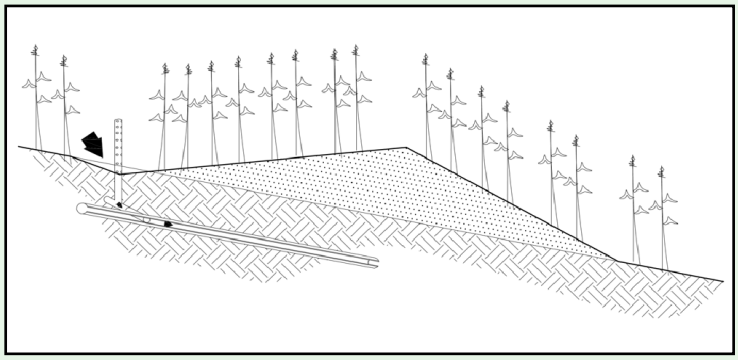
WASCoB - Erosion Control Structure

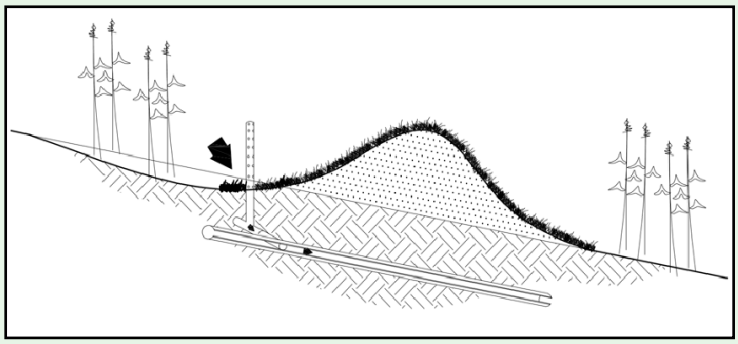
What is a WASCoB?

WASCoB stands for **W**ater **A**nd **S**ediment **Co**ntrol **B**asin, an embankment sediment erosion control structure. WASCoBs are commonly built in a series across areas prone to gullying or with a high concentration of overland flow. The small earth embankments store overland flow and slowly release it through an underground outlet, typically via a hickenbottom connected to a tile. By storing the water before slowly releasing it, the suspended sediment can settle, and the reduced speed of overland flow reduces gully erosion.

Berms can be broad based or narrow based.

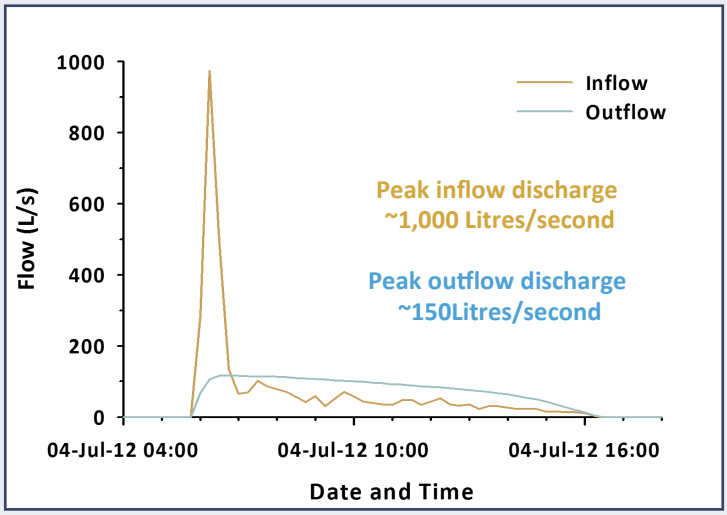


Broad based berms can be used for crop production.



Narrow based berms are permanently vegetated, crops can be grown on either side.

Field-scale monitoring example



In the above example, it was found that WASCoBs reduced the magnitude of peak flow by about 85%. The duration of outflow was also increased from less than 1.5 hours to 9 hours with the installation of the WASCoB, a time period that won't cause flood damage to crops. Graph courtesy of Ausable Bayfield Conservation Authority.

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Case Study: The Gilroy Project

Concerns

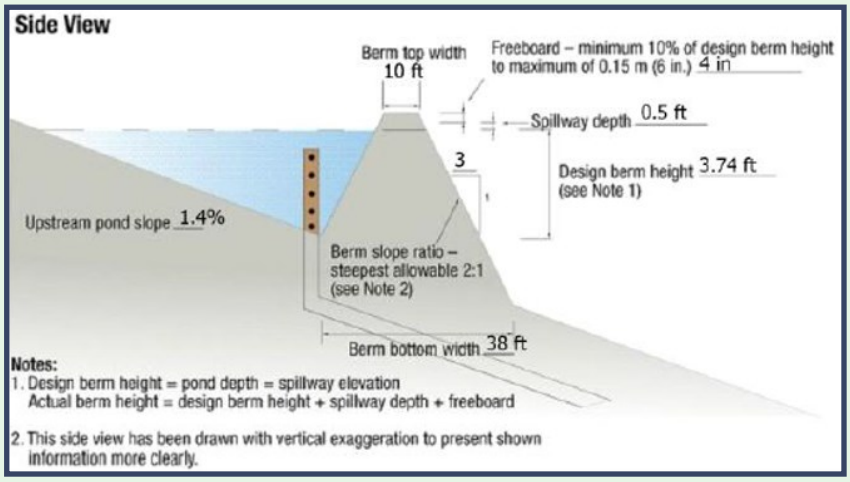
Don Gilroy was noticing rills and gullies forming in his crop fields that were washing away soil and nutrients.

First Steps

Gilroy reached out to SCRCA for funding. Together SCRCA, Gilroy, and an OMAFRA Certified Erosion Control Contractor developed a plan including WASCoBs and rock chutes that would slow water velocity as it moved over the field.

Solutions

- Build rock chute at edge of field to control all overflow of a 10-year storm from this watershed. Extend driveway as a low-level berm that would pond upland water. Upstream ponding would control the overflow, reduce overland water velocity, and retain sediment. Ponded water would enter drain at a slower rate, via hickenbottom. The 2nd berm would be 300 ft "upstream" of first berm, to slow water velocity of overland runoff coming from neighbouring farm.
- Build rock chute at the south end of watershed entering the drain, eliminating bank erosion of municipal drain. Build a grassed waterway/ diversion terrace 850' long by 24' wide to direct overland runoff from the watershed into the rock chute and drain. Spoil from the grassed waterway excavation used to build the berms.
- Build 1 berm and connect hickenbottom to existing tile. The berm will slow overland runoff during large rain events and snow melt.



Benefits

1. Reduce soil and nutrient loss by storing water on the land, giving the sediment time to settle out before entering a municipal drain. Added sediments can lead to increases in costly drain cleanouts.
2. Prevent gully erosion by reducing the speed of overland flow.

The Gilroy erosion control project received funding support from SCRCA.
If you are experiencing erosion problems in your fields and are interested in doing an erosion control project please contact,

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Recently completed and seeded low-level berm. This berm was designed to also serves as a continuation of the laneway. The hickenbottom connects to existing tile and the rock chute (at left of photo) slowly allows ponded water to enter municipal drain.

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