SLOW STORE SOAK

Installing swales

Swale in Parma, Ohio. The underdrain empties into an outlet structure (Ekka & Hunt, 2020).

A swale is a low-lying area that is engineered to move water away from roads and drainage channels. Similar to a ditch, swales have added benefits like reducing stormwater runoff, filtering pollutants and allowing stormwater to be slowly released into natural systems.

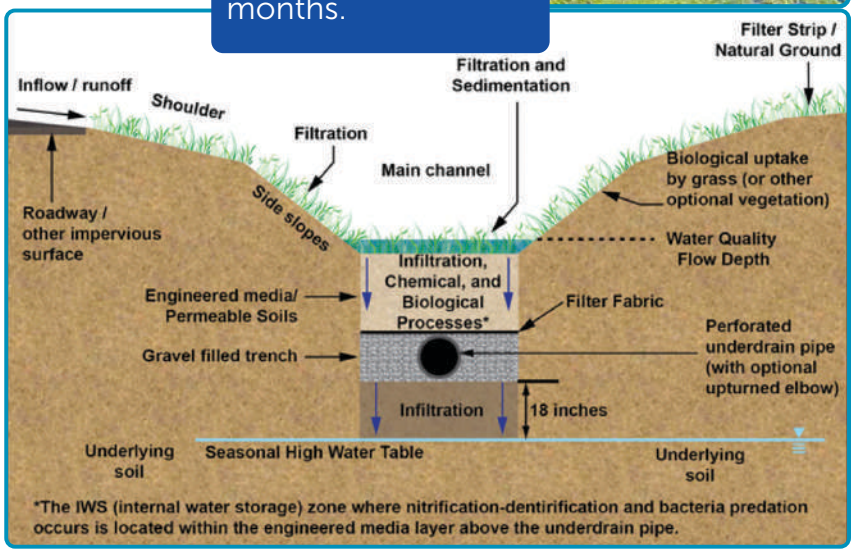
The main difference between swales and ditches is that swales are specifically designed to slow, treat and re-release filtered stormwater into our natural systems, whereas ditches only focus on moving water away from roads – including any contaminants it may carry. All swales are ditches, but not all ditches are swales!

Swales are an effective sustainable drainage measure in both urban and rural settings. In rural areas, swales can be introduced where ditches already exist, and can help limit flooding and blockages that can occur with standard ditches.

Bioswales:

A bioswale, also called a dry swale, is the most effective swale type to filter common pollutants like phosphorus and heavy metals. Phosphorus is a nutrient that, in excess, can lead to harmful algal blooms and increased plant growth in waterbodies, which disrupts the natural ecosystem and can present a human health risk. A bioswale is typically designed with a permeable soil mix or highly permeable engineered media. Geotextile fabric and layering controls the flow, while a perforated underdrain in a gravel drainage layer moves water away.

Excess phosphorus in waterways can cause harmful algal blooms in ummer months.



* Ekka & Hunt, 2020

Swales **SLOW** stormwater, **STORE** it in natural systems and **SOAK** it into the ground.

Building a swale on your property

WHERE: Swales work best in low lying areas near hardened surfaces (roads, driveways), where water needs to be redirected away from a building or infrastructure. This could mean moving water away from your house, along a roadside, or between fields. Retrofitting an existing ditch or low area to a swale is a cost-efficient option. Note: swale sites must be at least 3 meters away from buildings and foundations.

SIZE: The size of your swale depends on the surface area it is going to drain. See the LID Stormwater Management Planning and Design Guide (CVC, 2010) for guidance on swale size requirements. In general, channels should be at least 2 metres wide, with a gentle slope on either side.

HOW: Whether digging a new swale or retrofitting an existing ditch on your property, dig the main channel and the infiltration zone in the bottom center. Fill the infiltration zone with layers according to your design: perforated underdrain, gravel, filter fabric, and permeable soils.

PLANT: Bioswales can be covered with grass or planted with native plants, which will help to filter contaminants and manage flow. Choose plants that are drought tolerant and erosion resistant.

MAINTENANCE: Inspect underdrains regularly for clogging and clean if necessary. Clogging may be prevented with filters on eaves troughs or at the inlet. Grass should be cut between 10 and 15cm.

Consult a professional for site-specific concerns. **Call before you dig:** www.on1call.com.

More resources

Follow the QR code to find more sustainable drainage resources and ideas for your property.

Big Rideau Lake Association

Cataraqui conservation

Rideau Lakes 25 YEARS

Rideau Valley Conservation Authority