



**Minnesota Pollution
Control Agency**

520 Lafayette Road North
St. Paul, MN 55155-4194

Clean Water Partnership Project Work Plan

Doc Type: Contract

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Swift #:	
CR #:	

Project Title: GBERBA Conservation Drainage Partnership Program

1. Project Summary:

Organization: Greater Blue Earth River Basin Alliance
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Subcontractor(s)/Partner(s):

Organization: Blue Earth, Brown, Cottonwood, Faribault, Freeborn, Jackson, Le Sueur, Martin, Watonwan, and Waseca Counties
Type of organization: Local Drainage Authorities/Staff and Soil & Water Conservation Districts
Project manager: Kay Gross
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MPCA contact(s):

MPCA project manager: Paul Davis
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Major watershed(s):

Major watershed/HUC Code: Blue Earth 07020009, Le Sueur 07020011, Watonwan 07020010
Latitude/Longitude for project: 43.865239, -95.117127
County: Blue Earth, Brown, Cottonwood, Faribault, Freeborn, Jackson, Le Sueur, Martin, Watonwan, and Waseca

Project start/End dates: June 8, 2015 to June 30, 2018

**Project Funding Type
(check one):**

- CWP Resource Investigation
 CWP Implementation

Grant Amount: \$147,200

**Proposed Cash Match
Funds: \$124,000**

**Proposed In-kind Match
Funds: \$23,600**

**Proposed Loan Funds:
Funds: \$0**

**Total project cost:
\$294,800**

2. Statement of Problems, Opportunities, and Existing Conditions

As of 2010, thirty-nine stream reaches in the Greater Blue Earth River Basin (GBERB) were listed as impaired for turbidity. Located in Southern Minnesota, the GBERB consists of the Blue Earth, Le Sueur, and Watonwan major watersheds. Agricultural row crops dominate the landscape with 85% of the land use in the basin. Not only are the DNR protected waters conveying water but so are an additional 719 miles of public open ditches that extend into headwater areas. Achieving water quality goals in the 39 impaired stream reaches of the GBERB requires protection of ditches in headwater areas.

Agriculture drives the economy of Southern Minnesota and production farming is dependent on adequate drainage. The subsurface and surficial drainage network of the region relies on ditches that conduct water away from cultivated fields. Most of the public drainage systems were established over 100 years ago, and today are being utilized to convey exponentially more water for which they were originally designed. The drainage area of the Blue Earth River has almost doubled through extensive tile drainage of depressional areas that formerly stored surface runoff. The contributing volume of water added to the drainage system has increased bank erosion (both in-ditch and in-river).

When open drainage ditches were created, the spoil from the excavation was often spread next to the ditch in a spoil bank. As ditches are periodically cleaned out, excavated material continues to be piled next to the ditch making the spoil bank higher. In many instances this spoil bank can prevent overland surface stormwater flow in low areas from entering the ditch. In this case, side inlet pipes are dug through the spoil bank to direct water into the open ditch. The past and current design of these structures outlet directly at the field surface conducting tons of soil and field residue annually into the ditch and ultimately the Minnesota River. It is estimated that there are as many as 70,000 side-inlet structures in the state of Minnesota alone.

The purpose of this project is to develop a framework to implement best management practices (BMPs) on ditches in headwater areas utilizing a partnership between drainage staff and GBERBA. By replacing failing side-inlets with an alternative design, we can make strides towards our water quality and water quantity goals. The alternative inlets serve to prevent sediment and phosphorus from washing downstream and the design can also alleviate peak flows by temporarily storing stormwater.

Alternative side-inlets (categorized as grade stabilization structures) are an effective alternative to the side-inlet pipe. Instead of using a horizontal pipe through the spoil bank, alternative side-inlets may utilize a drop structure with a water quality inlet on the surface. The water quality inlet allows water to temporarily pond, decreasing the storm water's sediment carrying capacity and downstream peak flows. Providing this alternative now will impact water quality by preventing sediment from entering the ditch and reducing costly ditch clean-out projects in the future. This will allow the ditch substrate and banks to stabilize, improving vegetative cover and fish habitat and increase available ditch funding for future projects that could improve water quality of the ditch system.

We feel that this partnership has a high potential for success. The Greater Blue Earth River Basin Alliance is a Joint Powers Organization consisting of ten member Counties and SWCDs encompassing the Blue Earth, Le Sueur, and Watonwan River Watersheds. This project will work with member counties and drainage authorities to extend the life of the drainage system, increase water quality, and allow farmers to realize their conservation goals while alleviating the financial burden that can often accompany them. This project will also highlight possibilities for the recently accepted amendment to drainage law stating that before drainage work can be done, the drainage authority must consider alternative measures for soil and water conservation.

3. Goals, Objectives, Tasks, and Subtasks

Goal: Utilize partnerships between GBERBA and Drainage Authorities/Staff to more efficiently deliver conservation practices and leverage local funds in order to decrease sediment delivery to public water resources via county and judicial ditch systems.

Objective 1: Develop strategies between GBERBA and local county drainage authorities/staff to expeditiously implement conservation on county and judicial drainage systems.

Task A: Schedule and attend formal and informal business and informational meetings with GBERBA partners

Subtask 1: Create and maintain an open dialogue between respective parties for a mutual understanding of drainage law, structure of drainage authorities and implementation and delivery of conservation practices at the county level.

Subtask 2: GBERBA staff and drainage staff shall reciprocate attendance at respective party meetings.

Responsible Parties: Local County Drainage Authorities, Local Drainage Staff, GBERBA Coordinators, GBERBA/SWCD Staff, and Drainage Engineers

Task B: Develop program policies to implement the BMPs on local ditch systems.

Subtask 1: Maintain a clear understanding of the needs and requirements of all parties involved to develop a program policy that allows for successful BMP implementation on drainage systems.

Subtask 2: Identify a process for establishing criteria for priority project areas.

Responsible Parties: GBERBA Coordinators, Local Drainage Staff, Local Drainage Authorities, and GBERBA/SWCD Staff

Task C: Develop informational materials outlining the developed program policies to disseminate to local partners.

Responsible Parties: GBERBA Coordinators, GBERBA Technicians, and Local Drainage Staff

Task D: Develop a project contract.

Subtask 1: Outline the process of encumbering funds for projects

Subtask 2: Outline the process of disbursing cost-share funds

Responsible Parties: GBERBA Coordinators, Local Drainage Staff, Local Drainage Authorities

Objective 1 Timeline: August 2015 to June 2018

Objective 1 Cost: Grant: \$1,650.00

In-Kind: \$1,500.00

Total: \$3,150.00

Objective 1 Deliverables: Program policy, informational handouts, partnership agreement document, cost-share contract document

Objective 2: Solicit and acquire projects that fit the policy developed in Objective 1.

Task A: Prioritize projects based on need and water quality benefit

Responsible Parties: Local Drainage Staff, GBERBA/SWCD Staff, Drainage Engineers

Task B: Approve identified priority projects for funding

Subtask 1: Drainage Authority reviews and approves prioritized projects for funding

Subtask 2: GBERBA Technical committee reviews and recommends projects for funding.

Subtask 3: GBERBA Policy board reviews the Technical committee recommendation and approves projects for funding.

Responsible Parties: Local Drainage Staff, Local Drainage Authorities, GBERBA Members/Staff, GBERBA coordinators.

Objective 2 Timeline: March 2016 to December 2017

Objective 2 Cost: Grant: \$9,150.00

In-Kind: \$7,100.00

Total: \$16,250.00

Objective 2 Deliverables: 25-35 prioritized project locations, with pictures, maps, and project estimates.

Objective 3: Design and engineer best management practices

Task A: Adapt existing BMP designs to engineer practices to meet program goals

Subtask 1: Work to develop a “cookie-cutter” design that can be implemented in a wide-variety of areas and situations.

Subtask 2: Take into account landowner needs when designing the placement of the practice.

Responsible Party: Drainage Engineers, Drainage Staff, Technical Service Providers, SWCD Staff

Objective 3 Timeline: April 2016 to December 2017

Objective 3 Cost: Grant: \$21,600.00

In-Kind: \$3,000.00

Total: \$24,600.00

Objective 3 Deliverables: Alternative side-inlet design criteria

Objective 4: Implement conservation drainage BMP installation

Task A: Construct conservation drainage projects according to design specifications

Subtask 1: A certified Technical Service Provider will certify that the completed project was done to approved specifications and submit an as-built as needed.

Responsible Parties: Drainage staff, Local Contractors, Drainage Engineers

Task B: Certification of completed drainage projects to design specifications

Subtask 1: A certified Technical Service Provider will certify that the completed project was done to approved specifications and submit an as-built as needed.

Responsible Parties: Drainage Engineers, Technical Service Providers

Task C: Approve payment for practice based on pre-determined cost-share rate

Subtask 1: Local Drainage Authority reviews and approves payment

Subtask 2: GBERBA Technical committee reviews and recommends payment to GBERBA Policy Board

Subtask 3: GBERBA Policy Board reviews and approves payment

Responsible Parties: Local Drainage Authorities, GBERBA Technical Committee, Policy Board, and Staff

Objective 4 Timeline: May 2016 to April 2018

Objective 4 Cost: Grant: \$84,000.00

Local Cash Match: \$64,000.00

Federal Cash Match: \$60,000.00

In-Kind: \$0.00

Total: \$208,000.00

Objective 4 Deliverables: 25-35 practices installed

Objective 5: Project Management.

Task A: Submit monthly coordinator reports to GBERBA Technical Committee and Policy Board outlining progress on current grant activities

Responsible Parties: GBERBA Technical and Administrative Coordinators

Task B: Submit monthly financial reports to GBERBA Technical Committee and Policy Board outlining progress on current grant activities

Responsible Party: GBERBA Financial Coordinator

Task C: Meet MPCA bi-annual reporting requirements and invoicing

Responsible Party: GBERBA Coordinators

Task D: Report on completed projects in eLINK

Responsible Party: GBERBA Administrative Coordinator

Task E: Submit the final MPCA report

Responsible Party: GBERBA Staff

Objective 5 Timeline: September 2015 to June 2018

Objective 5 Cost: Grant: \$20,800.00

In-Kind: \$2,000.00

Total: \$22,800.00

Objective 5 Deliverables: Written monthly reports, semi-annual reports, and final report.

Objective 6: Outreach and Education

Task A: Disseminate the details of the partnership between GBERBA and drainage staff to surrounding regions and organizations.

Subtask 1: Reach out to neighboring counties/organizations that may be able to utilize the process that was followed for this grant.

Subtask 2: Disseminate any design criteria that were used to develop BMPs.

Subtask 3: Reach out to local landowners, state agencies such as Minnesota Dept. of Agriculture, Minnesota Dept. of Natural Resources, University of Minnesota Extension, private drainage consultants/contractors, and other drainage professionals.

Responsible Parties: GBERBA Coordinators, GBERBA/SWCD Technicians, County Commissioners, Local Drainage Staff, Local Drainage Engineer.

Objective 6 Timeline: September 2015 to April 2018

Objective 6 Cost: Grant: \$10,000.00

In-Kind: \$10,000.00

Total: \$20,000.00

Objective 6 Deliverables: Outreach informational materials, staff availability at outreach events.

4. Measurable Outcomes

An alternate side-inlet can utilize a drop structure with a water quality inlet to improve water quality and quantity. The water quality inlet allows stormwater to temporarily pond, decreasing the water's sediment carrying capacity by as much as 95%. Twenty-seven proposed projects will reduce peak downstream flows and annually prevent 27 tons of soil and sediment and 27 pounds of phosphorus from entering ditches. The trash guard of the water quality inlet also prevents field residue from entering the ditch. Additional water treatment (nitrogen) is likely with the setting of the water quality inlet in the grassed buffer of the drainage ditch. Funds for an additional 13 projects (additional estimated reductions of 13 tons/year of soil & sediment and 13 lbs/year of phosphorus) are also being requested as new critical source areas are identified.

Not only will this project produce immediate improvements in water quality, but it will grow and solidify a partnership between GBERBA and drainage staff in the basin. This partnership will open the door for communication between landowners with drainage issues and technical staff with the know-how to meet their natural resource conservation needs. Replacing failing side inlets with a more conservation-minded design is a fairly new idea. However, the more installations that occur, the more landowners will observe and understand their function and the more that drainage staff will recognize when they should be implemented.

The true success of this project will not be measured by pollutant reductions per se, but by the willingness of drainage authorities to adopt the process of repairing ditch structures with more conservation-minded practices. The project will be seen as a success if drainage authorities and landowners understand and approve of innovative conservation practices on open ditches. Upon success of this realization, the developed partnership of GBERBA and drainage staff will expand to work on more diverse conservation projects on agricultural drainage and provide a framework for other regions in the Minnesota River Basin to initiate their own efforts.

5. Gantt charts (See Attached)

6. Project Budget (See attached)

Greater Blue Earth River Basin Alliance

