



Farmers, lake residents anticipate improved drainage, water quality

In Wright County, SWCD's \$490,000 project treats 10% of county ditch system affecting Ann Lake, taps Clean Water Fund grant focused on drainage plus water quality



Top: Landowner Craig Brose, right, and Wright SWCD wetland resource conservationist Andrew Grean talked about the pond that's among best management practices within the 20,000-acre Wright County Ditch 10 drainage area designed to alleviate flooding within the ditch system and decrease downstream nutrient- and sediment-loading.
Left: A lateral of County Ditch 10 is seen from the highway in Victor Township. Benefited landowners combined share of the pond project will total about \$180,000.
Photo Credits: Ann Wessel, BWSR

HOWARD LAKE —A Wright Soil & Water Conservation District project designed to improve both agricultural drainage in farm fields and water quality in a series of impaired lakes and rivers finished this season on a branch of County Ditch 10 a few miles upstream from Ann Lake.
 The \$490,000 project — a 12-acre easement

including a 10-acre storage and treatment pond that will also reduce fluctuations in water levels downstream — draws from three Minnesota Board of Water and Soil Resources funding sources: a Clean Water Fund grant, Disaster Relief Assistance Program dollars and a North Fork Crow River One Watershed, One Plan grant.



Left: Swamp milkweed grows along Wright County Ditch 10 near its outlet into Ann Lake. Middle: Dean Aurich of Waverly was fishing Aug. 5 on Ann Lake in Wright County. Right: Wright County Ditch 10 enters Ann Lake a few miles east of the project site in Victor Township. The pond will treat water before it enters the lake, which is impaired for aquatic recreation because of excess nutrients.

One of the largest ditch systems in the county, CD 10 drains about 20,000 acres. The 16-mile-long system outlets into nutrient-impaired Ann Lake, which flows through connected lakes and ditches to the North Fork Crow River and, eventually, the Mississippi River.

The pond treats about 10% of the CD 10 watershed — all 2,100 acres drained by the lateral it intercepts.

When it was established in 1906, the ditch was 6 miles long. The ditch system expanded as row crops became more prevalent and communities grew. But it couldn't keep up with tiling, drainage from laterals outside the system, and increasingly heavy rainfalls.

"Over time, without maintenance their capacity to drain water off those lands is reduced. So they're over-burdened and under-sized. I think that's a big issue with County Ditch 10," said Matt Detjen, Wright County agriculture and drainage supervisor.

The ditch hasn't been cleaned out for at least 60 years. Accumulated sediment and downed trees have restricted drainage further.

"Areas that were farmed 10 years ago, they can't get equipment in there

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Drainage and water quality — we need both of them, and we need that farmer buy-in.

— Charlie Borrell, Wright County commissioner

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anymore," Detjen said.

A recent petition for ditch maintenance coupled with lakeshore property owners' concerns about increasingly frequent algal blooms and fluctuating water levels prompted Wright SWCD to pursue multipurpose drainage management.

"If there's momentum to do repairs and invest in cleaning the ditch, can it be done in a way that it not only serves the benefited landowners but can also address some of those water-quality issues?" said Wright SWCD wetland specialist Andrew Grean.

"That's how we viewed it, as really an opportunity to take a closer look at it, see if we couldn't find some grant opportunities to do things in a different way. We viewed it as a potential missed opportunity if the ditch were maintained and no projects



Detjen

were implemented that could maybe get at some of the water-quality issues."

Plans to install a series of smaller best management practices changed after two landowners agreed to the pond, which has the potential to achieve much greater sediment and phosphorus reductions.

By storing water and allowing sediment — and the pollutants it carries — to settle out, the pond relieves pressure on the over-burdened ditch system and improves drainage along the main artery. It will keep an estimated 514 tons of sediment — 40 dump truck loads' worth — and about 271 pounds of phosphorus out of downstream waters annually. Phosphorus feeds the algae that can turn lakes green.

Annual reduction estimates for the original plan were 14.7 tons of sediment and just under 23 pounds of phosphorus.

Craig Brose of Victor

Township won't benefit directly from the pond that straddles part of his field. But in order to advance the ditch clean-out, he and a neighbor sold easements to the ditch authority. They retain ownership of the land.

"We need to get this ditch cleaned out," Brose said. "It needs some attention."

Brose said his great-great grandfather was among those who petitioned in 1901 for the ditch to be built. His father petitioned in the 1980s for a clean-out. The CD 10 system drains about 1,000 acres of Brose's 3,200-acre corn and soybean operation. When ditch benefits are assessed, his share is about 12% of the total cost.

Benefited landowners combined share of the pond project will total about \$180,000.

"Our role of leveraging grant funds is definitely critical to make this happen. To simply ask them to pay for the total cost — potentially half a million dollars for a stormwater pond — I don't think that would have had a chance," Grean said.

For most farmers, building a stormwater pond in a cornfield is a new idea. Benefits may take time to materialize.

"Those funds made this

happen, 100%," Grean said of the Clean Water Fund grant.

Now, water from 2,100 acres drained by the lateral flows through the pond before it's metered into County Ditch 10 through a culvert with a smaller opening that slows its flow. The pond retains water after heavy rains.

"That will allow the main line of County Ditch 10 to function and to drain water without having to deal with that full shot that's being held in the pond," Grean said. "I think of it as a yellow light on the ditch system, to slow the water down. It's going to drop out sediment when you have that decrease in velocity. As the main line can draw down and pass that water through, then the pond will draw down."

A rock weir is designed to handle overflow for a once-every-100-years rainfall.

With the dry summer and fall, the pond hasn't yet been tested. A time-lapse camera will record post-rain fluctuation in water levels. Models estimated the pond would decrease water levels immediately downstream by about 6 inches.

"We're hoping it results in less pollutants coming into Lake Ann — less sediment," said Gerry McMillan, Lake Ann Improvement Association past president. "(County Ditch 10) drains a very large watershed, so when there's a big rain event, we get a lot of water and a lot of sediment into the lake."

McMillan, a toolmaker for a medical company who

Details: Project, Partners, Waters

PARTNERS: Wright SWCD, Wright County Commissioners, Wright County Drainage Authority, benefited landowners, Lake Ann Improvement Association, ISG, BWSR

PROJECT: ISG designed the 10-acre water treatment and storage pond on the 12-acre site in Victor Township. The Wright County Drainage Authority owns the easement, and is responsible for maintenance.

FUNDS: The \$490,000 project's funding sources include (in round numbers): \$213,600 Clean Water Fund grant \$180,000 from benefited landowners \$49,500 from a North Fork Crow River One Watershed, One Plan implementation grant \$42,800 Disaster Relief Assistance Program grant

HISTORY: Wright SWCD in 2017 inventoried the CD10 system, identifying points of erosion and taking stock of vegetated buffers. (Money left over from a 2015 Clean Water Fund grant targeting a different

moved into his new lakeshore retirement home last year, said association members viewed the project as a good first step.

Keeping topsoil on the land is good for farmers, too, McMillan said, acknowledging that the ditch has existed for 100-plus years

ditch paid for that work.) The SWCD and county commissioners then funded a Multipurpose Drainage Management Plan, which consultant ISG wrote. The inventory and plan backed the SWCD's successful 2018 Clean Water Fund application.

IMPAIRMENTS: Ann, Emma and Little Waverly lakes are impaired for aquatic recreation due to excessive nutrients/eutrophication. Twelvemile Creek is impaired for aquatic life due to low oxygen levels. The North Fork Crow River is impaired for bioassessments, E. coli, dissolved oxygen and turbidity.

CROW RIVER CONNECTION: A Minnesota Pollution Control Agency snapshot of Upper Mississippi River health from Lake Itasca to St. Anthony Falls noted that nutrient pollution in the Mississippi River doubles at the confluence of the Crow River at Dayton. It lists the Crow River as the No. 1 contributor of Mississippi River nutrient pollution in this stretch.

and adding that the lake association was prepared to contribute to another SWCD project in the works. About 65 houses ring the lake.

"It's something where we have to work together," McMillan said.

Wright County Commissioner

Charlie Borrell, whose district includes Victor Township, is the commissioners' liaison to the SWCD. He said the multipurpose drainage management project was a first for the county, and one of the SWCD's largest undertakings.

Commissioners saw a similar project near Mankato that worked well.

"We're getting the sediment out of the system. We're slowing the flooding for Lake Ann. It just has a lot of benefits," Borrell said. "(Wright SWCD) has taken on a lot of soil erosion projects, and we've got buy-in from our farmers like nobody's business."

The success of other conservation projects inspires that buy-in. Borrell cited a large water and sediment control basin near Cokato Lake as one highly visible example that has improved productivity and curbed erosion.

"Drainage and water quality — we need both of them, and we need that farmer buy-in," Borrell said.

With 44 county and joint ditch systems encompassing 156 miles, the opportunity for similar projects exists.

"We think it's a great project that a lot of our other drainage systems could use," Detjen said.

County Ditch 10 maintenance, meanwhile, is slated for 2021. The current \$1.5 million repair estimate would be shared among landowners with 900 benefiting parcels.



The Minnesota Board of Water and Soil Resources' mission is to improve and protect Minnesota's water and soil resources by working in partnership with local organizations and private landowners. Website: www.bwsr.state.mn.us