AGENDA

IDAHO WATER RESOURCE BOARD

Streamflow Enhancement & Minimum Streamflow
Committee Meeting No. 1-25

Wednesday, July 23, 2025
4:00 p.m. Mountain Time / 3:00 p.m. Pacific Time

Hilton Garden Inn
South Fork River Room
700 Lindsay Blvd.
Idaho Falls

Livestream available at https://www.youtube.com/@iwrb

1. Introductions and Attendance
2. Friends of the Teton River Water Transactions and Program Update
3. Idaho Water Transactions Program Updates – L6 Feasibility Study
4. Other Items
5. Adjourn

Committee Members: Chair Patrick McMahon, Dean Stevenson, Brian Olmstead, and Dale Van Stone.

* Action Item: A vote regarding this item may be made at this meeting. Identifying an item as an action item on the agenda does not require a vote to be taken on the item.

Americans with Disabilities
The meeting will be held in person and online. If you require special accommodations to attend, participate in, or understand the meeting, please make advance arrangements by contacting Department staff by email jennifer.strange@idwr.idaho.gov or by phone at (208) 287-4800.

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

Memorandum

To: IWRB – Streamflow Enhancement and Minimum Streamflow Committee

From: John Loffredo, Program Manager – Idaho Water Transactions Program

Date: July 23, 2025

Re: Friends of the Teton River – Streamflow Restoration Program – Program update & status of water transaction development

REQUIRED ACTION: Comments and guidance from the Committee are requested.

Background:

Friends of the Teton River (FTR) is a nationally recognized leader in science and community-based watershed protection and restoration. FTR was founded in 2001 by a diverse group of stakeholders, including farmers, anglers, scientists, agency personnel, and conservation interests who were concerned by declines in water quality and the Teton River fishery.

FTR's stream flow restoration program began in 2006 to restore tributary flows utilizing cooperative, voluntary solutions. By working with stakeholders and employing a variety of incentives, including market-based compensation, technical assistance and expert advice, FTR works with landowners/agricultural producers to keep land productive and streams healthy.

In 2013, FTR capitalized on the IWRB's Qualified Local Entity status within the Bonneville Power Administration's Columbia Basin Water Transaction Program (CBWTP) to expand water transaction development in Idaho to include the Teton River Basin. The relationship between the IWRB's water transaction program and FTR's streamflow restoration program was formalized in May 2015 by Resolution 5-15 that established FTR as a subcontractor under IWRB's annual programmatic grant through the CBWTP.

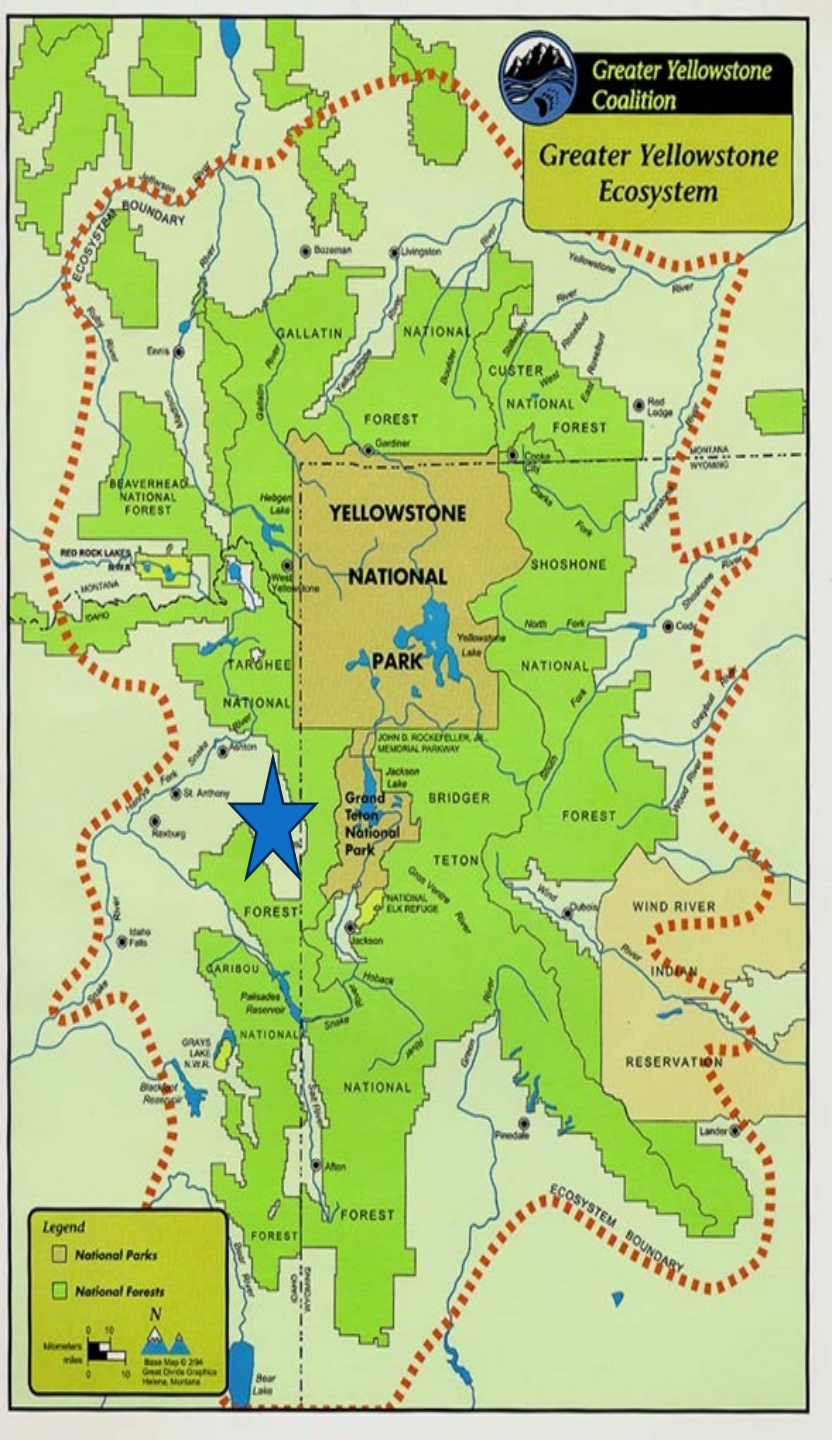
The key achievement of this relationship has been the largest source-switch project in the entire Columbia River Basin funded by the CBWTP, totaling 70 cfs of instream flow on Canyon Creek, a major tributary of the Teton River that provides critical habitat for Yellowstone Cutthroat Trout.

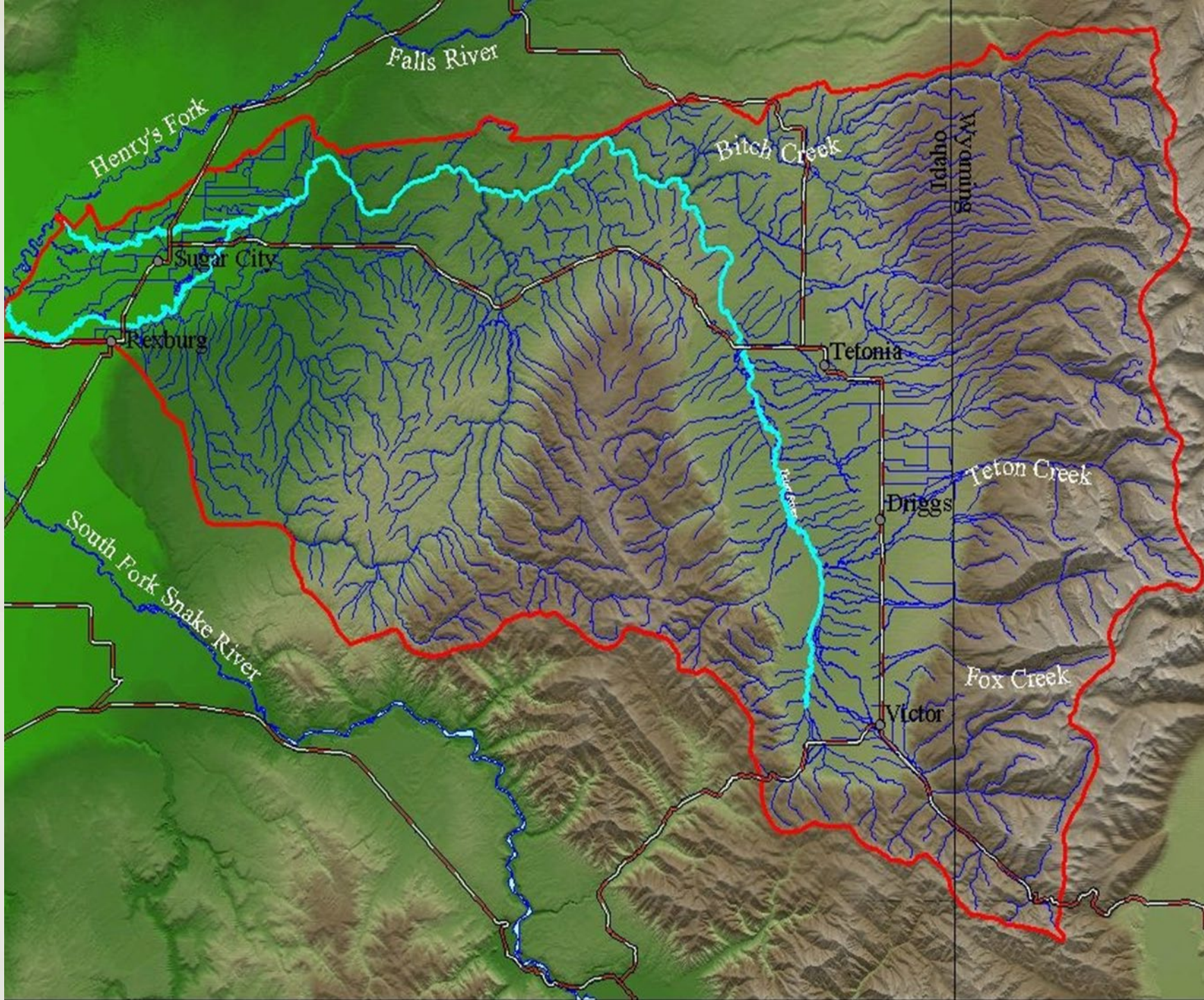
In recent months, long-time FTR program lead Sarah Lien has taken a step back allowing Will Stubblefield to move into the leadership role. Will received his Master of Science in natural resources from the University of Idaho, he has been with FTR for over five years and is currently FTR's Director of Programs.

Today, FTR staff will be presenting a program update, introducing new staff to the IWRB's Streamflow Enhancement Committee and providing a status update on new water transaction development on Badger Creek and Canyon Creek Phase II.

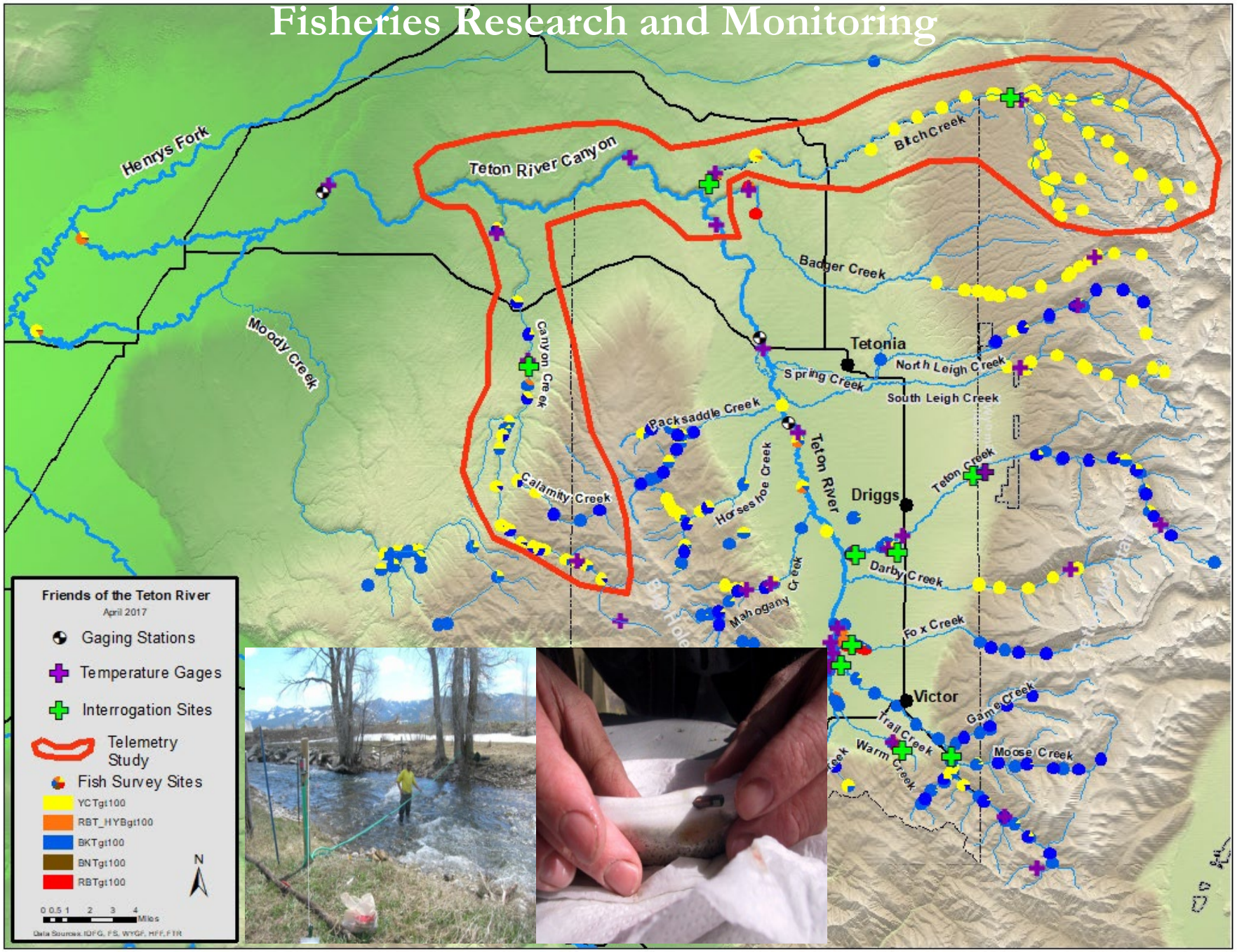
FRIENDS OF THE TETON RIVER

2025 Project Update

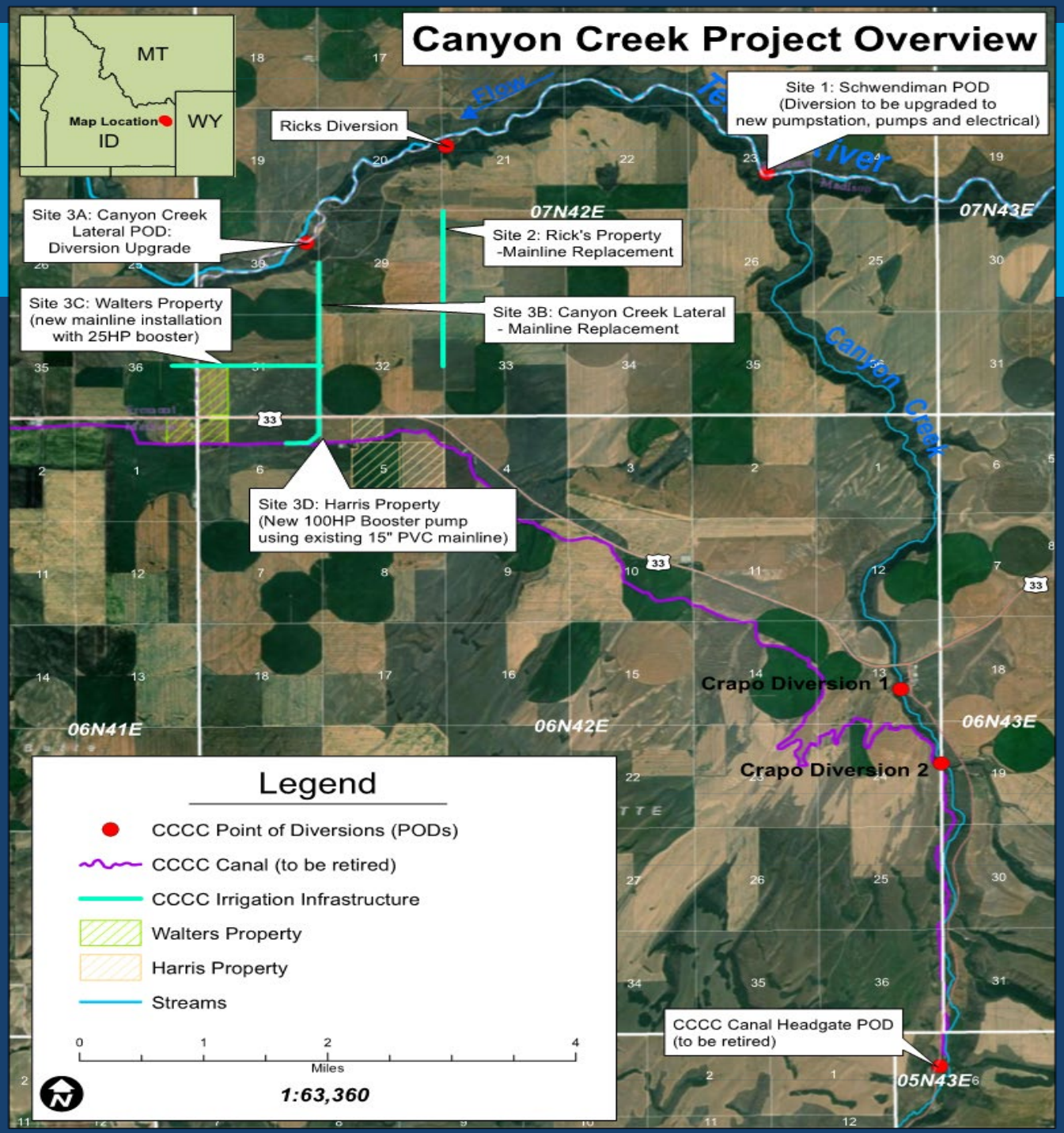

Greater Yellowstone Coalition
Greater Yellowstone Ecosystem
YELLOWSTONE NATIONAL PARK
GALLATIN NATIONAL FOREST
CUSTER NATIONAL FOREST
BEAVERHEAD NATIONAL FOREST
TARGHEE NATIONAL FOREST
SHOSHONE NATIONAL FOREST
BRIDGER TETON FOREST
CARIBOU NATIONAL FOREST
WIND RIVER INDIAN RESERVATION
Grand Teton National Park
Bozeman
Livingston
Gardiner
Red Lodge
Rexburg
Idaho Falls
Jackson
Afton
Pinedale
Lander
Legend
National Parks
National Forests
ECOSYSTEM BOUNDARY


Falls River
Henry's Fork
Bitch Creek
Idaho
Wyoming
Sugar City
Rexburg
Tetonia
Teton Creek
Driggs
South Fork Snake River
Fox Creek
Victor

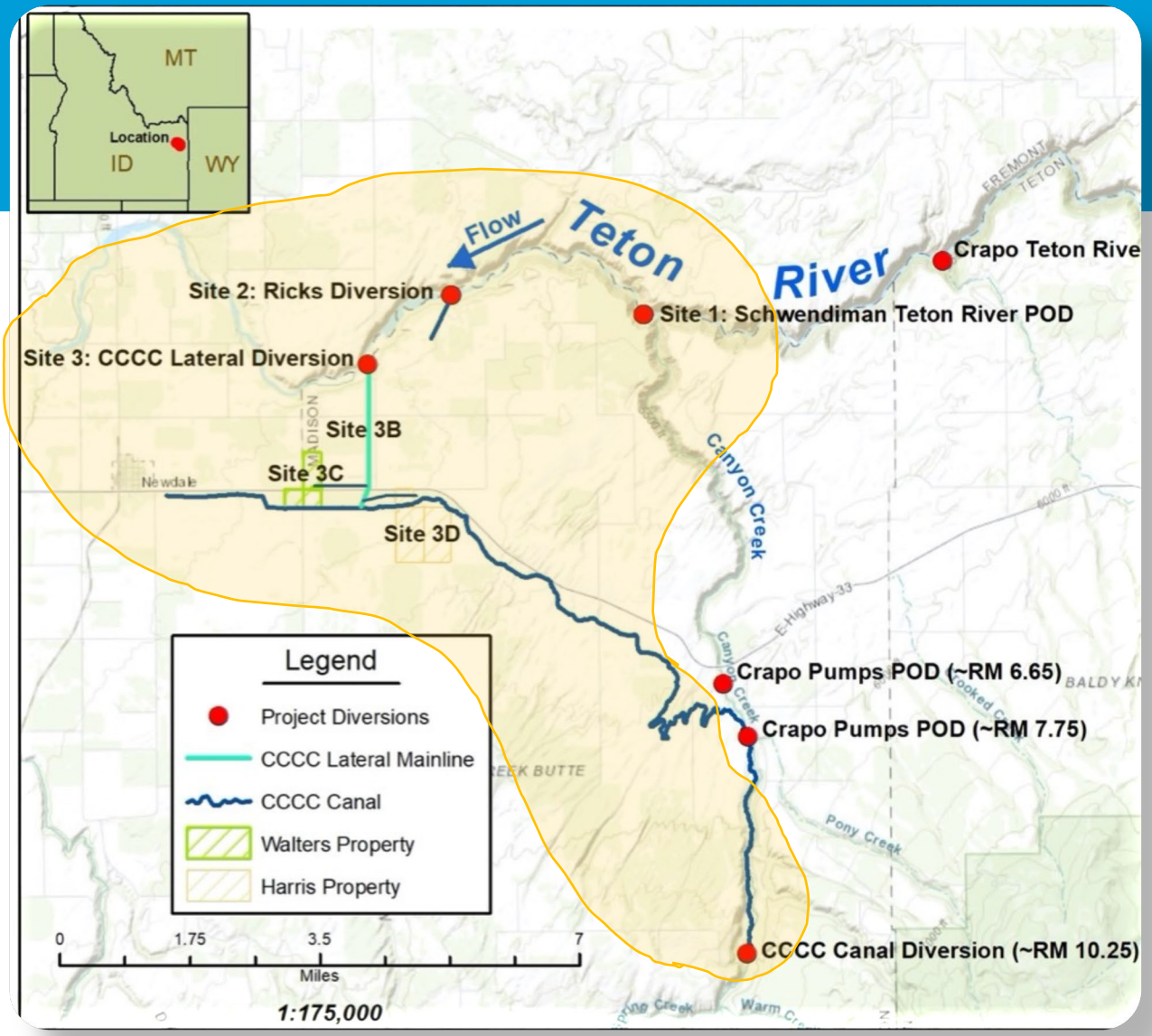
Fisheries Research and Monitoring



RECONNECTING CANYON CREEK

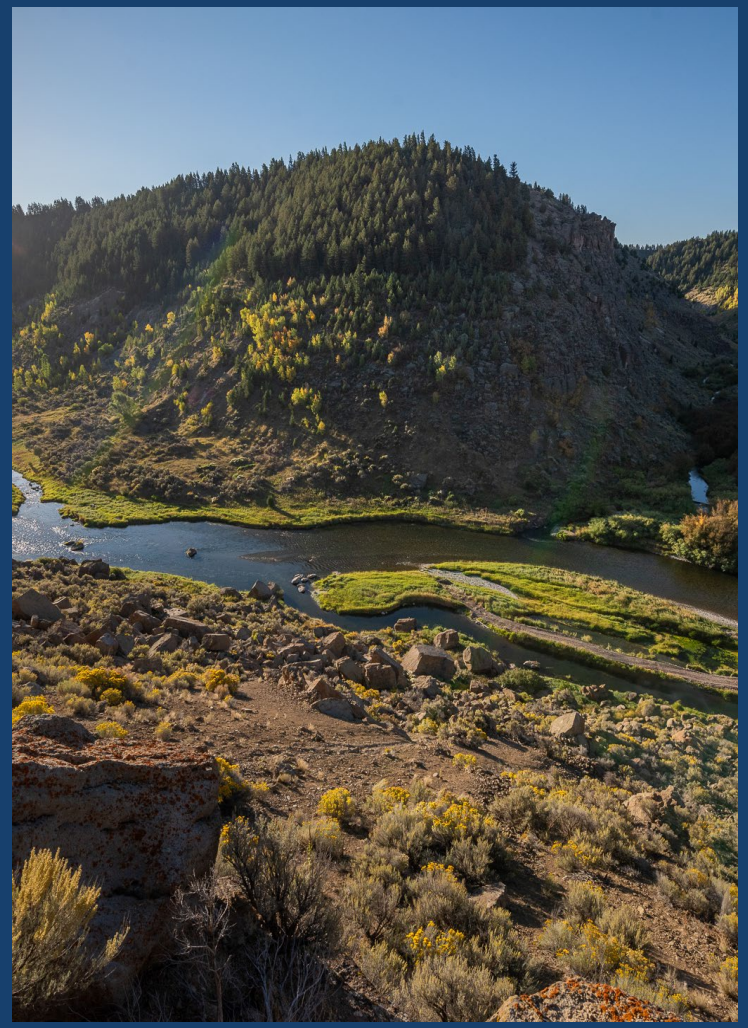

Canyon Creek Project Overview
MT
WY
ID
Map Location
Flow
Ricks Diversion
Site 1: Schwendiman POD
(Diversion to be upgraded to
new pumpstation, pumps and electrical)
Site 3A: Canyon Creek
Lateral POD:
Diversion Upgrade
Site 2: Rick's Property
-Mainline Replacement
Site 3C: Walters Property
(new mainline installation
with 25HP booster)
Site 3B: Canyon Creek Lateral
- Mainline Replacement
Canyon Creek
Site 3D: Harris Property
(New 100HP Booster pump
using existing 15" PVC mainline)
07N42E
07N43E
06N41E
06N42E
06N43E
Crapo Diversion 1
Crapo Diversion 2
CCCC Canal Headgate POD
(to be retired)
05N43E
Legend
CCCC Point of Diversions (PODs)
CCCC Canal (to be retired)
CCCC Irrigation Infrastructure
Walters Property
Harris Property
Streams
0
1
2
4
Miles
1:63,360

PROJECT OVERVIEW: PHASE 1



- Worked with 10 of 11 Canyon Creek Canal Irrigators
- Replaced 3 pump stations/POD's
- Replaced 30" steel mainlines and PVC conveyance lines (~20,000 feet each).
- Closed the 14 mile canal.

PHASE 1 COMPLETE!



- 10,680 acre-feet annually (up to 70 cfs) of water restored to Canyon Creek
- Total water savings of 4.75 cfs
- 7-10 more irrigation days (without using storage water)
- Water right transfer complete and telemetry flow gage installed.
- Canal permanently closed and fish entrainment no longer an issue

- Observation of YCT spawning redds and pairs
- Yellowstone cutthroat densities of 1,200 fish/km near the Canyon Creek confluence (vs 350 YCT/km in 2015).

SCHWENDIMAN

New pumps and fish screens

INSTALLATION OF 36" STEEL MAINLINE (10, 460 FT)

CANYON CREEK LATERAL POD
LOCATED DIRECTLY BELOW TETON DAM

RECONNECTING CANYON CREEK
PHASE 1 FUNDING
$4.8M

- BOR WaterSMART Planning grant
- Columbia Basin Water Transactions Program
- NFWF America the Beautiful Challenge Grant
- BOR WaterSMART Environmental Water Resources Program
- Canyon Creek Canal Company
- Friends of the Teton River

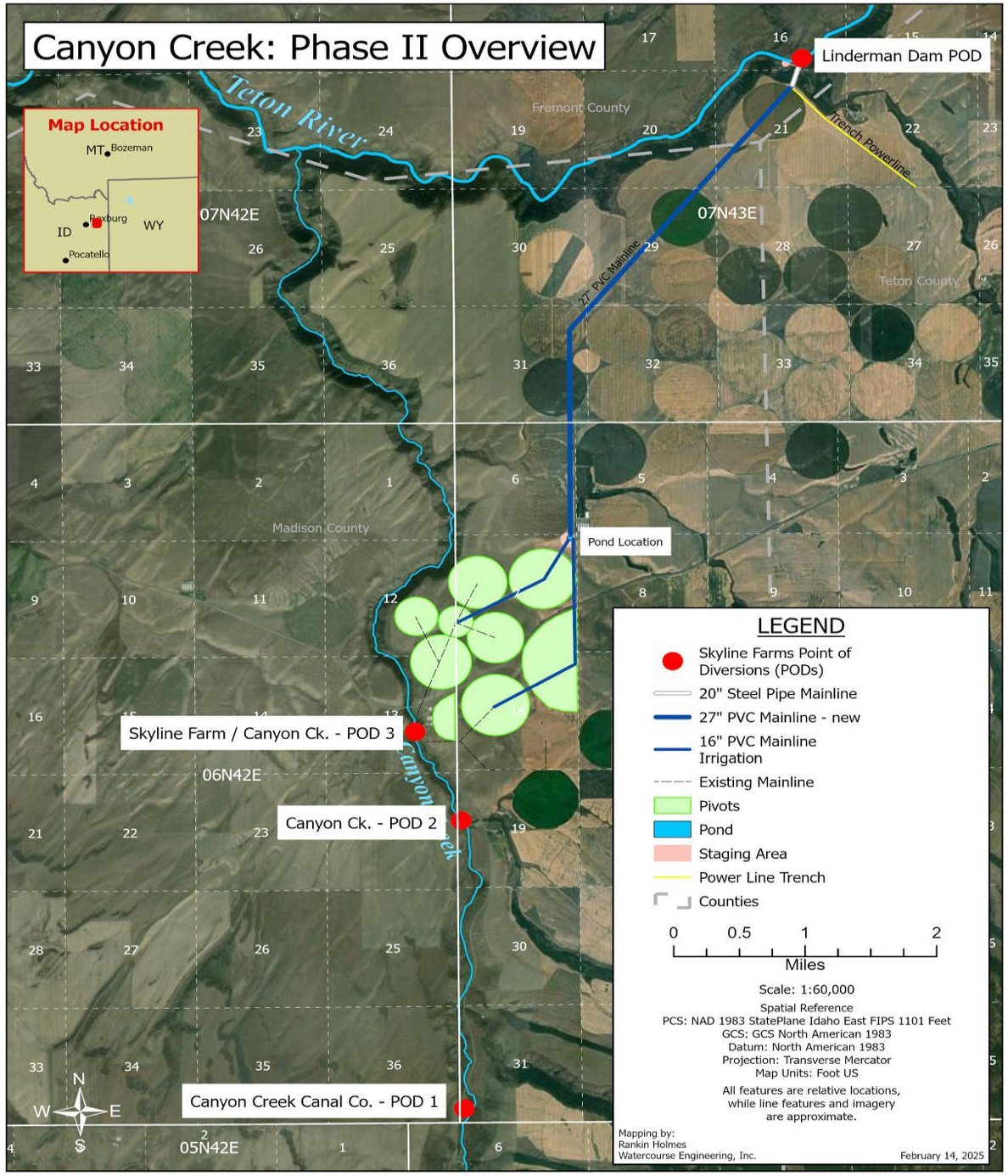
OCTOBER 2025
SCIENCE REVIEW COMMITTEE FIELD TOUR

PHASE 2: $5.5 M

Work with remaining irrigator (Skyline Farms) to complete a source switch from Canyon Creek POD3 to Linderman Dam POD

Improve all pumps and lines to accommodate the switch

Minimum instream flow agreement for lower ~6.65 miles of Canyon Creek



Map 1: Linderman Dam Site / Skyline Farm POD

Linderman Dam pumpsite: winter 2025
photo source: Conn Crapo

Skyline Farm / Linderman Dam pumpsite located on diversion channel: Two 600 HP Pumps and motors will be installed in the two empty pump-bays shown above.

One new pump-bay will be built and added on to the southern-end of this line of pump-bays with a third 600 HP pump and motor wired into the new pump-bay.

Teton River

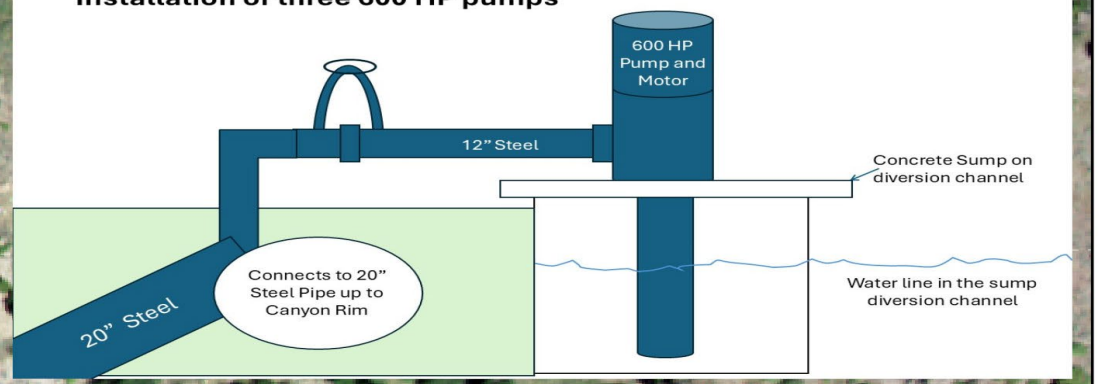
16

07N43E

21

Linderman Pump Site Schematic

Installation of three 600 HP pumps



LEGEND

- Skyline Farms Point of Diversions (PODs)
- 20" Steel Pipe Mainline
- Staging Area

0 90 180 360

US Feet

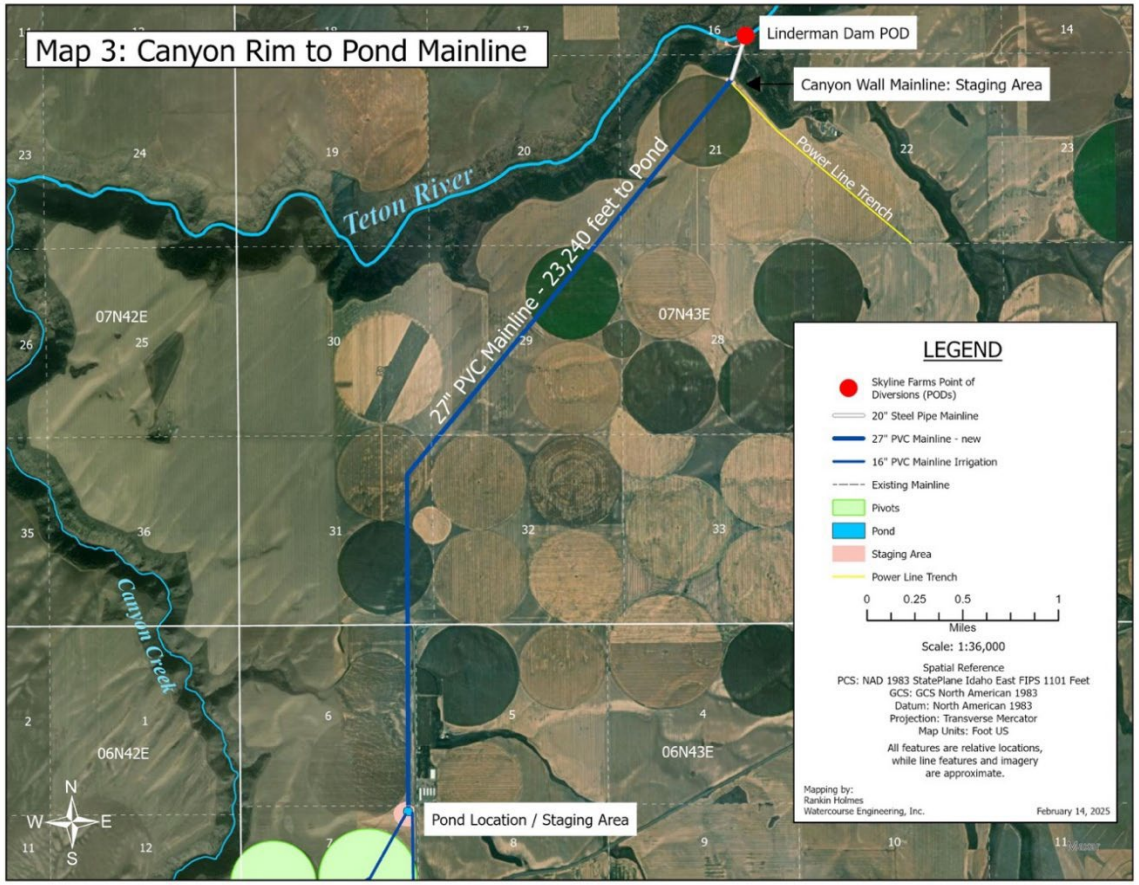
Scale: 1:1,750

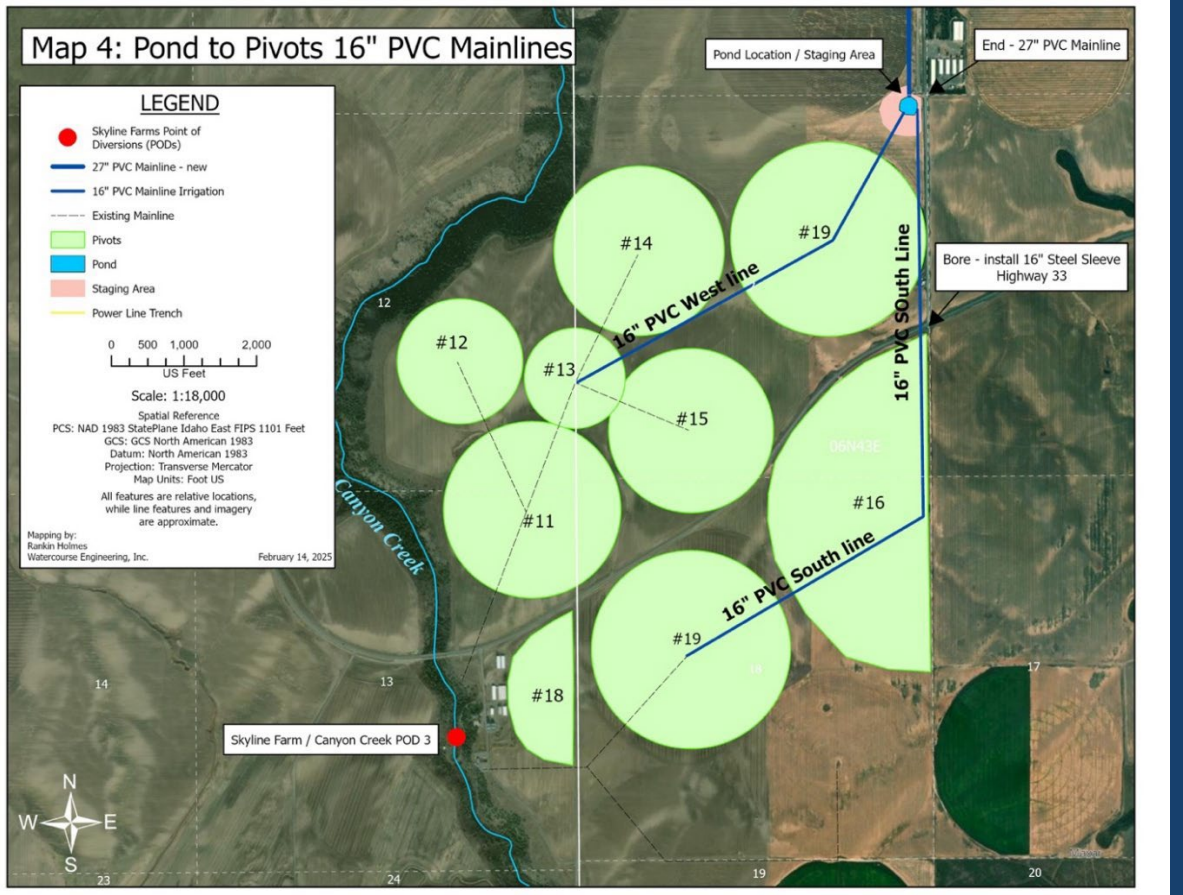
Spatial Reference
PCS: NAD 1983 StatePlane Idaho East FIPS 1101 Feet
GCS: GCS North American 1983
Datum: North American 1983
Projection: Transverse Mercator
Map Units: Foot US

All features are relative locations, while line features and imagery are approximate.

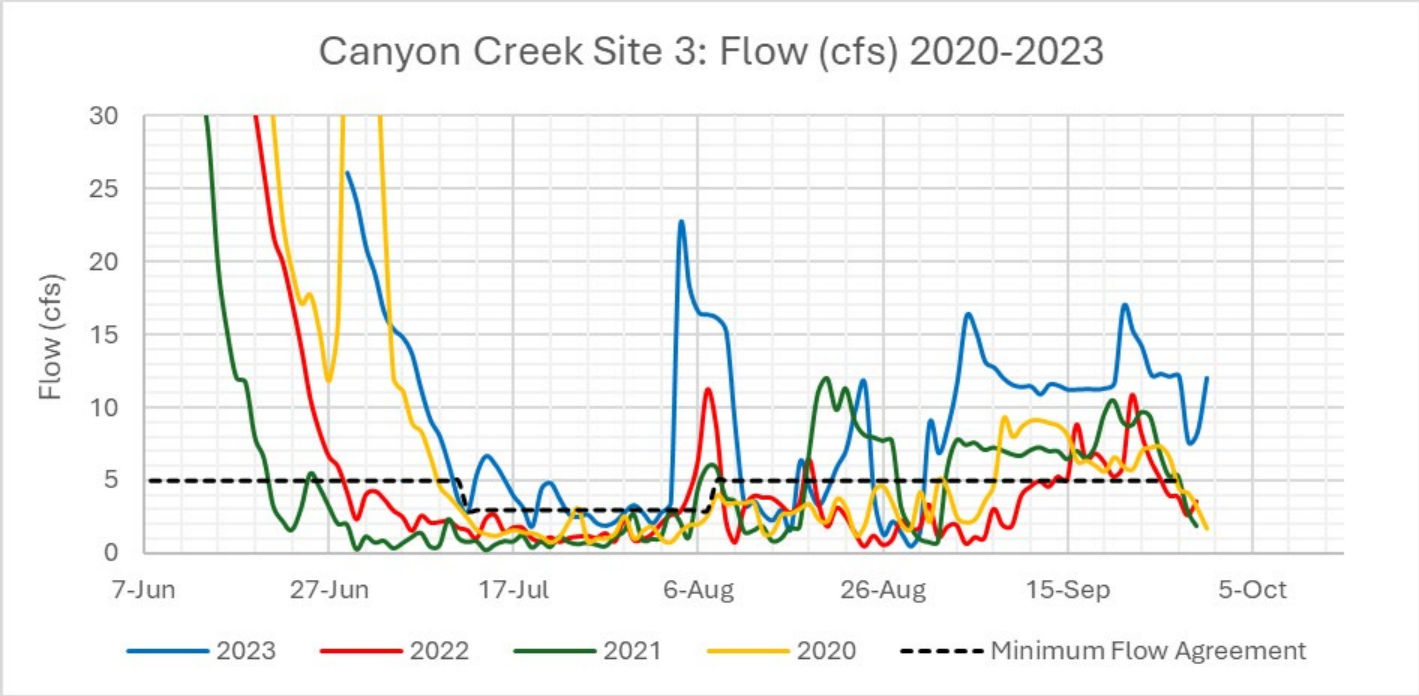
Mapping by:
Rankin Holmes
Watercourse Engineering, Inc.

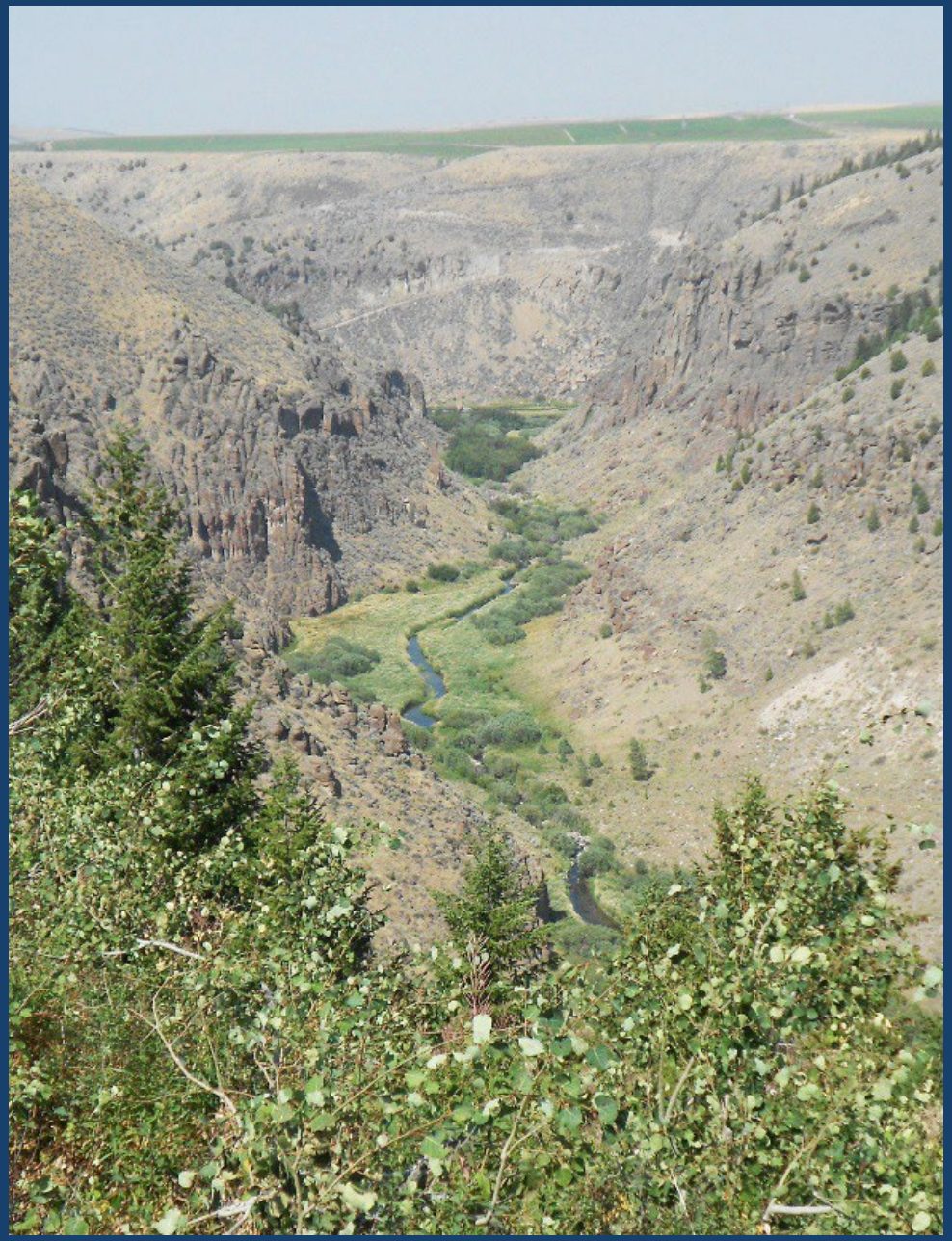
February 14, 2025





- 23,250 feet of mainline to pond staging location
- 2 new 250HP booster pumps
- 1,900’ 3,700’ and 2,500’ of PVC irrigation line to pivots





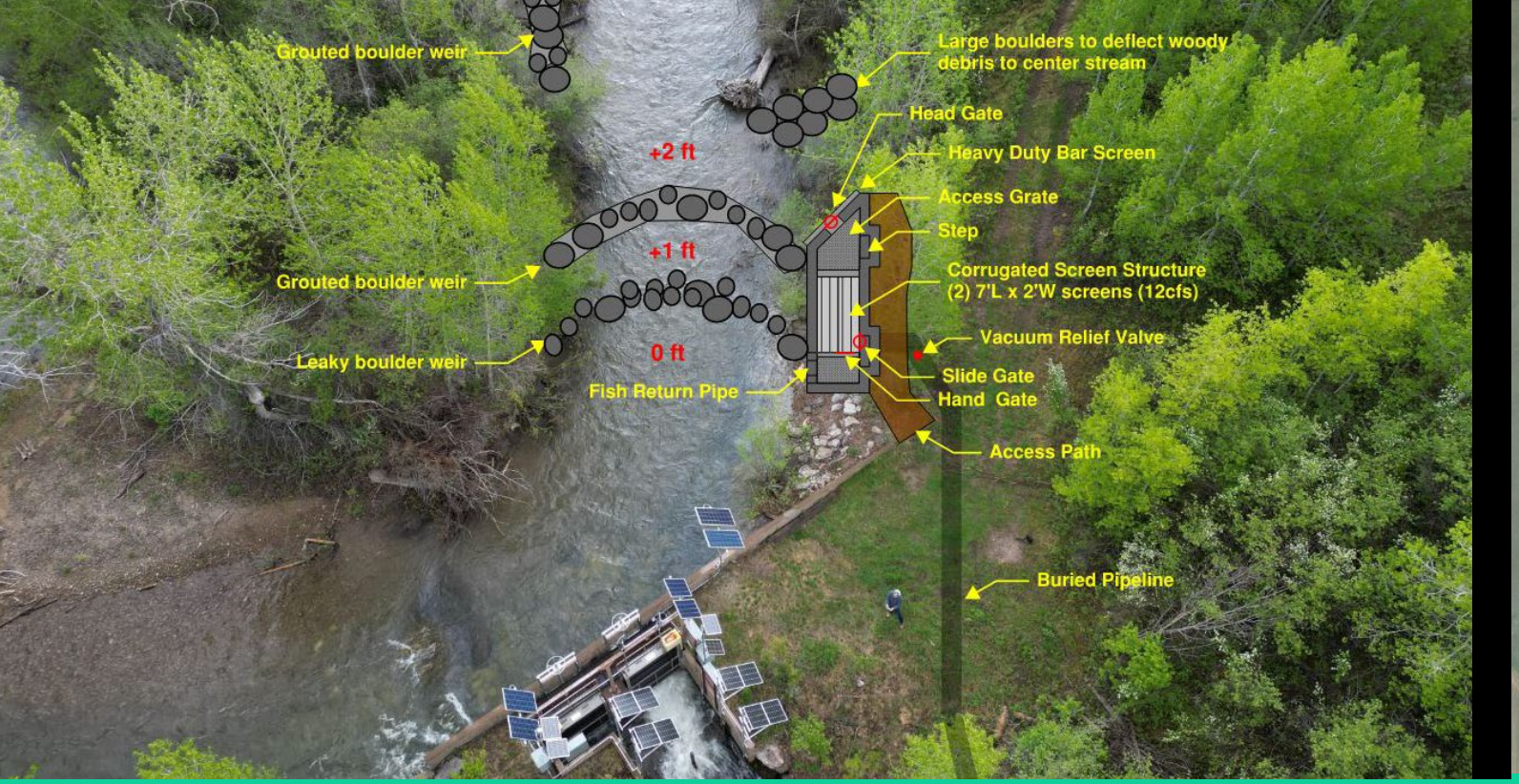
- Minimum Flow: 3-5 cfs during the minimum instream flow period
- Improve baseflows in the 6.65 mile reach by 200-300%

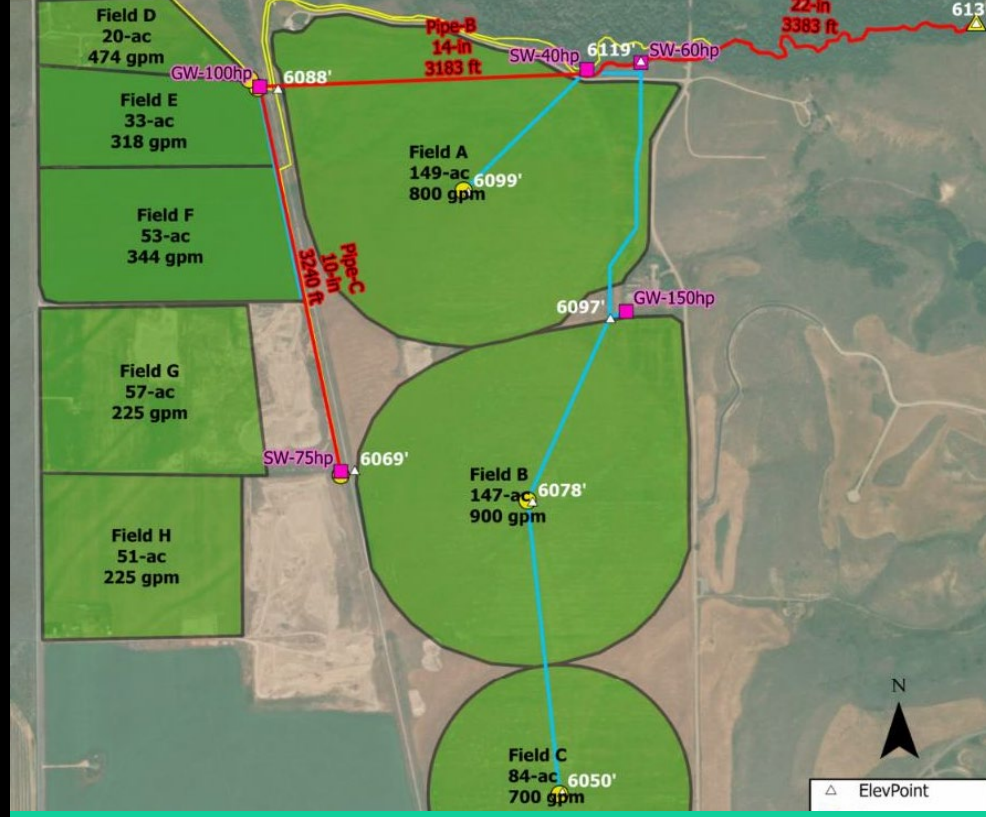
RECONNECTING CANYON CREEK
PHASE 2 FUNDING SOURCES

Currently Seeking Funding for Phase 2 $5.5M

IWRB Application In Progress (Aging Infrastructure) $2M

Federal Grant(s): $3.5M (source unknown – WaterSMART?)

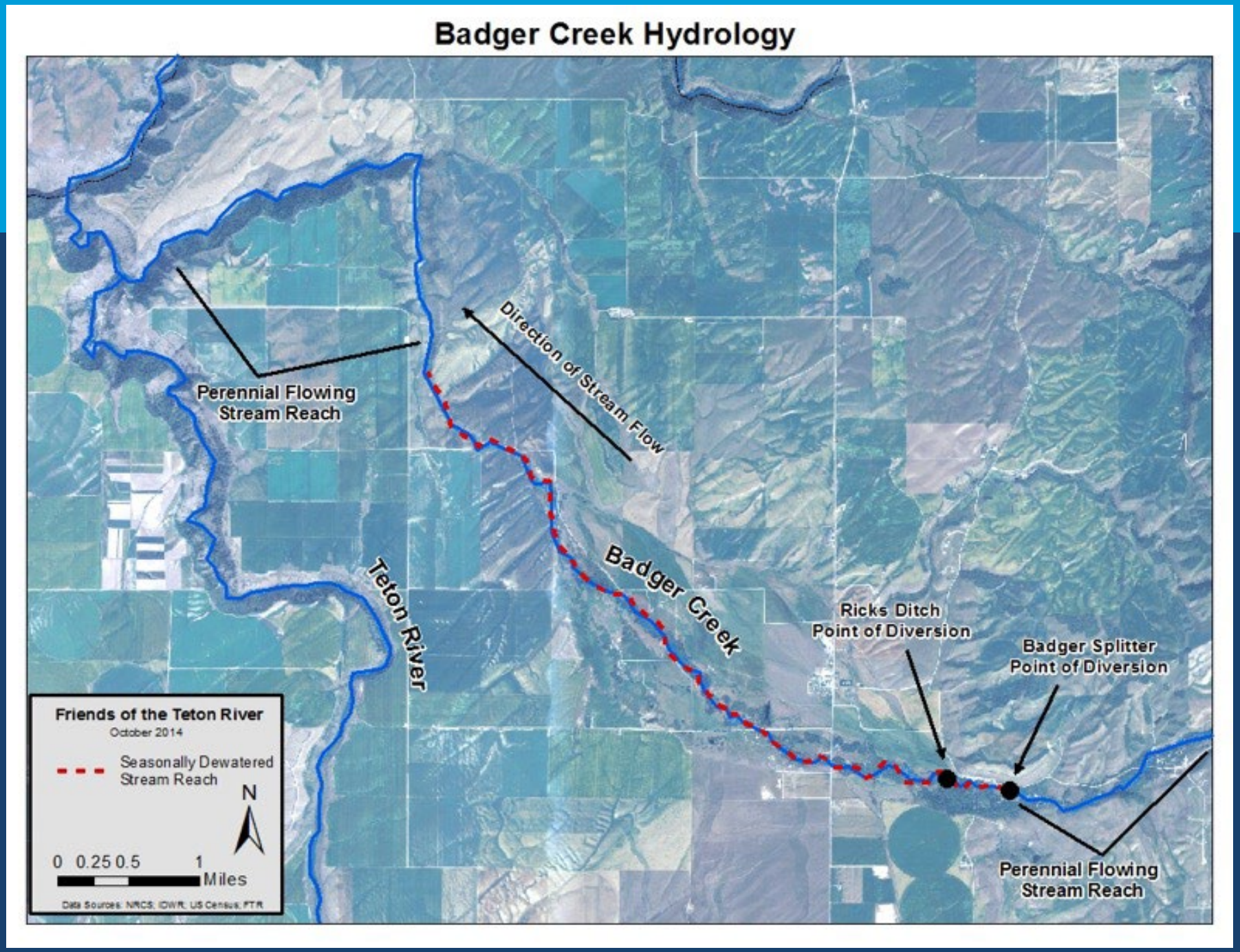




BADGER CREEK TRANSACTION DEVELOPMENT

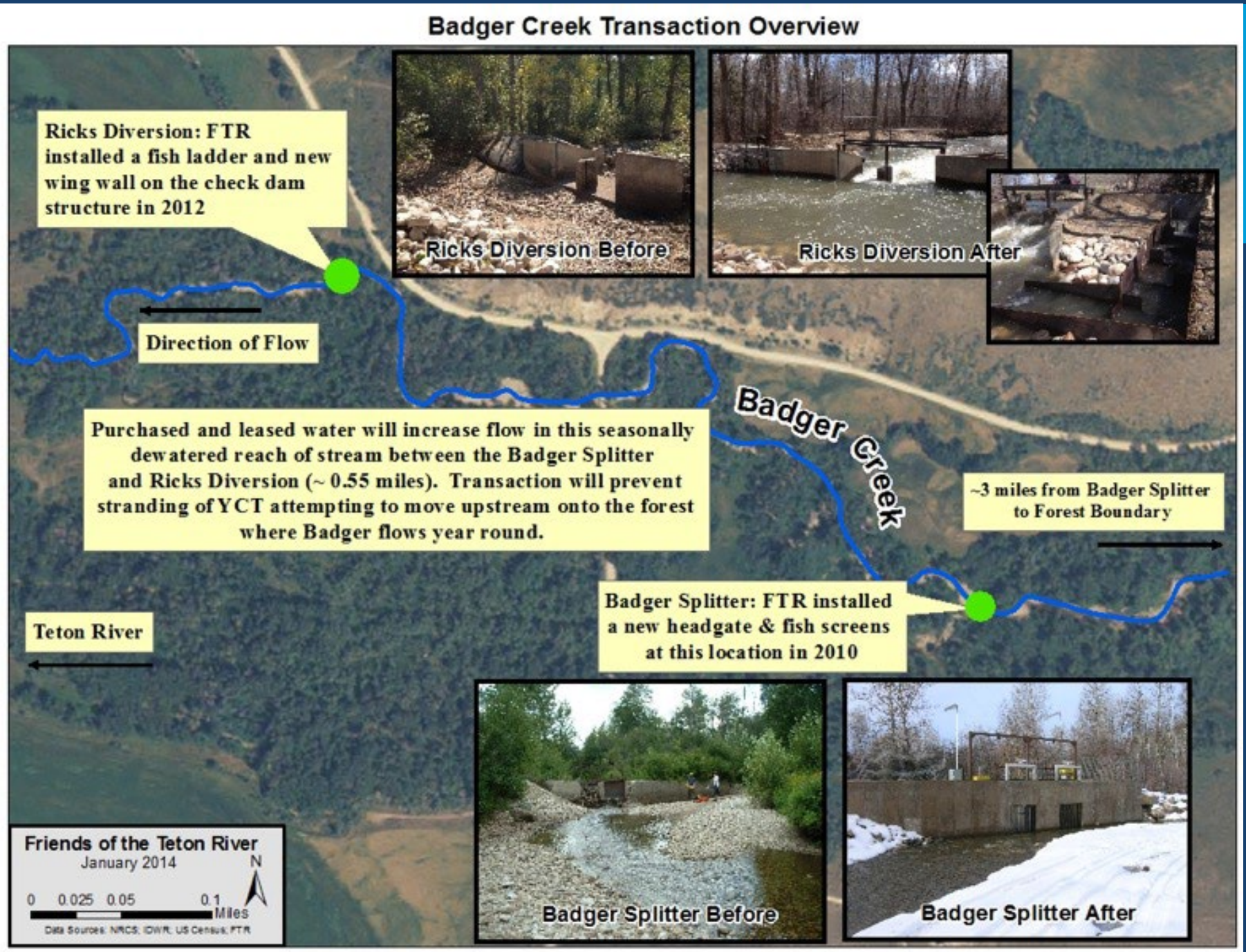
BADGER CREEK

- High priority YCT population and an intact small fluvial YCT population
- Seasonally dewatered stream reach impacts YCT movement



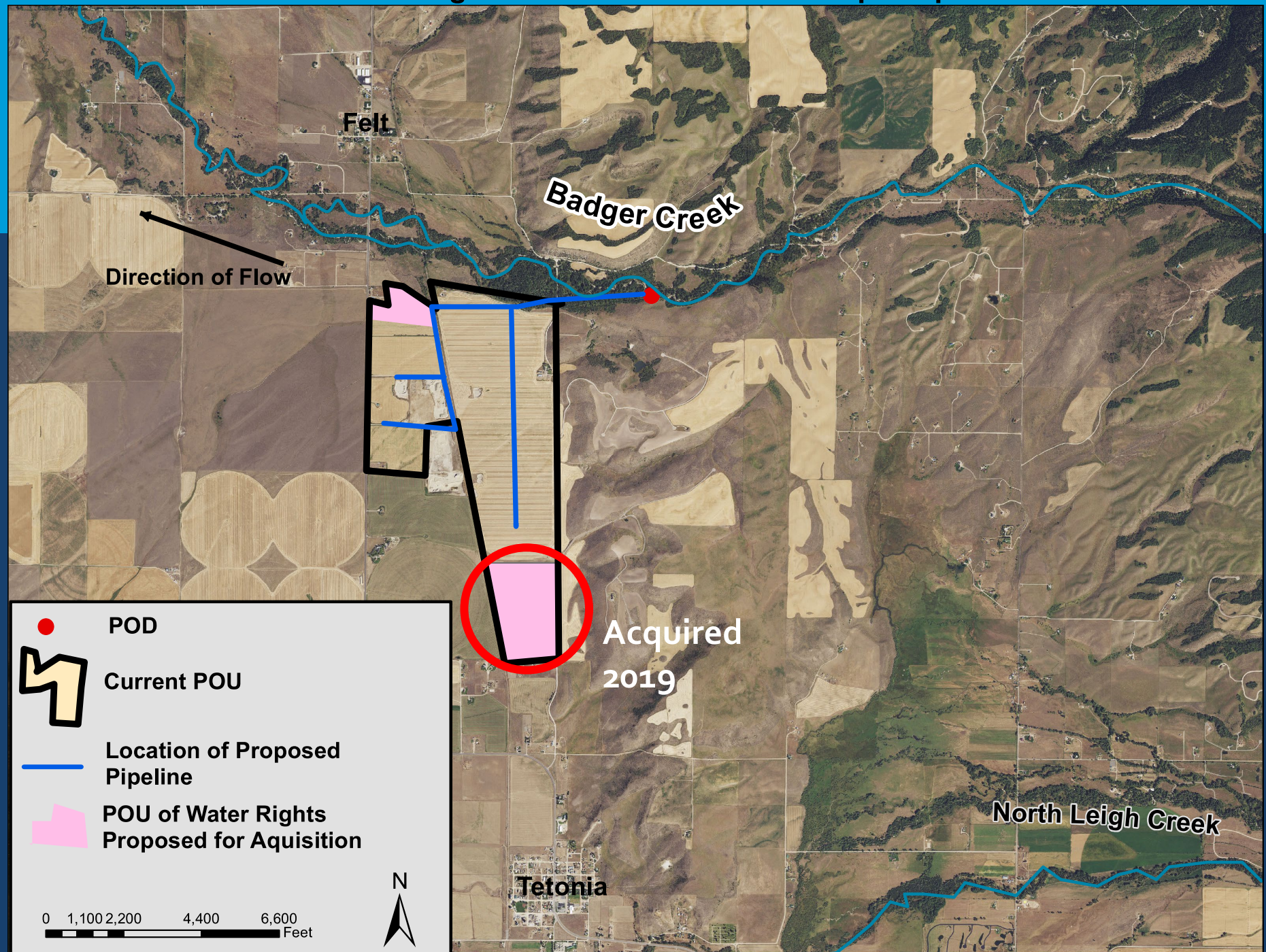
PAST WORK

- Fish screens - 2010
- Fish ladder – 2012
- 1st permanent flow transaction - 2019



CONCEPT MAP

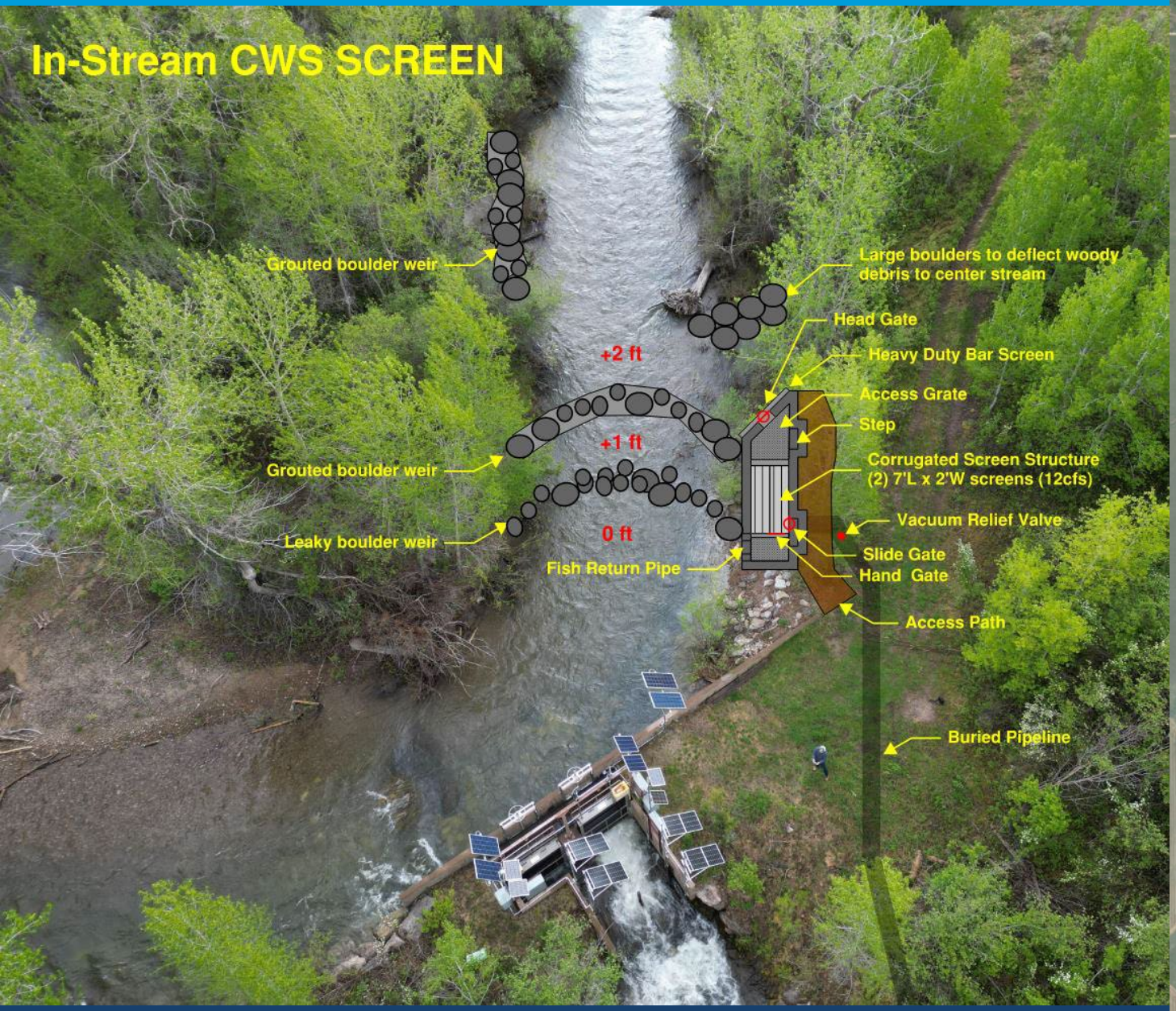
- Dual delivery system maintains existing canal and adds piped delivery for senior water rights.
- Savings from piping allow 25% of senior water rights to be committed to instream flow – total savings of 5.72cfs
- Acquiring additional senior rights, increase instream flow commitment

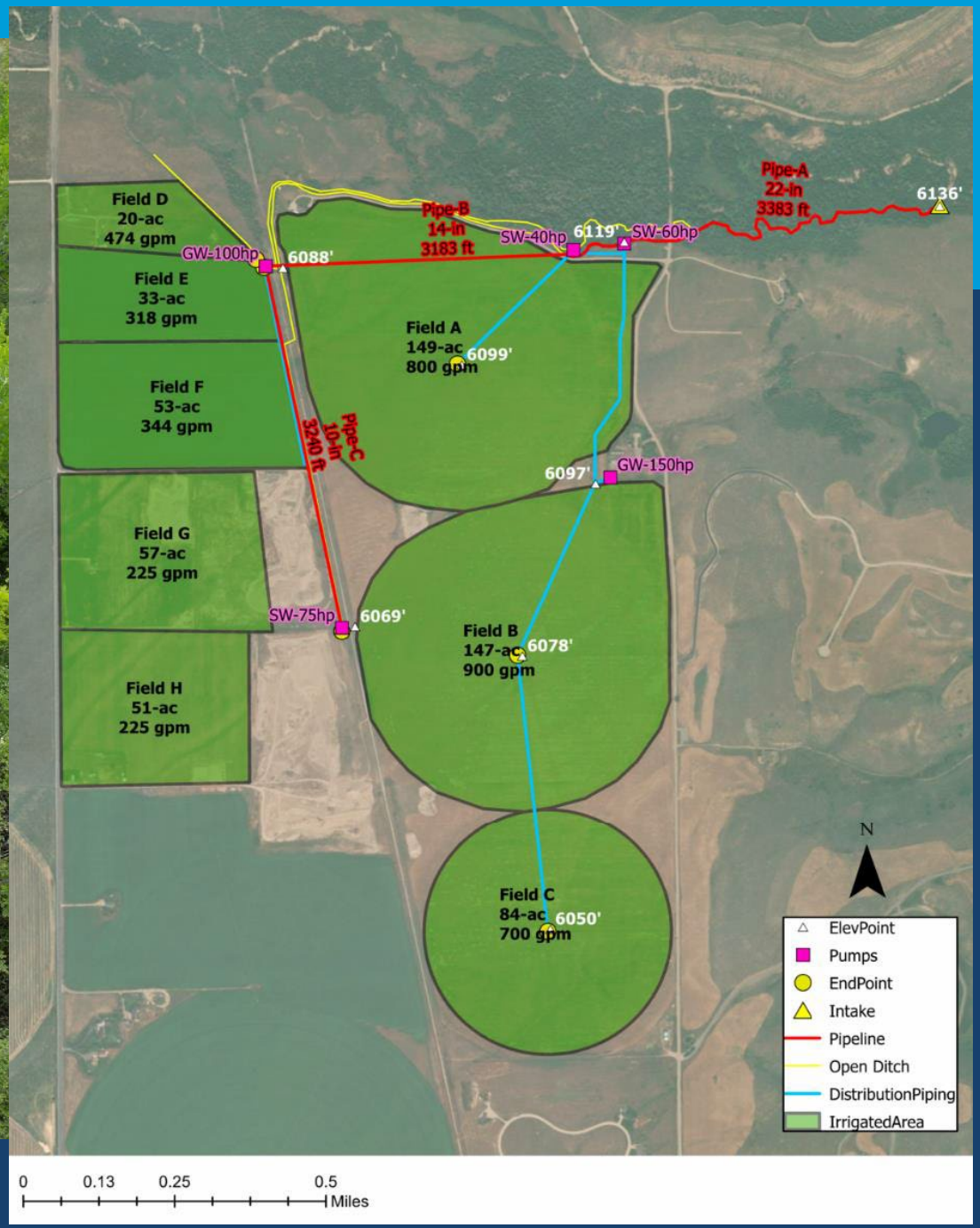


PRELIMINARY ENGINEERING: COMPLETE!

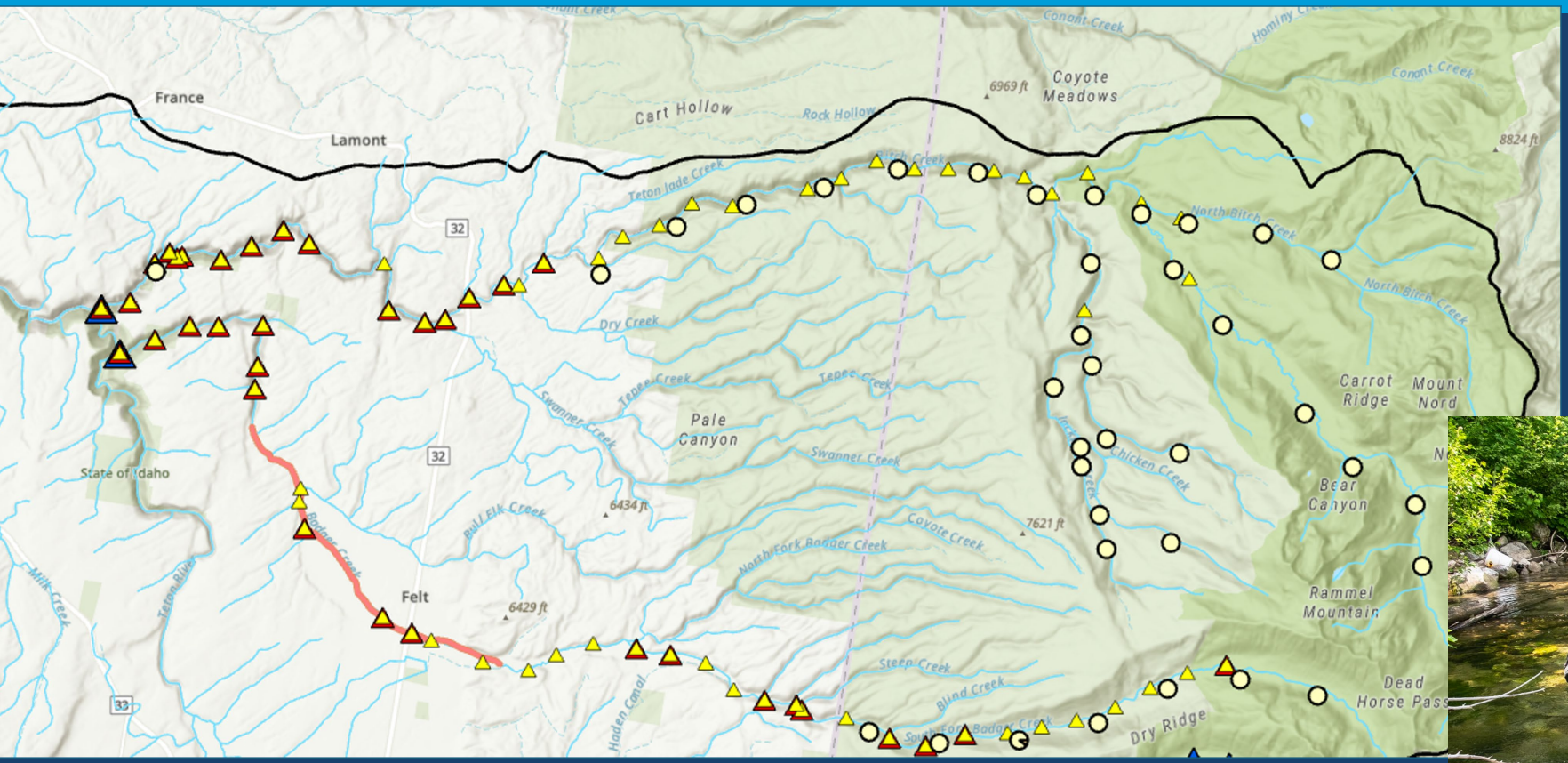
- Irrigation demand and layout
- Pipeline specifications, alignment, and delivery points
- Fish Screen Intake structure design considerations
- Permitting and scheduling considerations
- Project cost estimate: ~$1.4 M

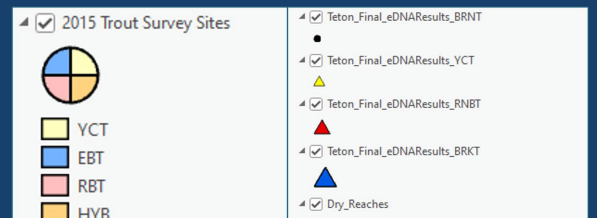
In-Stream CWS SCREEN





FISHERIES DATA





Sampling Period 1
eDNA Results, Bitch and Badger

- 2024 eDNA study findings
- 2025 population monitoring
- IDFG Coordination

OCTOBER 2025
SCIENCE REVIEW COMMITTEE FIELD TOUR

- Strong partnerships support collaborative field science, funding, and project implementation
- Discussion of NRCS funding support for this project is underway with irrigator

BADGER CREEK TRANSACTION

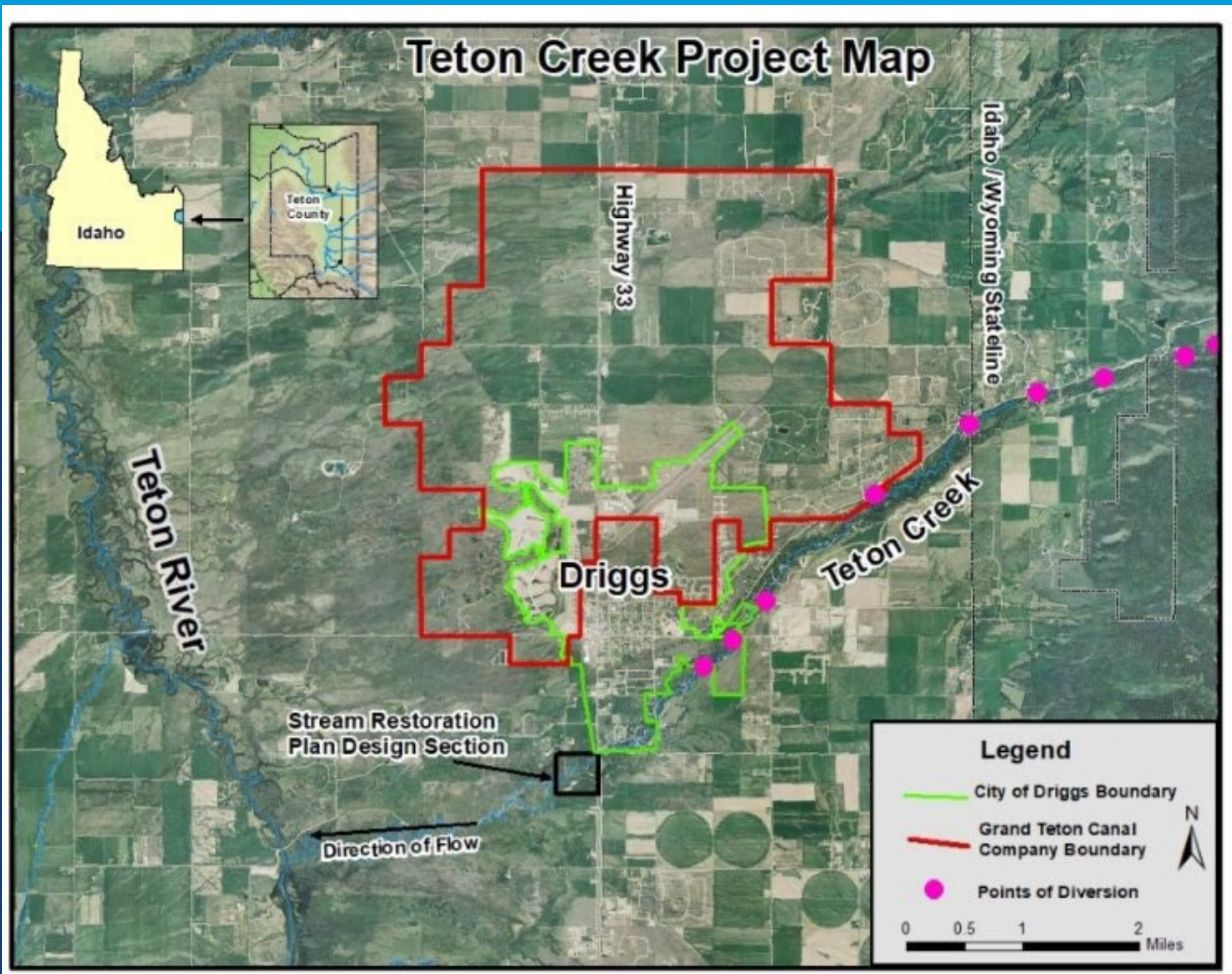
Next Steps:

- Engage landowners on water rights transaction with support of Teton Basin Valuation.
- Complete 2025 Tributary Trout Assessment and coordinate with IDFG on conservation priorities.
- Acquire funding source ~ $1.4M for physical infrastructure
- Apply for CBWTP funding for permanent instream flow agreement
- Complete final engineering, begin on-the-ground work

TETON CREEK WATER STRATEGY

Teton Creek Water Strategy

- Planning effort with stakeholders from the City of Driggs and Shareholders of the Grand Teton Canal Company including ecological stream assessments of Teton Creek
- Funded by Bureau of Reclamation WaterSMART planning Grant



DELIVERABLES:

- City of Driggs smart-growth water program and water transaction dashboard
- Detailed hydrologic study of Teton Creek
- Irrigation infrastructure analysis
- Fish screen and headgate analysis
- Groundwater and surface water rights inventory and analysis
- Final Report: Teton Creek Water Strategy Plan

TETON CREEK TRANSACTION DEVELOPMENT

Planning Outputs

Hydrologic and Water Rights Data → Municipal Water Conservation → Irrigation Infrastructure Recommendations → Increased Stakeholder Collaboration → **Future instream flow Transations**

Teton Basin Water Users Association

- Teton Basin is being brought into the ESPA Groundwater Management Area
- New Groundwater District forming in Teton Basin this fall.
- Potential changes to local water management, impacts to historic streamflow regimes, and need for increased cooperation between water users for mitigation plans.
- FTR maintains role as a leader in the basin through our work with TBWUA

QUESTIONS?

Memorandum

To: IWRB – Streamflow Enhancement and Minimum Streamflow Committee

From: John Loffredo, Program Manager – Idaho Water Transactions Program

Date: July 23, 2025

Re: Idaho Water Transactions Program Updates – L-6 Feasibility Study

REQUIRED ACTION: Comments and guidance from the Committee are requested.

Background:

The Lemhi River Basin is an important basin for the spawning, migration and rearing of Snake River spring/summer Chinook salmon, Snake River summer steelhead, and resident bull trout. All listed as threatened under the Endangered Species Act. During the irrigation season, low flows at the Lemhi River L-6 diversion, which is located approximately seven river miles upstream from the confluence with the Samon River, can cause migration barriers for Chinook salmon and steelhead at multiple life stages. In April 2001, the Idaho Legislature passed HB 358 which authorized the IWRB to appropriate a Minimum Stream Flow (MSF) water right in the reach below the L-6 diversion. The protected flow is 35 cfs 80% of the time between March 15 and June 30, and 25 cfs 100 percent of the time between March 15 and November 15 each year.

For the past 18 years, the IWRB has been working to meet the 25–35 cfs target through both annual and permanent agreements. These agreements allow water users to irrigate their full irrigated acreage unless the IWRB's minimum stream flow water right is not being met. When flows cannot be met naturally, the contracted water users agree to restrict the delivery of their water rights.

Administration of the IWRB's contracts with water users to maintain the minimum stream flow is facilitated by Water District 74 and modern diversion infrastructure in the form of an Obermeyer Weir designed and constructed by the Bureau of Reclamation as part of the Lemhi River Water Conservation Demonstration Project in 1996. Unfortunately, this fully automated diversion structure was designed under a water management paradigm that pre-dated the IWRB's minimum stream flow and has never functioned as designed. This has resulted in diversion infrastructure that is reaching the end of it's usable life perhaps sooner than anticipated by all stakeholders in the basin and has consequences for passage of ESA-listed fish that can expose water users to third party lawsuits and injure the IWRB's minimum streamflow water right.

Today, IWRB staff will provide a project update to the Streamflow Enhancement & Minimum Streamflow Committee on efforts to engage water user and agency stakeholders and the results of a repair, replace, or consolidation feasibility study of the L-6 and L-7 diversions funded by the Bureau of Reclamation in 2024 and competed by subcontractor, QRS Consulting, LLC in June 2025.

Lemhi River L6/L7 Diversions: Repair, Replace, Consolidate Feasibility Study Update

Lemhi River @ L-6: April 2022 – 35 cfs
River Mile 7

Credit: IWRB

Presented By:

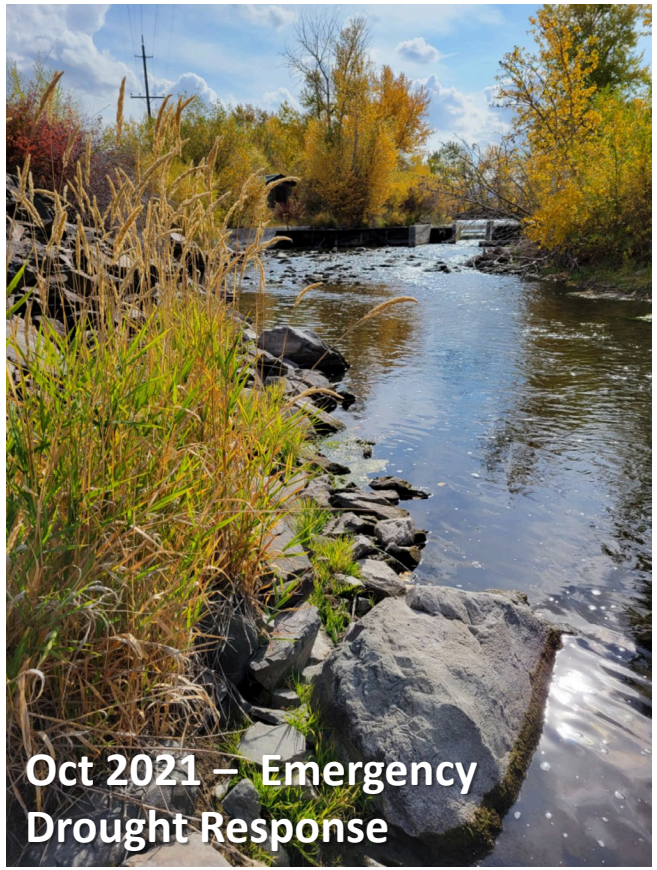
John Loffredo, Program Manager – Idaho Water Transactions Program

Idaho Department of Water Resources

IWRB Streamflow Enhancement & Minimum Streamflow Committee

July 23, 2025

Subordination to Minimum Stream Flow Water Right



Annual and Permanent Subordination Agreements

- Board-held MSF WR: ***Lemhi River @ L-6 Diversion (River Mile 7)***
- Since 2007: 25-35 CFS protected for 100 days, March – November
- Senior water rights voluntarily subordinate and are compensated for restricted delivery at a fair-market rate

PARTNERSHIPS IN WATER CONSERVATION

SEPTEMBER 1997 WATERSHED CONSERVATION DEMONSTRATION PROGRAM LEMHI RIVER, IDAHO

Lemhi River L-6 and L-7/7A Diversion Improvements

1994

Common practice of building a gravel diversion dam to redirect river flow down a ditch to irrigate hay fields. This occurred multiple times each irrigation season due to changing river flows that would deconstruct the dam.

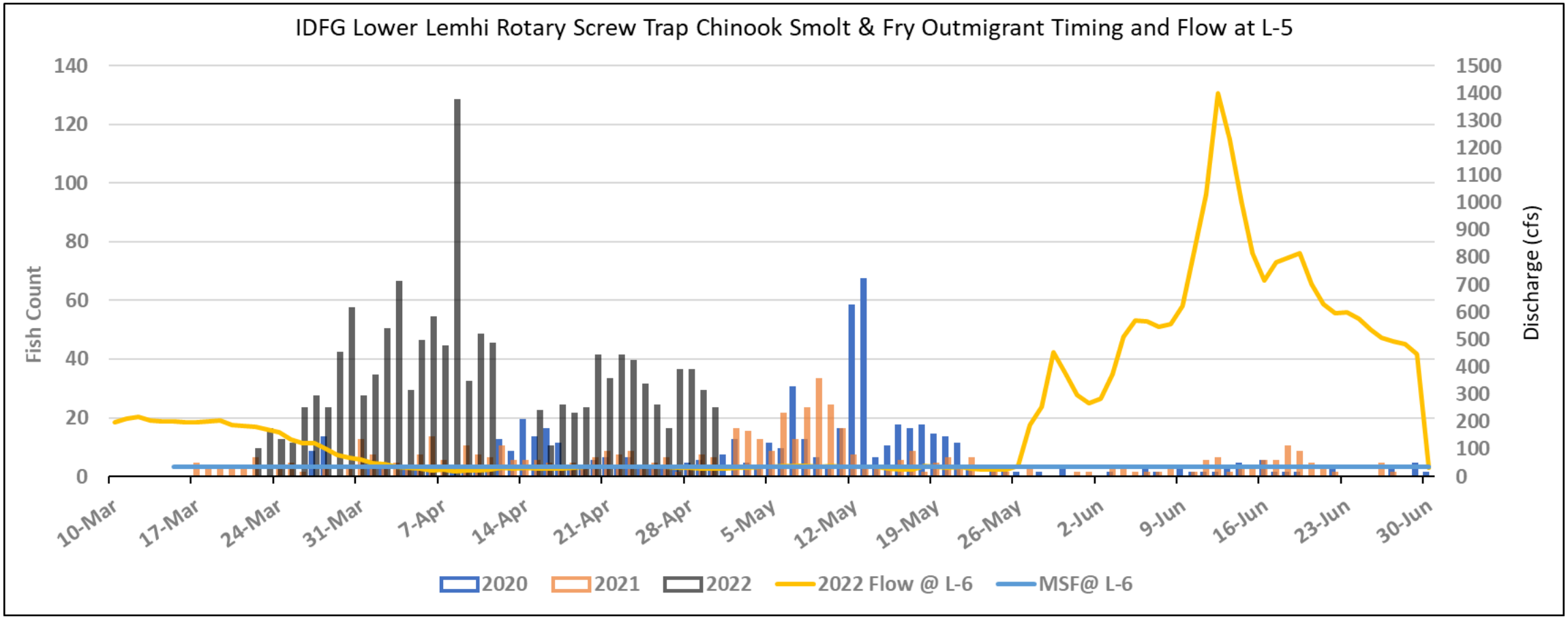
1998

Post-construction of new concrete weir at L6 diversion eliminating the need for machinery to construct the gravel dam. Dam includes a fish ladder bay but water rights continued to dewater the river at low flow periods.

2004 to present

Establishment of water bank and instream flow provisions ensures at least 25 cfs flows downstream of L6, maintaining fish passage.

Did you know: Fish need water, at all life-stages



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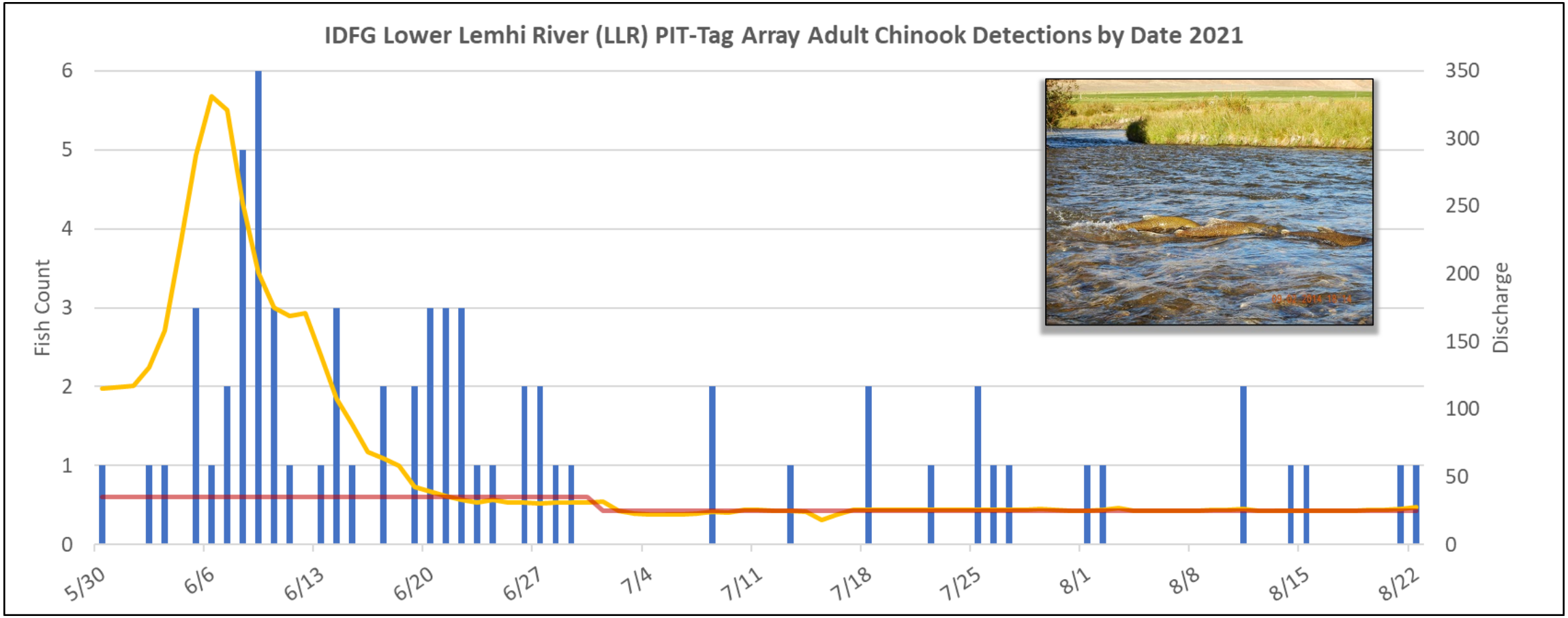
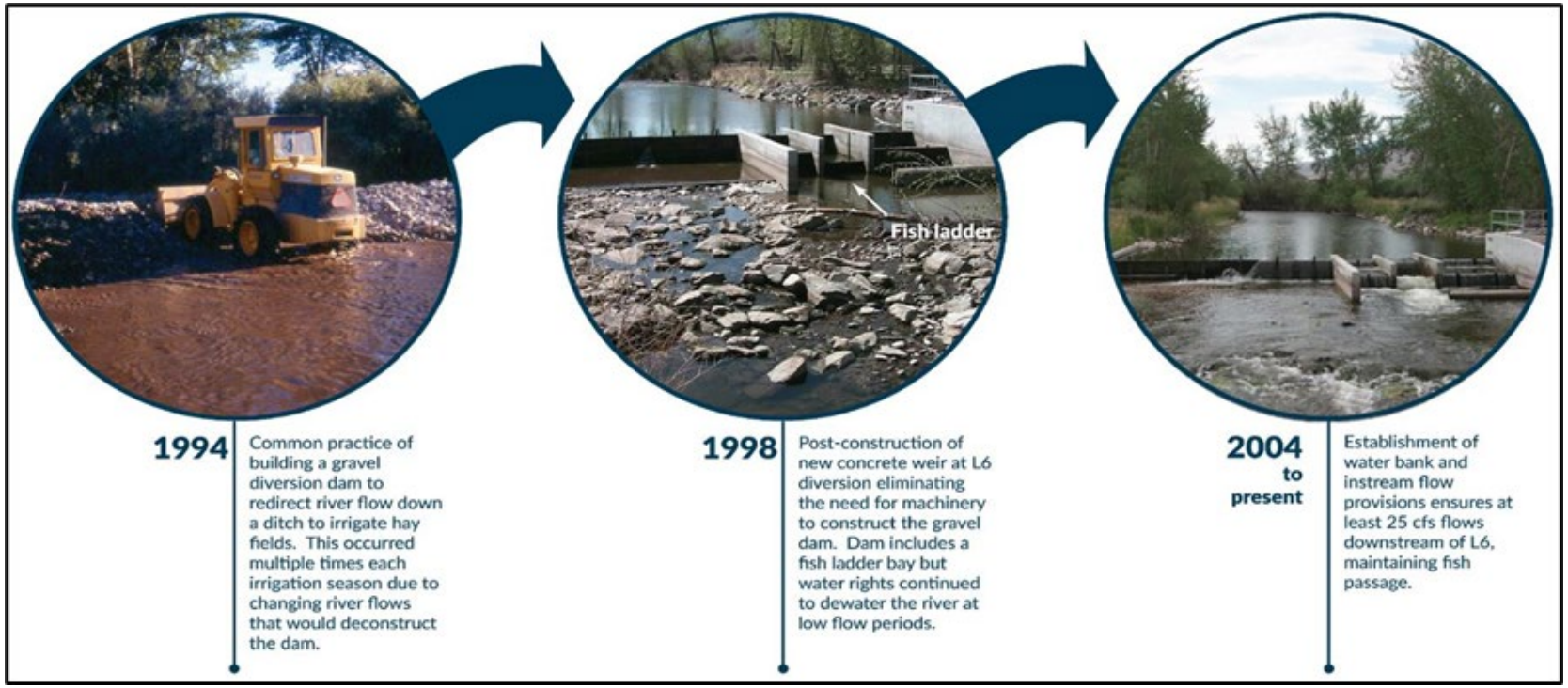


Aging Infrastructure Challenges:
Water Management, Minimum Stream Flow, & ESA-listed Fish Passage
Lemhi River L-6 Diversion

Problem:

Obermeyer Weir design does not meet current function.

Flushing flow paradigm in 1990s replaced by minimum stream flow paradigm in 2001.



Emerging Issue:

Current infrastructure forced to function in a way it was not designed for.

Automation failing due to overuse of moveable parts. Twice annual instream excavator work needed to move diversion plates. L-7 has similar maintenance issues. Long-term functionality outlook is poor.

Fish Ladders

Pool and weir fishways designed for a range of flows from 30 to 200 cfs would be constructed at each site. They would have one to three pools with an approximately 1-foot drop between pools. Velocity over the weirs would be no greater than 6 feet per second under maximum flow conditions. The design flow is based on the assumption that at river flows of less than 30 cfs, there would be little if any movement of adult fish and at river flows greater than 200 cfs, fish will find the ladder and pass the diversion site with minimum delay.

Cost

Reclamation designed the new diversion structures and provided contract administration and construction oversight for the project.. The $1.8 million budget for the modifications included $300,000 for designs, $1.3 million for construction, and $200,000 for contract administration.

Why The Lemhi L-6 Diversion Minimum Stream Flow Matters:

- Maintaining a minimum stream flow at L-6 is one part of overall state strategy for ESA-listed fish recovery.
- Enacting recovery plans offer some level of protection for water users against ESA enforcement.
- Juvenile and adult anadromous fish rely on the 35 – 25 cfs Minimum Stream Flow (74-14993) at L-6 for downstream and upstream passage, respectively.

What's Next:

- FY25 Alternatives Analysis funded by BOR.
- Identify and consider replacement, consolidation options through water user meetings with qualified design firm.
- Alternatives to be considered for FY26 design and FY27 construction.

Who's Involved:

Water Users: Water District 74, L6 and L7 Lateral User Associations, Lemhi Soil and Water Conservation District

State Agencies: Governor's Office of Species Conservation, Idaho Fish and Game, Idaho Water Resource Board

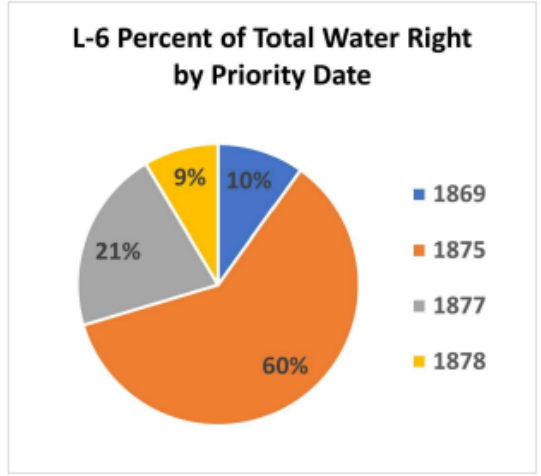
Federal Agencies: National Ocean and Atmospheric Admin., Bureau of Reclamation, Natural Resource Conservation Service

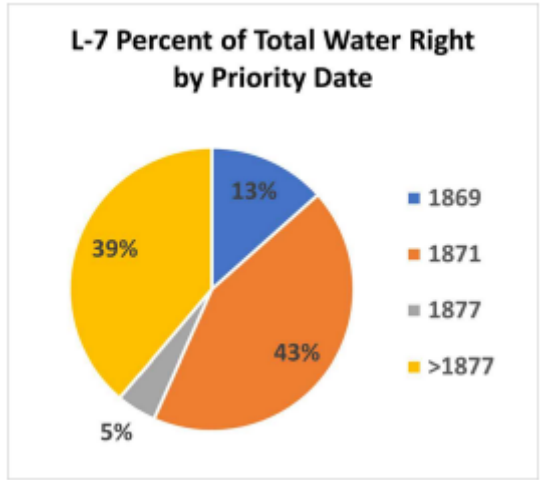
Project Site Map & Irrigation Water Rights

VICINITY MAP
SCALE: NTS

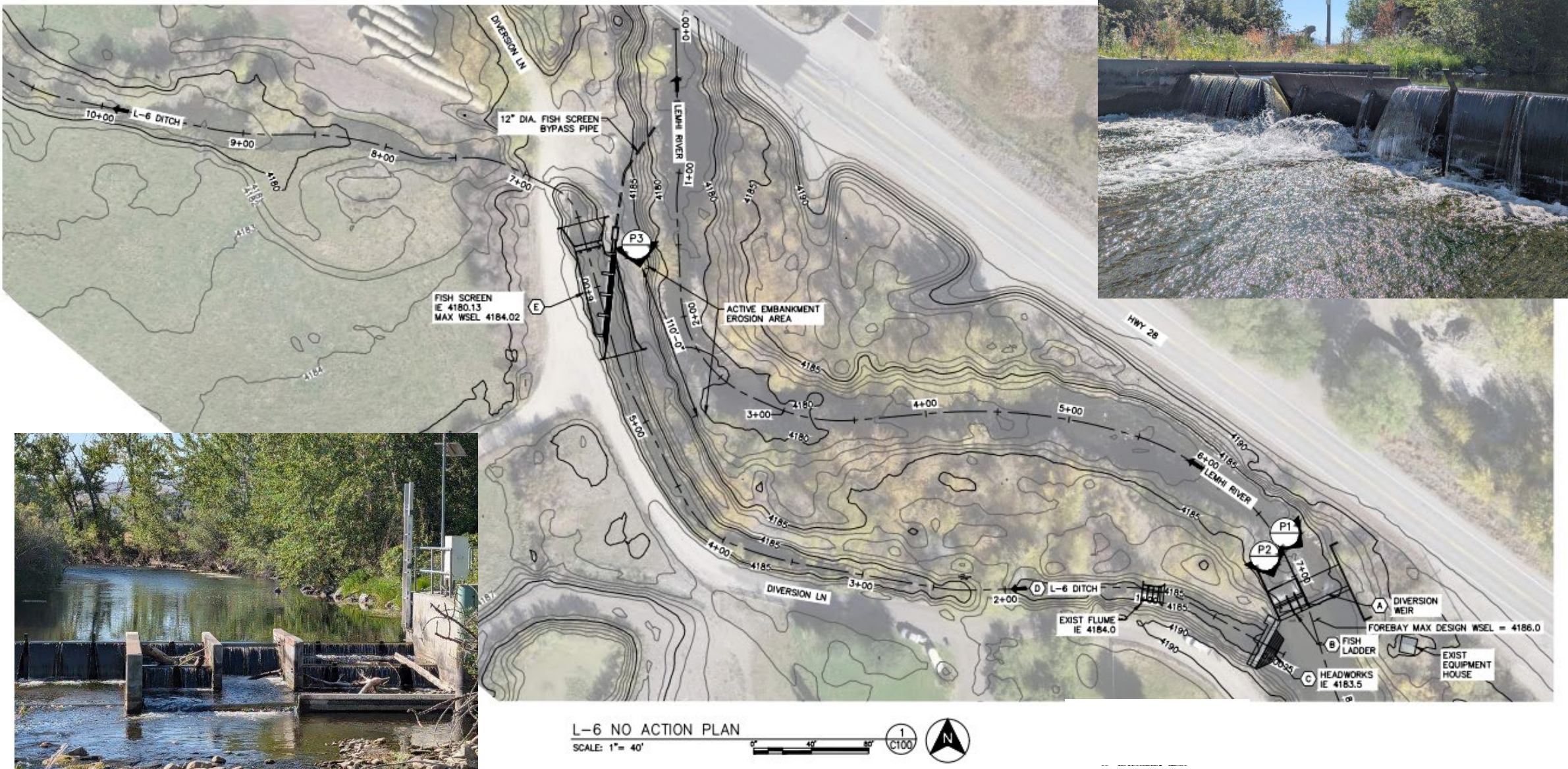
LOCATION MAP
SCALE: NTS

PROJECT SITE MAP
SECTION 24, TOWNSHIP 21N, RANGE 22E
LEMHI COUNTY, IDAHO
LATITUDE: 45°07'42.85"N, LONGITUDE: 113°47'44.66"W

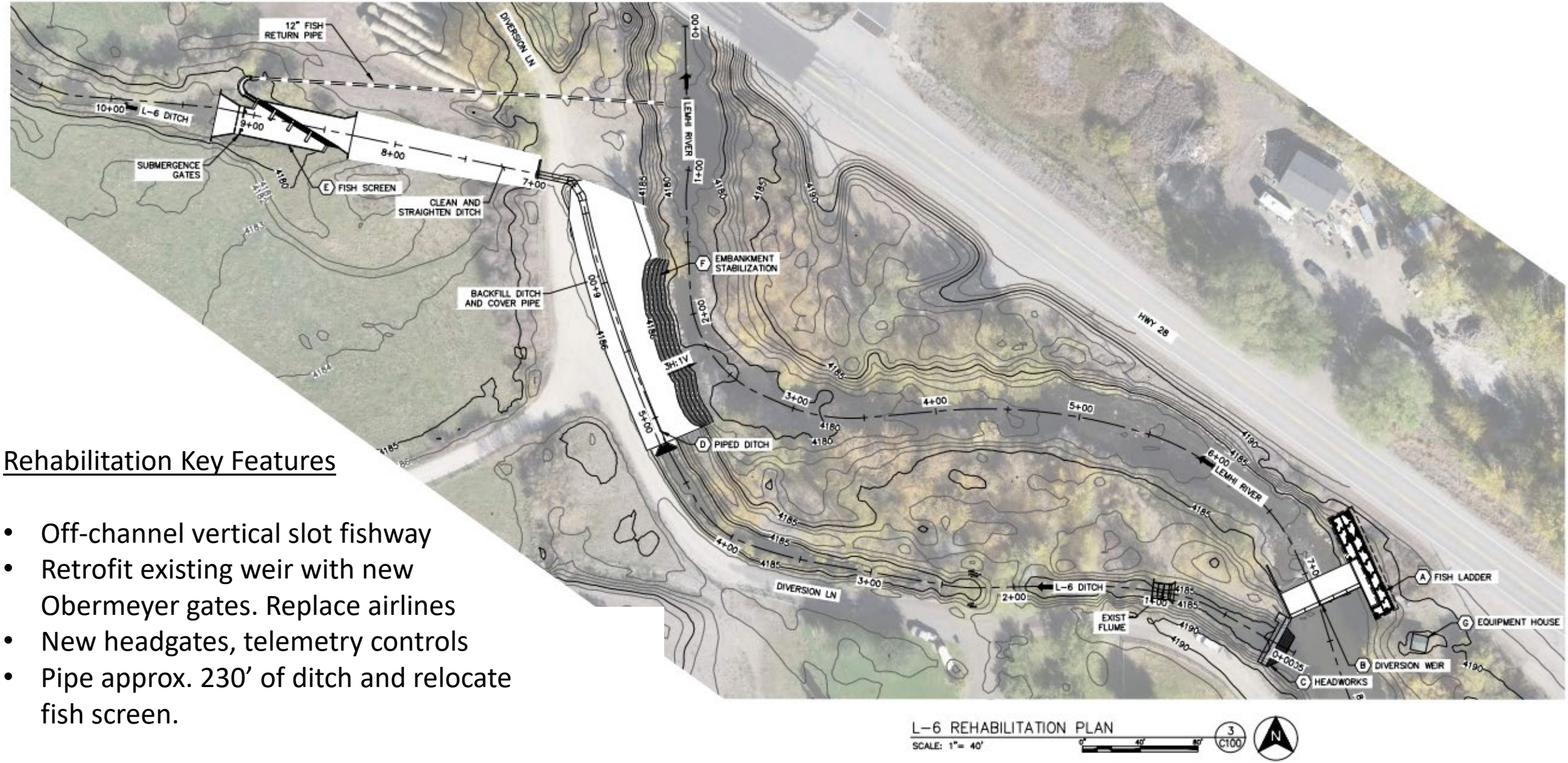




L-6 Diversion: No Action Plan



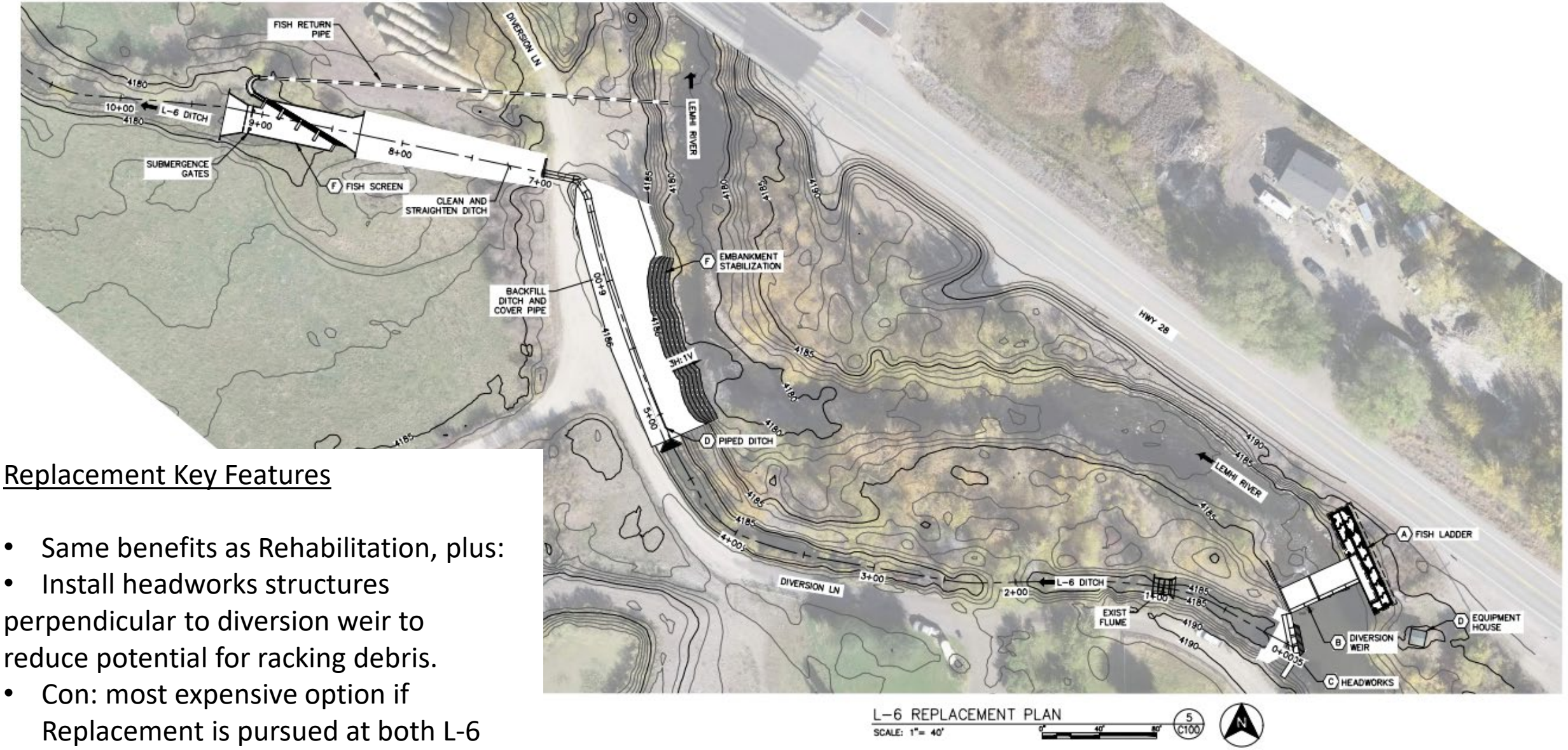
L-6 Diversion: Rehabilitation Plan



Rehabilitation Key Features

- Off-channel vertical slot fishway
- Retrofit existing weir with new Obermeyer gates. Replace airlines
- New headgates, telemetry controls
- Pipe approx. 230’ of ditch and relocate fish screen.

L-6 Diversion: Replacement Plan



<u>Replacement Key Features</u>

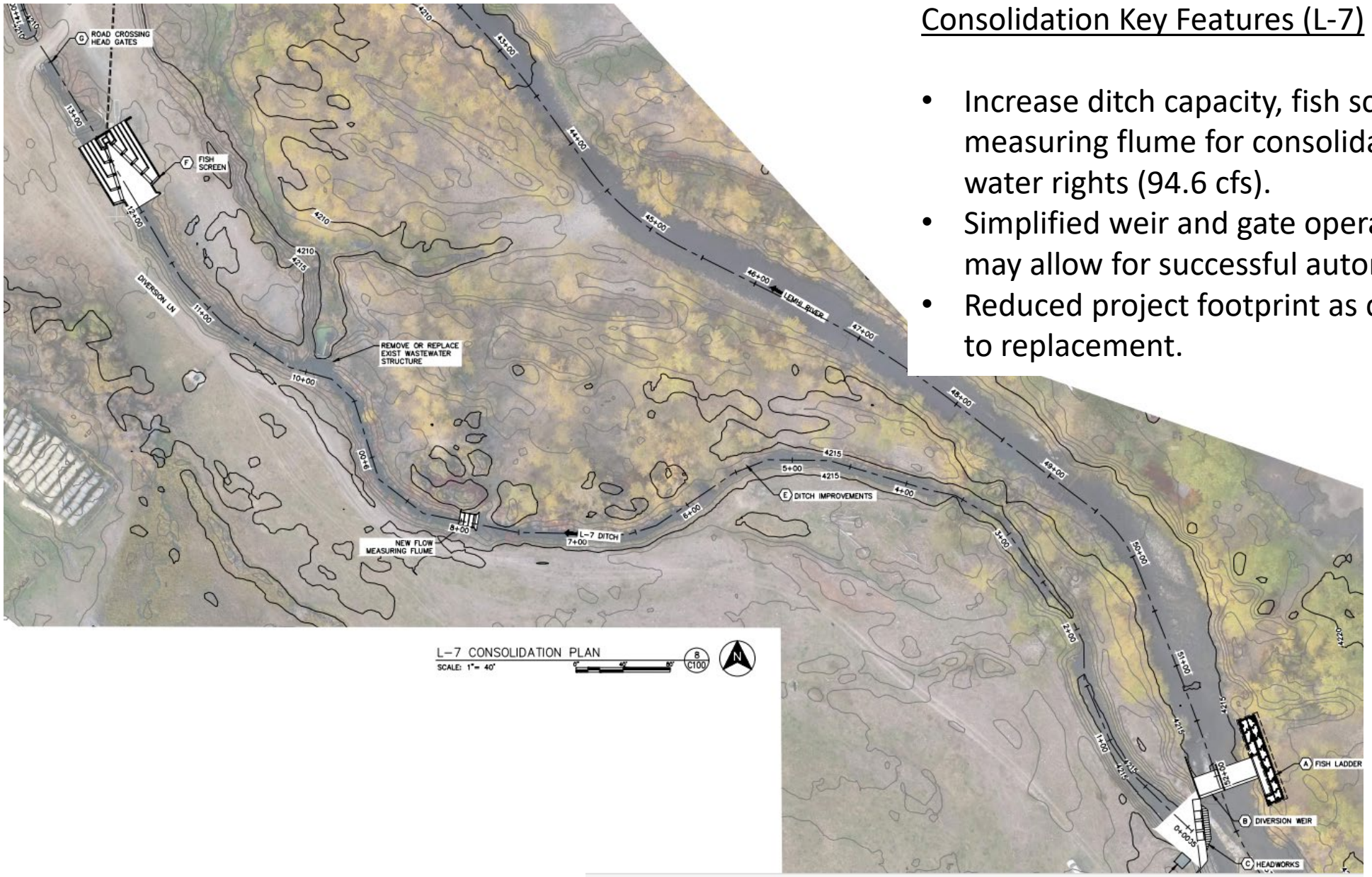
- Same benefits as Rehabilitation, plus:
- Install headworks structures perpendicular to diversion weir to reduce potential for racking debris.
- Con: most expensive option if Replacement is pursued at both L-6 and L-7 diversions.

L-6/L-7 Diversion: Consolidation Plan

<u>Consolidation Key Features (L-6)</u>

- Elimination of L-6 Diversion works: weir, headgate, fish screen.
- Install a flow splitter structure on L-7 ditch to divert water back to L-6 ditch below current fish screen location.
- Would require transfer of L-6 water rights and IWRB MSF to L-7 Diversion.
- ESA Consultation for increased MSF reach.

L-6/L-7 Diversion: Consolidation Plan



Consolidation Key Features (L-7)

- Increase ditch capacity, fish screen, and measuring flume for consolidated water rights (94.6 cfs).
- Simplified weir and gate operations may allow for successful automation.
- Reduced project footprint as compared to replacement.

Table 7. Alternatives Decision Matrix

	Alternative 1 No Action	Alternative 2 Diversion Rehabilitation	Alternative 3 Diversion Replacement	Alternative 4 Diversion Consolidation
Fish Passage and Screening Criteria				
Upstream Passage	NC[1] - Ladder in compliance	Improved – Meets criteria	Improved – Meets criteria	Improved – Single ladder provides best passage
Downstream Passage	NC - Ladder in compliance	Improved – Meets criteria	Improved – Meets criteria	Improved – Single ladder provides best passage
Meets NOAA fish screening criteria	NC - Occasional backwatering of L-7 fish screen	Slight Improvement – Reduced backwatering of L-7 fish screen	Slight Improvement – Reduced backwatering of L-7 fish screen	Improved - Fish screens in compliance
Operations and Maintenance				
Operational Complexity/Effort	NC - Highest	Improved – Simplified diversion weir operations and possible automation	Improved – Simplified diversion weir operations and possible automation	Lowest – Operation of a single diversion structure
Maintenance Effort	NC - Highest	Improved – Reduced maintenance of headworks slide gates and weirs	Improved – Reduced maintenance of headworks slide gates and weirs	Lowest – Single diversion to maintain
System reliability	NC – Lowest. Potential for loss of L-6 fish screen	Improved – New weirs and gates to provide reliable service for design life.	Improved – New weirs, gates, and concrete structures to provide reliable service for design life	Improved – New weirs, gates, and concrete structures to provide reliable service for design life
Constructability				
Capital Cost	$0	$[2] Moderate	$[2] Highest	$[2] Moderate
Overall Complexity of Construction (Duration, phasing, dewatering, temporary facilities, permitting)	Lowest	Shortest duration and minimal dewatering of the action alternatives. Standard permitting	Higher - Multiple year phased Project with highest dewatering and temp. facility requirements. Standard permitting effort	Multiple year phased Project with high dewatering and temp. facility requirements. Highest permitting effort, requires change of water rights.
Stakeholder Preference				
Irrigator and Agency Preference	Pending	Pending	Pending	Pending

1) NC – No Change
2) Capitol costs to be provided in final draft.

QUESTIONS?

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