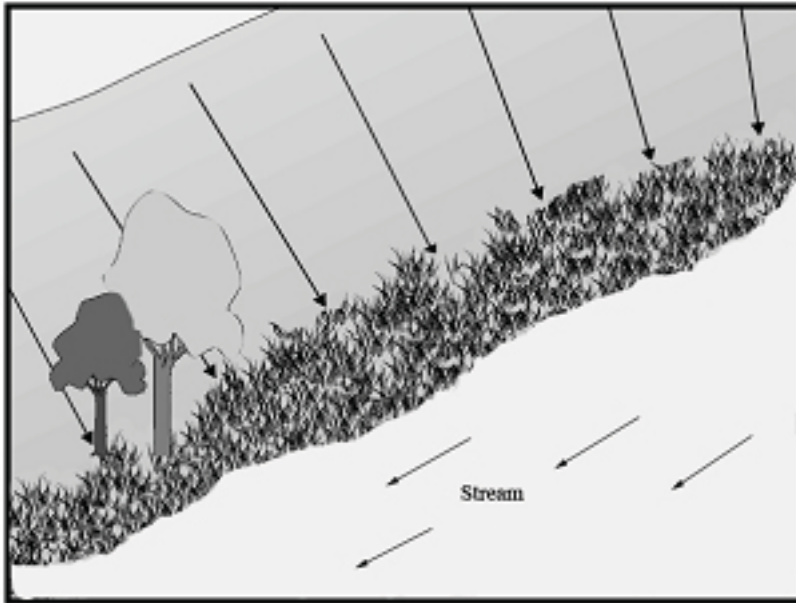


Vegetative Buffer Strip



Modified from CASQA Stormwater Best Management Practices - Construction

Vegetative buffer strips are either natural or planted strips of vegetation adjacent to bodies of water and are primarily used to control runoff from sheet flow. Research has found that as urbanization and development increase, water quality decreases. However, it is possible to have both developed areas and good water quality by the careful use of buffer strips. Vegetative buffer strips reduce the velocity of stormwater runoff, recharge groundwater, and provide an area for runoff to filter through the soil and deposit the sediment it carries. Due to their velocity reduction properties, overall site erosion is lessened if buffer strips are left in place; thus, buffer strips can control both erosion and sedimentation.

Usage

Vegetative buffer strips should be used on floodplains, near wetlands or streambanks, and on steep slopes where other BMPs may not be applicable. Sediment loads should be relatively low. If necessary, install other BMPs upland of the vegetative buffer strip to keep sediment loads low.

Benefits

- research has shown that buffer strips can remove over 90% of sediment from runoff if they are designed and maintained properly.
- buffer strips remove phosphorus that is attached to sediment, thus can control algal growth in water bodies
- provide a corridor for animals to pass through a construction project unharmed

Estimated Cost

If they are planned in original site drawings, buffer zones require no true installation, making them a very low cost BMP. If land must be cleared and graded in the area, installation of buffer strips can be as low as \$2 per yd².

Alternatives

- Fiber roll (p. 3-5)
- Geotextiles (p. 2-6)
- Riprap (p. 2-12)
- Silt Fence (p. 3-15)

Notes:

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Limitations

- Vegetative buffer strips will only mitigate runoff properly if plants are growing
- in some areas, high land prices may prove buffer zones to be infeasible from a cost perspective
- will not remove dissolved phosphorus

Installation Tips

Vegetative buffer strips should be planned in the design stages of a construction project and maintained as natural areas throughout the construction process. If this is not possible, the area should be reseeded after clearing as soon as possible. Consult the Seeding fact sheet for suggestions on seed mixes. Never clear and grade land to the edge of a waterbody; use silt fences or an equivalent BMP to protect it.

The State of Ohio recommends that the width of buffer zones be at least 50 feet measured from the top of the streambank. However, research has shown that the width of a buffer zone needs to be 65 - 100 feet to maintain the biotic integrity of a riparian area and its corresponding watershed.

Research shows that effective vegetative buffer strips should be comprised of three zones: a streamside portion, a middle zone, and an outer zone. The streamside and middle zones should include mature trees as well as shrubs and grasses, and the outer zone should be mainly comprised of grasses. It is recommended that the outer zone be at least 20 feet in width.

Other guidelines that should be followed include:

- the slope of the area should be less than 5%
- the width of a buffer strip should increase as slope increases
- use in conjunction with other BMPs if flows are concentrated, have high velocities, or a large amount of sediment
- do not use the buffer strip as a roadway
- do not use heavy equipment in the streamside and middle zones
- detailed installation tips can be found in the ODNR Rainwater and Land Development manual

Maintenance

- any build-up of sediment on the buffer strip should be removed periodically
- reseed the strip as necessary
- if concentrated flows develop, additional BMPs may have to be installed upland of the buffer strip
- the buffer strip should be mowed periodically, but do not mow lower than 6 in

Vendors

See Appendix pages F20-F21

References

- Mecklenburg, Dan. 1996. Rainwater and Land Development, Second Edition. ODNR. Columbus, Ohio.
- Miltner R.J, Dale White, and Chris Yoder. 2004. The biotic integrity of streams in urban and suburbanizing landscapes. Landscape and Urban Planning 69: 87 – 100.
- Peterson A., Ralph Reznick, Sally Hedin, Martin Hedges, and Dennis Dunlap. 1998. Guidebook of best management practices for Michigan watersheds. Michigan Department of Environmental Quality.
- USEPA (United States Environmental Protection Agency). 2004. Development Document for Final Action for Effluent Guidelines and Standards for the Construction and Development Category. USEPA, Washington, D.C.