

## Alternating Side Slope Plantings (Swale)

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**Description** Alternating side slope plantings are trees planted on the side slopes of a dry swale or other open channel conveyance system in an alternating pattern. Alternating side slope plantings can be used in open channels with longitudinal slopes up to 2%, to provide shade, rainfall interception, limited slope stabilization, and esthetic value.

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**Design Modifications** None.

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**Species Selection** Species selection is key because it is more efficient than trying to change the site characteristics. Select a diverse mix of hardy, native species with the following characteristics:

- Tolerant of inundation
  - Tolerant of salt
  - Wide spreading canopy.
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**General Planting Guidance**

- Trees should be planted singly or in clusters in an alternating pattern on the side slopes. As a general rule, tree or cluster spacing should be six times the channel width (Figure 27), to impose meanders on channel flow.
- Stock can be seedlings (overplant for fast establishment and to account for mortality) or larger stock planted at desired spacing intervals.
- Excavate planting hole to a depth of 2-4 feet and backfill with amended soil if existing soil is compacted.
- The channel bottom and side slopes may be planted with turf or with native grasses (if able to withstand the runoff velocity the swale is designed to convey).
- Establish a defined edge on the top slope of the channel using trees, shrubs, or spaced rock. This edge protects trees from mowers and provides a visual border to let residents know the plantings are intentional.

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**Maintenance**

- Use mulch to retain moisture
- Mow around trees regularly if turf, or twice a year if native grasses.
- Use mulch, tree shelters, or rock borders to protect trees from lawn mowers.

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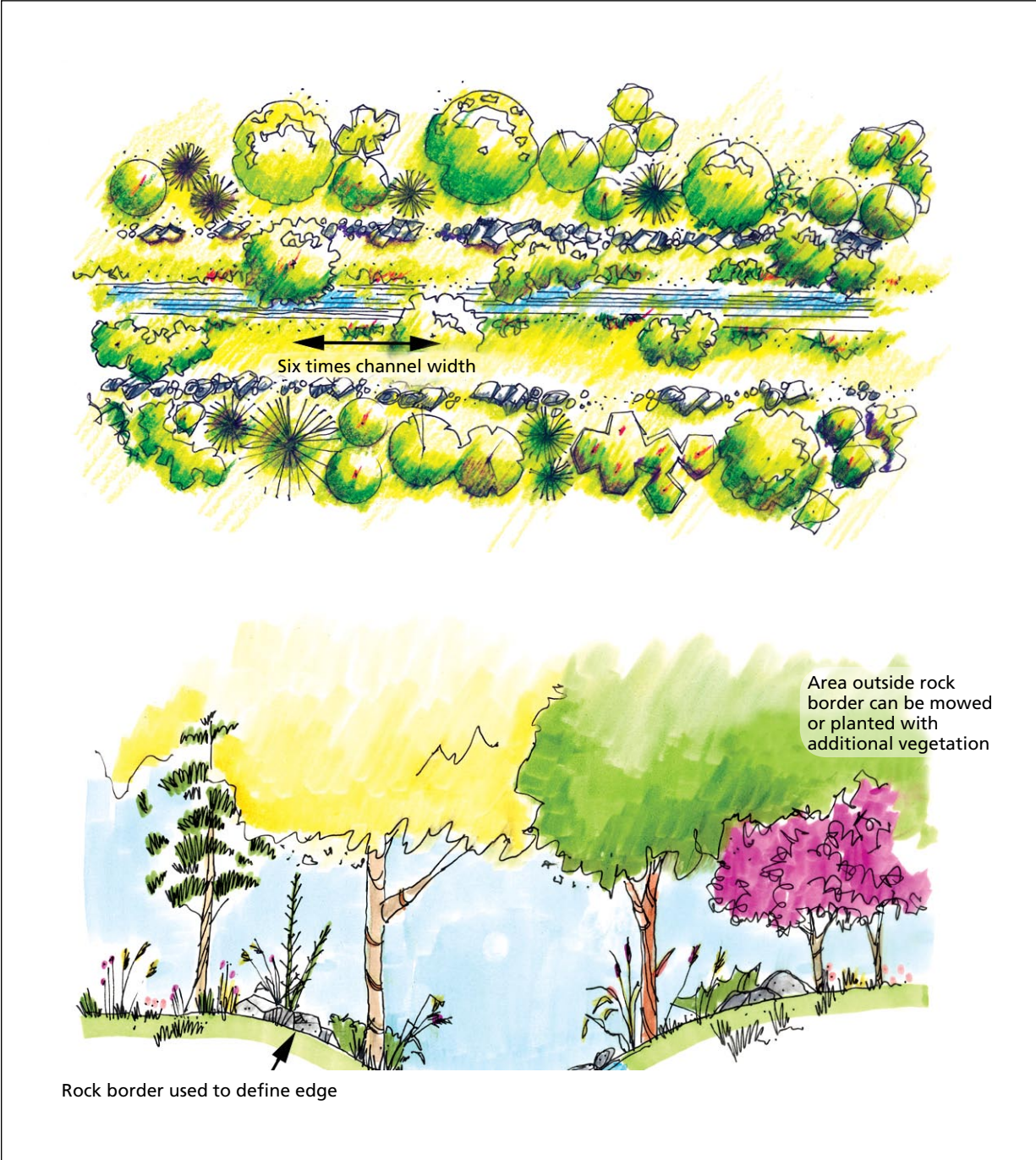


Figure 1. Alternating side-slope plantings are an attractive way to incorporate trees into swales without obstructing channel flow.

- Topics for Future Research*
- Is there potential for trees to shade out grass and contribute to erosion?
  - What species can be planted on channel bottom and around trees as an alternative to turf that can also withstand the runoff velocity the swale is designed to convey?
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*Further Resources*      Center for Watershed Protection. 1996. Design of stormwater filtering systems. Ellicott City, MD.

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**This fact sheet was excerpted from:**

Cappiella, Karen; Schueler, Tom; Wright, Tiffany. 2006. Urban Watershed Forestry Manual. Part 2: Conserving and Planting Trees at Development Sites. NA-TP-01-06, Newtown Square, PA: p 38-39. USDA Forest Service, Northeastern Area State and Private Forestry.

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