed with a recommendation for affected water users to explore federal grants to reduce costs to canal companies in making the identified improvements. Another recommended action includes employing dry-year lease agreements. This purpose of this proposal is to allow Enterprize to take these recommended actions and contribute toward the goals and the targeted reductions identified in this plan.

(3) **If applicable, provide a detailed description of how a project is addressing an adaptation strategy specifically identified in a completed WaterSMART Basin Study or Water Management Options Pilot.**

Reclamation performed a basin study to assess current and future water supply demand in the Henry's Fork Basin and adjacent areas. While this project is located just outside of the study area (approximately 5-10 miles south), it is located within the ESPA boundaries. One of the major components of this study was an examination of the goals identified by the Eastern Snake Plain Aquifer (ESPA) Comprehensive Aquifer Management Plan (CAMP) and Idaho State Water Plan. One of the alternatives identified for optimizing water supplies was to implement water conservation methods which included installing automated canal headgates, piping, and agricultural demand reduction. The evaluation of this alternative stated the following:

**"Acceptability**

Water conservation is accepted by water users and conservation groups as a positive water management tool in the Henrys Fork River basin. Some water conservation and canal automation alternatives have similar water savings potential as the low-volume storage alternatives, such as Spring Creek Dam and Moody Creek Dam, but conservation alternatives may have fewer environmental impacts, and, in some cases, have lower implementation costs. There are several State and Federal programs specifically designed to support implementation of water conservation projects. Local sponsors' interested in moving water conservation alternatives forward could utilize State and Federal grant/financial assistance programs."

This is exactly the purpose of this proposal and the objective of this project. A copy of this study is included as **Appendix C**.

**Subcriterion E.2—Readiness to Proceed****Identify and provide a summary description of the major tasks necessary to complete the project.**

If selected, Enterprize is capable of proceeding as soon as funding is awarded. A preliminary design and an opinion of probable costs has been completed. This project is estimated to take approximately 20 months to complete; depending on the timing of award funding, construction could begin as soon as October 2022. The estimated project schedule for the major tasks is as follows:

**Task 1: Project Management and Administration**

Enterprize 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 Enterprize in its efforts to meet all environmental and cultural resource compliance requirements. This including 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 complete September 2022.

**Task 3: Permitting and Approvals**

Enterprize 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.

The project is located completely within Enterprize's right-of-way, and several of the required permits are already in progress. Completion of the permitting and approval process for should be minimal and straightforward.

**Expected Deliverables:** Permits from the Idaho Transportation Department, WATCO Railroad, and Bonneville Highway District as well as a jurisdictional determination regarding Waters of the United States.

**Timeline:** Completing the permitting and approval process is estimated to take approximately four months. Required permits and approvals should be obtained September 2022.

**Task 4: Planning and Design**

A preliminary 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 approximately six months with completion anticipated June 2022. Final documents, including budget, schedule, and Notice to Proceed, are anticipated to be complete October 2022.

**Task 5: Construction and Installation**

A contract for this task will be awarded to the successful bidder. The bidding process is anticipated to begin in later summer, and construction is anticipated to take approximately nine months.

**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 August 2022 with the selection process completed by October 2022. Depending on the timing of award funding, construction is anticipated to begin in the fall or winter of 2022. Construction completion and project close-out is anticipated August 2023.

**Task 6: Grant Reporting**

Enterprise 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 2022, December 2022, and June 2023 with the final report to be submitted by the end of September 2023.

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

The following permits and approvals are required for the Enterprize Canal Company Water Conveyance Improvement and Delivery Automation project. All required permits and approvals will be obtained prior to construction. Enterprize will work with Reclamation to comply with the National Environmental Policy Act (NEPA) and complete any additional requirements.

**Federal**

- **NEPA:** A preliminary writeup for the proposed project was sent to the Snake River Area Office for review. Local Reclamation staff will advise on NEPA and cultural compliance after their review.
- **Waters of the United States:** A jurisdictional determination will need to be completed.

**State**

- **Idaho Transportation Department:** A road crossing permit is in progress.

**Local**

- **WATCO Railroad Permit:** The permit to cross under the railroad is in progress, and a preliminary review has been completed.
- **Bonneville Highway District:** A construction permit is in progress.

Easements will not need to be obtained for this project. Idaho protects water conveyance easements from encroachment without prior authorization of the controlling entity per Idaho Code 42-11 and 42-1209.

Water rights will not need to be obtained. Enterprize's water rights for natural flow from the Snake River were established between 1895–1916.

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

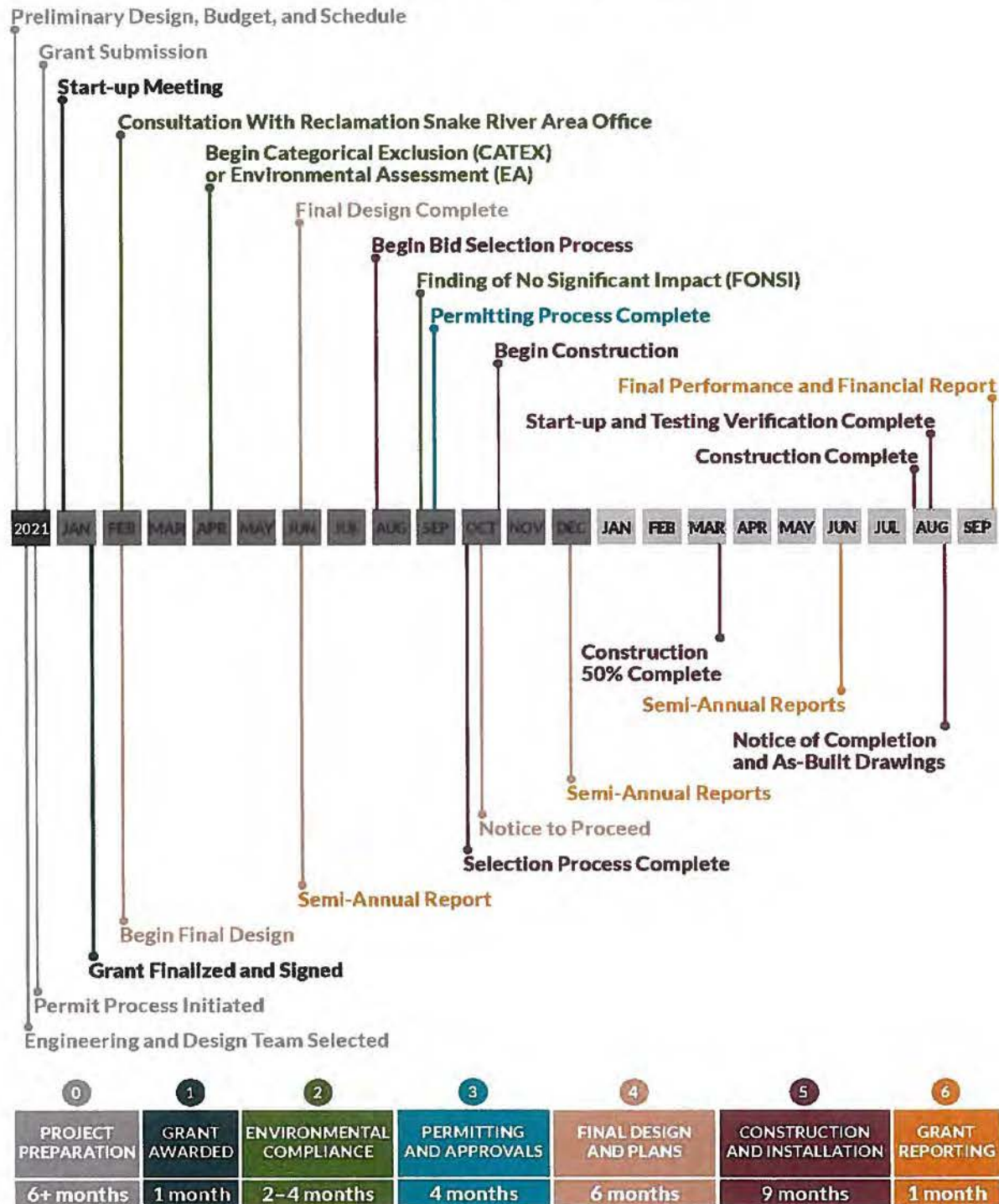
A preliminary design and an opinion of probable costs was completed by Connect Engineering in 2020. Enterprize Canal Company selected T-O Engineers on a qualified basis to develop the grant application and complete the design for construction and bidding. Design plans will be completed in summer of 2022. Depending on the timing of award funding, construction is targeted for fall-winter of 2022.

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

No new policies or administrative actions are required to implement the proposed project.

Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

## Proposed Project Schedule



## F. Collaboration

**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 Enterprize Board of Directors and its 200+ water users support this project. There is broad support for projects that conserve water throughout all of Idaho, and especially from Enterprize's fellow water users located within the Snake River and Upper Snake River water system. 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, the Idaho Drought Plan, and the Idaho Water Users Association resolutions as well as support expressed by the Idaho Water Resource Board, the Natural Resources Conservation Service, and others.

**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 Enterprize 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.

**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 farmers to install more efficient irrigation systems that have previously not been previously feasible.

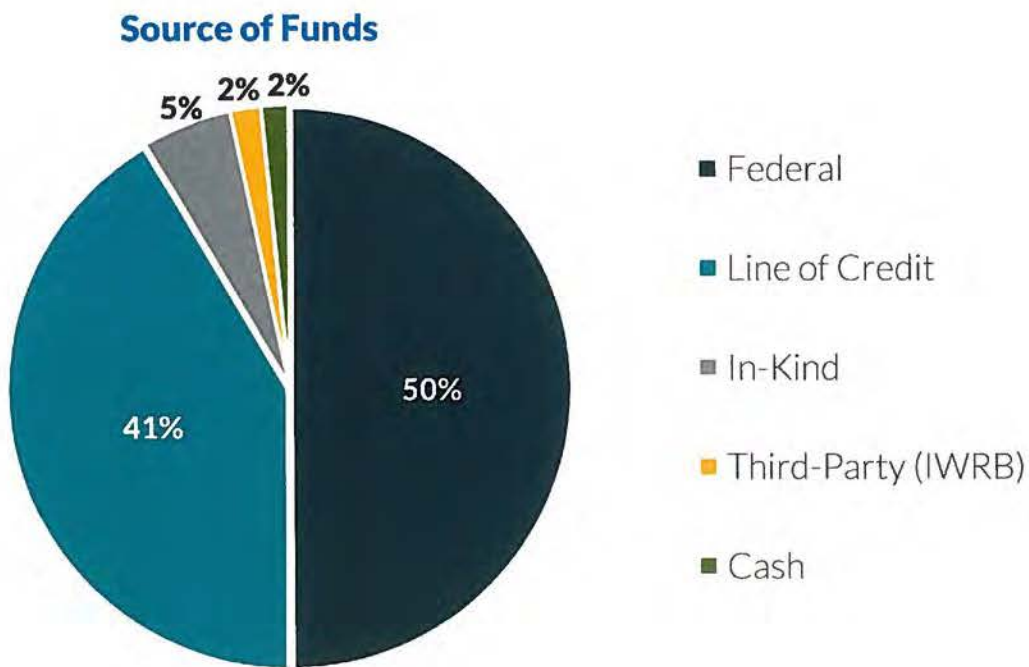
**Please attach any relevant supporting documents (e.g., letters of support or memorandum of understanding).**

Copies of letters of support are attached.

## G. Additional Non-Federal Funding

The percentage of non-federal funding to be provided is shown below:

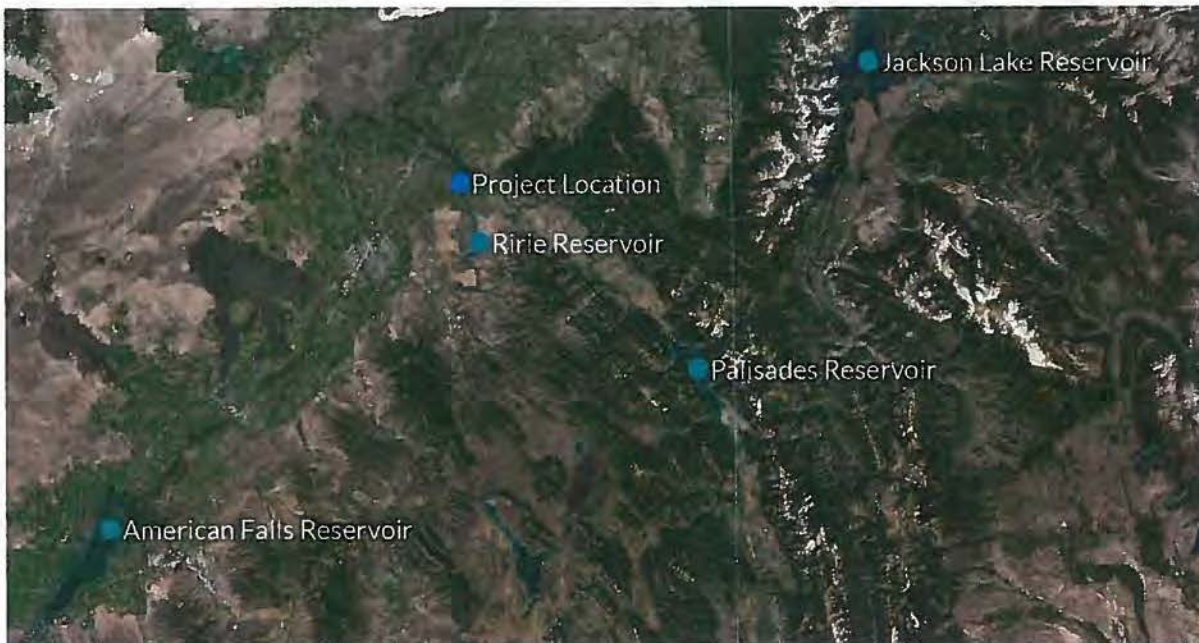
$$\frac{\text{Non-Federal Funding}}{\text{Total Project Costs}} = \frac{\$1,966,514}{\$3,933,028} = 50\%$$



## H. Nexus to Reclamation

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

Enterprize Canal Company is a storage water spaceholder at the Jackson Lake, Palisades, and American Falls reservoirs which are all within Reclamation's Upper Snake River Basin water storage system. **Figure 6** shows the location of the proposed project in relation to the locations of these Reclamation projects.



**Figure 6. Location of Proposed Project and Nearby Reclamation Projects**

Enterprize is also 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.

The project also provides an important conduit for moving water from the Snake River to Willow Creek. Willow Creek is the outflow of the Ririe Reservoir (another reservoir in Reclamation's Upper Snake River Basin project).

### **A. Does the applicant have a water service, repayment, or O&M contract with Reclamation?**

Enterprize does not have a water service, repayment, or O&M contract with Reclamation. However, reservoir space is allocated to Enterprize at Jackson Lake, Palisades, and American Falls through a spaceholder contract with Reclamation.

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

Enterprize has a spaceholder contract with the USBOR at the Jackson Lake, Palisades, and American Falls reservoirs.

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

The proposed project will benefit Reclamation's Upper Snake River Basin water supply, reduce demand for natural flows from the Snake River, and increase the water available to other users through the Water District No. 1 rental pool.

**D. Is the applicant a Tribe?**

No, the applicant is not a Tribe.

### D.2.2.4.5. Performance Measures

Enterprize will test the results of the conveyance efficiency improvements, and the results of the improved water management to quantify the benefits of this project.

The method Enterprize is proposing for conducting the required conveyance efficiency testing is as follows:

1. Enterprize will measure the flow rate of water as its diverted into the pipeline and the flow rate of water at the end of the pipeline.
2. 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.
3. 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).
4. Conveyance efficiency improvements will also be evaluated by analyzing the yearly water accounting in comparison with previous years.

The method Enterprize is proposing for conducting the required management efficiency testing is as follows:

1. Measure flow rate daily at pipeline inlet and outlet.
2. Measure flow rate daily at Enterprize diversions.
3. Measure flow rate daily of commingled diversions which are diverted from Willow Creek.
4. Calculate water savings by comparing with previous years of record (2017-2020).

## Project Budget

### **D.2.2.5.1. Funding Plan and Letters of Commitment**

The total project costs are estimated to be \$3,933,028. The non-federal share of the project costs is 50% for a total of \$1,966,514. Enterprize will be able to use the company's cash reserves and an existing line of credit to fund its share of the project costs. All funding is currently available for use. A letter of commitment confirming the line of credit is attached as **Appendix D**.

#### **Non-Federal Funding Partners**

The Idaho Water Resources Board has committed a total of \$70,000 to help cover the cost for engineering and design of Phase I and Phase II. A letter of commitment is included with **Appendix D**.

#### **Previously Incurred Project Costs**

Enterprize does not intend to seek reimbursement for previously incurred costs that are not qualified for reimbursement prior to the award.

#### **Federal Funding Requested**

Enterprize is requesting \$1,966,514 from the Bureau of Reclamation's WaterSMART Water and Energy Efficiency Program. No other federal funds have been requested.

#### **Pending Funding Requests**

Enterprize is pursuing federal grant funding for Phase 1 through Reclamation's WaterSMART Drought Response Program.

### D.2.2.5.2. Budget Proposal

The total cost of the project is summarized in **Table 11**. The non-federal sources of funding are listed in **Table 12**. The project costs, including salaries and wages; fringe benefits; travel expenses; equipment costs; supplies and materials; and contractor and construction costs, are listed in **Table 13**. Additional details are included in the Budget Narrative section.

**Table 11. Total Project Cost Summary**

Source	Amount
Costs to be reimbursed with the requested federal funding	\$1,966,514
Costs to be paid by the applicant	\$1,966,514
<b>Total Project Cost</b>	<b>\$3,933,028</b>

**Table 12. Non-Federal Sources of Funding**

Funding Sources	Amount
<b>Non-Federal Entities</b>	
Idaho Water Resources Board (third-party contribution)	\$70,000
Enterprize Canal Company (cash reserves)	\$62,147
Enterprize Canal Company (in-kind match)	\$204,367
Enterprize Canal Company (line of credit)	\$1,630,000
<b>Non-Federal Subtotal</b>	<b>\$1,966,514</b>
<b>Requested Reclamation Funding</b>	<b>\$1,966,514</b>

**Table 13. Enterprize Budget Proposal**

Budget Item Description	Computation		Quantity Type	Total Cost
	\$/Unit	Quantity		
Salaries and Wages*				
Excavator Operator 1	\$25.00	160	hours	\$4,000.00
Excavator Operator 2	\$25.00	160	hours	\$4,000.00
Clearing and Grubbing	\$25.00	80	hours	\$2,000.00
Salaries and Wages Subtotal				\$10,000.00
Fringe Benefits				
N/A				\$0
Travel				
N/A (Enterprize is not seeking reimbursement for travel costs)				\$0
Equipment*				
Excavator 1	\$61.40	160	hours	\$9,824.00
Excavator 2	\$86.47	160	hours	\$13,835.20
Bulldozer	\$252.02	80	hours	\$20,162.60
Equipment Subtotal				\$43,821.80
Supplies and Materials*				
Pipe Bedding Material	\$20.00	7,527	CY	\$150,545.85
Supplies and Materials Subtotal				\$150,545.85
Contractual / Construction				
Environmental Compliance				\$45,000.00
Construction Management				\$197,000.00
Engineering and Design				\$197,358.00
Construction				\$3,289,302.00
Contractual / Construction Subtotal				\$3,728,660.00
Total Direct Costs				\$3,933,028
Indirect Costs				
N/A				\$0
Total Estimated Project Costs				\$3,933,028

\*Indicates costs to be donated by Enterprize

(Note: Equipment usage rates are based on the costs outlined by the United States Army Corps of Engineers Construction Equipment Ownership and Operating Expense Schedule.)

### D.2.2.5.3. Budget Narrative

#### D.2.2.5.3.1. Salaries and Wages

Darrel Ker is a board member of the Enterprize Canal Company and will serve as the project manager. He will be responsible for ensuring the project successfully progresses through each phase on time and on budget. This includes obtaining the required permits, performing site visits, design reviews, environmental compliance, and construction administration. **He will volunteer the time needed.**

Utona Garcia is the secretary for the Enterprize Canal Company. She will be responsible for ensuring Enterprize meets all reporting requirements including submitting financial reports, interim performance reports, and the final performance report. **This is considered part of her normal contractual agreement with the canal company. Enterprize is not seeking to be reimbursed for this cost.**

#### D.2.2.5.3.2. Fringe Benefits

Enterprize does not provide or have any fringe benefits.

#### D.2.2.5.3.3. Travel

Numerous trips to the project site will be required by the project manager to observe construction activities, document progress, coordination with the contractor(s), delivery of construction materials, and related project management activities. Enterprize is not seeking reimbursement for these travel costs.

#### D.2.2.5.3.4. Equipment

The equipment will be used for clearing and grubbing and utility work for the proposed project. The equipment includes two excavators and a bulldozer. Please refer to **Appendix D** for detailed information. The equipment usage rates shown are based on the costs outlined by the United States Army Corps of Engineers Construction Equipment Ownership and Operating Expense Schedule.

#### D.2.2.5.3.5. Materials and Supplies

Enterprize will donate the material to be used as pipe bedding as well as the costs to haul this material. The estimated costs for materials and supplies are summarized in **Table 13**. An itemized list has been included in **Appendix D**.

#### D.2.2.5.3.6. Contractual

Estimated costs for work to be completed by outside contractors are summarized in **Table 13**. This includes engineering and design as well as construction and construction management. A detailed budget estimate of time, rates, supplies, and materials required for each task has been included in **Appendix D**.

#### D.2.2.5.3.7. Third-Party In-Kind Contributions

The Idaho Water Resources Board has committed a total of \$70,000 to help cover the cost for engineering and design of Phase I and Phase II. A letter of commitment is included with **Appendix D**.

**D.2.2.5.3.8. Environmental and Regulatory Compliance Costs**

It is anticipated that environmental and cultural compliance will be obtained through an environmental assessment to be approved by Reclamation Snake River Area Office staff. The estimated costs included in **Table 13** were based on conversations with Reclamation staff.

**D.2.2.5.3.9. Other Expenses**

No other expenses are anticipated for the project.

**D.2.2.5.3.10. Indirect Costs**

No indirect costs are anticipated for the project.

## H.1. Environmental and Cultural Resources Compliance

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

The project involves minimal ground disturbances, construction, or increases to human activity that would potentially impact the surrounding environment. In addition, the proposed pipeline alignment will be located on previously-disturbed soils and lands that are currently under cultivation or used for existing roadways and water conveyance infrastructure. Furthermore, 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 will 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 includes 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.

Once construction is complete, all disturbed areas will 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, Enterprize 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.

**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 yellow-billed cuckoo (*Coccyzus americanus*) is a

federally-listed, threatened species that may potentially be present in the project vicinity. However, this neotropical migrant, which has historically occupied riparian ecosystems across the western United States, 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. Therefore, it is anticipated that the project would have No Effect on the yellow-billed cuckoo.

No designated critical habitat has been identified in the project area.

**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.**

A jurisdictional determination has not been completed for the project. However, the system is a series of historical canals constructed separately from the natural drainages in the area. Jurisdictional review will be part of the permitting process during the design of the project.

**When was the water delivery system constructed?**

The company was incorporated in 1910. The canal system was constructed prior to incorporation based on the water rights for the company. The first water right has a priority date of 1895, and the last water right acquired has a priority date of 1916. The exact age of the canal is unknown, but it was probably constructed between 1895 and 1916.

**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 replacing a 10,458-foot section of an open trench canal with a pipeline. The headgates (i.e., turnout or delivery gates) along this section of the canal will also be replaced as part of this project. The exact age of the canal is unknown. Broken headgates are repaired or replaced as part of the routine maintenance Enterprise performance. The installation dates for each of the headgates ranges between 1930–2021.

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

To identify the presence of potential historic resources located within the vicinity of the project area, a review of publicly-available databases was conducted. According to the mapping database of National Register of Historic Places (NRHP) provided by the Idaho State Historic Preservation Office (SHPO), there are no historic properties located along the proposed pipeline alignment.

The proposed project writeups were sent to Reclamation's Snake River Area Office. Reclamation staff will review this information and will advise Enterprise if there is a need for a cultural resource survey. If Reclamation deems necessary, Enterprise will retain a cultural resources management consultant or arrange for Reclamation staff to conduct an

archaeological and cultural resources survey to evaluate if any buildings or structures eligible under the National Register of Historic Places would be affected by this project. However, the expectation is that this project will have no effect on any historic buildings, structures, or other features since the project will be constructed in previously-disturbed agricultural lands.

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

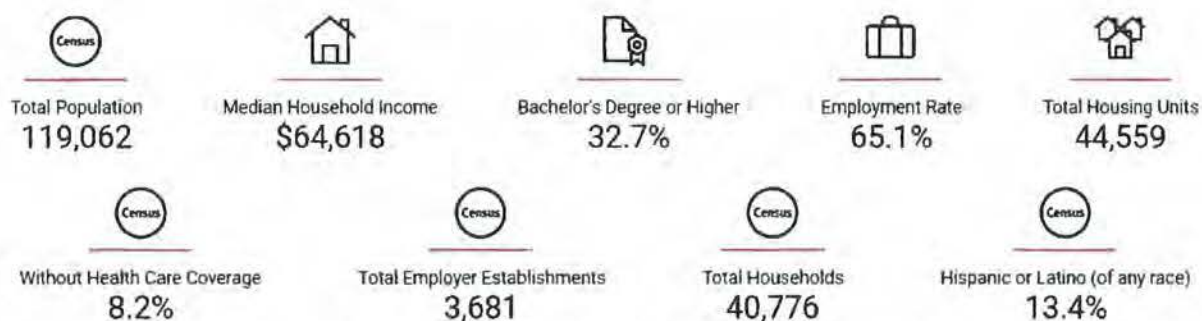
There are no known archeological sites located in the proposed project area.

If Reclamation deems necessary, Enterprize will retain a cultural resources management consultant or arrange for Reclamation staff to conduct an archaeological and cultural resources survey to evaluate if any archeological sites would be affected by this project. However, the expectation is that this project will have no effect on any archeological sites since the project will be constructed in previously-disturbed agricultural lands.

Furthermore, if there is an unanticipated discovery of archeological materials during construction, Enterprize is prepared to require the contractor to immediately stop all work and adhere to an Inadvertent Discovery Plan. Additionally, Enterprize is prepared to implement any other mitigation measures required should any cultural resources be identified.

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

This project is not anticipated to adversely affect low income or minority populations. According to the U.S. Census Bureau, the people who live in Bonneville County are 94.4% white, and the poverty rate is 9.3%.



**Figure 7. 2019 American Community Survey (ACS) Data for Bonneville County, Idaho**

Construction of this project will support the important agricultural-based economy in Bonneville County and the surrounding areas that would also benefit from this project. According to the 2017 Census of Agriculture, 96% of the farms in Bonneville County are family farms and 35% are between 1–9 acres in size.

Enterprize serves more than 200 farmers with approximately 5,436 acres of active farmland. The project directly benefits these agricultural producers by extending the irrigation season and reducing the uncertainty of their water delivery. As a result, this

project is anticipated to have only positive impacts on the low income or minority populations living in the region. Additionally, this project will positively benefit the Snake River by increasing available flows downstream.

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

The project will not limit access to or the ceremonial use of Native American sacred sites or result in other impacts to tribal lands.

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

Enterprise manages for noxious weeds along canal banks. Therefore, it is not anticipated that the project would contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species in the region. In fact, this project will eliminate the water source for potential weeds because it includes replacing a portion of the canal with pipeline. Therefore, it is anticipated that the project will reduce the incidence of noxious weeds.

## D.2.2.6. Required Permits or Approvals

The following permits and approvals are required for the Enterprize Canal Company Water Conveyance Improvement and Delivery Automation project. All required permits and approvals will be obtained prior to construction. Enterprize will work with Reclamation to comply with the National Environmental Policy Act (NEPA) and complete any additional requirements.

### Federal

- **NEPA:** A preliminary writeup for the proposed project was sent to the Snake River Area Office for review. Local Reclamation staff will advise on NEPA and cultural compliance after their review.
- **Waters of the United States:** A jurisdictional determination will need to be completed.

### State

- **Idaho Transportation Department:** A road crossing permit is in progress.

### Local

- **WATCO Railroad Permit:** The permit to cross under the railroad is in progress, and a preliminary review has been completed.
- **Bonneville Highway District:** A construction permit is in progress.

Easements will not need to be obtained for this project. Idaho protects water conveyance easements from encroachment without prior authorization of the controlling entity per Idaho Code 42-11 and 42-1209.

Water rights will not need to be obtained. Enterprize's water rights for natural flow from the Snake River were established between 1895–1916.

## D.2.2.7. Letters of Project Support

Letters of support or partnership are included in the following pages.



1010 W. Jefferson, Ste. 101, Boise, ID 83702 | [www.iwua.org](http://www.iwua.org)  
P: 208-344-6690 F: 208-344-2744 E: [iwua@iwua.org](mailto:iwua@iwua.org)

November 1, 2021

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 Enterprize Canal Company Water Conveyance  
Improvement and Delivery Automation project*

To Whom It May Concern:

I write on behalf of the Idaho Water Users Association (IWUA) to express support for the grant application submitted by Enterprize Canal Company for funding under the WaterSMART: Water and Energy Efficiency program. The proposed project is to construct efficiency and automation improvements in Bonneville 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. Our members have utilized WaterSMART grants for projects, like Enterprize's proposed Water Conveyance Improvement and Delivery Automation project, that improve water and energy conservation in furtherance of Idaho's agricultural operations.

Because of the benefits this project will provide, the IWUA supports the grant application filed by the Enterprize Canal Company.

Sincerely,

A handwritten signature in black ink, appearing to read "P. Arrington", with a long horizontal flourish extending to the right.

Paul L. Arrington, Executive Director & General Counsel



**Barker Rosholt  
& Simpson LLP**

**Twin Falls**

163 Second Ave. West  
P.O. Box 63  
Twin Falls, Idaho 83301  
p. 208.733.0700  
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**Attorneys**

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Sarah W. Higer  
Michael A. Short  
John A. Rosholt  
(1977-2019)

**Travis L. Thompson**

**EMAIL:** [tlth@idahowaters.com](mailto:tlth@idahowaters.com)  
**PHONE:** 208.733.0700  
**WEB:** [idahowaters.com](http://idahowaters.com)

November 1, 2021

U.S. Bureau of Reclamation  
Financial Assistance Operations  
Attn: NOFO Team  
P.O. Box 25007  
Denver, Colorado 80225

**RE: Letter of Support for the Enterprize Canal Company Conveyance  
Improvement and Aquifer Recharge Facility Project**

To Whom it May Concern:

I am writing on behalf of the Surface Water Coalition, Inc., an Idaho non-profit corporation comprised of the following irrigation entities in southern Idaho: A&B Irrigation District, American Falls Reservoir District #2, Burley Irrigation District, Milner Irrigation District, Minidoka Irrigation District, North Side Canal Company, and Twin Falls Canal Company.

The Coalition, like other water right holders in southern and eastern Idaho, relies upon the Snake River and the Eastern Snake Plain Aquifer (ESPA) for its members' water supplies for irrigation purposes. The Coalition has worked with local and regional entities to promote and implement water conservation as a means to stabilize and improve water supplies for its landowners and shareholders. The Coalition supports Reclamation's efforts to develop conservation projects in the basin through the WaterSMART drought response grant program, and appreciates the opportunity that local water users have to partner in such endeavors.

To that end, the Coalition supports the development of additional water conservation projects in the Upper Snake River Basin, including the facility proposed by the Enterprize Canal Company.

In summary, the Surface Water Coalition fully supports the Enterprize Canal Company's Conveyance Improvement and Aquifer Recharge Facility Project and its application for funding through the WaterSMART Drought Response Program.

Sincerely,

**BARKER ROSHOLT & SIMPSON LLP**



Travis L. Thompson

cc: Justin Temple, A&B  
David Stephenson, AFRD#2  
John Lind, BID  
Jeff Warr, Milner  
Dan Davidson, MID  
Alan Hansten, NSCC  
Jay Barlogi, TFCC



Barker Rosholt  
& Simpson LLP



United States Department of Agriculture

October 28, 2021

**Subject:** Enterprize Canal Company Water Conveyance Improvements and Delivery Automation

Dear U.S. Bureau of Reclamation Reviewer:

I am writing in regard to the proposal by the Enterprize Canal Company to improve water conveyance and reduce water losses due to seepage by utilizing the WaterSMART Water and Energy Efficiency Program.

The East Side Soil & Water Conservation District works with the USDA-Natural Resources Conservation Service's Rigby Service Center to implement water efficiency and soil conservation projects in Bonneville County. The district serves more than 1,007,521 acres. The proposed project is within the East Side District in an area of high permeability soils that result in high seepage losses from the canals of the area.

The Enterprize Canal Conveyance Improvement project involves constructing 10,500 linear feet of a 48-inch pipeline along 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 such as the one we are currently experiencing.

As the acting USDA-Natural Resources Conservation Service's State Conservationist for Idaho, I am excited for and committed to the opportunity for members of our staff to work with Enterprize and the local Soil and Water Conservation District to help those producers served by the proposal achieve their conservation objectives.

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

Sincerely,

**AMIE MILLER**

Digitally signed by AMIE  
MILLER  
Date: 2021.10.29 08:38:45  
-06'00'

Amie Miller  
Acting State Conservationist  
United States Department of Agriculture  
Natural Resources Conservation Service

**Natural Resources Conservation Service**  
9173 W. Barnes Drive, Suite C, Boise, ID 83709  
Voice: 208.378.5700 Fax: 855.524.1691

**Helping People Help the Land**  
An Equal Opportunity Provider, Employer, Provider and Lender.

October 25, 2021

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

RE: Enterprize Canal Company Improvement Project Support

To Whom It May Concern:

My family and I have been farming our lands in Ririe, Idaho area since 1970.

Enterprize has proposed installing a pipeline from the previously improved section of the canal to Willow Creek. This pipeline, and the accompanying automation improvements, would be a huge help in supporting Enterprize's water conservation efforts. Installing solar powered, automated headgates will save water, energy, time, and money while the pipeline will reduce water losses due to canal seepage. Increasing our water efficiency is a key part in reducing our reliance on water stored in the aquifer. When Enterprize water users can use less water, farmers throughout eastern and central Idaho will benefit.

When the agreement was initially entered into by Enterprize Canal to get their water carried to Willow Creek very little if any automation had taken place by the local patrons of the canal. Since that time a considerable amount of ground has been placed under sprinkler irrigation creating a scenario where the patrons of the canal should be able to run reduced flows of storage water in the canal extending the Enterprize irrigation season 2-3 weeks each year. Efforts to modify the contract to accurately reflect usage have been in vain. The canal that carries the water refuses to reduce the requirement from 40 years ago. This results in thousands of inches of storage water having to be delivered to Willow Creek or the contracted canal will no longer deliver Enterprize's water to Willow Creek. Simply put the patrons of Enterprize Canal are being held hostage because we literally have no other option. We literally give thousands of inches each year to another canal to be freely used by their patrons.

This new pipeline will also add value to carryover scenarios in the upper snake plane reservoirs, something we all need more of.

I encourage you to please fund the Enterprize Canal Company project because it would help strengthen our water supply and increase our resilience to climate change.

Best Regards,

  
David Chapple  
Foster Land And Cattle

## Hattie Zobott

---

**From:** Krystal Hansen <k.mountainmalt@gmail.com>  
**Sent:** Tuesday, October 26, 2021 9:28 AM  
**To:** Hattie Zobott  
**Subject:** letter of Support for Enterprize Canal Company WEEG

November 3, 2021

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

RE: Enterprize Canal Company WaterSMART Water and Energy Efficiency grant program support for the Water Conveyance Improvements and Delivery Automation project

To Whom It May Concern:

Our family farm, Burtenshaw Farms, produces barley and Alfalfa for both local and regional customers. Our clients include Anheuser Busch InBev, Ririe Grain, Pasley Grain and Johnson Grain. Our products add to Idaho's food security and to the resiliency of local, state, and regional markets.

Our farm is fortunate to be a patron of the Enterprize Canal Company. Our production is dependent on the continued supply of irrigation water that Enterprize provides our farm. We are pleased they are implementing these efficiency improvements because they will add to the long-term reliability of the water supply while also providing important environmental benefits for the local fish and wildlife habitats and populations.

As we understand it, one component of these improvements is the construction of a new canal pipeline from the highway to Willow Creek to reduce seepage. Saving water by reducing seepage will improve reliability and help us consistently get the water we need for our farm while also reducing our need to buy stored water. The other component of this project involves installing automated headgates along the delivery lateral to further improve water efficiency. Together, these improvements will benefit the local farmers and everyone else who relies on this water supply while also improving the health of our local rivers and streams.

We wholeheartedly support the WaterSMART Water and Energy Efficiency grant application for the Enterprize pipeline and automation project, and we encourage you to support this worthy endeavor.

Best Regards,

Travis Johnson  
Farm Manager  
Burtenshaw Farms



# IDAHO WATER RESOURCE BOARD

**Brad Little**  
*Governor*

October 14, 2021

**Jeff Raybould**  
*Chairman*  
St. Anthony  
At Large

Bureau of Reclamation  
Mail Code: MP-400  
2800 Cottage Way  
Sacramento, California 95825

**Roger W. Chase**  
*Vice-Chairman*  
Pocatello  
District 4

RE: Letter of support and commitment for the Enterprize Canal Company's Water Conveyance Improvement and Delivery Automation project

**Jo Ann Cole-Hansen**  
*Secretary*  
Lewiston  
At Large

To Whom It May Concern:

On behalf of the Idaho Water Resource Board (IWRB), I would like to express support for the Enterprize Canal Company's efforts to improve the company's conveyance infrastructure and to install water delivery automation components.

**Dale Van Stone**  
Hope  
District 1

This letter also represents a commitment by the IWRB for Enterprize Canal Company. We have previously provided \$63,794 in funds during the conceptual design phase, and we have agreed to commit a total of \$70,000 to help cover the cost of the engineering design of the conveyance improvements (Phase I and Phase II) in support of the State's aquifer recharge goals.

**Albert Barker**  
Boise  
District 2

We are confident this project will help restore groundwater supplies through improving the canal delivery system by providing greater operational flexibility and efficiency for the delivery of water for aquifer recharge and the region. Additionally, the added automation will allow Enterprize to more efficiently manage on-farm deliveries for growers.

**Dean Stevenson**  
Paul  
District 3

If you have any questions, please contact me at (208) 287-4800.

**Peter Van Der Meulen**  
Hailey  
At Large

**Brian Olmstead**  
Twin Falls  
At Large

Sincerely,

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

## D.2.2.8. Official Resolution

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

**RESOLUTION OF THE BOARD OF DIRECTORS OF  
THE ENTERPRIZE CANAL COMPANY, LTD.**

**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 2022 UNDER FUNDING  
OPPORTUNITY ANNOUNCEMENT No. R22AS00023**

**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 2022; and

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

**WHEREAS**, Enterprize has formulated a grant proposal to convert a portion of the open canal to pipeline to improve the existing conveyance and delivery infrastructure and install automated headgates with solar arrays to improve operational efficiency, referred to as the *Enterprize Canal Company Water Conveyance Improvements and Delivery Automation Project*.

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


1. The Board's President, Harold Jones, is hereby authorized to enter into an agreement with Reclamation on behalf of Enterprize Canal Company;
2. The Board has reviewed and supports the proposal submitted;
3. The Applicant is capable of providing the amount of funding and in-kind contributions 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: 10-27-2021

  
Harold Jones  
President of the Board of Directors

ATTEST:



### D.3. Unique Entity Identifier and System for Award Management

The Enterprize Canal Company is registered in the System for Award Management (SAM) and will continue to maintain this active SAM registration, with the current information, throughout the project duration.

**DUNS Number:** 07178732

**Commercial and Government Entity (CAGE) Code:** 8X8L6

**Unique Entity Identifier in SAM:** V25KM8DLUDX3

## References

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## Appendix A. Idaho Water Management Plans

Excerpts from the Idaho State Water Plan, the Idaho Drought Plan, and Eastern Snake Plain Aquifer Comprehensive Aquifer Management Plan have been included as **Appendix A**. The relevant sections have been highlighted and are summarized below:

### **Idaho State Water Plan**

The Idaho State Water Plan was developed in 2012 by the Idaho Water Resource Board (IWRB). Optimizing water management, which is listed as the number one objective of the plan, was defined as, "Encourage integrated, coordinated, and adaptable water resource management and the prudent stewardship of water resources" (pg. 6).

Other important aspects include the following discussions:

This plan identifies the water supply bank as part of the implementation strategy for the water plan (pg. 10)

This plan discusses the importance of water use conservation and efficiency. Stating that, "Water conservation and water use efficiency should be promoted" (pg. 24).

Drought is referenced on page 40 and 52. Page 41 includes a recommended action for responding to climate related drought impacts is to "pursue expansion and diversification of water supplies, including increased surface and ground water storage." On page 52, drought is also recognized as an impact affecting groundwater levels within the ESPA. Pages 55-56 discuss the ESPA Managed Recharge Pilot Program which is identified as a mechanism to develop new on-stream, off-stream, and aquifer storage.

The conjunctive management of the ESPA and surface water supplies is discussed as Policy 4D (pg. 53).

### **Idaho Drought Plan**

The Idaho Drought Plan was developed in 2001 by the Idaho Department of Water Resources. Pages 30-33 of this plan discuss the importance of rental pools and identifies rental pools as being a key element of water administration and distribution by allowing water users to redistribute storage water through rental agreements in rental pools. On page 31, this plan discusses how rental pools have been an effective method for providing water to irrigation companies when water was in short supply during drought years. Enterprize is a member of the Upper Snake River rental pool.

The significance of the Snake Plain Aquifer (aka Eastern Snake Plain Aquifer) was identified as an alternative water source on page 35.

### **Eastern Snake Plain Aquifer Comprehensive Aquifer Management Plan (ESPA CAMP)**

The Eastern Snake Plain Aquifer Comprehensive Aquifer Management Plan (ESPA CAMP) was developed by the Idaho Water Resource Board (IWRD) and passed into law by the Idaho State Legislature in 2009. The overall goal of the plan is to "Sustain the economic viability and social and environmental health of the Easter Snake Plain by adaptively managing a

balance between water use and supplies." The coordinated management of surface waters of the Snake River and the underground waters of the ESPA were identified as a necessity on page 6. A key objective was to increase predictability for water users by managing a reliable supply, as indicated throughout the document. The balance of acreage for surface water users and groundwater users is almost equal within the ESPA (page 8).

Other important aspects include the following discussions:

Surface Water Conservation is identified as a goal within the plan to enable surface water conversion from groundwater on page 4. Demand reduction is a key element of the plan and surface water conservation is identified as on mechanism to reduce demand. The specific goal in the plan is defined as "Most efficient use of available surface water supply, 50KAF" on page 20. It also describes the goal in detail and outlines the type of actions that are recommended. Actions include automated gates, reducing transmission losses, and exploring federal grants to reduce costs to canal companies.

Ground water to surface water conversions should be opportunistically pursued (pg. 18).

Surface water conservation for Phase 1 is 50kaf (pg. 11).

**State of Idaho**

**THE STATE WATER PLAN**

**C.L. “Butch” Otter, Governor**

**Idaho Water Resource Board**

**Terry T. Uhling**  
Chairman

**Roger W. Chase**  
Vice-Chairman

**Robert Graham**  
Secretary

**Vince Alberdi**  
**Leonard Beck**  
**Charles “Chuck” Cuddy**  
**Peter Van Der Meulen**  
**Jeff Raybould**

**Idaho Water Resource Board**  
**November 2012**

BEFORE THE WATER RESOURCE BOARD

OF THE

STATE OF IDAHO

IN THE MATTER OF THE       )  
  )  
IDAHO STATE WATER PLAN    )

---

A RESOLUTION

WHEREAS, the Idaho Water Resource Board (Board) conducted public meetings to gather public input concerning policies contained in the Idaho State Water Plan ; and,

WHEREAS, the Board, based on input from the public, has proposed changes to existing policies and suggested new policies; and,


WHEREAS, the Board has provided a 90-day public comment period and has conducted seven public meetings and hearings providing opportunities for public input; and,

WHEREAS, the Board has reviewed the public record consisting of oral testimony and written comments and has modified their proposed changes accordingly.

NOW, THEREFORE, BE IT RESOLVED that, having considered the proposed revised Idaho State Water Plan and the public record, the Board hereby adopts the Idaho State Water Plan dated November 2012 and directs that it be provided to the Idaho Legislature for their consideration.

PASSED AND APPROVED this 28<sup>th</sup> day of November, 2012.

  
\_\_\_\_\_  
TERRY T. UHLING, Chairman  
Idaho Water Resource Board

ATTEST:   
BOB GRAHAM, Secretary

## Table of Contents

### WATER PLANNING PROGRAM

Constitutional Authority .....	1
Legislative Authority .....	2
Idaho Water Resource Board Programs .....	3
Comprehensive State Water Plan Formulation .....	4

### COMPREHENSIVE STATE WATER PLAN

Objectives .....	6
Policies .....	7
1. Optimum Use .....	8
1A State Sovereignty .....	8
1B Beneficial Use of Water .....	8
1C Change in Use .....	9
1D Water Supply Bank .....	10
1E Conjunctive Management .....	11
1F Ground Water Withdrawal .....	12
1G Interstate Aquifers .....	14
1H Quantification and Measurement of Water Resources .....	14
1I Aquifer Recharge .....	15
1J Water Quality .....	16
1K Comprehensive Aquifer Management Plans .....	17
1L Surface Water Supply Enhancement .....	18
1M Weather Modification .....	21
1N Hydropower .....	22
2. Conservation .....	24
2A Water Use Efficiency .....	24
2B Federally Listed and Other Aquatic Species .....	25
2C Minimum Stream Flow .....	27
2D State Protected River System .....	28
2E Riparian Habitat and Wetlands .....	29
2F Stream Channel Rehabilitation .....	30
2G Safety Measures Program .....	31
2H Flood Hazard Areas .....	32
2I Flood Damage Reduction Levee Regulation .....	33
3. Management .....	34
3A Review of Federal Reservoir Water Allocation .....	34
3B Hydropower Siting .....	35
3C Research Program .....	36
3D Funding Program .....	37
3E Water Resource Planning Program .....	38
3F Water Rights Adjudication .....	39
3G Climate Variability .....	40

## Table of Contents (cont.)

4. Snake River Basin.....	42
4A Snake River Minimum Stream Flows .....	43
4B Snake River Milner Zero Minimum Flow .....	46
4C Reallocation of Snake River Trust Water.....	48
4D Conjunctive Management of the ESPA and Snake River .....	51
4E Snake River Basin New Storage .....	55
4F Snake River Basin Agriculture.....	57
4G Snake River Domestic, Commercial, Municipal, and Industrial Uses .....	58
4H Snake River Hydropower Use .....	60
4I Snake River Navigation.....	61
4J Snake River Fish, Wildlife, Recreation, and Scenic Resources .....	63
5. Bear River Basin .....	66
5A Bear River Compact.....	66
5B Bear River Basin Water Management.....	67
5C Interstate Water Delivery .....	68
5D Bear Lake .....	69
6. Salmon/Clearwater River Basins .....	71
6A Conservation Plans .....	71
6B Instream Flow Program .....	72
7. Panhandle River Basins.....	75
7A Interstate Aquifers .....	75
7B Minimum Stream Flows .....	77
7C Navigation, Fisheries, and Recreation.....	78
LIST OF TABLES	
Table 1 Reservoir Sites with Apparent High Potential for Development.....	20
LIST OF FIGURES	
Figure 1 Total Annual Volume of Natural Flow Passing Milner Dam.....	47
Figure 2 Trust Water Area.....	49
Figure 3 Swan Falls Trust Water Flows .....	50

## COMPREHENSIVE STATE WATER PLAN

The Comprehensive State Water Plan represents the state's position on water development, management, and conservation. Accommodating Idaho's growing and changing water needs and the increasing demands on both surface and ground water presents a significant challenge. The Plan seeks to meet that challenge through the establishment of policies on water development, management, and conservation with accompanying strategies that may be implemented as funds become available and milestones which will assist in ongoing Plan review.

### Objectives

The following objectives of the State Water Plan are formulated for the conservation, development, management, and optimum use of all unappropriated water resources and waterways of this state in the public interest. Idaho Code § 42-1734A.

1. **Water Management** - Encourage the quantification of water supplies, water uses, and water demands for all water rights within the state. Encourage integrated, coordinated, and adaptable water resource management and the prudent stewardship of water resources.
2. **Public Interest** - Ensure that the needs and interests of the public are appropriately considered in decisions involving the water resources of the state.
3. **Economic Development** - Encourage and support economic development through the optimum use of water resources. Promote the integration and coordination of the use of water, the augmentation of existing supplies, and the protection of designated waterways for all beneficial purposes. Idaho Code § 42-1734A(1)(b).
5. **Environmental Quality** - Maintain, and where possible enhance water quality and water-related habitats. Study and examine the quality of rivers, streams, lakes, and ground water [Idaho Code § 42-1734(15)], and ensure that due consideration is given to the needs of fish, wildlife, and recreation in managing the water resources of the state. Where appropriate, initiate state protection of waterways or water bodies with outstanding fish and wildlife, recreation, geologic, or aesthetic values.
6. **Public Safety** - Encourage programs ensuring that life and property within the state are not threatened by the management or use of the state's water resources.

### Implementation Strategies:

- Review existing statutes and regulations and recommend revisions as necessary to establish a more efficient process for changes in the use of water rights.
- Review Department policies and procedures and recommend revisions as necessary to implement a more efficient process for changes in the use of water rights.

### Milestones:

- Number of changes in the use of water rights that meet emerging needs.

## 1D - WATER SUPPLY BANK

**The sale or lease of water is critical to the efficient management and optimal use of the state's water resources. Thus, use of the state's Water Supply Bank should be expanded to meet traditional and emerging needs for water.**

### Discussion:

As the state approaches the time when there is little or no unappropriated water, the Water Supply Bank, established by Idaho Code § 42-1761, provides an efficient mechanism for the sale or lease of water from natural flow and storage. The purpose of the Water Supply Bank is to obtain the highest duty of water, provide a source of adequate water supplies to benefit new and supplemental water users, and provide a source of funding for improving water use facilities and efficiencies. By aggregating water available for lease, rental pools operating under the authority of the Water Supply Bank can supply the water needs of many users, provided there is no injury to other right holders, or enlargement of the use of the water rights, and the change is in the local public interest. Idaho Code § 42-1763.



**Photo: Shoshone Falls near Twin Falls (IDWR Photo)**

The Idaho Water Resource Board has adopted rules governing the sale or lease of water through the Water Supply Bank. IDAPA 37.02.03. Pursuant to state law, the Board has authorized local entities to operate storage and natural flow rental pools in numerous water districts that meet regional needs. The Shoshone-Bannock Tribes are also authorized by the state to operate a storage water rental pool.

The scope of existing and future water use needs requires further development of flexible water banking systems that address local water use needs and ensure the optimum use of the state's water resources. The Water Supply Bank should provide for efficient mechanisms that are responsive to traditional and emerging needs for water.

#### **Implementation Strategies:**

- Monitor existing procedures, statutes, and rules of the Water Supply Bank to determine whether additional strategies are needed to meet current and future water use demands.
- Establish through state action, natural flow and storage rental pools in basins where local water users have identified the need for rental pools.
- Develop a public information and education program to promote use of the Water Supply Bank.

#### **Milestones:**

- Increased use of the Water Supply Bank.
- New storage and natural flow rental pools established.
- Efficient mechanisms in place that facilitate the optimum use of water.

## **1E - CONJUNCTIVE MANAGEMENT**

**Where a hydraulic connection exists between ground and surface waters, they should be conjunctively managed to maintain a sustainable water supply.**

#### **Discussion:**

Region-specific factors impact the available supply of ground and surface water and effect changes in regional water budgets. This can result in insufficient water supplies to satisfy beneficial uses and may result in increased administrative curtailment, conflict among water users, and litigation.

This policy addresses conjunctive management and not water rights administration. Water rights administration is the enforcement of the relative rights of water right holders under the prior appropriation doctrine. By comparison, conjunctive management encompasses actions other than water rights administration that can be taken to optimize the benefits and value of Idaho's water resources. While conjunctive management is not a substitute for water rights administration, the legislature has determined that it is in the public interest to adopt plans and policies that facilitate and encourage a resolution of

When water quality fails to meet state standards, DEQ works with communities, industry, agricultural interests, state and federal agencies, and other stakeholders to develop water quality improvement plans, known as total daily maximum loads or TMDLs. These plans outline actions needed to restore impaired water bodies so that they support designated uses.

The use of water flow to dilute pollution is not a substitute for adequate water quality treatment. The Idaho Agriculture Pollution Abatement Plan (“Ag Plan”) is a guidance document that describes the state’s process for the control and abatement of agricultural nonpoint source pollution as it relates to water quality. The Ag Plan provides for the review and identification of specific watershed management strategies that contribute to the full support of beneficial uses through enhancement and maintenance of the quality of surface and ground water, to the extent they are impacted by nonpoint source agricultural pollutants. Water quality improvement strategies for non point sources are implemented through voluntary programs. Numerous state agencies and local units of government participate in plan implementation, including: the Idaho Soil and Water Conservation Commission, DEQ, Soil Conservation Districts, Idaho State Department of Agriculture (“ISDA”), University of Idaho – Cooperative Extension System, the Department, the Board, IDFG, the Idaho Department of Lands, and the Office of Species Conservation (“OSC”). Where the quality of surface and ground water depends on land and water-use practices within a watershed, water users, land managers, state and federal agencies, and other units of local government are working together to implement through voluntary mechanisms best management practices and other strategies that reduce impairments to beneficial uses.

#### **Implementation Strategies:**

- Coordination and integration of monitoring programs with public and private entities.
- Ongoing analysis of statewide water quality monitoring programs to identify need for modifications.
- Participate with state agencies to integrate water management programs and policies that promote the improvement of the quality of the state’s surface and ground water through voluntary mechanisms.
- Ongoing monitoring of baseline conditions and trends.

#### **Milestones:**

- Collaborative projects implemented that protect and enhance the water quality of the state’s surface and ground water.

### **1K - COMPREHENSIVE AQUIFER MANAGEMENT PLANS**

**The Idaho Water Resource Board will complete and implement comprehensive aquifer management plans to address the changing demands on the state’s water supply.**

### **Discussion:**

Idaho Code §§ 42-1779 and 42-1780 established the Statewide Comprehensive Aquifer Planning and Management Program and the Aquifer Planning and Management Fund, which are designed to provide the Board and the Department with the necessary information to develop comprehensive aquifer management plans, (“CAMPs”) throughout the state. The program will be implemented in three phases. First, technical information describing the hydrology of the ground and surface water systems and the relationship between surface and ground water in a designated basin will be compiled. Second, the Board, with the assistance of an advisory committee, will develop a management plan, based on an assessment of current and projected water uses and constraints, to address water supply and demand issues specific to each basin. Finally, the Board will be responsible for implementing the CAMPs to obtain sustainable water supplies and provide for the optimum use of a region’s water resources.

Idaho’s first CAMP was developed for the Eastern Snake River Plain Aquifer (“ESPA CAMP”). The ESPA CAMP was adopted by the Idaho Water Resource Board and approved by the legislature in 2009. The ESPA CAMP sets forth actions designed to stabilize and improve spring flows, aquifer levels, and river flows across the Eastern Snake River Plain. The ESPA CAMP uses a phased approach to achieve a designated water budget change through a mix of management actions, including but not limited to, aquifer recharge, ground-to-surface water conversions, and demand reduction strategies. The Board is responsible for implementation of the plan with the assistance of an advisory committee made up of representatives of stakeholders who rely upon the Eastern Snake River Plain Aquifer to supply water for beneficial use.

Statewide comprehensive aquifer planning was initiated in 2008. The Rathdrum Prairie plan was completed in 2011 and the Treasure Valley plan is expected to be completed in 2012. Additional aquifers will be designated for the development of comprehensive plans as funding and conditions allow.

### **Implementation Strategies:**

- Develop and implement CAMPs for selected basins that establish goals, objectives, and implementation strategies to maximize available water supplies.
- Secure funding for technical studies and planning activities.

### **Milestones:**

- Number of CAMPs completed.
- Number of CAMPs implemented.

## **1L - SURFACE WATER SUPPLY ENHANCEMENT**

**Surface water development will continue to play an important role in meeting Idaho’s future water needs.**

**Discussion:**

Future economic development, population growth, and evolving priorities will bring additional demands on Idaho's water resources, and surface water development will continue to play an important role in the state's future. The construction of new reservoirs, enlargement of existing reservoirs, and development of off-stream storage sites could increase water supplies necessary to meet increased demand. These strategies are also important for flood management, hydropower generation, and recreation use.

Engineering, economic, legal, political, and environmental issues associated with water development projects affect decisions concerning the construction of reservoir facilities. In addition, changes in climate conditions will likely be an important factor in determining the costs and benefits of additional storage. As required by Idaho Code § 42-1736B(3)(c), the Idaho Water Resource Board maintains an inventory of potential storage sites. An inventory of reservoir sites with apparent high potential for development is set forth in Table 1.

**Implementation Strategies:**

- Concentrate assessment and evaluation of potential storage facilities on projects with the highest potential for development. Major considerations in defining high-potential projects are: cost per unit of storage, extent of public support, environmental considerations, adequacy of existing information and studies, extent and availability of funding sources for evaluation and assessment, and expected benefits that would accrue from the development of additional storage.
- Review inventory and prioritize potential projects annually.
- Initiate feasibility/construction design studies for sites determined to be high priority.
- Identify potential funding sources for project evaluation and construction.
- Develop collaborative processes and partnerships with private entities, concerned stakeholders, local governments, and federal agencies to evaluate, design, and construct water storage projects.
- Provide recommendations regarding potential storage sites to private and public entities to ensure that land and resource development associated with these sites is consistent with the State Water Plan.

**Milestones:**

- Complete annual review of potential storage site inventory and revise as appropriate.
- Initiate construction of additional storage to meet current and expected needs by 2025.

## 2. CONSERVATION

The Conservation policies focus on careful planning and prudent management of Idaho's water. The policies in this section encourage water conservation practices and efficient management of water resources for the benefit of Idaho citizens. Conservation and water efficiency practices should be implemented through voluntary, market-based programs, when economically feasible.

### 2A - WATER USE EFFICIENCY

**Water conservation and water use efficiency should be promoted.**

#### Discussion:

The legislature, in Idaho Code § 42-250(1) determined that voluntary water conservation practices and projects can advance the policy of the state to promote and encourage conservation, development, augmentation, and utilization of Idaho's water resources.

"Water conservation practice" means any practice, improvement, project, or management program that results in the diversion of less than the authorized quantity of water while maintaining the full beneficial use(s) of the water right. Idaho Code § 42-250(2). Water conservation practices include, but are not limited to, practices that reduce consumptive use as defined in Idaho Code § 42-220B, reductions in conveyance losses, and reductions in surface and seepage losses occurring at the place of use. Idaho Code § 42-223 encourages conservation of water resources by providing that no portion of any water right shall be lost or forfeited for nonuse if the nonuse results from a water conservation practice which maintains the full beneficial use(s) authorized by a water right. As water efficiencies increase, conserved water may be available to supply existing uses, new demands, or improve instream flows. Conservation and water efficiency practices may offset the need for new water supply enhancement projects. Policies that promote water conservation and efficiency should be encouraged, where such practices do not result in adverse consequences to other users of the resource.



**Photo: Idaho Irrigation (IDWR Photo)**

**Implementation Strategies:**

- Review existing laws and regulations and identify inconsistencies or constraints to implementing water efficiency practices.
- Develop partnerships with local, state, and federal governments and non-governmental organizations to coordinate and support water conservation programs.
- Establish a public information program and conservation guidelines for a range of water uses.
- Evaluate opportunities for conservation and water efficiency practices in conjunction with the evaluation of new water supply enhancement facilities, including existing and new water metering for all municipalities that provide public drinking water and water for other uses.
- Identify localized opportunities for water conservation.

**Milestones:**

- Number of conservation guidelines implemented.
- Number of partnerships developed to coordinate water conservation.
- Number of water use efficiency practices implemented.
- Effects of conservation efforts quantified.

**2B - FEDERALLY LISTED AND OTHER AQUATIC SPECIES**

**The state asserts primacy over the management of its fish and wildlife and water resources. Accordingly, any reintroduction or introduction of federally listed species or other aquatic species without state consultation and approval is against the policy of the State of Idaho because it would impair or impede the state's primacy over its water resources.**

**Discussion:**

The intersection between state water rights and the Endangered Species Act ("ESA") requires development of integrated solutions to water allocation conflicts. Pursuant to Idaho Code § 36-103, the Idaho Fish and Game Commission, through the IDFG, is responsible for the preservation, protection, perpetuation, and management of all wildlife, including aquatic species, within Idaho. IDFG also maintains a list of Species of Greatest Conservation Need, species that are low in numbers, limited in distribution, or have suffered significant habitat losses. The OSC is responsible for the coordination of all state activities affecting endangered, threatened, and candidate species, and species petitioned to be listed under the ESA, and rare and declining species. Idaho Code § 67-818. OSC coordinates state implementation and response to federal recovery plans and participates in regional efforts with state and federal agencies and tribes on issues related to such species. Idaho Code § 67-818. Pursuant to Chapter 19, Title 22, Idaho Code, the ISDA is responsible for the regulation of aquatic invasive species. All activities related to the introduction or reintroduction of aquatic species that would affect Idaho's fish and

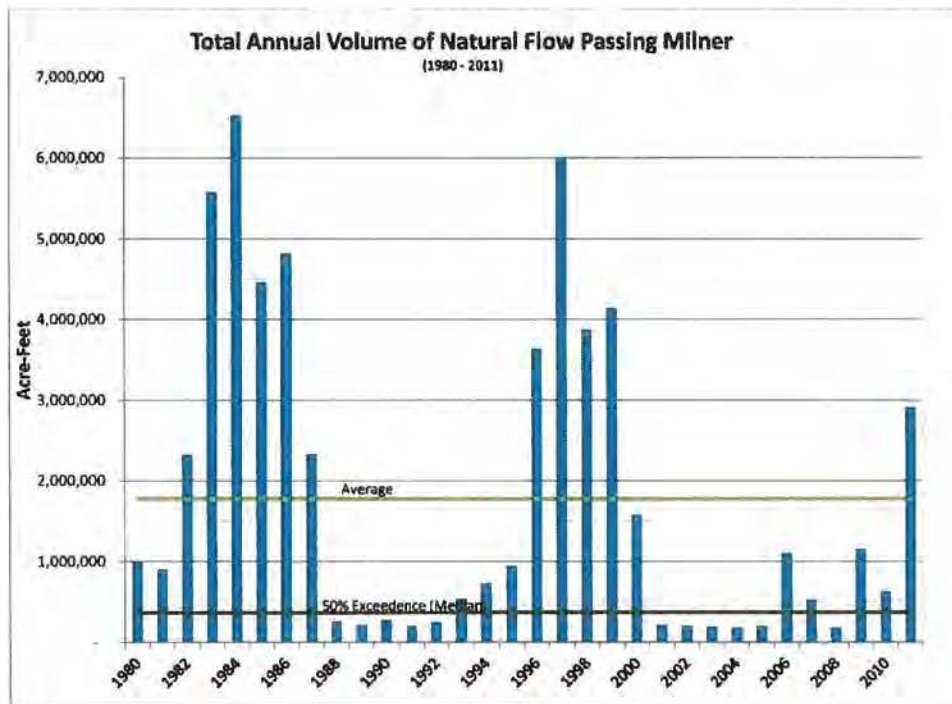


Figure 1 Total Annual Volume of Natural Flow Passing Milner Dam

As discussed in Policy 4E, development of new surface storage will take time. In the interim, the Board will cooperate with stakeholders to explore ways to optimize the management of flows that are currently passing over Milner Dam to first meet water supply needs above Milner Dam, and second to shape any remaining unappropriated flows for hydropower and other uses below Milner Dam.

Consistent with Idaho Code § 42-203B(2), no use of unappropriated flows passing Milner Dam by downstream users establishes a right to call on such flows now or in the future.

#### Implementation Strategies:

- Develop and maintain a reliable supply of water for existing uses and future beneficial uses above Milner Dam.
- Assess the feasibility of construction of new on-stream and off-stream storage in the Snake River Basin above Milner Dam.
- Implement a sustainable aquifer recharge program.
- Address water management and reservoir operation needs through the Upper Snake River Advisory Committee.
- Measurement and Monitoring Implementation Strategy:
  - Continuously improve the Eastern Snake River Aquifer Model (“ESPAM”), the Snake River Planning Model (“SRPM”), and the Snake River Water Right Accounting Program.

increase predictability for water users by managing for a reliable supply, creating alternatives to administrative curtailment, managing overall demand for water within the Eastern Snake Plain, increasing recharge to the aquifer, and reducing withdrawals from the aquifer.

The long-term objective of the ESPA CAMP is to effectuate a net annual ESPA water budget change of 600 thousand acre-feet (kaf) by the year 2030. This change is to be achieved through implementation of measures designed to reduce demand on and to augment the water supply of the ESPA. Approximately 100 kaf of demand reduction is to be achieved through groundwater to surface water conversions, and another 250-350 kaf of demand reduction is to be achieved through various measures designed to retire existing water rights. Aquifer recharge is expected to increase the ESPA water supply by 150-250 kaf.

The ESPA CAMP uses a phased approach to achieving the long-term change in the water budget. The goal of Phase I of the ESPA CAMP is to implement measures that will result in a net annual change in the ESPA water budget of between 200 kaf and 300 kaf. The recommended actions to achieve this change include ground- to-surface water irrigation conversions, managed aquifer recharge, and augmentation of supplies through demand reduction and weather modification. ESPA CAMP Phase I strategies are to be implemented by 2018 with ongoing monitoring and evaluation of the intended and unintended effects of the strategies. The Phase I monitoring and evaluation studies will be used to select, design, and implement Phase II strategies that will lead to an additional 300-400 kaf water budget change.

Policy 4D embraces the conjunctive management goals and objectives of the ESPA CAMP. Implementation of the ESPA CAMP will improve the opportunities to adaptively manage and optimize water supplies within and downstream of the ESPA, may result in: increased gains in some river reaches; improved storage carryover; increased aquifer levels; opportunities for municipal and industrial growth; reductions in overall consumptive use; increased spring discharge rates; and an ongoing public process for assessing the hydrologic, economic, and environmental issues related to the implementation of management strategies.

Most of the human made changes to the ESPA water balance during the past decades are reflected in current aquifer levels and spring flows. Continued changes in irrigation practices (e.g., conversion from gravity irrigation to sprinkler irrigation) and future climate variability, however, may create additional impacts to ESPA aquifer levels and aggregate spring discharge. Such impacts affect not only the ESPA area but also the Snake River downstream of the ESPA, because aggregate spring discharge from the Thousand Springs reach is the primary source of river flows in the Milner to Murphy reach during portions of some years.

To date, efforts to monitor and measure ESPA groundwater levels, diversion volumes, and river reach/gains have focused on the ESPA, individual springs discharging water from the ESPA, and reaches of the Snake River hydraulically-connected with the ESPA. Because of the importance of the ESPA discharge on downstream reaches of the Snake River, however, it is imperative that an enhanced spring-flow monitoring program be

developed to provide the information necessary for identifying, tracking, and predicting future spring discharge trends. Such a monitoring program needs to include long-term measurements of aggregate annual spring discharge (as opposed to point-in-time discharge from individual springs) and ESPA ground water levels.

Sustaining Snake River minimum stream flows downstream of the ESPA may require short-term and long-term adaptive management measures. A monitoring program aimed at identifying long-term spring discharge trends in the Snake River Thousand Springs reach should be designed to support the development of one or more adaptive management “triggers” based on pre-determined observed or predicted change in aggregate spring discharge rate, aquifer levels, and/or Snake River flow. The triggers should be used to initiate adaptive management measures that address the cause – or impacts – of any unacceptable decline in Snake River flow downstream of the ESPA.

Monitoring efforts and adaptive management measures are crucial to sustaining the economic viability and social and environmental health of the ESPA and the Snake River. Successful adaptive management strategies, built on the principles of conjunctive management of ground and surface water, supported by scientific understanding and reliable data that take into account the complex and interrelated nature of Snake River subbasins, will accomplish two goals: 1) ensure an adequate and sustainable water supply for existing and future uses, and 2) reduce conflicts between ground and surface water users.

#### **Implementation Strategies:**

- Implement actions delineated in the ESPA CAMP that will enhance aquifer levels and spring flows.
- Continue existing efforts to measure and monitor ground and surface water diversions, water levels, spring discharge rates, and Snake River reach gains/losses, and quantify ground and surface water interactions.
- Develop and implement a monitoring program to better predict the occurrence and duration of future low flows in the Snake River.
- Create a working group to assist in the development of a spring monitoring program.
- Update the Snake River: Milner Dam to King Hill Part B State Water Plan to incorporate ESPA CAMP goals and objectives and to account for water management developments since its adoption.

#### **Milestones:**

- ESPA CAMP hydrologic conjunctive management targets met or exceeded.
- Snake River flows at the Murphy and Weiser Gages remain at or above established minimum stream flows.
- Reduced water-related conflict in the Snake River Basin.
- Revision of Part B of the State Water Plan.

#### 4E - SNAKE RIVER BASIN NEW STORAGE

**Development of new on-stream, off-stream, and aquifer storage is in the public interest; provided, however, applications for large surface storage projects in the Milner to Murphy reach of the Snake River should be required to mitigate for impacts on hydropower generation.**

##### **Discussion:**

##### **ESPA Managed Recharge Pilot program**

Recharging aquifers as a water supply alternative has significant potential to address water supply needs, in addition to addressing conjunctive management issues. Pursuant to the ESPA CAMP, the Board is undertaking a five-year pilot program of managed aquifer recharge to the Eastern Snake Plain Aquifer. One of the potential benefits of managed recharge in the ESPA is increased water storage in the aquifer. Effectiveness monitoring and evaluation results will be used to select and design future managed recharge strategies and projects.

##### **Surface Water Projects**

New Snake River surface storage projects should be investigated and constructed if determined to be feasible. Although there are major dams and reservoirs designed for water storage, flow regulation, and flood control on the Snake River and its tributaries, their existing capacity is insufficient to provide the water supply and management flexibility needed for the myriad of existing and future beneficial uses.

Diversion of water from the main stem of the Snake River between Milner and the Murphy Gaging station for storage during the period November 1 to March 31 will have a significant impact on hydropower generation. Thus, any new storage projects in this reach should be coupled with provisions that mitigate for the impact of such storage depletions on hydropower generation. The term “mitigation” is defined as causing to become less harsh or hostile, and is used here rather than “compensate” which connotes equivalence. Methodology will be developed for use in calculating impacts on hydropower generation as part of any application to construct new storage within this reach of the Snake River.

A number of studies focusing on water storage as one potential measure for addressing water supply demand and flood risk reduction are underway. This section provides a brief description of the most significant studies that have been initiated or are in the planning process.

##### **Henry’s Fork Project/Teton River Basins**

The Board and the U.S. Bureau of Reclamation are conducting a study of water resources in the Henry’s Fork/Teton River Basins to develop alternatives for improving water supply conditions in the Eastern Snake Plain Aquifer and upper Snake River Basin. These alternatives include new water storage projects, enlargement of existing reservoirs,

**Implementation Strategies:**

- Participate with state and federal agencies in FERC relicensing proceedings to ensure the new FERC license for the HCC is consistent with the State Water Plan.

**Milestones:**

- When issued, FERC license consistent to Idaho State Water Plan.

**4J - SNAKE RIVER FISH, WILDLIFE, RECREATION, AND SCENIC RESOURCES**

**The minimum stream flows set forth in Policy 4A provide adequate flows for Snake River fish, wildlife, recreation, and scenic values in the main stem Snake River below Milner Dam. Protection for fish, wildlife, recreation, and scenic uses in tributaries to the Snake River should be addressed through Part B of the State Water Plan and the establishment of minimum stream flows pursuant to Chapter 15, Title 42, Idaho Code. The Board finds that implementation of the collaborative agreements provide benefits for fish, wildlife, recreation, and scenic values.**

**Discussion:**

In addition to the Policy 4A main stem Snake River minimum stream flows, over fifty minimum stream flows have been established in the Snake River Basin above the HCC and protected rivers have been designated through the adoption of Part B state water plans. Additional protections for fish, wildlife, recreation, and scenic resources in Snake River tributary streams should be pursued through the Board's minimum stream flow and water planning processes.

The State has entered into a number of voluntary agreements that benefit fish, wildlife, recreation, and scenic values while protecting existing water rights and uses and providing for economic stability. The agreements described below.

**Snake River Flow Augmentation**

The State of Idaho, as part of the 2004 Snake River Water Rights Agreement, established a flow augmentation program that provides water for salmon and steelhead listed under the ESA. Pursuant to the provisions of the biological opinion for the Federal Columbia River Power System ("FCRPS"), and the 2004 Snake River Water Rights Agreement, the U.S. Bureau of Reclamation annually seeks to rent up to 487,000 acre-feet of water from willing lessors in Idaho for Snake River flow augmentation to assist in offsetting the impact of the FCRPS. Although flow augmentation from the upper Snake River has proven to be controversial because of the uncertainty regarding specific benefits to ESA-listed fish, the State of Idaho cooperates with the federal program (see Idaho Code § 42-1763B) as a means of providing incidental take coverage for U.S. Bureau of Reclamation project operations in Idaho.

This flow augmentation program consists of two tiers. Tier 1 minimum flows are those established through implementation of the Swan Falls Settlement. Tier 2 provides for the rental of up to 427,000 acre feet of storage water in accordance with the provisions of Idaho Code § 42-1736B and the Snake River flow component of the 2004 Snake River Water Rights Agreement. The 2004 Snake River Water Rights Agreement also allows for the United States to rent up to 60,000 acre feet of consumptive natural flow water rights through the Board's water bank in accordance with state law. The Board acquired the natural flow water rights of the Bell Rapid's irrigation project and is leasing a portion of those water rights to the U.S. Bureau of Reclamation to provide the 60,000 acre feet of natural flow water. The rental agreement provides that "protection of the Leased Water . . . will result in the protection of 48,320 acre-feet during the period of April 10 through August 31 of each year for the term of the Agreement."

The state agreed to the implementation of the flow augmentation program for the term of the Biological Opinion as a means of protecting existing water rights and uses and providing for economic stability. It is important, however, that evaluation of the efficacy of flow augmentation be conducted in conjunction and/or cooperation with other State and Federal agencies and regional interests.

### **Hells Canyon National Recreation Area**

The early controversy over the development of Hells Canyon gave rise to emerging concerns about the preservation of the region's natural features and ultimately led to enactment of the Hells Canyon National Recreation Area Act of 1975, which precluded future hydropower development in the Hells Canyon reach of the Snake River. The Act also designated the Snake River as "wild" (Hells Canyon Dam to Pittsburg Landing) and "scenic" (Pittsburg Landing to 37 miles south of Lewiston) to preserve the free-flowing character and unique environment while providing for continued public use. While providing protection to these important resources, the Act also protects present and future uses of the waters of the Snake River for consumptive or non-consumptive beneficial uses, including domestic, municipal, stock water, irrigation, mining, power, and industrial uses. The Act specifically provides that no flow requirements of any kind may be imposed on the waters of the Snake River below Hells Canyon Dam under the provisions of the Act, or any rules, regulations, or guidelines adopted pursuant to the Act. Pursuant to an agreement between the state and the federal government, the United States' federal reserved water rights associated with the HCNRA are limited to the tributary streams of the Snake River within the HCNRA. The decrees quantifying the federal reserved water rights on streams tributary to the main stem Snake River contain subordination provisions that protect existing rights and allow for a limited amount of future development on the tributary streams.

### **Owyhee Initiative**

In 2009, Congress enacted the Owyhee Public Land Management Act, Pub. L. 111-11, 123 Stat. 1037. This Act set aside certain lands in southwestern Idaho as wilderness. The Act was the result of a collaborative effort initiated by the Owyhee County Commissioners to resolve decades-old land management issues in Owyhee County. The goal was to develop and implement a landscape-scale program that preserves the natural character of the area while providing for economic stability and growth. Central to local

# **IDAHO DROUGHT PLAN**

*with*

## **FEDERAL WATER-RELATED DROUGHT RESPONSE PROGRAMS**

**Idaho Department of Water Resources  
Planning and Technical Services Division  
Boise, Idaho**

*Revised*

**May 2001**



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## TABLE OF CONTENTS

1	Introduction, Purpose and Scope.....	1
2	Idaho Water Supply Committee.....	1
2.1	Goals.....	1
2.2	Organization.....	5
	Water Data Subcommittee.....	5
	Public Information Subcommittee.....	5
	Agricultural Subcommittee.....	5
	Municipal, Industrial, and Water Quality Subcommittee.....	5
	Energy Subcommittee.....	5
	Fish, Wildlife, Recreation, and Environmental Subcommittee.....	5
	Economic Subcommittee.....	5
3	Drought Conditions and Assistance.....	7
3.1	Definition.....	7
3.2	Indicators.....	7
	Palmer Drought Index.....	7
	Surface Water Supply Index.....	7
3.3	Identification of Drought-Related Problems.....	8
3.4	Drought Declaration.....	9
3.5	Federal Assistance Programs.....	9
3.6	State Assistance Programs.....	9
4	Water Supply Estimation.....	12
4.1	Climatological Data.....	12
4.2	Snow Surveys.....	12
4.3	Gaging Stations.....	12
4.4	Streamflow Forecasts.....	14
5	Water Conservation.....	14
5.1	Information and Education.....	14
5.1	Weather Modification.....	15
6	Organizational Authority and Responsibility.....	16
6.1	State Agencies.....	16
	Idaho Department of Water Resources.....	16
	Idaho Bureau of Disaster Services.....	16
	Idaho Department of Environmental Quality.....	17
	Idaho State Department Agriculture.....	19

## *Idaho Drought Plan*

6.2 Federal Agencies .....	19
Farm Service Agency.....	19
Risk Management Agency.....	21
U.S. Bureau of Reclamation.....	21
U.S. Army Corps of Engineers.....	22
U.S. Natural Resources Conservation Service.....	23
U.S. Geological Survey.....	24
National Weather Service.....	24
U.S. Forest Service.....	25
USDA State Emergency Board.....	26
6.3 Local Governments.....	26
Counties.....	26
Cities.....	26
7 Water Administration and Distribution.....	27
7.1 Water Distribution Authority.....	27
7.2 Irrigation Districts and Canal Companies.....	28
Unincorporated Mutual Ditch Groups.....	28
Incorporated Mutual Ditch or Canal Companies.....	28
Irrigation Districts.....	29
Other Management Groups.....	29
7.3 Special Water Administrative Actions.....	29
7.4 Water Supply Banks.....	30
8 Water Supply Problems.....	34
8.1 Agriculture.....	34
8.2 Recreation and Tourism.....	35
8.3 Municipal, Domestic, and Livestock Water.....	37
8.4 1988 Irrigation Survey.....	37
9 References.....	38

**APPENDIX A** Federal Water-Related Drought Response Programs

**APPENDIX B** Local Emergencies and Disaster Declarations

**APPENDIX C** Reclamation States Emergency Drought Relief Act of 1991

**APPENDIX D** USDA-NRCS – *Tips for Stretching Short Water Supplies*

**APPENDIX E** Water Conservation Information

**APPENDIX F** Irrigation Survey of 1988 Water Delivery and Use (form)

**APPENDIX G** Web Page Addresses of Applicable State and Federal Agencies

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## 1 Introduction, Purpose and Scope

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The purpose of this plan is to provide current and historic information, guidance and a framework for managing water shortage situations in Idaho. Every drought has its own set of unique problems and impacts. It is difficult to present a plan that comprehensively details and addresses all of them.

The information presented in this plan outlines and describes technical issues, and documents activities accomplished in the 1977 and 1987 through 1994 water shortages. The *Idaho Drought Plan* is also designed as a resource and educational tool to be used when future water shortages occur. To that end, federal water-related programs that may assist in times of drought are described in Appendix A. State assistance programs, although very limited, are included in Section 3.6.

Idaho usually has adequate surface water supplies, but these water supplies are cyclic. Some years there is too much water and other years not enough. Idaho has experienced a number of water shortages. The earliest well-documented shortages occurred in the 1920's and 30's during the Dust Bowl era. These historic records are still used today as a benchmark in evaluating potential problems. Idaho has not been without problems since then, however. Figure 1 shows the occurrence of drought conditions from 1950 to 1995 for several areas around the state. During the early 1960's several areas in the state experienced water shortages. In 1977, the worst single year on record, a severe water shortage occurred throughout Idaho and the West. In 1987 the water supply ranged from 10 to 50 percent below normal over many areas of the state. The impacts were kept to a minimum because of a good reservoir carry-over supply from 1986 and judicious use of water. In 1988, even though the overall supply was better—about 70 percent of normal—the impact was greater due to poor carry-over reservoir storage and dry soil conditions. Conditions in 1991 and 1992 mirrored conditions in 1987 and 1988. Overall, conditions between

1987 and 1993 in the southwestern part of Idaho have displaced the Dust Bowl period of the 1930's as the most severe period of drought on record.

State, federal and local agencies directed considerable effort toward drought planning and assistance as a result of the 1977 drought. Valuable information was collected, many water supply problems were addressed, and drought response procedures were developed. An important item not completed in 1977, though, was the production of a "Drought Plan." In 1990 a plan was designed to fill that need, and was revised in 1995. The current plan updates information from the 1990 and 1995 plans and is reflective of continuing drought conditions and ongoing efforts to find viable responses to problems resulting from drought.

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## 2 Idaho Water Supply Committee

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### 2.1 GOALS

As soon as information concerning the upcoming year's water supply becomes available, the Idaho Department of Water Resources (IDWR) begins analyzing the data to determine if there is potential for a water supply problem. If it becomes apparent that a problem could occur, IDWR will alert the Governor's Office and will organize a Water Supply Committee to coordinate all drought-related activities in Idaho. This will reduce confusion and provide the public with the best possible advice on steps that can be taken to minimize the drought's impact. This committee will:

1. Compile all data to provide the most comprehensive information available concerning the drought.
2. Coordinate with the various agencies to avoid conflict or duplication and expedite the administrative process.
3. Provide responsible and timely public information.
4. Encourage water and energy conservation.

The committee will be composed of key state, federal and private agencies that have interests, constituents and responsibilities that may be impacted by the water supply situation. The standing Water Supply Committee will be composed of, but may not be limited to, the following agencies:

- Idaho Department of Water Resources (Chair)
- Idaho Bureau of Disaster Services
- Idaho Department of Environmental Quality
- Idaho Department of Agriculture
- University of Idaho Cooperative Extension Service
- Idaho Department of Fish and Game
- Idaho Department of Commerce
- U.S. Bureau of Reclamation
- National Weather Service
- USDA Natural Resources Conservation Service
- U.S. Army Corps of Engineers
- U.S. Geological Survey
- U.S. Forest Service
- USDA Farm Service Agency
- Idaho Power Company

The Water Supply Committee will meet and review the best information available relative to the water supply. The committee will implement the response process with the following goals:

1. Ensure adequate supplies of domestic (culinary) water are available for public health, safety and welfare as a first priority.
2. Minimize adverse drought effects on the state's economy, environment and social well-being.

- a. Maintain municipal supplies to meet community needs.
- b. Efficiently use available water supplies to provide for agricultural needs. Farm activities must be planned with knowledge of anticipated water supplies.
- c. Maintain productive Idaho industries to provide a stable local economy.
- d. Water and land management practices should be modified, where possible, to minimize environmental impacts.
  - i. Fish and wildlife will be protected to the extent practical by water and land management.
  - ii. Recreation interests will be protected to the extent practical by water and land management.
  - iii. Forest and range hazard due to fire and erosion will be minimized to the extent practical by land management.
- e. Electrical energy conservation practices should be instituted to assure an adequate supply for all purposes.
- f. Reservoir storage and releases should be carefully managed to maximize total water-related benefits.
- g. Navigation capability, where essential to the economic well-being of a community, must be protected to the extent possible through streamflow management.

If a severe water shortage appears possible, the committee may develop a formal contingency plan using the planning flow chart in Figure 2 as a guide. During the 1987-94 period, steps one and two of the contingency plan were partially implemented. There were several reasons for this, the most important being that, even though the shortage was the worst in 50 years, it was not necessary for state government to implement a demand reduction program. The committee encouraged steps three and four to be the responsibility of local city or county governments. The committee provided technical and administrative support and helped local governments develop programs suited to their individual problems. Steps five and six were also partially implemented. A drought plan was developed and the Water Data Subcommittee implemented a monitoring program.

(SEB). FSA has the responsibility of reporting to the Secretary of Agriculture on disaster conditions in agricultural counties through the use of Disaster Assessment Reports. Local County Emergency Boards compile these assessment reports.

FSA administers agricultural programs when legislated by the U.S. Congress. Permanent disaster assistance programs available through FSA are Emergency Loans and the Emergency Conservation Program. Both of these programs provide assistance to agricultural producers affected by eligible disaster conditions.

#### ***Risk Management Agency***

The USDA Risk Management Agency (RMA) provides agricultural producers with the opportunity to achieve financial stability through effective risk management tools. The primary goal of RMA is to foster, at reasonable cost, an environment of financial stability, safety, and confidence, enabling the American agricultural producer to manage the perils associated with nature and markets. The private-sector crop insurance industry markets, delivers, and services many USDA risk management products. RMA also provides educational opportunities to help producers choose appropriate risk management tools. RMA works with the Farm Service Agency, Commodity Futures Trading Commission, and other private and public organizations to provide producers with an effective farm safety net.

RMA partners with USDA sister agencies throughout the Department, particularly with those within the *Farm and Foreign Agricultural Services (FFAS) Mission Area*. The FFAS mission area, comprised of the Farm Service Agency, the Foreign Agricultural Service, and the Risk Management Agency, helps keep America's farmers and ranchers in business as they face the uncertainties of weather and markets. They deliver commodity, credit, conservation, disaster, and emergency assistance programs that help improve the stability and strength of the agricultural economy. FFAS contributes to the vitality of the farm sector with programs that encourage the expansion of export markets for U.S. agriculture. In cooperation with the private sector, this mission area offers broad-based crop insurance programs and other risk management tools.

#### ***U.S. Bureau of Reclamation***

The Bureau of Reclamation (BOR) responds to drought through its resource management and technical functions to reduce the adverse impacts of periodic water shortages.

*Project Sizing.* BOR considers that water supplies will be variable when it plans the size of water storage projects. While it may vary from project to project for irrigation, BOR uses a "rule of thumb" during project planning that allows no more than a 50 percent shortage in any one year and cumulative shortages over any consecutive 10-year period of no more than 100 percent of a full supply. This shortage criteria is designed to ensure the long-term economic viability of project irrigators from a water supply standpoint.

- *Water Conservation and Efficiency Improvement.* Efficiency improvements can reduce the impact of water shortages. Planning water conservation and resulting implementation can occur on new or existing projects. BOR has several programs that can provide long-term and drought contingency planning and response assistance.

1. General Investigations - General investigative studies are usually multi-year efforts dealing with complex projects. These studies require congressional funding and 50 percent local cost share. The cost sharing can occur through either fund transfers or services. A successful study concludes with a plan of action submitted to Congress for authorization and funding. Project beneficiaries repay costs of the project usually over a 40- or 50-year period.
2. Technical Assistance in Water Conservation Planning - BOR's regional and area offices can provide assistance in the development and implementation of water conservation plans. The Reclamation Reform Act of 1982 requires entities that contract for Federal project water supplies to develop and periodically update water conservation plans; and BOR is developing and administering a

program to assist users in the preparation, review and updating of water conservation plans. Technical assistance is provided on a reimbursable or non-reimbursable basis, depending on the nature of the assistance.

*Project Operations.* BOR is responsible for operating federal-reserved works of various projects in Idaho. In its water delivery capacity, BOR adheres to state water rights and project contract obligations and seeks to use the water resource in an efficient manner. These efficiency methods are of particular value in water-short years.

- BOR participates in gathering data on snowpack, precipitation, reservoir storage contents, streamflows, major diversions and return flows. It makes runoff forecasts with this information and uses modeling techniques to help project the coming year's water supply. Entering into and during the irrigation season, BOR meets monthly with water users to share the water supply information. These discussions allow water users to make decisions on upcoming water delivery schedules and to implement programs to efficiently use the available resource.
- Through a cooperative program with the Bonneville Power Administration, BOR operates a series of automated weather stations and inputs weather data into programs that develop estimates of crop water use. By using this program, known as AgriMet, irrigators can use their water supply more efficiently and increase the quality and quantity of their crops.
- BOR can assist water users to effect water transfers between willing buyers and sellers within and between districts.
- BOR can also facilitate programs with states and water users to implement efficiency measures such as water banks and scheduling agreements.
- BOR coordinates its reservoir and river operations with recreation and fish and wildlife interests when major operational

changes are required. Cooperative discussions seek accommodation on streamflow and reservoir pool levels, where possible, to protect environmental values.

- BOR maintains an emergency fund of about \$1 million that it could use for drought-relief actions on its projects. Since this fund is available to projects in the 17 Reclamation states, assistance would be limited.

*Emergency Assistance.* The Reclamation States Drought Emergency Assistance Act of 1991 gave BOR the authority to provide assistance to states, water supply entities and others under a drought assistance request from the governor. Those assistance activities requiring a monetary contribution depend upon appropriation of funds by the Congress (see Appendix C).

*Contingency Planning.* BOR anticipates that it will become involved in working with the state and others preparing drought contingency plans in the coming decade. These contingency plans will not be strictly limited to the boundaries of BOR projects.

### **U.S. Army Corps of Engineers**

Under Public Law 84-99, the U.S. Army Corps of Engineers (COE) may provide emergency water assistance when that assistance is needed due to drought. Engineering Regulation 500-1-1 describes COE authority, policies and procedures for emergency water assistance.

The responsibility for providing an adequate supply of water to inhabitants of any area is basically non-federal. COE assistance to provide emergency water supplies will only be considered when other interests have exhausted reasonable means for securing necessary water supplies, including assistance and support from other federal agencies such as the Small Business Administration, Agriculture Stabilization and Conservation Service, Economic Development Administration, etc.

companies to augment general state corporation law. Management is provided by a board of directors elected by the shareholders in accordance with the provisions of the company's by-laws.

Stock in a mutual ditch company is issued pursuant to the articles of incorporation or as provided for in the by-laws. The stock certificate represents a pro-rata right of ownership to the water supply of the ditch company. Stock is most commonly apportioned among shareholders on the basis of the number of acres of land to be irrigated or shares of water held. Expenses for the operation, maintenance and other costs of the company are assessed on the basis of stock ownership held.

### **Irrigation Districts**

In 1902 Congress passed the National Reclamation Act. In Idaho, under its provisions, large modern irrigation systems governed by irrigation districts were developed. These include Rathdrum Prairie, Palisades, Michaud Flats, Minidoka, Little Wood River, Boise, Owyhee and Lewiston Orchards projects. These represent a large percentage of the acreage of irrigated land in the state.

Irrigation districts are quasi-public organizations formed for the purpose of securing water for irrigation and to provide ways and means of applying that water to the soil for reclamation purposes. State statutes have been enacted to enable those interested in the development and productivity of land to organize irrigation districts. These statutes provide for the irrigation and drainage of lands within the district. They also authorize districts to contract with the United States under the federal reclamation laws to construct irrigation and drainage works necessary to maintain the irrigability of the land, or to acquire, purchase, extend, operate, or maintain constructed irrigation works for the district.

A board of directors elected as prescribed by state statute governs irrigation districts. The board serving an irrigation district has broad powers to carry out the functions and purpose of irrigation districts as specified by state statutes. It can specifically assess the land for the financial needs of the district, as well as construct, acquire, purchase or condemn property, and make and execute all necessary contracts. A board can also employ such agents, attorneys, officers and employees as may be required to meet the needs of

the district. However, some costs to be incurred and some actions proposed by the board of directors must be approved by the electors of the district before action is taken.

The district also owns or controls all irrigation facilities, equipment and water rights used to irrigate the lands within the district. It may also rent water or contract for a water supply with the United States.

### **Other Management Groups**

In order to improve and more efficiently manage them, groups of canal companies have consolidated administrative and management functions and operate under a joint board. In the most complex situations where the watermaster, representatives of the United States and a large number of operating groups are involved, a small committee has been formed to provide overall guidance.

## **7.3 SPECIAL WATER ADMINISTRATIVE ACTIONS**

The Department of Water Resources can take the following actions to provide for full use of the available water supply, in accordance with valid rights for its use, during water shortages:

1. Increase supervision of water distribution from adjudicated sources.
  - a. Create or restore water districts for adjudicated streams as needed to distribute water to rightholders (regional offices and central office staff will be asked to identify streams that have been adjudicated, or which water districts may need to be established, and develop procedures for doing so);
  - b. Finalize and send copies of the *Watermaster Handbook* for use by watermasters and IDWR staff;
  - c. Provide staff training workshops on watermaster supervision for regional personnel; and
  - d. Hold training seminars at each region or one-on-one training as needed for watermasters.

2. Increase water right enforcement for non-adjudicated sources.

In water short years IDWR usually receives a number of reports and complaints concerning unauthorized use of water. As water users and the general public become aware of IDWR's increased authority under *Idaho Code* §§ 42-351 and 42-1701B, IDWR's ability to respond will be enhanced by:

- a. Issuance of a policy memo to guide staff action;
  - b. Staff training sessions; and
  - c. Issuance of letters to local law enforcement officers concerning handling of water right complaints.
1. Define procedures to expedite processing of applications for replacement water supplies.
    - a. Section 42-222A, Idaho Code, authorizes the department to grant expedited temporary change approvals after IDWR and the Governor have declared a drought emergency.
    - b. Section 42-202A, Idaho Code, authorizes the department to give expedited approvals for temporary uses of water up to 5 acre-feet per year.

#### 7.4 WATER SUPPLY BANKS

The first example of water banking in Idaho was a rental pool employed for many years by the water users in eastern Idaho to allow entities with surplus storage to make it available to others that found their water supplies short in a particular year. Many canal companies hold natural flow rights with priorities that are adequate to provide a full supply of water except in years of low streamflow. In the good-to-high runoff years, the company finds itself with surplus water. It then must weigh the benefit to be received from renting the storage to another user against the risk that the storage space may not refill during the following season. If the risk is seen to be reasonable, the surplus is made available for other users.

The first known annual rental pool transfers occurred during the drought period of the 1930's when 14,700 acre-feet of water were rented for \$0.17 per acre-foot in 1932 and 40,000 acre-feet for \$0.25 per acre-foot in 1934. The annual rental

price increased to \$0.75 per acre-foot in 1978 with part of the fee going to the entity supplying water to the rental pool and part going to the water district to cover administrative costs.

In 1979 the Idaho Legislature formalized the program of annual leases of storage water entitlement. This followed a policy recommendation of the state water plan that was adopted by the Idaho Water Resource Board in 1976.

*A water supply bank should be established for the purpose of acquiring water rights or water entitlement from willing sellers for reallocation by sale or lease to other new or existing uses. Legislation authorizing the water supply bank should also provide for the bank to be self-financing . . . (Idaho State Comprehensive Water Plan - Part Two, December 29, 1976, p. 100; Idaho Code §§ 42-1761 through 42-1765).*

Holders of existing rights may propose placing their natural flow water rights in the state water bank under the Water Resource Board or placing their storage water rights in rental pools operated by local committees appointed by the Board. The proposal to place the right in the bank is then submitted to the Director of the Idaho Department of Water Resources, who may approve or deny it based on consideration of several criteria.

Rental pool transactions generally result in changes in point of diversion of storage water, or changes in place or purpose of use. Such changes also have to meet several tests before being rented from the pool including:

1. Will the proposed use injure other existing water rights;
2. Is the water supply sufficient for the purpose for which it is sought;
3. Would the rental cause the use of water to be expanded beyond that authorized under the water right;
4. Will the water be put to a beneficial use; and
5. Will it conflict with the local public interest?

*Idaho Code* § 42-1765 provides that the Board may appoint a local committee to administer the rental pool. If this is done, the

Board approves the procedure of the local committee, which must provide protection to other water rights. The map on the next page shows the existing local rental pools/water supply banks (Figure 6).

In 1979 the Water Board appointed the Committee of Nine, which is the water district advisory committee, as the local committee to administer the program in the Upper Snake River basin (Water District 01). This district covers all of the area of the state served by water from the Snake River from the Wyoming border to the Milner diversion dam near Twin Falls. The river irrigates about 1.2 million acres from natural flows held by private canal companies together with about 4.1 million acre-feet of storage space in federal and private reservoirs. To date, all transactions have involved storage water from federal reservoirs.

The rental price for 2000 is \$2.95 per acre-foot, including the District administrative charge of \$0.75 per acre-foot and the Water Board surcharge of \$0.20 per acre-foot, for water diverted for uses above Milner Dam.

The 2000 rental price for water delivered below Milner Dam is \$10.50 per acre-foot, which includes the District administrative charge of \$0.75 per acre-foot and the Board surcharge of \$0.70 per acre-foot. An additional \$2.05 per acre-foot shall be held by the District for the primary purpose of offsetting costs associated with the Endangered Species Act and Federal claims and for the general improvements of the water district, including stream-gauging, automation, and hydrologic investigations in the District.

Any storage space holder who puts water in the rental pool for lease and then subsequently removes all or part of the water for the rental pool is charged a \$0.75 per acre-foot administrative charge by the District for the water with draw-down.

The rental pool procedures favor use of water for irrigation purposes. The reason for this is that the use of water for irrigation within the original service area of the federal reclamation projects results in return flow, which is available for reuse locally. Any use of water for power purposes downstream from the lowest diversion dam on the system makes the storage space subject to a "last to refill" rule for the following season. This has been one of the more controversial rules but one

that is believed to be essential to protect the water-right priority system.

Figure 7 shows the quantities of water which have been placed into the rental pool and which have been used for power/flow augmentation or irrigation purposes each year since the bank was created in 1979.

Several conclusions can be drawn from the rental pool record of use. First, the major use of water placed into the pool over the years has been for hydropower production and flow augmentation to benefit anadromous fish migration (Figure 7). Water for this purpose is turned out of the upstream reservoirs and passes through a series of 11 hydropower dams operated by the Idaho Power Company before leaving the state at Lewiston. The second conclusion is that the rental pool worked as intended in 1988 (the second year of the current drought) by providing over 136,000 acre-feet of water for irrigation companies which found themselves short that year.

In 1988 a second rental pool was started in the Boise River drainage basin. This system serves about 300,000 acres of irrigated farmland with natural flow and about one million acre-feet of storage in three federal reservoirs. The drought years of 1987-1989 brought about a desire for some flexibility in the management of the available water supplies, particularly the storage water. The price of stored water (including the administrative fee of \$0.32 per acre-foot) assigned to the rental pool shall be set by and approved by the Advisory Board of Water District 63 (Committee) each year. The 2000 rental price is \$6.50 in-basin and \$6.93 out-of-basin per acre-foot, which includes an administrative fee and the 10 percent surcharge in compliance with Idaho Water Resource Board Water Bank Rule 6.2.

In 1988 the Boise River rental pool took in and leased 26,518 acre-feet of water, which were used for irrigation purposes. In 1989 only 800 acre-feet of water were made available, of which 161 acre-feet were subsequently leased. Part was used to replace the effects of pumping of wells located near the river and part was used directly for irrigation purposes.

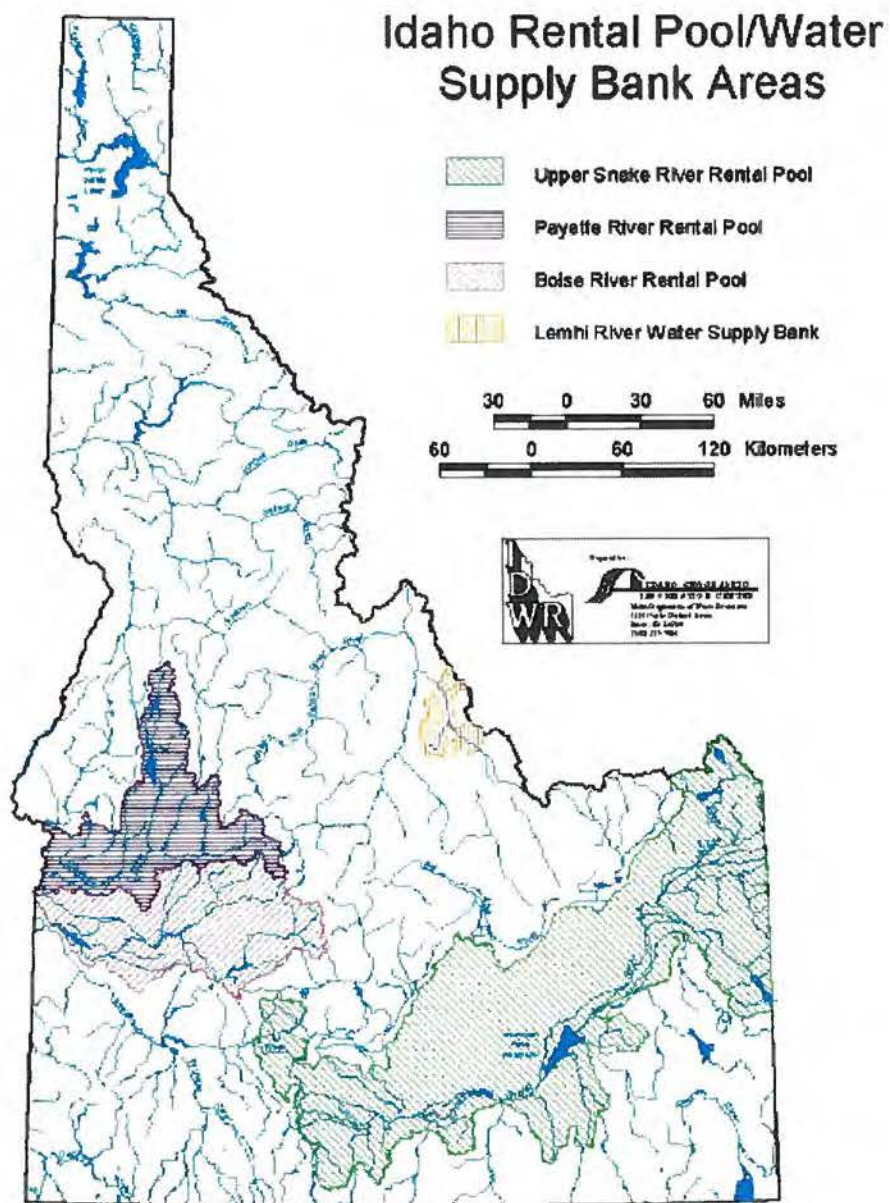


Figure 6. Idaho rental pool/water supply bank areas.

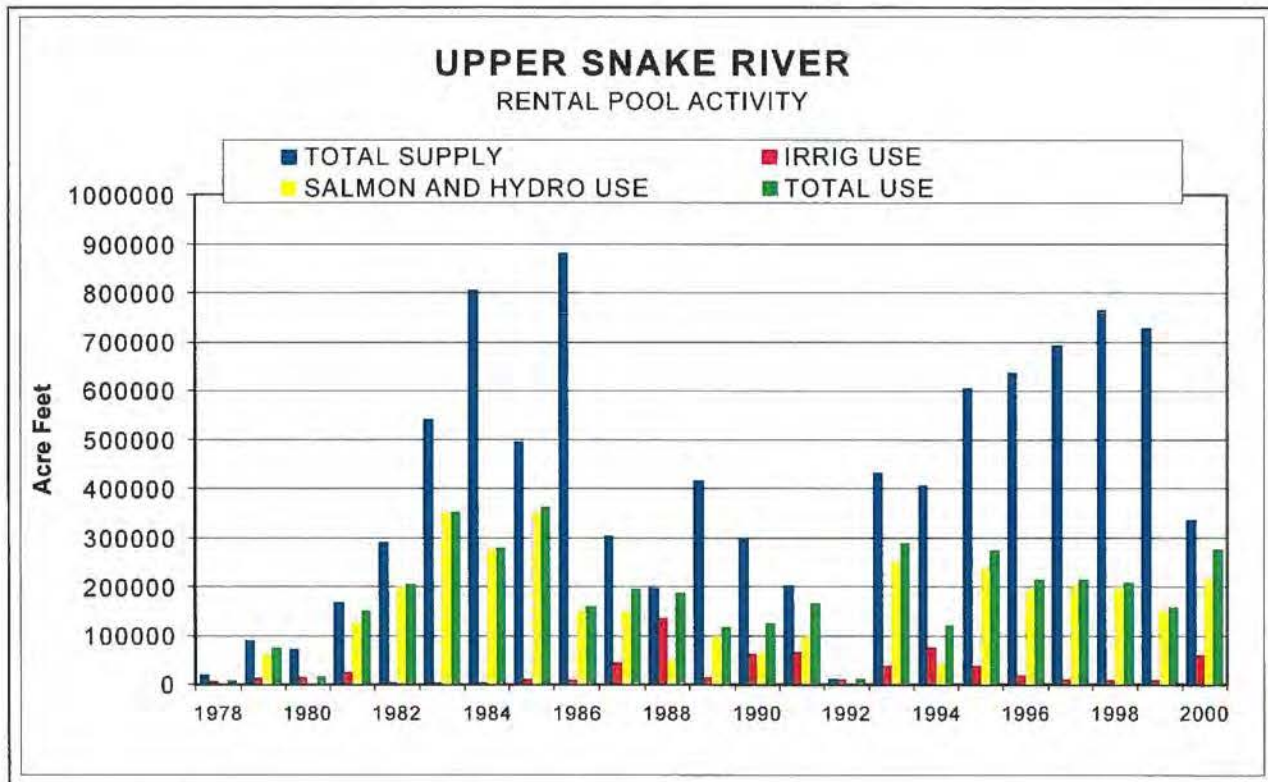


Figure 7. Upper Snake River rental pool supply and use.

In April 1990, the Idaho Water Resource Board approved the appointment of the advisory committee of local Water District 65, Payette River, to serve as the local committee to operate a rental pool in the Payette River Basin. This action facilitates the rental of stored water in the basin. Water District 65 extends from Mile Marker 5 (a point just upstream from the diversion of Washoe Ditch), upstream to the base of Black Canyon Dam. Water from any reservoir storage in the entire Payette River Basin can be placed in the rental pool. The 2000 price of stored water (including the administrative fee of \$1.00 per acre-foot) rented from the rental pool for use upstream from the mouth of the Payette River is \$3.20 per acre-foot plus a \$0.20 surcharge due the Board, under Idaho Water Bank rules and regulations. The price of stored water rented from the pool for use downstream from the mouth of the Payette River is \$5.65 plus \$0.42 surcharge due the Board, and \$1.00 per acre-foot administrative fee paid to the District. From the total price, \$4.23 per acre-foot shall be paid to the lessors, \$2.23 of which is for improvements within the lessor's delivery system. Special emphasis is given to improvements for better water management, water quality, and water use efficiencies. In the case that another pool or space holder should lease water for the purpose of arbitrage and consequently seek to secure replacement water from the rental pool, the price shall be the amount charged by that rental pool or space holder plus an additional \$1.00 per acre-foot administrative charge.

The 51<sup>st</sup> Idaho Legislature (2001) passed legislation authorizing the Idaho Water Resource Board to appropriate a minimum stream flow water right and to establish a water supply bank on the Lemhi River. The minimum stream flow and water supply bank were created to secure natural flow water to enhance anadromous fish passage. The legislation also provided for the appointment of a local rental committee to facilitate operation of the water supply bank. This is the first natural flow water supply bank operated in Idaho by a local committee.

In addition to these rental pools, there is opportunity for other water to be placed directly with the Board in the statewide program. This statewide bank has seen only very limited activity related to water rights for idle farmland.

The Idaho Legislature has enacted legislation that protects water rights placed in the water supply bank from the operation of state forfeiture statutes, which otherwise provides that water rights not exercised during a five-year period are lost. This will encourage more holders of rights to place them in the bank and make the water available for use for more productive purposes.

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## **8 Water Supply Problems**

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### **8.1 AGRICULTURE**

The valleys of the Snake River Plain and about 20 tributary streams are the major irrigated agricultural areas in Idaho. Irrigated agriculture accounts for 95 percent of the "consumptively" used water in Idaho; these are generally arid and semi-arid areas that require irrigation to produce crops.

Some irrigated agricultural areas in the state do not have storage reservoirs to bank water for future needs and are at the mercy of natural streamflow conditions. For example, there are small irrigated areas scattered across the Snake River Basin, some are above storage reservoirs and some in valleys of tributary streams to the Snake River.

There are also smaller basins in northern Idaho and some mountain valleys throughout the state that have irrigation. Some of these use ground water, but others rely on surface water. During low water years, the areas relying on surface water suffer from water shortages. They have more land to irrigate than low flows will provide for and no storage to supplement the flows. Under these conditions, farmers normally will forgo irrigating forage crops (hay and pasture) and use what water they have on cash crops (grain, potatoes, corn, etc.).

In some of these areas where ground water is available, wells have been drilled to back up and provide a more stable source of water supply and to protect against low water years. This alternate source, however, has been overdrafted in a number of areas such as those south of the Snake River, resulting in the designation of critical

# Eastern Snake Plain Aquifer (ESPA)

## Comprehensive Aquifer Management Plan



ADOPTED BY **Idaho Water Resource Board**

JANUARY 2009

BEFORE THE IDAHO WATER RESOURCE BOARD

IN THE MATTER OF THE )  
EASTERN SNAKE PLAIN AQUIFER ) RESOLUTION  
COMPREHENSIVE AQUIFER MANAGEMENT )  
PLAN )  
\_\_\_\_\_ )

WHEREAS, the Idaho Water Resource Board (IWRB), pursuant to its planning authorities in Article XV, Section 7 of the Idaho Constitution, and Idaho Code 42-1734A, has completed a Comprehensive Aquifer Management Plan for the Eastern Snake Plain Aquifer as requested by Senate Concurrent Resolution 136 passed and approved by the 2006 Idaho Legislature; and

WHEREAS, the Board is directed to identify goals and objectives, as well as make recommendations for improving, managing, developing or conserving the water resources of the aquifer in the public interest; and

WHEREAS, the Board has sought and received substantial public participation and comment throughout the planning process.

NOW, THEREFORE, BE IT RESOLVED that the IWRB hereby adopts the attached Comprehensive Aquifer Management Plan and directs that it be submitted to the Idaho Legislature.

DATED this 29h day of January, 2008.



TERRY T. UHLING, Chairman  
Idaho Water Resource Board



ATTEST  
BOB GRAHAM, Secretary

Attachment 1 to Meeting 3-09  
Date 1-29-09  
Idaho Water Resource Board

# TABLE OF CONTENTS

<b>ACRONYMS &amp; KEY TERMS</b>	<b>1</b>
<b>1.0 EXECUTIVE SUMMARY</b>	<b>4</b>
<b>2.0 BACKGROUND</b>	<b>6</b>
2.1 Management Alternative Analysis	7
2.2 Plan Implementation Benefits	7
2.3 Consequences of Inaction	8
<b>3.0 PLAN RECOMMENDATIONS</b>	<b>10</b>
3.1 Long-Term Hydrologic Goal	10
3.2 Phase I Hydrologic Targets	11
3.2.1 Phase I Actions	18
3.2.2 Additional Plan Recommendations	23
3.3 Phase I Implementation Plan	24
<b>4.0 ADAPTIVE MANAGEMENT</b>	<b>26</b>
4.1 Coordination & Implementation	26
4.2 Monitoring & Evaluation	27
4.3 Legislative Reporting & Plan Review	27
<b>5.0 APPENDICES</b>	<b>28</b>
A. Advisory Committee Membership	28
B. Funding Recommendations	30

## List of Tables & Figures

<b>Figure 1</b>	Eastern Snake Plain	2
<b>Figure 2</b>	Eastern Snake Plain Aquifer Region Key Locations	5
<b>Figure 3</b>	Eastern Snake Reaches	6
<b>Figure 4</b>	Snake River: Ashton to Minidoka Reach	12
<b>Figure 5</b>	Hydrographs of Simulated River Reach Gains Resulting from Phase I Implementation, in the Ashton to Minidoka Reach	13
<b>Figure 6</b>	Snake River: Devils Washbowl to Bancroft Reach	14
<b>Figure 7</b>	Hydrographs of Simulated River Reach Gains Resulting from Phase I Implementation in the Devils Washbowl to Bancroft Reach	15
<b>Figure 8</b>	Locations of Hydrographs Shown in Figure 9	16
<b>Figure 9</b>	Hydrographs of Simulated Groundwater Level Changes at Selected Locations Resulting from Phase I Implementation	17
<b>Table 1</b>	Acronyms & Key Terms	1
<b>Table 2</b>	Plan Hydrologic Targets	11
<b>Table 3</b>	Phase I Funding Participation Targets	24

## ACRONYMS & KEY TERMS

Table 1 – Acronyms & Key Terms

Committee	Eastern Snake Plain Aquifer Comprehensive Aquifer Management Plan Advisory Committee
BOR	United States Department of Interior Bureau of Reclamation
CAMP	Comprehensive Aquifer Management Plan
cfs	Cubic feet per second
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
ESPA	Eastern Snake River Plain Aquifer or Eastern Snake Plain Aquifer
EQIP	Environmental Quality Incentive Program
IDWR	Idaho Department of Water Resources (also abbreviated as “Department”)
IWRB	Idaho Water Resource Board (also abbreviated as “Board”)
kaf	Thousand acre-feet
M&E	Monitoring and Evaluation
Plan	Eastern Snake Plain Comprehensive Aquifer Management Plan
TEMP	Temperature Enhancement Management Program

## INTRODUCTION

House Concurrent Resolution No. 28, adopted in 2007, directed the Idaho Water Resource Board (Board) to pursue, with support from the Idaho Department of Water Resources (Department), development of a comprehensive aquifer management plan based on the recommendations made in the Eastern Snake River Plain Comprehensive Aquifer Management Plan Framework (Framework). The Framework was adopted by the Board in 2006 and set forth the overarching goals and objectives for the management of the Eastern Snake Plain Aquifer (ESPA).

This document presents a Comprehensive Aquifer Management Plan (Plan) for the ESPA. At the direction of the Governor and the Board, the Plan was developed collaboratively by the ESPA Advisory Committee (Committee).

This Plan in no way modifies or diminishes existing state water law, including the prior appropriation doctrine, or the power and duties of the Director of the Department.

## 1.0 EXECUTIVE SUMMARY

The ESPA region produces approximately 21 percent of all goods and services within the State of Idaho resulting in an estimated value of \$10 billion annually. Water is the critical element for this productivity.

The Plan establishes a long-term program for managing water supply and demand in the ESPA through a phased approach to implementation, together with an adaptive management process to allow for adjustments or changes in management techniques as implementation proceeds. Due to the inherent complexities in the management and responses of the river and aquifer to water budget changes, a very deliberate choice was made to incrementally implement the various mechanisms proposed in this Plan. The long-term objective of the Plan is to incrementally achieve a net ESPA water budget change of 600 thousand acre-feet (kaf) annually. It is projected that this hydrologic goal can be achieved by the year 2030 through implementation of a mix of management actions including, but not limited to, aquifer recharge, ground-to-surface water conversions, and demand reduction strategies. The Plan sets forth actions which stabilize and improve spring flows, aquifer levels, and river flows across the Eastern Snake Plain.

The goal of the Plan is to:

*“Sustain the economic viability and social and environmental health of the Eastern Snake Plain by adaptively managing a balance between water use and supplies.”*

The objectives of the Plan are to:

1. Increase predictability for water users by managing for a reliable supply.
2. Create alternatives to administrative curtailment.
3. Manage overall demand for water within the Eastern Snake Plain.
4. Increase recharge to the aquifer.
5. Reduce withdrawals from the aquifer.

Immediate implementation of the Plan is necessary to achieve the stated goal and objectives.

The Plan approaches the 600 kaf target in phases. The Plan Phase I (1-10 years) hydrologic target is a water budget change between 200 kaf and 300 kaf. Phase I includes site-specific implementation actions based on the anticipated hydrologic effect of those actions, as outlined in Section 3.2.1. The water budget adjustment mechanisms include:

- A. Ground water to surface water conversions.
- B. Managed aquifer recharge.
- C. Demand reduction, including:
  1. Surface water conservation.
  2. Crop mix modification in the Aberdeen/Bingham groundwater district.
  3. Buyouts, buy-downs, and/or subordination agreements.
  4. Rotating fallowing, dry-year lease agreements, and Conservation Reserve Enhancement Program (CREP) enhancements.
- D. Pilot weather modification program.
- E. Minimizing loss of incidental recharge.

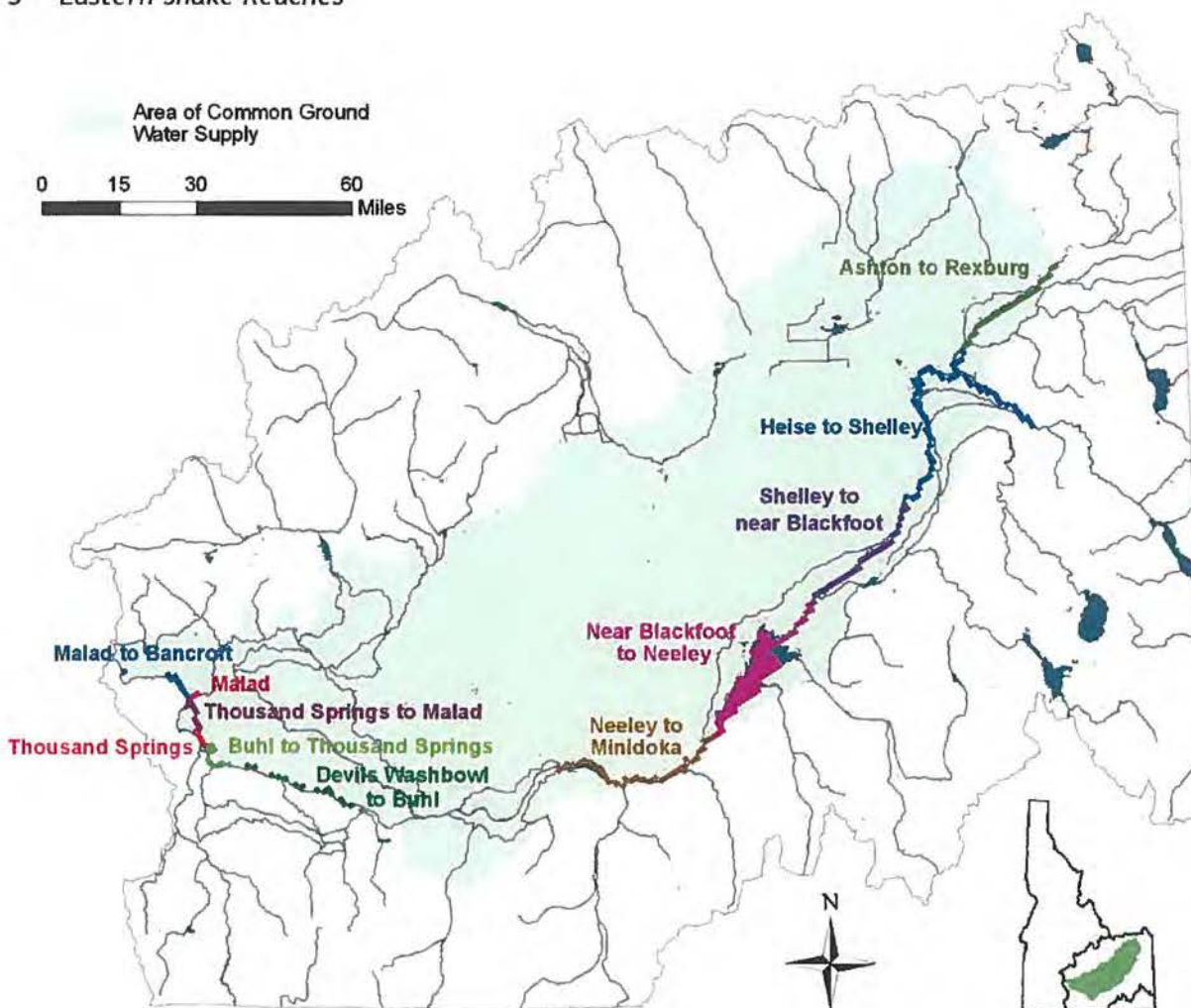
To ensure that the valuable input of stakeholders continues during the implementation of Phase I and the design and implementation of subsequent phases, this Plan establishes an Implementation Committee. This committee will provide recommendations to the Board concerning Phase I implementation, assessment of Phase I effectiveness, definition of subsequent phases, and coordination of activities necessary for implementation. This committee will also evaluate the effectiveness and viability of continuing Plan implementation during Phase I. The Implementation Committee will include representation, at a minimum, from all interest groups currently represented on the ESPA Advisory Committee.

## 2.0 BACKGROUND

In response to declining aquifer levels and spring discharges and changing Snake River flows that resulted in insufficient water supplies to satisfy existing beneficial uses, the Idaho Legislature passed Idaho Senate Concurrent Resolution No. 136 in April 2006, and requested that the Board prepare and submit a comprehensive aquifer management plan for the ESPA. From the beginning, plan development took place in a public forum. After a series of public meetings with stakeholders, the Board presented the ESPA Plan Framework (Framework) to the Legislature on February 14, 2007.

The Framework recognized that supply of, and demands for, water are out of balance in the Eastern Snake River Plain and the connected Snake River, making more deliberate and coordinated management of surface waters of the Snake River and the underground waters of the ESPA a necessity. The Framework sets forth the overarching goal and objectives adopted by the Board for the management of the ESPA.

Figure 3 – Eastern Snake Reaches



As stated in the Framework, the goal of the Plan is to:

*“Sustain the economic viability and social and environmental health of the Eastern Snake Plain by adaptively managing a balance between water use and supplies.”*

The objectives of the Plan are to:

1. Increase predictability for water users by managing for a reliable supply.
2. Create alternatives to administrative curtailment.
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4. Increase recharge to the aquifer.
5. Reduce withdrawals from the aquifer.

The Framework outlined a process for development of the Plan that called for an advisory committee to prepare and recommend a plan to the Board. To that end, and pursuant to House Bill 320, the Board, in collaboration with the Governor, appointed stakeholder representatives to the ESPA Advisory Committee (see **Appendix A**). Beginning in May 2007, the Committee held monthly meetings. To ensure the process was transparent and inclusive, all meetings were open to the public and all related materials were posted on the ESPA website ([www.esaplan.idaho.gov](http://www.esaplan.idaho.gov)). In February 2008, the Board, with Committee recommendations, provided a Progress Report to the Natural Resources Interim Legislative Committee and outlined recommendations for initial water management actions (see **ESPA Plan technical documents at [www.esaplan.idaho.gov](http://www.esaplan.idaho.gov)**). The Board and Committee worked together to complete this Plan for submission to the 2009 Legislature.

## 2.1 Management Alternative Analysis

Guided by the goal and objectives in the Framework, the Committee identified and

considered opportunities for managing available water supply and demand to address current and future water use needs including, but not limited to, those for irrigated agriculture, aquaculture, industry, hydropower, municipalities, real estate development, and domestic users and to protect environmental values. The Committee conducted a comparative analysis to assess the potential effects of a range of management options, including:

- Managed and incidental recharge.
- Groundwater to surface water conversions.
- Demand reduction strategies including but not limited to:
  - CREP.
  - Dry-year leasing and rotating fallowing.
  - Crop mix changes.
  - Buy-outs and subordination agreements.
  - Water conservation measures.
- Additional surface water storage.<sup>1</sup>
- Weather modification.
- Acquisition of water supplies below Milner Dam to meet Upper Snake River salmon flow augmentation obligations.

Working with the Committee, the Department developed alternative packages comprising a mix of these management options and analyzed each to ascertain the effects on reach gains and aquifer levels. The Department studied a range of potential water budget changes between 300 kaf and 900 kaf (see **ESPA Plan technical documents at [www.esaplan.idaho.gov](http://www.esaplan.idaho.gov)**). In addition, six packages of management strategies were examined to provide a comparison of the hydrologic benefit, economic consequences, and potential environmental impact of pursuing such actions.

## 2.2 Plan Implementation Benefits

Water is a unifying and critical feature of the region. About one-third of Idaho's population resides on the Eastern Snake Plain. The ESPA is the sole source of drinking water for both cities and

<sup>1</sup>The Idaho Legislature and Board are evaluating the feasibility of additional surface water storage across the state in order to increase available water supply. Ongoing studies will outline the benefits, costs, alternatives and impacts of such projects.

most rural residents. Agriculture is the largest segment of the local economy and the largest consumptive user of water. There are roughly 2.1 million irrigated acres on the ESPA (about 60% of Idaho's total). Of the 2.1 million irrigated acres, 871,000 acres are irrigated from surface water, 889,000 acres are irrigated from ground water, and 348,000 acres are irrigated from both sources. Beyond irrigated agriculture, food processing and aquaculture facilities (both public and private) depend on an ample supply of ground water. Springs discharging from the ESPA also sustain fish and wildlife habitat and provide water quality benefits. Hydroelectric power generation, recreation, and fisheries are also dependent on river flows. Though small relative to agricultural uses, DCMI (domestic, commercial, municipal, industrial) water use is also increasing. Providing for these DCMI uses is vital to the future growth of state and local economies. The value of the goods and services produced in the ESPA region was estimated at \$10 billion in 2006.<sup>2</sup> This amounts to approximately 21 percent of all the goods and services produced in the State of Idaho.

Implementation of the Plan will meet the goal and objectives outlined in the Framework by:

- Improving aquifer levels (stabilization and potential enhancement).
- Increasing gains in some river reaches.
- Increasing water supply certainty for all users.
- Decreasing demand for litigation and administrative remedies.
- Allowing for municipal and industrial growth.
- Providing an ongoing public process for assessing the hydrologic, economic, and environmental issues related to the implementation of aquifer management strategies.

Implementation of the ESPA Plan will also provide a template of a collaborative planning process

that can be used in other regions in Idaho. In addition, proactive management of water supplies will help address variability in climatic conditions, including drought. The expected changes in the water budget, resulting from implementation of the management plan, should provide flexibility for future water management.

### *2.3 Consequences of Inaction*

The continued viability of irrigated agriculture, aquaculture, industry, hydropower, municipalities, future development, domestic uses and environmental resources will be adversely impacted if the current water supply trends continue on the ESPA. Implementation of the Plan is expected to change these trends and help protect the economic viability of Idaho as a whole.

Without increased precipitation and an adaptive plan to manage a balance between water use and supply in the ESPA, the following scenarios are expected:

- An escalation of conflict between water users.
- Increased litigation.
- Increased likelihood of ground water curtailment.
- Limited opportunities for community growth.
- More expensive water for industries and increased power costs, resulting in limited opportunities for economic and community growth.
- Adverse impact to the health of the state economy.

Inaction will result in continued uncertainty and instability for water users, increased vulnerability to changes in yearly supply, and less water for the expansion of municipal, industrial and commercial uses. Implementation of the Plan will provide certainty and stability and also provide a

<sup>2</sup>This figure was approximated by subtracting transfer payments from personal income on a county-level basis, using data published by the Bureau of Economic Analysis. This approach was recommended by Michael Ferguson, Idaho Chief Economist. Using this approach, the estimated value of goods and services produced in the ESPA region was \$10 billion in 2006.

mechanism for taking advantage of periodic wet years and high flow events when surplus water may be available. Without the additional infrastructure recommended by the Plan, the region will not have the ability to take advantage of wet years and high flow. This could mean lost opportunities for municipal, industrial, and commercial growth. It could also mean increased vulnerability to changes in yearly supply, especially a problem as available water is stretched to cover more needs.

The State of Idaho and the Board, by implementing a collaborative approach to water management, have demonstrated that different interests that depend on the aquifer, springs, and the river can work together to develop a comprehensive water management plan. Therefore, it is essential that the State and the Board continue to provide direction and financial support to implement the Plan. Those involved in the Plan process devoted significant time and effort toward educating

each other about their concerns and the ways in which different interests are affected by water management decisions. This process was vital to the development of the Plan and will continue through the establishment of an Implementation Committee that will assist the Board as it moves forward.

## 3.0 RECOMMENDATIONS

### 3.1 Long-Term Hydrologic Goal

The Plan establishes a long-term goal of 600 kaf average annual change to the aquifer water budget with implementation occurring over a 20-year period. A 600 kaf water budget change is considered an appropriate long-term goal considering present and future water needs, hydrologic impacts, and cost. It is currently estimated that achieving the long-term 600 kaf goal will cost more than \$600 million. Full implementation of the long-term goal is dependent on many variables including water availability and funding. As such, specific actions will need to be developed by the Board after consideration of the recommendations submitted by the Implementation Committee. The Plan, by adopting a mix of

strategies, represents a balanced approach to modifying the water budget. Specifically, the Plan includes aquifer recharge, groundwater to surface water conversions, and demand reduction efforts. Careful consideration was given to the following factors in the development of the long-term goal:

- Ability to target actions to accomplish specific hydrologic goals in specific locations.
- Time frame and ease of implementation.
- Environmental and economic impacts.
- Practicality, including financing and public and political acceptance.

The Plan provides for the implementation of the following management strategies:

<b>Ground Water to Surface Water Conversions</b>	Approximately 100 kaf/year annual average (by acquiring water supplies below Milner Dam to replace water required from the Upper Snake River for salmon flow augmentation).
<b>Aquifer Recharge</b>	Approximately 150-250 kaf/year (using the Board's natural flow water permit and storage water when available).
<b>Demand Reduction</b>	Approximately 250-350 kaf/year (using voluntary mechanisms based on the principle of willing seller/willing buyer to reduce aquifer and spring flow demands, including CREP, purchases, subordination agreements, fallowing and crop mix changes, and other mechanisms).
<b>Pilot Weather Modification Program</b>	Implement a 5-year pilot weather modification project in the Upper Snake River Basin and potentially the Wood River system, with state, local and other agency support. Include a detailed monitoring program for the weather modification program.

Table 2 – Plan Hydrologic Targets

PLAN HYDROLOGIC TARGETS		
ACTION	PHASE I TARGET (KAF)	LONG-TERM TARGET (KAF)
Ground Water to Surface Water Conversion	100	100
Managed Aquifer Recharge	100	150-250
Demand Reduction		250-350
<i>Surface Water Conservation</i>	<i>50</i>	
<i>Crop Mix Modification</i>	<i>5</i>	
<i>Rotating Fallowing, Dry-Year Lease Agreements and CREP Enhancements.</i>	<i>40</i>	
<i>Buy Outs, Buy Downs, and/or Subordination Agreements</i>	<i>No Target (Opportunity-Based)</i>	
Weather Modification	50*	No Target
TOTAL	200-300	600

\*50 KAF was used in hydrologic modeling, based on a conservative estimate provided in the Upper Snake Weather Modification Feasibility Study.

### 3.2 Phase I Hydrologic Targets

The Phase I (1 - 10 years) hydrologic target is an average annual water budget change between 200 kaf and 300 kaf. Hydrologic analysis of Phase I implementation demonstrates significant hydrologic benefit across the ESPA. Phase I recommendations include site-specific implementation actions and the expected hydrologic effect of those actions. While implementing Phase I, it will be important to identify any unintended adverse consequences of such actions.

The following hydrographs provide an example of the benefits of Phase I actions. These hydrographs

simulate the river reach gains and ground water level changes that would have occurred had Phase I actions been implemented in water years 1980 through 2005. Actual changes in the water budget will vary depending upon future climatic conditions and when the actions are implemented.

Monitoring and evaluation is an important component of each action. Monitoring and evaluation is required to assess the progress and effectiveness of each action and will assist in the development and implementation of future actions. In implementing Phase I, the Board will continue to solicit advice and recommendations from the Implementation Committee and the public.

### 3.2.1 Phase I Actions

#### A. Ground Water to Surface Water Conversions

<b>GOAL:</b>	IMPLEMENT 100 KAF ANNUAL AVERAGE BY YEAR 5
<b>Actions:</b>	<ul style="list-style-type: none"><li>• Opportunistically pursue conversions equally above and below American Falls.</li><li>• Conversion opportunities include Hazelton Butte (estimated 9,000 acres); A&amp;B service area through Milner Gooding canal and Minidoka Irrigation District; Aberdeen Springfield (lower end of system); South side of Minidoka (WD 140); Southwest Irrigation District, and others.</li></ul>
<b>Issues:</b>	<ul style="list-style-type: none"><li>• Examine capacity above American Falls for conversions (new wells in the last 40 years) on land previously using surface water.</li><li>• Opportunistically acquire Snake River water below Milner Dam, or from other tributary basins, to be exchanged for flow augmentation water with consideration of potential third party impacts including but not limited to impacts on water quality, aquatic resources, and hydropower.</li><li>• Opportunistically acquire upstream surface water rights on flow-limited streams and transfer them downstream to achieve both conversions and stream flow restoration.</li><li>• Execute conversions during the spring and fall shoulder seasons as well as during irrigation season as capacity allows.</li><li>• Coordinate with the United States Department of the Interior, Bureau of Reclamation (BOR) operations and other interested parties to plan for conversions and optimize outcomes for fish and wildlife, surface water quality, and recreation.</li><li>• Identify sites and conduct engineering during winter 2009, focusing on high-lift pump areas.</li><li>• Implement initial conversions by 2010 crop year.</li><li>• Assume that a portion of costs may be born by irrigators who benefit from conversion (e.g., reduced power costs and value of water "on the land"). This is potentially the least expensive option available, although incentives will likely be needed to implement conversions.</li><li>• Evaluate impact on surface water availability and the reservoir system operations.</li></ul>

## C. Demand Reduction

### 1. Crop Mix Modification in the Aberdeen/Bingham Groundwater District

<b>GOAL:</b>	5 KAF PER YEAR AFTER YEAR FIVE
<b>Actions:</b>	<ul style="list-style-type: none"><li>• Implement a pilot project, administered through Aberdeen-American Falls and Bingham Groundwater Districts that targets a reduction of groundwater use through alternate cropping patterns (e.g., exchanging hay for grain).</li><li>• The program targets a reduction in ground water use of an average of 5 kaf annually by Year 5. Year 1 includes a 1 kaf target and the target increases 1 kaf per year until Year 5.</li><li>• Aberdeen/Bingham Groundwater District will determine most effective methods to accomplish targets.</li></ul>

### 2. Surface Water Conservation

<b>GOAL:</b>	MOST EFFICIENT USE OF AVAILABLE SURFACE WATER SUPPLY, 50 KAF
<b>Actions:</b>	<ul style="list-style-type: none"><li>• Evaluate opportunities for surface water conservation measures.</li><li>• Construct check structures and automated gates, equalizing reservoirs and pump backs and investigate reducing transmission loss at specific areas where transmission loss does not benefit a ground water user or spring water user without impacting incidental recharge, thereby reducing return flows and saving water to be used for additional conversions.</li><li>• Explore federal grants to leverage state monies and reduce cost to canal companies.</li></ul>
<b>Issues:</b>	<ul style="list-style-type: none"><li>• All conservation efforts will be site specific and examined on a case-by-case basis to ensure desired results.</li><li>• Hydrologic effects of conservation actions could include an increase in natural flow and storage, and may provide water supply for conversions.</li><li>• Pursue incentives for conservation activities and quantify hydrologic benefits, including water quality benefits from reduced return flows.</li></ul>

#### D. Pilot Weather Modification Program

<b>GOAL:</b>	<b>SURFACE WATER SUPPLY ENHANCEMENT, UNDETERMINED QUANTITY</b>
<b>Actions:</b>	<ul style="list-style-type: none"><li>• Implement a cooperative 5-year pilot weather modification project designed to increase winter snowpack in the Upper Snake River Basin and potentially the Wood River system.</li></ul>
<b>Issues:</b>	<ul style="list-style-type: none"><li>• Develop plan in 2009 and implement during winter 2010.</li><li>• Design and implement a detailed monitoring and evaluation program.</li><li>• Idaho Power Company has agreed to work with the State and interested counties to implement the experimental project.</li><li>• Coordinate with the State of Wyoming regarding potential program partnership.</li><li>• Develop procedures to suspend weather modification activities during heavy precipitation periods when additional rain or snow may increase the risk of flooding, or have adverse consequences for fish and wildlife resources and the public safety.</li></ul>

#### E. Incidental Recharge

<b>GOAL:</b>	<b>NO REDUCTION IN INCIDENTAL RECHARGE OVER THE ESPA DURING THE 10 YEAR PHASE I PLAN</b>
<b>Action:</b>	<ul style="list-style-type: none"><li>• Recognize the role of incidental recharge.</li><li>• Work with canal managers and funding agencies that are implementing water conservation measures to offset the effects of conservation to the aquifer.</li></ul>

#### F. Plan Implementation and Growth

<b>GOAL:</b>	<b>IDENTIFY AND ADDRESS IMPEDIMENTS TO MUNICIPAL, INDUSTRIAL, AND COMMERCIAL GROWTH.</b>
<b>Actions:</b>	<ul style="list-style-type: none"><li>• Review administrative rules and processes that may be an impediment to growth and implementing Plan management actions; take administrative steps to assure that water is available to sustain future economic growth.</li></ul>

### 3.2.2 Additional Plan Components

In addition to the overall hydrologic goal and Phase I implementation steps, the Plan includes the following actions to enhance coordination, decision making, and aquifer management.

#### **A. Plan Implementation Committee –**

The Board will establish an Implementation Committee to assist in the implementation of the Plan. The Implementation Committee will assist the Board in the prioritization, development, implementation, and monitoring and evaluation of management actions. The Implementation Committee will consider and recommend actions and objectives to stabilize and improve spring flows and aquifer levels and effect changes in river flows. The Implementation Committee will include, but not be limited to, interest groups currently represented on the Advisory Committee. The Implementation Committee will also establish a coordination process that provides for the sharing of information on river and aquifer management actions and provides opportunity for public involvement. The Implementation Committee will serve at the pleasure of the Board and provide a forum for public participation. Board's staff and/or contractors will facilitate the work of the Implementation Committee and provide the technical information needed for its deliberations. The Board will continue to make all final decisions concerning Plan project priorities, implementation, and funding.

#### **B. Environmental Considerations –**

The Plan integrates environmental and other considerations into the decision-making and implementation process. With the advice of the Implementation Committee, the Board, through implementation of the Plan, will seek to optimize outcomes for fish and wildlife, recreation, hydropower, municipalities,

irrigation, aquaculture, and other uses. Where feasible, the Board will pursue opportunities for cooperative program and funding arrangements that may expand resources available for optimizing environmental resources.

#### **C. Clearinghouse –**

During implementation of Phase I, options for implementing a flexible mechanism that connects willing participants in the implementation of ESPA water management projects will be considered as well as strategic approaches to implement recharge, conversion, and demand reduction strategies using a clearinghouse structure.

#### **D. Outreach and Education –**

During Phase I, the Implementation Committee will help develop and recommend funding mechanisms for a broad water education and outreach effort, building on existing water user outreach efforts and programs, with an initial emphasis on local governments, domestic well owners, and consumptive water users.

#### **E. Management Flexibility & Innovation –**

The Board will pursue and implement the most cost effective water management tools that achieve the overall goals and objectives for improving the ESPA. In addition, innovative approaches that can improve water supplies available for conversion, recharge, and/or enhancement of surface supplies will be identified for consideration.

#### **F. Downstream Transfer Policy –**

Opportunities for providing water for recharge and conversion projects through downstream transfers of surface water rights to the ESPA in a manner that enhances flows in flow-limited tributaries will be identified. Such transfers should be consistent with state law, policy and programs and utilize the water supply bank wherever appropriate.

## Appendix B. Hydrographer and River Rider for Willow Creek Documentation

## Hattie Zobott

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**From:** jeanne olson <jgolson04@yahoo.com>  
**Sent:** Tuesday, October 26, 2021 11:17 AM  
**To:** Hattie Zobott  
**Subject:** Enterprize Weir Monthly Calulations

### Enterprize Canal Input At Weir Dumping Into Progressive

#### 2017

May	1390.1 cfs
June	3099.3 cfs
July	3181.1 cfs
Aug	2202.4 cfs
Sept	1767.9 cfs

Total cfs =  $11640.8 \times 2 = 23281.6$  AF

#### 2018

June	1947.3 cfs
July	2572.6 cfs
Aug	2189.5 cfs
Sept	987.1 cfs

Total cfs =  $7696.5 \text{ cfs} \times 2 = 15393$  AF

#### 2019

May	1641.4 cfs
June	2576.6 cfs
July	2230.1 cfs
Aug	1246.5 cfs
Sept	1053.2 cfs

Total cfs =  $8747.8 \text{ cfs} \times 2 = 17496$  AF

#### 2020

May	1769.8 cfs
June	2045.0 cfs
July	2154.0 cfs
Aug	1928.0 cfs
Sept	1548.0 cfs
Oct	185.1 cfs

Total cfs =  $9629.9 \text{ cfs} \times 2 = 19260$  AF

Date: May 10-Sept 25, 2017

1. Enterprize Canal Input At Weir Dumping Into Progressive: 23281.6 AF

2. Total Acre Feet Of Water diverted from Willow Creek By All  
Diversions That Include Enterprize Canal Patrons

Canals and Ditches

May: 1895.35 cfs

June: 3366.01 cfs

July: 3484.72 cfs

Aug: 2552.41 cfs

Sept: 1270.83 cfs

12569.32 cfs x 2 = 25138.64 AF

Pumps = 1123.0 AF

26261.64 AF

3. Amount Of Willow Creek Water Used And Owned By Enterprize Canal  
Patrons From Same Diversions

May: 697.93 cfs

June: 1312.78 cfs

July: 1329.33 cfs

Aug: 997.38 cfs

Sept: 486.71 cfs

4824.13 cfs x 2 = 9648.26

4. Amount Of Farmer's Friend Water Used And Owned (known) by  
Enterprize Canal Patrons From Same Diversions:

May: 26.54 cfs

June: 43.20 cfs

July: 49.04 cfs

Aug: 40.43 cfs

Sept: 22.65 cfs

181.86 cfs x 2 = 363.72 AF

5. Amount Of Progressive Water Used And Owned (known) by Enterprize  
Canal Patrons From Same Diversions:

May: 165.70 cfs

June: 340.69 cfs

July: 353.04 cfs

Aug: 327.91 cfs

Sept: 233.12 cfs

1420.46 cfs x 2 = 2840.92 AF

6. Results :  $23281.6 \text{ AF} - 26261.64 \text{ AF} + 9648.26 \text{ AF} + 181.86 \text{ AF} + 2840.92 \text{ AF} = \text{Surplus of water diverted at } 9872.86 \text{ AF}$

7. Names of Canals and Ditches: John Moore Weir  
Sargent and Summers Ditch  
Roy Avery Ditch  
Orval Avery Canal  
Robert Brown Ditch  
W&O Cooper Ditch  
Roy Cooper Ditch  
McGill Weir  
Ritchie Weir

8. Names of Pumps: Durtschi Pump  
W. Reed #1 Pump  
Brinkerhoff Pump  
O. Avery Pump  
D Stucki Pump  
Foster-Sargent Pump  
W. Reed #2 Pump  
Brent Lott Pump

Date: June 4-Sept 16, 2018

1. Enterprize Canal Input At Weir Dumping Into Progressive: 15393 AF

2. Total Acre Feet Of Water diverted from Willow Creek By All  
Diversions That Include Enterprize Canal Patrons  
Canals and Ditches

May: 0.0 cfs

June: 2719.35 cfs

July: 3888.16 cfs

Aug: 2738.97 cfs

Sept: 1191.99 cfs

10538.47 cfs x 2 = 21076.94 AF

Pumps = 1205 AF  
22281.94 AF

3. Amount Of Willow Creek Water Used And Owned By Enterprize Canal  
Patrons From Same Diversions

May: 0.0 cfs

June: 906.87 cfs

July: 1092.56 cfs

Aug: 597.43 cfs

Sept: 356.39 cfs

2953.25 cfs x 2 = 5906.5 AF

4. Amount Of Farmer's Friend Water Used And Owned (known) by  
Enterprize Canal Patrons From Same Diversions:

May: 0.0 cfs

June: 37.23 cfs

July: 50.09 cfs

Aug: 47.39 cfs

Sept: 18.06 cfs

152.77 cfs x 2 = 305.54 AF

5. Amount Of Progressive Water Used And Owned (known) by Enterprize  
Canal Patrons From Same Diversions:

May: 0.0 cfs

June: 294.79 cfs

July: 386.86 cfs

Aug: 382.77 cfs

Sept: 164.60 cfs

1229.02 cfs x 2 = 2458.04 AF

6. Results :  $15393 \text{ AF} - 22281.94 \text{ AF} + 5906.5 \text{ AF} + 305.54 \text{ AF} + 2458.04 \text{ AF} = \text{Surplus of water diverted at } 1781.14 \text{ AF}$

7. Names of Canals and Ditches: John Moore Weir  
Sargent and Summers Ditch  
Roy Avery Ditch  
Orval Avery Canal  
Robert Brown Ditch  
W&O Cooper Ditch  
Roy Cooper Ditch  
McGill Weir  
Ritchie Weir

8. Names of Pumps: Durtschi Pump  
W. Reed #1 Pump  
Brinkerhoff Pump  
O. Avery Pump  
D Stucki Pump  
Foster-Sargent Pump  
W. Reed #2 Pump  
Brent Lott Pump

9. Data collected/analyzed by Jeanne Olson  
Independent Contractor for Enterprize Canal Co  
208-589-9234  
[jgolson04@gmail.com](mailto:jgolson04@gmail.com)  
Employed by Water District I  
River Rider/Hydrographer

Date: May10-Sept 24, 2019

1. Enterprize Canal Input At Weir Dumping Into Progressive: 17496 AF

2. Total Acre Feet Of Water diverted from Willow Creek By All Diversions That Include Enterprize Canal Patrons

Canals and Ditches

May: 1059.31 cfs

June: 3008.51 cfs

July: 3407.57 cfs

Aug: 2135.09 cfs

Sept: 1036.26 cfs

10647 cfs x 2 = 21294 AF

Pumps = 1375 AF

22669 AF

3. Amount Of Willow Creek Water Used And Owned By Enterprize Canal Patrons From Same Diversions

May: 408.34 cfs

June: 1132.98 cfs

July: 1455.94 cfs

Aug: 585.89 cfs

Sept: 289.22 cfs

3872.37 cfs x 2 = 7745 AF

4. Amount Of Farmer's Friend Water Used And Owned (known) by Enterprize Canal Patrons From Same Diversions:

May: 15.04 cfs

June: 44.85 cfs

July: 42.64 cfs

Aug: 47.96 cfs

Sept: 22.81 cfs

173.3 cfs x 2 = 347 AF

5. Amount Of Progressive Water Used And Owned (known) by Enterprize Canal Patrons From Same Diversions:

May: 195.3 cfs

June: 338.92 cfs

July: 371.86 cfs

Aug: 364.38 cfs

Sept: 236.13 cfs

1506.59 cfs x 2 = 3013 AF

6. Results :  $17496 \text{ AF} - 22669 \text{ AF} + 7745 \text{ AF} + 347 \text{ AF} + 3013 \text{ AF} = \text{Surplus of water diverted } 5932 \text{ AF}$

7. Names of Canals and Ditches: John Moore Weir  
Sargent and Summers Ditch  
Roy Avery Ditch  
Orval Avery Canal  
Robert Brown Ditch  
W&O Cooper Ditch  
Roy Cooper Ditch  
McGill Weir  
Ritchie Weir

8. Names of Pumps: Durtschi Pump  
W. Reed #1 Pump  
Brinkerhoff Pump  
O. Avery Pump  
D Stucki Pump  
Foster-Sargent Pump  
W. Reed #2 Pump  
Brent Lott Pump

Date: May 8- October 11, 2020

1. Enterprize Canal Input At Weir Dumping Into Progressive: 19260 AF

2. Total Acre Feet Of Water diverted from Willow Creek By All Diversions That Include Enterprize Canal Patrons

Canals and Ditches

May: 1556.75 cfs

June: 2507.67 cfs

July: 4118.75 cfs

Aug: 3015.24 cfs

Sept: 1882.09 cfs

Oct: 355.08 cfs

13435.58 cfs x 2 = 26871.16 AF

Pumps = 1557 AF  
28428.16 AF

3. Amount Of Willow Creek Water Used And Owned By Enterprize Canal Patrons From Same Diversions

May: 698.38 cfs

June: 925.22 cfs

July: 1297.31 cfs

Aug: 492.36 cfs

Sept: 567.66 cfs

Oct: 164.61 cfs

4145.54 cfs x 2 = 8291.08 AF

4. Amount Of Farmer's Friend Water Used And Owned (known) by Enterprize Canal Patrons From Same Diversions:

May: 26.43 cfs

June: 30.62 cfs

July: 44.38 cfs

Aug: 47.45 cfs

Sept: 34.88 cfs

Oct: 7.04 cfs

190.8 cfs x 2 = 381.6 AF

5. Amount Of Progressive Water Used And Owned (known) by Enterprize Canal Patrons From Same Diversions:

May: 234.20 cfs

June: 322.40 cfs

July: 372.72 cfs

Aug: 375.59 cfs

Sept: 309.45 cfs

Oct: 88.08 cfs

1702.44 cfs x 2 = 3404.88 AF

6. Results : 19260 AF – 28428.16 AF + 8291.08 AF +381.6 AF +  
3404.88 AF = **Surplus** of water diverted at **2909.40 AF**

7. Names of Canals and Ditches: John Moore Weir

Sargent and Summers Ditch

Roy Avery Ditch

Orval Avery Canal

Robert Brown Ditch

W&O Cooper Ditch

Roy Cooper Ditch

McGill Weir

Ritchie Weir

8. Names of Pumps: Durtschi Pump

W. Reed #1 Pump

Brinkerhoff Pump

O. Avery Pump

D Stucki Pump

Foster-Sargent Pump

W. Reed #2 Pump

Brent Lott Pump

## Appendix C. Supporting Calculations and Documentation

# IDAHO DEPARTMENT OF WATER RESOURCES

## WATER RIGHT REPORT

10/29/2021

IDAHO DEPARTMENT OF WATER RESOURCES

Water Right Report

WATER RIGHT NO. 1-59

<u>Owner Type</u>	<u>Name and Address</u>
Current Owner	ENTERPRIZE CANAL CO LTD PO BOX 583 RIRIE, ID 83443 2085387861

Priority Date: 03/22/1895

Basis: Decreed

Status: Active

<u>Source</u>	<u>Tributary</u>
SNAKE RIVER	COLUMBIA RIVER

<u>Beneficial Use</u>	<u>From</u>	<u>To</u>	<u>Diversion Rate</u>	<u>Volume</u>
IRRIGATION	04/01	10/31	120 CFS	
Total Diversion			120 CFS	

Location of Point(s) of Diversion:

SNAKE RIVER | NESWSE | Sec. 36 | Township 04N | Range 40E | JEFFERSON County

Place(s) of use: [Large POU Info](#)

Conditions of Approval:

1. X35 Rights 1-59, 1-60, and 1-233 when combined shall not exceed the irrigation of 5436 acres.
2. R60 This right when combined with all other rights shall provide no more than 4.0 afa per acre at the field headgate for irrigation of the place of use.
3. 129 Place of use is within the area served by Enterprize Canal Company.
4. 172 The boundary encompassing the place of use for this water right is described with a digital boundary as authorized by Idaho law. The data comprising the digital boundary are stored in the electronic document management system of the Department and are incorporated into this approval by this reference. A map depicting the place of use is attached to this approval document to illustrate the place of use described by the digital boundary.
5. R05 Use of water under this right will be regulated by a watermaster with responsibility for the distribution of water among appropriators within a water district. At the time of this approval, this water right is within State Water District No. 1.

6. R43 The right holder shall maintain a measuring device and lockable controlling works of a type approved by the Department in a manner that will provide the watermaster suitable control of the diversion(s).
7. F01 Water is delivered through Enterprize Canal.
8. 004 This right does not grant any right-of-way or easement across the land of another.
9. T07 The right holder shall accomplish the change authorized by this transfer within one year of the date of this approval.
10. T08 Failure of the right holder to comply with the conditions of this transfer is cause for the Director to rescind approval of the transfer.
11. T19 Pursuant to Section 42-1412(6), Idaho Code, this water right is subject to such general provisions necessary for the definition of the rights or for the efficient administration of water rights as determined by the Snake River Basin Adjudication court in the final unified decree entered 08/26/2014.

Dates:

Licensed Date:

Decreed Date: 10/06/2008

Enlargement Use Priority Date:

Enlargement Statute Priority Date:

Water Supply Bank Enrollment Date Accepted:

Water Supply Bank Enrollment Date Removed:

Application Received Date:

Protest Deadline Date:

Number of Protests: 0

Other Information:

State or Federal: S

Owner Name Connector:

Water District Number: 01

Generic Max Rate per Acre:

Generic Max Volume per Acre: 4

Combined Acres Limit: 5436

Combined Volume Limit:

Combined Rate Limit:

Civil Case Number:

Old Case Number:

Decree Plaintiff:

Decree Defendant:

Swan Falls Trust or Nontrust:

Swan Falls Dismissed:

DLE Act Number:

# IDAHO DEPARTMENT OF WATER RESOURCES

## WATER RIGHT REPORT

10/29/2021

IDAHO DEPARTMENT OF WATER RESOURCES

Water Right Report

WATER RIGHT NO. 1-60

<u>Owner Type</u>	<u>Name and Address</u>
Current Owner	ENTERPRIZE CANAL CO LTD PO BOX 583 RIRIE, ID 83443 2085387861

Priority Date: 04/15/1898

Basis: Decreed

Status: Active

<u>Source</u>	<u>Tributary</u>
SNAKE RIVER	COLUMBIA RIVER

<u>Beneficial Use</u>	<u>From</u>	<u>To</u>	<u>Diversion Rate</u>	<u>Volume</u>
IRRIGATION	04/01	10/31	68 CFS	
Total Diversion			68 CFS	

Location of Point(s) of Diversion:

SNAKE RIVER|NESWSE|Sec. 36|Township 04N|Range 40E|JEFFERSON County

Place(s) of use: [Large POU Info](#)

Conditions of Approval:

- |    |     |   |
|----|-----|---|
| 1. | X35 | Rights 1-59, 1-60, and 1-233 when combined shall not exceed the irrigation of 5436 acres.   |
| 2. | R60 | This right when combined with all other rights shall provide no more than 4.0 afa per acre at the field headgate for irrigation of the place of use.  |
| 3. | 129 | Place of use is within the area served by Enterprize Canal Company.   |
| 4. | 172 | The boundary encompassing the place of use for this water right is described with a digital boundary as authorized by Idaho law. The data comprising the digital boundary are stored in the electronic document management system of the Department and are incorporated into this approval by this reference. A map depicting the place of use is attached to this approval document to illustrate the place of use described by the digital boundary. |
| 5. | R05 | Use of water under this right will be regulated by a watermaster with responsibility for the distribution of water among appropriators within a water district. At the time of this approval, this water right is within State Water District No. 1.  |

6. R43 The right holder shall maintain a measuring device and lockable controlling works of a type approved by the Department in a manner that will provide the watermaster suitable control of the diversion(s).
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Dates:

Licensed Date:

Decreed Date: 10/06/2008

Enlargement Use Priority Date:

Enlargement Statute Priority Date:

Water Supply Bank Enrollment Date Accepted:

Water Supply Bank Enrollment Date Removed:

Application Received Date:

Protest Deadline Date:

Number of Protests: 0

Other Information:

State or Federal: S

Owner Name Connector:

Water District Number: 01

Generic Max Rate per Acre:

Generic Max Volume per Acre: 4

Combined Acres Limit: 5436

Combined Volume Limit:

Combined Rate Limit:

Civil Case Number:

Old Case Number:

Decree Plaintiff:

Decree Defendant:

Swan Falls Trust or Nontrust:

Swan Falls Dismissed:

DLE Act Number:

# IDAHO DEPARTMENT OF WATER RESOURCES

## WATER RIGHT REPORT

10/29/2021

IDAHO DEPARTMENT OF WATER RESOURCES

Water Right Report

WATER RIGHT NO. 1-233

<u>Owner Type</u>	<u>Name and Address</u>
Current Owner	ENTERPRIZE CANAL CO LTD PO BOX 583 RIRIE, ID 83443 2085387861

Priority Date: 01/22/1916

Basis: Decreed

Status: Active

<u>Source</u>	<u>Tributary</u>
SNAKE RIVER	COLUMBIA RIVER

<u>Beneficial Use</u>	<u>From</u>	<u>To</u>	<u>Diversion Rate</u>	<u>Volume</u>
IRRIGATION	04/01	10/31	62 CFS	
Total Diversion			62 CFS	

Location of Point(s) of Diversion:

SNAKE RIVER|NESWSE|Sec. 36|Township 04N|Range 40E|JEFFERSON County

Place(s) of use: [Large POU Info](#)

Conditions of Approval:

1. X35 Rights 1-59, 1-60, and 1-233 when combined shall not exceed the irrigation of 5436 acres.
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Enlargement Statute Priority Date:

Water Supply Bank Enrollment Date Accepted:

Water Supply Bank Enrollment Date Removed:

Application Received Date:

Protest Deadline Date:

Number of Protests: 0

Other Information:

State or Federal: S

Owner Name Connector:

Water District Number: 01

Generic Max Rate per Acre:

Generic Max Volume per Acre: 4

Combined Acres Limit: 5436

Combined Volume Limit:

Combined Rate Limit:

Civil Case Number:

Old Case Number:

Decree Plaintiff:

Decree Defendant:

Swan Falls Trust or Nontrust:

Swan Falls Dismissed:

DLE Act Number:

## Carbon Dioxide Emissions Reduction

Watermaster Savings			
Before		After	
30	miles	30	miles
7	trips per week	3.5	trips per week
10	mpg	10	mpg
21	gallons per week	10.5	gallons per week
21	weeks per year	21	weeks per year
441	gallons per year	220.5	gallons per year
0.008887	metric tons CO2/gallon gas	0.008887	metric tons CO2/gallon gas
3.9	Metric Tons CO2/year	2.0	Metric Tons CO2/year
Carbon Dioxide Savings Per Year			
2.0	metric tons CO2 per year		

Trucking Savings for Pipe Bedding Recycling			
Truck in Bedding		Recycle Bedding	
14.8	one way distance to gravel pit	2.4	Worst case distance on pipeline
29.6	miles round trip	4.850568	
6073	CY	6073	
10	CY per Truck	10	
17976.08	miles for bedding	2945.75	
8	mpg	8	
2247.01	gallons of deisel	280.8763	
0.01018	metric tons/gallon diesel	0.01018	
22.9		2.9	
Carbon Dioxide Savings Per Year			
20.0	metric Tons		

8,887 grams of CO2/gallon of gasoline =  $8.887 \times 10^{-3}$  metric tons CO2/gallon of gasoline

10,180 grams of CO2/gallon of diesel =  $10.180 \times 10^{-3}$  metric tons CO2/gallon of diesel

Greenhouse Gases Equivalencies Calculator - Calculations and References | US EPA

<https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references>

**BEFORE THE DEPARTMENT OF WATER RESOURCES  
OF THE STATE OF IDAHO**

IN THE MATTER OF A DECLARATION )  
OF DROUGHT EMERGENCY FOR )  
BONNEVILLE COUNTY )  
\_\_\_\_\_ )

**ORDER DECLARING  
DROUGHT EMERGENCY**

WHEREAS, the Board of County Commissioners for Bonneville County has requested that the Governor and the Director of the Idaho Department of Water Resources declare a drought emergency for Bonneville County to allow administrative actions to lessen the severe impacts of drought conditions in the county; and

WHEREAS, Bonneville County relies upon water supplies from the Upper Snake River basin; and

WHEREAS, drainages in or contributing water to Bonneville County are experiencing moderate to severe drought conditions due to below normal snowpack and precipitation levels. Specifically, the total cumulative snow water equivalent (SWE) levels in the Upper Snake River drainage above American Falls were 91% of median as of April 1, but above average temperatures and below normal precipitation during April reduced May 1 SWE levels to only 75% of median; and

WHEREAS, water year to date precipitation levels as of July 1 in the Upper Snake River drainage above American Falls was 76% of average; and

WHEREAS, stream flow volume for the Snake River near Heise is forecasted to be only 69% of average for the period June through September; and

WHEREAS, as of July 8, 2021, the United States Drought Monitor Index shows Bonneville County included within that portion of Eastern Idaho classified as moderate to severe drought; and

WHEREAS, section 42-222A, Idaho Code, provides that upon declaration of a drought emergency for an area designated by the Director of the Department of Water Resources ("Director") and approved by the Governor, the Director is authorized to allow temporary changes in the point of diversion, the place of use, and the purpose of use for valid existing water rights and temporary exchanges of water rights when the Director determines that such changes can be accomplished in accordance with the provisions of section 42-222A, Idaho Code; now

THEREFORE, IT IS HEREBY ORDERED that pursuant to the authority of the Director provided in section 42-222A, Idaho Code, a drought emergency for purposes of section 42-222A, Idaho Code, is hereby declared for Bonneville County, Idaho.

IT IS FURTHER HEREBY ORDERED that pursuant to this declared drought emergency and the provisions of section 42-222A, Idaho Code, the following procedures and requirements shall apply to the filing, processing, and approval of any application for a temporary change to an existing water right within Bonneville County during the pendency of this declared drought emergency:

1. An application for a temporary change to an existing water right shall be made upon forms provided by the department and shall be accompanied by an application fee of fifty dollars (\$50.00) per application.
2. The Director is not required to publish notice of the proposed change pursuant to the provisions of section 42-211, 42-222(1) or 42-240, Idaho Code, and is not required to make findings as provided in said sections. A temporary change may be approved upon completion of the application form, payment of the filing fee, and a determination by the Director that the proposed change can be properly administered and there is no information that the change will injure any other water right. If the right to be changed is administered by a watermaster within a water district, the Director shall obtain and consider the recommendations of the watermaster before approving the temporary change application.
3. All temporary changes approved pursuant to the provisions of this order shall expire on the date shown in the approval which shall not be later than December 31, 2021, and thereafter, the water right shall revert to the point of diversion and place of use existing prior to the temporary change. Nothing herein shall be construed as approval to authorize construction of a new well as a new point of diversion or to alter a stream channel.
4. The recipient of an approved temporary change issued pursuant to this order shall assume all risk of curtailment or mitigation should the diversion and use of water under the temporary change cause injury to other water rights or result in an enlargement in use of the original right.
5. Temporary changes shall only be approved for the purpose of providing a replacement water supply to lands or other uses that normally have a full water supply, except for the drought condition. Temporary changes may not be approved to provide water for new development or to allow expansion of the use of water under existing water rights. If the right to use the water is represented by shares of stock in a corporation, or if the diversion works or delivery system for such right is owned or managed by an irrigation district, no change in point of diversion, place or nature of use of such water shall be made or allowed without the written consent of such corporation or irrigation district.
6. Any applicant for a temporary change who is aggrieved by a denial of the Director for a temporary change pursuant to this order and the provisions of section 42-222A, Idaho Code, may request a hearing pursuant to section 42-1701A(3), Idaho


Code, and may seek judicial review of the final order of the Director pursuant to the provisions of section 42-1701A(4), Idaho Code.

IT IS FURTHER HEREBY ORDERED that this order is effective upon approval of the Governor and expires on December 31, 2021, unless extended or terminated by order of the Director.

DATED this 14<sup>th</sup> day of July, 2021.

  
\_\_\_\_\_  
Gary Spackman  
Director

APPROVED this 20<sup>th</sup> day of July, 2021.

  
\_\_\_\_\_  
Brad Little  
Governor

RESOLUTION NO. 21-07

---

A RESOLUTION OF BONNEVILLE COUNTY, IDAHO, DECLARING THAT A LOCAL DROUGHT EMERGENCY EXISTS IN BONNEVILLE COUNTY, TO BE IN EFFECT UNTIL THE END OF THE 2021 IRRIGATION SEASON OR UNTIL OTHERWISE TERMINATED BY RESOLUTION OF THE BONNEVILLE COUNTY BOARD OF COMMISSIONERS.

WHEREAS, Idaho Code §31-801 grants general powers and duties, subject to the restrictions of law, to the boards of county commissioners in their respective counties; and

WHEREAS, Idaho Code §31-828 grants the board of commissioners authority "to do and perform all other acts . . . which may be necessary to the full discharge of the duties of the chief executive authority of the county government."; and

WHEREAS, Idaho Code §42-222A authorizes the Director of the Department of Water Resources, following the declaration of a drought emergency for an area designated by the Director and approved by the Governor, to allow temporary changes of point of diversion, place and purpose of use of valid existing water rights, so long as said changes will not injure existing water rights; and

WHEREAS, Idaho Code §46-1011 provides that the Chairman of the Board of County Commissioners may declare a local disaster emergency, which may be continued in excess of seven days with consent of the Board of County Commissioners; and

WHEREAS, Idaho Code §46-1002(3) provides, in part, that a "disaster" includes the imminent threat of widespread or severe damage or loss of property resulting from any natural or manmade cause; and

WHEREAS, Idaho Code §46-1002(4) provides, in part, that an "emergency" includes the imminent threat of a "disaster" or condition threatening property which requires state emergency assistance to supplement local efforts to protect property or to avert or lessen the threat of "disaster."; and

WHEREAS, the Board finds that the current low water levels pose an imminent threat of disaster to agriculture in Bonneville County, which constitutes an emergency as defined in Idaho Code §46-1002(4);


BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF BONNEVILLE COUNTY, IDAHO, THAT GOOD CAUSE HAVING BEEN SHOWN, THE BONNEVILLE COUNTY BOARD OF COUNTY COMMISSIONERS HEREBY DECLARES

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THAT A LOCAL DROUGHT EMERGENCY EXISTS IN BONNEVILLE COUNTY AND THE BOARD OF COUNTY COMMISSIONERS HEREBY CONSENTS TO SAID DECLARATION AND ORDERS AND RATIFIES THE SAME. THE BOARD FURTHER ORDERS THAT THIS DECLARATION OF LOCAL DROUGHT DISASTER EMERGENCY SHALL REMAIN IN EFFECT UNTIL THE END OF THE 2021 IRRIGATION SEASON, OR UNTIL OTHERWISE TERMINATED BY RESOLUTION OF THE BOARD, WHICHEVER OCCURS EARLIER.

This resolution shall be in full force and effect immediately after its passage.

PASSED THIS 13<sup>th</sup> DAY OF July 2021, BY THE BOARD OF COUNTY COMMISSIONERS OF BONNEVILLE COUNTY, IDAHO.

  
Roger S. Christensen, Chairman

  
Jonathan D. Walker, Member

  
Bryon L. Reed, Member

# RECLAMATION

*Managing Water in the West*

## Henrys Fork Basin Study Final Report

**Produced in partnership with the  
State of Idaho Water Resource Board**



U.S. Department of the Interior  
Bureau of Reclamation  
Pacific Northwest Region  
Snake River Area Office  
Boise, Idaho



Idaho Water Resource Board  
State of Idaho  
Boise, Idaho

January 2015

## 6.0 Trade-off Analysis and Conclusions

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not determined for this report. Although the unit costs associated with conserved water are known to be high, the benefits are very positive for the ecological flows in the Henrys Fork River, as well as for the water users who would be able to apply the unused water to future unmet needs.

The cost for demand reduction through converting irrigated cropland to dryland farming or simply ceasing irrigation was estimated to be \$1,860 per acre. For every acre placed in demand reduction, 2 to 5 acre-feet per acre are saved. The estimate for deficit irrigation, meaning the acre would be partially irrigated (e.g., irrigation may be stopped after only the second cutting of alfalfa hay), was estimated to be \$3,600 per acre. The cost for deficit irrigation considered the loss of crop production during drought years which results in a higher lost crop value than simply ceasing irrigation during all years. This unit cost is relatively low compared to the costs associated with developing new storage.

### ***Environmental Impacts***

Overall, automated canals would reduce the demand for stored water withdrawal, which would improve management options in both the Henrys Fork River basin and the ESPA, have a positive impact on the basin's overall water budget, and therefore, be expected to have positive biophysical and sociocultural impacts. For the North Fremont region, canal automation is estimated to increase nonpeak flows slightly. While this increase is relatively small, it still represents a positive environmental biophysical effect during periods of normally low flows. For the Teton Valley, Lower Watershed, and Egin Bench irrigated regions, canal automation could decrease nonpeak flows unless careful consideration of spring time operations was included as part of the alternative. Effects on the world-class rainbow trout fisheries in the Henrys Fork River, in the form of entrainment of trout in new diversions, could be mitigated by designing diversion structures with fish screens to prevent entrainment.

The canal piping alternative in the North Fremont region appears to benefit the Fall River and riverine biophysical environment by reducing diversion volume. Piping would eliminate canal seepage, thus reducing the irrigation-induced wetlands along the piped canals. Hydrologic analysis has shown that the Fall River and North Fremont irrigated regions do not have an interrelated groundwater-surface water relationship so piping in this region would not have negative biophysical effects to late season return flows to Fall River (Appendix E of Reclamation 2013b).

Demand reduction as an overall program may result in a reduction of flows during the critical low flow period throughout the basin. Further reduction of these flows from current baseline conditions would have negative environmental consequences; however, there may be some localized positive impacts on tributaries in the Teton Valley irrigated region that have flow connectivity issues late in the irrigation season.

Sociocultural impacts generally were not considered for conservation alternatives and would

require additional analysis.

### ***Acceptability***

Water conservation is accepted by water users and conservation groups as a positive water management tool in the Henrys Fork River basin. Some water conservation and canal automation alternatives have similar water savings potential as the low-volume storage alternatives, such as Spring Creek Dam and Moody Creek Dam, but conservation alternatives may have fewer environmental impacts, and, in some cases, have lower implementation costs.

There are several State and Federal programs specifically designed to support implementation of water conservation projects. Local sponsors' interested in moving water conservation alternatives forward could utilize State and Federal grant/financial assistance programs.

## Appendix D. Detailed Budget and Letters of Commitment

# Opinion of Probable Construction Cost

2021 Enterprize Canal Redirect - Phase 1



**T-O ENGINEERS**

PROJECT : 210394

FACILITY : Enterprize Canal

DATE: 10/11/2021

By: H. ZOBOTT

NO.	DESCRIPTION	QTY	Unit	Unit Cost		TOTAL	Comment
<b>Phase 1</b>							
1.	Pipe Bedding Material (Haul Only)	7,527	CY	\$10		\$ 75,273	Haul
3.	Type P Asphalt Surface Restoration	50	SY	\$200		\$ 10,000	
4.	Boring and Jacking (1) 60" (Siphon)	402	LF	\$338		\$ 135,675	
5.	Boring and Jacking (1) 60" (HWY 26)	200	LF	\$338		\$ 67,500	
6.	(1) 48" HDPE Pipe, Material Only	10,458	LF	\$174		\$ 1,819,692	LF Based on Proposed Alignment from HWY 26-Willow Creek
7.	Installation of (1) HDPE Pipe	10,458	LF	\$75		\$ 784,350	No materials included
8.	Mobil. Demobilization for Pipe Contractor	1	LS	\$39,218		\$ 39,218	5% of installation cost for pipe
9.	6" Concrete Headwall with Irrigation Headgate, automated	8	EA	\$10,000		\$ 80,000	
10.	Pre-cast Box Culvert (8'x8')	1	EA	\$10,000		\$ 10,000	
11.	Diversion Measurement Flume - Automated	1	EA	\$50,000		\$ 55,000	Constant Head Orifice Weir, erosion protection
12.	Construction Traffic Control	1	LS	\$10,000		\$ 10,000	
13.	Construction Survey	1	LS	\$30,000		\$ 30,000	
14.	Electrical/Instrumentation	1	LS	\$172,595		\$ 172,595.00	
A	<b>CONTRACTOR SUBTOTAL</b>					<b>\$ 3,289,302</b>	
B	ENTERPRIZE IN-KIND MATCH (SEE BUDGET)					\$ 204,367	
C	ENGINEERING DESIGN					\$ 197,358	
D	CONSTRUCTION MGMT					\$ 197,000	6% of construction budget
E	Environmental Compliance BOR NEPA (Assumes EA)					\$ 45,000	Per BOR estimate
	<b>TOTAL ESTIMATED COST</b>					<b>\$ 3,933,028</b>	

FEDERAL	\$	1,966,514
NON Federal	\$	1,966,514
Line of Credit	\$	1,700,000
In-Kind	\$	204,367
Cash	\$	62,147

Enterprize Canal Company  
In-Kind and Materials

Budget Item Description	Computation		Quantity Type	Total Cost	NOTES
	\$/Unit	Quantity			
Salaries and Wages					
Existing Utility - Retain and Protect	\$ 25.00	160	hours	\$ 4,000.00	Laborer/no fringe
Existing Utility - Remove/Relocate	\$ 25.00	160	hours	\$ 4,000.00	Laborer/no fringe
Clearing and Grubbing	\$ 25.00	80	hours	\$ 2,000.00	Laborer/no fringe
SUBTOTAL				\$ 10,000.00	
Equipment					
Excavator 1	\$ 61.40	160	hours	\$ 9,824.00	CASE 240
Excavator 2	\$ 86.47	160	hours	\$ 13,835.00	Volvo EC380E
Bull Dozer	\$252.02	80	hours	\$ 20,162.00	CAT D9
SUBTOTAL				\$ 43,821.00	
MATERIALS					
PIPE BEDDING MATERIAL	\$ 20.00	7527	CY	\$150,546.00	Pipe bedding, crushed from onsite recharge material waste
TOTAL				\$204,367.00	



# IDAHO WATER RESOURCE BOARD

**Brad Little**  
*Governor*

**Jeff Raybould**  
*Chairman*  
St. Anthony  
At Large

**Roger W. Chase**  
*Vice-Chairman*  
Pocatello  
District 4

**Jo Ann Cole-Hansen**  
*Secretary*  
Lewiston  
At Large

**Dale Van Stone**  
Hope  
District 1

**Albert Barker**  
Boise  
District 2

**Dean Stevenson**  
Paul  
District 3

**Peter Van Der Meulen**  
Hailey  
At Large

**Brian Olmstead**  
Twin Falls  
At Large

October 14, 2021

Bureau of Reclamation  
Mail Code: MP-400  
2800 Cottage Way  
Sacramento, California 95825

RE: Letter of support and commitment for the Enterprize Canal Company's Water Conveyance Improvement and Delivery Automation project

To Whom It May Concern:

On behalf of the Idaho Water Resource Board (IWRB), I would like to express support for the Enterprize Canal Company's efforts to improve the company's conveyance infrastructure and to install water delivery automation components.

This letter also represents a commitment by the IWRB for Enterprize Canal Company. We have previously provided \$63,794 in funds during the conceptual design phase, and we have agreed to commit a total of \$70,000 to help cover the cost of the engineering design of the conveyance improvements (Phase I and Phase II) in support of the State's aquifer recharge goals.

We are confident this project will help restore groundwater supplies through improving the canal delivery system by providing greater operational flexibility and efficiency for the delivery of water for aquifer recharge and the region. Additionally, the added automation will allow Enterprize to more efficiently manage on-farm deliveries for growers.

If you have any questions, please contact me at (208) 287-4800.

Sincerely,

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



September 30, 2021

Re: Bank Verification Letter

Enterprize Canal Company  
PO Box 583  
Ririe, ID 83443

To whom it may concern,

The intent of this letter is to verify that our clients, Enterprize Canal Company, currently has a line of credit in the amount of \$1,752,000 with \$1,580,192.32 available to disburse.

If you have any questions or need additional information, please feel free to call.

Sincerely,

Dylan R. Black  
The Bank of Commerce  
3113 S 25<sup>th</sup> E  
Idaho Falls, Idaho 83406  
(208) 525-9171