Guilford Dam Removal at Broad Brook, Guilford, Vermont

STONE ENVIRONMENTAL

Services / Expertise
Dam Removal
Floodplain Reconnection
Aquatic Organism Passage Design
Geomorphic Analysis
Stream Restoration
Infrastructure Stability Analysis
Hydrologic & Hydraulic Modeling
Erosion Prevention & Sediment Control Plan
Cost-Benefit Analysis of Select Alternatives
100% Design Plans & Opinion of Probable Cost
Stakeholder Collaboration & Stewardship
Permitting Support
Project Implementation

Markets
Watershed Protection Organizations

Project Location
Guilford, Vermont

Date Completed
2020-2021

Project Owner
Connecticut River Conservancy

Project Manager
Gabe Bolin, PE

Project Team
Matt Schley, PE, CERN
Meghan Arpino

Channel construction following dam removal on Broad Brook in Guilford, VT.

STONE Environmental was hired by the Connecticut River Conservancy to provide assessment, design, permitting, and construction oversight services for a dam removal on private property in Guilford, VT. The 6' high by approximately 60' long concrete dam breached during Tropical Storm Irene in 2011. While most of the impounded sediment had moved downstream, the dam and remaining appurtenances continued to impede flow, sediment transport and aquatic organism passage. An earthen berm directly river right of the dam, suspected to be material excavated during dam construction, constricted flow directly downstream of the dam during storm events and disconnected the stream from approximately 120 linear feet of floodplain within the project area. Bankfull widths downstream of the dam were wider than other reaches, likely due to constriction scour.

Stone developed 100% design plans that included the removal of the dam and limited regrading of the channel, with the intention of letting the channel develop via natural channel processes post-dam removal. Willow rootwads sourced from trees removed within berm limits were installed along both banks just downstream of the dam to stabilize the banks over the long term and enhance habitat for aquatic organisms. The entire berm on river right was removed to reconnect the stream and floodplain and berm material will be hauled offsite. Construction access was along timber mats to limit impacts to wetlands located within the project vicinity. Project work included a stability assessment of a residential bridge approximately 400 feet downstream of the dam. Stone processed and submitted applications for a VTDEC Stream Alteration Permit, Town Flood Hazard Permit and a US Army Corps of Engineers Vermont General Permit. Stone provided construction oversight for the removal of the dam completed in August 2021.