S A S K A T C H E W A N

Water Security Agency

Shoreline Stabilization Environmental Protection Plan

1.0 Purpose

This accepted environmental protection plan (EPP) outlines the project scope and conditions to follow when undertaking shoreline stabilization activities affecting the bed, bank and boundary of a watercourse or water body (see Figure 1 for bed, bank, boundary). By following the EPP, impacts to a watercourse or water body can be minimized. To utilize this EPP, you must meet all eligibility requirements and follow all conditions outlined below.

This EPP does not replace or supersede any approvals, licences or authorizations, including building permits that may be required under municipal, provincial or federal legislation. The applicant is responsible for adherence to all such approvals, licences or authorizations that may be required.

The applicant is solely responsible for all design, safety and workmanship aspects of all works associated with this EPP. The Water Security Agency (WSA) may order the applicant to cease any or all work regarding this project if, in WSA's opinion, the conditions are not being met or the work is causing or may cause harm to the environment.

Please contact WSA at 1.866.727.5420 or client.service@wsask.ca if you have any questions about the EPP process or requirements.

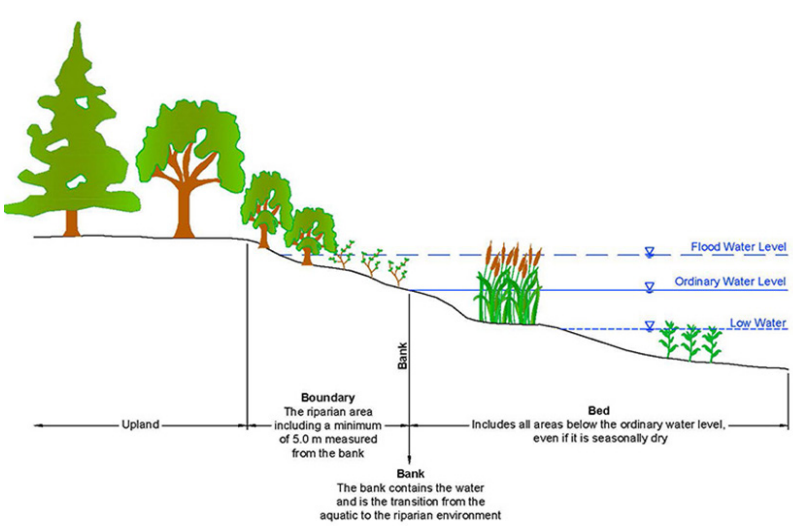


Figure 1: Bed, Bank and Boundary

Bed: The portion of the water body typically (but not always) covered by water often characterized by vegetation such as cattails and bulrushes and substrates like sand, gravel and rock.

Bank: The rising ground bordering a water body that serves to confine the water to a channel or bed.

Boundary: The line or elevation contour surrounding a water body where aquatic and terrestrial plant species known to tolerate water saturated soils (e.g., willows) change entirely to terrestrial vegetation (e.g., poplars, elms, spruce), tolerating little or no soil saturation. Includes a minimum surrounding area of five metres measured outward from the top of the bank.

2.0 Eligibility

This EPP is applicable to shoreline stabilization activities that involve:

a) rock placement for erosion protection;
b) bank re-sloping;
c) removal of vegetation along the shoreline to accommodate stabilization activities.

This EPP is not applicable to shoreline stabilization activities that involve:

a) retaining wall construction (i.e., precast concrete blocks, cast-in-place concrete, wood or engineered stone) or gabion basket installation;
b) construction of breakwaters or jetties;
c) development of a beach area below the bank.

NOTE: The scope of acceptable work eligible under this EPP is reduced in environmental reserves. See the Landowner Consent section below and visit our shoreline development and dedicated lands webpage for more information.

If your project meets the following criteria by answering YES to all of these statements, then you are eligible for this EPP:

- ☐ Work will occur under dry or frozen conditions or in water not deeper than 30 centimetres (12 inches).
- ☐ Excavation and re-sloping work will be conducted on non-vertical banks (i.e., already on a slope) or on a vertical bank less than 2 metres in height.
- ☐ I am the legal landowner of the property where the proposed project will occur, or I have landowner consent to undertake this project. (See the Landowner Consent section below for additional information.)
- ☐ The amount of useable lot area will remain the same (will not be increased by infilling toward the water body).
- ☐ Existing vegetation will be left in place (except to facilitate access to the shoreline for rock placement or to accommodate bank re-sloping).
- ☐ Work within an **environmental reserve** will be limited to rock placement on the existing bank only (i.e., no bank re-sloping or vegetation removal will occur).
- ☐ The work **does not** include any of the following activities:
  - ☐ retaining wall construction (i.e., precast concrete blocks, cast-in-place concrete, wood or engineered stone) or gabion basket installation;
  - ☐ construction of breakwaters or jetties; or
  - ☐ development of a beach area below the bank.
- ☐ I have checked for, and there is no occurrence at the project location for a *Species-at-Risk Act* (SARA) species listed as Threatened or Endangered (see section 4.0 Additional Information – Species-at-Risk for further information). Self-screening can be done using HABISask or by contacting WSA (1.866.727.5420).

If the project does not meet all the criteria above, contact WSA to discuss the proposal or submit a standard AHPP application for review. **Please contact WSA** if you need help determining if your project is eligible for this environmental protection plan.

Before beginning any work under this EPP, you must confirm you meet all the requirements above and will follow the conditions below by completing and submitting an EPP notification form to WSA. Pre-construction photos of your worksite must be submitted by email with the notification form. The total size of the email must not exceed 25 MB.

3.0 Conditions

1. An EPP notification form must be completed and submitted to WSA before starting any work associated with this EPP.

2. All contractors must be provided a copy of this EPP prior to conducting any work and the EPP (paper or electronic copy) must be available on-site during construction.

3. Machinery and heavy equipment (if used) must:
   a. Arrive at the site clean and free of fluid leaks;
   b. Be cleaned, fuelled and serviced in a manner that will not contaminate the bed, bank or boundary of the water course or water body;
   c. Not enter the water under any circumstances except for the use of necessary attached booms, buckets, other tools or implements; and
   d. Be located and operated from a stable location above the natural bank. During frozen conditions working from the ice is permitted, but machinery and heavy equipment must be removed from the ice surface at the end of each work day.

4. Rock riprap must:
   a. Be obtained from outside the bed, bank or boundary of any watercourse or water body;
   b. Be clean and free from fine sediment or other contaminants; and
   c. Be appropriately sized (e.g., average 30 cm [12 inch] diameter) to withstand the forces of current, wave and/or ice action; and
   d. Follow the natural contour of the shoreline and placed on a stable slope (i.e., 2H:1V or flatter).

5. Where bank sloping or excavation is required, the worksite must be adequately isolated by installing a turbidity curtain (floating or staked), sediment fence or similar before work starts to prevent sediment from migrating off the worksite. Sediment control measures must remain in place until the site is stable (i.e., re-vegetated and/or armoured).

6. No vegetation removal, excavation or bank sloping shall occur in an environmental reserve. Only rock placement on the existing bank is permitted within an environmental reserve.

7. Excavated and stockpiled materials must be located above the bank and stabilized so they will not erode into any water body or watercourse.

8. During construction and until a stable shoreline is re-established, effective sediment and erosion control measures must be used on disturbed areas to prevent sediment-laden runoff from entering the water body or watercourse.

9. Hazardous substances such as fuel, oil, grease, paint and solvents must be stored where they will not contaminate any water body or watercourse, and must be disposed of appropriately.

10. Work must be completed within one year of notification to WSA.

4.0 Additional Information

Shorelines are important components of aquatic ecosystems. Shoreline areas provide diverse habitats for fish and wildlife species and they function to protect water quality. Loss of or disturbance to these habitats from human activities such as cottage developments, boat launches, beaches, road crossings and other infrastructure can have a negative impact on our lakes and rivers and the species that rely on them. It is important to ensure development activities around shorelines are done in a way that negative impacts are minimized.

Shoreline slumping and bank erosion are common and occur naturally along watercourses and water bodies but are often accelerated by disturbances caused by shoreline development activities. Sometimes it is necessary to stabilize eroding or slumping shorelines to protect property and infrastructure such as buildings, roads and natural features; maintain sufficient setbacks for residential development; and prevent sediment from entering the water that affects aquatic habitat and water quality. There are many ways to stabilize a shoreline in general, but solutions are usually site-specific.

Rock Riprap

The most common type of stabilization used on Saskatchewan shorelines is rock riprap. Rock riprap is typically a mixture of cobbles and boulders placed on top of a geotextile fabric or the natural bank material. Fieldstone can be used and is usually the least expensive option; however commercial rock may also be available for a more uniform look. Rock riprap must be clean (i.e., no clumps of dirt or fine sediments) before placing it along the shoreline to prevent sediment from entering the water.

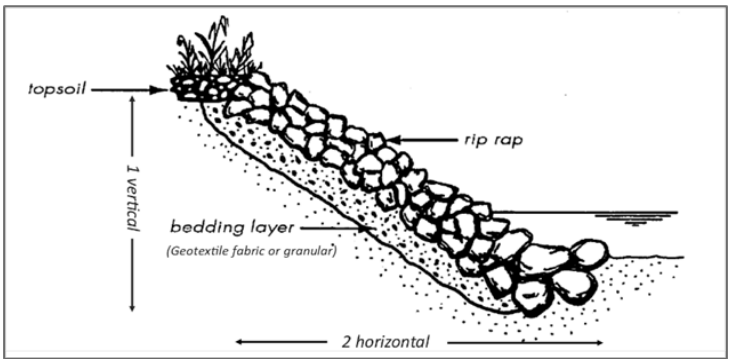


Figure 2: Rock riprap placement on a bank.

In general, rock embankments can be constructed to a final slope ratio of 2H:1V (horizontal: vertical) or 30 degrees (Figure 2). In other words, for every one metre in height, rock extends out two metres. Slopes steeper than 2H:1V are not generally recommended because the rock will not stay in place. A 3H:1V ratio or 18-degree slope is often preferred because it is more stable.

Using rock to stabilize shorelines can allow waves hitting the slope to "roll up" the slope rather than crashing into it. Using an appropriately sized mixture of rock (e.g., average 30 centimetre or 12-inch diameter), will help ensure wave action and currents will not damage the shoreline. In many cases, only the toe (or bottom) of the slope may need to be riprapped and the remainder of the slope can be planted with vegetation to retain the soil

Vegetation

The roots of trees, shrubs and grasses are very effective at stabilizing soil. Plantsalso provide habitat for species that live near shorelines. Where possible, stable shoreline areas with natural vegetation should not be disturbed. Pruning trees and shrubs instead of completely removing them is recommended if it is necessary to improve shoreline access or sight lines.

Establishing deep-rooted, native plant species such as willow, red-osier dogwood and poplar is a good long-term stabilization strategy that works wellin conjunction with other techniques such as rock riprap to provide a resilient, natural-looking shoreline. Visit our revegetating disturbed lands webpage for more information.

Revegetating Disturbed Lands

Sediment and Erosion Control

Figure 4: Turbidity curtain

Sediment is fine-grained particles like sand, silt and clay that typically originate from soil erosion. While erosion is a natural process, the most concentrated sedimentreleases often come from soils disturbed or exposed by human activities such as excavation and construction near the water. Sediment suspended in the water can often be dispersed great distances by wave action and current. When suspended, sediment can impact water quality and harm aquatic organisms such as fish. When the sediment settles out, it can often cover up and destroy aquatic habitats that many organisms rely on. Therefore, it is important to minimize any sediment entering the water from work activities.

Sediment control measures such as sediment fence and turbidity curtains (floating sediment barriers) focus on capturing runoff and soils and containing them to the worksite so the suspended sediment does not negatively affect adjacent areas. These measures are necessary to prevent exposed soil from entering the water when excavating or re-sloping a bank. See our Site Isolation, Maintaining Downstream Flow and Dewatering webpage for more information about sediment barriers.

Site Isolation, Maintaining Downstream Flow and Dewatering

Erosion and Sediment Control

In contrast, erosion control measures are intended to retain soils by covering or armouring them so they do not erode in the first place. Erosion control measures often include erosion control blankets, straw mulch, hydroseeding, rock riprap and many other natural and engineered products. Some erosion control measures are temporary and are used to stabilize disturbed soils until vegetation can be re-established. Other measures, like rock riprap, provide a permanent, hard armouring to shorelines that are exposed towave action or currents that can cause erosion. Visit our Erosion and Sediment Control webpage for more information.

Landowner Consent

It is important to be aware of your property boundaries before starting any work along the shoreline. Often, environmental reserve, municipal reserve or other municipal or Crown lands can be found surrounding many waterbodies and watercourses in Saskatchewan. You must obtain landowner consent before working on any land that you do not own or have other appropriate land control.

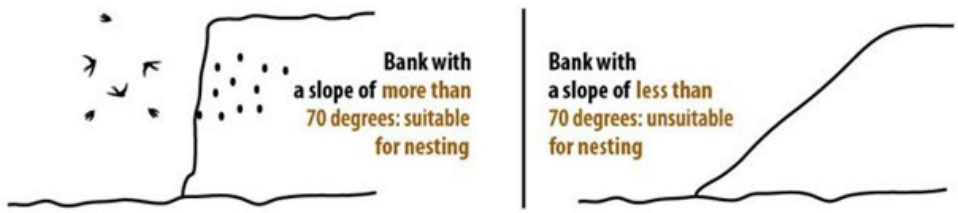
Environmental reserves often border shorelines as a buffer zone where erosion and flooding frequently occur. They also allow public access to shoreline areas. As described in *The Planning and Development Act, 2007*, an environmental reserve may be used as a public park, or other use specified in regulations, but if it is not used for those purposes, then the environmental reserve is to be left in its natural state. If there is land designated as environmental reserve between your titled land and the waterbody or watercourse, it may contain various landscape or terrain features important to the preservation or stability of the area. Permission to conduct works within an environmental reserve or municipal reserve must be obtained from the local municipality (or land manager) as they administer this public land. If you are unsure if there is an environmental reserve along your shoreline, contact your municipality or WSA. Visit our shoreline development and dedicated lands webpage for more information.

Shoreline Development and Dedicated Lands

Species-at-Risk

Species-at-risk can be negatively impacted by human developments and activities. Taking steps to avoid impacts or altering our activities can help protect these species and the habitats they rely on. HABISask is a self-screening tool that can be used to determine the presence of a species-at-risk in Saskatchewan. The tool displays occurrences for species listed as Threatened or Endangered under the federal Species at Risk Act and those for which *Saskatchewan Activity Guidelines for Sensitive Species* have been developed.

One species particularly sensitive to shoreline stabilization activities is the bank swallow (Riparia riparia). Bank swallows generally dig their burrows in near-vertical banks (slopes of at least 70 degrees) that are more than 2 m high. Bank swallows typically use their nesting sites from mid-April to late August. This is the sensitive period during which the risk of harming the birds is especially high. The absence of the birds in August is a good indicator that the breeding season is over.



Contact Us

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