ALUS

Success with ALUS Erosion-Control Projects

How to establish and maintain erosion-control projects in ALUS' Eastern Hub

AN ALUS GUIDEBOOK

Types of Erosion-Control Projects

Soil erosion is an important issue for Canadian communities. Unprotected soil can wash away easily during excessive rains, as well as during the spring snowmelt, forming rills and gullies in fields. Without soil-conservation structures and buffer zones in place to slow the flow of this runoff water, a good deal of valuable agricultural topsoil is lost, and landscapes become susceptible to flooding. Most often this soil washes into Canada's streams, rivers and lakes. Many aquatic ecosystems in Canada are showing the negative effects of sedimentation and nutrient buildup, while many communities are grappling with increased flooding. ALUS projects can help. All ALUS erosion-control projects aim to hold water in place on the landscape and conserve soil on the fields where it belongs, thereby helping farmers as well as preventing floods, protecting water quality and supporting aquatic biodiversity. ALUS supports projects such as water and sediment control basins (WASCOB), grassed waterways, exclusion fencing and vegetated buffers. Your ALUS Program Coordinator will work with you to identify the best options for your land.

Water and Sediment Control Basin (WASCOB) Projects

A Water and Sediment Control Basin (WASCOB) project is highly effective at preventing soil erosion via runoff water. It consists of an embankment or earthen berm designed to intercept, concentrate and hold runoff water in the field. The sediment settles to the bottom of the basin, and the cleaner surface water slowly releases, either through a standpipe connected to a tile drainage system (as shown here) or by natural infiltration.

Grassed-Waterway Projects

ALUS supports grassed-waterway projects as an excellent way to prevent rill and gully erosion in fields. As the name suggests, grassed waterways are shallow channels featuring permanent vegetation, such as perennial grasses. These channels follow the natural drainage contours of each field to collect runoff water and melted snow, slow it down, filter it, and guide it to an outlet. Grassed waterways should be designed to handle ten-year storm events, or storms so severe they have only a 10% chance of occurring in any given year.

Ecosystem Services Produced by ALUS Erosion-Control Projects

CLEANER WATER: All ALUS erosion-control projects help protect and improve water quality in Canada's streams, rivers and lakes by preventing agricultural soil from washing off fields and into waterways. ALUS projects can conserve soil in fields, slow down the movement of runoff water and/or protect sensitive areas of land from activities that cause erosion.

MORE BIODIVERSITY: ALUS erosion-control projects produce more biodiversity in local communities by reducing sedimentation in streams, creeks, lakes and rivers to support aquatic ecosystems in Canada.

FLOOD AND DROUGHT MITIGATION: ALUS erosion-control projects help hold water in place on the landscape. They slow the flow of runoff water during excessive rains and snowmelt, to help mitigate downstream flooding. These projects also increase groundwater infiltration on site, for increased moisture levels that helps in times of drought.

Exclusion-Fencing Projects

When livestock have access to watercourses, they damage the banks and trample the bottom, dislodging soil into the waterway and encouraging sedimentation. ALUS recommends excluding livestock from watercourses and supports projects with fencing, off-site or alternative watering systems, and crossing structures.

Vegetated Buffer Projects

Vegetated buffers are non-cultivated zones located between actively farmed fields and ecologically sensitive features, such as waterways or highly erodible areas. Buffers are planted with perennial grasses (native or non-native), trees, shrubs, or a combination of all three. They can help prevent soil loss during run-off events, especially in areas prone to gully erosion. Please consult the ALUS Guidebook series for information on establishing and maintaining vegetated buffers.

What to Expect while Establishing an ALUS Erosion-Control Project

ALUS supports several different types of erosion-control projects, such as water and sediment control basins (WASCOB), grassed waterways, exclusion fencing and vegetated buffers. Each of these projects has different objectives and maintenance tasks. Erosion-control projects involving land-grading work or berms should be designed and constructed by a qualified professional. Your ALUS Program Coordinator will help with project planning and implementation. Here is a quick snapshot of the establishment process.

Water and Sediment Control Basin (WASCOB) Projects

What to Expect

- ALUS will work with you and a qualified professional to design your WASCOB using information such as drainage area, slope, soil type and farm practices.

Objectives

- Establish berms, holding area (basin) and drainage outlet (emergency spillway).

Maintenance Tasks

- Inspect the berms for signs of cracking, burrowing or settling.
- Consider mowing the berm to control woody plants.
- Clear excess sediment that builds up in the basin.
- Inspect emergency spillway after major run-off events.

Grassed Waterway Projects

What to Expect

- A qualified professional will design the size and shape of the grassed waterway.
- Eliminate unwanted vegetation to prepare the area for seeding with a grassed waterway mix.

Objectives

- Maintain a dense cover of grass.

Maintenance Tasks

- Inspect for any damage or loss of vegetation after regular run-off events. Repair immediately.
- Maintain a dense grass cover by mowing, fertilizing and over-seeding.
- Raise farm machinery when driving over the grassed waterway.
- Do not spray herbicide on the grassed waterway.

Exclusion Fencing Projects

What to Expect

- Install fencing along a watercourse
- May also include an alternate watering system and/or a low-water crossing between pastures.

Objectives

- Maintain a barrier between livestock and the watercourse, including a sufficiently wide riparian zone to prevent bank erosion.

Maintenance Tasks

- Inspect fence for damage on a regular basis and repair as needed.

Vegetated Buffer Projects

What to Expect

- Establish perennial vegetation to form a buffer zone between your farmed land and an adjacent watercourse or waterbody.
- The establishment process varies depending on the type of plants selected: grasses, trees, and/or shrubs.

Objectives

- Maintain a healthy groundcover of vegetation as an effective buffer.

Maintenance Tasks

- Consult “Success with ALUS Grassland Projects” or “Success with ALUS Tree and Shrub Projects” for detailed instructions.

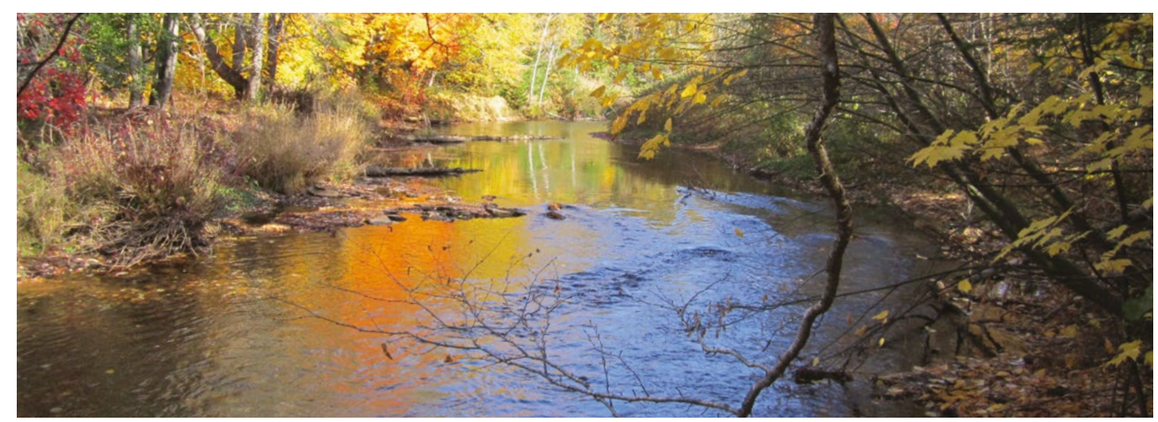
ALUS Erosion-Control Projects in Action

Success with ALUS erosion-control projects means conserving soil on the fields where it belongs, holding water in place on the landscape, mitigating flood risk, protecting water quality and supporting aquatic biodiversity. To these ends, ALUS helps participants establish, manage and maintain important soil-conservation structures, such as grassed waterways, vegetated buffer zones and Water and Sediment Control Basins (WASCOBs), as well as exclusion fencing and alternative watering systems to keep cattle out of Canada's streams and riparian zones. Here are a few excellent examples we spotted recently in ALUS' Eastern Hub.

This PEI ALUS project uses exclusion fencing and an alternative watering system to keep local waterways clean for aquatic life and communities downstream.

This ALUS grassed waterway project follows the natural contours of a soybean field, to prevent soil erosion.

This ALUS Ontario East project features a Water and Sediment Control Basin (WASCOB) that captures sediment in tile-drainage water before releasing it, as well as a pollinator-friendly buffer area.



Erosion-control projects are, in fact, water-quality improvement projects.

This beautifully successful erosion-control project produces cleaner water and boosts biodiversity in the ALUS Ontario East community. This basin and the surrounding riparian zone capture the drainage water from 500 acres of cultivated fields. The sediment has time to settle to the bottom while the cleaner surface water slowly trickles over the berm and into a spillway.

Erosion-Control Project Maintenance

Erosion-control projects require regular inspection and maintenance to ensure they are functioning optimally.

Projects that control water erosion, such as WASCOBs and grassed waterways, must contain a large volume of water during major run-off events; it is imperative to ensure they are functioning properly, as project failure can result in major soil loss and damage to the surrounding farmland.

Likewise, exclusion fencing projects only work when they are in good condition. Regular inspection is important to spot and repair any breaks or holes in the fencing.

Contact your ALUS Program Coordinator to ensure you are using the most appropriate maintenance method, at the right time, for your site's unique conditions.

Employing proper maintenance practices and management techniques will help ensure your ALUS erosion-control project is successful at producing many ecosystem services of benefit to the environment and to your community.

General Project Maintenance Techniques

Some maintenance is required on a regular basis to maintain the health and vigour of the site, and to control non-native species, invasive species and woody plants.

Inspecting for Damage

Why: Erosion-control projects may involve land-grading, berms or other infrastructure. These features need to be monitored regularly for signs of damage.

When: It is highly recommended to inspect projects that are intended to control water erosion after every major run-off event. Inspect fencing projects at least annually.

How: Walk the perimeter of your project and visually inspect for damage, such as cracks in the berm, rills in the soil, vegetation loss or damage to drainpipes. Contact your ALUS Program Coordinator immediately if you find any signs.

Removing Sediment Build-up

Why: Erosion-control projects help to decrease soil loss by slowing down water and allowing sediment to settle. Over time, this sediment can build up, which can decrease the effectiveness of your project.

When: Conduct a thorough inspection at least annually. It is highly recommended to inspect after each major run-off event.

How: Remove noticeable sediment build-up from grassed waterways and basins. Ensure a WASCOB standpipe inlet is clear of sediment.

Maintaining Grassed Waterways

Why: Mowing your grassed waterway will help establish a thick sod, helping to prevent weeds, woody encroachment and rills. Over-seeding (sowing grass seed directly on the existing turf) and fertilizing may be necessary to ensure there is a complete grass cover with no bare patches.

When: Mow as needed, generally at least twice a year. Waiting to mow until after mid-July is beneficial for nesting grassland bird species. Apply fertilizer only when there is little risk of a major runoff event.

How: Mow to a maximum height of six inches. Ensure the clippings do not accumulate at the edges of the waterway, where this excess biomass could prevent run-off water from entering the grassed waterway.

This extensive riparian buffer zone project helps prevent soil erosion into the water in ALUS Montérégie, where improving water quality and habitat for aquatic species at risk are of top concern.

Additional Resources

ALUS Program Coordinator Alyssa Cousineau and an ALUS Elgin participant discuss the design of an ALUS WASCOB project as a good way to prevent further gully erosion on his farm.

ALUS encourages ALUS communities and participants to work closely with other knowledgeable agencies in their area. The following groups have created good resources providing information on a number of topics that, when used in combination with this ALUS guide, will help you establish and maintain a successful erosion-control project.

Ontario Ministry of Agricultural, Food and Rural Affairs

OMAFRA has a variety of erosion-control related resources available, both on their websites and as print booklets. Contact your local OMAFRA office for more information.

Tel: 1-877-424-1300

Website: OMAFRA.on.gov.ca

Ontario Invasive Plant Council

We recommend the Ontario Invasive Plant Council as a source of information about invasive plant species and best management practices..

Tel: 705-741-5400

Website: OntarioInvasivePlants.ca

Ontario Invading Species Awareness Program

Another great source of information on invasive species.

Tel: 1-800-563-7711

Website: InvadingSpecies.com

About this Guide

This booklet is part of the ALUS Guidebook series, illustrating the types of ALUS projects available to participating farmers and ranchers.

The ALUS program provides planning advice and technical expertise for the design and implementation of each project through its local ALUS Partnership Advisory Committees. ALUS participants receive an annual, per-acre payment to manage and maintain their ALUS projects over the duration of their contract. During this time, ALUS projects are independently monitored, verified and audited to ensure they are producing ecosystem services for the community.

For more information, please contact your closest ALUS Program Coordinator.

See **ALUS.ca** for contact details.

Success with ALUS Erosion-Control Projects

How to establish and maintain erosion-control projects in ALUS' Eastern Hub

ALUS is a national program helping farmers and ranchers produce cleaner air, cleaner water, more biodiversity and other ecosystem services in their communities. Specifically, ALUS helps farmers and ranchers enhance wetlands, plant windbreaks, improve riparian buffer zones, create habitat for pollinators and other wildlife, and establish other types of projects to produce ecosystem services. For more information, please visit ALUS.ca

ALUS.ca

The ALUS Guidebook Series is made possible by funding from an Ontario Trillium Foundation Grow grant.

Ontario Trillium Foundation
Fondation Trillium de l'Ontario

An agency of the Government of Ontario
Un organisme du gouvernement de l'Ontario