

Model Riparian Buffer Protection Overlay District

Proposed Regulations For Use In A Municipal Zoning Ordinance



PENNSYLVANIA
LAND TRUST
ASSOCIATION



BRANDYWINE
CONSERVANCY

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Section 100. Purpose and Intent. The specific purposes and intent of this article are to:

- A. Conserve, protect, and restore natural riparian resources through scientifically supported processes.
- B. Maintain and improve surface water quality by reducing the entry of detrimental substances, including nutrients, sediment, organic matter, pesticides, and other harmful substances that reach watercourses, wetlands, and surface and subsurface water bodies.
- C. Reduce the entry of detrimental substances by restricting development and uses in riparian areas that intercept surface water runoff, wastewater, subsurface flow and deep groundwater flows from upland sources and where the processes of filtration, deposition, absorption, adsorption, plant uptake, sediment and phosphorus attenuation, denitrification and infiltration may occur; encouraging sheet flow and minimizing, mitigating and preventing concentrated flows of storm water runoff across riparian areas, and securing increased channel and bank stabilization that avoids stream bank erosion and associated water quality, quantity and flow harms.
- D. Attenuate flooding and reduce soil loss.
- E. Reduce adverse aquatic health impacts due to changes in the temperature of receiving waters (both temperature increases and temperature decreases) as a result of storm water runoff, loss of vegetative shading and direct discharges to water bodies.

- F. Enhance in-stream processing of nutrients and pollutants such as pesticides and reduce the downstream movement of pollutants.
- G. Improve and maintain the safety, reliability and adequacy of the water supply for domestic, agricultural, commercial, industrial and recreational uses along with sustaining diverse populations of aquatic flora and fauna.
- H. Provide wildlife habitat, protect native plant species, and provide opportunities for passive recreation.
- I. Conserve headwater areas, groundwater recharge zones, floodway, floodplain, springs, seeps, streams, wetlands, woodlands, prime wildlife habitats and other features that provide recreational value or contain natural amenities, whether on developed or undeveloped land.
- J. Integrate with floodplain, steep slope, woodland protection and other ordinance requirements contained herein that regulate environmentally sensitive areas to minimize hazards to life, property and riparian features.
- K. Conserve scenic and recreation areas within and adjacent to riparian areas.
- L. Protect the watercourses and wetlands otherwise not regulated or superseded by Section 102 of the Pennsylvania State Code.
- M. Regulate the use, siting, engineering and maintenance of all development to be consistent with the purposes and intent of this article and accepted conservation practices and to work with the carrying capacity of existing natural resources.
- N. *(When applicable)* Further the Chesapeake Bay Tributary Strategy goals and objectives by implementing best management practices (BMPs) to address point and non-point pollution sources.

Section 200. Definitions. *(in addition to other definitions typically found within the zoning ordinance)*

APPLICANT – a landowner or developer who has filed an application for subdivision or land development or for any zoning or building permit that will result in land disturbance, including his heirs, successors and assigns or the equitable owner of property with the owner’s permission. Applicants must either be the legal or beneficial owner or owners of land subject to the application, including the holder of an option or contract to purchase (whether or not such option or contract is subject to any condition), a lessee if he is authorized under the lease to exercise the rights of the landowner, or other person having a proprietary interest in land.

BANKFULL FLOW OR LEVEL – The discharge that just fills the water channel to the top of its banks and at a point where the water beings to overflow onto a floodplain.

BEST MANAGEMENT PRACTICE (BMP) – A structural or non-structural device designed to temporarily store or treat stormwater runoff in order to mitigate flooding

and pollution, and reduce soil loss and water quality degradation caused by runoff containing nutrients, animal wastes, toxins, and sediments.

FORESTED RIPARIAN BUFFER – A riparian buffer that consists predominantly of native trees, shrubs and/or herbaceous plants that provide a minimum of sixty (60) percent uniform canopy coverage.

IMPACTED RIPARIAN BUFFER – A riparian buffer that, as a result of land use or land development activity, contains impervious cover or landscape use or management activity such that it no longer meets the definition of “forested riparian buffer”.

IMPERVIOUS COVER – Those surfaces that do not readily absorb precipitation and surface water. The term includes but is not limited to buildings, parking areas, driveways, roads, sidewalks, swimming pools, and any areas in concrete, asphalt, packed stone, or other equivalent surfaces, including those with a coefficient of runoff of 0.7 or higher. Impervious surfaces also include disturbed soils with a bulk density of ninety-five (95) percent of the value at which plant growth limitation is expected for average plant material.

LAND DISTURBANCE – Any activity that exposes soils, alters topography, and/or alters vegetation.

NORMAL POOL ELEVATION –

- For water bodies which have no structural measures to regulate the height of water, the height of water at ordinary stages of low water unaffected by drought.
- For structurally regulated water bodies, the elevation of the spillway, outlet control, or dam crest which maintains the water body at a specified height.
- The term does not apply to wetlands.

RIPARIAN – Belonging or related to the bank of a water body, river, stream, wetland, lake, pond, or impoundment.

RIPARIAN BUFFER – A vegetated area, including trees, shrubs, and herbaceous vegetation, adjacent to a water body.

TOP OF BANK – The elevation at which rising waters begin to inundate the floodplain. In case of ambiguous, indefinite, or non-existent floodplain or question regarding the location, the Top of Bank shall be the bankfull water elevation as delineated by a person trained in fluvial geomorphology and utilizing the most recent edition of *Applied River Morphology* by Dave Rosgen, or comparable reference book. “Top of Bank” shall be synonymous with “edge of water.”

WATER BODY – Any natural or manmade pond, lake, wetland, impoundment, or watercourse. This shall not include any pond or facility designed and constructed solely to contain stormwater, or a swimming pool.

WATERCOURSE – Any channel of conveyance of surface water having a defined bed and banks, such as a stream, river, brook, or creek, whether natural or artificial, with

perennial, intermittent or seasonal flow. This shall not include any channel or ditch designed and constructed solely to carry stormwater.

WETLAND OR WETLANDS – Those areas inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances, do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, ponds, lakes, and similar areas. Wetlands shall include any area so delineated by the National Wetlands Inventory of the U.S. Fish and Wildlife Service and all lands regulated as wetlands by the Pennsylvania Department of Environmental Protection (PADEP) or the U.S. Army Corps of Engineers (ACE). In the event there is a conflict between the definitions of these agencies, the more restrictive definition that defines the wetlands most expansively shall apply.

Section 300. Applicability.

- A. The provisions of this article shall apply to any water body as defined herein, except as further clarified in subsection D. below.
- B. The provisions of this article shall apply in accordance with subsection A. above where any application for special exception, conditional use, variance, subdivision, land development, or building or zoning permit is required, or when a violation of the provisions of this article require an enforcement action.
- C. The provisions of this article shall not apply to the footprints of existing primary and accessory uses, including but not limited to all agricultural uses and research related thereto, buildings, transportation facilities, fences, lawns, gardens, utility lines, roads, driveways, sidewalks, bikeways, decks, piers, water, septic and sewage supply facilities and their related appurtenances (well houses, utility pump and lift stations, manholes, etc.).
- D. For lands lying within a PADEP-designated Special Protection Watershed, the riparian buffer requirements of Section 102.14 of Chapter 102 (Erosion and Sedimentation Pollution Control Rules and Regulations) of the Commonwealth of Pennsylvania, shall apply when more restrictive than the regulations provided herein. Pursuant to Section 102.14, earth disturbance activities subject to post-construction stormwater management (PCSM) permits cannot be located within one hundred fifty (150) feet of a watercourse in an exceptional value (EV) or high quality (HQ) watershed. At the time of plan and/or permit approval under this Zoning Ordinance, applicants are responsible for demonstrating compliance with Section 102.14 of Chapter 102, when applicable, including providing copies of all related correspondence and relevant PADEP approvals to the Zoning Officer.

Section 400. Riparian Buffer Delineation. The riparian buffer area shall extend a minimum total width of one hundred (100) feet from the edge of a water body, or shall equal the extent of the 100-year floodplain, whichever is greater.

- A. The riparian buffer area will consist of two distinct zones designated as:
 - 1. Zone One: Zone One begins at each edge of a water body and shall extend landward a minimum width of fifty (50) feet, measured horizontally on a line perpendicular to the nearest edge of the water body, as reviewed and approved by the municipal engineer.
 - a. Where steep slopes (15% to 25% or more) are located within fifty (50) feet of the edge of a water body, Zone One shall extend the entire distance of this steep sloped area, including any steep sloped area that begins within fifty (50) feet and extends beyond one hundred (100) feet. If the sloped area extends beyond one hundred (100) feet, there will be no requirement for the establishment of Zone Two. If the distance is less than one hundred (100) feet, but greater than fifty (50) feet, the width of Zone Two will be adjusted so that the total riparian buffer width (Zone One and Zone Two) is one hundred (100) feet.
 - 2. Zone Two: Zone Two begins at the outer edge and on each side of any area delineated within Zone One and extends further landward to a minimum total width of one hundred (100) feet including Zone One, and where the floodplain extends greater than one hundred (100) feet from the water body, shall extend to the outer edge of the defined 100-year floodplain.
- B. Isolated wetlands and water bodies. Wetlands and water bodies not located along a watercourse, where the wetland or water body is greater than 5,000 square feet in area, shall have a minimum buffer width consistent with Zone One, as defined above, from the edge of the wetland or water body around the entire perimeter.
- C. Buffer increase for impaired water bodies. In the case of a water body that has been listed by PADEP as impaired (see PADEP's "Integrated Water Quality Report, 2012", or if applicable, a later revision thereof, for a listing of impaired water bodies), Zone Two begins at the outer edge of any area delineated within Zone One and extends further landward to a minimum total width of a one hundred fifty (150) feet including Zone One.
- D. Applicant to initially delineate. The applicant shall delineate, for the property as a whole, any riparian buffer areas as specified in subsections 400.A through 400.C above on any plan that is submitted for the following approvals:
 - 1. Conditional use, special exception, or variance.
 - 2. Subdivision or land development.

3. Any other improvements that require a zoning or building permit for the activities within the Riparian Buffer Overlay Zoning District.

Section 500. Uses Permitted.

- A. The following uses or activities are permitted by right in Zone One:
 1. Wildlife sanctuaries, nature preserves, forest preserves, fishing areas, passive areas of public and private parklands.
 2. Temporary stream restoration projects, stream bank restoration projects and vegetation restoration projects to restore the stream or riparian zone to an ecologically healthy stage utilizing natural channel design practices to the greatest degree possible. The project duration and timing shall be subject to Zoning Officer approval.
 3. Stream crossings for farm vehicles and/or livestock if part of a federal, state, and/or county conservation district and/or local nonprofit riparian buffer improvement project.
 4. Provision for stone-dust or natural trail and related trail access when determined by the Zoning Officer to result in minimum disturbance to existing trees and shrubs.
 5. Research and monitoring devices, such as staff gages, water recording, water quality testing, cross vanes, weirs and related demonstration facilities.
- B. The following uses or activities are permitted by right in Zone Two:
 1. Uses or activities permitted in Zone One.
 2. Timber harvesting operations, when conducted in compliance with a timber harvesting plan prepared, submitted, and approved in accordance with Section ____ of the Zoning Ordinance. Clear-cutting of timber, or high-grading of forests, as defined therein, shall not be permitted within the regulated riparian buffer.
 3. Any other use or activity permitted in the underlying (base) district, provided that:
 - a. no more than twenty (20) percent of Zone Two shall be re-graded, filled, or otherwise altered or subject to land disturbance; and
 - b. with the exception of paved trails approved by the Zoning Officer, no new impervious surfaces shall be created as a result of any permitted uses or activities except as permitted in paragraph 500.D, below.
- C. The following uses or activities are permitted by Special Exception (*or Conditional Use, if so desired*) approval in Zone One:

1. Structures that, by their nature, cannot be located anywhere except within the riparian buffer. These structures shall include docks, boat launches, public water supply intake structures, facilities for natural water quality treatment and purification and public wastewater treatment plant sewer lines and outfalls. The structures shall provide for the minimum practicable disturbance of the riparian buffer by minimizing size and location and by taking advantage of collocation, if possible.
 2. Road crossings (when perpendicular to the stream or buffer), bridges, culverts, utilities, and impoundments.
 3. Provision for paved trail and related trail access when determined by the Zoning Hearing Board to result in minimum disturbance to existing trees and shrubs.
- D. The following uses or activities are permitted by Special Exception (*or Conditional Use, if so desired*) approval in Zone Two:
1. Uses permitted by Special Exception in Zone One.
 2. Stormwater conveyance structures and outfalls.
 3. The grazing of livestock or growing of agricultural crops provided existing forested riparian buffers in either zone are not removed or otherwise impacted.
 4. Any other use or activity permitted in the underlying (base) district, provided that no more than twenty (20) percent of Zone Two shall be regraded, filled, altered, subject to land disturbance, or covered with impervious surfaces.
- E. The following activities or practices are expressly prohibited in Zone One and Zone Two:
1. Removal or disturbance of vegetation in a manner that is inconsistent with erosion and sedimentation control and riparian buffer protection.
 2. Storage or discharge of any hazardous or noxious materials, except those used during emergencies for the treatment and/or maintenance of any public sewer and public water treatment facilities (i.e., generator sets or alternative drive units).
 3. Use of fertilizers, pesticides, herbicides, and/or other chemicals, except:
 - a. where permitted by a valid conservation plan, forest management plan, or approved planting and maintenance plan (see Section 600.E. below);
 - b. for selective herbicide application by a qualified professional to control noxious weeds and invasive species of plants in riparian buffers.

4. Motor or wheeled vehicle traffic in any area not designed to accommodate adequately the type and volume of vehicular movement.

Section 600. Buffer Restoration and Planting Requirements.

- A. All riparian buffer areas shall be continually maintained with a dominant mix of native trees, shrubs, and/or herbaceous plants so as to constitute a forested riparian buffer where not otherwise occupied by any existing use excepted in accordance with Section 300.C., or any authorized use permitted in Section 500.
- B. Impacted riparian buffer areas shall be restored by an applicant to a forested riparian buffer, as a condition of approval of any final subdivision plan, final land development plan, or building or zoning permit approval, except as provided in subsection G., through invasive removal and planting of a diverse mix of native tree and shrub species as follows:
 1. For water bodies identified as impaired by PADEP, the applicant shall restore the first one hundred (100) feet of the impacted buffer area.
 2. For all other water bodies, the applicant shall only restore Zone One.
- C. Restoration of the impacted riparian buffer shall occur as follows:
 1. Zone 1. Undisturbed native trees must occupy Zone 1 in its entirety. Predominant vegetation must be composed of a variety of native tree species planted in accordance with subsection D. below.
 2. Zone 2. For restoration adjacent to impaired water bodies, in addition to the planting requirements for Zone 1, managed native trees and shrubs must occupy at least the first fifty (50) feet of Zone 2, beginning at the outer edge of Zone 1. Predominant vegetation must be composed of a variety of native riparian tree and shrub species planted in accordance with subsection D. below.
- D. Restoration plantings shall be planted at a density sufficient to provide three hundred (300) trees per acre at maturity. To achieve this density, no less than three hundred fifty (350) (@ approximately 10 x 10 feet spacing) trees per acre should be planted initially. The following guide is recommended for tree spacing and density based on plant size at installation:
 1. Seedlings – 6-10 feet spacing (approx. 700 seedlings/acre)
 2. Bare root stock – 14-16 feet spacing (approx. 200 plants/acre)
 3. Larger and container – 16-18 feet spacing (approx. 150 plants/acre)Additional planting guidance may be obtained from PADEP’s Bureau of Watershed Management Document Number 394-5600-001, entitled “Riparian Forest Buffer Guidance, November 27, 2010.

- E. Applicants shall submit, and as a condition of approval of any final subdivision plan, final land development plan, or permit, implement a planting and maintenance plan for the impacted riparian buffer. The plan shall be prepared by a registered landscape architect or professional plant ecologist. The plan shall identify the number, density and species of native trees and shrubs appropriate to the geographic location that will achieve a minimum of sixty (60) percent uniform canopy coverage and describe the maintenance program to be conducted by the buffer owner for a minimum of five (5) years, include measures to initially remove, and thereafter control, invasive species, control deer and rodent damage, and require replacement of deceased trees for a minimum of the first three (3) years.
- F. Any riparian buffer that is included within a lot created after the effective date of this ordinance shall include as a condition of approval of the subdivision creating the lot, a restrictive covenant approved by the municipal solicitor, and recorded with the final subdivision or land development plan and the deed for the lot. The restrictive covenant shall clearly define the riparian buffer area, shall include binding provisions for the adequate long-term functioning and integrity of the riparian buffer, and shall include a requirement for notification of all subsequent lot owners of its restrictive nature.
- G. Restoration to a forested riparian buffer shall not be required for issuance of a building permit for a single-family residence or addition thereto.

Section 700. Modifications to Riparian Buffer Standards.

- A. For any use or activity subject to Subdivision or Land Development review, as part of applicable Plan submission, modification(s) may be requested to the provisions of Sections 400 or 600 of this Article. Requested modification(s) may be granted at the discretion of the Board of Supervisors pursuant to the provisions of the Subdivision and Land Development Ordinance.
- B. For any use or activity not subject to Subdivision or Land Development review, but subject to application for approval of a Conditional Use, Special Exception, or Zoning Variance under the provisions of this Ordinance, the applicant may request modification(s) to the provisions of Sections 400 or 600 of this Article.
- C. For any use or activity not falling within the scope of subsections A or B, the applicant may request modification(s) to the provisions of Sections 400 or 600 of this Article in the form of an application for grant of a Special Exception by the Zoning Hearing Board. *(Optional: Such applications shall be submitted to the Planning Commission for review and comment prior to formal Special Exception application to the Zoning Hearing Board.)*
- D. Applicants shall provide appropriate documentation in support of their modification request, and the Board of Supervisors or Zoning Hearing Board (as

applicable) may request additional documentation of an applicant, or of its municipal consultants, to help reach its decision.

- E. In consideration of approval of any applicant request for modification(s) under this Article, the following standards shall serve as the basis for a decision:
1. That there are unique physical circumstances or conditions, including but not limited to irregularity, narrowness, or shallowness of lot size or shape, excessive frontage along a water body, presence of existing buildings or structures, or exceptional topographical or other physical conditions peculiar to the particular property. That because of such physical circumstances or conditions, it is impracticable for the property to be developed in strict conformity with the buffer requirements of this Article and that the approval of the modification is therefore necessary to enable the reasonable use of the property under base zoning provisions.
 2. That the modification, if approved, will result in the minimum reduction in performance of the riparian buffer, pursuant to the purposes set forth in Section 100, as needed to provide for the lawful intended use.
- F. No alteration of the Use Regulations set forth in Section 500 shall be authorized as modification pursuant to this Section 700. Any such requested alteration shall constitute an application for a variance, meeting all applicable requirements for same, to be submitted to the Zoning Hearing Board.

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