

- d. On-site individual subsurface septic systems shall be permitted only in accordance with page 17 of the report of [Schnabel Engineering and Associates, Contract V82600, Hydrogeologic and Engineering Study, Prospect Hills Spring, Clarke County, Virginia, dated May 2, 1983](#), and where applicable, such systems shall be designed, placed and constructed only in accordance with the recommended guidelines for installation thereof set forth in [Appendix B of the aforesaid report of Schnabel Engineering Associates \(Contract V82600\)](#).

4.2.3	Stream Protection Overlay District	SPO
<p><u>Purpose:</u> The Stream Protection Overlay District (SP) is designed to apply special regulations to the riparian buffer area no less than one hundred feet wide on each side of perennial streams and wetlands adjacent to those streams. The purpose of the buffer is to mitigate runoff, prevent erosion, filter nonpoint source pollution from runoff, moderate stream temperature, and provides for the ecological integrity of stream corridors and networks.</p>		

**A. Vegetated Stream Buffer Regulations.**

1. Except for those land uses listed as exempt, land containing perennial streams, and/or nontidal wetlands adjacent to these streams, shall provide for vegetated stream buffers of either 35 or 100 feet, as described below.
  - a. All lots shall retain a vegetated buffer a minimum of one hundred (100) feet from each side of the stream or wetland.
  - b. Lots that do not have sufficient acreage to qualify for the Land Preservation Special Assessment (land use taxation), that are shown on subdivision plat recorded or a site plan approved after January 1, 2000 shall establish a vegetated buffer a minimum of thirty-five (35) feet from each side of the stream or wetland per [Subsection B](#) below.
2. The minimum stream buffer width shall be measured horizontally from the top edge of the stream bank or nontidal wetlands. The top edge of the steam bank, also known as bank-full width, is the width of the steam at normal high water events. This is determined by considering differences in vegetation (aquatic vs. typical terrestrial) and physical characteristics of the stream bank.
3. The width of buffers for sloped stream banks shall be increased according to the table below:

**TABLE 4.2.3[1], Increased Buffer Widths for Sloped Stream Banks**

Minimum Buffer Width and Slope Percentage	Increased Buffer Width
-- 35-foot buffer with 15% - 25% slope	45 feet
-- 35-foot buffer with slope over 25%	55 feet
-- 100-foot buffer with 15% - 25% slope	125 feet
-- 100-foot buffer with slope over 25%	150 feet

**B. Vegetated Stream Buffer Criteria.**

1. In order to maintain the runoff, erosion, non-point source pollution control, stream temperature, and ecological values of the stream buffer, indigenous vegetation shall be preserved to the maximum extent possible. The target vegetative cover in the stream buffer shall be an indigenous riparian forest with ground cover, shrub, and tree canopy layers. Removal or preservation of vegetation in the stream buffer shall be allowed as provided in [Subsections 2 and 3](#) below. In no case shall vegetation be removed so as to disturb the soil.
  
2. Removal or preservation of vegetation in the stream buffer within a minimum of 35 feet of the top of the stream bank and on land classified as a nontidal wetland shall be in accordance with the following provisions:
  - a. Existing trees, with the following characteristics, shall be preserved:
    - (1) Have a diameter of 6 inches or greater (measured 4.5 feet above the ground) if large or medium canopy trees
    - (2) Have a diameter of 4 inches or greater (measured 4.5 feet above the ground) if small canopy trees
  - b. Invasive non-native species, such as Ailanthus, may be removed regardless of size.
  - c. Dead, diseased, and dying trees may be removed.
  - d. Fallen trees that are blocking stream channels, or trees with undermined root systems in imminent danger of falling, may be removed where stream bank erosion is a current or potential problem that outweighs any positive effects the fallen tree or trees may have on the stream ecosystem.
  - e. Pesticides shall not be applied, except by licensed applicators following pesticide label requirements.
  
3. Removal or preservation of vegetation in the stream buffer between a minimum of 35 feet and a minimum of 100 feet from the top of the stream bank and outside of nontidal wetlands shall be in accordance with the following provisions:
  - a. Dead, diseased, and dying trees may be removed.
  - b. Invasive non-native species, such as Ailanthus (Tree of Heaven), Malcura (Osage Orange), and Rosa Multiflora, may be removed regardless of size.

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- c. Trees six inches in diameter or greater at breast height shall be preserved, unless removed as part of a silvicultural thinning operation based upon the best available technical advice of a professional forester.
4. For the purpose of establishing vegetation, the stream buffers shall consist of a mix of Large, Medium, and Small Canopy trees, shrubs, and warm season grasses, with the following specifications:

**TABLE 4.2.3[2], Planting Specifications**

<b>Plant Type</b>	<b>Specifications</b>
<b>Large Canopy Trees</b>	<u>Mature Height</u> – Over 45 feet
	<u>Species Type</u> – Native riparian
	<u>Typical of but not limited to</u> -- American Basswood, Green Ash, Sycamore, Tulip Poplar, or Red Oak
<b>Medium Canopy Trees</b>	<u>Mature Height</u> – 30-45 feet
	<u>Species Type</u> – Native riparian
	<u>Typical of but not limited to</u> -- Black gum, Red Maple, River Birch, or Persimmon
<b>Small Canopy Trees</b>	<u>Mature Height</u> – Up to 30 feet
	<u>Species Type</u> – Native riparian
	<u>Typical of but not limited to</u> -- Spicebush, Redbud, or Flowering Dogwood
<b>Evergreen Trees</b>	<u>Mature Height</u> – 10 feet
	<u>Species Type</u> – Native riparian
<b>Shrubs</b>	<u>Mature Height</u> – 3 feet
	<u>Species Type</u> – Native riparian
	<u>Typical of but not limited to</u> -- Inkberry, Witch Hazel, Alder, or Hornbeam
<b>Ground Cover</b>	<u>Mature Height</u> – N/A
	<u>Typical of but not limited to</u> – Grasses and forbes

5. Tree and shrub species must be at a minimum, one to two year old bare root seedlings, ground cover must be ordered as Pure Live Seed (PLS). Plant material required per square foot of buffer area shall be in accordance with the following table:

**TABLE 4.2.3[3], Required Plant Material in Buffer Area**

<b>Plant Type</b>	<b>Required Plant Material</b>
Canopy Trees – All Sizes	1 per 750 square feet of buffer area
Evergreen Trees	1 per 750 square feet of buffer area
Shrubs	1 per 50 square feet of buffer area
Ground Cover	7 lbs. of seed per acre

6. The property owner or their agent shall maintain any plant material required by this Ordinance, and any plant material that dies must be replaced in kind or with a suitable substitute as granted by the Zoning Administrator or designee.

**C. Development Types Exempt from Stream Buffer Requirements**

1. The following types of development shall not be required to retain or establish a stream buffer, provided that the requirements of this section are satisfied:
- a. The construction, installation, operation and maintenance of electric, gas and telephone transmission lines, railroads, and activities of the Virginia Department of Transportation, and their appurtenant structures, which are accomplished in compliance with the Erosion and Sediment Control Law or an erosion and sediment control plan approved by a duly authorized Commonwealth of Virginia agency or department.
  - b. The construction, installation, and maintenance by public agencies of water and sewer lines, including water and sewer lines constructed by private interests for dedication to public agencies, provided that:
    - (1) To the extent practical, the location of such water or sewer lines shall be outside of all stream buffer areas.
    - (2) No more land shall be disturbed than is necessary to construct, install and maintain the water or sewer lines.
    - (3) All such construction, installation, and maintenance of such water or sewer lines shall comply with all applicable federal, state and local requirements and permits and be conducted in a manner that protects water quality.
  - c. Silvicultural activities, provided that such activities are conducted in compliance with the water quality protection procedures established by the [Virginia Department of Forestry in its "Best Management Practices Handbook for Forestry Operations,"](#) and are conducted on lots that qualify for Land Preservation Special Assessment (land use taxation).

**D. Permitted Uses and Structures in a Stream Buffer**

1. The following types of uses and structures shall be allowed in a stream buffer if allowed by the Zoning Ordinance and provided that the requirements of this section are satisfied:
  - a. A building or structure that existed as of January 1, 2000 may continue at such location. Any expansion or enlargement of such structure may not encroach upon the stream buffer more than the encroachment of the existing structure.
  - b. On-site or regional stormwater management facilities and temporary erosion and sediment control measures, provided that:
    - (1) To the extent practical, as determined by the Natural Resource Planner, the location of such facilities shall be outside of the stream buffer.
    - (2) No more land shall be disturbed than is necessary to provide for construction and maintenance of the facility, as determined by the Natural Resource Planner.
    - (3) The facilities are designed and constructed so as to minimize impacts to the functional value of the stream buffer and to protect water quality.
  - c. Water wells; passive recreation access, such as pedestrian trails and bicycle paths; historic preservation; archeological activities; provided that all applicable federal, state and local permits are obtained.
  - d. Temporary siting of portable privies is allowed provided that they meet all requirements of the [Clarke County Septic Ordinance](#) and [Section 4.2.1 \(Flood Plain Overlay District\)](#).
  
2. The following types of uses and structures shall be allowed in a stream buffer if allowed by the Zoning Ordinance, the requirements of this section, and with approval of a [Stream Buffer Mitigation Plan per Section 6.2.9](#):
  - a. Lake, pond, or ecological/wetland restoration project.
  - b. Construction and maintenance of a driveway or roadway, if the Zoning Administrator or designee determines that the stream buffer would prohibit reasonable access to a portion of the lot which is necessary in order for the owner to have a reasonable use of the lot.
  - c. Construction, installation and maintenance of water and sewer facilities or sewage disposal systems, on lots recorded before January 1, 2000 if the Zoning Administrator or designee determines that the stream buffer would prohibit the practical development of such facilities or systems.
  - d. Construction of a structure on lots recorded before January 1, 2000 if the Zoning Administrator or designee determines that the stream buffer would result in the loss of a building site, and there are no other available building sites outside the stream buffer on the lot.
  - e. Construction of boat ramps, boat landings, docks (permanent or floating) or similar structures provided that:

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- f. The property owner obtains any required State or Federal permits and provides copies of approved permits to the Zoning Administrator or designee prior to construction, if applicable;
  - g. Land disturbance and construction plans satisfy all requirements of [Section 4.2.1, Flood Plain Overlay District](#); and
  - h. Land disturbance and construction plans are consistent with criteria for streambank construction listed in [Subsections 3 and 4](#) below.
3. Site and Construction Criteria for Decks, Docks, and Stairs. No stairways, decks, docks or other structures shall be constructed until a permit is obtained from the Zoning Administrator or designee. Stairways and decks shall meet the following design requirements:
- a. Stairways shall not exceed four feet in width. Wider stairs may be used for public open-space recreational properties.
  - b. Landings for stairs or decks shall not exceed 32 square feet in area.
  - c. Permanent canopies or roofs are not allowed on stairways, decks, or docks.
  - d. Stairways, docks, or decks may be either constructed above the ground on posts or pilings or placed into the ground provided they are designed and built in a manner that ensures control of soil erosion.
  - e. Stairways, docks or decks shall be located in the most visually inconspicuous portion on lots, as viewed from the river assuming summer leaf-on conditions, whenever practical.
4. Site and Construction Criteria for Private Ramps. No private ramps shall be constructed until a permit is obtained from the Zoning Administrator or designee. Private ramps shall meet the following design requirements:
- a. The site can support a ramp without pilings, dredging, or other special site preparations.
  - b. Boat ramps with vehicular access shall have slopes no greater than 15% and no less than 12%.
  - c. Ramps shall be constructed of gravel, natural rock, steel matting, or other durable inorganic material not exceeding 7 inches in thickness.
  - d. Ramps shall be no more than 12 feet wide along the shore and 10 feet waterward of the shoreline or into a water depth of 4 feet, whichever is less.
  - e. Excavation of no more than 5 cubic yards (to create a suitable slope and launching area) and placement of no more than 5 cubic yards of crushed rock, gravel, clean sand, or small stone are allowed to provide a stable base or maintain use of the ramp.
  - f. Boat ramp construction requires erosion –control measures such as a floating silt fence to limit the spread of sediment stirred by construction.

**E. Revegetation/Tree Replacement**

1. Revegetation/tree replacement, in consultation with a Forestry Consultant or Certified Arborist and within the guidelines described below, shall be required for all areas where any clearing occurs in excess of the standards for maximum cleared area or in required vegetative buffer.
2. Replacement criteria. Trees that are removed shall be replaced so that there is, at a minimum, no loss of tree canopy coverage upon maturity of the replacement trees. All trees to be used as replacement trees shall be:
  - a. Virginia native tree species as identified in the [Virginia Department of Forestry’s Tree Seedling Brochure described by the Virginia Native Plant Society.](#)
  - b. Be of minimum quality as identified in the [American Standard for Nursery Stock \(ANSI Z60.1-2004\) \(as amended\).](#)
  - c. Planted as described in the [American Standard for Nursery Stock ANSI Z60.1-2004 \(as amended\);](#) by a qualified landscape contractor to insure survival; and a minimum of 4 feet in height with caliper dependent on species.

**F. Inspections**

The Zoning Administrator or designee shall inspect any land subject to establishing a vegetated stream buffer to insure that the buffers are installed as per the criteria outlined in this Ordinance.

**G. Measurement of Tree Diameter at Breast Height**

The diameter of the trunk of a tree is measured at breast height (a height of 4.5 feet above the natural grade). The diameter at breast height of trees with multiple trunks shall be the assumed diameter obtained from the sum of the cross-sectional areas of individual trunks at breast height. Trees with less than 4.5 feet of clear trunk shall be measured at the diameter of the largest vertical branch or leader at breast height.