## Brown Bridge Quiet Area







## **PROJECT: Brown Bridge Quiet Area**

CHALLENGE: DEQ and DNR parameters; working under the maximum flow elevation threshold; creating log jams without disturbing the habitat

SOLUTION: Staying conscious of our environmental footprint at all times; using two excavators to haul in and position log jam crossings in the river

OWNER: City of Traverse City CONTRACT AMOUNT: \$129,148.00 DESIGN ENGINEER: RCA, PC ENGINEER CONTACT: (231) 360-7037 LOCATION: Traverse City, MI DATE STARTED: February 13, 2017 DATE COMPLETED: April 13, 2017 SELF-PERFORMED: 100%

For 90 years, the Brown Bridge Quiet Area was the home of Brown Bridge Pond, which was formed when the Boardman River was dammed at a nearby spot. In 2012, the Michigan Department of Natural Resources and several partner agencies, decided to remove Brown Bridge Dam, the first of three dams located within 20 miles of the mouth of the Boardman River. The removal of Brown Bridge Dam allowed the river to return to its natural channel, effectively eliminating Brown Bridge Pond. However, it also left the pond's aquatic ecosystem vulnerable. Engineers quickly designed a protocol to encourage natural habitat — a system that Team Elmer's was hired to install.

Typically, in rivers like the Boardman, trees will fall naturally across the river and into the water



because of wind, snow, or simple tree age. These fallen trees then form log jams across the water, which are vital for fish and other organisms.

The trees effectively lock into the riverbank and then form strainers or substrates that collect debris and form larger jams.

Log jams such as these have multiple positive effects on river environments. They can alter the water flow and erosion of the river, creating a variety of different habitats for aquatic organisms within a single river area. They also provide safe havens for fish when river flow rates speed up or when water levels drop, making them a common spot for spawning.

Because the natural habitat was open space pond bottom, Mother Nature missed out on 90 years to create natural log jams, reverting the Brown Bridge Pond area to a river channel pattern and flow rate with habitat for fish and other organisms required help. To protect the instream organisms, Team Elmer's needed to install the simulated natural environment and pattern of log jams.

To start, we stockpiled appropriate root wad logs, which are essentially fallen trees with their root balls still attached, from within a mile of the river site. The job involved two river crossings, made more complicated by the fact that our teams needed to avoid disturbing the riverbed at all costs. Luckily, by using two separate excavators for the work, and transferring material over the river without touching river bottom, we were able to position the log jams without disturbing the vulnerable river ecosystems.

In fact, we were so careful with our work that, according to Brett Fessell, RCA LLC, Environmental Project Manager, in a year, it will be virtually impossible to tell that our teams were ever here at all. Way to go team!

## Brown Bridge Quiet Area By The Numbers

- Root Wad System: 77 Installed
- Log Pile: 71 Created
- Bolted Connections: 191
- Slash Brush: 530 Cubic Yards



