A GREEN INFRASTRUCTURE CASE STUDY

On-farm green infrastructure to reduce sediment accumulation in Municipal Drain

Kelli Smith
Watershed Biologist, St. Clair Conservation

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Ontario

Case Study: On-farm Green Infrastructure to reduce sediment accumulation in Municipal Drain

Location: Township of Enniskillen, ON (near Tile Yard Rd and Oil Springs Line)

Drain: McFadyen Drain

Best Management Practice: One sediment trap complete with rock check dam, 8 rock chutes and erosion control matting.

Issue: Request for repair on the McFadyen drain was made by affected landowners as the velocity of water moving downstream of Tile Yard Rd was causing erosion and washouts of the natural meanders in the channel and exposing subsurface tile drains.

Objectives:

Erosion protection in the form of rip rap and erosion control matting was recommended to support the meanders of the drain. Additionally a sediment trap complete with rock check dam was designed and installed to slow the water from upstream of Tile Yard Rd as added protection for the meanders. Rock chutes along the low surface runs were installed to slow the water moving overland and allow for sediment to settle out before entering the drain.

Erosion Control Project Outline:

Sediment trap with rock check dam: rock check dam designed as per specifications in the Department of Fisheries and Oceans Guidance for Maintaining and Repairing Municipal Drains in Ontario, the rock check dam is designed to slow water down as it moves downstream in order to protect the natural meanders. The sediment trap is designed to filter out and hold the fine sediments as it moves through the check dam. These two features work together to reduce erosion and sediment movement downstream.

Rock chutes: Build rock chutes at 8 locations along the drain within the side slope. The rock chutes will provide additional support to the drain banks by slowing overland flow entering the drain through low runs and reducing the sediment entering the system.

Contractor: Bruce Poland and Sons Ltd.

Cost:

The costs related to the McFadyen Drain – Enniskillen are as follows:

Install Sediment Trap	$ 1245.00
Supply and install Erosion Control Matting	$ 2350.00
Supply and Install Stone Erosion Protection	$ 5793.70

Supply and install sediment control $ 250.00

Total $ 9638.00

Grants available to landowner: $2,550 provided through OMAFRA COA Green Infrastructure funding.

Drainage Superintendent: David Moores, Township of Enniskillen

Mr. Moores had the following to say about this project:

"Implementing a sediment trap with a rock check dam in this situation has completely stopped the erosion downstream through the farmer's property and has allowed the natural meanders to remain in place. With all the work being completed on this drain including multiple rock chutes and erosion control matting with seed, I did not want the money to be wasted. Therefore, I added this feature to slow the speed of water down and created a maintenance location for the upstream sediment.

As a Drainage Superintendent I stand behind green infrastructure in municipal drains and always added different features to my projects such as erosion control matting, rock chutes, and erosion control structures. My main goal is to provide better drainage with less erosion for the farmers of Lambton County".

Photos: