

**CHAPTER 153: Surface Water Improvement & Management
(S.W.I.M.) Buffers**

Ratified on April 11, 2000

Section

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153.001 Purpose

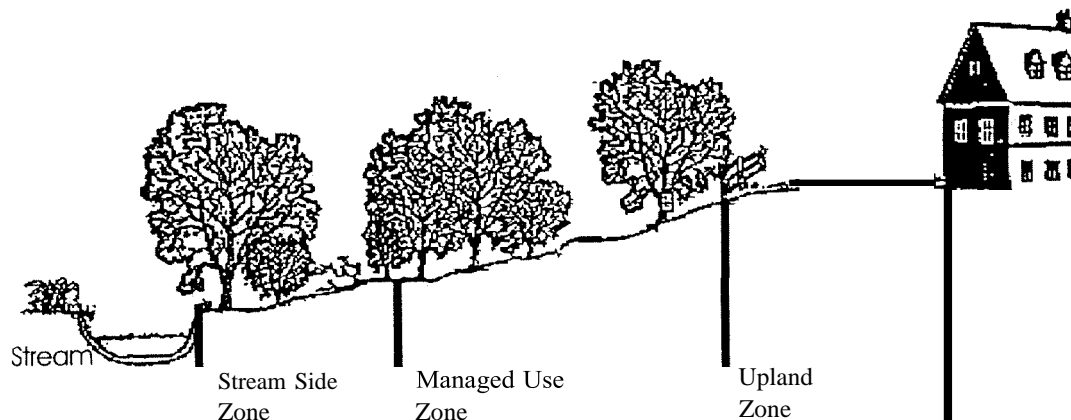
The purpose of the stream buffer network in Pineville is to ensure that the stream and adjacent lands will fulfill their natural functions. Stream systems are comprised of the stream and their drainage basins. Streams have the primary natural functions of conveying storm and ground water, storing floodwater and supporting aquatic and other life. Vegetated lands adjacent to the stream channel in the drainage basin serve as a "buffer" to protect the stream system's ability to fulfill its natural functions. Primary natural functions of the buffer include:

- Protect water quality by filtering pollutants;
- Provide storage for floodwaters;
- Allow channels to meander naturally; and
- Provide suitable habitats for wildlife.

153.002 Definitions

For the purposes of this Section, the following words and phrases shall be defined as specified below.

1. Best Management Practices (BMPs): A structural or nonstructural management-based practice used singularly or in combination to reduce non-point source input to receiving waters in order to achieve water quality protection goals.
 - Non-structural BMPs: Non-engineered methods to control the amount of non-point source pollution. These may include land-use controls and vegetated buffers.
 - Structural BMPs: Engineered structures that are designed to reduce the delivery of pollutants from their source or to divert contaminants away from the water supply. These may include wet detention ponds, detention basins, grass swales and ditches, and infiltration devices, as allowed elsewhere in this Ordinance.
2. Buffer: A natural or vegetated area through which storm water runoff flows in a diffuse manner so that the runoff does not become channelized and which provides for infiltration of the runoff and filtering of pollutants.
3. Buffer Zones: The stream buffer is comprised of three (3) zones as shown below.



4. Buffer Widths: Viewed aerially, the stream buffer width is measured horizontally on a line perpendicular to the surface water, landward from the top of the bank on each side of the stream.
5. Drainage Basin: The area of land which drains to a given point on a body of water.
6. Mitigation: Actions taken either on-site or off-site as allowed by this Part to offset the effects of temporary or permanent loss of the buffer.
7. Stream: A drainage feature on the land surface for conveying water.
8. Top of Bank: The landward edge of the stream channel during high water or bankfull conditions at the point where the water begins to overflow onto the floodplain.

153.003 Applicability

1. All properties shall be subject to the buffer requirements of this Section except those properties which, as of the effective date of April 11, 2000, fit into one of the following categories:
 - (a) Have been issued a Certificate of Building Code Compliance.
 - (b) Have a valid building permit or fill permit.
 - (c) Have been subdivided by a recorded subdivision plat.
 - (d) Have been described by metes and bounds in a recorded deed which:
 - If to be used for residential purposes:
Are 1 acre or less in size.
 - If to be used for nonresidential purposes:
Are 4 acres or less in size if located on a non-FEMA regulated floodway,
or
Are 7 acres or less in size if located on a FEMA regulated floodway.
 - (e) Are included on a valid preliminary subdivision plan.
 - (f) Have otherwise secured a vested property right under State law or local ordinance, *including a fill permit*.
2. Redevelopment or expansions to uses included in the above categories are not subject to the buffer requirements of this Section unless it would result in an increase in the total impervious area within the buffer.
3. In the event that stream buffers are required by another Section of this Ordinance, the more stringent stream buffer requirements apply.

153.004 Buffer Standards

Required stream buffer widths vary based on the size of the upstream drainage basin. Mecklenburg County's Geographic Information System (GIS) will serve as a tool to

delineate the size of drainage basins and specify the corresponding buffer widths. S.W.1.M. stream buffer requirements specified in this Section begin at the point where the stream drains 100 acres or greater. Refer to the Charlotte-Mecklenburg Storm Water Design Manual for optional buffers on streams that drain less than 100 acres.

1. Buffer widths for streams draining equal to and greater than 100 acres

Buffers are required for streams draining areas equal to or greater than 100 acres as specified below. Buffer widths for these streams are measured horizontally on a line perpendicular to the surface water, landward from the top of the bank on each side of the stream.

Drainage Area Designation	Stream Side Zone	Managed Use Zone	Upland Zone	Total Width of Buffer on each side of Stream
≥ 100 acres	20 feet	None	15 feet	35 feet
≥ 300 acres	20 feet	20 feet	10 feet	50 feet
≥ 640 acres ⁽¹⁾	30 feet	45 feet	25 feet PLUS 50% of the FEMA Flood Fringe Area beyond 100 feet	100 feet PLUS 50% of the FEMA Flood Fringe Area beyond 100 feet

Footnotes:

⁽¹⁾ Buffer widths for drainage areas of ≥ 640 acres:

1. If the floodplain is less than 100 feet wide, the total width of the buffer on that side of the stream will be 100 feet except as provided in 4. below.
2. The landowner/developer has discretion to designate the buffer zone beyond the 100-foot minimum. The additional buffer area beyond 100 feet must be contiguous with at least a portion of the required 100-foot buffer and be configured in such a manner as to benefit water quality.
3. So long as the total buffer width is maintained, the buffer may vary in width on either side of the stream based on individual stream side topography provided that the owner(s) control both sides of the stream and the stream side zone is maintained on both sides of the stream.

2. Buffer description

Buffer function, vegetation and use vary according to the different buffer zones as described in the following table.

Characteristics	Stream Side Zone	Managed Use Zone	Upland Zone
Function	Protect the integrity of the ecosystems	Provide distance between upland development and the stream side zone	Prevent encroachment and filter runoff
Vegetative Targets ⁽¹⁾	Undisturbed (no cutting or	Limited clearing - Existing tree density	Grass or other herbaceous ground

Characteristics	Stream Side Zone	Managed Use Zone	Upland Zone
	clearing allowed) - If existing tree density is inadequate, reforestation is required	must be retained to a minimum of 8 healthy trees of a minimum 6 inch caliper per 1000 square feet - If existing tree density is inadequate, reforestation is required	cover allowed - Forest is encouraged
Uses ⁽²⁾	Very restricted - Permitted uses limited to: flood control structures and bank stabilization as well as installation of utilities and road crossings with stabilization of disturbed areas	Restricted - Permitted uses limited to: all uses allowed in the Stream Side Zone, as well as storm water best management practices (BMPs), bike paths, and greenway trails (not to exceed 10 feet in width)	Restricted – Permitted uses limited to: all uses allowed in the Stream Side and Managed Use Zones, as well as grading for lawns, gardens, and gazebos and storage buildings (non-commercial and not to exceed 150 square feet)

Footnotes:

- (1) Re-vegetation of disturbed buffers is required as specified in the Charlotte-Mecklenburg Land Development Standards Manual when such disturbances result in the failure of the buffer system to comply with the vegetative targets specified above. The manual also contains recommended tree densities for each zone.
- (2) Fill material cannot be brought into the buffer *unless a valid fill permit exists*. Grading is allowed only in the Upland Zone. Commercial buildings or occupied structures are not allowed in the buffer. Permitted uses within the buffer zones should be coordinated to ensure minimal disturbance of the buffer system. For example, if it is necessary to install utilities within the buffer, every attempt should be made to build greenway trails so they follow the cleared areas instead of additional clearing.

3. Diffuse flow requirement

Diffuse flow of runoff shall be maintained in the buffer by dispersing concentrated flow and reestablishing vegetation. Techniques for providing diffuse flow are specified in the Charlotte-Mecklenburg Land Development Standards Manual.

- (a) Concentrated runoff from ditches or other manmade conveyances shall be converted to diffuse flow before the runoff enters the buffer.

(b) Periodic corrective action to restore diffuse flow shall be taken by the property owner as necessary to prevent the formation of erosion gullies.

4. Ponds

Ponds which intersect the stream channel shall have the same buffers as the original stream measured from the top of the bank of the pond. Buffer requirements shall not apply to wet ponds used as structural BMPs.

5. Buffer delineation

The following buffer delineations are required:

- (a) Streams and buffer boundaries including all buffer zones must be clearly delineated on all construction plans, including grading and clearing plans, erosion, drainage and sediment control plans and site plans.
- (b) Outside buffer boundaries must be clearly marked on-site prior to any land disturbing activities.
- (c) The outside boundary of the buffer must be permanently marked at highway stream crossings.
- (d) Streams and buffer boundaries including the delineation of each buffer zone must be specified on all surveys and record plats.
- (e) Buffer requirements must be referenced in homeowners' association documents.

Section 153.005 Incentives

1. Rear setback requirements

For all lots within a residential development requiring a SWIM buffer, rear setbacks can be 100% within a SWIM buffer.

2. Open space

SWIM buffer areas can be used toward satisfying all or a portion of the required open space minimums for the development if Town Council determines it is in the best interest of the Town.

153.006 Mitigation

1. Purpose

The purpose of this Section is to set forth the basis on which mitigation is required for unavoidable or approved buffer impacts within any of the buffer zones. This mitigation basis shall allow the property owner or other entity the opportunity to disturb a buffer, provided that steps are taken to offset the buffer loss. Prior to any buffer impact, any person or entity seeking approval of a buffer

impact shall submit the requisite site and mitigation information for review to the Charlotte-Mecklenburg Storm Water Services and approval by Town Council as specified below, to the extent approval is required by this Section.

2. Buffer impacts not requiring mitigation

The following buffer impacts do not require mitigation or specific plan approval but are required to comply with the specifications provided in the Charlotte-Mecklenburg Land Development Standards Manual for stabilization of disturbed areas to minimize negative water quality impacts.

- (a) Road crossings for connectivity or transportation links where the Pineville Planning Board has granted site plan approval.
- (b) Utility crossings.
- (c) Parallel water and sewer utility installation as approved by Charlotte-Mecklenburg Utilities.
- (d) Public paths and trails parallel to the stream outside the Stream Side Zone and stream crossings. Pathways must use existing and proposed utility alignments or previously cleared areas and minimize tree cutting to the maximum extent practicable. To the extent possible, pathways shall preserve existing drainage patterns and avoid drainage structures that concentrate storm water.
- (e) Incidental drainage improvements/repairs for maintenance.
- (f) Individual pedestrian paths connecting homeowners to the stream in the form of narrow, pervious footpaths with minimal tree disturbance.
- (g) New domesticated animal trails (farming) where existing trails are lost as a result of action beyond the farmer's control. Stream crossings should be constructed and maintained to minimize impacts to the Stream Side Zone with fencing perpendicular and through the buffer to direct animal movement.
- (h) Mitigation approved by a State or federal agency acting pursuant to Sections 401 or 404 of the federal Clean Water Act.

3. Buffer impacts requiring mitigation

Impacts to stream buffers not specified in Section 153.006.2, proposed to allow development or other land use in a buffer, shall be required to mitigate or offset the proposed impact in accordance with this Section. Buffer impacts requiring mitigation and plan approval include:

- (a) Filling or piping of streams

- (b) Removal of vegetation from the Stream Side or Managed Use Zones other than as specified by Section 153.004.2 "Vegetative Targets."
- (c) Paths proposed within the Stream Side Zone
- (d) Stream relocations
- (e) Fences and walls requiring tree removal in the Stream Side or Managed Use Zones
- (f) Other buffer impacts not permitted under Section 153.004.2.

The landowner or other entity proposing any of the impacts specified above shall prepare and submit for review a site specific plan to Charlotte-Mecklenburg Storm Water Services and for approval by Town Council. This site plan shall show the extent of the proposed impact and clearly specify the proposed mitigation technique.

4. Pre-approved mitigation techniques

The following techniques are available to landowners for mitigation of buffer impacts, upon review and approval of a specific site mitigation plan by Charlotte-Mecklenburg Storm Water Services. Specifications for these pre-approved mitigation techniques are provided in the Charlotte-Mecklenburg Land Development Standards Manual.

- (a) Installation of Structural BMPs: The installation of an on-site structural BMP designed to achieve specified pollutant removal targets will allow for stream buffer impacts on the specific site. The BMP should remain outside the Stream Side Zone if practical. A detailed BMP design plan must be submitted to Charlotte-Mecklenburg Storm Water Services for approval based on specifications and pollutant removal targets contained in the Charlotte-Mecklenburg Land Development Standards Manual or the Pineville Zoning Ordinance. This plan must also include a long-term maintenance strategy for the BMP complete with the establishment of adequate financing to support the proposed maintenance practices.
- (b) Stream Restoration: The owner may restore and preserve the buffer area on any stream of equivalent or greater drainage area the condition of which is determined to be qualified for restoration by Charlotte-Mecklenburg Storm Water Services on a 1:1 basis in linear feet of stream. This restoration shall include stream bank improvements and Stream Side and Managed Use Zone re-vegetation, in accordance with the Charlotte-Mecklenburg Land Development Standards Manual.
- (c) Stream Preservation: The owner may purchase, fee simple, other stream segments at equivalent or greater drainage area on a 1:1 linear foot basis and convey fee simple and absolute title to the land to the City/County or other conservation organization.

- (d) Wetlands Restoration: On a 2:1 acreage basis for disturbed stream and buffer area (2 acres of wetland for each acre of disturbed area), the owner may provide a combination of the preservation and/or restoration of wetlands with protective easements, and the implementation of structural or non-structural BMPs to achieve specific pollutant removal targets within the impacted area as specified in the Charlotte-Mecklenburg Land Development Standards Manual.
- (e) Bottom Land Hardwood Preservation: On a 2:1 acreage basis for impacted stream and buffer area (2 acres of bottomland hardwood for each acre of disturbed area), the owner may provide a combination of the preservation of existing bottom land hardwood forest or other specifically approved natural heritage area by conservation easement or other legal instrument, and the implementation of structural or non-structural BMPs to achieve specific pollutant removal targets within the impacted area as specified in the Charlotte-Mecklenburg Land Development Standards Manual.
- (f) Controlled Impervious Cover: The owner may commit to, and provide, a specific site development plan that limits overall site impervious cover equal to or less than 24%. Development on this basis shall allow for stream buffer impacts on the specific site. Preservation of the Stream Side Zone is encouraged.
- (g) Open Space Development: The submission of a specific site development plan which preserves 50% of the total land area as undisturbed open space shall allow for stream buffer impacts on the specific site.
- (h) Mitigation Credits: The purchase of mitigation credits on a 1:1 basis utilizing linear feet of stream impacted and the prevailing rate of purchase as established by Charlotte-Mecklenburg Storm Water Services shall allow for stream buffer impacts on the specific site. Mitigation credits purchased under any other program (i.e., U.S. Army Corp of Engineers) shall not cover this requirement unless the issuing agency agrees to relinquish the funds to the appropriate Town/County agency.

5. Other mitigation techniques

No provision of this Section shall prevent the creative development of alternative mitigation plans. The owner shall submit such plan with proposed buffer impacts and detailed mitigation information to Charlotte-Mecklenburg Storm Water Services for review and to Town Council for approval. The criteria used to judge the acceptability of any alternative plan shall be the degree to which the plan addresses the preservation of the four primary natural functions of stream buffers. Such plans may be submitted in conjunction with a mitigation plan submission to the U.S. Army Corp of Engineers and N.C. Department of Environment and Natural Resources for proposed stream or wetland impacts. Charlotte-

Mecklenburg Storm Water Services and the Town Council, when considering proposed mitigation alternatives, shall give equal weight to proposals that utilize the preservation of unique or endangered habitat or natural areas against proposed buffer impacts.

6. Posting of financial security required for structural BMPs

When structural BMPs (wet detention ponds and other BMPs) are approved for mitigation of a buffer disturbance, the approval shall be subject to the owner filing a surety bond or letter of credit or making other financial arrangements which are acceptable to Charlotte-Mecklenburg Storm Water Services, in a form which is satisfactory to the Town Attorney, guaranteeing the installation and maintenance of the required structural BMPs until the issuance of certificates of occupancy for seventy-five percent (75%) of all construction which might reasonably be anticipated to be built within the area which drains into the BMPs, allowing credit for improvements completed prior to the submission of the final plat. At such time that this level of occupancy is achieved, written notice thereof must be given by the owner to Charlotte-Mecklenburg Storm Water Services. The owner must also verify the adequacy of the maintenance plan for the BMPs including the necessary financing to support the proposed maintenance practices. Charlotte-Mecklenburg Storm Water Services will inspect the structural BMPs and verify the effectiveness of the maintenance plan and if found satisfactory, will within 30 days of the date of the notice notify the owner in writing.

7. Maintenance responsibilities for structural BMPs - Civil Penalties

Maintenance of all structural BMPs shall be the responsibility of the property owner or his designee. Any person who fails to maintain the required BMPs in accordance with the approved maintenance plan shall be subject to a civil penalty of not more than \$500. Each day that the violation continues shall constitute a separate violation. No penalties shall be assessed until the person alleged to be in violation has been notified in writing of the violation by registered or certified mail, return receipt requested, or by other means which are reasonably calculated to give actual notice. The notice shall describe the nature of the violation with reasonable particularity, specify a reasonable time period within which the violation must be corrected, and warn that failure to correct the violation within the time period shall result in assessment of a civil penalty or other enforcement action.

153.007 Appeals and Variances

Appeals and variances from this Section shall be subject to the provisions of Chapter 2 of these regulations.