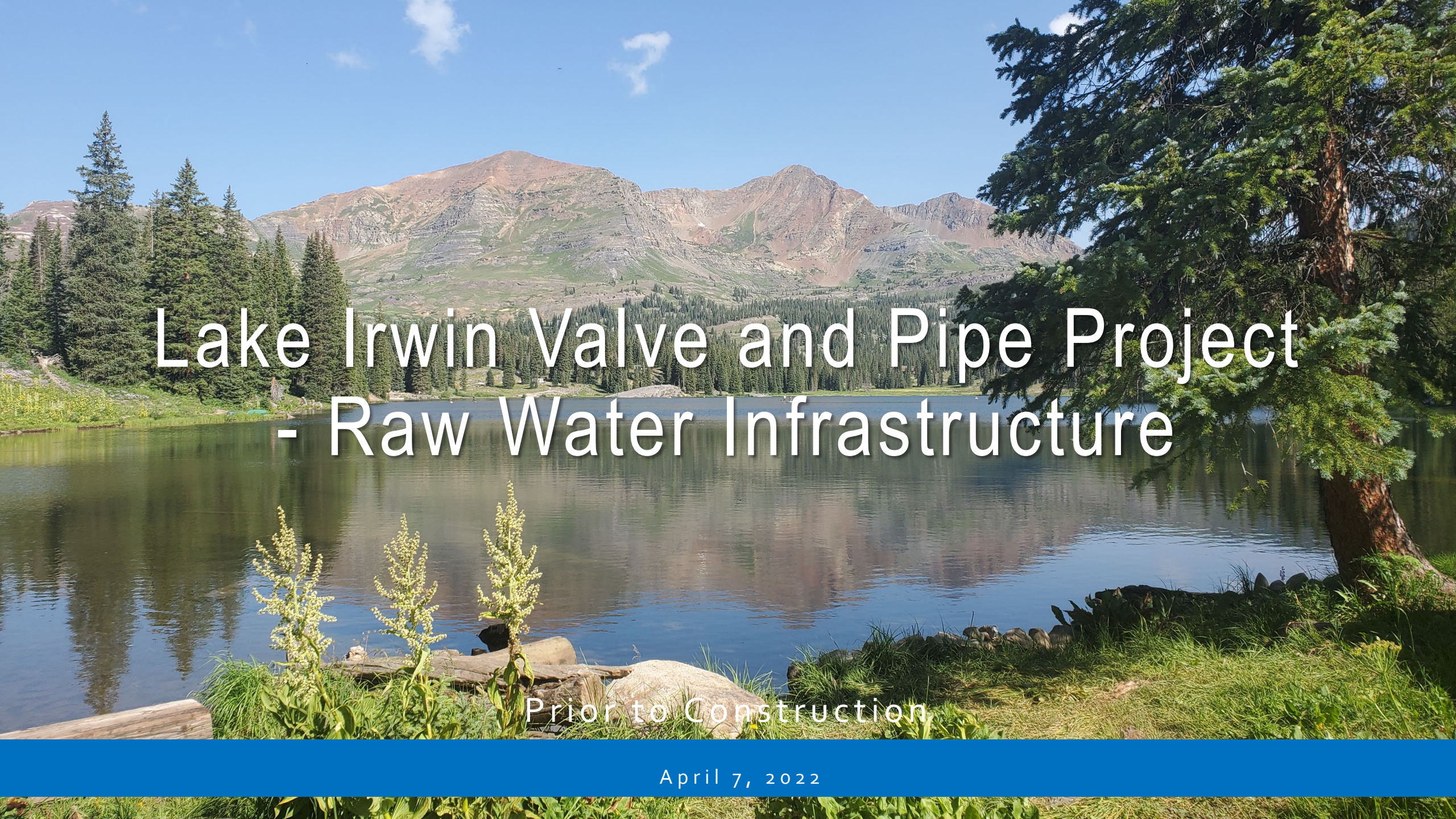


Lake Irwin Valve and Pipe Project - Raw Water Infrastructure

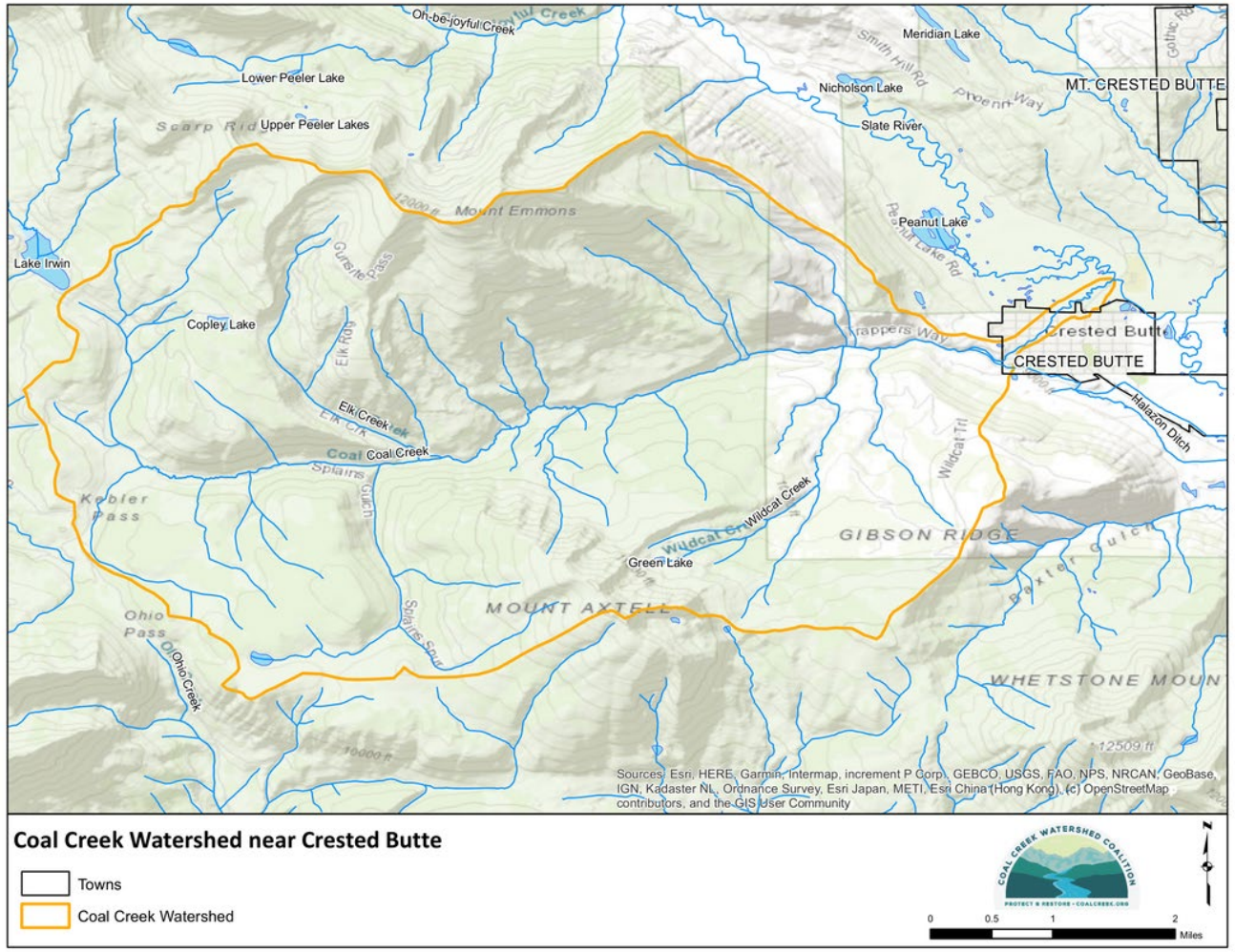
Prior to Construction

April 7, 2022

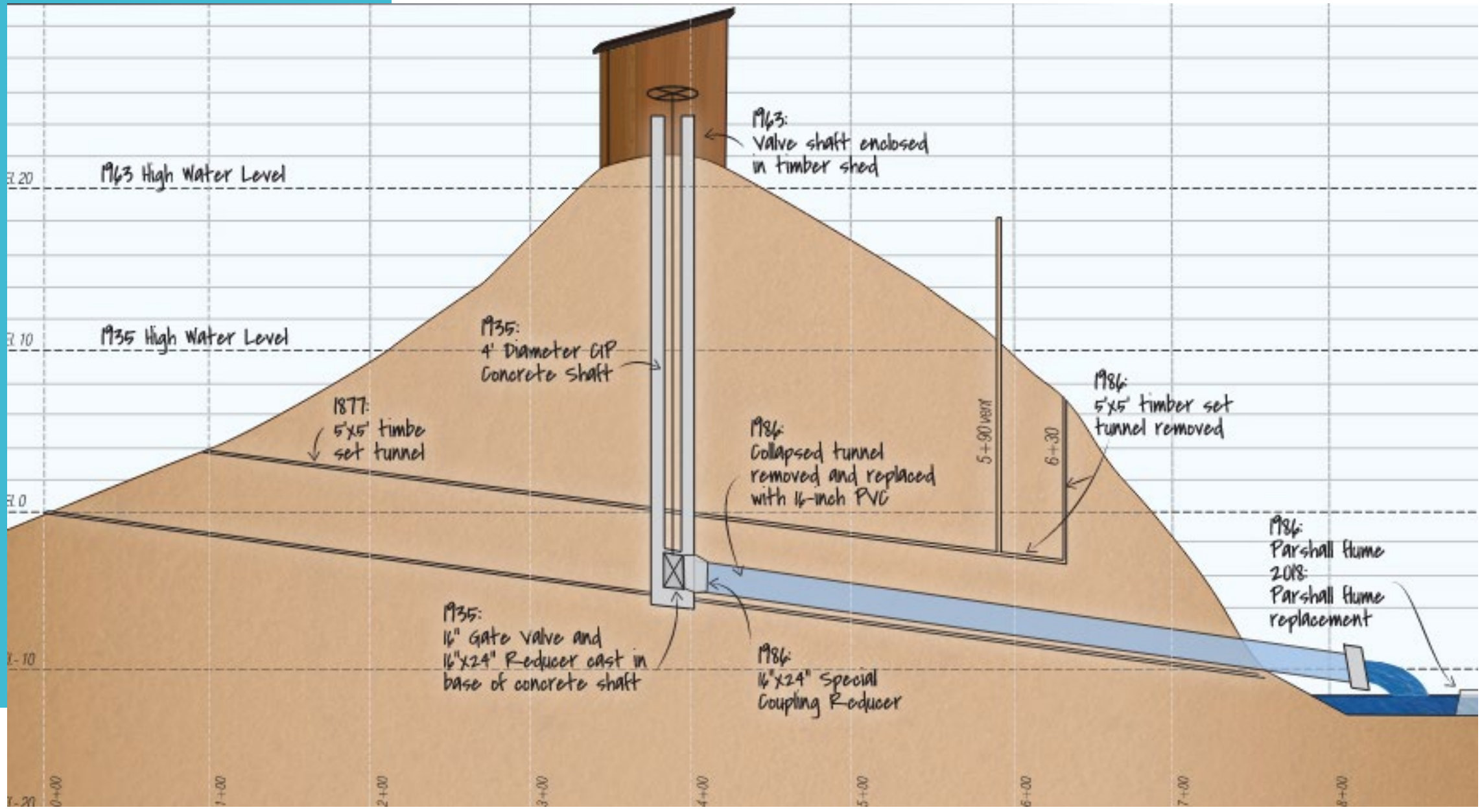
Headwaters Coal Creek

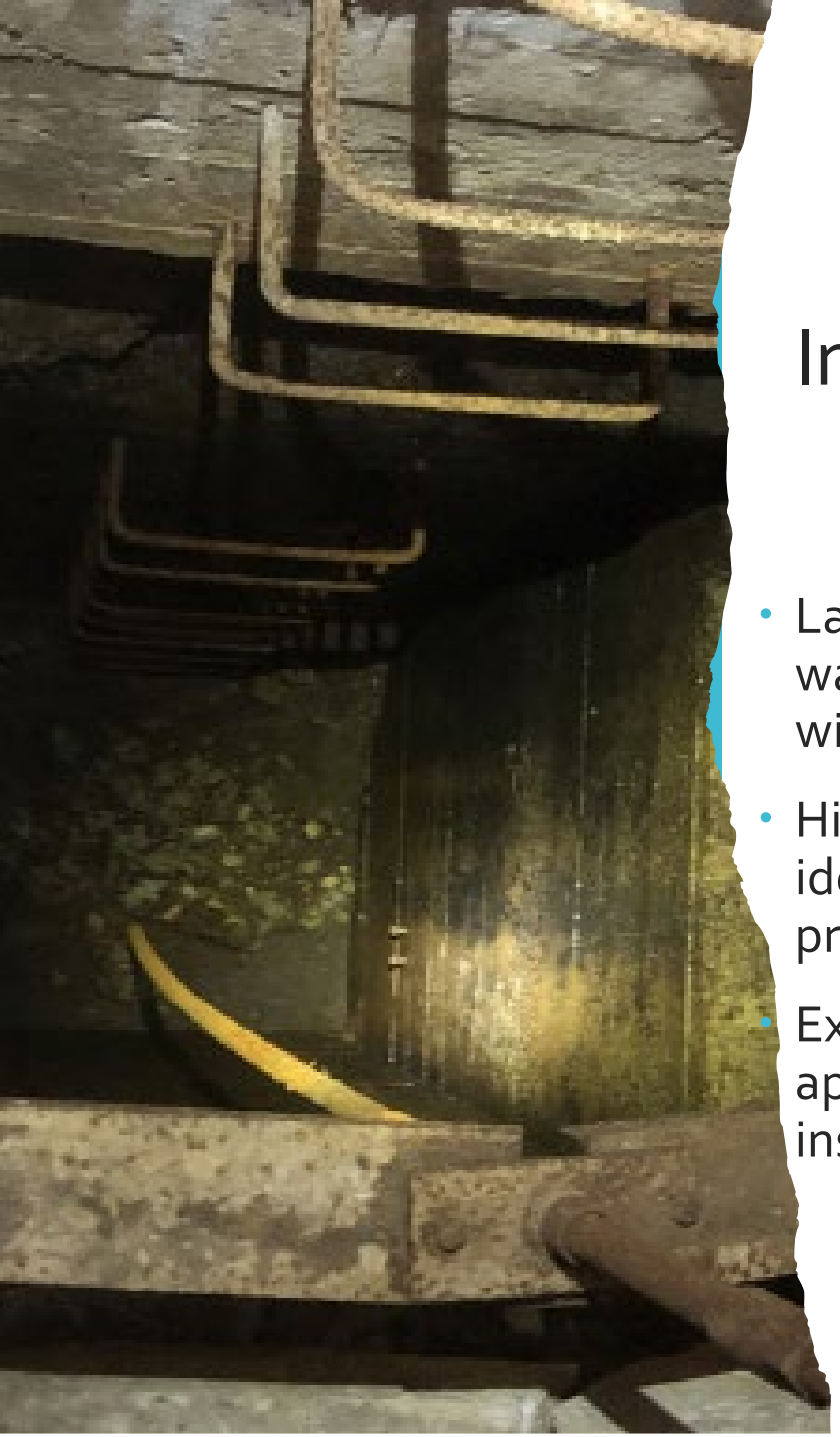
Coal Creek

- 15,600 acres Watershed
- Tributary to the Slate, East and Gunnison Rivers
- Mine influences: Standard Mine, Keystone Mine outfall and Mt. Emmons Iron Fen
- Water Quality and Health of this River is Vital



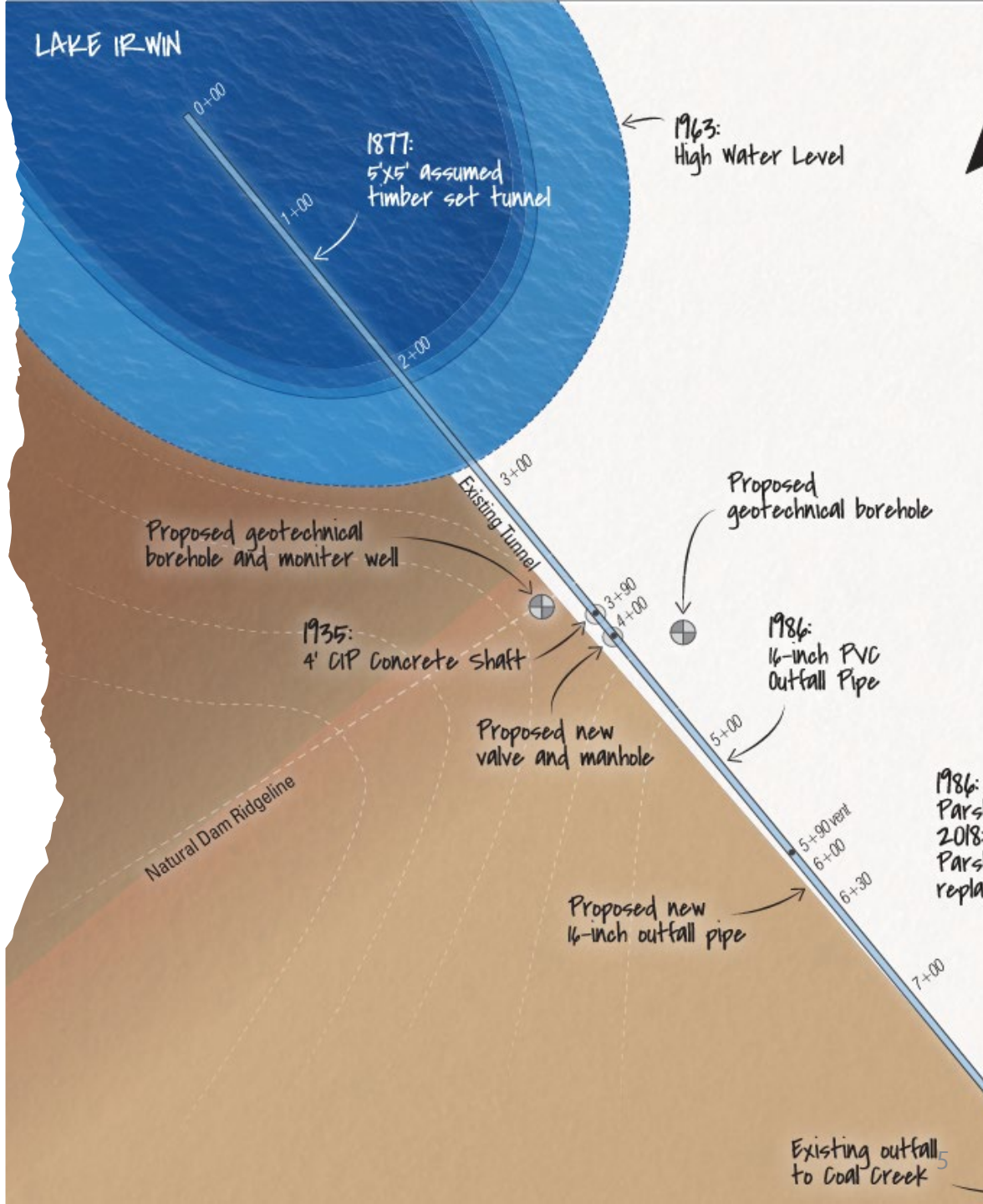
// Lake Irwin System Improvements





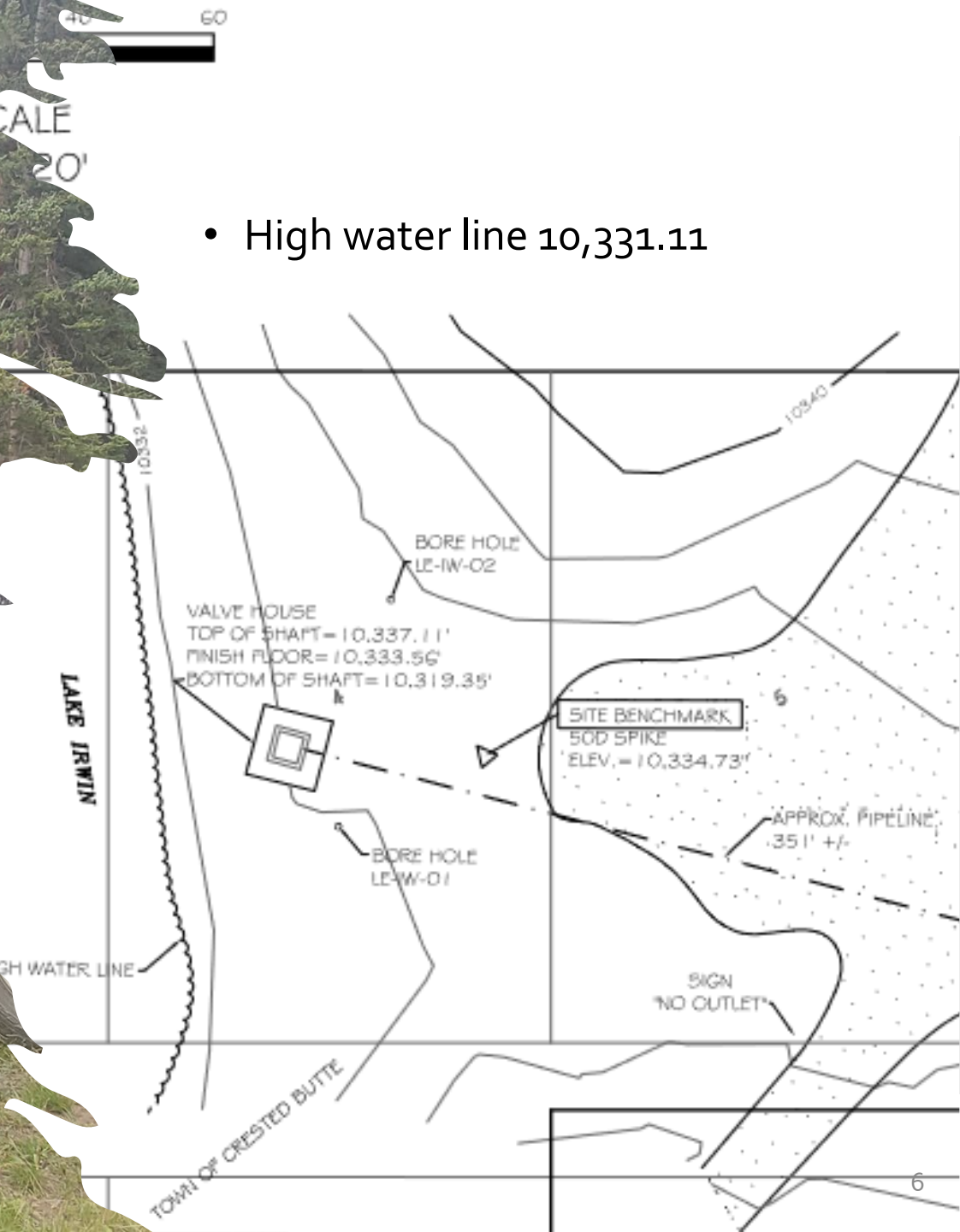
// Lake Irwin System Improvements

- Lake Irwin significant water source during winter months
- Historical documents identified during proposal phase
- Existing intake tunnel appears to have been installed in 1877



Survey and Geotechnical Investigation Complete

- High water line 10,331.11

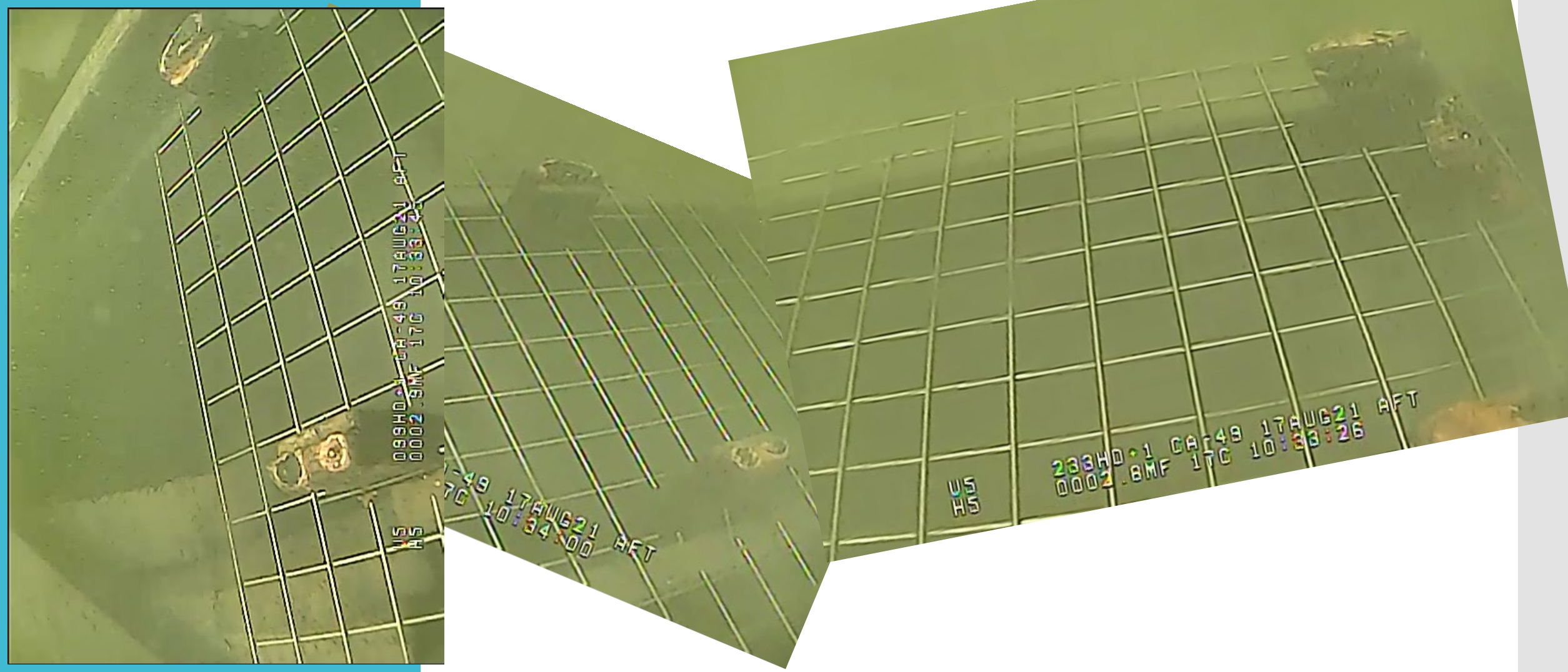


What the Underwater Rover Camera sees!

Sonar not shown.

What happens when you add These TWO THINGS together?

Tunnel Improvements – see video of final work.



Lake Irwin Valve and Piping to 2018 Parshall Flume

Coal Creek water supply concern

- Operational difficulties of valve
- Valve and pipe failure

Unknowns

- No drawings and unknown geotechnical conditions
- = additional investigations

Scope of Design

- Remove debris in vault, replace valve & vault
- Replace approximately 6” with 12” DIP pipe

Lake Irwin Gate Valve

Lake Irwin to Coal Creek Piping

Engineering

- Preliminary & Detailed Design 2021
- $235,000

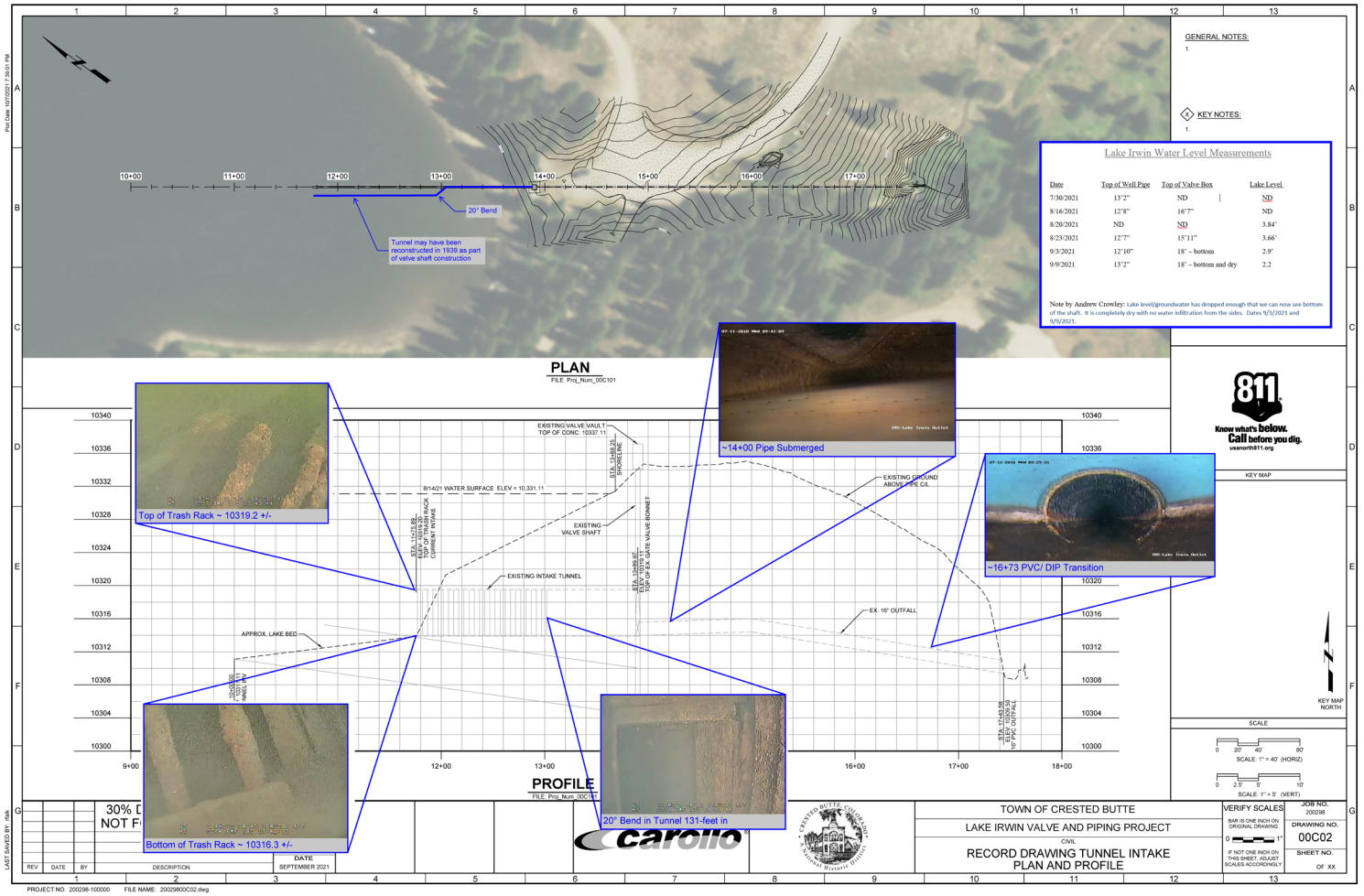
Construction

- Infrastructure Construction 2022-24
- $2.2 Million (at 30%) +11% = $2.47 M

Pillars of Success

- Critical Infrastructure Restored
- Environment, Water Supply & Recreation

Lake Irwin from investigation



// Project overview –

Lake Intake - Submerged timber set tunnel

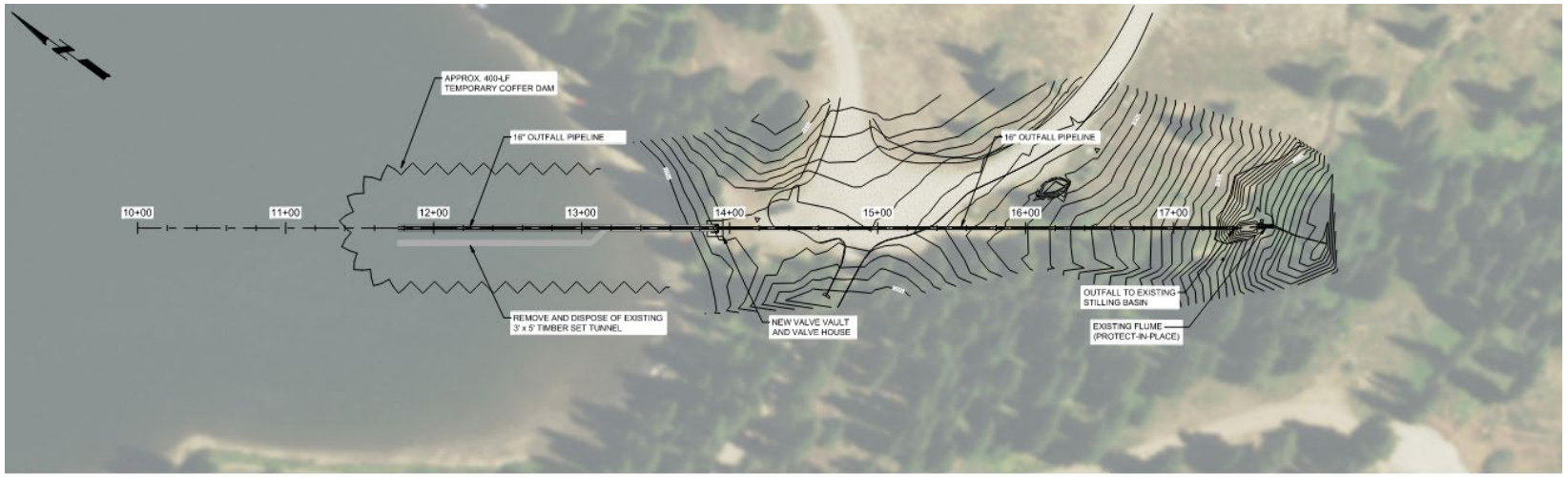
Lake Outfall – 16-inch PVC pipe

Lake Flow Control – 16-inch gate valve in valve shaft

Existing infrastructure varies in age, but all is in a state of deterioration and requires repair/ replacement

// Project overview – Option 1 replacement of all infrastructure

- Lower lake level about 10-feet and install temporary coffer dam around existing tunnel
- Replace timber set tunnel and outfall pipeline with 16-inch pipe
- Replace existing valve shaft with new valve vault
- Protect existing flume in-place



PLAN

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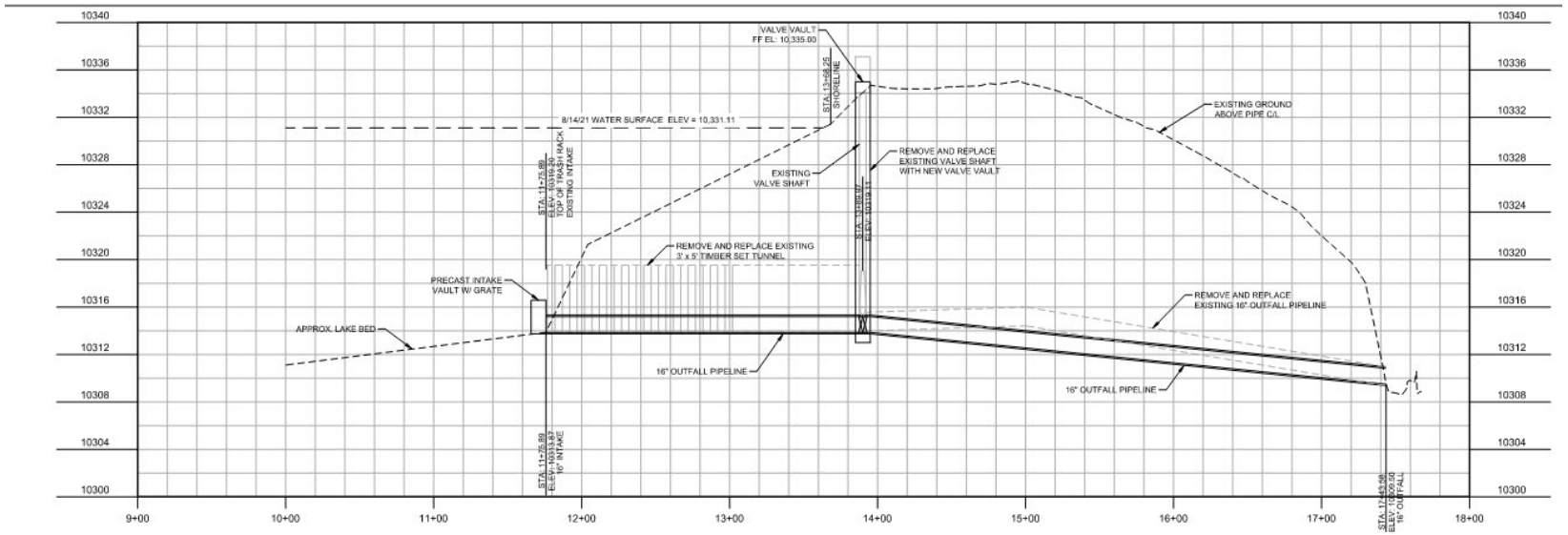

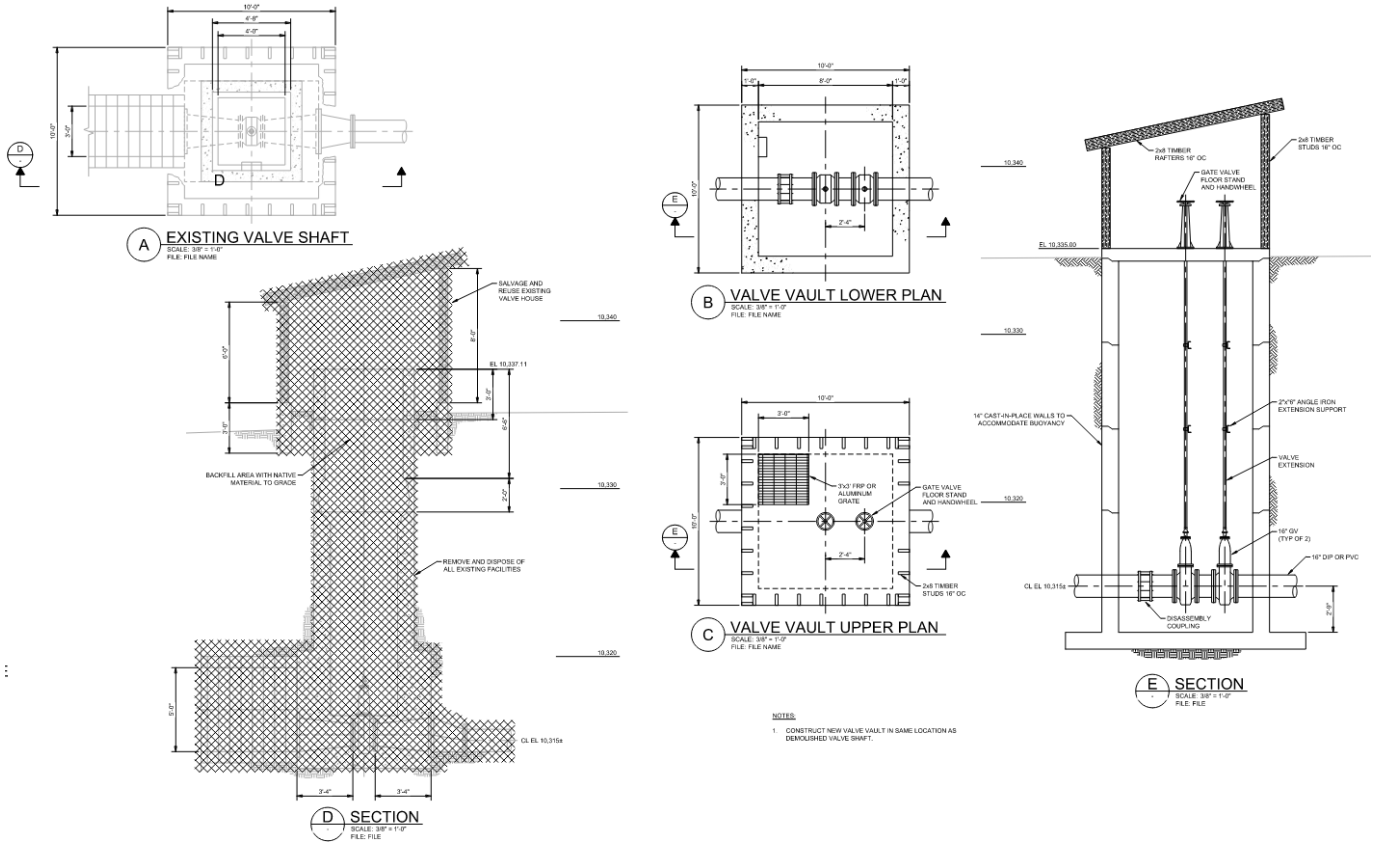

// Project overview – Option 1 remove and replace existing valve shaft with new valve vault

- Demolish and remove existing valve shaft
- Construct new cast-in-place valve vault in same location as original
- Install dual 16-inch gate valves for redundancy
- Salvage and reinstall existing valve house

Pillars of Success

- Healthy River & Quality
- Restore & Maintain Critical Infrastructure
- Sustainable Drinking Water
- Recreational