

Environment and Natural Resources Trust Fund
2014 Request for Proposals (RFP)

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Project Title:

Demonstrating Farmer Led Conservation in Elm Creek Watershed

Category: B. Water Resources

Total Project Budget: \$ 460,360

Proposed Project Time Period for the Funding Requested: 3 Years, July 2014 - June 2017

Other Non-State Funds: \$ 868,000

Summary:

Reduction of water quality and quantity impacts from agricultural systems using an innovative treatment train approach that treats water traveling through the drainage system starting at field to shore.

Name: Linda Meschke

Sponsoring Organization: Rural Advantage

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Fairmont MN 56031

Telephone Number: (507) 238-5449

Email: linda@ruraladvantage.org

Web Address: www.ruraladvantage.org

Location

Region: Southwest, Southeast

County Name: Faribault, Jackson, Martin

City / Township:

MP: 0613-2-107-proposa

Budget: 0613-2-107-bud

Qual: 0613-2-107-qualifi

Map: 0613-2-107-map-M

Resolution: 0613-2-10

List:

_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge
Base			
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity Readiness	_____ Leverage	_____ Employment	_____ TOTAL



Environment and Natural Resources Trust Fund (ENRTF)

2014 Main Proposal

Project Title: *Demonstrating Farmer Led Conservation in Elm Creek Watershed*

PROJECT TITLE: Demonstrating Farmer Led Conservation in Elm Creek Watershed

I. PROJECT STATEMENT

The goal of this project is to demonstrate innovative conservation approaches, focused toward linking upland practices with farm tile outlets to increase practice adoption, deliver environmental soundness and transfer knowledge on effective techniques resulting in improved nutrient management, post field treatment, reduced in-stream nutrient loads, and enhance wildlife and other ecosystem services while maintaining agricultural productivity. The impact of this project will reduce water *quality* and *quantity* impacts from agricultural production systems that are intensely farmed [corn/soybeans] and contain extensive drainage systems. The primary focus will be on redesign of tile outlets using an innovative *treatment train approach* that addresses water traveling through drainage systems. A treatment train is simply a series of upland, riparian and in-stream practices that work together to cumulatively leverage pollution reductions from agricultural drainage systems. Current tile outlet discharge to a stream bypasses standard buffers or filter strip BMP’s, thus failing to utilize the best available science.

This project will develop and demonstrate approaches to increase adoption of emerging management and pollutant load reduction practices associated with agricultural tile drainage *systems* and specifically tile outlets within the Elm Creek Watershed in south central Minnesota. Rural Advantage staff and University of Minnesota faculty and students in cooperation with SWCD and NRCS staff have been working with landowners in the watershed on a variety of research, education and conservation practice implementation activities over the past decade or so resulting in a strong trust relationship developed between partners. This proposal builds from previous efforts and was developed from observations and discussion with landowners and expressions of desire for conservation practices they have interest in adopting. In 2012 & 2013 two sub watersheds in the Elm Creek Watershed were selected for the NRCS National Water Quality Initiative project. Elm Creek has been selected as a pilot for the new MN Agricultural Water Quality Certification Program. These programs enhance our opportunities for success. A “treatment train” approach considers the water movement through the drainage system starting with upland treatment of the cropland where rainfall occurs, treatment at or near the tile outlet, and in-stream treatment just below the outlet. Because these practices would not be intrusive, but would complement and are expected to increase productivity in current agricultural production systems, we expect increased adoption.

II. DESCRIPTION OF PROJECT ACTIVITIES

Activity 1: Develop & Demonstrate Tile Outlet Treatment Trains

Budget: \$ 311,515

Demonstrate the treatment train practices at three sites on private lands representing different drainage areas in the Elm Creek Watershed. Each site will be designed for its specific characteristics and include an 1] Upland Area – demonstrating soil biological health building practices, cover crops and/or extended crop rotation; 2] Tile Outlet [at or near] – demonstrating bioreactors, saturated buffers, constructed wetland and/or enhanced chemical [biochar, slag iron] treatment; and 3] In-stream – demonstrating placement of wood into the bed & bank for microbial and macroinvertebrate habitat, induced hyporheic flow with constructed riffles and/or addition of buried biochar and slag iron in constructed glides. Practices will be cost shared with the landowner at a 75% rate to encourage adoption of innovative practices. Site design will be led by university researchers and their students.

Outcome	Completion Date
1. Develop and install Tile Outlet Treatment Train Site #1	June 1, 2015
2. Develop and install Tile Outlet Treatment Train Site #2	Dec. 31, 2015
3. Develop and install Tile Outlet Treatment Train Site #3	Dec. 31, 2016



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Activity 2: *Monitoring Tile Outlet Treatment Trains*

Budget: \$ 74,635

Along the treatment train, monitoring access points will be established to track nutrient concentration and loads. The use of isotopes and continuous data collection probes will be employed to define temporal and spatial change. Monitoring strategy will be developed by University of MN researchers with sample collection and maintenance assisted by University student researchers and Rural Advantage’s technician.

Outcome	Completion Date
<i>1. Design & Implement Monitoring Plan for Tile Outlet Treatment Train Site #1</i>	<i>June 1, 2015</i>
<i>2. Design & Implement Monitoring Plan for Tile Outlet Treatment Train Site #2</i>	<i>Dec. 31, 2015</i>
<i>3. Design & Implement Monitoring Plan for Tile Outlet Treatment Train Site #3</i>	<i>Dec. 31, 2016</i>
<i>4. Following site installation or early spring, begin monitoring each site</i>	<i>Dec. 31, 2016</i>
<i>5. Analysis of monitoring results</i>	<i>June 30, 2017</i>

Activity 3: *Information Dissemination for Tile Outlet Treatment Trains*

Budget: \$ 74,210

Development of a Tile Outlet Treatment Train guidance document for landowners, annual field days at individual sites, one winter seminar presenting leading research information on innovative practices and methods and one watershed tour in the third year. Outreach events would be geared toward agricultural landowners and their conservation advisors. On-farm consulting with farmers to discuss progressive treatment opportunities for their farm. Development and dissemination of marketing materials for farmers regarding tile outlet treatment train practices.

Outcome	Completion Date
<i>1. On farm consulting and marketing to identify, develop and implement sites with farmers</i>	<i>June 30, 2017</i>
<i>2. Annual Field Day at each site [1 in Y1; 2 in Y2; 3 in Y3 = 6 total]</i>	<i>June 30, 2017</i>
<i>3. Winter Seminar</i>	<i>March 2016</i>
<i>4. Tile Outlet Treatment Train Guidance document</i>	<i>Dec. 31, 2015</i>
<i>5. Watershed Tour</i>	<i>May 31, 2017</i>

III. PROJECT STRATEGY

A. Project Team/Partners

Linda Meschke, President, Rural Advantage

Dean Current, Director – Center for Natural Resources and Agricultural Management, University of Minnesota

Joe Magner, Research Professor, Bioproducts and Biosystems Engineering, University of Minnesota

B. Timeline Requirements

Three years: July 1, 2014 through June 30, 2017, to encompass two full growing seasons for project activities.

C. Long-Term Strategy and Future Funding Needs

This proposal builds on research, education and implementation activities during the past decade that local resource managers and University of MN researchers have been working on in collaboration with land owners/operators in Elm Creek Watershed. The goal is to improve the water quality in Elm Creek so it can be delisted from the 303d list when it is scheduled to be measured by the PCA in 2017. In anticipation of being able to meet delisting criteria, future work would be directed to another watershed.

2014 Detailed Project Budget

Project Title: Demonstrating Farmer Led Conservation in Elm Creek Watershed

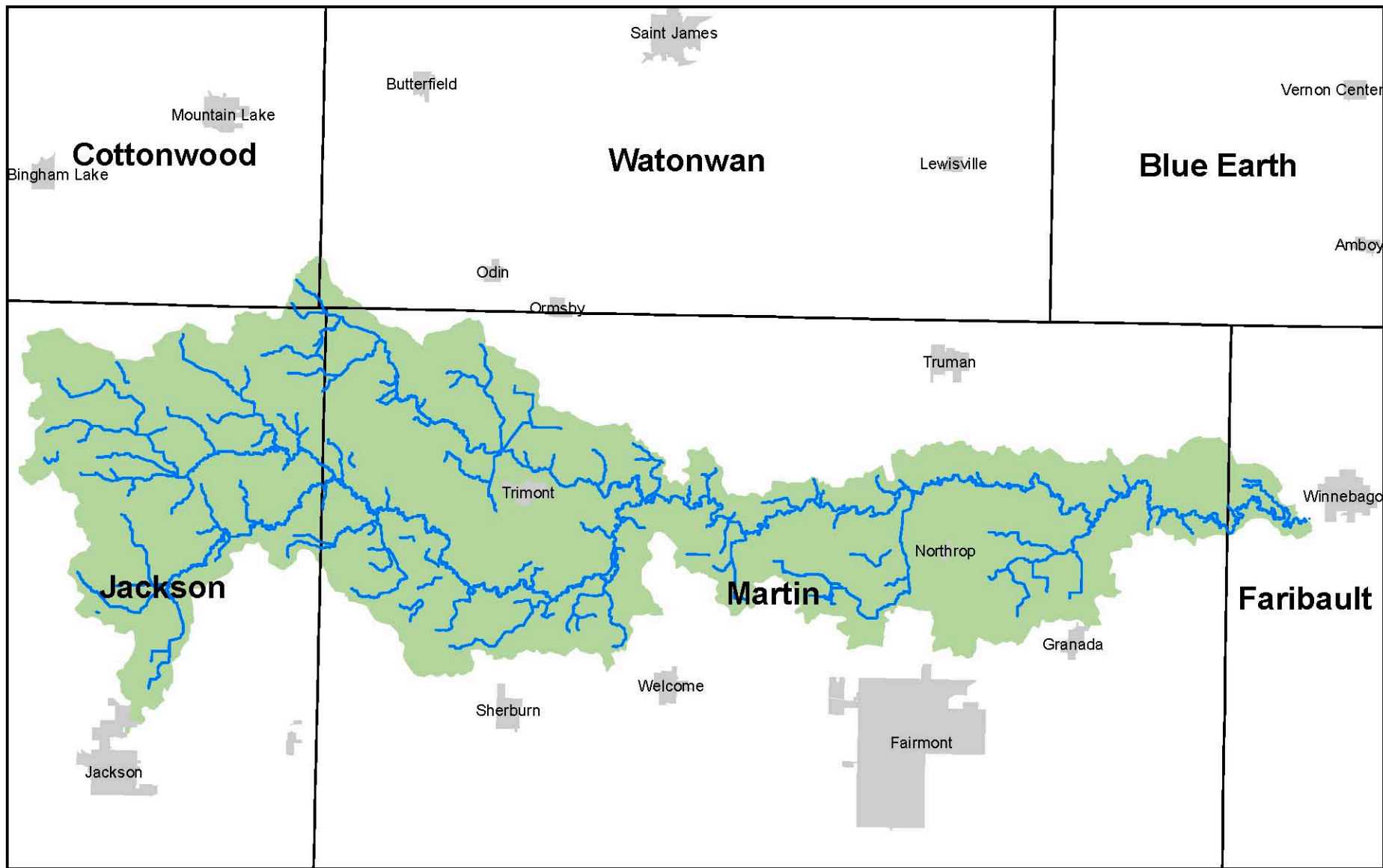
IV. TOTAL ENRTF REQUEST BUDGET Three years

BUDGET ITEM (See "Guidance on Allowable Expenses", p. 13)	AMOUNT
Personnel: Rural Advantage: Meschke- Cordination and Admin - 20% FTE Salary \$40.64/hr, Benefits \$5.13/hr - 3yr. ; Technician - TBD - 60 % FTE Salary \$15.00/hr, Benefits \$1.80/hr - 3 yr	\$ 120,020
Contracts: University of MN - Dr. Joe Magner - Site designs and UMN student leadership, monitoring equipment, supplies and analysis - \$68,875 plus one student researcher @ \$50,000 ; Dr. Dean Current- CINRAM/ UMN- Student leadership on Farmer barriers/adoption of practices \$5,000/yr [\$15,000] plus 1 student @ \$50,000. Assist with outreach, guidance document and demonstrations	\$ 183,875
Landowner Cost Share: Up to 75% cost share for practices installed as part of the Treatment Train \$50,000 each Treatment Train Site x 3 sites	\$ 150,000
Education/ Outreach: Field Days- 6 x \$100.00 = \$600.00; 1 Winter Seminar- room- \$250, speaker mileage- 6 @ \$150 = \$900, 3 ads @ \$100 = \$300, postage - 500 brochures @ \$.45= \$225. Printing 200 Guidance Documents for winter Seminar @ \$4.00 = \$800	\$ 3,075
Travel: Mileage by Rural Advantage within the watershed and planning cordination with the University. 2,000 miles x 3yr @ \$0.565/ mi = \$3,390	\$ 3,390
Additional Budget Items: <i>In this column, list any additional budget items that do not fit above categories. List by item(s) or item type(s) and explain how number was reached. One row per type/category.</i>	-
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =	\$ 460,360

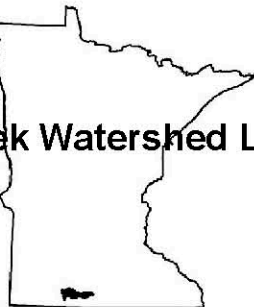
V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
Other Non-State \$ Being Applied to Project During Project Period: USDA National Water Quality Initiative - EQIP funds: about \$300,000 encumbered in 2013; MN Agricultural Water Quality Certification Program/ USDA EQIP funds: about \$500,000 encumbered in 2013; Magner- grant from MN Corn Growers Association for drainage research about \$68,000;	\$ 868,000	<i>Secured</i>
Other State \$ Being Applied to Project During Project Period: MN Ag Water Quality Certification Program about \$500,000; Greater Blue Earth River Basin Alliance- Clean Water Funds for Gully and Ravines about \$50,000.	\$ 550,000	<i>Pending</i>
In-kind Services During Project Period: Each landowner will pay 25% of their project cost	\$ 37,500	<i>Pending</i>
Remaining \$ from Current ENRTF Appropriation (if applicable): No current projects.	\$ -	<i>NA</i>
Funding History: See Other Non-State and State Monies listed above.	\$ -	

Elm Creek Watershed

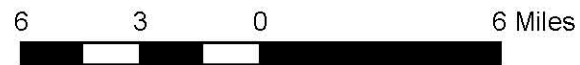
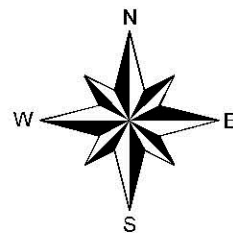


Elm Creek Watershed Location



Legend

- Elm Creek Waters
- County
- Municipalities
- Elm Creek Watershed



1:305,000

Prepared by Martin SWCD
February, 2013

Project Managers Qualifications and Organization Description

Linda Meschke, President, Rural Advantage

Ms. Meschke has over 35 years of experience in working on water resource issues in south central Minnesota. Her work has been focused on the implementation of innovative conservation practices to address agricultural non point source pollution. She currently is working on landscape diversification that includes targeting of perennials or 3rd Crops throughout the intense corn and soybean region of south central Minnesota.

For this proposal her role will be to coordinate the project between various partners, farmers and local resource managers. She will assist with identification of willing landowners and potential sites. Ms. Meschke will also be responsible for project administration and reporting.

Ms. Meschke has extensive experience in working with producers/ landowners; local governments; non profits; University of Minnesota researchers and educators and private industry to bring them together and work toward common goals. In collaboration with multiple partners she has developed and successfully lead over \$10 million dollars in projects in the Greater Blue Earth River watershed area that have resulted in an estimated reduction of at least 9 percent of the pollution loading going to the Minnesota River from the Blue Earth River system.

She is currently an elected SWCD Supervisor for Martin County and was recently awarded the Distinguished Service in Sustainable Agriculture Award from the Minnesota Sustainable Farming Association. She has additional experience working as the Water Planner, Wetland Administrator and Agricultural Inspector for Martin County, Minnesota; farm partner; doing loan servicing for Farmers Home Administration during the farm crisis of the mid 1980's; and as a Vocational Agricultural Instructor and FFA Advisor.

Rural Advantage

Linda Meschke, with other partners, established on November 13, 2003 a 501[c][3] non profit called Rural Advantage under MN Statutes Chapter 317A to provide a vehicle to continue to advance the 3rd crop work in Minnesota and the Midwest. Linda Meschke is President of Rural Advantage. Rural Advantage's mission is to promote the connections between agriculture, the environment and rural communities in order to improve ecological health, economic viability and rural vitality. Objectives include:

- Advance landscape diversification to improve ecological health, rural vitality and farm profitability.
- Cultivate a more sustainable approach to agriculture that is diverse, resilient and responsible; and supports natural and agricultural 'systems' thinking.
- Foster rural economic development that supports rural families and local communities.
- Promote increased stewardship through education, demonstration and implementation.