

Bio-swale

Bio-swales are long, fairly shallow depressions that often use a curved or sinuous form to convey and slow water. They have a porous filter medium (usually soil-based) and are planted with native or non-native grasses and other vegetation. They work to treat stormwater by slowing and infiltrating flow and create an environment for plant uptake of pollutants. They enhance landscape aesthetics.

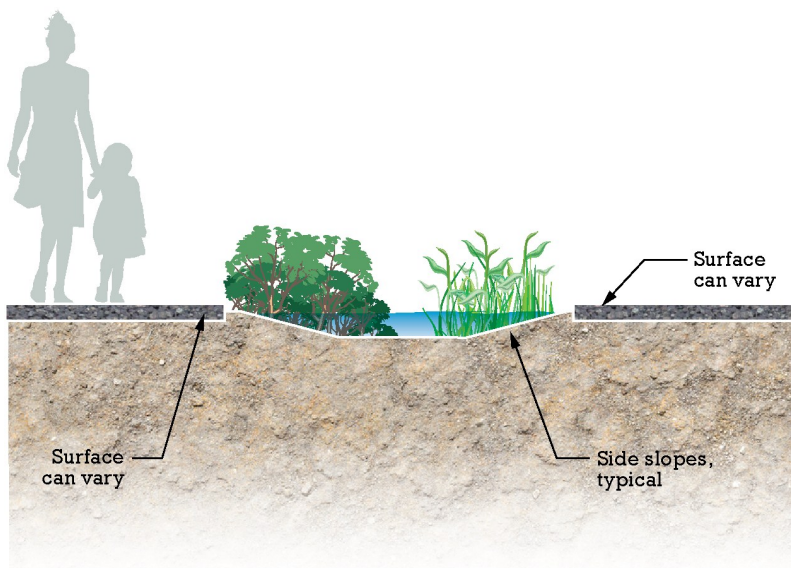
COMMUNITY

- Enhances roadway aesthetics
- Uses minimal space
- Requires low maintenance costs

CLEAN WATER

- Improves water quality
- Manages runoff volume
- Mitigates peak discharge rates
- Uptakes nutrients

Typical bio-swale profile



Bio-swale that conveys flows along an arterial street. *Source: Nevue Ngan Associates*

Potential Applications





- Method to manage runoff volume and mitigate peak discharge rates
- Provides medium to biodegrade petroleum-based solvents and hydrocarbons
- Alternative to conventional curb-and-gutter conveyance systems
- Pretreatment and/or primary treatment

Residential	Yes
Commercial	Yes
Arterial	Yes
Alleys	No

ADDITIONAL CONSIDERATIONS

Capital Cost	Low/Medium
Maintenance	Medium
Summer/Winter Performance	Medium
Community Benefits	Medium

Limitations

-  Long, continuous space may not be available in retrofit conditions
-  Additional maintenance required to establish vegetation
-  Option to incorporate other streetscape elements within swales (lighting, signage, etc.) may be limited
-  Effectiveness decreased by compacted soils, frozen ground conditions, short grass heights, steep slopes, large storm events, high discharge rates, high velocities and short runoff contact time



Bio-swales are designed to convey stormwater runoff while also providing water quality treatment benefits.



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