

BLUE RIVER WATERSHED GROUP



Updates for our watershed

RESEARCH



RESTORATION



PLANNING

Blue River Integrated Water Management Plan
Phase I Report



Tt TETRA TECH

August 2021

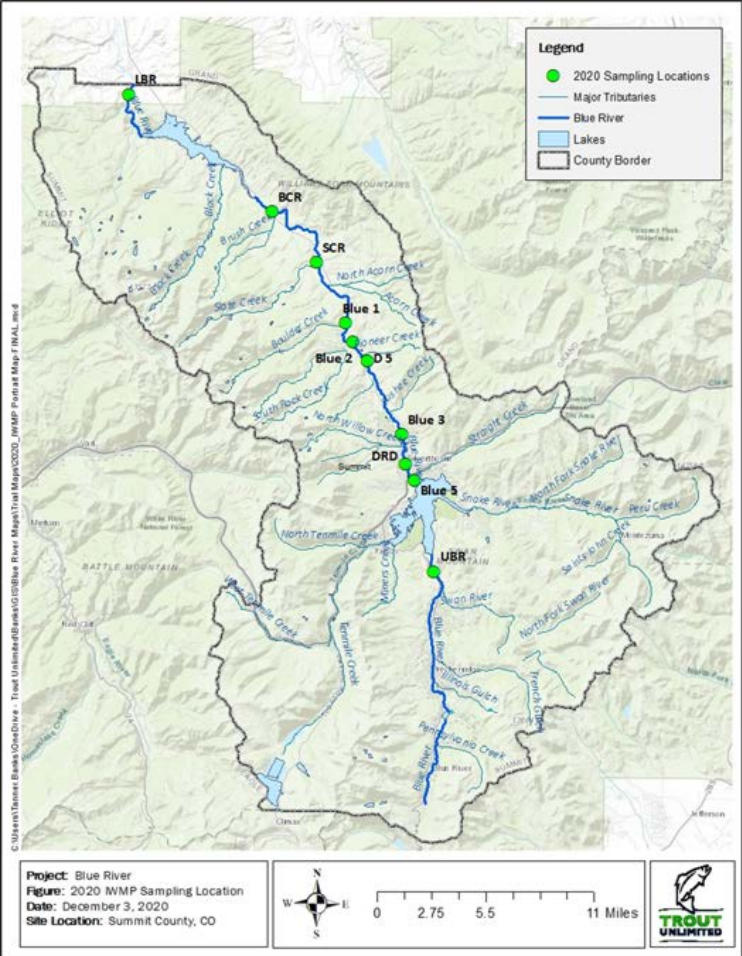
BLUE RIVER IWMP

Integrated Water Management Plan

- Ecosystem Function Assessment Categories -



OBJECTIVE: Identify limiting factors to the function of the aquatic community



HABITAT

MACROINVERTEBRATES

FLOW

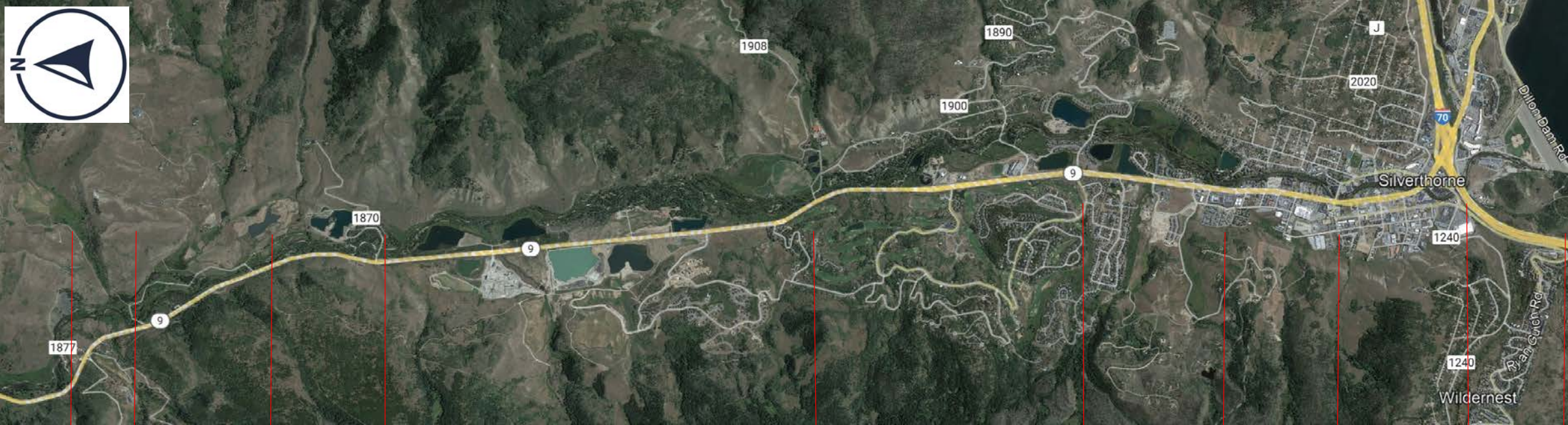
TEMPERATURE

PERIPHYTON

WATER QUALITY

BLUE RIVER IWMP

Integrated Water Management Plan
- Reach Delineations -



2.2.6

2.2.5

2.2.4

2.2.3

2.2.2

2.2.1

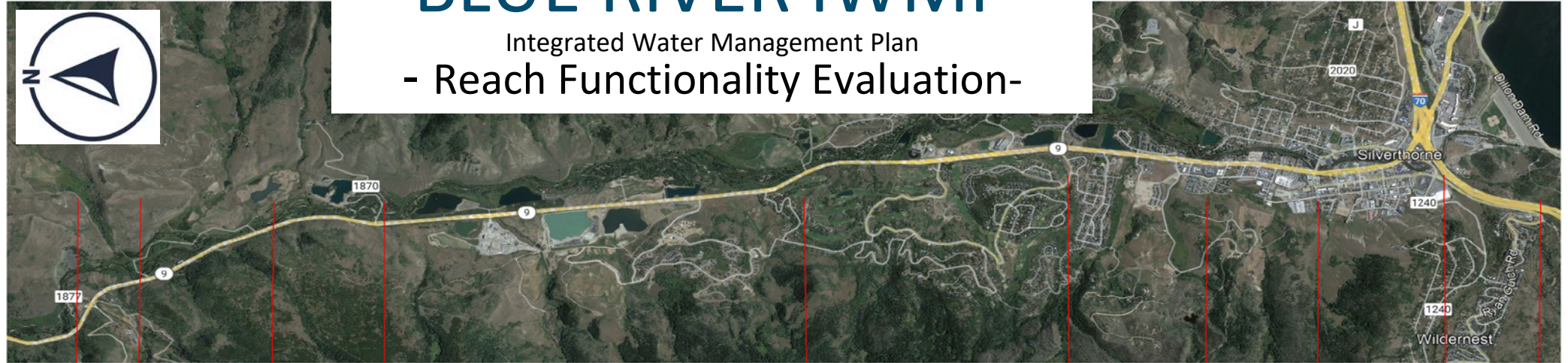
2.1.3

2.1.2

2.1.1

BLUE RIVER IWMP

Integrated Water Management Plan - Reach Functionality Evaluation-



Blue River Study Site		Variable	2.2.6 Site 8	2.2.5 Site 7	2.2.4 Site 7	2.2.3 Site 6/5	2.2.2 Site 4	2.2.1 Site 3/4	2.1.3 Site 3	2.1.2 Site 2	2.1.1 Site 1
Watershed	V _{hyd}	Flow	B-	B-	B-	B-	C	C-	D	D	D
	V _{sed}	Sediment	B-	B-	B-	C+	C	C	C	C	C
	V _{chem}	Water Quality	B	B	B-	C+	C	C	C-	C-	C-
Riparian	V _{con}	Floodplain	B-	B	B-	B	B+	B+	B-	C-	C-
	V _{veg}	Riparian Veg	C	C	B	B	B+	B	C+	C	C
	V _{deb}	Debris	B	B	B	B	B	B	B-	C-	C-
Stream	V _{morph}	Stream Morph	C+	B-	B	B	B	B	C+	C-	B
	V _{stab}	Stability	B+	B+	B+	B+	B+	B+	B	B	B
	V _{str}	Physical Struc	C+	C+	B	B	B	B	C+	C-	B
	V _{bio}	Biotic Struc	B+	B	C+	C+	C+	C	D	D	D
Overall FCI			.64	.66	.66	.66	.64	.62	.50	.44	.48
Reach Condition Score			B-	B	B	B	B-	B-	C	C-	C
Degree of Impairment			Mild/Sign	Mild	Mild	Mild	Mild/Sign	Mild/Sign	Significant	Significant	Significant
Hydraulic Parameters											
Surveyed flows, cfs			88	76	74	73	59	50	50	50	50
Width, ft			76	42-58	42-58	42-58 / 55-73	32-50	58-64	54-92/58-64	54-92	34-41
% Pool			14%	36%	36%	44%/30%	47%	0 to 47%	0%/8%	8%	7%
Aver pool depth, ft			1.5	1.6	1.6	1.4 / 1.6	1.6	1.0 to 1.6	1.0/ 0.8	0.8	1.2
Max pool depth, ft			2.1	2.4	2.4	2.4/2.2	3.1	1.3 to 3.1	1.3/1.8	1.8	2.1

BLUE RIVER IWMP

Integrated Water Management Plan

- Summary of Findings-

*Vast
generalizations!*



FINDINGS:

- **Pool habitat is greatly lacking.** Existing pools are at minimum depths and are not on outside bends
- Roughly 95% of the river has **no cover** (riparian or rock structure)
- **Lack of spawning gravels.** Substrate is dominated by cobble and boulders with gravel material being provided by tributaries further downstream
- Flows are dominated by required **minimum flows** (50 cfs can be expected to 80% of the time)
- Macroinvertebrates generally lack diversity and mass in the upper reaches
- Periphyton generally lack diversity in the upper reaches
- Dam impacted **water temperatures** roughly match inflow temperatures by the USFS Blue River Campground



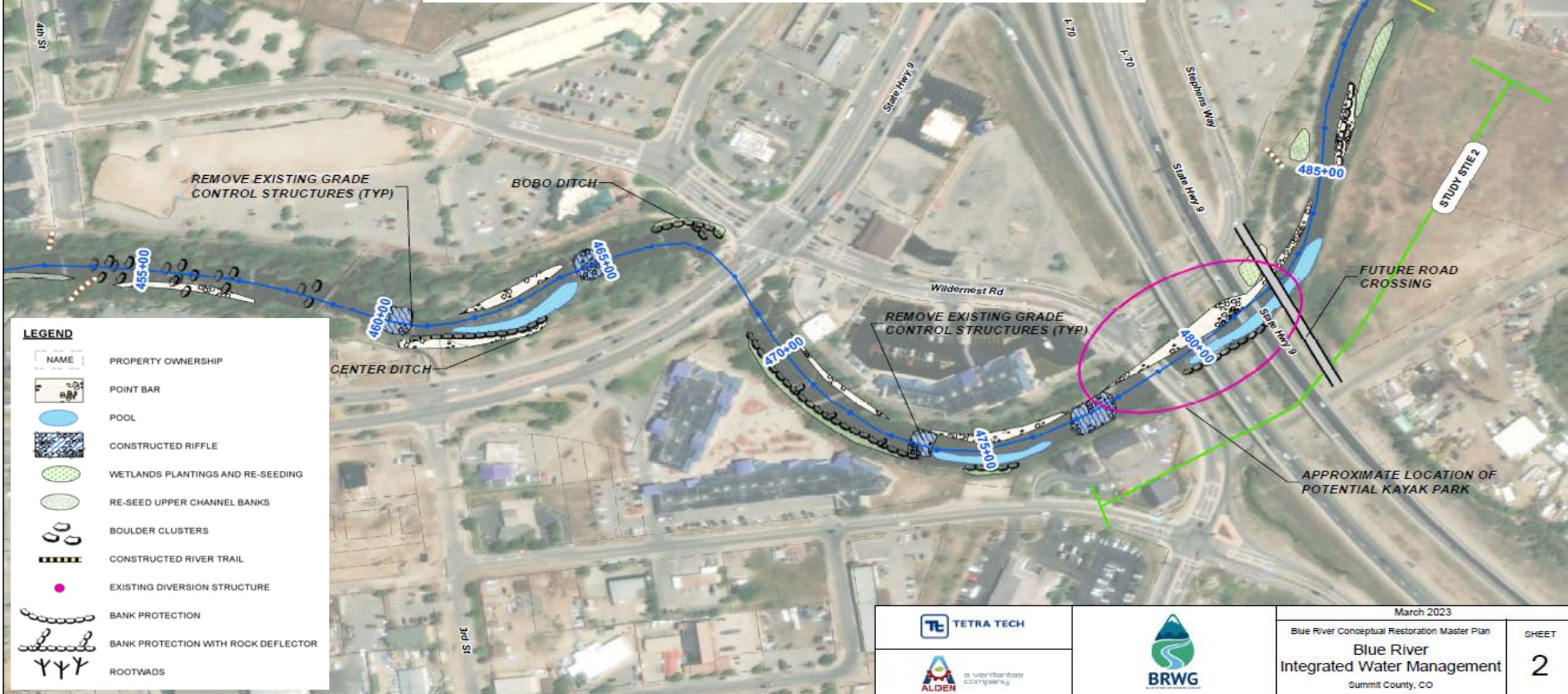
BLUE RIVER IWMP

Integrated Water Management Plan
- Prioritized Restoration Reaches-



BLUE RIVER IWMP

Integrated Water Management Plan - Restoration Concept Plan-



LEGEND

	PROPERTY OWNERSHIP
	POINT BAR
	POOL
	CONSTRUCTED RIFFLE
	WETLANDS PLANTINGS AND RE-SEEDING
	RE-SEED UPPER CHANNEL BANKS
	BOULDER CLUSTERS
	CONSTRUCTED RIVER TRAIL
	EXISTING DIVERSION STRUCTURE
	BANK PROTECTION
	BANK PROTECTION WITH ROCK DEFLECTOR
	ROOTWADS

		March 2023	
		Blue River Conceptual Restoration Master Plan	SHEET
		Blue River Integrated Water Management	2
		Summit County, CO	

BLUE RIVER IWMP

Integrated Water Management Plan

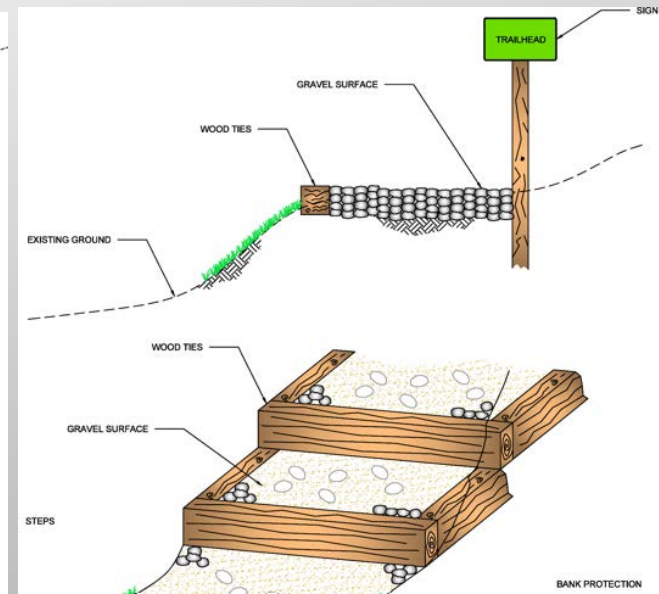
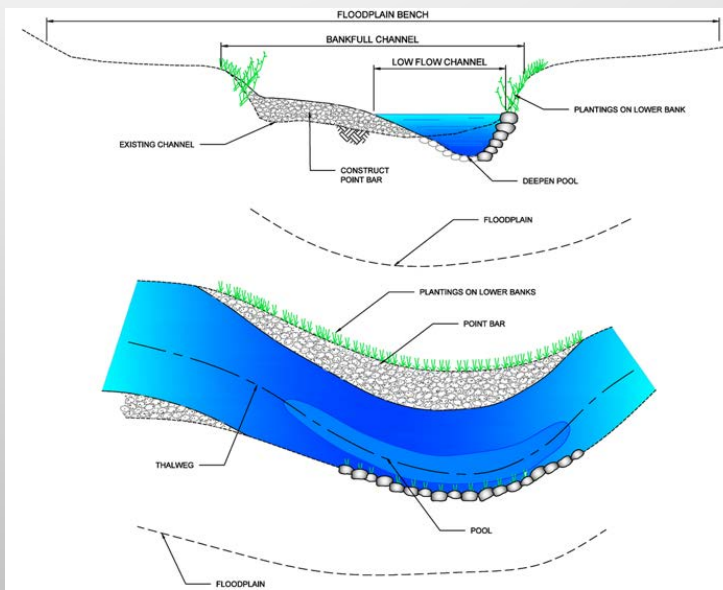
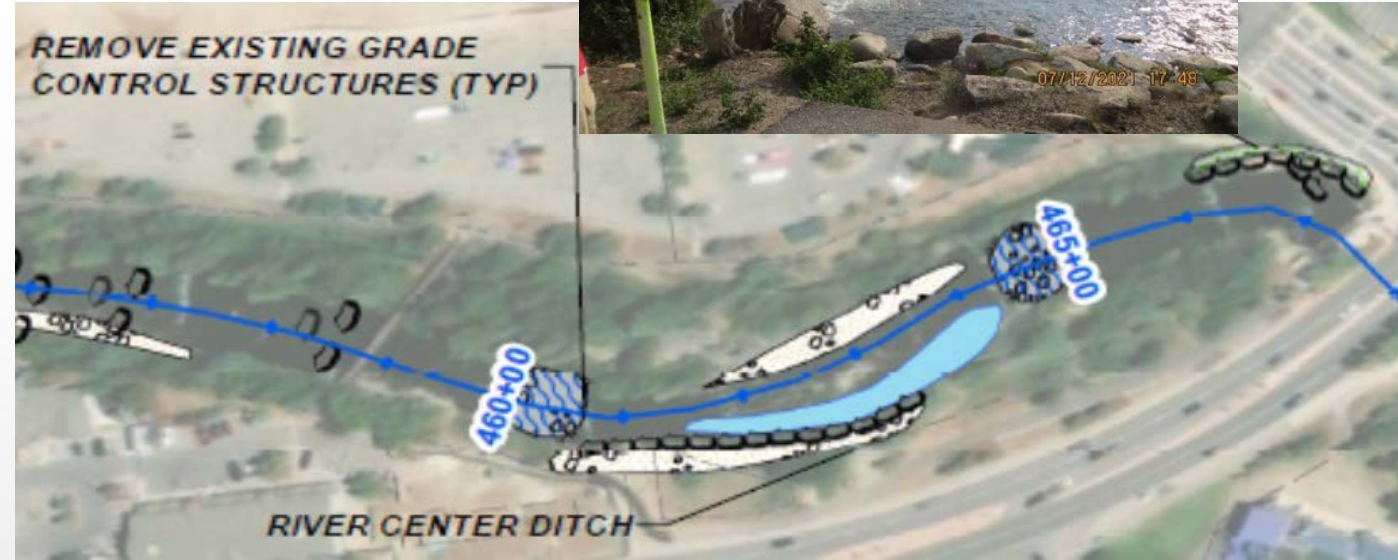
- Action Plan -

2023 RECOMMENDATIONS:

Simple and minimal physical restoration can greatly improve habitat conditions

ACTIONS:

- Modify and/or remove boulder drops, add wood and boulder clusters
- Improve trail access, revegetate channel banks and define trails and access points at popular access points
- Stabilize banks
- Construct bars to narrow and deepen low flow
- Place spawning gravel in key locations
- Coordinate with TOS on kayak park
- Continue to monitor water quality and temperature
- Develop monitoring program to track impacts of restoration efforts
- Work with River Connectivity Systems to determine feasibility of dam temperature modification



SWAN RIVER RESTORATION PROJECT

- Reach A Photos -



UPDATE: BRWG is partnering with USFS and Colorado Basin Roundtable to begin the second half of the Swan River.

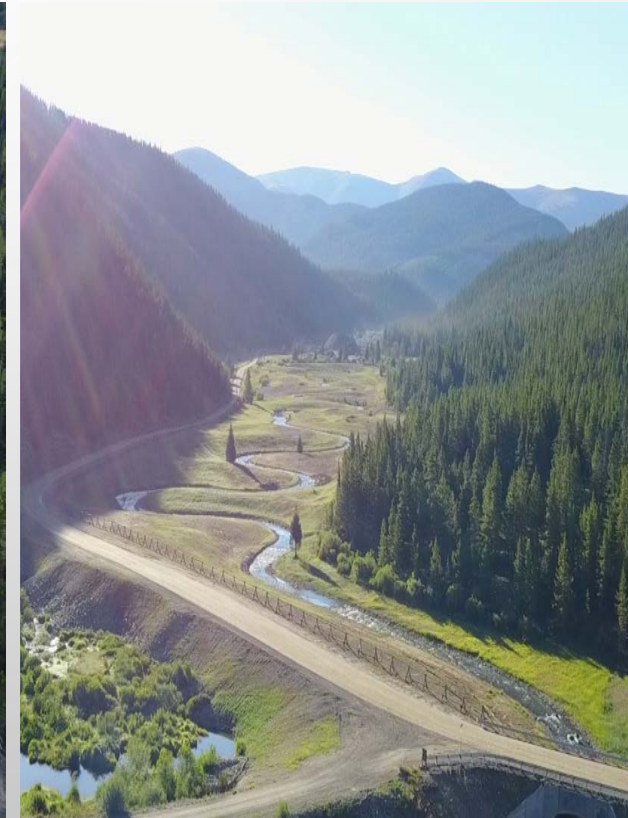
Pre-Construction



During Construction



Pre-Planting



NORTH FORK CUTTHROAT PROTECTION

- Fish Barrier-

As restoration work moves up-valley, a Cutthroat population on the N Swan is at risk for increased pressure by invasives.

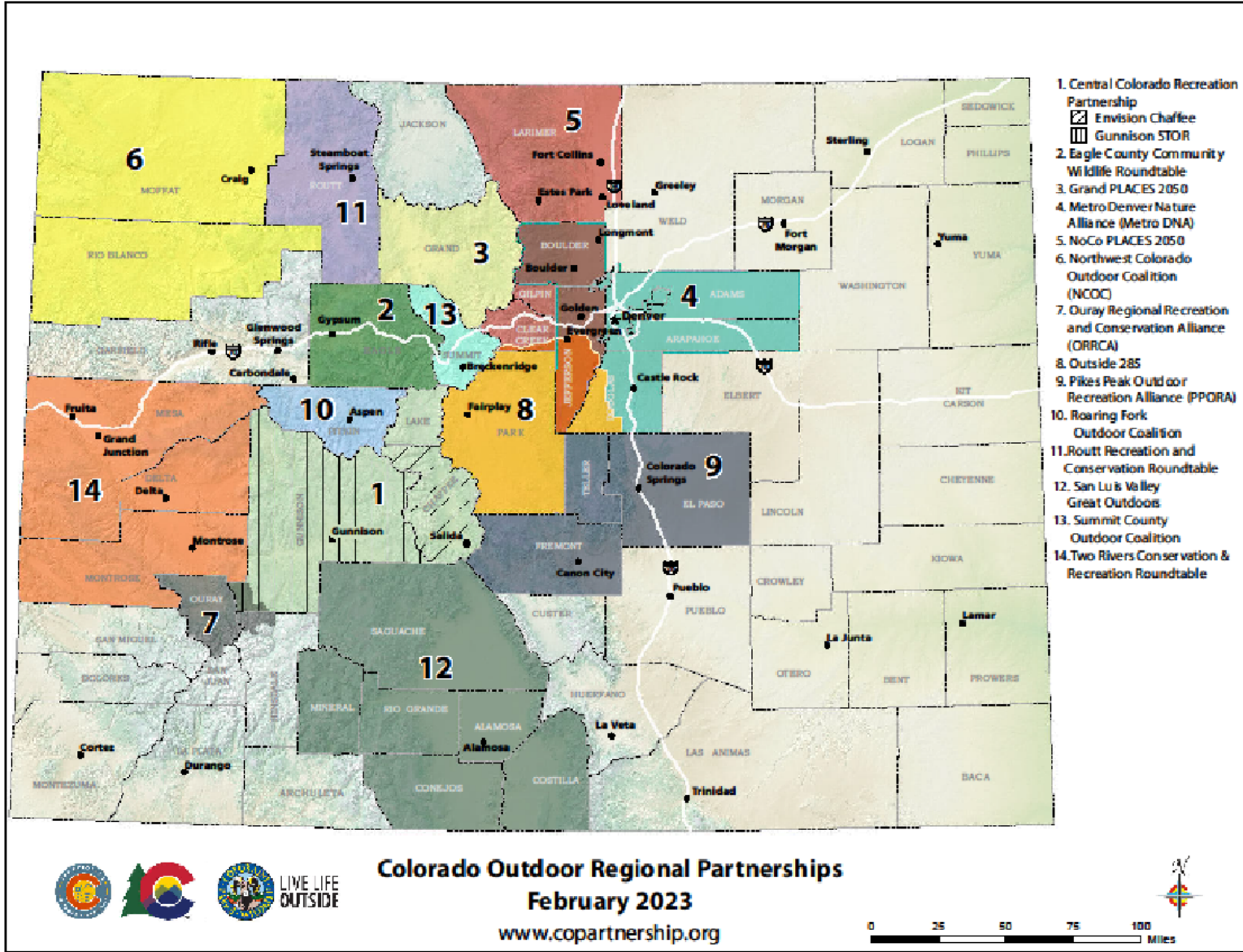
Ineffective Current Velocity Barrier



Proposed New Structure



Summit County Outdoor Coalition



CPW GRANT: a statewide initiative working to ensure that Colorado's land, water, and wildlife thrive while also providing for equitable and quality outdoor recreation experiences.

COLLABORATION:

- Wildlife
- Recreation
- Climate Resiliency

MISSION: To understand and address issues facing wildlife populations, recreation, and landscape-scale ecosystems across Summit County





JOIN US!

- Stay informed - sign up for the **newsletter**
- Join us for **volunteer** opportunities
- Sign up to be a citizen **river monitor**
- Donate and **support** upcoming projects
- **Spread** information and education

