

# US 34 Big Thompson Canyon

## CASE STUDY



Location	Highway 34, Colorado
Client	Kiewit Infrastructure Co
Year	2017 - 2018
Industry	Construction
Application	Stormwater
Contaminants	pH, Sediment, TSS
Flowrate	800gpm - 2,800gpm
Solution	Polymer Treatment/Coagulation

## Innovative Solutions

Kiewit was selected by the Colorado Department of Transportation (CDOT) to make permanent road and bridge repairs to a 23-mile section of US 34 that was damaged during record flooding in 2013. The floods displaced 18,000 people and destroyed more than 1,800 homes resulting in nearly \$4 billion in damage across 24 counties. WaterTectonics was contacted by Construction Manager/General Contractor Kiewit Infrastructure for water management support on the Highway 34 Big Thompson project.

### DESIGN & ENGINEERING

This large infrastructure project posed several challenges that would impact system design including: the need to be mobile for relocation to multiple excavation sites along the highway, treat up to 800 gallons per minute of turbid water before returning it to the Big Thompson River, as well as keeping equipment heated to prevent malfunction in the below freezing and sub-freezing temperatures throughout the winter months.

### PROJECT SUPPORT

WaterTectonics provided on-site support for mobilization, equipment setup, and operator training. Remote technical support continued throughout the project duration.

### TREATMENT SOLUTION

WaterTectonics provided mobile water treatment with in-line water quality monitoring so the process could be easily relocated to multiple sites along the highway. Using a cargo trailer mounted automated system, over seven relocations were made with a pickup truck and standard hitch.

The heated cargo trailer prevented freezing of pipes while in-line water quality monitoring probes, and use of polymer in the treatment process saved both time and money. Treated water was conveyed via piping manifolds with isolation valving to a series of dewatering bags to capture and filter out sediment prior to discharge to the river. Due to concrete and grout base stabilization work, high pH was present and neutralized using an automated CO2 injection method. As the project progressed, five additional mobile systems were deployed treating up to 400 gallons per minute each to continue treating water at multiple locations throughout the project.

