2013 Project Abstract
For the Period Ending June 30, 2016

PROJECT TITLE: Heron Lake Sediment and Phosphorus Reduction Implementation Projects
PROJECT MANAGER: Jan Voit, District Administrator
AFFILIATION: Heron Lake Watershed District
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WEBSITE: www.hlwdonline.org/php
FUNDING SOURCE: Environment and Natural Resources Trust Fund
LEGAL CITATION: M.L. 2013, Chp. 52, Sec. 2, Subd. 05c

APPROPRIATION AMOUNT: $122,000

Overall Project Outcome and Results

The Heron Lake watershed, approximately 472 square miles, is located within portions of Nobles, Jackson, Murray, and Cottonwood Counties in southwestern Minnesota. Heron Lake, a public water of the State of Minnesota, is impaired for phosphorus. Decreasing the amount of phosphorus and sediment entering Heron Lake would be valuable for reducing water pollution. The Heron Lake Watershed District Watershed Management Plan and county water plans recognize on-the-ground projects as the most effective way to address phosphorus and sediment.

Funding from the Minnesota Environment and Natural Resources Trust Fund was used to install projects in Nobles, Jackson, and Murray Counties. They included a biodetention basin, multiple water and sediment control basins, a bioretention basin, and a streambank stabilization. The purpose of these projects was to reduce sediment and nutrient loads into streams and lakes. The projects affected more than 300 acres and have an estimated reduction rate of 620 pounds of phosphorus and 575 tons of sediment per year. The grant dollars covered 75 percent of the project costs, with the landowner paying 25 percent.

Funds were also used to gather water samples at three sites in the watershed – Jack Creek, Okabena Creek, and the Heron Lake Outlet. The water samples were analyzed and compared to data gathered since 1996. The Jack Creek and Okabena Creek sampling sites decreased in phosphorus. Okabena Creek showed an increase. All sites showed a reduction in sediment.

Plans were made to visit three project sites in April of 2016. A newsletter summarizing the grant activities and promoting the project site tour was distributed to approximately 3,500 watershed residents, agency personnel, and legislators. Attending the event were eleven members of the general public, one Board of Water and Soil Resources staff, two news reporters, two Heron Lake Watershed District board members and three employees.

Project Results Use and Dissemination

Over the course of the grant period, information about the grant was presented at many meetings and events. Each year annual reports contained a project summary. The grant activities were summarized in a newsletter which was distributed to approximately 3,500 watershed residents, agency personnel, and legislators. In addition, reporters published articles regarding the project site tour in the *Daily Globe, Tri County News,* and *Fulda Free Press*.

Environment and Natural Resources Trust Fund (ENRTF)
M.L. 2013 Work Plan Final Report

Date of Status Update Report: June 29, 2016

Final Report

Date of Work Plan Approval: June 11, 2013

Project Completion Date: June 30, 2016

PROJECT TITLE: Heron Lake Sediment and Phosphorus Reduction Implementation Projects

Project Manager: Jan Voit, District Administrator

Affiliation: Heron Lake Watershed District

Mailing Address: PO Box 345

City/State/Zip Code: Heron Lake, MN 56137

Telephone Number: (507) 793-2462

Email Address: jan.voit@mysmbs.com

Web Address: www.hlwdonline.org/php

Location: Portions of Nobles, Jackson, and Murray Counties within the Heron Lake Watershed District

Total ENRTF Project Budget:		
	ENRTF Appropriation:	**$122,000.00**
	Amount Spent:	**$116,031.98**
	Balance:	**$5,968.02**

Legal Citation: M.L. 2013, Chp. 52, Sec. 2, Subd. 05c

Appropriation Language:
$122,000 the first year is from the trust fund to the Board of Water and Soil Resources for an agreement with the Heron Lake Watershed District for public outreach and installation and monitoring of water quality improvement projects. This appropriation is available until June 30, 2016, by which time the project must be completed and final products delivered.

I. PROJECT TITLE: Heron Lake Sediment and Phosphorus Reduction Implementation Projects

II. PROJECT STATEMENT:

The Heron Lake watershed, approximately 472 square miles, within portions of Nobles, Jackson, Murray, and Cottonwood Counties in southwestern Minnesota, is in dire need of water quality improvement for the benefit of public health, welfare, recreation, and the enhancement of wildlife habitat. Once known as the "Chesapeake Bay of the West", Heron Lake and its watershed had clean water, fertile soil, lush vegetation, and abundant wildlife. At the turn of the century, market hunting was common because waterfowl was plentiful. As the landscape changed, wetlands were drained, streams were channelized, sod was broken for farming, and the waters became polluted. Currently, these lakes face severe algae blooms, loss of rooted aquatic vegetation, fewer migratory waterfowl, rough fish impacts, reduced water clarity, and flooding, similar to other rural, agricultural areas. Point and nonpoint source pollution, intensive tillage, non-compliant septic systems, feedlots, and urban stormwater runoff must be addressed to reduce sediment and phosphorus loading in North Heron Lake and South Heron Lake. The highly competitive requests for Clean Water Partnership and Clean Water Assistance grants have left the Heron Lake Watershed District (HLWD) in short supply of the funds needed to complete these unique and incredibly necessary projects. This proposal involves the HLWD working cooperatively with agency partners and private citizens to complete extensive projects for the protection and enhancement of water quality and wildlife as part of the effort to reestablish what was lost.

Heron Lake, a public water of the State of Minnesota, is impaired for phosphorus. Decreasing the amount of phosphorus and sediment entering Heron Lake would be a valuable first step in reducing water pollution. The HLWD Watershed Management Plan (WMP) and county water plans recognize on-the-ground best management practices as being the most effective way to address these problems.

The overall goal of this project is improved water quality, which is the HLWD's number one priority. Goals to improve water quality will be achieved through the installation of two streambank stabilization projects, three water and sediment control basins, two biodetention basins, and one bioretention basin. These projects would reduce sediment and phosphorus to Heron Lake by 300 tons per year and 315 pounds per year, respectively. Water samples would be collected and analyzed over a three-year period and compared to data gathered since 1996 as a mean to determine project effectiveness. The results of these efforts would be summarized in a newsletter distributed to approximately 3,500 HLWD residents, agency personnel, and legislators. A one-day field day will be held in an effort to reach 50 watershed landowners and share information regarding water quality improvement and what can be done to assist in pollution-reducing projects.

Completion of projects to reduce nonpoint source pollution is crucial to the success of the HLWD's efforts. Personal contact will be made with landowners to offer technical assistance and information about available funding. The HLWD will work cooperatively with agency partners and private citizens to complete projects. By providing cost-share funds for conservation practices, project sponsors believe there will be healthier habitats for wildlife and more effective filtering areas, complementing environmentally-friendly farming practices.

III. PROJECT STATUS UPDATES:

Amendment Request (12/06/2013):

Due to difficulty in securing contractors in 2013 and staffing changes in early 2014, an amendment request is being made for project construction completion. The request entails changing from a 2013 completion date to a 2015 completion date.

Amendment Request Approved:

The amendment request was approved December 12, 2013.

Amendment Request (12/23/2014):
The HLWD has been working with a landowner to install a water and sediment control basin in the S ½ of Section 17, Graham Lakes Township, in Nobles County. The project site was surveyed, design completed, and was construction-ready in 2013. The landowner continues to be reluctant to install the project. Because of this hesitancy, HLWD and Natural Resources Conservation Service (NRCS) staff sought another project site. The new location is still in Section 17 of Graham Lakes Township, but is in the NW ¼. The estimated project cost is the same as originally planned. Instead of one large water and sediment control basin, the new project will install three smaller structures.

Amendment Request Approved:
The amendment request was approved on December 29, 2014.

Amendment Request (06/30/2015):
In early 2015, the Water and Sediment Control Basin project in Graham Lakes had been moved to a different location and landowner. In April, the HLWD and NRCS staff put together estimates, surveyed, and designed structures for this site. The renter and landowner couldn't agree on the project being installed, so the landowner changed his mind and decided not to do anything on site. The HLWD found a different location to install a Sediment and Water Control Basin. The site is located in Bloom Township Section 20 SE ¼. The location will have a higher reduction in nutrients than the original planned location. The project will drain 10 acres that drains into a Tributary of Jack Creek. The estimated sediment reduction is 33 tons per year and the phosphorus estimated reduction is 33 pounds per year. The landowner has expressed interest in the project and wants to complete it fall 2015.

Amendment Request Approved:
The amendment request was approved on July 8, 2015.

Amendment Request (12/31/2015):
Due to difficulty in securing a contractor, the Graham Lakes Bioretention Basin was not installed this fall. Due to a shortage in staff, an NRCS Cultural Resource Check was not completed in time for the contractor to complete the Water and Sediment Control Basin along the Jack Creek Tributary. This amendment request is for both uncompleted projects and entails changing from a 2015 completion date to a June 15, 2016 completion date. Both project sites have a contractor scheduled to complete the work first thing, spring 2016.

Project Status as of January 2014
The Okabena Creek Streambank Stabilization and the Fulda Lakes Biodetention Basin projects were completed in 2013. A contractor has been secured to install the remaining projects in 2014. Water quality monitoring was conducted from April through September.

The HLWD hosted a watershed tour on August 21, 2013. The Okabena Creek Streambank Stabilization project was one of the tour stops.

Project Status as of July 2014
Ross Behrends resigned his position as Watershed Technician effective December 31, 2013. Catherine Sereg began her position as Watershed Technician on January 2, 2014. Ross Behrends provided training. Water quality monitoring was conducted in March, April, May, and June. An annual update, including information regarding the Environment and Natural Resources Trust Fund (ENRTF) grant, was given to the Jackson County Water Plan Committee and the Commissioners in Nobles, Jackson, Murray, and Cottonwood Counties. Information was also included in the HLWD Annual Report.

Project Status as of January 2015
Water quality monitoring was conducted in July, August, and September. Catherine Sereg met with landowners regarding project installation in July, August, September, October, and November.

The HLWD planned for the remaining three projects to be completed in the fall of 2014. All project locations were within a corn or soybean field. Due to a cold, wet spring for planting conditions, the southern

Minnesota harvest was also delayed. Because of the delay, there was a very small window for construction work to be completed after harvest was completed. No construction was completed.

Project Status as of July 2015
Water quality monitoring was conducted in April, May, and June. Catherine Sereg met with landowners regarding project installation in January, February, March, April, May, and June.

The HLWD planned for the remaining three projects to be completed in the spring, summer and fall of 2015.

Project Status as of January 2016
Water quality monitoring was conducted in July, August, and September. Catherine Wegehaupt met with landowners regarding project installation in July, August, September, October, November, and December.

Final Report Summary
The Heron Lake watershed, approximately 472 square miles, is located within portions of Nobles, Jackson, Murray, and Cottonwood Counties in southwestern Minnesota. Heron Lake, a public water of the State of Minnesota, is impaired for phosphorus. Decreasing the amount of phosphorus and sediment entering Heron Lake would be valuable for reducing water pollution. The HLWD WMP and county water plans recognize on-the-ground projects as the most effective way to address phosphorus and sediment.

Funding from the Minnesota ENRTF was used to install projects in Nobles, Jackson, and Murray Counties. They included a biodetention basin, multiple water and sediment control basins, a bioretention basin, and a streambank stabilization. The purpose of these projects was to reduce sediment and nutrient loads into streams and lakes. The projects affected more than 300 acres and are estimated to reduce roughly 620 pounds of phosphorus and 575 tons of sediment per year. The grant dollars covered 75 percent of the project costs, with the landowner paying 25 percent.

Funds were also used to gather water samples at three sites in the watershed – Jack Creek, Okabena Creek, and the Heron Lake Outlet. The water samples were analyzed and compared to data gathered since 1996. The Jack Creek and Okabena Creek sampling sites decreased in phosphorus. Okabena Creek showed an increase. All sites showed a reduction in sediment.

Plans were made to visit three project sites in April of 2016. A newsletter summarizing the grant activities and promoting the project site tour was distributed to approximately 3,500 watershed residents, agency personnel, and legislators. Attending the event were eleven members of the general public, one Board of Water and Soil Resources (BWSR) staff, two news reporters, two HLWD board members and three employees.

IV. PROJECT ACTIVITIES AND OUTCOMES:

ACTIVITY 1: Project Implementation
Description:
Heron Lake is included on the 303(d) list for phosphorus impairment. Decreasing the amount of sediment and phosphorus entering public waters within the Heron Lake watershed would aid in meeting pollution reduction goals.

According to the Minnesota Department of Natural Resources (DNR), 2006, *Tomorrow's Habitat for the Wild and Rare: An Action Plan for Minnesota Wildlife*, Comprehensive Wildlife Conservation Strategy, land ownership within the HLWD is 2.7% public and 97.3% private. If one or more of the projects described below fails to go through due to unforeseen circumstances, an alternative project with similar pollutant reductions will be found within the watershed. HLWD staff will do their utmost to secure projects on publicly-owned lands or public waters.

Through this effort, the HLWD will install two streambank stabilization projects, three water and sediment control basins, two biodetention basins, and one bioretention basin. These projects would reduce sediment and phosphorus to Heron Lake (protected waters number 32-57) by 300 tons per year and 315 pounds per

year, respectively. Cooperators will provide 25% cash match in order to receive grant funds. This also secures their commitment to practice installation and land use change.

Cooperators will also sign agreements for each practice to ensure the projects will remain in place. The conservation contract specifies that the cooperator is responsible for any and all maintenance or repair required to certify that the project is functioning to its maximum water quality and wildlife potential. The HLWD will serve as the oversight authority for all projects and will conduct annual inspections to ensure compliance. The completed projects will provide water quality benefits for public waters in Minnesota.

Local funds are not sufficient to implement these projects. Without ENRTF, **none** of the projects will be implemented and **none** of the education opportunities will be undertaken. The goals to reduce pollution in public waters of Minnesota will not be met.

1. Okabena Creek Streambank Stabilization Projects. Work with Southwest Prairie Technical Service Agency (SWPTSA), contractors or Minnesota Conservation Corps (MCC), and cooperators to design and install two streambank stabilization projects by implementing five J-hook weirs and one diversion. The projects will be installed in ***Section 31 of Alba Township on Jack Creek, which is a public water defined as a natural and altered watercourse with a total drainage area greater than two square miles in area***. A DNR Protected Waters Permit is required for this project. An application for permit has been submitted and approved. Projects will be designed to NRCS specifications.

   J-hook weirs are an upstream directed, gently sloping structure composed of natural materials and are designed to reduce streambank erosion. The structures can include a combination of boulders, logs, and root wads. They are positioned on the outside of stream beds where erosion is occurring in the near-bank region. Recirculation of the water flow from the near-bank does not cause erosion. The vane portion of the structure occupies one-third of the width of the channel, while the "hook" occupies the center third. Water velocity is decreased in the near-bank region and the center third of the channel. Backwater is created only in the near-bank region. The small vane angle gently redirects water velocity from the near-bank region, reducing active bank erosion. The "hook" portion of the vane produces a long, deep, wide pool, providing energy dissipation and holding cover for fish.

   A diversion will be implemented to resolve severe bank erosion by re-sloping the sloughing bank, establishing perennial vegetation, and diverting the water to prevent the streambank from saturating and eroding. The project will be installed in ***Section 31 of Alba Township on Okabena Creek, a public water defined as a natural and altered watercourse with a total drainage area greater than two square miles in area***. A DNR Protected Waters Permit is required for this project. An application for permit has been submitted and approved.
   - Project participation requires 25% cash match and signing an agreement that states the project will remain in place for a minimum of 50 years.
   - Time frame: July 1, 2013 to August 31, 2013
   - Person(s) responsible: HLWD technician, HLWD summer interns, and contracted project construction.

2. Graham Lakes Bioretention Basin. Work with SWPTSA, contractor or MCC, and cooperator to install one bioretention basin to treat overland runoff before entering ***West Graham Lake (protected waters number 53-21)***, a public water body integral for boating and fishing within the Heron Lake watershed. Projects will be designed to NRCS specifications.

   Bioretention basins are landscaped depressions or shallow basins used to slow and treat on-site stormwater runoff. Stormwater is directed to the basin and then percolates through the system where it is treated by a number of physical, chemical and biological processes. The slowed, cleaned water is allowed to infiltrate native soils or is directed to nearby public waters.
   - Project participation requires payment of 25% cash match and signing an agreement that states the project will remain in place for a minimum of 50 years.

- Time frame: July 1, 2013 to June 15, 2016
- Person(s) responsible: HLWD technician, HLWD summer intern(s), and contracted project construction

3. Water and Sediment Control Basin. Work will also be done with NRCS, contractors, and cooperators to design and install one water and sediment control basin project in Section 17 of Graham Lakes Township to reduce water pollution entering ***Jack Creek, a public water defined as a natural and altered watercourse with a total drainage area greater than two square miles in area.*** Projects will be designed to NRCS specifications.

   A water and sediment control basin is a small earthen ridge-and-channel or embankment built across (perpendicular to) a small watercourse or area of concentrated flow within a field. They are commonly built in a parallel series with the first ridge crossing the top of the watercourse and the last ridge crossing the bottom, or nearly so. They are designed to trap agricultural runoff water and sediment as it flows down the watercourse; this keeps the watercourse from becoming a field gully and reduces the amount of runoff and sediment leaving the field.
   - Project participation requires payment of 25% cash match and signing an agreement that states the project will remain in place for a minimum of 20 years. NRCS estimates the actual lifespan of this practice to be 20 years. Because of their effectiveness at trapping sediments and pollutants, these practices require maintenance after that amount of time.
   - Time frame: July 1, 2013 to June 15, 2016
   - Person(s) responsible: HLWD technician, HLWD summer intern(s), and contracted project construction

4. Fulda Lakes Biodetention Basins. Work with SWPTSA, contractor or MCC, and cooperators to design and install two biodetention basins in Section 35, Bondin Township, Murray County to provide treatment and flood storage by capturing 87 acres of overland runoff before entering First and Second Fulda Lakes (protected waters number 51-21 and 51-20). These basins are located within the shoreline area of ***First Fulda Lake (protected waters number 51-21)***. Projects will be designed to NRCS specifications.

   A biodetention basin is installed to reduce gully erosion in a natural watercourse, provide temporary storage of storm water to trap sediment and pollutions, and reduce the negative impacts from flooding. The detention basin has an orifice level with the bottom of the basin so that all of the water eventually drains out and it remains dry between storms.

   The Fulda community has requested funding and technical assistance from the HLWD to employ efforts to improve the Fulda Lake system's aesthetics and recreational value. First Fulda Lake (protected waters number 51-21) and Second Fulda Lake (protected waters number 51-20) are designated protected waters within the City of Fulda. The DNR and Murray County implemented in-lake management that included replacing the fixed-crest dam with a variable-crest structure, manipulating water levels, fish eradication, and fish stocking.

   This project would be installed in Section 35 of Bondin Township on ***First Fulda Lake (protected waters number 51-21)*** as a means to reduce sediment and phosphorus entering the lake system and provide flood storage during storm events.
   - Project participation requires payment of 25% cash match and signing an agreement that states the project will remain in place for a minimum of 50 years.
   - Time frame: July 1, 2013 to November 30, 2013
   - Person(s) responsible: HLWD technician, HLWD summer intern(s), and contracted project construction

5. Water and Sediment Control Basin. Work with NRCS, contractors or MCC, and cooperators to design and install two water and sediment control basin projects in Section 25 of Fenton Township to reduce water pollution entering ***Jack Creek, a public water defined as a natural and altered***

watercourse with a total drainage area greater than two square miles in area. Projects will be designed to NRCS specifications.

A water and sediment control basin is a small earthen ridge-and-channel or embankment built across (perpendicular to) a small watercourse or area of concentrated flow within a field. They are commonly built in a parallel series with the first ridge crossing the top of the watercourse and the last ridge crossing the bottom, or nearly so. They are designed to trap agricultural runoff water and sediment as it flows down the watercourse; this keeps the watercourse from becoming a field gully and reduces the amount of runoff and sediment leaving the field.

- Project participation requires payment of 25% cash match and signing an agreement that states the project will remain in place for a minimum of 20 years. NRCS estimates the actual lifespan of this practice to be 20 years. Because of their effectiveness at trapping sediments and pollutants, these practices require maintenance after that amount of time.
- Time frame: July 1, 2013 to November 30, 2015
- Person(s) responsible: HLWD technician, HLWD summer intern(s), and contracted project construction

Summary Budget Information for Activity 1:

ENRTF Budget: $93,000.00
Amount Spent: $88,258.81
Balance: $4,741.19

Activity 1 Completion Date: June 15, 2016

Outcome	Completion Date	Budget
1. Stabilize 950 feet of streambank through the installation of a streambank stabilization project to reduce sediment loads to streams and to prevent loss of streambank vegetation and fish and wildlife habitat.	August 31, 2013	$16,541.60
2. Install one bioretention basin, 1.4 acres in size, allowing for 5.7 acre-feet of potential storage and slowing infiltration to receiving waters.	June 15, 2016	$41,017.88
3. Install one water and sediment control basin along a Graham Lakes tributary, approximately 1,600 feet to trap overland runoff and reduce gully erosion by controlling flow and releasing water slowly to drainage area.	June 15, 2016	$9,568.84
4. Install a biodetention basin to provide treatment and flood storage by capturing 95 acres of overland runoff before entering First and Second Fulda Lakes.	November 30, 2013	$9,267.95
5. Install two water and sediment control basins along a Jack Creek tributary, approximately 2,200 feet, to trap overland runoff and reduce gully erosion by controlling flow and releasing water slowly to drainage area.	December 31, 2015	$11,862.54

The approach to these projects is further delineated in **Attachment 1**.

Activity Status as of January 2014

Construction was completed on two of the five projects. The Okabena Creek Streambank Stabilization Projects began on July 24, 2013 and were completed and certified on August 4, 2013. The HLWD Technician and engineers from SWPTSA and were onsite during construction to make a few modification and ensure the projects were installed according to project plan and design. Construction for the Fulda Lakes Biodetention Basins Project began on September 5, 2013 and was completed and certified on September 9, 2013. The HLWD needed to secure additional project partners in order for the project to move forward. Several groups with vested interest in Fulda Lakes partnered on the project. Bondin Township, the City of Fulda, and the HLWD each provided $750.00 and the Fulda Game and Fish Club provided $200.00. Besides the cash inkind contribution, the project helped instill a sense of personal responsibility in the health of Fulda Lakes from area residents, City of Fulda officials, Bondin Township officials, and the Fulda Game and Fish.

In order to showcase these projects and provide a chance for the public, agency staff, public officials, and Minnesota Legislators to appreciate firsthand water quality improvement projects, the HLWD partnered with the Prairie Ecology Bus Center (PEBC) to tour these projects and several other HLWD projects. The tour was held on August 21, 2013.

Everything is in place for construction to begin on the remaining three ENRTF projects with the HLWD. A late harvest due to difficult weather conditions has delayed contractors start dates. Construction will resume as soon as conditions and permitting authorities allow.

Activity Status as of July 2014

Ross Behrends resigned his position as Watershed Technician effective December 31, 2013. Catherine Sereg began her position as Watershed Technician on January 2, 2014. Catherine Sereg met with Ross Behrends to review plans for 2014. They met with Merv Nelson to review the plans. Catherine met with Tony Paulzine to discuss plans for fall construction of the terrace project. Several visits were made to get familiarized with the sites. A meeting was also held with the contractor. To date, no construction activity has occurred.

Photos were taken at the Okabena Creek Streambank Stabilization and Fulda Lakes Biodetention Basin Project sites on May 27, 2014.

Activity Status as of January 2015

The contractor started work on the Graham Lakes Bioretention Basin on September 29, 2014. The original dam was breached to start the water level drawdown process. After the breach was done, the weather brought more rain, prolonging weather that was conducive to dry the sediment. The sediment removal process began on October 14, 2014. The contractor experienced equipment problems, which did not allow for sediment removal in a timely manner. By November 13, 2014, freezing temperatures made sediment removal impossible. Discussion was held between HLWD staff, the contractor, project engineers, and the landowner. Construction will begin as soon as possible in the spring of 2015.

HLWD and Nobles County NRCS staff worked to get survey and designs completed so fall construction could occur on the water and sediment control basin in Fenton Township. The tile contractor was able to get into the field on October 21, 2014 to locate tile outlets. However, he was unable to locate tile in the field. Because of difficulty in locating tile and freezing temperatures, the tile installation and dirt work were not completed before the ground froze. Construction will begin as soon as achievable in the spring of 2015.

Activity Status as of July 2015

In early April, the landowner, the HLWD staff, and the engineers were in contact with the contractor to begin work at the Graham Lakes Bioretention Basin. The contractor was busy with other jobs and was unable to get to the site. The landowner contacted another local contractor to complete the project. That contractor did not have suitable equipment for excavation of the site. The crop surrounding the project area was planted and to avoid any crop damage the original contractor is hoping to return to complete the project in the fall of 2015.

The Water and Sediment Control Basin project in Fenton Township was surveyed and designed in the fall by HLWD and Murray County NRCS staff. The landowner wanted to change his planting rows, so Murray County NRCS was contacted to create a different design that fit with the landowners farming practices. The site was surveyed and the design completed in April and May. The contractor started locating tile on June 8, 2015. The contractor began construction work on June 16, 2015. The construction of the structures has been completed and agreements are in place with the adjacent landowners to finish installing tile once the crop is harvested. The entire project will be completed once the tile has a stable outlet in the fall.

In early 2015, the Sediment and Water Control Basin project in Graham Lakes Township had been moved to a different location and landowner. In April, the HLWD and NRCS staff put together estimates, surveyed, and designed structures for this site. The renter and landowner couldn't agree on the project being installed, so the landowner changed his mind and decided not to do anything on site. Currently the HLWD is working with two other landowners along a tributary of Jack Creek to see if there is interest in installing a structure that will provide a greater sediment and nutrient load reduction.

Activity Status as of January 2016

The contractor was not able to complete the Graham Lakes Bioretention Basin because he was busy with other jobs and unable to get to the site. The contractor has promised that the project will be completed right away in the spring.

The Water and Sediment Control Basin project in Fenton Township was nearly complete at the end of June. The project was certified to meet NRCS requirements on July 1, 2015.

The site for the Water and Sediment Control Basin project on a Graham Lakes tributary was secured. It will be located in Section 20, Bloom Township, in Nobles County. The project was surveyed and designed by NRCS. Due to staff shortage, the NRCS was unable to complete a Cultural Resources Check on the site. Catherine Wegehaupt contacted the engineers at SWPTSA to determine if they could complete a Cultural Resources Check. SWPTSA completed the check and approved the design on November 9, 2015. The project will be installed in the spring of 2016.

Final Report Summary

Okabena Creek Streambank Stabilization Project

The Okabena Creek Streambank Stabilization Project began on July 24, 2013 and were completed and certified on August 4, 2013. These projects will reduce pollution loadings by stabilizing over 950 feet of severe bank erosion. The HLWD Technician and engineers from SWPTSA and were onsite during construction to make a few modification and ensure the projects were installed according to project plan and design.

The SWPTSA contributed $7,310.00 for engineering. The HLWD paid $2070.00 for engineering. The landowner paid $8,500.00 toward construction. Alba Township contributed $632.50 toward construction. Total inkind match: $18,512.50.

According to the BWSR Pollution Reduction Estimator, this project reduces 346 pounds of phosphorus and 301 tons of sediment per year from entering Okabena Creek.

Fulda Lakes Biodetention Project

Construction for the Fulda Lakes Biodetention Basins Project began on September 5, 2013 and was completed and certified on September 9, 2013. The HLWD needed to secure additional project partners in order for the project to move forward. Several groups with vested interest in Fulda Lakes partnered on the project. Bondin Township, the City of Fulda, and the HLWD each provided $750.00 and the Fulda Game and Fish Club provided $200.00. Besides the cash inkind contribution, the project helped instill a sense of personal responsibility in the health of Fulda Lakes from area residents, City of Fulda officials, Bondin Township officials, and the Fulda Game and Fish.

Throughout the implementation process, HLWD staff met one-on-one with landowners, contractors, and community groups. Several organizations with vested interest in the Fulda Lakes partnered on the project. Bondin Township, the City of Fulda, and the HLWD each provided $750.00, Fulda Game and Fish Club provided $200.00 for construction. The HLWD paid $1,800.00 to SWPTSA for engineering. SWPTSA contributed $627.50. Total inkind match: $4,877.50.

According to the MN Ag BMP Handbook, research found that this type of structure has up to 90 percent trapping efficiency of sediment. To estimate the reduction rates, RUSLE2 was used to determine the soil loss from the 95 acre contributing area. This project removes 85 pounds of phosphorus and 85 tons of sediment from entering Fulda Lake.

Fenton Township Water and Sediment Control Basin

The Water and Sediment Control Basin project in Fenton Township was surveyed and designed by HLWD and Murray County NRCS staff so construction could occur before the ground froze in the fall of 2014. The tile contractor was able to get into the field on October 21, 2014 to locate tile outlets. However, he was unable to locate tile. Because of difficulty in locating tile and freezing temperatures, the tile installation and dirt work were not completed in 2014.

In the spring of 2015, the landowner wanted to change his planting rows, so Murray County NRCS was contacted to create a different design that fit with the landowners farming practices. The site was surveyed and the design was completed in May. The contractor started locating tile on June 8, 2015. The contractor began construction on the sediment basin structure on June 16, 2015. The project was completed on June 25, 2015. It was certified to meet NRCS requirements on July 1, 2015. Agreements were made with the adjacent landowners to finish installing tile once the crop was harvested. The landowner wanted larger tile installed than was contained in the original design. The landowner took financial responsibility for all the tile installation in the adjacent field.

Because the landowner paid for tile installation on the adjacent field, the final cost of the project came in $2,997.46 under the original estimate. The landowner paid $8,500.00 toward construction and tile installation.

According to the BWSR Pollution Reduction Estimator, this project reduces 14 pounds of phosphorus per year and 14 tons of sediment per year from entering Jack Creek.

<u>Graham Lakes Bioretention Basin</u>
The contractor started work on the Graham Lakes Bioretention Basin on September 29, 2014. The original dam was breached to start the water level drawdown process. After the breach was done, the weather brought more rain, prolonging weather that was conducive to dry the sediment. The sediment removal process began on October 14, 2014. The contractor experienced equipment problems, which did not allow for sediment removal in a timely manner. By November 13, 2014, freezing temperatures made sediment removal impossible.

In early April of 2015, the landowner, the HLWD staff, and the engineers were in contact with the contractor to begin work at the Graham Lakes Bioretention Basin. The contractor was busy with other jobs and was unable to get to the site. The landowner contacted another local contractor to complete the project. That contractor did not have suitable equipment for excavation of the site. The crop surrounding the project area was planted and to avoid any crop damage the original contractor was hoping to return to complete the project in the fall of 2015.

Due to difficulty in securing a contractor, the Graham Lakes Bioretention Basin was not installed in the fall of 2015. An amendment request was approved for a project completion date of June 15, 2016. A contractor was secured to complete the work in the spring of 2016.

On March 22, 2016, the contractor was able to start construction. It began with removing sediment from the pond area. The spoil was placed along the bank areas, leveled, and seeded to protect the soil from eroding into the pond. The contractor installed the culvert, intake, and riser. The dam was rebuilt and all the disturbed areas were seeded. The project was completed on April 14, 2016. The project was certified by SWPTSA on May 5, 2016. Site visits were done by SWPTSA and HLWD staff throughout the duration of construction to ensure the project was properly installed.

The landowner paid $13,672.62 toward construction.

According to the MN Ag BMP handbook, the MPCA reported that structures similar to a bioretention basin remove, on average, 80 percent of sediment. To estimate the reduction rates, RUSLE2 was used to determine the soil loss from the 184 acre contributing area. This project removes 142 pounds of phosphorus and 142 tons of sediment from entering West Graham Lake each year.

<u>Graham Lakes Water and Sediment Control Basin</u>
The HLWD has been working with a landowner to install a water and sediment control basin in the S ½ of Section 17, Graham Lakes Township, in Nobles County. The project site was surveyed, design completed, and was construction-ready in 2013. The landowner continues to be reluctant to install the project. Because of this hesitancy, HLWD and NRCS staff sought another project site. The new location is still in Section 17 of Graham Lakes Township, but is in the NW ¼. The estimated project cost is the same as originally planned. Instead of one large water and sediment control basin, the new project will install three smaller structures.

In April of 2015, the HLWD and NRCS staff put together estimates, surveyed, and designed structures for this site. The renter and landowner couldn't agree on the project being installed, so the landowner changed his mind and decided not to do anything on site. The HLWD found a different location to install a Sediment and Water Control Basin. The site is located in Bloom Township Section 20 SE ¼. The location will have a higher reduction in

nutrients than the original planned location. The project will drain 10 acres that drains into a Tributary of Jack Creek. The landowner expressed interest in the project and wanted to complete it in the fall of 2015.

Due to a shortage in staff, an NRCS Cultural Resource Check was not completed in time for the contractor to complete the project in the fall of 2015. An amendment request was approved for a project completion date of June 15, 2016. A contractor was secured to complete the work in the spring of 2016.

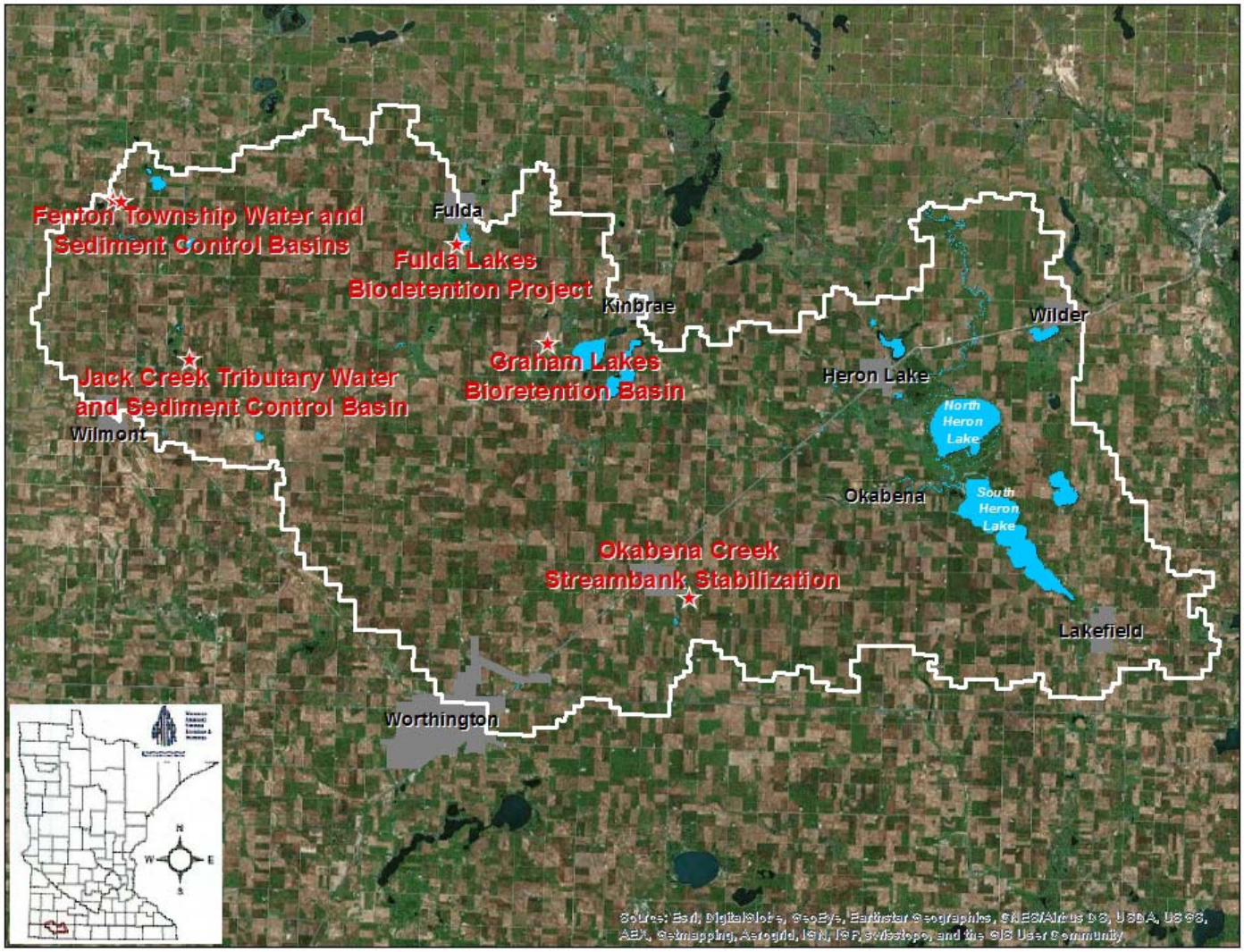
Construction began on April 21, 2016. Due to spring rains, construction was intermittent during April and May. The project was completed on May 23, 2016. It was certified to meet NRCS specifications on May 24, 2016.

The landowner paid $3,342.49 toward construction.

According to the BWSR Pollution Reduction Estimator, this project reduces 33 tons of sediment and 33 pounds of phosphorus per year from entering a tributary of Jack Creek.

Difficulty in securing contractors, weather variability, and landowner-renter disputes were the biggest challenges faced. Ideally, the original landowners and contractors would have worked together for project implementation. Unfortunately, that did not happen. Despite these difficulties, the projects were successfully installed and the overall costs were less than budgeted. The grant amount remaining is $4,741.19. The HLWD contributed $5,236.60 inkind for staff time for project construction.

Project Locations Map



ACTIVITY 2: Monitoring

Description:

The HLWD will provide water quality monitoring and continuous site preservation through this endeavor.

- Collect 20 water samples at three different sites, spring through fall each year. The data will be analyzed to determine the effectiveness of installed projects.
- Time frame: July 1, 2013 to June 30, 2016
- Person(s) responsible: HLWD technician and HLWD summer intern(s)

Summary Budget Information for Activity 2:

ENRTF Budget: $26,000.00
Amount Spent: $26,000.00
Balance: $0.00

Activity 2 Completion Date: June 30, 2016

Outcome	Completion Date	Budget
1. Take event-based water samples for 200 samples during the grant period. The goal of the monitoring effort is to obtain sufficient accurate data to provide valuable information to the public regarding project effectiveness.	June 30, 2016	$38,177.55
2. Analyze water samples for total suspended solids, suspended volatile solids, turbidity, e.coli, dissolved orthophosphorus, nitrate-nitrite nitrogen, total kjeldahl nitrogen, ammonia nitrogen, and total phosphorus. Dissolved oxygen, pH, and temperature will also be measured with each collection.	June 30, 2016	$26,000

Activity Status as of January 2014

In 2013, streams were sampled 12 times and lakes were sampled four times. 2013 data will be analyzed and presented in June 2014. The DNR visited the continuous gage locations to collect the necessary field data on a four to six week interval. The DNR maintained stage-discharge relationships and computed continuous discharge records for continuous gage sites throughout the summer of 2013. An annual report consisting of daily discharges, data collection summaries, and stage-discharge relations will be provided by January 31, 2014.

Activity Status as of July 2014

In 2014, streams were sampled 27 times. 2013 data analysis has been postponed due to staff turnover and the need for training. The DNR visited the continuous gage locations to collect the necessary field data on a four to six week interval. The DNR maintained stage-discharge relationships and will compute continuous discharge records for continuous gage sites throughout the monitoring season. An annual report consisting of daily discharges, data collection summaries, and stage-discharge relations will be provided by January 31, 2015.

Activity Status as of January 2015

In 2014, streams were sampled 34 times. The DNR visited the continuous gage locations to collect the necessary field data on a four to six week interval. The DNR maintained stage-discharge relationships and will compute continuous discharge records for continuous gage sites throughout the monitoring season. An annual report of daily discharges, data collection summaries, and stage-discharge relations will be provided by January 31, 2015.

Catherine Sereg participated in FLUX training on November 18, 2014. She will begin summarizing the monitoring data in early 2015.

Activity Status as of July 2015

So far, for 2015, streams have been sampled 12 times during the rising, peak, and falling stages. Catherine Sereg gave a PowerPoint presentation summarizing the 2013 water quality results at the April 2015 HLWD meeting. The DNR visited the continuous gage locations to collect the necessary field data on a four to six week interval. The DNR maintained stage-discharge relationships and will compute continuous discharge records for continuous gage sites throughout the monitoring season. A wire weight gage was ordered in June

2015 and will be installed in early July. Catherine participated in a Minnesota Pollution Control Agency FLUX training on June 5, 2015. She will begin summarizing 2014 monitoring data in early July.

Activity Status as of January 2016

In 2015, streams were sampled 22 times. The DNR visited the continuous gage locations to collect the necessary field data on a four to six week interval. The DNR maintained stage-discharge relationships and will compute continuous discharge records for continuous gage sites throughout the monitoring season. An annual report of daily discharges, data collection summaries, and stage-discharge relations will be provided by January 31, 2016. Catherine Wegehaupt will begin summarizing the monitoring data in early 2016.

Final Report Summary

In 2013, streams were sampled 12 times and lakes were sampled four times. 2013 data will be analyzed and presented in June 2014. In 2014, streams were sampled 34 times. 2013 data analysis was postponed due to staff turnover and the need for training. In 2015, streams were sampled 22 times. So far in 2016, streams have been sampled five times during the rising, peak, and falling stages. Water sampling will continue through September 2016.

Each year, the DNR visited the continuous gage locations to collect the necessary field data on a four to six week interval. The DNR maintained stage-discharge relationships and computed continuous discharge records. To ensure accurate stage data was collected, a wire weight gage was ordered in June 2015 and was installed in August 2015.

Catherine Wegehaupt gave a PowerPoint presentation summarizing the 2013 water quality results at the April 2015 HLWD meeting. She gave a PowerPoint presentation summarizing the 2014 water quality results at the October 2015 HLWD meeting.

Water quality data from 2004 through 2015 was used to determine effectiveness of the projects that were installed. Most of the sites showed a decrease in total suspended solids and phosphorus. A newsletter summarizing the water quality improvement was mailed to HLWD residents, agency personnel, and legislators. A brochure containing water quality information was distributed at the Best Management Practices (BMP) Site-Seeing Event.

No problems were encountered with the water quality monitoring conducted during the grant period. The HLWD provided inkind contribution of $39,747.22 for staff time, data analysis, and flow monitoring conducted by the DNR.

ACTIVITY 3: Public Education

Description: The HLWD will provide effectiveness information to the public through outreach and education.

- HLWD staff will analyze monitoring data and prepare results.
- HLWD staff will draft a newsletter to publicize project data and the field day that will be distributed to 3,500 watershed residents, agency personnel, and legislators.
- HLWD staff will create a project brochure and gather information for packets to distribute at the field day.
- HLWD staff will plan and host one field day. Participants will travel to three different project sites. The goal is to reach 50 people.

Summary Budget Information for Activity 3:

ENRTF Budget: $3,000.00
Amount Spent: $1,773.17
Balance: $1,226.83

Activity 3 Completion Date: June 30, 2016

Outcome	Completion Date	Budget
1. Analysis of water quality data will be used to determine project effectiveness.	June 30, 2016	$1,229.67 (inkind)
2. Publicize project data and detailed information regarding project	April 30, 2016	$1,719.20

installation and practice requirements for future restoration endeavors through a newsletter distributed to 3,500 watershed residents, agency personnel, and legislators.		
3. Summarize project results in a brochure to be distributed at the field day.	April 30, 2016	$53.97
4. Plan and host one field day highlighting three different project sites, reaching 50 people.	June 15, 2016	$952.68 (inkind)

Activity Status as of January 2014

An invitation to attend a watershed tour was distributed to the HLWD Advisory Committee, commissioners in all four counties, and legislators on August 5, 2013. Ross Behrends and Jan Voit met with PEBC staff on August 13. Reminders were sent on August 12 and August 19. The tour was held on August 21, 2013. Sites included the Heron Meadows project, Okabena Creek streambank stabilization project, proposed Jack Creek Impoundment project, and the Brown's rain garden and shoreline restoration project. There were fifteen people in attendance.

Activity Status as of July 2014

The Jackson County Water Plan meeting was held on January 23, 2014. PowerPoint presentations regarding 2012 activities were given by Chris Bauer, Brian Nyborg, and Jake Grages, Jackson Soil and Water Conservation District (SWCD); Andy Geiger, Jackson County; Kiel Tschumperlin, and Jan Voit, HLWD. Updates were also given by Albert Henning, Jackson County Conservation League; John Wills, Iowa Great Lakes; Loren Clarke, Jackson NRCS; Brooke Hacher, DNR; and Mark Hiles, BWSR.

On March 19 and March 20, 2014, Jan Voit attended the Minnesota Association of Watershed Districts (MAWD) annual legislative days. Packets of information were developed that included the HLWD Annual Report, HLWD Annual Work Plan and Budget, and HLWD 2013 Accomplishments. These information packets were provided to Senator Bill Weber, Representative Rod Hamilton, and Representative Joe Schomacker.

The HLWD Annual Report, which included an update on the ENRTF grant, was distributed on April 15, 2014. The information was sent to cities, townships, local and state government staff, a sportsman's club, the HLWD Advisory Committee, and the HLWD Board of Managers.

Time was spent creating a PowerPoint presentation to aid the annual update process. The presentation includes an overview of 2013 activities. Information packets including the HLWD Annual Report, HLWD Annual Work Plan and Budget, and HLWD 2013 Accomplishments were distributed. The presentation was given to the Jackson County Commissioners on April 22, 2014, Nobles County Commissioners on May 6, 2014, Cottonwood County Commissioners on May 13, 2014, and the Murray County Commissioners on May 20, 2014.

Activity Status as of January 2015

No activity during this reporting period.

Activity Status as of July 2015

The Jackson County Water Plan meeting was held on February 5, 2015. PowerPoint presentations regarding 2014 activities were given by Chris Bauer and Aaron Crowley Jackson SWCD; Andy Geiger and Jake Grages, Jackson County; Amanda Schultz and Jan Voit, HLWD; Brady Swanson, DNR; and Chrystal Dunker, PEBC. Updates were also given by Jim Sholley, Iowa Great Lakes; Aaron Crowley on behalf of Jackson NRCS; Brian Nyborg, DNR; and Mark Hiles, BWSR.

On March 11 and March 12, 2015, Jan Voit attended the MAWD annual legislative days. Packets of information were developed that included the HLWD Annual Report, HLWD Annual Work Plan and Budget, and HLWD 2014 Accomplishments. These information packets were provided to Senator Bill Weber and Representative Rod Hamilton.

The HLWD Annual Report, which included an update on the ENRTF grant, was distributed on April 21, 2015. The information was sent to cities, townships, local and state government staff, a sportsman's club, the HLWD Advisory Committee, and the HLWD Board of Managers.

Time was spent creating a PowerPoint presentation to aid the annual update process. The presentation includes an overview of 2014 activities. Information packets including the HLWD Annual Report, HLWD Annual Work Plan and Budget, and HLWD 2014 Accomplishments were distributed. The presentation was given to the Nobles County Commissioners on April 7, 2015, Cottonwood County Commissioners on April 21, 2015, Murray County Commissioners on April 28, 2015, and the Jackson County Commissioners on May 5, 2015.

Activity Status as of January 2016
No activity during this reporting period.

Final Report Summary
In order to showcase these projects and provide a chance for the public, agency staff, public officials, and Minnesota Legislators to appreciate firsthand water quality improvement projects, the HLWD partnered with the PEBC to tour these projects and several other HLWD projects. The tour was held on August 21, 2013. There were fifteen people in attendance.

HLWD staff attended the Jackson County Water Plan meeting on January 23, 2014. A PowerPoint presentation regarding 2013 activities was given. There were eleven committee members present. HLWD staff attended the Jackson County Water Plan meeting on February 5, 2015. A PowerPoint presentation regarding 2014 activities was given. There were twelve committee members in attendance.

In March of 2014, 2015, and 2016, Jan Voit attended the MAWD annual legislative days. Packets of information were developed that included the HLWD Annual Report, HLWD Annual Work Plan and Budget, and HLWD Accomplishments for each year. These information packets were provided to Senator Bill Weber, Representative Rod Hamilton, and Representative Joe Schomacker.

Each year, the HLWD Annual Report, which included an update on the ENRTF grant, was distributed. The information was sent to cities, townships, local and state government staff, a sportsman's club, the HLWD Advisory Committee, and the HLWD Board of Managers.

One of the work plan requirements was hosting a field day. It was entitled BMP Site-Seeing Event. The grant activities were summarized in a newsletter that was distributed to approximately 3,500 watershed residents, agency personnel, and legislators.

The BMP Site-Seeing Event was held on April 21, 2016. Participants met in Brewster, Minnesota. Catherine Wegehaupt, HLWD Watershed Technician presented information about the grant, all the projects that were installed, the total cost of the projects, and the nutrient reduction achieved from installation. She explained the water sampling data that was contained in the brochure distributed to attendees. She explained the trends that were seen in the sampling data during the grant period. In attendance were eleven members of the general public, one BWSR staff, two news reporters, two HLWD board members, and three HLWD employees.

The first stop was the Okabena Creek Streambank Stabilization site in Section 30 of Alba Township in Jackson County. Information about why this site was chosen, surveying, designing, project installation, and cost was shared with the audience. Also provided were facts about how the project works, how the J-hook weirs were installed, and nutrient reductions attained. Questions and discussion followed.

The second stop was the Graham Lakes Bioretention Basin site in Section 17 of Graham Lakes Township in Murray County. SWPTSA completed the engineering for the project. The project designs were shared with the group. Other data presented included: clean out process, structure installation, watershed size, final cost, and nutrient reductions.

The last stop was the Fulda Lakes Biodetention Basin. Ninety-five acres of farm ground drain through this area which outlet directly to Fulda Lake. Photos from before the project was installed were shown. Catherine Wegehaupt explained how the structure works, the reason for the project, and the many partners that contributed time and money to complete the project. Final cost and sediment reduction amounts were also

shared with the group. The tour ended with a question and answer period about the projects and the grant itself.

In addition, reporters published articles regarding the BMP Site-Seeing Event in the Daily Globe, Tri County News, Fulda Free Press, and the Watershed Network newsletter.

The remaining budget balance is $1,226.83. The costs for the newsletter and brochures were less than projected. The HLWD contributed $952.68 in staff time toward the brochure, newsletter, and BMP Site-Seeing Event.

Because project installation was not completed according to the original timeline, the field day was delayed. Given the opportunity to host an event to showcase projects installed with grant funds, late summer or early fall would provide a better time frame and increased attendance.

V. DISSEMINATION:

Description: The HLWD will provide project information through the following:

- Monitoring results will be summarized in a brochure that will be distributed at the field day.
- A newsletter will be drafted to publicize project results and the field day.
- A field day will be held to explain the project and provide the public with results.
- Information regarding the grant will be contained on the HLWD website at www.hlwdonline.org.
- Results will be made available to the Legislative-Citizen Commission on Minnesota Resources (LCCMR) through semi-annual, annual, and final reports.

Activity Status as of January 2014
No activities during this reporting period.

Activity Status as of July 2014
The HLWD website was updated to include a page dedicated to the ENRTF grant. The 2013 Annual Report and Budget were uploaded to the site.

Activity Status as of January 2015
The 2014 Semi-Annual Report and Budget were uploaded to the webpage.

Activity Status as of July 2015
No activities during this reporting period.

Activity Status as of January 2016
The 2015 Semi-Annual Report and Budget were uploaded to the webpage.

Final Report Summary
In 2012, the HLWD website was updated to include a webpage dedicated to the ENRTF grant. Each year the semi-annual and annual reports were uploaded to the page. The final report will be uploaded once it is approved.

On April 12, 2016 a news release was drafted. It was sent to one radio station, six local newspapers, and the Minnesota Pollution Control Agency. The Daily Globe, Tri County News, Fulda Free Press, and Watershed Connections published the news release. (See below for coverage area and circulation information.) Information about the field day was announced on 730 AM KWOA. The demographics for this station are men and women ages 55 and over. The coverage area includes over 30 counties and 110 communities in southern Minnesota, southeast South Dakota, and northwest Iowa, serving over 650,000 avid listeners.

The brochure was drafted during late March and early April of 2016. It was printed on April 12, 2016 and delivered on April 14, 2016. It was distributed at the BMP Site-Seeing Event.

The newsletter was drafted during late March and early April of 2016. The newsletter was distributed via email on April 14, 2016. It was printed on April 13, 2016 and mailed on April 14, 2016. The news release and newsletter were uploaded to the webpage on April 12, 2016.

The BMP Site-Seeing Event was held on April 21, 2016. There were 19 people in attendance.

The Daily Globe published an article regarding the BMP Site-Seeing Event. The main coverage area is Nobles, Rock, Jackson, Pipestone, Murray, and Cottonwood Counties in Minnesota and Lyon, Osceola, and Dickinson Counties in Iowa. The circulation is approximately 8,000 daily copies.

The Tri County News published an article regarding the BMP Site-Seeing Event. The main coverage area for this newspaper is Jackson and Nobles County. Subscriptions total about 575, with about 150 store copies available for purchase at various locations in the immediate area. The same article was published in the Fulda Free Press. Their coverage area is mainly the Fulda school district in Murray County. The circulation is 1,050 weekly copies.

An article about the BMP Site-Seeing Event was published in the Watershed Connections newsletter on May 25, 2016. There are 2,497 email addresses on the subscriber list.

Despite the HLWD's inexperience with ENRTF processes, the reporting and amendment procedures worked well. The HLWD also contributed $3,486.33 in staff time for webpage updates and reporting.

VI. PROJECT BUDGET SUMMARY:

A. ENRTF Budget:

Budget Category	$ Amount	Explanation
Professional/Technical/Service Contracts: *Actual project costs were less than budgeted*	$88,258.81	Southwest Prairie Technical Service Agency for engineering and technical assistance ($9,000) Contractor(s) (yet to be determined) for materials, stabilization, and earthwork ($84,000)
Printing: *Actual costs for newsletters and brochures were less than budgeted*	$1,773.17	3,500 newsletters @ $0.60/each ($2,100) Brochures ($900)
Other: Laboratory Analysis	$26,000.00	200 samples @ $130/sample
TOTAL ENRTF BUDGET:	**$116,031.98**	

Explanation of Use of Classified Staff: N/A
Explanation of Capital Expenditures Greater Than $3,500: N/A
Number of Full-time Equivalent (FTE) funded with this ENRTF appropriation: N/A
Number of Full-time Equivalent (FTE) estimated to be funded through contracts with this ENRTF appropriation: N/A

B. Other Funds:

Source of Funds	$ Amount Proposed	$ Amount Spent	Use of Other Funds
Non-state			
Landowner Cash Match	$27,827	$29,619.69	Landowner cash contribution to project costs
Heron Lake Watershed District	$33,000	$33,800.00	Flow measurement contract with DNR
Heron Lake Watershed District and Nobles, Jackson, and Murray Soil and Water Conservation District Personnel	$25,210	$31,441.14	Administrator (2,910.77), Watershed Technician (9,604.08), Interns (3,857.98), Travel to sites (928.31), SWCD Managers (0), other partners (2,332.50), HLWD

Administrator ($7,875), Watershed Technician ($7,500), Interns ($6,720), Travel to sites ($2,065), Soil and Water Conservation District (SWCD) Managers ($1,050)			(3,870), SWPTSA (7,937.50)
TOTAL OTHER FUNDS:	**$86,037**	**$94,860.83**	

VII. PROJECT STRATEGY:

A. Project Partners:

Brian Nyborg, Jackson SWCD, Ed Lenz, Nobles SWCD, and Howard Konkol, Murray SWCD will provide technical assistance for project installation and field day. Appropriation amount: $0

Russ Hoogendorn, SWPTSA will provide engineering services and technical assistance for project installation and field day. Appropriation amount: $9,000

Ross Behrends, HLWD Watershed Technician and HLWD Summer Interns will assist with project installation, water quality monitoring, and field day. Appropriation amount: $0

Jan Voit, HLWD Administrator will receive the funds, administer the grant, and create the brochure and newsletter. Appropriation amount: $0

B. **Project Impact and Long-term Strategy:**

HLWD implementation and education efforts are strongly rooted in the HLWD WMP, grant work plans, and our rules and regulations as a means to address nonpoint source pollution. Obtaining funds from the ENRTF through the LCCMR assures that implementation and education endeavors will continue through the middle of 2016.

The establishment of long-term monitoring sites has enabled HLWD to focus monitoring efforts and gather intensive data. It is apparent that weather patterns greatly affect the water quality indicating that areas in need of protection still exist. Grant funds secured from the ENRTF through the LCCMR will ensure that monitoring will continue through June of 2016.

The HLWD's general operating funds are limited and minimal in comparison to what is needed for implementation and education projects. In order to make the best use of general operating funds, the HLWD will continue to put forth extensive efforts to obtain outside funding. The HLWD currently implements the following grant programs:

- Alternative Tile Intake Cost-share Program – Clean Water Partnership (CWP) Continuation Grant
- Heron Lake Sediment Reduction Demonstration Project – Environmental Protection Agency (EPA) 319 Grant
- Cover Crop Demonstration Project – North Central Sustainable Agriculture Research and Education (NCR-SARE)
- Fulda Phosphorus Reduction Initiative – EPA 319 Grant
- WFDMR TMDL Implementation Project – EPA 319 Grant
- Heron Lake Phosphorus Reduction Project – CWP Loan Program

These programs and projects help HLWD staff continue efforts for implementation and education as described in the HLWD WMP.

HLWD staff has made documentation a priority in all education and implementation efforts. This is done through various means including water quality monitoring, tracking website visits, recording

meeting attendance, pre- and post-tests at workshops, photographs, and comments from meeting attendees.

C. Spending History:

Funding Source	FY08	FY09	FY10	FY11	FY12-13
Conservation Innovation Grant – Controlled Drainage Demonstration Project	26,140				
Clean Water Partnership Continuation	428,752				
EPA 319 Grant – Elk Creek Conservation Tillage	28,200				
EPA 319 Grant – Alternative Tile Intake Cost-Share Program	23,193				
EPA 319 Grant – Fulda Lakes BMP Project		55,800			
EPA 319 Grant – BMP Project for Alba Township		40,800			
CWF SWAG		6,411			
NCR-SARE – Conservation Tillage Bus Tour		1,942			
EPA 319 Grant – Conservation Tillage Demonstration Plot			17,443		
Clean Water Partnership – Alternative Tile Intake Cost-Share Program			36,000		
WQMP Grant – Watershed Coordinator			61,306		
EPA 319 Grant – Sediment Reduction Demonstration Project				16,500	
EPA 319 Grant – Level III Feedlot Inventory					190,298
EPA 319 Grant – Rain Garden Education					12,600
DNR subgrant from LCCMR – Lakescaping Buffer Zones and Technology Transfer				30,000	
NC-SARE – Cover Crop Demonstration Project					6,642
Clean Water Partnership – Loan Program					450,000

VIII. ACQUISITION/RESTORATION LIST:

See Acquisition/Restoration List (Attachment 2).

IX. MAP(S):

See Map (Attachment 3).

X. RESEARCH ADDENDUM:

N/A

XI. REPORTING REQUIREMENTS:

Periodic work plan status update reports will be submitted not later than January 31, 2014, June 30, 2014, January 31, 2015, June 30, 2015, and January 30, 2016. A final report and associated products will be submitted between June 30 and August 15, 2016 as requested by the LCCMR.

Attachment 1. Restoration/Enhancement and Management Plan

1. Okabena Creek Streambank Stabilization Projects

Project Description:

The HLWD will work with SWPTSA, contractors, or MCC, and cooperators to design and install two streambank stabilization projects by implementing five J-hook weirs and one diversion. The projects will stabilize 1,050 feet of streambank to reduce sediment loads to streams and to prevent loss of streambank vegetation and fish and wildlife habitat. They will be installed in ***Section 31 of Alba Township on Jack Creek, which is a public water defined as a natural and altered watercourse with a total drainage area greater than two square miles in area***. A DNR Protected Waters Permit is required for this project. An application for permit has been submitted and approved. Projects will be designed to NRCS specifications.

J-hook weirs are an upstream directed, gently sloping structure composed of natural materials and are designed to reduce streambank erosion. The structures can include a combination of boulders, logs, and root wads. They are positioned on the outside of stream beds where erosion is occurring in the near-bank region. Recirculation of the water flow from the near-bank does not cause erosion. The vane portion of the structure occupies one-third of the width of the channel, while the "hook" occupies the center third. Water velocity is decreased in the near-bank region and the center third of the channel. Backwater is created only in the near-bank region. The small vane angle gently redirects water velocity from the near-bank region, reducing active bank erosion. The "hook" portion of the vane produces a long, deep, wide pool, providing energy dissipation and holding cover for fish.

A diversion will be implemented to resolve severe bank erosion by re-sloping the sloughing bank, establishing perennial vegetation, and diverting the water to prevent the streambank from saturating and eroding.

Restoration Plan Components

- Current conditions
  - The streambank at the proposed Okabena Creek site is eroding a rate of five feet per year accounting for large amounts of sediment and phosphorous polluting the stream each year. The current riparian area offers no terrestrial or aquatic habitat.
- Target state
  - This stream stabilization project is aiming to restore the stream riparian community by eliminating erosion, improving water quality, providing deep water aquatic habitat for fish, and providing a natural vegetated riparian zone to be utilized by aquatic and terrestrial species.
- Proposed restoration or enhancement methodology
  - This project will be using engineering methodology utilizing sound stream geomorphology and biological restoration components as supplied by the DNR Aquatic Habitat Specialist. These practices have proven successful throughout other parts of the state.
- Timetable
  - July 1, 2013 to August 31, 2013
- Long-term maintenance and management needs
  - Following installation of the J-Hook weirs there will be little to no maintenance needed. Possible needs may consist of re-seeding if initial seeding does not become established due to weather conditions. Additional management will be needed for weed control across the project area.
- Costs associated with long-term maintenance and management and how they will be financed
  - Cooperators will be responsible for any costs following the completion of the approved project.
- Initial restoration evaluation will be provided at completion of the appropriation as part of the final report
  - August 15, 2016
- Second restoration evaluation will be completed three years after the completion of the expenditure
  - August 15, 2019
- Describe how consideration will be given to contracting with Conservation Corps Minnesota

- Minnesota Conservation Corp will be contacted for all project items that fall within their scope of work.
- See map on page 12

2. Graham Lakes Bioretention Basin

Project Description

The HLWD will work with SWPTSA, contractor, or MCC, and cooperator to install one bioretention basin to treat overland runoff. This 1.4 acres basin, in Section 17, Graham Lakes Township, Nobles County, will allow for 5.7 acre-feet of potential storage and slowing runoff before entering ***West Graham Lake (protected waters number 53-21)***, a public water body integral for boating and fishing within the Heron Lake watershed. Projects will be designed to NRCS specifications.

Bioretention basins are landscaped depressions or shallow basins used to slow and treat on-site stormwater runoff. Stormwater is directed to the basin and then percolates through the system where it is treated by a number of physical, chemical and biological processes. The slowed, cleaned water is allowed to infiltrate native soils or is directed to nearby public waters. Similar projects within the HLWD have been shown to reduce the amount of sediment entering our public waters by 87 percent.

Restoration Plan Components

- Current conditions
  - The current area is overwhelmed by annual gully erosion and flooding that contributes several tons of sediment and several hundred pounds of phosphorus each year. This sediment and its accompanying pollutants are a large source of water quality degradation to West Graham Lake. This project will improve wildlife habitat for terrestrial and aquatic species along with benefiting all of the biota known in West Graham Lake by improving the water quality entering the public lake.
- Target state
  - The project intends to rebuild the wildlife component through the use of restoring a failed aquatic structure to provide surface water, flood storage, and an upland native buffer. The ability to capture storm water and sediments will provide a stable and healthy downstream environment.
- Proposed restoration or enhancement methodology
  - This project will incorporate all known ecological and hydrological components as described by SWPTSA Engineers.
- Timetable
  - July 1, 2013 to June 15, 2016
- Long-term maintenance and management needs
  - This retention basin will fill with sediment over time, gradually reducing its sediment and flood mitigation potential. Cooperator will be responsible for this maintenance. Following reseeding of disturbed areas, weed control will be required annually.
- Costs associated with long-term maintenance and management and how they will be financed
  - Cooperators will be responsible for any costs following the completion of the approved project.
- Initial restoration evaluation will be provided at completion of the appropriation as part of the final report
  - August 15, 2016
- Second restoration evaluation will be completed three years after the completion of the expenditure
  - August 15, 2019
- Describe how consideration will be given to contracting with Minnesota Conservation Corps
  - Minnesota Conservation Corps will be contacted for all project items that fall within their scope of work.
- Map
  - See map on page 12

3. Water and Sediment Control Basin

Project Description

The HLWD will work with NRCS, contractors, and cooperators to design and install one water and sediment control basin project. This project will be located in Section 17 of Graham Lakes Township trap overland runoff and reduce 2,400 feet of gully erosion by controlling flow and reducing water pollution entering ***Jack Creek, a public water defined as a natural and altered watercourse with a total drainage area greater than two square miles in area.*** Projects will be designed to NRCS specifications.

A **water and sediment control basin** is a small earthen ridge-and-channel or embankment built across (perpendicular to) a small watercourse or area of concentrated flow within a field. They are commonly built in a parallel series with the first ridge crossing the top of the watercourse and the last ridge crossing the bottom, or nearly so. They are designed to trap agricultural runoff water and sediment as it flows down the watercourse; this keeps the watercourse from becoming a field gully and reduces the amount of runoff and sediment leaving the field.

Restoration Plan Components

- Current conditions
  - This project will provide gully stabilization to an agricultural ravine that is a major source of sediment and nutrient loading to a DNR Wildlife Management Area (WMA). Upland runoff is causing a degraded wetland environment.
- Target state
  - This project aims to restore the functionality of the WMA wetland community by reducing sediment and nutrient inputs from upland runoff.
- Proposed restoration or enhancement methodology
  - The project will be designed according to the NRCS water and sediment control basin specifications.
- Timetable
  - July 1, 2013 to June 15, 2016
- Long-term maintenance and management needs
  - This practice is designed to capture sediment before entering public waters. Following large storm events they may need a simple cleanout of the deposited sediment.
- Costs associated with long-term maintenance and management and how they will be financed
  - Cooperators will be responsible for any costs following the completion of the approved project.
- Initial restoration evaluation will be provided at completion of the appropriation as part of the final report
  - August 15, 2016
- Second restoration evaluation will be completed three years after the completion of the expenditure
  - August 15, 2019
- Describe how consideration will be given to contracting with Conservation Corps Minnesota
  - Minnesota Conservation Corp will be contacted for all project items that fall within their scope of work.
- Map
  - See map on page 12

4. Fulda Lakes Biodetention Basins

Project Description

The HLWD will work with SWPTSA, contractor, or MCC, and cooperators to design and install two biodetention basins in Section 35, Bondin Township, Murray County to provide treatment and flood storage by capturing 95 acres of overland runoff before entering First and Second Fulda Lakes (protected waters number 51-21 and 51-20). These basins are located within the shoreline area of ***First Fulda Lake (protected waters number 51-21)***. Projects will be designed to NRCS specifications.

A bioretention basin is installed to reduce gully erosion in a natural watercourse, provide temporary storage of storm water to trap sediment and pollutions, and reduce the negative impacts from flooding. The

detention basin has a rock inlet level with the bottom of the basin so that all of the water eventually drains out and it remains dry between storms. The use of a rock inlet will provide further treatment of stormwater maximizing the water quality benefits of the project.

Restoration Plan Components

- Current conditions
  - Currently two 36 inch open intakes are allowing large amounts of upland runoff to directly outlet into Fulda Lakes. The large influx of sediment and nutrients is affecting the aquatic fish and vegetation through increased algae blooms and turbid conditions.
- Target state
  - By limiting sediment and nutrient discharge the project will be assisting with the restoration of the aquatic community of Fulda Lakes. Both aquatic wildlife and vegetation will benefit from improved water clarity and quality.
- Proposed restoration or enhancement methodology
  - This project will incorporate all know ecological and hydrological components as outlined by SWPTSA Engineers.
- Timetable
  - July 1, 2013 to November 30, 2013
- Long-term maintenance and management needs
  - Following installation there will be the need to keep the outlet structure free of dirt and debris.
- Costs associated with long-term maintenance and management and how they will be financed
  - All costs following completion of the project will be financed by Bondin Township.
- Initial restoration evaluation will be provided at completion of the appropriation as part of the final report
  - August 15, 2016
- Second restoration evaluation will be completed three years after the completion of the expenditure
  - August 15, 2019
- Describe how consideration will be given to contracting with Conservation Corps Minnesota
  - Minnesota Conservation Corp will be contacted for all project items that fall within their scope of work.
- Map
  - See map on page 12

5. Water and Sediment Control Basins

Project Description

The HLWD will work with NRCS, contractors, or MCC, and cooperators to design and install two water and sediment control basin projects in Section 25 of Fenton Township to trap overland runoff and reduce 2,200 feet of gully erosion by controlling flow and releasing water slowly reduce water pollution to the drainage area entering ***Jack Creek, a public water defined as a natural and altered watercourse with a total drainage area greater than two square miles in area***. Projects will be designed to NRCS specifications.

A **water and sediment control basin** is a small earthen ridge-and-channel or embankment built across (perpendicular to) a small watercourse or area of concentrated flow within a field. They are commonly built in a parallel series with the first ridge crossing the top of the watercourse and the last ridge crossing the bottom, or nearly so. They are designed to trap agricultural runoff water and sediment as it flows down the watercourse; this keeps the watercourse from becoming a field gully and reduces the amount of runoff and sediment leaving the field.

Restoration Plan Components

- Current conditions
  - This project will provide gully stabilization to an agricultural ravine that is a major source of sediment and nutrient loading to West Graham Lake. Extensive upland runoff is affecting water quality and clarity and contributing to a decreased aquatic environment in the public lake.

- Target state
  - This project aims to restore the functionality of the Lake community by reducing sediment and nutrient inputs from upland runoff. Improving water clarity will benefit the aquatic health of the public lake.
- Proposed restoration or enhancement methodology
  - The project will be designed according to the NRCS water and sediment control basin specifications.
- Timetable
  - July 1, 2013 to November 30, 2015
- Long-term maintenance and management needs
  - This practice is designed to capture sediment before entering public waters. Following large storm events they may need a simple cleanout of the deposited sediment.
- Costs associated with long-term maintenance and management and how they will be financed
  - Cooperators will be responsible for any costs following the completion of the approved project.
- Initial restoration evaluation will be provided at completion of the appropriation as part of the final report
  - August 15, 2016
- Second restoration evaluation will be completed three years after the completion of the expenditure
  - August 15, 2019
- Describe how consideration will be given to contracting with Conservation Corps Minnesota
  - Minnesota Conservation Corp will be contacted for all project items that fall within their scope of work.
- Map
  - See map on page 12

Attachment 2. Acquisition/Restoration List

Environment and Natural Resources Trust Fund

M.L. 2013 Acquisition/Restoration List

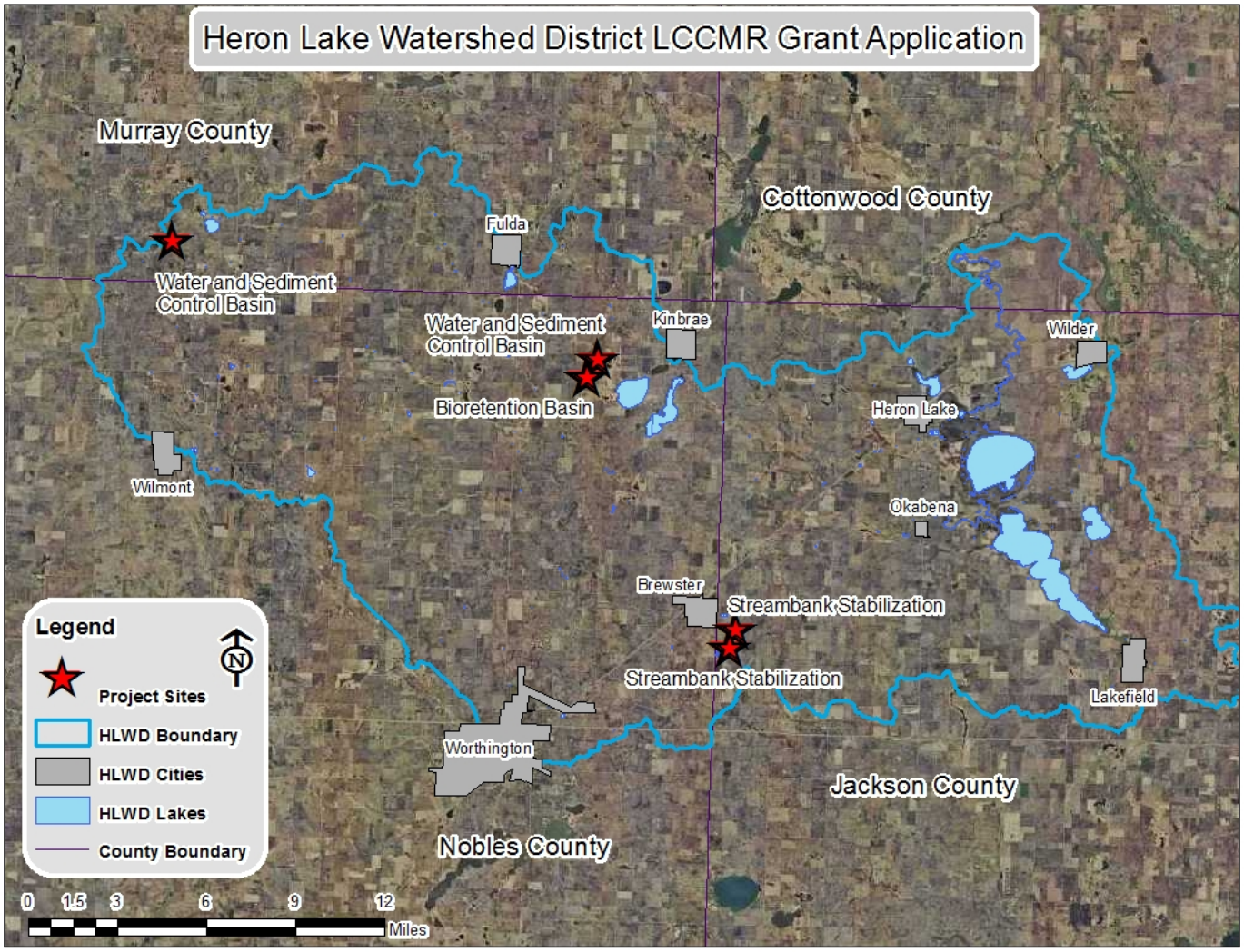
Project Title: Heron Lake Sediment and Phosphorus Reduction Implementation Projects

Project Manager Name: Jan Voit, District Administrator

M.L. 2013 ENRTF Appropriation: $122,000

#	Acquisition or Restoration Parcel Name	Geographic Coordinates		Estimated Cost	Estimated Annual PILT Liabilities	County	Ecological Significance	Activity Description	# of Acres	# of Shoreline Miles	Type of Landowner	Proposed Fee Title or Easement Holder (if applicable)	Status
		Latitude	Longitude										
1	Okabena Creek Streambank Stabilization Project	43° 41' 2.794" N	95° 26' 40.281" W	$ 16,118	n/a	Jackson	highly eroded stream banks	site preparation, project construction	0.5	0.13	private individual/ in public waters	n/a	completed
2	Graham Lakes Bioretention Basin	43° 48' 23.943" N	95° 32' 29.319" W	$ 38,975	n/a	Nobles	flood storage and wildlife habitat	site preparation project construction	184	0.15	private individual/ in public waters	n/a	completed
3	Water and Sediment Control Basin	43° 47' 34.7964" N	95° 46' 37.4916" W	$ 8,890	n/a	Nobles	gully erosion in agricultural field	site preparation project construction	10	n/a	private individual/ outlets directly to public waters	n/a	completed
4	Fulda Lakes Biodetention Basins	43° 51' 23.287" N	95° 36' 10.061" W	$ 14,860	n/a	Murray	gully erosion in natural watercourse	site preparation, project construction	95	0.17	private individual/ in public waters	n/a	completed
5	Water and Sediment Control Basin	43° 52' 7.752" N	95° 49' 45.419" W	$ 14,157	n/a	Murray	gully erosion in agricultural field	site preparation, project construction	10	n/a	private individual/ outlets directly to public waters	n/a	completed

Attachment 3. Map



Attachment A: Budget Detail for M.L. 2013 Environment and Natural Resources Trust Fund Projects

Project Title: Heron Lake Sediment and Phosphorus Reduction Implementation Projects
Legal Citation: M.L. 2013, Chp. 52, Sec. 2, Subd. 05c
Project Manager: Jan Voit, District Administrator
M.L. 2013 ENRTF Appropriation: $122,000
Project Length and Completion Date: June 30, 2016
Date of Update: 06/30/2016

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	Activity 1 Budget	Amount Spent	Balance	Activity 2 Budget	Amount Spent	Balance	Activity 3 Budget	Amount Spent	Balance	TOTAL BUDGET	TOTAL BALANCE
BUDGET ITEM	***Project Implementation***			***Monitoring***			***Public Education***				
Professional/Technical/Service Contracts											
Southwest Prairie Technical Service Agency engineering and technical assistance	9,000	5,387.50	3,612.50							9,000	3,612.50
Contractor (yet to be determined) materials, stabilization, and earthwork	84,000	82,871.31	1,128.69							84,000	1,128.69
Subtotal	93,000	88,258.81	4,741.19							93,000	4,741.19
Printing											
Newsletter (3,500 * $0.60/newsletter)							2,100	1,719	381	2,100	380.80
Brochures (900)							900	54	846	900	846.03
Subtotal							3,000	1,773	1,227	3,000	1,226.83
Other											
Laboratory Analysis (200 samples * $130/sample)				26,000	26,000.00	0				26,000	0.00
Subtotal				26,000	26,000	0					
COLUMN TOTAL	**$93,000**	**$88,258.81**	**$4,741.19**	**$26,000**	**$26,000**	**$0**	**$3,000**	**$1,773**	**$1,227**	**$122,000**	**5,968.02**