Flood stories, written in river — Photos by Christine Hatch

Half of a severed and washed-out 3-foot-wide culvert at East Street in Belchertown. Debris carried by intense rains overtopped the beaver dam (still standing, at road level, rear) and clogged the undersized structure, causing the road failure and flooding. Flow is top to bottom.

In Herman Covey Wildlife Management Area in Belchertown, beavers are allowed to be beavers, and their engineering forms part of a natural cycle: Periodically drained beaver dams comprise an ecological cycle from pond to wetland, to meadow, to woodlands. Flow is left to right.

On July 17, intense rains after several wet weeks overwhelmed a 70-year-old beaver dam in Herman Covey Wildlife Management Area in Belchertown (foreground). Floodwaters rushed into a second beaver pond (upper right), where the flood wave was largely captured and attenuated. Flow is bottom left to top right.

Chewed wood marks the former location of a 70-year-old beaver dam in Herman Covey Wildlife Management Area in Belchertown which failed and drained suddenly on July 17, after intense rains. Behind the upstream dam, a vibrant wetland thrives, storing carbon and organic material, filtering water, and capturing stormwater — until now.

The sudden failure of a beaver dam in Herman Covey Wildlife Management Area produced a powerful flood that carved deep into underlying glacial till, and carried down rich organic material that had accumulated for over 50-70 years to the floodplain below where it was deposited. Flow is from top right to bottom left.

As a powerful flood wave from a failed beaver dam ripped through this small tributary, banks eroded and new wood habitat was drawn into the waters. Dark, tannin-rich water drains from the pond sediments, newly exposed to oxygen after the flood. Flow is from top to bottom.

Six days after the road collapse at East Street in Belchertown, nature's engineers are shoring up their structures (top left) behind the pile of debris that was carried up and over their dam (still intact) during intense rains. Debris clogged the undersized culvert at the road, raising water levels to about 2 feet above the road (and top of the beaver dam), ultimately eroding the roadbed, causing catastrophic failure, and significant downstream flooding and damage to homes. Flow is from left to right.