

Bank Erosion

Cropland drainage is essential for farming in Ontario. Natural streams and constructed drainage channels act as outlets for surface runoff and for subsurface drainage systems. Ensuring their continued and efficient functioning will serve the farm well.

Some management is necessary to assure the proper functioning of drainage channels and to sustain fish and wildlife habitat in agricultural areas.

You are experiencing excessive erosion in or along a watercourse if:

- concentrated runoff is flowing over the bank, and banks are slumping
- outlet pipe areas are unstable and soil has washed out from around them
- the banks of the stream or drainage channel are being undercut and scoured
- high-density streamside grazing has led to the exposure of erodible bare soils.



Water flowing across the field has concentrated and broken through the bank.



Bank instability leads to ongoing erosion and soil entering the watercourse.



Soil has washed away around this outlet.

BMPs for Bank Erosion

There are often regulatory considerations when working in or around a watercourse. Contact your local municipality, Conservation Authority or Ministry of Natural Resources office before starting a project.



Exclude livestock from watercourses by fencing. Provide an alternative water supply.



Subsurface drainage outlet pipes should point downstream. They should be protected by a rigid pipe with hinged rodent gate, and rock-lined splash pad with filter-cloth underlay.



Well-vegetated banks and buffer strips are often all that is needed to stabilize a watercourse.



A stone lining with filter-cloth underlay can solve minor erosion problems.



To be effective, a rock-lined spillway is adequately sized, and made of filter-cloth underlay and properly sized angular stone.

BMPs for Bank Erosion

Innovative approach

This stream was experiencing bank erosion and required some minor repair. The bank was protected using a wooden bank cover structure supported by stone and filter-cloth underlay to accommodate fish habitat. Stream flows will keep the area free of sediment buildup so that fish can find shelter.

Shortly after the installation, sampling found over 17 fish species using the area.

BEFORE



STEP 1



Shaping the bank to accommodate stone

STEP 2



Wooden cover structure

STEP 3



Installation

AFTER



The wooden cover provides shade and shelter for fish. The stone protects the upper part of the bank and holds the wooden structure down.

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Progressive solutions

Building natural stream functions into drainage channel design and construction will reduce long-term maintenance costs. Progressive drain design may include riffles and pools as part of the construction. These features encourage natural stream flow patterns, move water and sediment efficiently, and improve fish habitat. This solution is intended for permanently flowing streams.

Progressive solutions are fish-friendly and include:

- bioengineering
- wooden cover structures
- root wad structures.

Many of these ideas can be incorporated into municipal drainage systems.



Riffle and pool in drainage channel



During construction



1 year after construction

Dogwood cuttings strapped to the bank take root and protect against erosion.