



BROWN BRIDGE DAM REMOVAL OCTOBER 6 INCIDENT PROJECT TEAM SUMMARY

THE BOARDMAN RIVER DAMS PROJECT

The Boardman River Dams Implementation Team (IT) is coordinating The Boardman River Dams Project (BRDP), a dam removal and river restoration initiative in the Boardman River watershed. Through the removal of Brown Bridge, Boardman, and Sabin Dams, and modification of Union Street Dam, the Boardman River will be restored to a more natural flowing, coldwater stream.

The IT is comprised of primary representatives from Grand Traverse Band of Ottawa and Chippewa Indians (GTB), MI Hydro Relicensing Coalition, the US Fish and Wildlife Service, Grand Traverse County, the City of Traverse City (City), Traverse City Light & Power, Michigan Department of Environmental Quality (DEQ), and Michigan Department of Natural Resources (DNR). The IT also includes the following ex-officio members: Conservation Resource Alliance, Watershed Center Grand Traverse Bay, Grand Traverse Conservation District, Rotary Camps & Services, Garfield Township, and Grand Traverse County Road Commission (GTRC).

BROWN BRIDGE DAM REMOVAL

The first stage of this restoration project involves the removal of Brown Bridge Dam, which is owned by the City. The IT has contracted with AMEC Environment and Infrastructure Inc. (AMEC) to provide construction services for the Brown Bridge Dam removal project, and AMEC has a project team that includes Molon Excavating, Inc. (Molon) and other technical and construction experts. After a thorough review of design and engineering plans, and an environmental assessment, DEQ approved a permit for the removal of the dam. Work at the project site commenced in July 2012.

The dam removal process necessitates a final drawdown of Brown Bridge Pond to a level that would allow for deconstruction of the dam. This drawdown was planned and approved at a maximum rate of 12-inches per day, through a device that is known as a Temporary Dewatering Structure (TDS). At the time final drawdown was initiated, the Brown Bridge Pond water level was approximately 20 feet higher than the water level of the Boardman River downstream of the dam. Final drawdown was planned to reduce the pond water level to approximately 2 feet higher than the Boardman River water level over the course of 18-20 days.

BROWN BRIDGE INCIDENT SUMMARY

Saturday, October 6, 2012

At approximately 10:00 AM, AMEC and Molon initiated the process for the final drawdown of Brown Bridge Pond. The TDS was engaged to allow water into the structure.

- At approximately 10:10 AM an estimated 3-foot drop in water level was observed upstream of the structure.
- Within an estimated 10 minutes, up-flow of water was observed within the TDS.

- Water was observed coming in from the south side of the dewatering structure at the northeast corner of the dam at an uncontrolled rate.
- A sinkhole then formed adjacent to the structure.
- At around 10:20 AM, 911/Emergency Management (EM) was notified. Safety of the project crew and downstream residents was the primary concern.
- Erosion increased at and around the inlet of the structure, increasing flow downstream.
- At around 11:00 AM, the emergency response team arrived on site. A voluntary State of Emergency was issued. Bridge/road crossings were closed at Garfield and River Roads.
- Construction crews continued to fight erosion on both the north and south sides of the embankments adjacent to the TDS. Within 30 minutes, additional equipment and large volumes of concrete were mobilized to the site and placed in areas where erosion was occurring in an effort to maintain the structural integrity of the TDS and minimize the flow as much as possible.
- At around 11:45 AM, EM issued a mandatory evacuation for the area downstream of the dam to Keystone Road.
- Work crews continued to place concrete slabs and pieces to control flow.
- Around 3:30 PM, the north bank was stabilized and tail water receded at Brown Bridge Road. Crews continued to bring in concrete.
- Around 4:30 PM, the mandatory evacuation was lifted. Grand Traverse County Road Commission (GTRC) requested bridge inspections prior to reopening roads.
- Around 5:30 PM, a temporary water control structure was constructed east of the dam. Access roads to the site were reopened.
- At around 7 PM, the site was secured and the flow of water below the dam structure returned to a normal level.
- AMEC staff met with GTRC to discuss a requirement to inspect downstream bridges.
- Work crews and stakeholders monitored the construction area and road crossings overnight to keep the area secure.

IMMEDIATE RESPONSE ACTIVITIES

Sunday, October 7, 2012

AMEC's project team worked with local authorities and stakeholders to implement immediate response activities. These included the following:

- A flood hotline was put in place with the Grand Traverse County Health Department for assistance with water damage mitigation and cleanup for those properties impacted downstream of the dam.
- The project team contacted homeowners that had called the hotline number to identify the impacts on their property.
- The project team was proactive in assessing damage, ensuring safety and contacting affected residents, including going door-to-door.
- The three dams located downstream of the dam were monitored which included the removal of debris as necessary.
- The project team and stakeholders cleared debris located downstream of the dam both in the river and at the major road crossings.
- A pre-qualified MDOT bridge inspection team began inspection of the bridges and road crossings downstream of the dam. Following satisfactory inspection results, all county roads were reopened on Sunday by 5:00 PM.

- The project team continued collaboration with EMS to identify impacted residential properties including loss of properties and docks.
- Inspection of private bridges began downstream of the dam for impacts and required repairs.
- Project stakeholders conducted a fish kill evaluation downstream of the dam and returned displaced fish to the river.
- Water levels upstream and downstream of the dam continued to be monitored and recorded.

ONGOING ASSESSMENT

The project team, regulatory agencies and stakeholders are implementing plans to assess personal and public property and environmental impacts of the abrupt release of water on October 6. The information gathered through these assessments will inform potential restoration actions. The primary assessment categories are:

- Assessment and restoration of downstream properties
- Assessment of the TDS in collaboration with the DEQ Dam Safety Division
- Downstream assessment of Boardman River
- Upstream assessment of ongoing restoration activities

Assessment and Restoration of Downstream Properties

The Emergency Management Coordinator (EMC), in conjunction with the Grand Traverse County Health Department, continues to receive names, addresses and telephone numbers of residents located downstream of the dam that have been impacted. The EMC is providing this contact information on a daily basis to AMEC. AMEC and Molon are working in collaboration to contact each individual property owner to assess both the short-term and long-term needs of each impacted property owner.

AMEC and MOLON have both retained contractors to provide assistance to the downstream impacted property owners. Assistance being provided includes, but is not limited to, damage assessment and mitigation, and debris removal. Hotel accommodations were provided to some property owners. The project team has visited over 130 residences door to door and assisted over 30 residents to date that have notified the hotline established by the Emergency Management Coordinator.

The project team is developing a database system to track and record the list of impacted properties and monitor restoration activities.

Assessment of Temporary Dewatering Structure

Safety and stability of the existing TDS is of utmost importance and DEQ has approved the project team to stabilize the structure.

Downstream Assessment of Boardman River

The project team and various regulatory agencies are in the process of surveying the river downstream of the dam to assess potential impacts and inform any potential restoration

activities. Surveys began on October 7 and continue through the week. Biological and physical surveys to assess wildlife impacts, sediment transport, and habitat impacts are being conducted by GTB, DEQ, DNR, and AMEC. Chemical surveys to assess water quality are being conducted by DEQ. The IT will track these assessment activities and provide public updates of their findings when they are reported from the agencies conducting the surveys.

Upstream Assessment of On-going Restoration Activities

The project team is continuing to work up-gradient of the dam to continue planned restoration activities as approved by the DEQ. These activities include construction of the floodplain along the newly constructed river channel as well as maintenance of three sediment traps that are in place as part of the original design to control downstream migration of sediment during construction activities.

In addition, AMEC, Molon and project stakeholders continue to document, monitor and respond to fish and wildlife species displaced in the former pond by the drawdown. Displaced fish and wildlife such as turtles are relocated to appropriate locations.

INCIDENT INVESTIGATION

The project team is finalizing a plan for DEQ review and approval that will guide the continuing investigation into the cause of the release of water at Brown Bridge Dam. This plan will identify the process for temporary water level controls that will allow for inspection, data collection, and documentation of damaged conditions. The plan will include further dam removal work that will be required to complete the investigation. The plan is necessary because some of the suspect areas where the release of water occurred are still underwater and must be dewatered before the investigation can continue. The project team anticipates providing the DEQ with the initial plan by the end of the week.

It is anticipated that the assessment will be conducted in a phased approach and will not be completed until the powerhouse is removed and the river channel constructed in the location of the former powerhouse. Currently, the project team is assessing the portions of the TDS that can be observed at grade level.

COMMUNICATION

The project team worked closely with EM and the media throughout the course of the incident to release timely and accurate information. The project team remains committed to providing ongoing, updated information to the public. There are diverse experts collecting and analyzing information on this incident and its impacts, and we remain diligent in collating and disseminating information as it becomes available. Updated information can be found at **theboardman.org**, and we will provide regular updates and press releases to the public. Questions and comments can be directed to info@theboardman.org.