



Bois de Sioux Watershed District builds on multi-benefit successes

With projects that combine water quality, flood reduction and wildlife habitat improvements, the watershed district at the headwaters of the Red River gained support from landowners and funding sources alike



Clean Water Funds from BWSR support the Mustinka River rehabilitation and Traverse County Ditch 35 projects.

VIDEO: [October 2022 site visit](#)

WHEATON — Work is slated to begin this spring on the Bois de Sioux Watershed District’s Mustinka River rehabilitation project, part of a \$50 million, multi-partner flood-control effort within the Red River Valley that has water quantity, water quality and wildlife habitat benefits.

The rehabilitation will remeander a 5-mile-long stretch of the Mustinka River within a 300-foot-wide two-stage channel and floodplain. Materials



excavated during construction will build the north levy of the Redpath Flood Impoundment. That work was split into two stages.

The BDSWD Board in March accepted the low bid, awarding the contract to John Riley Construction of Morris to complete the first half of the

Top: From left: James Guler of Moore Engineering; Linda Vavra, BDSWD Board president; and Jamie Beyer, BDSWD administrator; met with landowners Vicky Radel and Steve Berger on Oct. 20, 2022, to discuss the watershed district’s Clean Water Fund-backed work on Traverse County Ditch 35, a project tied to Mustinka River (left) rehabilitation and Redpath Flood Impoundment work. Landowners’ permanent easement allowed replacement of the culvert that is the outlet from the ditch to Twelvemile Creek. **Photo Credits:** Ann Wessel, BWSR



Side-water inlets, **left and right**, are part of the BDSWD's multipurpose drainage management work on Traverse County Ditch 35 supported by a Clean Water Fund grant from BWSR. The project has water storage, water quantity and water quality benefits. Work finished in fall 2022. **Middle:** In Redpath Township, Traverse County Ditch 35 outlets into Twelvemile Creek through a culvert. The ditch, seen here in October 2022, would usually contain water that time of year.

remeander and embankment construction. The board anticipates soliciting bids for the second half in 2024.

The 3-square-mile Redpath Flood Impoundment will have the capacity to store about 23,000-acre-feet of water — the equivalent of 2 inches of water across the 212-square-mile contributing area. The Redpath will work together with the existing North Ottawa Impoundment in Grant County.

“Having impoundments and places to slow that water down (will) hold the water back so the rivers are able to take that water without it flooding across all the farmland,” said BDSWD President Linda Vavra, who also serves on the Red River Watershed Management Board.

Ninety-three percent of land within the BDSWD is in agricultural production. The Mustinka rehabilitation will control how much water enters the river channel and will divert excess flows to the new impoundment. The Mustinka River flows to Lake Traverse, headwaters of the Bois de Sioux River. The Red River begins where the Bois de Sioux and Otter Tail rivers meet in Breckenridge.

An \$800,000 projects and practices Clean Water Fund grant the Minnesota Board

“ By putting that meander back in, it will slow that water down. ... By re-doing Ditch 35 and having the side-inlets and the new culverts coming in, it helps us to hold the water in the farm fields so that the sediment can settle out in the field and the clean water can run into the ditch. ”

— Linda Vavra, Bois de Sioux Watershed District president



of Water and Soil Resources awarded to the BDSWD in 2022 supports the river rehabilitation. The work will curb sediment-loading to the Mustinka River by an estimated 253 tons and phosphorus by an estimated 72 pounds each year. One pound of phosphorus can feed up to 500 pounds of algae.

The remeander will add about 3 river miles, construct 34 acres of wetland habitat and establish 226 acres of upland buffers within the 260-acre floodplain. The grant-funded work also will install about 30 side-inlet culverts, which regulate the flow of water from field to ditch.

A related BDSWD project completed in fall 2022 realigned Traverse County Ditch 35 to make room for the Redpath Flood Impoundment.

“Traverse County Ditch 35 was a ditch system that was out of repair,” said James

Guler of Moore Engineering. “This project was an attempt to stabilize the channel and install side-inlet culverts to help keep the sediment in the field and out of the ditch.”

A \$320,000 multipurpose drainage management Clean Water Fund grant from BWSR supported that work, which was designed to produce water storage and water quality benefits on the existing agricultural drainage system. Annual estimates show a 230-ton reduction in sediment-loading to Twelvemile Creek and the Mustinka River, and a 65-pound reduction in phosphorus.

“Our drainage systems were designed at the turn of the century,” said BDSWD Administrator Jamie Beyer. “Bringing these projects into the modern day is really important for the productivity of the land around it, for protection of the people

that live in this area. And it’s certainly an important climate mitigation tool.”

Increasingly frequent and heavy rains have exacerbated flooding in the Red River Valley. Situated within the flat lakebed of glacial Lake Agassiz, the Bois de Sioux watershed drains more than 1,970 square miles across three states. From its headwaters at the confluence of the Bois de Sioux and Otter Tail rivers, the Red River flows north 550 miles to Lake Winnipeg.

“What I’m hoping to see is that we have flood-damage reduction so that we hold (back the) water from our neighbors in the north to help protect them from flooding, so that we also protect our farm fields and our people right here at home, to enhance the value of their properties and to help them raise better crops in the future — and to clean our water,” Vavra said.

In October 2022 she and BDSWD staff met in Redpath Township with Steve Berger and Vicky Radel. The couple is among the many landowners whose cooperation was necessary for the Mustinka River and Redpath Flood Impoundment work to proceed.

Berger recalled past flooding where Traverse County Ditch 35 meets Twelvemile Creek.

"I grew up here. I'm well-versed with what happens with the water at this particular point. It's a confluence of actually three different waterways within a mile, including our front yard," said Berger, a retired computer programmer. "So there's a lot of water. When it comes, it comes really quick."

Berger, who moved back with his wife in 2007, recalled the worst year's flooding:

"In 1969, which was our huge flood, we would boat from the house to the barn so we could feed the cattle. One time the current was so quick we got past the barn, and we thought we were going to get swept up. We didn't know where we were going to end up. The current was that fast running through our yard. So '69, huge flood, '97, 2005 and actually 2019 — just three years ago — was another huge flood."

The couple agreed to a critical piece of the project where the ditch outlets into the creek: a permanent easement that allowed access to install a larger culvert and to maintain the site. The Traverse County Ditch 35 project involved 10 landowners along a 5-mile stretch. Handling the road crossings involved collaboration with Redpath Township and the Traverse County Highway Department.

"These projects serve a lot of different stakeholders, and that's what makes them attractive. In our area of the state, we have an extremely flat terrain, and we rarely get precipitation in the amount that the landscape can handle. So we deal with runoff," Beyer said.

"For both our agricultural producers and for folks who are interested in making sure that our water quality is high, these projects present



The outlet from Traverse County Ditch 35 to Twelvemile Creek is to the left, just beyond the bounds of this map showing the location of the side-water inlets.

Clean Water Fund-backed Work

Clean Water Funds from BWSR support other work within the Bois de Sioux Watershed District — and involving Traverse and Wilkin soil and water conservation districts — that contribute to water-quality improvements affecting the Red River. Among them:

MULTIPURPOSE DRAINAGE MANAGEMENT: \$1.3 million since 2017 in six

additional multipurpose drainage management grants that carry clean water benefits

LAKE TRAVERSE-RELATED: \$1.6 million since 2020 in three projects and practices grants for Lake Traverse water-quality improvement work centered on Traverse County Ditch 52 bank stabilization and sediment reduction



Twelvemile Creek is seen near the spot where Traverse County Ditch 35 outlets into the creek, which joins the Mustinka River. A segment of the river will be remeandered, and the soil excavated during construction of a two-stage channel will build the north levy of the Redpath Flood Impoundment. The BDSWD Board in March accepted the low bid for the first half of the remeander and levy construction, awarding a \$4.8 million contract to John Riley Construction of Morris.

an opportunity. So we can put certain aspects into the project that help clean the water," Beyer said. "We're able to control where the flooding

happens, and that's what's attractive to the agricultural producers."

The BDSWD and the Red River

Watershed Management Board support both the Mustinka River project and the Redpath Flood Impoundment. Additionally, the Minnesota Department of Natural Resources' Flood Hazard Mitigation Program supports the impoundment; Outdoor Heritage Fund and Environment and Natural Resources Trust Fund grants support the remeandering.

"Some of the other benefits involved with this project are for our wildlife. It really will enhance that. It will give us an extra 28 acres right along the impoundment itself that will be all wildlife area for deer and pheasants and ducks and geese," Vavra said. "Putting the meanders back in the river will really help for the fish and just generally clean up the water in the river."

Vavra said Clean Water Fund grants help the BDSWD to leverage funds and accomplish large projects.

"Clean Water Funds are really enabling us to get this project going," Vavra said. "As I tell my co-managers on the (Red River Watershed Management Board), everything we do in the Bois de Sioux watershed helps our neighbors to the north. We do not build a project in the Bois de Sioux without it having many facets, and that it also provides clean water in every project."



mission is to improve and protect the state's water and soil resources by working in partnership with local organizations and private landowners.

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