

“Our mission is to protect and enhance Benton County’s soil, water & other natural resources; to nurture a conservation ethic by educating county residents on conservation & environmental issues.”

Benton Soil & Water Conservation District
Natural Resources Conservation Service
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Foley, MN 56329
(320) 968-5300 Ext. 3
www.soilandwater.org



Serving Benton County since 1948

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2018

Benton SWCD/NRCS

Tour of Practices



Welcome!



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Thank you for attending the 2018 Tour of Practices!



Benton SWCD/NRCS Staff

Front Row: Renee Thell-Admin. Assistant, Casey Gwost-District Tech., Nathan Sanoski-FarmBill/District Tech., Mike McMillin-District Tech., Travis Janson-Watershed Tech.

Back Row: Amanda Guertin-Water Plan Tech., Gerry Maciej-District Manager, Pat Gehling,-District Conservationist, Joey LeBlanc-Civil Engineering Tech., Kelly Molitor-Watershed Tech.,

Bonnie Haubenchild-NRCS Contractor General Clerk II, Barb Zeroth-Soil Conservationist



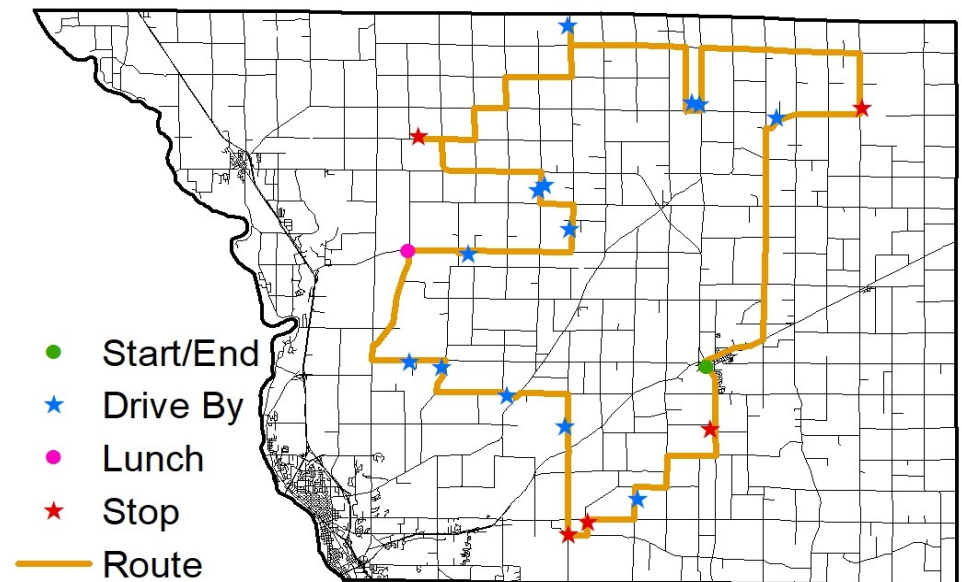
Benton SWCD Board Supervisors

Left to Right: Wade Bastian –Vice Chair, Joe Jordan—Secretary, Bernie Thole—Chair, Jake Scherer—Member, Chuck Rau—Treasurer

USDA Office



Benton County Tour Map



New Heights Dairy—Feedlot

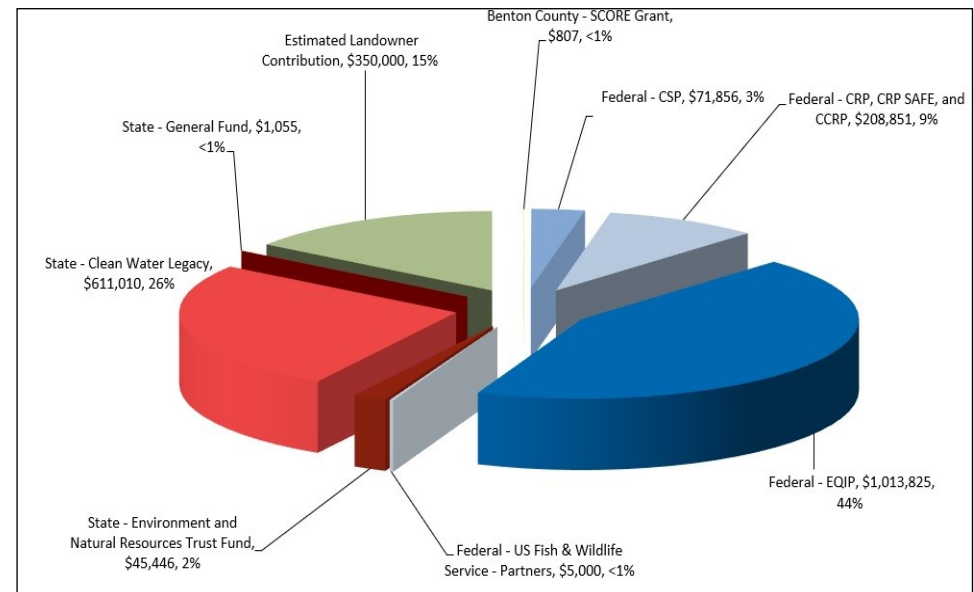


Above: An aerial view of planned feedlot practices.

New Heights Dairy (Brent, Myron, and Debra Czech) operate a dairy farm in St George Township. When they purchased the farm, it had an existing manure storage system that was built around 1990. Over time the manure storage system became unusable due to solids building up in the pit, with no way to remove them. As a result, the Czech's were forced to daily-haul manure to the fields, including the winter months. To correct this situation the old manure pits are being "replaced" (cleaned out, combined, and new liner installed), and a sand-separation facility is being put in. In addition, leachate from the silage bunker will be collected and pumped into the pit. The manure pit will be 16' in deep and will hold 10,696,335 gallons of manure, which will store 12 months of manure and runoff. The producer will be working with a private consultant to ensure the manure is properly applied.

The project was designed by a private engineer and was partially funded by the Environment Quality Incentive Program.

Financial Summary



Direct Financial Assistance for Benton County Conservation Projects

Total Direct Financial Assistance in 2017 was \$2,307,850

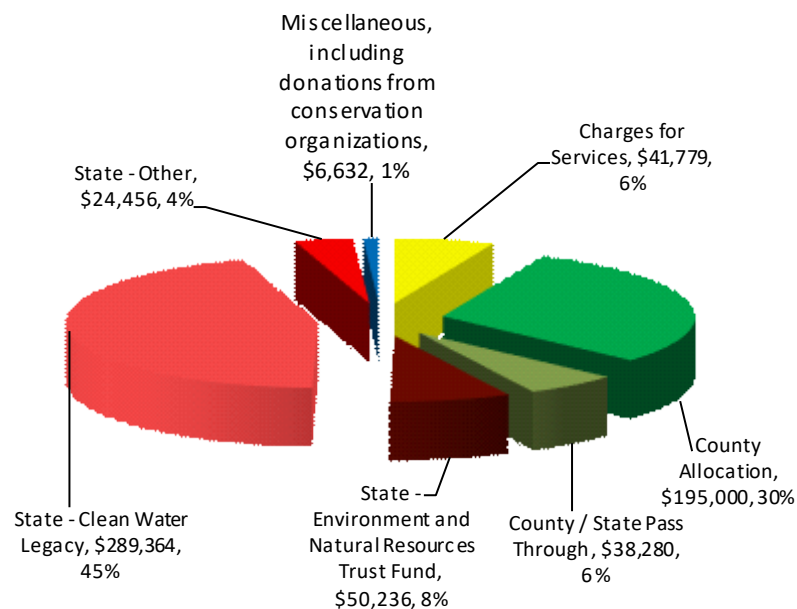
Installing Best Management Practices, or making land use changes, results in cleaner water, fewer floods, better wildlife habitat and many other public benefits. The cost of adopting these practices, in some cases, exceeds the benefit to the individual, and financial assistance becomes necessary. This pie chart shows grant dollars used for conservation projects in Benton County, including cost-share, incentives, program development and annual rental payments. The chart includes funds administered through the SWCD, NRCS, & FSA, and Benton County programs. Landowner contributions for federal funded projects are not available so we are displaying only an estimate.

Financial Summary

The Benton Soil and Water Conservation District (SWCD) finances its day-to-day operations through a variety of revenue sources. These sources include state, county, self-generated (tree and product sales, equipment rental, etc.) and other miscellaneous sources. A summary of Benton SWCD's 2017 operating revenue sources is presented below:

Operating Revenue in 2017 was \$645,747

This revenue is used for personnel salary and benefits, supervisor and Water Resources Advisory Committee member expenses, rent, supplies, travel, tree program, environmental education programs and other related expenses.



Mel Hauck - OCC Winner

Melvin and Marianne Hauck have been selected by the Benton Soil and Water Conservation District (SWCD) as the 2018 Outstanding Conservation Cooperator. They raise corn and soybeans on 195 owned and rented acres. They have been farming since 1970.



Some of the practices they have implemented over the years include;

- CRP Riparian Buffer – planted 2,400 trees
- Buckthorn removal
- Cover crops in 2015, 2017, & 2018
- No-tilling since 1993
- Grid samples for P & K and uses variable rate application for P & K
- Split applications of N
- 500' of waterway

Pictured right: The established CRP Riparian Buffer.



Pictured left: A 2017 cover crop that was planted into a soybean field.

Stoney Brook Farms



Stoney Brook Farms, Inc. is a family (father/son) run farm by Mark and Brad Chmielewski. Mark and Brad are specialty vegetable growers that grow sweet corn, pumpkins, squash, peas, green beans, soybeans, and fall decorative items such as Indian corn and ghords.

They mostly deal with wholesale and you can find their produce locally at Coborn's and Cub Foods when in season. They farm over 850 acres of irrigated and dryland fields south of Foley. The last couple of years they have also started hosting Harvest Fun Days located off State Highway 95. During the select days throughout the fall, the public is invited to come out and enjoy a corn maze, pumpkin patch, and various fall activities. This year their corn maze is a tribute to honeybees and was designed as a large bee-hive.



Photo courtesy of Stoney Brook Farms, Inc.

For the past few years, Mark and Brad have been innovative with experimenting with various agricultural best management practices to reduce wind erosion, improve crop production and sustainability, and to protect our water resources. They have been experiencing high weed pressure in their vine crops. To help suppress weed pressure, they have begun to diversify their crop rotation by incorporating another grass cash crop such as field corn and wheat, as well as integrated pest management (rotating herbicides, scouting fields, and targeting specific species).



Above picture is an example of a roller crimper that is similar to the one used by Stoney Brook Farms to terminate winter cereal rye cover crop.

In the winter of 2017, Brad and Mark purchased a JD no-till grain drill for planting cover crops, and also, to try no-till planting soybeans. They also purchased a roller crimper to utilize as a termination method for the winter cereal rye cover crop prior to planting their vine crops. The goal is to provide a dense residue mat that will help suppress weeds, along with keeping their vine crops clean. They experimented with this practice on a couple of fields during the 2018 growing season.

County Water Management Plan

In 1977, Minnesota experienced serious drought conditions across the entire state. These conditions prompted the enactment of the Comprehensive Local Water Management Act in 1985. The act encourages counties to voluntarily develop and implement a water management plan which addresses the entire county. In 1988, the Benton County Board of Commissioners felt the County needed to assess and protect it's water resources. As a result, Benton SWCD was designated the local government unit responsible, and the first Benton County Water Management Plan was approved in 1991.

2018-2028 BENTON COUNTY



"Bend in the River Regional Park - Mississippi River Sunset" (Tony Webster, 2017)

Comprehensive Local Water Management Plan

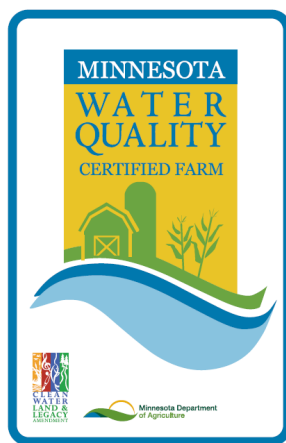
The purpose of the County Comprehensive Local Water Management Plan is to identify priority water resource concerns in the County and list goals, objectives, and measurable outcomes in improving the County's water quality and quantity.

Benton SWCD and the Water Resources Advisory Committee have been working diligently for the past year and a half to update the plan. Priorities identified remain the same as the previous plan, with one additional concern, erosion and sedimentation. The priority concerns that will be addressed in the plan are as follows:

- ◆ **Feedlot and Nutrient Management**
- ◆ **Development**
- ◆ **Groundwater Quantity and Quality**
- ◆ **Erosion and Sedimentation**

The Minnesota Agricultural Water Quality Certification Program

Benton SWCD would like to recognize ***Stoney Brook Farms*** for their certification into the Minnesota Agricultural Water Quality Certification Program (MAWQCP). In July of 2018, ***Stoney Brook Farms became the State's 600th Minnesota Water Quality Certified Farm.*** The MN Ag. Water Quality Certification Program is a statewide voluntary certification program that helps farmers and landowners continue protecting Minnesota streams, rivers and lakes.



Through the program, farmers work with local SWCD personnel to complete a whole-farm assessment which helps identify and mitigate risks to water quality on a field by field basis. Below are Benton SWCD's numbers for the program:

- # of Applicants = 17
- # of Farms Certified = 11
- Acres of Certified Farms = 8,637 acres



MAWQCP is administered by the MN Department of Agriculture (MDA). The program is growing in popularity within the agricultural community, with strong supporters such as Land O'Lakes, GNP Company, the MN Milk Producers Association, and Third Street Brewhouse.

Pictured left to right: Brad & Mark Chmielewski accepting their MN Ag Water Quality Certification Program sign.

Stoney Brook Farms



June 1, 2018



June 7, 2018



June 22, 2018



July 18, 2018

Picture showing a trial field for roller crimping winter cereal rye prior to no-till planting pumpkins.

The goal with this practice is to keep the soil covered and protected from wind and water erosion. The residue will help build organic matter, suppress weeds, and provide a clean mat for pumpkins to grow on.



This summer Stoney Brook Farms teamed up with Benton SWCD & MN Department of Agriculture to design diverse multi-species cover crop mixes on 233 acres after early sweet corn & wheat harvest to provide additional soil health benefits that will increase organic matter, cycle excess nutrients & add'l weed suppression. **Picture Above:** Field planted to W. Cereal Rye, Sunn Hemp, Hairy Vetch & Radish. **Upper Right/Right Picture:** Field planted to W. Cereal Rye, Sudangrass, Field pea, Radish, Berseem Clover, Hairy Vetch & Turnips.



Observation Well

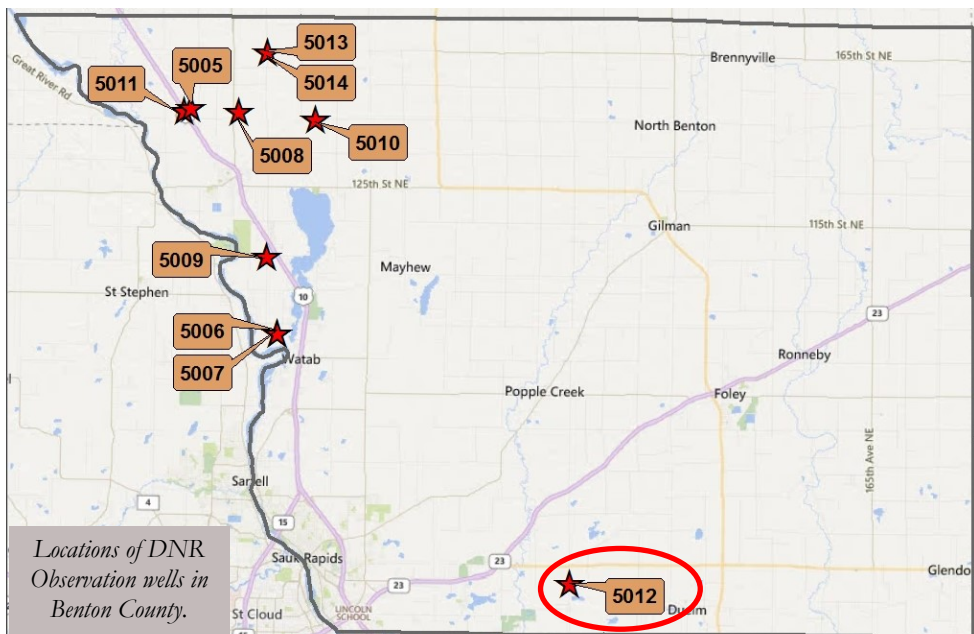


In 2015, Benton SWCD partnered with the DNR in a pilot program monitoring DNR observation wells. The DNR has approximately 980 observation wells throughout Minnesota that are used to measure water levels in aquifers. Ten of these wells are in Benton County. The goal of this pilot program is to obtain a more accurate and timely picture of groundwater levels throughout the year. To accomplish this the DNR installed, or upgraded, data loggers in all of the DNR observation wells in Benton County.



An observation well equipped with a data logger.

Since the 1970's the SWCD has been responsible for measuring water levels, and submitting them to the DNR each summer, by manually measuring the distance to the groundwater with a tape measure. With the pilot program, the SWCD downloads the data logger's time series data and submits it to the DNR via the internet. This new system provides much more accurate data because the logger records the water levels hourly and can be made available more quickly. The data for the wells in Minnesota are available to the public and a link is provided on the SWCD website.



Clean Water Fund (CWF) Environmental Site Assessments

In 2017, there were 20 environmental site visits completed covering almost 290 parcels in Benton and Sherburne Counties. Those parcels covered roughly 16,760 total acres with 11,260 acres of cropland and 380 acres of pasture. Thirteen farms also had a total of 1,590 animal units, most ranging from beef, dairy, and/or poultry. So far, 34% of the priority parcels have been assessed.

In the past year, there have been about 200 resource concerns identified through these 20 assessments. Of those 200, about 20 projects have been designed and will potentially be installed in 2018. These include: well sealings, comprehensive nutrient management plans, manure storage/feedlot runoff projects, irrigation water management, pasture improvements, and erosion control projects. One landowner plans to install a project on his own, and the rest of the landowners have or are intending to apply for cost-share. Additional projects are expected to come from these assessments as initial practices are being established. For example, one landowner plans to install a stream crossing for cattle in his pasture and plant cover crops in 2018. In 2019, he plans to install feedlot practices and manure storage, and in 2020, fix a soil erosion problem.

2016 & 2017 CWF Grants

In 2016 and 2017, the Benton Soil and Water Conservation District received Clean Water Fund grants to install projects listed above in Benton County. In 2017, the Benton SWCD entered into 9 contracts with landowners to install cover crops and a nutrient management test plot. Including the cover crops and two erosion control projects there were 10 projects completed in 2017. A total of \$67,825.94 in CWF was spent (including a partial payment for a feedlot project to be completed in 2018), along with \$57,861.24 from the landowner, and \$10,186.68 from federal program funding. Pollution reductions from these projects include: 112 tons of TSS (Total Suspended Sediment), 126 tons of soil, 174 pounds of phosphorus, and 1,379 pounds of nitrogen. There are three projects to be completed in 2018 with 6 more planning on applying for funding.



Pictured left: cover crops that were planted into a soybean field and pictured below is the cover crop during harvest of the soybeans.



Clean Water Fund (CWF) Feedlots

In 2017, one feedlot project was partially completed in the St. Francis River watershed in Benton County. Improvements installed include a manure pit to hold all manure and feedlot runoff, manure pump and pipe, clean and dirty water diversions, scrape lanes, fence, and milk house waste pump and pipe.

The project was for a dairy farm that included a 76' x 270' x 6' manure pit, 228' of scrape lane, 148' of runoff chute, 850' of fence, 600' of tile and 364' of manure transfer pipe. All manure and feedlot runoff will be stored in the manure pit for six months and allow the farm to avoid winter spreading and stockpiling manure on soils that do not meet state requirements. Once the project has been completed the farm will be in compliance with the State feedlot rules.

Total pollution reductions are estimated at 5 lbs. of phosphorus and 14 lbs. of nitrogen per year. Total cost of the project is estimated at \$302,115.11 with \$100,000.00 coming from the feedlot grant, \$8,120.20 from State Cost-share Funds, \$123,935 in federal cost-share, with the owner's share of \$94,804.30.

Grant Recap

Four feedlot projects were completed in Benton County with this grant, one dairy farm in the Little Rock Lake watershed, one dairy farm in the St. Francis watershed, one beef farm in the Mayhew Lake watershed and one beef farm in the Mississippi watershed. Total pollution reductions for the grant include 314 lbs. /yr. BOD, 3,130 lbs./yr. COD, 184 lbs./yr. of nitrogen and 62 lbs./yr. phosphorus. \$220,535.72 in state funds were used to fix four feedlots. In addition \$59,699.28 was spent in staff time, surveying, designing, and doing construction inspection on the four projects. Staff time was also spent on surveys and designs on three other projects that the owners installed with other funds or by themselves. These projects brought in a total of \$571,333.42 in Federal cost-share and the owners spent a total of \$257,680.50 of their own funds on the projects. Total money spent through this grant is \$1,109,248.92.



Pictured above is the partially completed manure pit. The remainder of the project is scheduled to be completed in 2018.



Pictured above is a manure pit and stacking slab that was installed for a dairy farm operation in Little Rock Lake watershed.

Kevin Adelman—Rain Gauge Reader



MNgage

Minnesota Volunteer Precipitation Observing Program

MNgage is a volunteer-driven precipitation observing program began in the late 1960's in the Twin Cities and gradually expanded across Minnesota in the 1970's. The program is administered by the DNR Minnesota State Climatology Office. The number of warm-season volunteer observers has remained steady at around 1,500 for the past four decades. Daily precipitation measurements are reported on-line and by use of hard copy forms.

Photo courtesy of Sauk Rapids Herald of Kevin Adelman showing his DNR certificate.

Kevin Adelman has been reporting on rain, snow, and sleet for 40 years. He decided this year to retire. In honor of Kevin, he received a certificate from the Minnesota Department of Natural Resources for his 40 years of service.

If you are interested in becoming a part of the Minnesota Climatological Network by becoming a Rainfall Observer please contact our office at 320-968-5300 ext. 3.



PHOTOS BY NATASHA BARBER

Kevin Adelman gazes at a certificate of recognition he received from the Minnesota State Climatology Office. Adelman has recorded precipitation levels since June 1978, when the MNgage program expanded beyond Minnesota's Twin Cities metro to Benton County.

m DEPARTMENT OF
NATURAL RESOURCES

Jack Murn/Kevin Hackett—CRP

In 1999, Jack worked with the Benton SWCD and NRCS office on a plan to exclude the cattle along a creek to establish a 180' riparian buffer on both sides of the creek by installing fence and planting trees along the shoreline and upland acres. Jack enrolled 18.63 acres of marginal pasture into the Conservation Reserve Program (CRP) and planted a total of 3,525 trees in 2000 and 2001. The Elk River Watershed Association (ERWA) 319 program also provided financial assistance for the tree planting. The land was enrolled into the CRP program for 15 years and in 2014 the contract was re-enrolled for an additional 15 years. Now Jack's son-in-law, Kevin Hackett, owns the farm and took over the contract. Listed below are the tree species that were planted in the CRP acres.

Conifers: Black Spruce, Norway Pine, Tamarack, White Cedar, White Pine, & White Spruce.

Hardwoods: American Mountain Ash, Green Ash, Hackberry, Hybrid Poplar, Red Oak, & Silver Maple.

Shrubs: Crabapple, Highbush Cranberry, June Berry, & Red Osier Dogwood



Pictured to the left is the before picture of the pasture when the cattle were present in the creek.

Pictured below is the same pasture and creek area 10 years later.



Clean Water Fund (CWF) - SWCD Local Capacity Services



**CLEAN
WATER
LAND &
LEGACY
AMENDMENT**

The non-competitive Clean Water Fund grant invests in building the local capacity of local Soil and Water Conservation Districts (SWCDs). This Clean Water Funds grant targets four resource concern areas—Soil Erosion, Riparian Zone Management, Water Storage and Treatment, and Excess Nutrients—and supports increased capacity by funding expenses for staffing, cost-share for best management practices, technology/capital equipment, and operations. Each SWCD in the state received up to \$100,000. The state legislation also provided an optional supplemental allocation based on their county's commitment to match additional state funds that were available. In 2017 and 2018, Benton County's Board of Commissioners recognized the opportunity and need to build the local capacity for the Soil and Water Conservation District and allocated matching funds that leveraged the state's additional supplemental funds.

To meet the demand for providing technical assistance on water quality best management practices (BMPs), Benton SWCD allocated a portion of these funds for staff time to further assist and provide technical assistance to Benton County landowners on new water quality projects. Funds were also used for staff time for project development for updating the water plan as well as supplementing buffer law implementation. Along with staff, a portion of this grant was allocated to purchase a truck to accommodate for the expanded staff to better serve the residents of Benton County.

This Clean Water funding also provided cost-share assistance for water quality projects. Some examples of BMPs that were eligible for cost-share were: animal feedlot improvements, cover crops, erosion control practices, filter strips, native lakeshore buffers, pasture management, wetland restorations, and upgrading failing septic systems that are an imminent threat to public health or safety. Cost-share dollars from this grant were used for a wetland restoration, three imminent health threat to public health and safety SSTS upgrades, and staff time was used on a feedlot improvement project that leveraged \$178,746 federal cost-share dollars.

Below: A wetland restoration that was completed as a result from SWCD Local Capacity Clean Water Funding. The restored wetland will provide water quality benefits by filtering and reducing excess nutrients from surface waters.



The capacity funding has provided opportunities for Benton SWCD to work with nonprofit organizations, schools, and the public to build conservation programs including education and outreach collectively. The organizations are now prepared to start new conservation activities. These long lasting relationships will result in a stronger conservation ethic for area youth and additional stewardship activities along their lakes and streams.

Environmental Quality Incentives Program (EQIP)

Summary of practices implemented through EQIP in 2018

- 2 Beef Manure Stacking Slabs
- 2 Dairy Liquid Manure Storage
- 1 Poultry Manure Stacking Slabs
- 1 Poultry Manure Stacking Slabs with Mortality Bins
- 286 ac Nutrient Management
- 7 Water and Sediment Control Basins
- 2 Grassed Waterways
- 1 Prescribed Grazing System
- 2 Energy Audits
- 10 Well Decommissioning
- 1 Stream Crossing

Pictured below: water and sediment control basin installed to control gully erosion.



The Environmental Quality Incentives Program (EQIP) is a USDA program administered by the Natural Resources Conservation Service (NRCS) with assistance from the Benton SWCD. EQIP provides financial assistance to crop, livestock, and other agricultural producers to make conservation improvements to their operations.

In the 5 year period from 2013 through 2017 Benton County is second in the state of Minnesota in EQIP dollars obligated (\$3,372,920) and seventh in the number of contracts (124).

Financial assistance is available to producers that want to adopt land management practices.

There are over 60 eligible practices that EQIP can provide assistance for, including manure storage, prescribed grazing, residue management, terraces, nutrient management, grassed waterways, etc.

Glen/Brian Kaschmitter—Cover Crops



Pictured to the left: An oats and radish cover crop seeding that was done by the Kaschmitter's.

Brian & Glen are trying two different types of cover crops this year. On the first field they took the oats off earlier this summer and after spreading hog manure they planted oats and radish as a cover crop. Their goal is to graze this later this fall then go into corn next year. On the 2nd field they are broadcasting ryegrass and clover into soybeans so when the soybeans come off the cover crops are established and possibly grazed in the fall.

Pictured to the right: Mel Hauck 2017 cover crop planting into a soybean field, which is what Brian & Glen hope to achieve.



Nick Molitor/Adam Molitor—Well Sealing

Nick Molitor worked with the NRCS office and received financial assistance from the Environmental Quality Incentive Program in 2018 to seal an old abandoned well located in an abandoned shed on his property. The well was sealed in 2018 and had a 36' depth and a 4' diameter.

Adam Molitor also received financial assistance from the Environmental Quality Incentive Program in 2018 to seal an old abandoned well that is located inside an active feedlot. The well is scheduled to be sealed in 2018 and has a 13' depth and 2.5' diameter.



Pictured to the left and below are the two abandoned wells. Nick's well is located to the left and Adam's well is located below.



Irrigation Management

The Benton and Morrison SWCDs have combined efforts to address irrigation water management in the Little Rock Creek groundwater recharge area. Changes in groundwater flow linked to irrigation during the summer months are changing groundwater inputs to Little Rock Creek, which is having a negative effect on the fish communities. The Legislative-Citizen Commission on Minnesota Resources (LCCMR) and Minnesota Department of Agriculture (MDA) grant funds to provide technical assistance for landowners to implement irrigation scheduling, and to check uniformity through a catch can test that provides the efficiency of their irrigation systems.



In 2011, Benton SWCD constructed an "Irrigation Scheduler Program" designed to provide the farmer with a second opinion on in-field soil moisture status to assist the farmer in determining if and when to irrigate. This program is currently free of charge to landowners within the Little Rock Creek recharge area.

Accurate water application can prevent yield loss due to insufficient moisture, prevent ground-water contamination due to over application of water and leaching of nutrients, and reduce the amount of water used during some parts of the growing season.

In 2018, 10 landowners participated in the Irrigation Scheduling Program, entering a total of 29 fields (1,541.39 acres total) in the program.



Clean Water Fund (CWF) - Buffer Law Implementation



50' buffer seeded in spring of 2017
by landowner along Public
Watercourse.

Benton County by the numbers:

- ≈ 451 miles of Public Waters shoreline*
- ≈ 116 miles of Public Ditches shoreline*
- 2,073** parcels subject to MN Buffer Law
- 2,016** parcels deemed "Compliant" (97%)
- 53** parcels "Need further Field Review" (3%)
- 4** parcels deemed "Not compliant"

*Public Waters and Ditches as identified on
MN DNR Buffer Protection Map

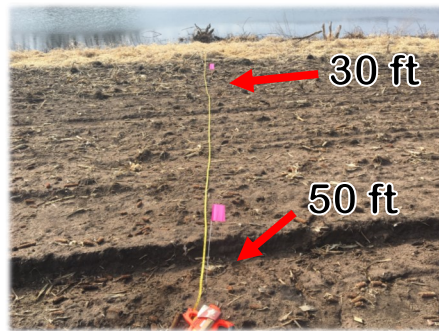
Local Soil and Water Conservation Districts are tasked with validating and tracking compliance with the MN Buffer Law. SWCDs will continue to track compliance with mandated reviews of all parcels adjacent to Public Waters and Public Ditches as identified on MN DNR's Buffer Protection Map.

The first deadline for the MN Buffer Law went into effect Nov. 1st, of 2017. All parcels adjacent to Public Waters are now required to have and to maintain a 50' average, 30' minimum, perennial vegetated buffer. Benton SWCD worked with numerous landowners during 2017 providing compliance determinations, developing compliance and seeding plans, and staking out required buffers. Roughly 51 parcels needed to plant additional buffers to meet the requirements that resulted in approximately 29 acres of buffers being planted.

The second deadline for the MN Buffer Law is set to go into effect Nov. 1st of 2018 for parcels adjacent to Public Ditches, i.e. County Drainage Ditches, that will require a 16.5' perennial vegetated buffer. Benton SWCD is coordinating compliance determinations with landowners along the Pubic Ditches ahead of the November deadline.



Above shows a Public Ditch that is lacking the required
16.5' buffer.



Above shows a Public Water that requires a 50'
Average, 30' minimum buffer.

Wesley Kiekow—CRP

In 2008, Wesley worked with the Benton SWCD and NRCS office on a shelterbelt tree plan to protect his farmstead and feedlot from the prevailing NW winds in the winter. Wesley enrolled 4.2 acres of cropland into the Conservation Reserve Program (CRP) and planted 975 trees. Wesley's shelterbelt was planted to eight rows of trees which consist of: American Cranberrybush, White Cedar, White Spruce, Green Ash, Silver Maple, White Pine (2 rows), & Norway Pine

In 2016, Wesley worked with both offices to create a wildlife conservation plan on some marginal cropland that had a tendency to flood, Wesley enroll 6.82 acres of cropland into a filter strip along a private ditch into CRP which was planted into native grass species such as: Big Bluestem, Indian Grass, Little Bluestem, Side Oats Grama, Canadian Wild Rye, & Switch Grass.

Wesley enrolled the remaining 25.65 acres into CRP and planted 5,775 trees consisting of: Black Hills Spruce, Norway Pine, Norway Spruce, Tamarack, White Pine, White Spruce, Bur Oak, Hybrid Poplar, Red Maple, Red Oak, & Silver Maple.



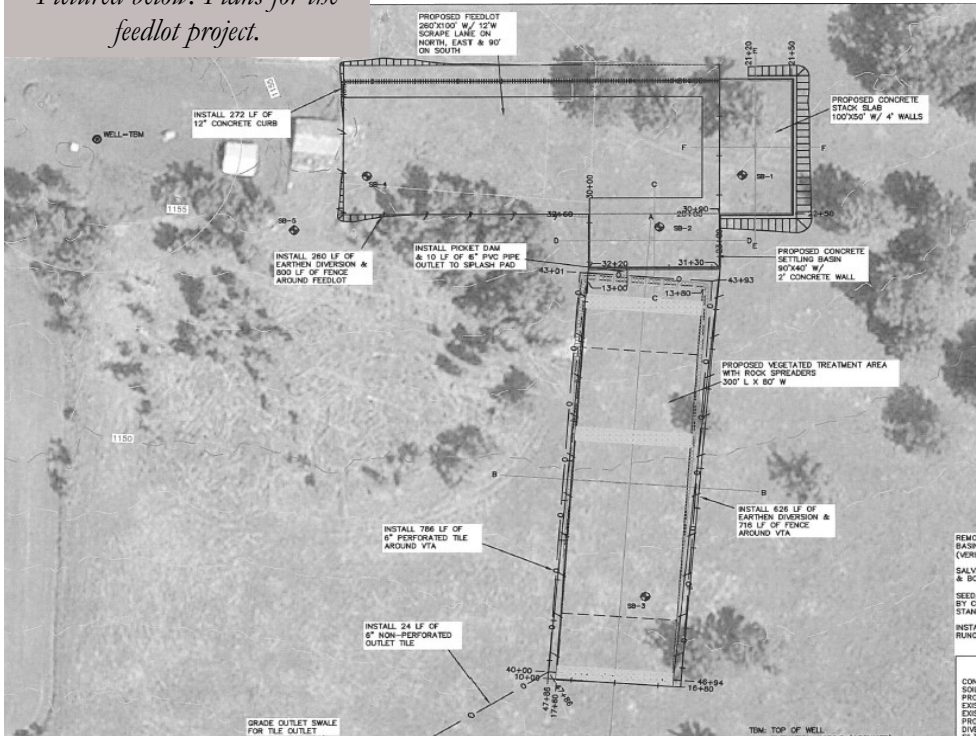
*Pictured above is a 2017 aerial
photo of the shelterbelt tree planting
that was planted around the
farmstead.*



*Pictured to the left is the wildlife
conservation plan that was completed
on 40 acres. The red areas were
planted into a conifer tree mix, the
white areas were planted into a
hardwoods tree mix, the blue areas
were planted into a native grass filter
strip, and the yellow areas are hay
fields.*

Pictured above: A 2016 aerial seeding of cover crops into a standing corn field.

Pictured below: Plans for the feedlot project.



The Conservation Stewardship Program (CSP) is a voluntary program that encourages agricultural producers to address resource concerns by undertaking additional conservation activities and improving/maintaining existing conservation systems. In simpler terms, CSP looks at the conservation practices you are currently doing on



your farm or woodlot and offers incentive payments to enhance these practices, or to do more. For example, if you are currently planting cover crops, then CSP will provide financial assistance and incentives to increase the number of species and diversity that you are planting, perhaps going from one species to four. Since 2010, 17,676 acres have

9,015.3 acres of Pesticide Drift Reduction
5,236.0 acres of Nitrification Stabilizer
2,288 acres of Nitrification Inhibitors
124.3 acres Incorporating Legumes into Pasture
819.6 acres of Hay Cutting
(Wildlife Friendly Manner)
0.4 acres of Extending existing filter strips
2.2 acres of Establishing Pollinator Habitat
23.5 acres Conversion of Cropland to Grass
1,833.7 acres Soil Health Nutrient Tool
437.9 acres of Split Nitrogen Applications
214.3 acres Rotation of Feeding Areas
8,430.1 acres of Plant Tissue Testing
3,645.9 acres Apply Enhanced Efficiency Fertilizer

30

Conservation Reserve Program (CRP)

The Conservation Reserve Program (CRP) is a land conservation program. In exchange for a yearly rental payment, farmers/landowners who voluntarily enrolled in the CRP program agree to remove environmentally sensitive land from agricultural production and instead plant species that will improve environmental health and quality. Contracts for land enrolled in CRP are 10-15 years in length. The long-term goal of the program is to re-establish valuable land cover to help improve water quality, prevent soil erosion, and reduce loss of wildlife habitat. Signed into law by President Ronald Reagan in 1985, CRP is one of the largest private-lands conservation programs in the United States. Thanks to voluntary participation by farmers and landowners, CRP has improved water quality, reduced soil erosion, and increased habitat for endangered and threatened species.

In 2017, 33 contracts were approved, with 183.7 acres of conservation practices implemented with the “Continuous” Conservation Reserve Program (CCRP), and 23 contracts were approved with 309.6 acres of conservation practices implemented with the Conservation Reserve Program “State Acres for Wildlife Enhancement” (CRP SAFE), for a grand total of 493.3 acres. We discontinued the application process in May 2017 due to the National CRP acres cap of 24 million enrolled acres being reached.

The CRP and CCRP are voluntary programs for agricultural landowners. Through CRP/CCRP, landowners can receive annual rental payments based on the Farm Service Agency (FSA) Soil Rental Rates, and cost-share assistance to establish long-term, resource conserving covers on eligible farmland. In 2017, \$208,851 were provided to landowners for annual rental payments, signing bonuses, financial assistance to establish the conservation cover, and funds for mid contract management activities to enhance existing cover.



Pictured on the left is an established CCRP filter strip along a ditch that had a prescribed burn in the spring to help the grass grow thicker and taller. Pictured on the right is a CCRP field that is being planted into trees and shrubs for wildlife.

Andrew Welsh—Feedlot

Feedlot improvement pollution reductions include 6 pounds of phosphorus per year and 18 pounds of nitrogen per year with funding coming from the Federal EQIP program.

The cover crops pollution reduction was 100 lbs. of nitrogen and 3 lbs. of phosphorus with funds coming from a FY2016 Clean Water Fund grant.



Pictured above: A before picture of the feedlot. Pictured below: The pouring of the stacking slab during construction.



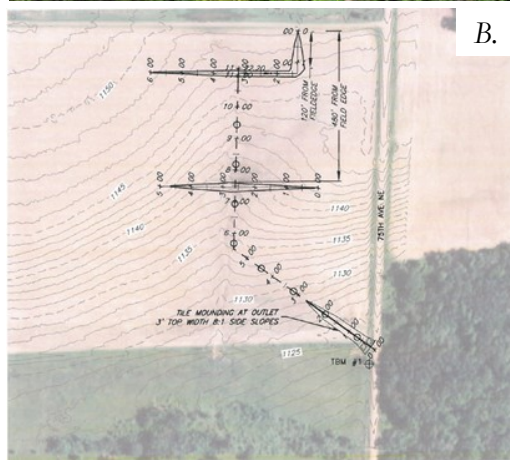
Jim Smiglewski—Water and Sediment Basin



Jim had an erosion problem on this field in section 1 of Mayhew Lake Township. In order to correct the issue two Water and Sediment Control Basins were installed in the spring of 2018. The basins are 585' and 455' in length, and the upper basin is 2.5' tall and the lower is 4.2' tall. 1,102' of tile was also installed which serves as the outlet for the two basins. After construction the basins were seeded then covered with an erosion control blanket to help the seed get established and to prevent erosion while the grass establishes. Pollution reductions include 104 tons of sediment /year (TSS), 90.1 tons of soil, and 88.4 pounds of phosphorous.

The project was funded with a combination of EQIP funds, Clean Water Legacy funds, and landowner contribution.

- A. 2017 aerial photo of the erosion.
- B. An aerial plan view of the project.
- C. The installed upper basin.



Clean Water Fund—Well Sealing Program

In 2017, the district received a three year grant for \$6,000 to seal old abandoned/unused wells in the county. Five contracts have been completed resulting in sealing three drilled wells ranging from 32'—88' in depth, one 24' dug well, and one 45' packer well. There are currently four active contracts scheduled to seal six wells in 2018. The grant is able to provide up to 50% financial assistance to cover the cost to seal wells.

It is very important to properly seal these unused wells, as unused wells can become a source of groundwater contamination and a health risk to children, adults, and animals. This is especially true when the exact location of the well is lost through ownership changes or other ways. Large diameter wells can be a big safety hazard and there have been numerous cases in Minnesota of children and adults trapped in old abandoned wells and even drowning.

Pictured to the right is an old abandoned dug well that was sealed.

Picture below is a packer well located inside a condemned shed that was sealed.



Test Plots

Test plots can consist of a variety of different crops such as: corn, corn silage, sweet corn, soybeans, hay, oats, and wheat. Landowners that participate in the program find out what is the best way to manage the amount, source, placement, form, and timing of fertilizer and manure that is applied to the field while maintaining good yields. The environmental benefits from the program help reduce runoff and leaching from over fertilization, over application of manure, and poor placement or poor timing of fertilization.

In 2017, one test plot was completed covering 50 acres in the Little Rock Lake Watershed. This plot looked at the use of a nitrogen inhibitor in dairy manure applied on sandy soil. How does the nitrogen inhibitor work? Nitrification is a natural biological process that results in the production of nitrate nitrogen, a form of plant available nitrogen. When roots are too short to reach this nitrogen it is readily lost in soils. The nitrification inhibitors are chemicals that slow down, or delay, the nitrification process. Therefore this decreases the possibility that large losses of nitrogen will occur before the nitrogen is taken up by the plants. This test plot consisted of a side by side comparison of manure with the inhibitor and manure without the inhibitor.

Yield checks were completed in the fall and the plot with the nitrogen inhibitor had a yield increase of 4.0 bu. /ac. which means an estimated 4.2 lbs. / of nitrogen was saved per acre and 210 lbs. over the 50 acres. An economical analysis showed that the additional cost of the inhibitor was more than recuperated with increased yield and less nitrogen was lost to the environment. District staff worked with the farmer providing ideas, taking soil samples, completing weekly chlorophyll checks, taking tissue samples in August, doing yield checks and year end reporting once all field work was completed.



Pictured above is a corn field that is being harvested that participated in the nutrient management test plot program.



Ryan Beauchamp—Feedlot

Ryan is working on installing some feedlot improvements to his farm. These include an 80' x 100' stacking slab, 100' x 50' settling basin, 500' of scrape lane, 1,000' of fence and a 360 x 65' vegetated treatment area (VTA). Pollution reductions include 15 pounds of phosphorus per year and 43 pounds of nitrogen per year. Federal EQIP and FY2017 Clean Water Funds are cost-sharing the project and landowner contribution

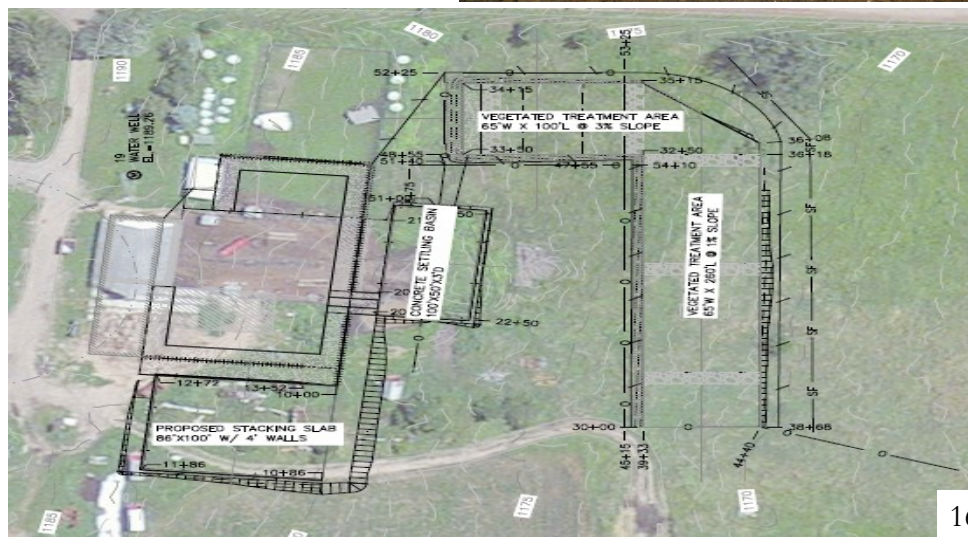


Pictured left: A before picture of the feedlot.



Picture right: The installation of the settling basin.

Pictured below: The engineer design plans for the feedlot improvement project.



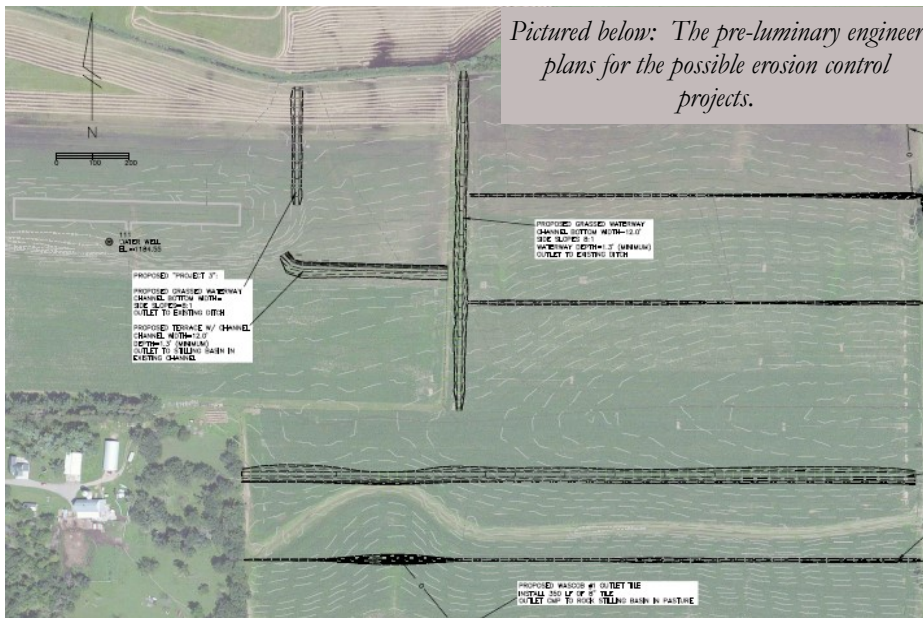
Leonard Skroch—Compost Facility/Erosion

Leonard built a new 40' x 68' stacking slab and compost facility for his chicken barn. This will allow Leonard to properly compost his birds and store his manure so he can safely store and use these resources in a responsible manner. Funding for the project was through the Federal EQIP program and landowner contributions..



Pictured above: The newly completed staking slab and compost facility.

Leonard wants to fix several reoccurring erosion problems in his fields. The three separate projects would include three grassed waterways, two water and sediment basins, and three terraces. These are still in the planning stages and might be completed in the coming years.



Pictured below: The pre-liminary engineer plans for the possible erosion control projects.

Benton SWCD Celebrates 70 years



THE PROGRAM

--of the--

Benton County Soil Conservation District

STATE OF MINNESOTA

A local organization of farmers with a charter from the State of Minnesota



Left to Right: Arnold Hackett, Supervisor; A. F. Koep, President; Kenneth Winkelman, Supervisor; Stewart H. Graves, Secretary; Wm. Zwick, Vice President

BOARD OF SUPERVISORS

Arnold Hackett Kenneth Winkelman William Zwick
August F. Koep, Chairman Stewart H. Graves, Sec.

Pictured above: is a picture of first Benton SWCD Board

Benton SWCD Mission Statement

It is the mission of the Benton Soil and Water Conservation District to protect and enhance Benton County's soil, water, and other natural resources; to nurture a conservation ethic by educating county residents on conservation and environmental issues.

Proudly serving Benton County since 1948

Little Rock Drawdown

Lowering lake water levels during summer or fall months has been done throughout Minnesota and has shown benefits to water quality including improved shoreland stability, decreased erosion and improved fish and wildlife habitat. These drawdowns allow new plant life the opportunity to establish, and are important to water quality as they reduce shoreland erosion and can process and utilize phosphorus in the water.

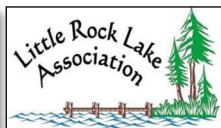
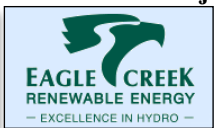


Benton SWCD partnered with the Department of Natural Resources (DNR), Board of Water and Soil Resource (BWSR), Little Rock Lake Association (LRLA), and Eagle Creek Renewable Energy (operators of the Sartell Dam) to complete a six week three foot drawdown on Little Rock Lake and Mississippi River. The drawdown was originally planned for August 1st—September 15th 2018, however, the project has been **postponed until 2019**

The Sartell dam is a hydropower dam overseen by the Federal Energy Regulatory Commission (FERC). The drawdown project requires a thorough review of potential impacts to cultural and historical resources and is required before the project can begin. A historical-cultural review was completed in early 2018 but due to miscommunications, the review did not meet strict federal requirements, and therefore an additional review is necessary. Because the review is a lengthy process, it was necessary to postpone the project until 2019.



Project Partners



O & S Dairy—Feedlot



O&S Partnership (Bruce and Linda Olson, and their son-in-law and daughter, Troy and Missy Schreindl) operate a dairy facility in Graham Township. At the farm there were two pits that were built in the 1970's with assistance from NRCS (SCS at that time) but these would not meet current requirements and the integrity of the liner was poor. There is also a small pit near the free-stall barn that needs to be emptied every 21 days. Several items are being installed at the farm to address the lack of winter storage and old manure pits.

- * 140' x 170' x 11' deep (2,380,570 gallons) geosynthetic clay lined pit to store 12 months of manure from the free-stall barn
- * 50' x 55' with 4' wall (11,000 cu ft) concrete stacking slab and 108' x 158' x 5.5' deep (536,383 gallons) geosynthetic clay lined pit to catch runoff from the stacking slab and feedlot. These will each provide 6 months of storage.
- * Proper abandonment of the 1970's pits

Pollution reductions include an estimated 4,805 lbs./year of nitrogen and 1,362 lbs./year of phosphorus by eliminating the need to winter spread.

The producer will be working with a crop consultant to make sure the manure is properly applied. The project was funded with a combination of EQIP funds, Clean Water Legacy funds, and landowner contribution.



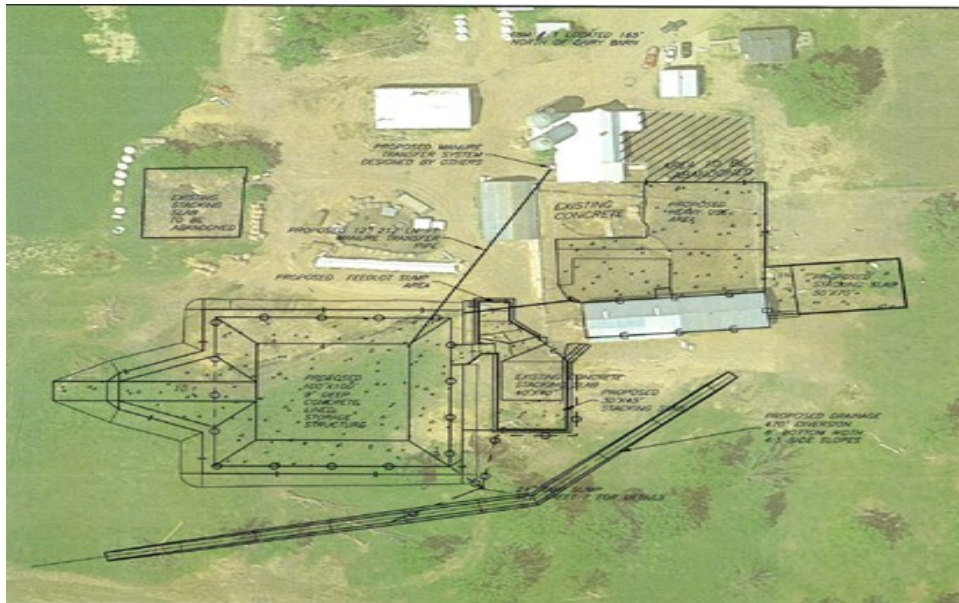
Pictured top left: 2017 aerial photo of farm.

Pictured top right: An existing manure pit.

Picture left: The large manure pit under construction.



Brandon and Jill Marshik—Feedlot



At this farm there was concern with the uncontrolled feedlot runoff, milk-house waste water, and winter spreading. In order to address the resource concerns at their dairy farm, Brandon and Jill Marshik installed a 50' x 50' concrete stacking slab with 4' walls to store pen-pack manure (17,500 cu ft, 7 months storage) and a 154' x 154' x 9' deep concrete lined manure pit to store manure from the barn and feedlot runoff (931,589 gallons, 9 months storage). They are also working with office staff to make sure the manure is properly applied.

The project was designed by NRCS staff and was partially funded by the EQIP program. The project was completed in the fall of 2017.

Pictured on top: Aerial view of the engineer planned practices.

Pictured right: The installed manure pit.



Cory Dahler—Feedlot



*Pictured above: After picture of manure pit.
Pictured below: After picture of feedlot and diversions.*



Cory Dahler—Feedlot



Pictured above: Before picture of manure stockpile.

Cory has completed his feedlot project that was started in 2016. Upgrades included installing a 75' x 270' x 6' cement manure pit, clean and dirty water diversions, scrapes lanes, and milk house waste transfer to fix his feedlot runoff, milk-house waste and stockpiling concerns. Pollution reductions include 5 lbs. of phosphorus per year and 14 lbs. of nitrogen per year. Funding for the project came from the Federal EQIP program and a FY2013 Clean Water Fund grant.

*Pictured right:
Before picture of
stockpiled manure
next to a drainage
ditch.*



Betty Mastey—Water and Sediment Basin



Pictured top left: 2017 aerial photo of the erosion areas.

Pictured top right: One of the gully locations that is eroding into the Elk River.

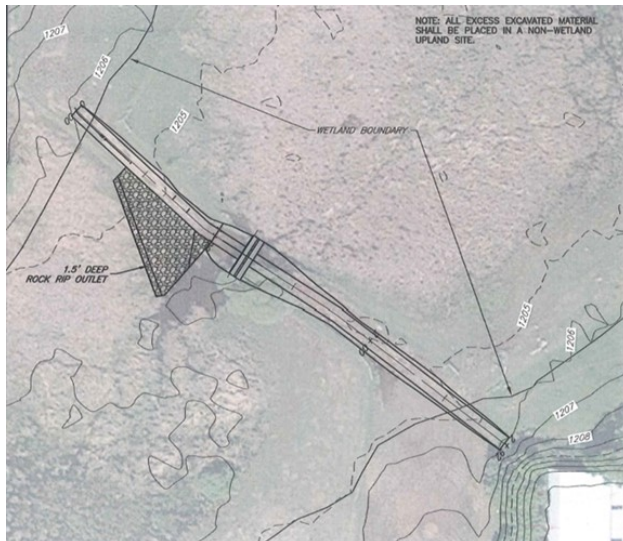
Pictured below: The final installed upper basin.

With the heavy rains the last few years Betty has had an erosion issue in two locations in this field. Through a combination of NRCS EQIP and SWCD Clean Water Funds cost share, and landowner contribution, two Water and Sediment Control Basins were installed. One is a bit unique in that it is located on the property line, so we're working with both Betty and her neighbor. These were designed by NRCS engineers and were installed in the spring of 2018. The project consists of 829' of basins and 548' of tile, and will reduce Total Suspended Solids (TSS) by 10.3 tons/year, sediment by 33.8 tons/year, and phosphorous by 8.7lbs/year.



Jeff Novak—Stream Crossing

Jeff and Shirley, own a beef farm that they operates with their son Waylon. They have about 50 head of beef cattle that they pasture throughout the summer. There is an unnamed stream that leads to the Elk River that cuts part of their pasture in half so that the cattle are forced to cross it to move from one side of the pasture to the other. To stabilize this area, a cattle crossing consisting of crushed rock and gravel, rock riprap, and 2 - 36" culverts has been planned. The cattle crossing should help minimize the time cattle spend in the stream as well as help to improve water quality by reducing sediment, and nutrient loading of the stream, and reduce streambank and streambed erosion. This project will be funded with a combination of EQIP, Clean Water Legacy, and landowner contributions. Pollution reductions include 195 pounds per year of nitrogen and 130 pounds per year of phosphorus.



*Pictured above:
Before images
of where the
cattle cross the
stream.*

*Pictured left:
Aerial engineer
plan view of the
project.*

Dan Honeck—Wetland Restoration



Benton SWCD and US Fish & Wildlife Service partnered to work with Dan on designing and installing three berm structures to create two wetland basins on his property. The north wetland basin has a 4.2 acre pool area and the south wetland basin has a 6.3 acre pool area. Both sites had old beaver dam structures that held back water years ago, but the structures eventually blew out when the beavers were not present to maintain the them. A polycarbonate weir was installed on both berm structures at a set pool elevation to hold back water. Both basins have a combined watershed of roughly 270 acres that drain to the site where the water has time to settle and allow the vegetation to utilize any nutrients before the water is discharged into the West Branch Rum River.



*Pictured below to the left is the completed north wetland structure.
Pictured below to the right is the completed south wetland structure.*



Pictured below to the left is a 1991 aerial photo that shows the south basin holding water back when beavers were present. The picture on the bottom right is a 2017 aerial photo that shows the beaver dam is no longer active and not holding water back.

