

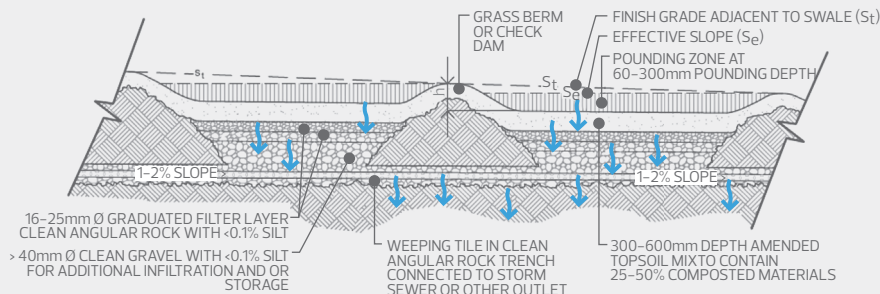
# NATURALIZED DRAINAGE WAYS

## DESCRIPTION

Naturalized drainage ways are surface stormwater conveyance features that use wetland zones, drop structures, and natural materials and vegetation to replace storm sewer mains or prevent erosion of existing drainage ways. Naturalized drainage ways generally have frequent or continual runoff (base flow). They are typically larger than grass swales, more engineered than natural wetlands, and in some cases, may appear similar to a small creek.

Velocities of urban runoff and stormwater are slowed using natural vegetation, increased resistance along the flow path, and drop structures. Additionally, prolonged stormwater contact with natural materials promotes the hydrologic cycle through infiltration, evaporation, and transpiration.

## LONGITUDINAL VIEW OF NATURALIZED DRAINAGE WAY



## APPLICATION

Naturalized drainage ways are typically located near the downstream outlets of developed basins, as they require continuous base flow to maintain the health of wetland and riparian vegetation and prevent stagnant pools. When incorporating wetlands, approvals through Alberta Environment and Sustainable Resource Development will be required.

## CONSIDERATIONS

- As is indicated by their name, naturalized drainage ways must be designed to fit the unique drainage, topographic, and development characteristics of each site. Natural drainage ways should not be implemented in areas with very flat or very steep topography.
- Soils must be able to sustain vegetation growth and with storm flows. Loamy soil is recommended for the channel, and amended soils must be designed based on constructed wetland requirements.

## BENEFITS

- Enhance water quality
- Smooth peak flow rate and prevent erosion
- Promote natural hydrologic cycle
- Beautify the community and add esthetic value

## MAINTENANCE

Similar to grass swales, naturalized drainage ways should be inspected quarterly during establishment (first 2 years) and semi-annually thereafter, with spot inspections conducted after severe storm events. Operational requirements to keep maintenance of naturalized drainage ways to a minimum include street sweeping, soil testing in high pollution areas, and removal of organic matter and sediment.

- Conduct visual inspection during spring break-up to mitigate flooding due to ice blockage.
- Remove accumulated sediments.
- Remove debris and litter from inlets, flow paths, and vegetation.
- Repair eroded soils, splash pad, and rip rap when needed.
- Avoid piling snow into facility, unless it's specifically designed for this purpose.