

BIOSWALES

DESCRIPTION

A bioswale, also called vegetated swale, is a channel with selected plants and vegetation to slow down, treat, and convey stormwater from roadways, parking lots, and other green spaces. By slowing down the stormwater, the bioswale has the chance to soak up and treat the stormwater, resulting in an enhancement to the water quality before conveying into another facility.

Bioswales are different from common grass swales. Grass swales usually lack the ability to soak up stormwater. Bioswales have the enhanced soil medium and filter layers similar to the rain gardens.

BIOSWALES ARE:

- Not regular ditches or grass swales
- Typically linear in shape and have a sloped bottom
- Landscaped with salt tolerant plants to fit the surroundings
- Dry most of the time
- Expected to have standing water during storms and is emptied within 24 hours

APPLICATION

Bioswales can be placed in most development situation, including residential areas, office complexes, roadways, parking lots, and other green spaces. Ditches are traditionally designed only to convey stormwater away from roads. In some cases, they can be retrofitted to bioswales to enhance infiltration and pollutant removal using check dams. Bioswales along roadways must be designed to prevent compromising the road structures with water infiltration.



CONSIDERATIONS

- **Infiltration rate:** water must infiltrate within a reasonable amount of time to prevent drowning of vegetation and mosquito breeding
- **Slope:** bioswale should have a slope of 0.5-1 per cent. If slope is greater than 1 per cent, check dams and other grade control structures can be used
- **Underdrains:** 200mm underdrain pipes are required where slope is less than 1 per cent and high salt loading is expected
- **Underground utilities:** Alberta OneCall (1-800-242-3447) should be contacted for a free utility mark out before any digging takes place. This will protect the property, personal safety, and public utilities

FUNCTIONS/BENEFITS

- Slow down and reduce the volume of stormwater
- Reduce contaminant loadings to downstream
- Improve water quality
- Enhance the aesthetic appeal of an area when being integrated with the urban environment

MAINTENANCE

Bioswales need similar types of maintenance as rain gardens to ensure adequate long-term performance.

- Water plants to establish healthy landscape, especially during the first two years of installation
- Remove sediments and debris in fall before snow covers
- Inspect bioswales visually after major rainfall events
- Flush underdrain pipe as indicated by inspection
- Repair eroded soil, mulch, splash pad, and rip rap when needed