

CHAPTER 8 STREAM BUFFER REGULATIONS

8.1 TITLE, PURPOSE AND INTENT

8.1.1 This chapter shall be known as the "Stream Buffer Regulations of Boone County, Missouri."

The County Commission of Boone County, Missouri has determined that these regulations are necessary for the purpose of promoting the health, safety, comfort, and/or general welfare; and conserving the values of property throughout the County; and lessening or avoiding undue impact of stormwater runoff on adjoining properties and the environment.

A. Buffers adjacent to stream systems provide numerous environmental protection and resource management benefits which can include the following:

1. Restoring and maintaining the chemical, physical and biological integrity of the water resources,
2. Removing pollutants delivered in urban storm water,
3. Reducing erosion and controlling sedimentation,
4. Stabilizing stream banks,
5. Providing infiltration of storm water runoff,
6. Maintaining the base flow of streams,
7. Contributing the organic matter that is a source of food and energy for the aquatic ecosystem,
8. Providing tree canopy to shade streams and promote desirable aquatic organisms,
9. Providing riparian wildlife habitat,
10. Furnishing scenic value and recreational opportunity,
11. Protecting the public from flooding, property damage and loss, and
12. Providing sustainable, natural vegetation.

B. It is the purpose of this section to establish minimal acceptable standards for the design of stream buffers to protect the streams, wetlands, floodplains and riparian and aquatic ecosystems of the County of Boone, and the implementation of specifications for the establishment, protection and maintenance of vegetation along all stream systems and/or waterbodies within our County's authority.

C. It is the desire of the County to protect and maintain natural vegetation in riparian and wetland areas by implementing specifications for the establishment, protection and maintenance of buffer vegetation along stream systems and/or waterbodies within our County's authority.

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8.1.2 Jurisdictional Area – These regulations apply to all unincorporated lands within Boone County.

8.1.3 Authority – These regulations are adopted pursuant to the provisions of Sections 64.825 – 64.885 and 64.907, Revised Statutes of Missouri.

8.1.4 Applicability

- A. This article shall apply to all proposed development except for that development which has been granted a variance by the Boone County Board of Adjustment in accordance with the criteria as outlined hereinafter.
- B. This article shall apply to activities that involve clearing, earthwork and excavation within the buffer zone as defined herein.
- C. Except as provided elsewhere this article shall apply to all tracts and parcels of land in the County.
- D. This article shall not apply to development which prior to the effective date of this article:
 - 1. Is covered by a plat recorded of record in accordance with subdivision regulations.
 - 2. Is covered by a valid, unexpired building permit.
 - 3. Has applied for a building permit.
- E. This article shall not apply to surface mining operations which are operating in compliance with a State-approved surface mining permit.
- F. This article shall not apply to agricultural or farming activities.
- G. This article shall not be construed so as to prevent modifications to stream channels or wetlands if such modifications have been approved and permitted by a Federal Agency such as the U.S. Army Corps. of Engineers.
- H. Structures that exist on or before the date of adoption of this section, that do not conform to this section and cannot be made to conform by using the stream buffer averaging provisions of Section 8.5 F shall be allowed to remain in the present location and footprint. Such structures can be expanded or enlarged if the expansion or enlargement is vertical and/or away from the stream being buffered.

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8.2 Administration

8.2.1 Limitation on liability.

This chapter does not guarantee that properties will always be free from storm water flooding or flood damage. This chapter shall not create liability on the part of, or a cause of action against, the county or any county officer or employee for any flood damage.

8.2.2 Conflicts

Where any provision of this chapter imposes restrictions different from those imposed by any other law or regulation, whether state, federal or local, whichever is more restrictive or imposes a higher standard shall control.

8.2.3 Administration and Enforcement.

The provisions of this chapter shall be administered and enforced by the Director of Public Works. The Director shall receive applications required by these regulations and issue permits. He/she shall examine premises for which permits have been issued, and shall make the necessary inspections to see that the provisions of law are complied with. He/she shall, when requested by the County Commission, or when the interests of the county so require, make investigations in connection with matters referred to in these regulations and render written reports on the same. For the purpose of enforcing compliance with the law, he/she shall issue such notices or orders as may be necessary.

- Inspections: Inspections shall be made by the Director of Public Works or his/her designee(s).
- Rules/ Policies: For carrying into effect its provisions, the County Commission and/or its designee may adopt rules/ policies consistent with these regulations.
- Records: The Director of Public Works shall keep careful and comprehensive records of applications, of permits issued, of inspections made, of reports rendered, and of notices of orders issued. All such records shall be open to public inspection at reasonable hours, but shall not be removed from the office of the Director of Public Works.

8.2.5 Appeals and Variances.

8.2.5.1 Appeals

Any person aggrieved by any decision of the Director of Public Works in the administration or enforcement of this Chapter, other than the nuisance abatement provisions, may appeal such decision to the Board of Adjustment.

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8.2.5.2 Variances

8.2.5.2.1 Variances by the Director

A. The Director of Public Works may grant a waiver for the following:

- (1) Those projects or activities serving a public need where no feasible alternative is available.
- (2) The repair and maintenance of public improvements where avoidance and minimization of adverse impacts to wetlands and associated aquatic ecosystems have been addressed.

B. The applicant shall submit a written request for a variance to the Director of Public Works in a form specified by the Director. The application shall include information specified by the Director and specific reasons justifying the variance and any other information necessary to evaluate the proposed variance request. The Director of Public Works may require an alternatives analysis that clearly demonstrates that no other feasible alternatives exist and that minimal impact will occur as a result of the project or development.

C. Upon receipt of all application materials the Director shall certify the application complete. The Director shall have 10-working days from the date of the complete application in which to issue a decision. If during review of the application the Director requests additional information, then the time between when the request was made and when the information is submitted shall not count against the 10-day review period.

8.2.5.2.2 Other Variances

(a) Any property owner may petition the Board of Adjustment for a variance from strict compliance with the requirements of this chapter. The petition shall be in writing and shall state the grounds for the petition and all facts relied upon by petitioner.

(b) The Board of Adjustment shall not grant a variance from the requirements of this chapter unless it shall make all of the following findings:

- (1) Good and sufficient cause based on an unreasonable burden or hardship has been proved.
- (2) The granting of the variance would not result in any increase in quantity or velocity of flow, degradation of water quality, or negative impacts upon adjoining or downstream properties, nor upon the stormwater system.
- (3) The degree of variance is the minimum necessary to afford relief from the unreasonable burden or hardship imposed by the requirements of this chapter;
- (4) The variance may be granted without defeating the public health, safety

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and welfare purposes and intent of this chapter.

8.3 DEFINITIONS

Best Management Practices (BMPs) - Conservation practices or management measures which control soil loss and reduce water quality degradation mainly caused by nutrients, animal wastes, toxins, sediment in the runoff. BMPs may be either structural (grass swales, terraces, retention and detention ponds), or non-structural (disconnection of impervious surfaces, directing downspouts onto grass surfaces and educational activities).

Buffer - A vegetated area including trees, shrubs, managed lawn areas, and herbaceous vegetation which exists or is established to protect a stream system. Alteration of this natural area is strictly limited.

Development –

- 1) The improvement of property for any purpose involving construction.
- 2) Land disturbance as that requires the issuance of a land disturbance permit.

Farming Activities – See *Agriculture or Farming Activity*

Indigenous Vegetation – Any species that was present in Missouri prior to European Settlement (approximately 1735 A.D.) or any plant identified as native or indigenous on lists maintained by agencies such as the Missouri Department of Conservation or United States Department of Agriculture.

Managed Lawn Areas - Any area greater than five hundred (500) square feet where the vegetative ground cover is maintained at a uniform height of less than 5-inches.

Ordinary High Water Mark – That line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter or debris, or other appropriate means that consider the characteristics of the surrounding area.

Pollution - Any contamination or alteration of the physical, chemical, or biological properties of any waters which will render the waters harmful or detrimental to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses; or to livestock, wild animals, birds, fish or other aquatic life.

Streams - Perennial and intermittent watercourses identified through site inspection and United States Geological Survey (USGS) maps and further defined and categorized as follows:

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- A. Type I Streams are defined as perennial streams shown as solid blue lines on the United States Geological Survey seven and one-half minutes series topographical map and have a drainage area of greater than 50 acres.
- B. Type II Streams are defined as intermittent streams shown as dashed blue lines on the United States Geological Survey seven and one-half minutes series topographical map and have a drainage area of greater than 50 acres.
- C. Type III Streams are defined as intermittent streams or natural channels which are not shown on the United States Geological Survey seven and one-half minutes series topographical map as either blue or dashed blue lines which have drainage areas of greater than 50 acres..

Wetlands - Those areas that are inundated or saturated by surface or ground water 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. Wetlands generally include swamps, marshes, bogs, and similar areas.

8.4 STREAM BUFFER PLAN REQUIREMENTS

- A. All administrative surveys, plats, development plans and building permits shall set forth an informative, conceptual and schematic representation of the proposed stream buffers by means of maps, graphs, charts, or other written or drawn documents so as to enable the Director an opportunity to make a reasonably informed decision regarding the proposed activity.
- B. Stream buffer plans shall contain the following information and shall be shown on one or more sheets as required by the Director:
 - 1. A site plan map at a minimum scale of 1"=200'.
 - 2. Field delineated and surveyed streams, springs, seeps, bodies of water, sink holes, and wetlands (include a minimum of 200 feet into adjacent properties).
 - a. Stream buffer plans for an individual single family or two family dwelling or an administrative survey are not required to survey the features listed above.
 - 3. Delineated stream buffers.
 - 4. Limits of the 100-year floodplain as shown on the adopted floodplain maps for the County of Boone.
 - 5. Steep slopes greater than 15% for areas adjacent to and within 200 feet of Type I, II or III streams

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- C. The buffer plan shall be submitted in conjunction with the required development permit application or land disturbance plan for any development, whichever is submitted first. The buffer must be clearly delineated on the site grading plan.
 - 1. Provide a note on the site grading and drainage plans or development site plan stating, "There shall be no clearing, grading, construction or disturbance of vegetation except as specifically approved by the Director."
- D. Temporary boundary markers will be installed by the applicant prior to commencing clearing and grading operations and maintained throughout the applicant's development activities. The markers will be placed on the outside edge of the buffer zone prior to the start of any activity adjacent to the buffer zone. Markers shall be clearly visible and shall be spaced at a maximum of 100 feet. The markers shall be joined by marking tape or fencing. Orange construction fencing should be used to delineate the limits of the stream buffer.
- E. Stream buffer plans, except for single family dwellings, two family dwellings or administrative surveys, shall be prepared by a professional surveyor, engineer or architect licensed to practice in the State of Missouri.

8.5 DESIGN STANDARDS FOR STREAM BUFFERS

- A. An adequate buffer for a stream system shall consist of a predominantly undisturbed strip of land extending along both sides of a stream and their adjacent wetlands, floodplains or slopes. The buffer width may be adjusted to include contiguous sensitive areas, such as steep slopes or erodible soils, where disturbance may adversely affect water quality, streams, wetlands, or other water bodies. All specified stream buffer widths are minimums and may be increased as specified in these regulations or on a voluntary basis by the property owner.
- B. The buffer shall begin and be measured from the ordinary high water mark of the channel during base flows.
- C. The required base width for all buffers shall be determined based on the type of stream being protected, as specified in TABLE I. of this ordinance below:

TABLE I. Required Minimum Stream Buffer Width	
Stream Type	Required Width (each side)
Type I	100 feet
Type II	50 feet
Type III	30 feet

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- D. Stream buffer width shall be modified if there are steep slopes which are above the ordinary high water mark and within the required stream buffer width and drain into the stream system. In those cases, the buffer width will be adjusted according to the guidance in TABLE II. Below:

TABLE II. Modifications to Stream Buffer Width Based on Slope	
Percent Slope	Width of Buffer
0 – 14%	No Change
15% - 25%	add 25 feet
Greater than 25%	add 50 feet

- E. A stream buffer shall not be required for portions of a stream that are less than 150 feet in length due to the stream having been previously enclosed within a pipe or box structure immediately upstream and downstream of the subject location. In such cases, said stream portion may be similarly enclosed in a pipe or box structure.
- F. Stream Buffer Averaging. The stream buffer width may be relaxed and the buffer permitted to become narrower at some points to allow for structures existing on the date of adoption of these regulations provided:
1. The average width of the stream buffer must meet the minimum requirement specified in Table 1 and Table 2.
 2. There is no reduction in the width of the Streamside Zone (Zone 1)
 3. No new structures are built in the 100-year floodplain

8.6 TWO ZONE STREAM BUFFER SYSTEM

- A. The stream buffer shall be composed of two distinct zones, with each zone having its own set of allowable uses and vegetative targets as specified in this section.

Table III. Stream Buffers							
Streamside Zone				Outer Zone			
	Type I Stream	Type II Stream	Type III Stream		Type I Stream	Type II Stream	Type III Stream
Width	50	25	15	Width	50	25	15

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Vegetation	Indigenous Vegetation	Vegetation	Type I – Indigenous Vegetation Type II - Managed Lawns Permissible Type III – Managed Lawns Permissible
Uses	Flood control, permeable-surfaced foot and bicycle paths, road crossings, utility crossings, stream or stream bank restoration and restoration of indigenous vegetation	Uses	All uses allowed in Streamside Zone, hard-surfaced biking/hiking paths, detention/retention structures, utility corridors, storm water BMPs, residential yards, landscaped areas
Function	Protect the physical and ecological integrity of the stream ecosystem	Function	Protect key components of the stream and filter and slow velocity of water runoff

B. Zone 1. Streamside Zone

1. The function of the streamside zone is to protect the physical, biological and ecological integrity of the stream ecosystem. The vegetative target for the streamside zone is undisturbed indigenous vegetation.
2. The streamside zone will begin and be measured as defined and extend away from the ordinary high water mark a distance as shown in Table III. Wetlands that adjoin the buffer shall be added to the buffer. There shall be a 15-foot buffer around any edge of the wetland that is not within the stream buffer (inner or outer zone).
3. Allowable uses in the streamside zone:
 - a. Flood control structures, stream gauging and water quality monitoring equipment, stormwater treatment facilities in accordance with an approved plan
 - b. Utility crossings
 - c. Permeable surfaced foot and bicycle paths
 - d. Road crossings
 - e. Utilities where no practical alternatives exist as determined by the director.
 - f. Stream restoration, stream bank restoration or restoration of indigenous vegetation in accordance with an approved plan
 - g. Roads, that exist on or before the date of adoption of these regulations, and associated maintenance activities.
4. Restricted uses in the streamside zone.

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The following uses are prohibited except where incidental to an allowable use:

- a. Clearing of existing vegetation,
- b. Grading, stripping or other soil-disturbing practices,
- c. Filling or dumping,
- d. Draining the buffer area by ditching, underdrains or other systems,
- e. Use, storage or application of pesticides, except for the spot spraying of noxious weeds or other species consistent with recommendations of the Missouri Department of Conservation, Boone County Soil and Water Conservation District, United States Department of Agriculture or University of Missouri Extension Service
- f. Storage or operation of motorized vehicles except for maintenance or emergency use.
- g. Walls, solid fences, chain link fences, woven or welded wire fences
- h. Structures or any type of impervious surface except as provided above

C. Zone 2. Outer Zone

1. The function of the outer zone is to prevent encroachment into the streamside zone and to filter runoff from residential and commercial development.
2. The outer zone will begin at the outside edge of the streamside zone and extend outward, away from the streamside zone the distances as shown in Table III. Wetlands that adjoin the buffer shall be added to the buffer. There shall be a 15-foot buffer around any edge of the wetland that is not within the stream buffer (inner or outer zone).
3. Allowable uses in outer zone
 - a. All uses allowed in the streamside zone
 - b. Utilities
 - c. Hard-surfaced biking/hiking paths,
 - d. Detention/retention structures,
 - e. Storm water BMPs,
 - f. Landscaped areas (Type II and Type III streams only) although planting of indigenous vegetation is encouraged.

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4. Restricted Uses in Outer Zone
 - a. Walls, solid fences, chain link fences, woven or welded wire fences
 - b. Structures or any type of impervious surface except as provided above

8.7 STREAM BUFFER MANAGEMENT AND MAINTENANCE

- A. The stream buffer, including wetlands and floodplains, shall be managed by the landowner to enhance and maximize the unique value of these resources. Management includes specific limitations on alteration of the natural conditions of the land and vegetation.
- B. Allowed maintenance practices and activities in the streamside zone of the buffer. All allowed uses may be maintained subject to the review of the County. Any entity conducting an allowed activity within the streamside zone shall restore any disturbed area to its previous condition or in accordance with a plan approved by the Director. In addition to maintenance of allowed uses, the following maintenance activities may be conducted:
 1. Roads, bridges, paths, and utilities existing as of the date of adoption of these regulations.
 2. Rights of way for roads and utilities should be the minimum width to allow for installation, access and maintenance.
 3. Removal of diseased or dead trees, brush and trash.
 4. Maintenance of all County-approved improvements, including utilities
 5. Removal of debris which could cause flooding.
 6. Selective (spot) spraying of noxious or other vegetation consistent with recommendations from the Missouri Department of Conservation, Boone County Soil and Water Conservation District, United States Department of Agriculture or University of Missouri Extension Service
- C. Restricted maintenance practices and activities within the streamside zone of the stream buffer:
 1. Clearing of existing vegetation.
 2. Soil disturbance by grading, stripping, or other practices.
 3. Filling or dumping.
 4. Drainage by ditching, under drains or other systems.
 5. Use, storage, or application of pesticides, except as provided for in B.6 above.

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6. Storage or operation of motorized vehicles, except for maintenance and emergency use approved by the County or when operated on a legally established roadway.

- D. Allowed maintenance practices and activities within the outer zone of the stream buffer:
 1. All Allowed Uses
 2. All maintenance practices and activities that are allowed in the Streamside Zone.

- E. Restricted maintenance practices and activities within the outer zone of the stream buffer:
 1. Structures or buildings except as otherwise allowed by these regulations

- F. Water pollution hazards – The following land uses and/or activities are designated as potential water pollution hazards and must be set back from any stream by the distance indicated below:
 1. Storage & use of hazardous substances 300 feet provided:
 - a. Up to 20 gallons of liquid fertilizer or pesticide is allowed but must remain outside of the stream buffer
 - b. Up to 100 pounds of granular fertilizer or pesticide is allowed but must remain outside of the stream buffer
 2. Above- or below-ground petroleum storage facilities 300 feet provided:
 - a. Up to 500 gallons of heating oil, gasoline or diesel fuel is allowed but must remain outside of the stream buffer
 - b. Up to 1000 gallons of propane is allowed but must remain outside of the stream buffer
 3. Salvage yards or Automobile Recyclers 600 feet

8.8 VIOLATIONS, PENALTIES AND REMEDIES

It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of these regulations. A violation of or failure to comply with any of the requirements of these regulations shall constitute a misdemeanor and shall be upon conviction punished as provided by law. In addition, any person permitting, aiding, abetting or concealing a violation of this ordinance shall be deemed guilty of a misdemeanor and shall be upon conviction punished as provided by law. Each day a violation of these regulations continues shall constitute a separate offense. The penalty provided in this section shall not be construed to be exclusive but is intended to be supplemental and in addition to any other remedy provided by law or at equity.

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The County may institute in the circuit court of the County any appropriate action or other proceedings to prevent any unlawful activity proscribed in this ordinance or to correct any violations of this ordinance.

8.12 CONFLICT WITH OTHER REGULATIONS

Where the standards and management requirements of this buffer ordinance are in conflict with other laws, regulations, and policies regarding streams, steep slopes, erodible soils, wetlands, floodplains, timber harvesting, land disturbance activities, or other environmental protective measures, the more restrictive shall apply.

8.13 SEVERABILITY

If any part or parts of this Ordinance shall be held unconstitutional, invalid, or otherwise unenforceable by any court of competent jurisdiction, such decision shall not affect the validity of the remaining provisions of this Ordinance.