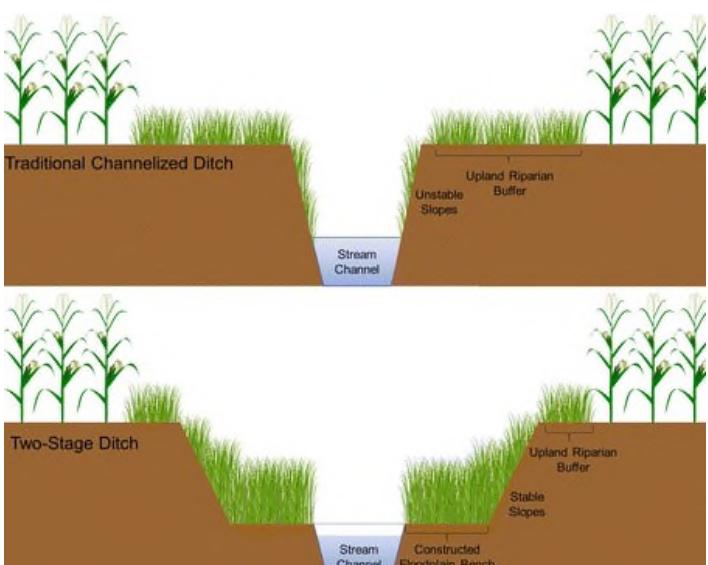
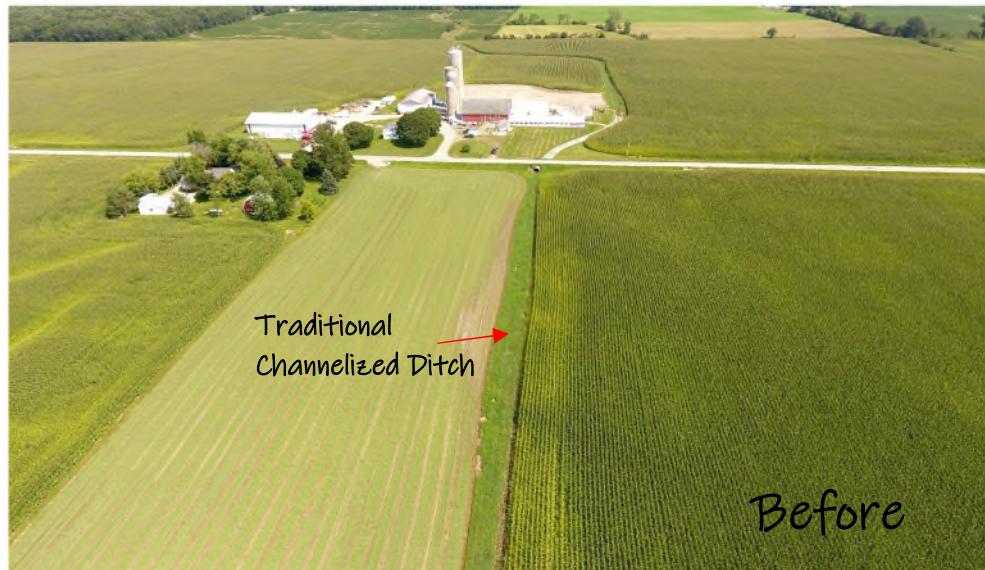


# Two-Stage Ditching System



In the summer of 2021, landowners in the Town of Oneida approached the Outagamie County Land Conservation Department (LCD) with concerns of poor drainage and crop damage from flooding. The impacted area is located in the Upper Branch of Ashwaubenon Creek which empties directly into the Lower Fox River and Bay of Green Bay.

The Outagamie County LCD partnered with NEW Water, Natural Resource Conservation Service, Van Wychen Farms, Neighborhood Dairy, and willing landowners to construct a two-stage ditching system. The existing agricultural ditch on the site was modified to add benches that serve as floodplains within the overall channel. A main flow channel (first-stage) was designed to capture flowing water and will remain wet. A vegetated bench (second-stage) was installed approximately one foot above the first-stage channel. When a large rain event occurs, the main channel will fill up and overflow onto the benches, mimicking the natural way water spills out onto a floodplain.

This two-stage system benefits water quality by causing sediment rich in nutrients (such as phosphorus) to fall out onto the benches, where vegetation uses those nutrients, preventing them from exporting downstream. The benches also function as wetlands during certain times of the year, providing habitat for fish, birds, and aquatic species. Two-stage ditches reduce bank erosion and failure and require less maintenance in comparison to a standard dredging/ditch clean-out process.

Just over one mile of two-stage ditches were installed in the Fall of 2021 with the project planned to continue into 2022. The end result will be a two-mile stretch of two-stage ditching system. Land directly adjacent to this stretch of two-stage is enrolled in a permanent agricultural buffer to further ensure water quality. The fields beyond the buffer are operated by water-friendly farmers who farm with cover crops and no-till/minimum tillage practices which further support conservation efforts. These collective conservation practices are a great win for water quality and conservation within the Lower Fox River Watershed.

*-Luke Hickey*

## Cooperating Partners



Luke Hickey  
Engineering Technician  
Outagamie County LCD