



Top: Becker SWCD Administrator Peter Mead, second from left, checked on Bill Steffl's Callaway Township project in August 2019 with SWCD engineering technician Nicole Wallace, SWCD engineer Wes Drake, who oversaw construction and certification, and Steffl, at right. The project, scheduled to finish in spring 2020, was the final, and most complex, piece of the SWCD's sediment reduction work in the Upper Buffalo River watershed. A Clean Water Fund grant from BWSR and an EPA grant are in play. NRCS provided technical assistance.

Gaining momentum: Conservation expertise, leveraged funding and cooperation converge in Becker County

In the Upper Buffalo River watershed, SWCD and NRCS staff works with willing landowners on targeted sediment reduction designed to improve water quality



Bottom: Fourth-generation farmer Chad Okeson raises corn, beans and wheat in Becker County. A Becker SWCD project on his land keeps an estimated 37 dump trucks worth of sediment out of the Buffalo River annually. The project was made possible by Clean Water Funds and Environmental Quality Incentives Program assistance. **Photo Credits:** Ann Wessel, BWSR



DETROIT LAKES — Agency cooperation, leveraged funding and in-house engineering have made it possible for Becker Soil & Water Conservation District and the USDA's Natural Resources Conservation Service to work with landowners on some of the largest and most complex sediment-reduction projects in the Upper Buffalo River watershed.

Water quality benefits as a result. Landowners benefit from projects that increase productivity. Up to 90%

of the cost is covered for those who follow all project recommendations.

Clean Water Fund grants from the Minnesota Board of Water and Soil Resources are in play. So is Environmental Quality Incentives Program (EQIP) assistance from NRCS. Projects have

tapped Buffalo-Red River Watershed District and Environmental Protection Agency grants.

"We have a really strong working relationship with NRCS," said Peter Mead, Becker SWCD administrator. "We work very much across each other's lines — so much so that the general

public coming into our office doesn't know who they're talking to. They just know that they can come and get an answer."

In some cases, NRCS provides the funding and SWCD staff provides the technical



expertise. Those roles often reverse.

BWSR

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.
www.bwsr.state.mn.us

"(It's) having that flexibility of being able to put a plan together for a producer and having them implement it on a smaller scale than we could do through the federal programs so they

could see if it's going to work in their situation," said Ed Musielewicz, NRCS district conservationist.

Projects slated to finish this spring in the Upper Buffalo River watershed represent the culmination of 10 years' work to improve water quality of the Buffalo River and phosphorus-impaired lakes in Becker County.

In the past 10 years Becker SWCD has secured six Clean Water Fund grants totaling over \$2.4 million for sediment



The 140-mile-long Buffalo River is a Red River tributary. Its watershed spans parts of Becker, Clay, Wilkin and Otter Tail counties.

and nutrient reduction efforts in the Becker County portion of the Buffalo River watershed.

By the close of the construction season last fall, the SWCD had worked with 63 landowners to construct 276 structural practices (largely water and sediment control basins) and implement 157 acres of filter strips, critical area plantings and grassed waterways in targeted portions of the watershed. Those efforts have

cut annual soil loss by 5,564 tons, reduced sediment (total suspended solids) by 4,623 tons, and reduced phosphorus runoff by nearly 5,700 pounds.

"The big-picture objective really comes down to sediment reduction — and in some cases bacterial reductions — to address the impairments downstream in the Buffalo River," Mead said. "There are a number of lakes within the Buffalo watershed that are impaired for excess

nutrients, and we're able to reduce the phosphorus loads that are causing those impairments as we do this work."

Previous Clean Water Fund grants focused on sediment reduction in the Upper Buffalo River watershed, and on phosphorus reduction in 13 impaired lakes.

Becker SWCD is building upon that success in the watershed with its next phase of work, made possible by a 2019 Clean Water Fund award from BWSR. The \$796,060 grant involves nearly 140 practices, 2,500 acres of cover crops, 320 acres of rotational grazing, 45 acres of filter strips and 86 acres of wetland restoration.

Those projects are projected to reduce sediment-loading to the Buffalo River by 32,712 tons a year — the equivalent of 2,516 dump truck loads. Annual phosphorus-loading is projected to decrease by 21,083 pounds, nitrogen-loading by 24,332 pounds.

Work will start at the top of the watershed and continue downstream.

"We thought ... why not start from the top and work our way down. We're seeing successes throughout the watershed; why not just tackle it all. So effectively, that's what we're doing. (As) each portion of the watershed does experience some of these different sediment issues we're able to make some pretty big strides to address them," Mead said.



Final Upper Buffalo project eliminates gullies, curbs erosion, stabilizes riverbank

Multi-faceted work taps Clean Water Funds, EPA grant, NRCS assistance

DETROIT LAKES — The final piece of Becker Soil & Water Conservation District's \$708,262 sediment reduction work in the Upper Buffalo River watershed is the most complex of the projects leveraging a \$328,160 Clean Water Fund grant from the Minnesota Board of Water and Soil Resources.

It involves water that flows from shallow lakes and wetlands across a field and under a driveway to the Buffalo River.

"You're getting a number of different benefits, but the main thing is you're controlling the flows and you're removing that issue of suspended solids," said landowner Bill Steffl. "That's a huge problem in this area where you've got this real rolly topography."

In Steffl's Callaway Township field, the elevation drops 40 feet in a half-mile — typical in this part of the 1,100-square-mile Buffalo River watershed.

The \$184,000 project tackled one of the Top 5 sources of



A project on Bill Steffl's land will keep the equivalent of more than 17 dump truck loads of sediment out of the Buffalo River each year.

sediment identified in a 2015 watershed study.

An 80-year-old drainage channel, built to manage the water levels of Squash Lake for ag production, was eroding at the downstream end. An undersized pipe at the lake's outlet was in danger of washing out.

A culvert built after the private driveway flooded in 2003 sent water directly from the field to the river. The resulting gully eroded the riverbank.

Now, a 2,000-foot-long pipe carries most of the lake flows. Re-sloped and seeded, the man-made channel serves as an emergency spillway that can be traversed. A series of

small dams and basins slow water and curb field erosion. A new concrete structure at the outlet controls the lake elevation and transports runoff into the outlet pipe.

The project draws from a second BWSR Clean Water Fund grant, a Minnesota Pollution Control Agency EPA grant, and assistance from the USDA's Natural Resources Conservation Service.

"We did most of the engineering, the design," said Ed Musielewicz, NRCS district conservationist. "We worked with the Buffalo-Red River Watershed District on wetland issues. We worked with the DNR on protected waters."

Funding Sources

BECKER SWCD: \$101,740 includes two BWSR Clean Water Fund grants: \$44,380 from a 2017 Upper Buffalo River Sediment Reduction projects and practices grant, \$57,360 from a 2018 Top-Down Buffalo River Watershed accelerated improvement grant

BUFFALO-RED RIVER WD: \$57,360, EPA sediment reduction project grant

LANDOWNER: \$18,400

NRCS: \$6,500 in assistance

Segments of the Buffalo River are impaired for sediment.

The entire Upper Buffalo River sediment reduction project — three grade-stabilizations, 28 basins, one grassed waterway and about 25 acres of filter strips — will cut sediment-loading by an estimated 44%, exceeding its goal of 41%.

"Clean Water Legacy dollars have been the saving grace to make these things actually happen. We can pay up to 90% to get something done. A known problem for 20 years is suddenly able to be addressed," Mead said.



Becker SWCD engineer Wes Drake, who oversaw construction and certification, engineering technician Nicole Wallace, SWCD Administrator Peter Mead and landowner Bill Steffl examined a manhole junction in August 2019. Annual sediment reduction estimates total 229 tons.

“ We’ve had a lot of landowner buy-in and created a lot of momentum in the agricultural community and interest in doing these practices because of the dollars we’re able to bring to the table.

— Peter Mead, Becker SWCD administrator

Largest single project handles 540 acres’ runoff

Waterway replaces field-splitting ditch; addresses vertical bank at river’s edge

The largest single project of Becker Soil & Water Conservation District’s prioritized sediment reduction work in the Upper Buffalo River watershed handles runoff from about 540 acres, fixes an erosion problem that cut a field in half, and keeps an estimated 483 tons — 37 dump truck loads — of sediment out of the river annually.

Environmental Quality Incentives Program (EQIP) assistance from the USDA’s Natural Resources Conservation Services covered about 75% of the \$468,000 project. The landowner contributed 10%. Clean Water Funds from the Minnesota Board of Water and Soil Resources covered the rest. Becker SWCD staff provided



Grasses flourished in the waterway at the downstream end of the sediment reduction project on Chad Okeson’s land. Okeson, talked to Becker SWCD staff, from left, Nicole Wallace, Wes Drake and Administrator Peter Mead in August 2019.

design and technical expertise.

“This project cost more than this farm was bought for. We could not do this on our own, not even close. Without all the matching funds and grants it would just be a dream,” said Chad Okeson.

A fourth-generation farmer, Okeson runs 3,000 acres of corn, beans and wheat with his brother and father.

Okeson walked the waterway with SWCD staff in August

2019, about a year after construction finished. The project — which withstood heavy rains earlier that season — included eight water and sediment control basins, a grade stabilization structure, a stilling basin and a grassed waterway. It tied into an existing water and sediment control basin system installed by the SWCD and NRCS.

“There was no basin here, just one culvert coming through the road,” Okeson said of the site before work began.

“This was a narrow ditch that was getting washed out, and getting more washed out as you head west towards the river. I can remember when I used to be able to cross it with a tractor — drive across it when it was dry — and now it would be 20 feet deep.”

During a 10-year storm event, the basins allow water to pool and sediment to settle for 24 hours. Fixing the eroded ditch made it possible to cross the entire field, making field work more efficient.



“The benefits of this project are for water quality and soil health. It’s also a win-win for both conservation and the farmer,” Wallace said. Becker SWCD’s sediment reduction project on Chad Okeson’s land includes this grassed waterway leading to the outlet that drains into the Buffalo and Red rivers, and a basin where before only one culvert ran under the road. A 9-inch rain in 2012 crossed that road, took out a field crossing, and worsened a Buffalo River headcut.



USDA is an equal opportunity provider, employer and lender. Natural Resources Conservation Service website: www.nrcs.usda.gov.

