

Stream Buffers

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Description

A stream buffer is an area along a shoreline, wetland or stream where development is restricted or prohibited. The primary function of the buffer is to physically protect and separate a stream, lake, or wetland from future disturbance or encroachment.

The general function of the buffer is to:

- Protect the overall stream quality by providing shade for the stream and provide wildlife habitat.
- Remove pollutants, sediments, bacteria, and excess nutrients from storm water runoff through infiltration and filtering.
- Help detain and slow down flow rates from developed areas.
- Provide a setback from the stream to prevent damage to structures or improved property due to flooding or changes in the stream channel.

When and Where to Use It

Effective water quality protection stream buffers consist of undisturbed natural vegetation including maintaining the original tree line along the stream or channel banks. Promptly stabilize disturbed buffers with a dense cover of strong rooted grasses, native plants, and native trees.

Buffer Classification

Major streams, drainageways and waterbodies are recommended to have buffer protection. Buffer recommendations are based on the following classifications:

- Class 1: Streams thhave a drainage area greater than or equal to 100 acres.
- Class 2: Streams that have a drainage area greater than or equal to 300 acres.
- Class 3: Streams that have a drainage area greater than or equal to 640 acres.

**Stream Buffer Recommendations**

| <b>Stream Class</b> | <b>Stream Side Zone (ft)</b> | <b>Managed Use Zone (ft)</b> | <b>Upland Zone (ft)</b> | <b>Total Buffer Width on Each Side of the Stream (ft)</b> |
|---------------------|------------------------------|------------------------------|-------------------------|---|
| 1                   | 30                           | None                         | 15                      | 45  |
| 2                   | 30                           | 20                           | 15                      | 65  |
| 3                   | 30                           | 45                           | 25                      | 100   |

\*\*All buffer widths are measured from the top of the streambank.

**Stream Buffers****Stream Side Zone**

This zone is the closest to the stream and this area and remains undisturbed. The stabilization and protection of this zone is critical to water quality. Clearing and cutting of vegetation is prohibited in this zone with the desirable vegetation being mature forest. Use of this zone includes flood control structures, streambank stabilization and restoration, footpaths, and utility or road crossings.

**Managed Use Zone**

This area provides space for the storage of floodwaters and the filtering of pollutants. A limited number of trees may be removed from this zone provided that the remaining tree density is a minimum of eight healthy trees of a minimum 6-inch caliper per 1,000 square feet. The vegetative target for this zone is managed forest but turfgrass can also be a vegetative target. Do not place fill materials in this area, and do not conduct grading and other land disturbing activities. Some storm water BMPs, greenway trails and bike paths may be designed in this area.

**Upland Zone**

This zone is located furthest from the streambank. Grading is permitted in this zone, in a manner that does not damage the roots of the trees located in the adjacent Managed Use Zone. Grass or other suitable ground covers may be planted in this zone. Do not place fill material in the Upland Zone unless the replacement of deficient soil is required. The volume of fill material shall not exceed the volume of deficient soil removed. Personal gardens, gazebos, decks, and storage building less than 150 square feet in size are permitted in the Uplands Zone.

**Buffer Design Requirements**

For optimal storm water treatment, the following buffer designs are recommended:

- The buffer consists of three lateral zones; Stream Side, Managed Use and Upland Zones.
- The buffer has a storm water depression area that leads to a grass filter strip before entering the Managed Use Zone. Design the storm water depression to capture the first flush runoff from the site and bypass larger storm flows directly to the receiving water body.
- Spread the captured runoff across a grass or wooded filter in a sheet flow condition. The forest buffer of the Stream Side and Managed Use Zones infiltrates the sheet flow and does not discharge any surface runoff to the receiving water body.

**Buffer Maintenance**

An effective buffer management plan includes establishment, management, and distinctions of allowable and unallowable uses in each Zone. Buffer boundaries are well defined and clearly marked during, and after construction is complete. Buffers designed to capture storm water runoff from urban areas require more maintenance if the first zone is designated as a bioretention or other engineered depression area.