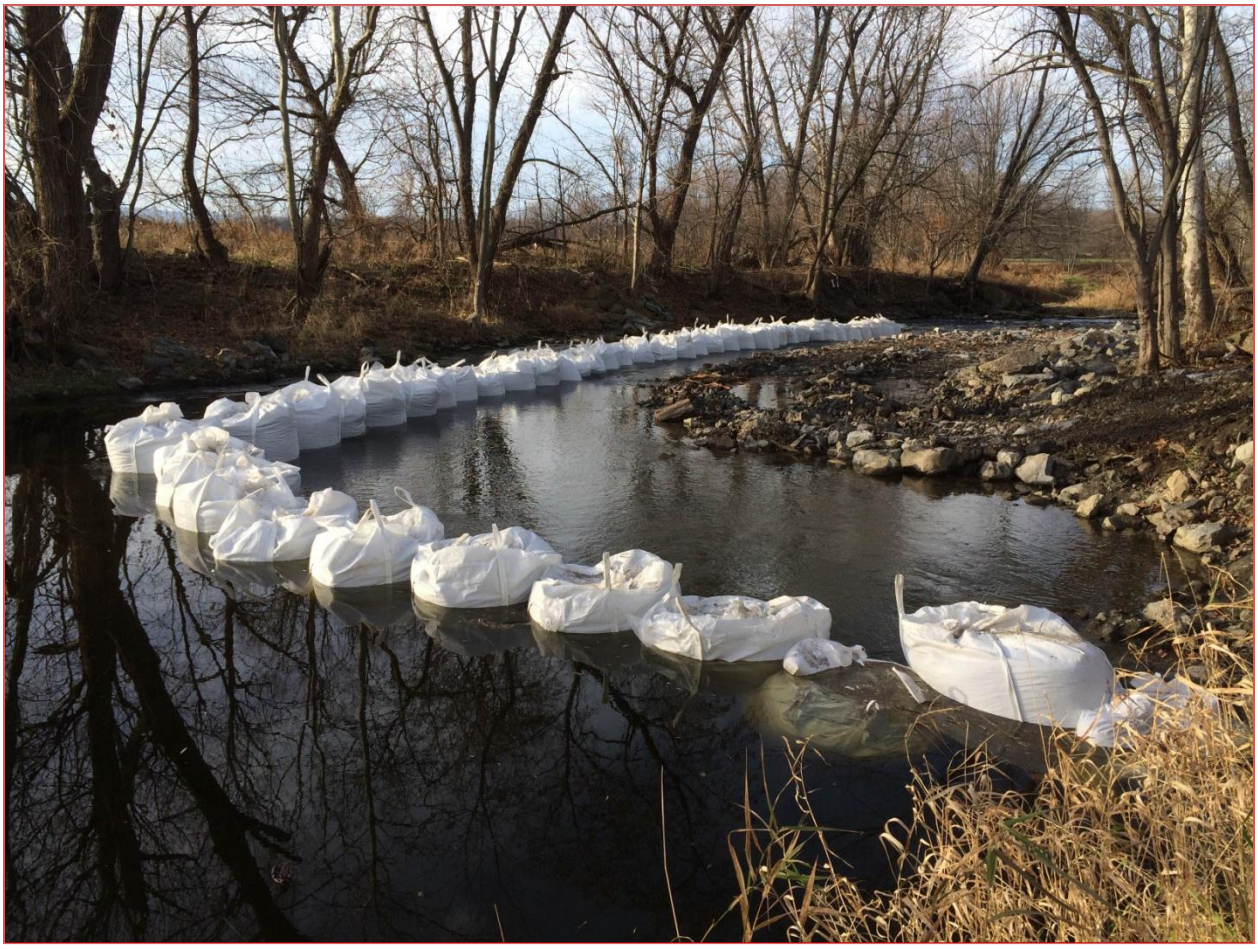
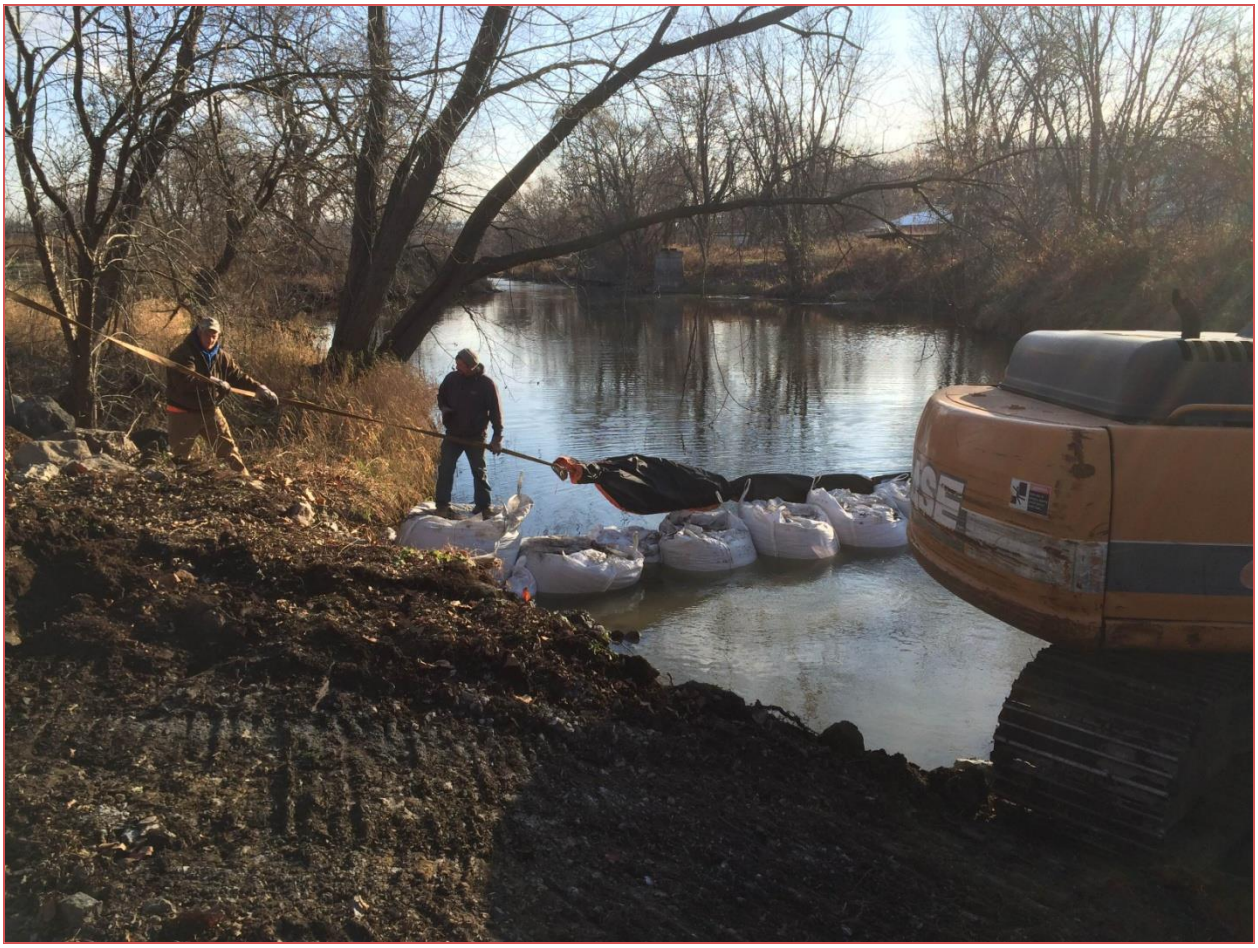
POCHUCK CREEK ROCK LEDGE REMOVAL PROJECT

This project, funded by NYS's Greater Catskill Flood Mitigation Program and managed by Orange County Soil and Water Conservation District, actually consisted of three distinct projects that work together to mitigate flooding in this neighborhood of the Orange County Black Dirt Farming Region. In addition to these projects, a fourth phase was completed to stabilize some of the adjacent streambanks.

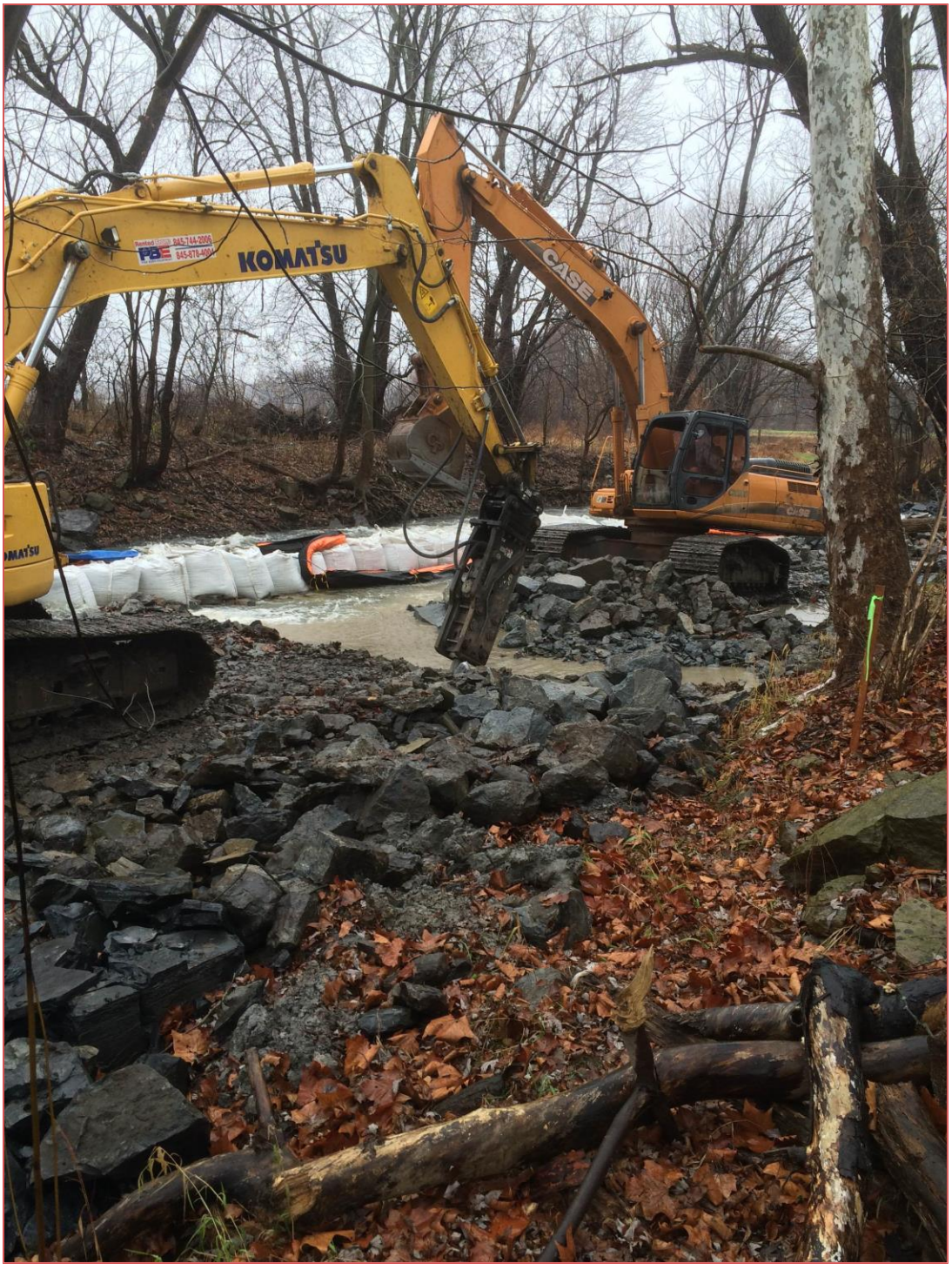
PHASE I – LOWERING 200 FEET OF ROCK LEDGE



In preparation for the first phase of the Project, some 60 'super sacs' filled with sand or pea gravel and weighing roughly 1 ton each are placed down the center of the Pochuck to divert flows away from the initial work area.

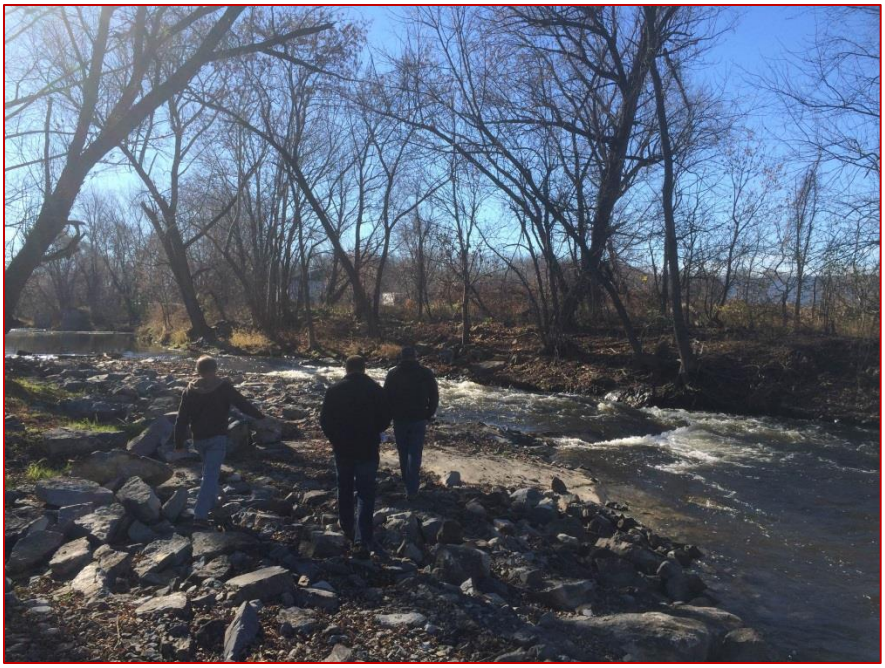


After placement of the super sacs, a turbidity curtain is deployed to reduce leakage between and through the super sacs. Although these measures helped a lot, we plan to experiment with other measures on future similar projects in effort to accomplish better flow diversion and turbidity control.

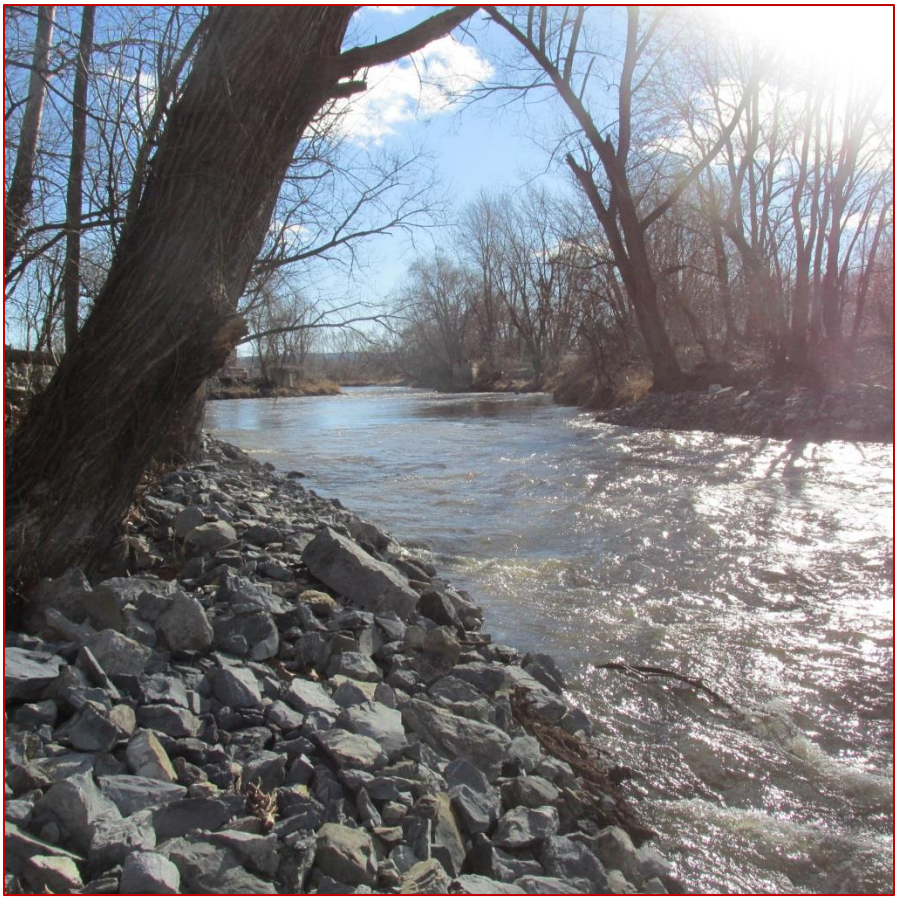


Once flow control measures are in place, two large excavators go about the task of lowering the rock ledge – one hammering and the other scooping away the rock debris.

Excavator sits on a berm in the center of the Creek composed of rock hammered from the Creek bed. Flows have been diverted to the side of the Creek that has already been lowered, while the opposite side of the Creek is hammered out. Then, the center berm of rock will be removed as the excavator backs out of the work area. Note that some of the hammered rock is used to stabilize the banks of the Creek.

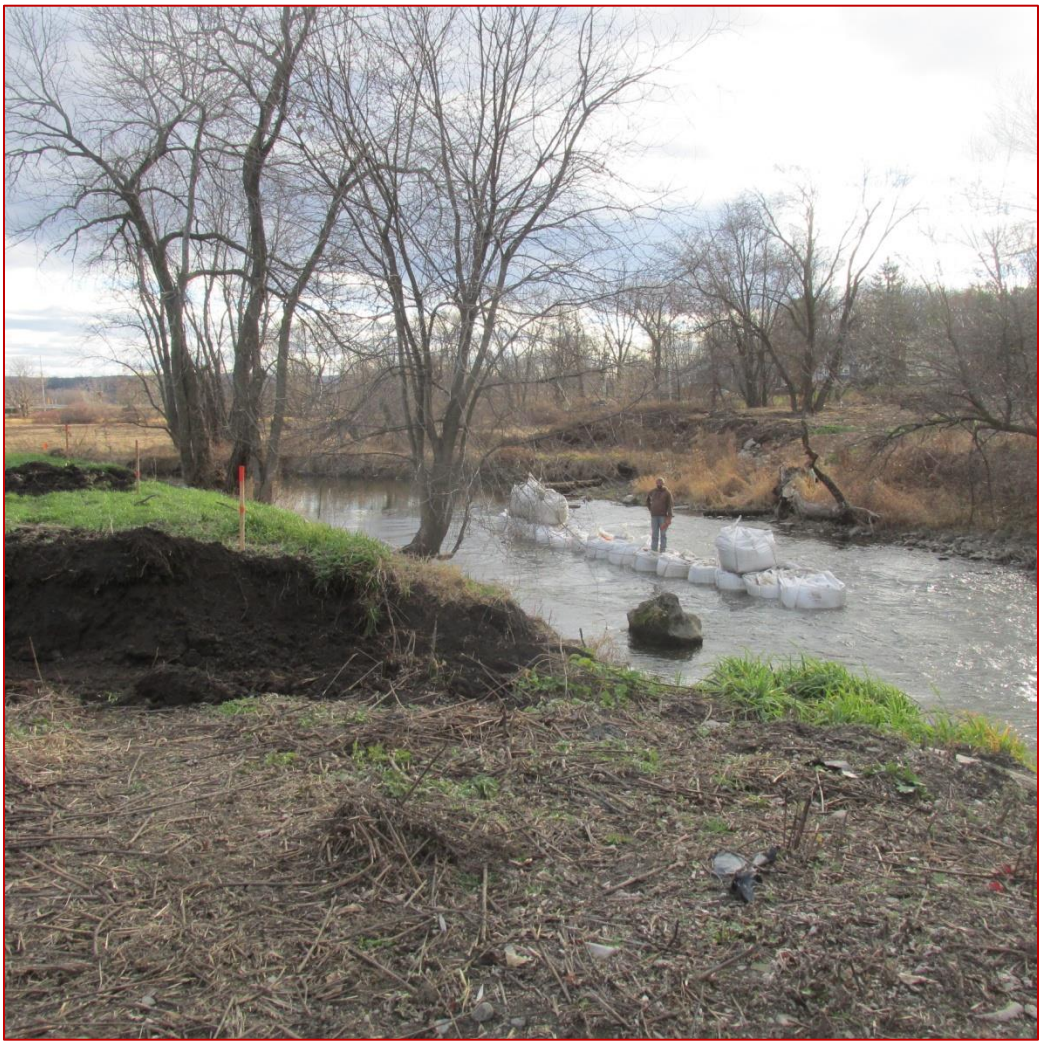


Before rock ledge removal

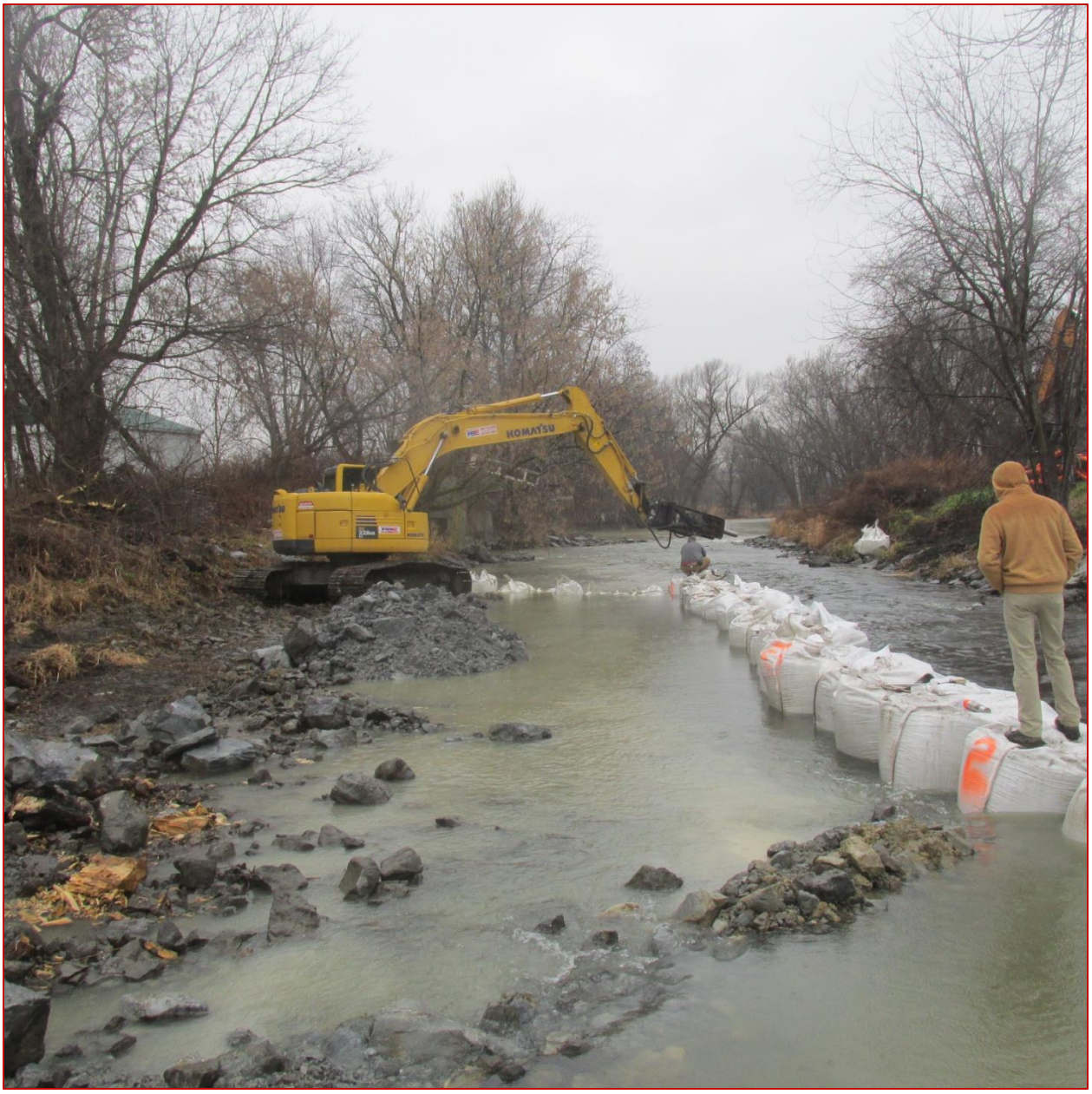


After rock ledge removal

PHASE II – 100 FEET OF CHANNEL MODIFICATION

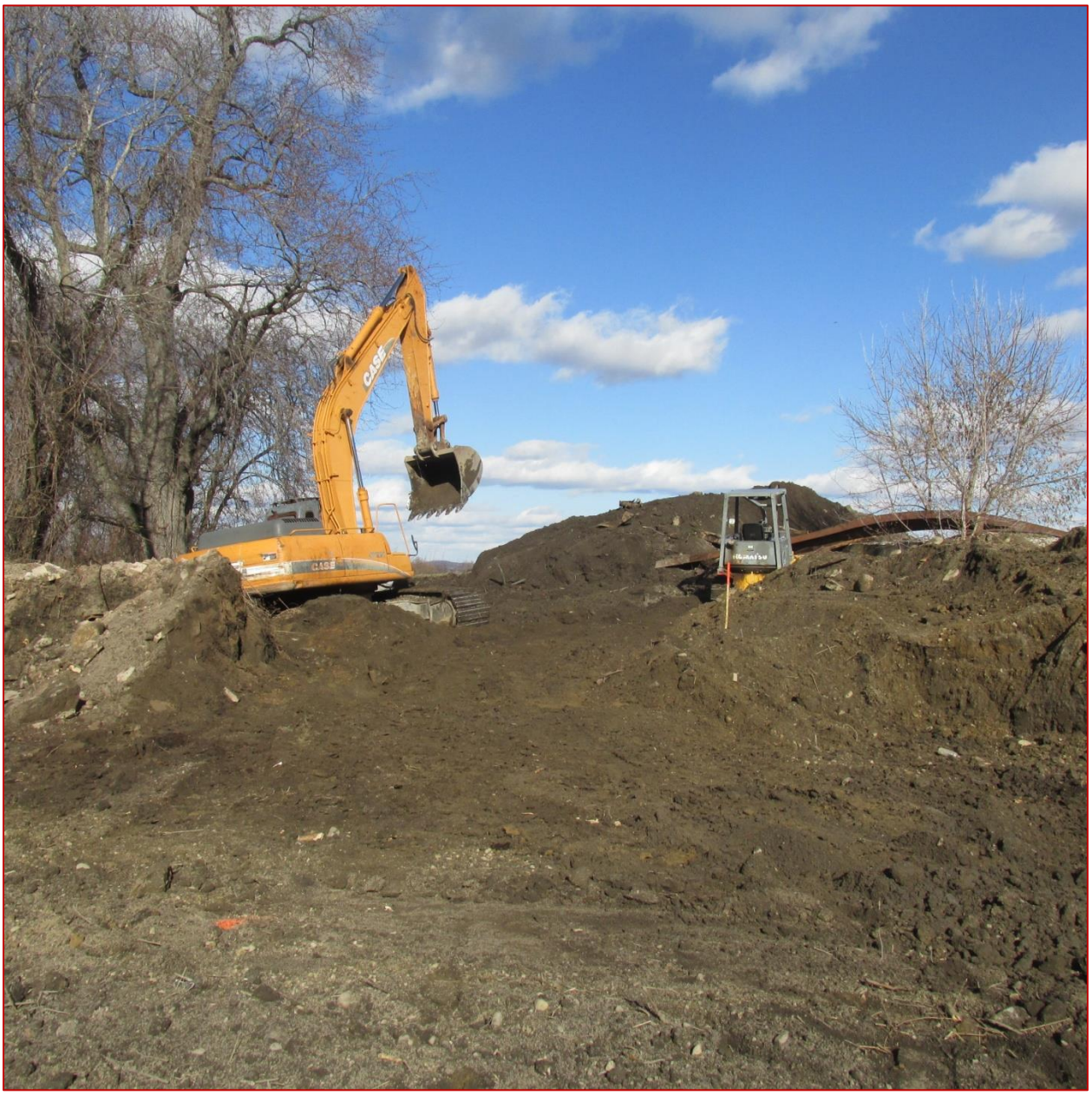


Large sand bags are placed in the stream in preparation for lowering of a second reach of the Pochuck Creek upstream from the primary rock ledge removal site.



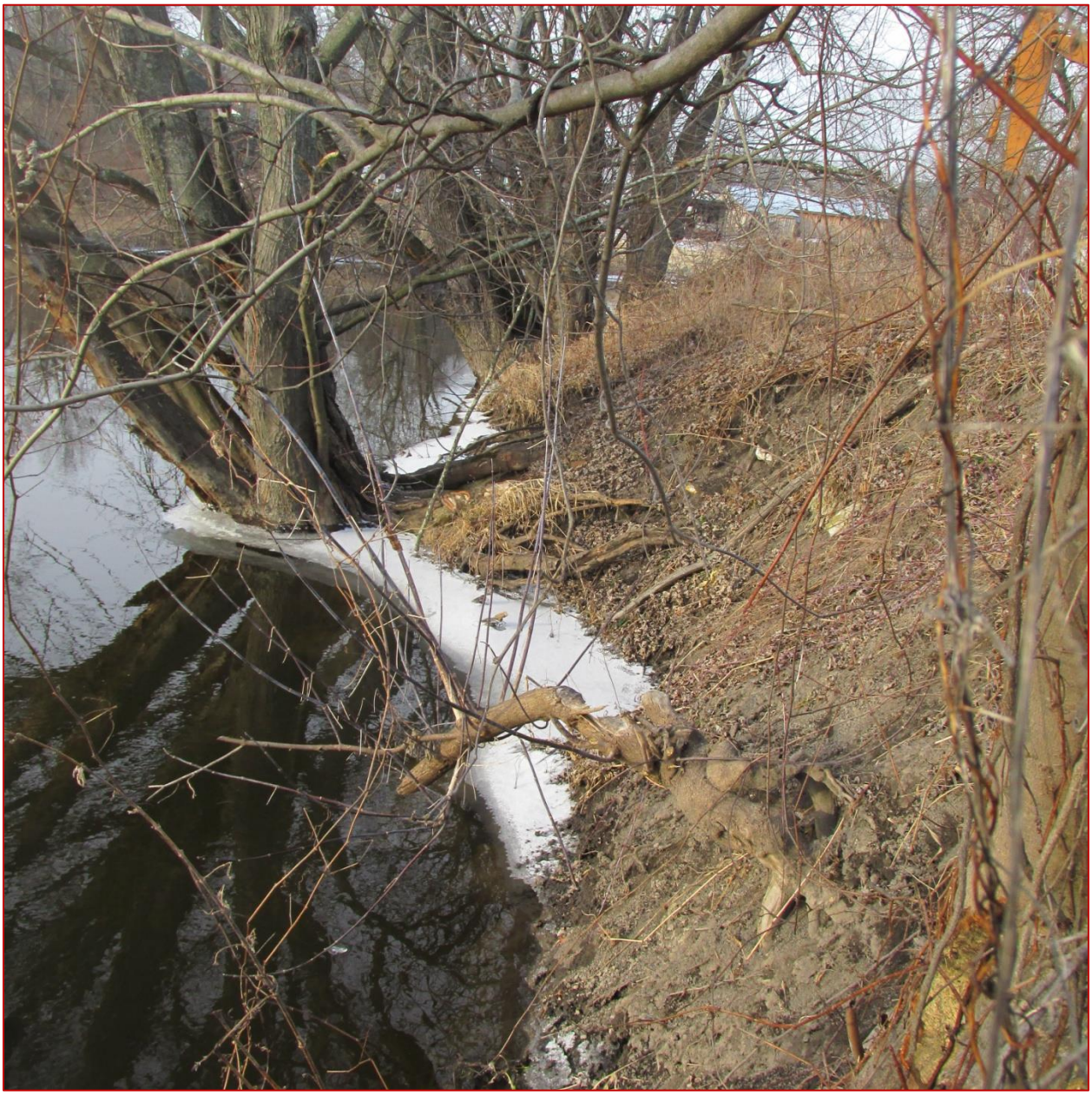
The upstream channel work site was a mixture of ledge and loose rock/clay. Overall between the two channel modifications, the water level in this reach of the Pochuck was lowered by about three feet. Hydraulic modeling done early in the Project planning phase indicated that this work will result in an 8 inch decrease in floodwater elevations after a 10-year storm (about 5.5 inches of rain in 24 hours).

PHASE III – OPENING THE FLOODPLAIN AT OLD BRIDGE LOCATION



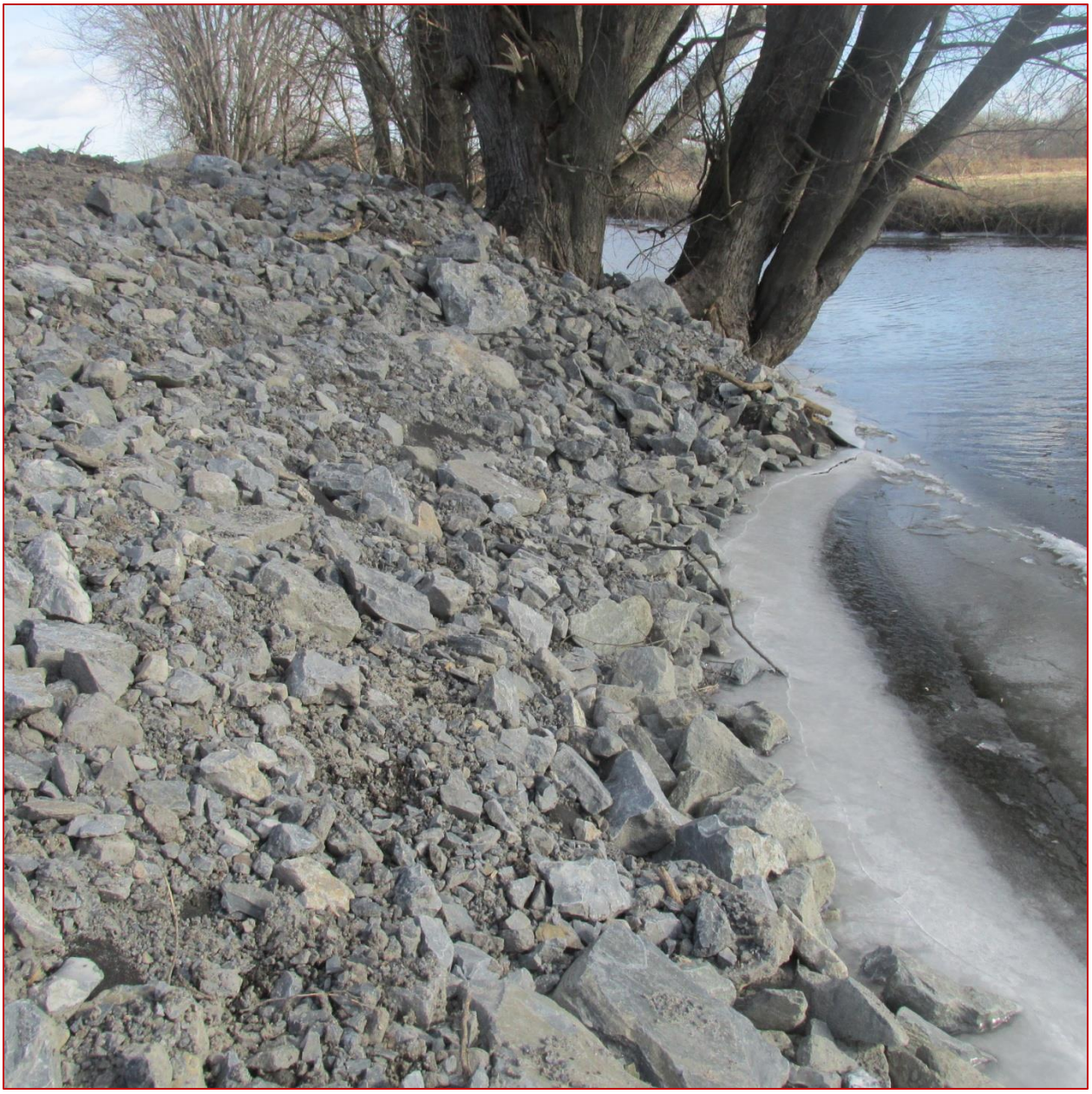
The third phase of the Project was to remove fill soil that was part of the old Transport Lane bridge approach. During the original construction of the bridge, soil was placed between the bridge abutment and the adjacent roadway. Due to the constriction of the short span bridge, it washed out during Hurricane Irene (2011) and the bridge abutment was subsequently removed. With the bridge and abutment gone, the built up approach could be removed. This soil created a pinch point for flood flows. Removing the old bridge approach allows this area to serve as an overflow area and mitigates upstream flooding .

PHASE IV – STABILIZATION OF THE STREAM BANKS



Above and beyond the three components of the Pochuck Flood Mitigation Project, 500 feet of streambank stabilization was accomplished just upstream of the flood mitigation work. Before, as seen in this picture, trees are stabilizing portions of the bank but bare soil areas between the trees are subject to erosion and deliver excess sediment to the Pochuck.

To stabilize the eroding streambank, first the bank is sloped back and covered with a geotextile fabric. Note the turbidity curtain in the back ground separating the work area from the rest of the Creek.



Next, the re-graded slope is covered with rock sized to withstand movement during high flow events. The rock 'rip-rap' extends several feet into the water. For the below-water portion, clean quarry rock was used. For the remainder of the slope, the less-uniform rock hammered from the Creek was used. The geotextile fabric under the rock acts like a filter to ensure that water flows do not remove the native soils – de-stabilizing the repaired streambank. Existing trees on the stream bank were retained.