

*Iron County LWCD
Lake Protection Grant
Grant Reimbursement Report
LPT70721
December 10, 2021*

Grant Overview

Iron County Land & Water Conservation staff assist landowners each year with conservation practices to protect water quality and soil health. Through this program they provide technical design, apply for permitting, oversee implementation, and provide financial assistance. Over the last few years, numerous landowners on Trude Lake contacted Iron Co LWCD for assistance on their property. One of these properties (Florence) had severe slumping on their steep slope, the slope was naturally vegetated, yet failing. Due to the severity of this failure and the degree of protection needed for this project this grant was applied for to provide additional financial support to the landowner. At the same time two other landowners had contacted the LWCD for assistance on their shoreline properties as well. At the time of the pre-application, there were three landowners included in the grant application, however, by the time the full application was submitted one of the landowners decided to withdraw from this grant funding. The full application moved forward with two landowners included for funding through this grant to stabilize their eroding shorelines and one who would work through the LWCD cost-share program. In the winter of 2020, the Carsten family contacted the LWCD and withdrew from their restoration project due to personal reasons.

Goals, Objectives and Activities Summary.

Total Deliverables

GOAL 2: Protect and enhance surface and groundwater quality.

OBJECTIVE C: Protect water quality by reducing soil erosion & stormwater runoff, including reduction of impervious surfaces.

******This goal and objective are from Iron County's Land & Water Management (LWRM) Plan 2021-2030 recently approved by the state and adopted by the county board.***

ACTIVITY 1: Provide technical assistance and cost-share to landowners for erosion concerns or stormwater runoff issues.

******Taken directly from Iron County's LWRM Plan.***

Iron Co LWCD had been working with these landowners to address their erosion concerns for over a year. Iron County LWCD works with Department of Agriculture, Trade and Consumer Protection (DATCP) who provide the county with engineering expertise. Together the staff developed site plans using NRCS standards. These plans were presented to each landowner and approved. On November 10, 2020, a pre-bid meeting was conducted at each project site. In northern Wisconsin, there are a limited number of contractors that work with stabilization practices. Multiple neighboring counties find the same issue, lack of contractors who are willing to do the hand labor required for these practices. Three area contractors who have the required expertise were

invited to this meeting. Two of these contractors came to the pre-bid meeting, both contractors submitted a bid on the Burns site, but one of the contractors would not bid on the Florence site, due to the geo-bag walls and the degree of hand labor. Once the bids were submitted to the landowners, both landowners chose to work with the same contractor who bid on both jobs and was the lower bidder on the Burns project.

Iron County LWCD's cost share practices require a cost-share contract to be signed and notarized by all parties. This contract secures funding to the project for up to 50% of the total project cost, requires the landowner to maintain the project for period of 10 years or pay back the amount of state money received. In addition to this contract, per the grant agreement, both landowners also signed and recorded a conservation covenant and site plan on their deed requiring the practices be maintained in perpetuity and would remain on the deed as the property changes hands. This will ensure the shoreline will be protected for future generations. Both parties registered the conservation covenant with the Iron County Register of Deeds on August 12, 2021.

Iron County LWCD applied for the required DNR and Iron County Zoning permits, which were received. The contractor and LWCD staff communicated on construction start date which was to be in August when lower water levels would assist in the accessibility for site work. Construction was delayed due to contractor's availability until September. By this time the water levels were very low due to drought conditions of the summer along with typical lower water levels. There was easy access along the shoreline for workers to install riprap and geo-bags.

LWCD and DATCP staff went out to both sites to mark the start and end of the riprap at both sites as well as the geo-bag protection for the Florence site ahead of the scheduled start date for the contractor. LWCD staff was in constant contact with the contractor and the landowners throughout the process. During construction, LWCD and DATCP engineer would conduct site visits, both scheduled and random to check in on the progress and to make sure the site plan was being followed including NRCS standards and all permit requirements. Once the projects were completed and the contractor was paid in full, LWCD/DATCP staff conducted an as-built survey to make sure that the final project had met the site plan. As-built surveys include surveying the top of rock, toe of rock and calculating the slope of the riprap protection. At Burns, the distance between the planted bags was measured to make sure it met the plan as well as the number of bags and plants. At the Florence property, the riprap was surveyed, the bag walls were inspected and counted to ensure all the bags were accounted for and the plantings were inspected. Once the surveys are completed, the DATCP engineer signed off, approving the construction, from there the LWCD processes the reimbursement request to DATCP. Then a voucher was submitted to the county for the landowner's reimbursement from the cost-share program as well as another for the DNR grant portion of the project. The landowner was sent both checks along with a letter explaining the breakdown of the project expenses and reimbursement amounts.

In the following pages, each project will have a summary, cost breakdown and photos showing before and after construction.

BURNS PROJECT



Toe erosion causing loss of trees.



Riprap installed to protect the shoreline.

Project Summary - 140 linear feet of rock riprap was installed at the toe of the bank with a geo-bag installed within the riprap which was planted with a native plant. The planted riprap will provide further stabilization as the roots will make their way to the bank. It will also provide added benefit to wildlife and provide more natural aesthetics. In addition to the riprap, areas of the bank that had sparse vegetation were addressed with supplemental plantings to restore the shoreline. Any area of disturbance from construction was seeded, had erosion mat installed and was planted with native plants to revegetate and stabilize. In total on this property, 154 cubic yards of rock was used to protect the shoreline, every 6 feet there was a geo-bag installed within the riprap and planted with a forb or shrub for a total of 24 planted bags. In addition, there was 10 shrubs and 50 grass plugs planted in areas in need of additional vegetation.

Total Project Cost -	\$21,577.18
County Cost-Share 50% -	<u>\$10,788.50</u>
Balance -	\$10,788.68
DNR Grant 25% -	<u>\$5,372.00</u>
Landowner's Share -	\$5,416.68



Shrubs planted in geo-bags within the riprap.

FLORENCE PROJECT



Mature trees lost from failing bank.



Bank failure at the top of the vegetated slope.

Project Summary - The Florence site was the more extensive project. There was toe erosion on this site along with severe bank failure in several areas on the steep slope where the bank would slough. The area of greatest concern was 65 linear feet of shoreline. This plan consisted of riprap along the toe of the slope with vegetated geo-bag walls being constructed from the top of the rock to the area of the slope that would be stable. Additional vegetated geo-bag walls installed towards the top of the slope to protect the failure point pictured above on the right. Geo-bags were chosen over geo-grids to protect as much existing vegetation on this slope as possible. At the time of the grant application geogrids were planned, however, at the pre-bid meeting geo-bags were discussed and agreed up by all parties. This decision was made as it was easier to save some of the existing vegetation and was the preferred method of labor. The walls were built to an elevation where the natural slope behind is a stable 3:1 slope so vegetation can be reestablished if needed, or natural existing vegetation is be protected. As each bag is placed, a spike is placed at each end of the bag, along with a handful of compost, and a native plant.

Construction took place in September, wrapping up in early October with low water levels to access the toe of the bottom of the bank and work upland on the vegetated walls. In total, this project required 120 cubic yards of rock, 1,150 filled geo-bags, 1,534 forbs for the geo-bags, 766 shrubs for the geo-bags, 400 forbs for additional planting and 24 shrubs for additional planting areas. Once the riprap and the walls were constructed a watering system was installed and finally a deer proof fence was put up to protect the plants from any deer browse.

Total Project Cost -	\$53,766.15
County Cost-Share 50% -	\$26,883.00
Balance -	\$26,883.16
DNR Grant 25% -	\$13,252.25
Landowner's Share -	\$13,630.90



Riprap protecting the toe of the bank and creating a stable foundation to build the vegetated geo-bag walls on. The riprap was installed to incorporate the existing trees that had fallen but were still rooted in the bank.



Vegetated walls above the riprap incorporating the existing vegetation, each bag has two plants installed between each row. The black plastic pipe along the rock is the irrigation system and deer fencing was installed to protect the plants.

Grant Summary - Each landowner was pleased with the outcome of their projects. This grant was a benefit to protecting the water quality and fish habitat on Trude Lake. Due to the cost of these projects, it would have been difficult to move forward with such an expensive project. In the past with high dollar projects, the landowners are unable to afford their portion of the project. The extra funding made these expensive projects more attainable for the landowners.

These projects have received the curiosity of neighboring landowners, some of whom have contacted the LWCD for information on how they can better protect their shoreline property. To further educate folks on these shoreline practices LWCD staff wrote an article for the Turtle Flambeau Flowage newsletter educating readers on how certain practices are selected for a site. The article also showcased multiple projects that have been done through the LWCD, including these two projects. These projects will also be included in a presentation at a workshop on shoreland stabilization on December 15th, 2021. This workshop sponsored by the WI Land+Water Conservation Association will be showcasing the *Shoreline Stabilization A Guide to Homeowners and Conservationists on Inland Lakes and Flowages*. Both projects will be used as examples of stabilization techniques outlined in the new booklet. The two outreach opportunities were done since COVID-19 and the late construction timeline prevented the planned Land Conservation Committee (LCC) Tour. In the future, the LWCD would like to tour these sites with the LCC to educate them on these large projects they department implements. In the meantime, these projects will be included in the LWCD's annual report which goes to each LCC member, the entire county board and posted on the LWCD's website.