



Protecting the river since 1965

Model Ordinance

Riparian Buffer

This model ordinance, developed by the Huron River Watershed Council (HRWC) with funding from the U. S. Environmental Protection Agency and Michigan Department of Environmental Quality, is intended to assist municipalities in the Huron River Watershed desiring to care for the quality of the environment and life within their jurisdictions. Reproduction, circulation, and other use of this document is permitted and encouraged. This ordinance can be adopted without modification. However, municipalities may wish to make changes pursuant to local conditions. This ordinance reflects HRWC's preferred version to date with additional comments, suggestions and options inserted throughout the document in italics.

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Section 1. Authority

The regulation is enacted pursuant to the authority of Public Act 451 of 1994 (Natural Resources and Environmental Protection Act, M.C.L. 324.101 et. seq.), Public Act 110 of 2006 (the Michigan Zoning Enabling Act), M.C.L. 125.3101 et. seq., and the Michigan Constitution Article 4, Section 52 and Article 7, Section 34 to protect the public health, safety, property, and welfare of the citizens of _____ [COMMUNITY] and to preserve and enhance the environmental, ecological, and aesthetic values of waterbodies in _____ [COMMUNITY], _____ [WATERSHED], and the Lake Erie Drainage of the Great Lakes Basin.

☛ This section should also list any other pertinent regulation or plan that will be further supported by the Riparian Buffer Ordinance (such as the municipality's Comprehensive Plan or Open Space and Environmental Protection Plan).

Section 2. Intent

The intent of this article is to:

- 2.1. Improve surface water quality and subsurface water quality by reducing the amount of nutrients, sediment, organic matter, pesticides, and other harmful substances that reach watercourses, wetlands, subsurface, and surface water bodies by using scientifically-proven processes including filtration, deposition, absorption, adsorption, plant uptake, and denitrification, and by improving infiltration, encouraging sheet flow, and stabilizing concentrated flows of stormwater runoff.
- 2.2. Assist in the implementation of pertinent state laws concerning erosion and sediment control practices, specifically the Natural Resources and Environmental Protection Act, Part 91, Soil Erosion and Sedimentation Control, 1994, Act 451, as amended 2000, Act 504, and any subsequent amendments thereto, as administered by the Michigan Department of Environmental Quality and the _____ [COUNTY] Conservation District.
- 2.3. 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 indigenous aquatic flora and fauna.
- 2.4. Preserve and protect areas that intercept surface water runoff, wastewater, subsurface flow, and/or deep groundwater flows from upland sources and function to remove or buffer the effects of associated nutrients, sediment, organic matter, pesticides, or other pollutants prior to entry into surface waters, as well as provide wildlife habitat, moderate water temperature in surface waters, attenuate flood flow, and provide scenic value and opportunities for passive recreation.

- 2.5. Regulate the use, siting, and engineering of all development to be consistent with the intent and objectives of this ordinance and accepted conservation practices, and to work within the carrying capacity of existing natural resources.
- 2.6. Conserve natural features important to land and water resources such as headwater areas, groundwater recharge zones, floodway, floodplain, springs, streams, wetlands, woodlands, prime wildlife habitats, and other features that provide recreational value or contain natural amenities whether on developed or undeveloped land.
- 2.7. Integrate with floodplain, steep slope, and other requirements that regulate environmentally sensitive areas to minimize hazards to life, property, and riparian features.
- 2.8. Recognize that natural features contribute to the health, safety, and welfare and quality of life of the residents of _____ [COMMUNITY].
- 2.9. Conserve natural, scenic, and recreation areas within and adjacent to riparian areas for the community's benefit.
- 2.10. Protect riparian rights of riparian property owners that include the right to the flow of the stream, the right to make a reasonable use of the waterbody provided reasonable uses of other riparians are not injured, the right to have access to the waterbody, the right to prevent erosion of the banks, the right to fish, and the right to purity of the water.

Section 3. Definitions

- 3.1 **“Conservation Plan”** is a site-specific plan developed for an agricultural operation which, at a minimum, outlines specific techniques to minimize accelerated erosion and related sedimentation associated with plowing and tilling activities on the agricultural operation.
- 3.2 **“County Designated Drain”** means the main stream or trunk and all tributaries or branches of any creek or river, any watercourse or ditch, either open or closed; any covered drain; any sanitary or any combined sanitary and storm sewer or storm sewer or conduit composed of tile, brick, concrete, or other material; any structures or mechanical devices, that will properly purify the flow of such drains; any pumping equipment necessary to assist or relieve the flow of such drains; and any levee, dike, barrier, or a combination of any or all of same constructed, or proposed to be constructed, for the purpose of drainage or for the purification of the flow of such drains, but shall not include any dam and flowage rights used in connection therewith which is used for the generation of power by a public utility subject to regulation by the public service commission.
- 3.3 **“Earth Disturbance”** means any land or vegetation change, including, but not limited to, clearing, grubbing, stripping, removal of vegetation, dredging, grading, excavating,

transporting and filling of land, that do not involve construction, paving or any other installation of impervious cover.

- 3.4 **“Earth Disturbance Activity”** means those actions or activities which comprise, facilitate or result in land disturbance.
- 3.5 **“Electric Distribution Line”** means underground lines below 30 kilovolts and lines supported by wood poles.
- 3.6 **“Electric Transmission Line”** means those conductors and their necessary supporting or containing structures located outside of buildings that are used for transmitting a supply of electric energy.
- 3.7 **“Farm”** means the land, plants, animals, buildings, structures, including ponds used for agricultural or aquacultural activities, machinery, equipment, and other appurtenances used in the commercial production of farm products.
- 3.8 **“Farm Operation”** means the operation and management of a farm or activity that occurs at any time as necessary on a farm in connection with the commercial production, harvesting, and storage of farm products, and includes, but is not limited to:
- (i) Marketing produce at roadside stands or farm markets.
 - (ii) The operation of machinery and equipment necessary for a farm including, but not limited to, irrigation and drainage systems and pumps and on-farm grain dryers, and the movement of vehicles, machinery, equipment, and farm products and associated inputs necessary for farm operations on the roadway as authorized by the Michigan vehicle code, Act No. 300 of the Public Acts of 1949, being sections 257.1 to 257.923 of the Michigan Compiled Laws.
 - (iii) Field preparation and ground and aerial seeding and spraying.
 - (iv) The application of chemical fertilizers or organic materials, conditioners, liming materials, or pesticides.
 - (v) Use of alternative pest management techniques.
 - (vi) The fencing, feeding, watering, sheltering, transportation, treatment, use, handling and care of farm animals.
 - (vii) The management, storage, transport, utilization, and application of farm by-products, including manure or agricultural wastes.
 - (viii) The conversion from a farm operation activity to other farm operation activities.
 - (ix) The employment and use of labor to harvest or produce farm products.

- 3.9 **“Floodplain”** means any land area susceptible to flooding, which would have at least a one percent probability of flooding occurrence in any calendar year based on the basin being fully developed as shown on the current land use plan; i.e., the regulatory flood.
- 3.10 **“Impervious Cover”** means any manmade paved, hardened or structural surface regardless of material. Impervious cover includes but is not limited to rooftops, buildings, streets, roads, decks, swimming pools and any concrete or asphalt.
- 3.11 **“Land Development”** means any land change, including but not limited to clearing, grubbing, stripping, removal of vegetation, dredging, grading, excavating, transporting and filling of land, construction, paving and any other installation of impervious cover.
- 3.12 **“Land Development Activity”** means those actions or activities which comprise, facilitate or result in land development.
- 3.13 **“Natural Rivers”** refers to the surface waters designated by the Natural Rivers Act, Part 305 of Public Act 451 of 1994.
- 3.14 **“Nonconforming Uses/Structures”** means any uses or structures that were legally established prior to current ordinance provisions but which do not comply with current ordinance provisions.
- 3.15 **“Nonpoint Source Pollution”** means pollution generated by various land use activities rather than from an identifiable or discrete source and is conveyed to waterways through natural processes, such as rainfall, snowmelt, or groundwater seepage rather than direct discharges.
- 3.16 **“Parcel”** means any plot, lot or acreage shown as a unit on the latest county tax assessment records.
- 3.17 **“Permit”** means the final certificate issued by the _____ [COMMUNITY] required for undertaking any land development activity.
- 3.18 **“Person”** means any individual, partnership, firm, association, joint venture, public or private corporation, trust, estate, commission, board, public or private institution, utility, cooperative, city, county or other political subdivision of the State, any interstate body or any other legal entity.
- 3.19 **“Pipelines having a diameter of 6 inches or less”** means a pipe which is equal to or less than what is commonly referred to as a 6-inch pipe and which has an actual measured outside diameter of less than 6.75 inches.
- 3.20 **“Pollution”** means contamination of any waters of the State such as will create or is likely to create a nuisance or to render such waters harmful, detrimental or injurious to public health, safety or welfare, or to domestic, municipal, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish or other aquatic life, including but not limited to such contamination

by alteration of the physical, chemical or biological properties of such waters, or change in temperature, taste, color or odor thereof, or the discharge of any liquid, gaseous, radioactive, solid or other substances into such waters.

- 3.21 **“Protection Area or Stream Protection Area”** means, with respect to a stream, the combined areas of all required buffers and setbacks applicable to such stream.
- 3.22 **“Riparian”** means areas that are transitional between terrestrial and aquatic ecosystems and are distinguished by gradients in biophysical conditions, ecological processes, and biota. They are areas through which surface and subsurface hydrology connect waterbodies with their adjacent uplands. They include those portions of terrestrial ecosystems that significantly influence exchanges of energy and matter with aquatic ecosystems (i.e., a zone of influence). They are adjacent to perennial, intermittent, and ephemeral streams, rivers, lakes, ponds, impoundments, and estuarine-marine shorelines.
- 3.23 **“Riparian Buffer”** means a natural or enhanced vegetated area lying adjacent to perennial, intermittent, and ephemeral streams, rivers, lakes, ponds, impoundments, and estuarine-marine shorelines which is managed to maintain the integrity of stream channels and shorelines, to reduce the impact of upland sources of pollution by trapping, filtering, and converting sediments, nutrients, and other chemicals, and to supply food, cover, and thermal protection to fish and other wildlife.
- 3.24 **“Steep Slope”** means a naturally occurring landform with a vertical change in elevation of 10 feet or more, a slope of 12% or more, and a length of 50 feet or more measured parallel to the contour lines.
- 3.25 **“Stream”** means a general term for a body of flowing water; natural water course containing water at least part of the year, and shall include rivers, creeks, lakes and ponds. In hydrology, it is generally applied to the water flowing in a channel that is natural in origin, even if subsequently modified by human activities, but does not apply to wholly artificial channels or canals.
- 3.26 **“Stream Bank”** means the sides of a stream channel, encompassing the area from that exposed during the lowest flow of the typical year (operationally defined as the seven-day minimum flow based on a ten-year data record) to the top of the bank, defined as that level where water spills out of the channel and into the floodplain (operationally defined as the 1.5-year recurrence flow based on a ten-year data record).
- 3.27 **“Stream Channel”** means an area that contains continuously or periodically flowing water that is confined by banks and a stream bed
- 3.28 **“Stream System”** means a stream channel together with one or both of the following:
1. 100-year floodplain
 2. Hydrologically-related wetland
- 3.29 **“Watershed”** means the land area that drains into a particular stream, river or lake.

3.30 **“Wetlands”** means those areas that are 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.

Section 4. Applicability

- 4.1 This regulation shall apply to all lands that are within the jurisdiction of _____ [COMMUNITY] and that border designated watercourses as defined in Section 3.13 and 3.25 of this regulation.
- 4.2 The provisions here shall apply to any land development activity or any earth disturbance activity resulting from or in connection with any activity or use requiring any of the following:
- A. Building Permit
 - B. Zoning Board of Appeals approval
 - C. Planning Commission approval
 - D. Conditional Use Approval
 - E. Subdivision/Land Development approval
 - F. Grading Permit
 - G. Special Use Permit Approval
- 4.3 No approvals or permits shall be issued by _____ [COMMUNITY] without full compliance with the terms of this regulation where applicable.

Section 5. Exemptions

The following land uses are exempt from this ordinance:

- 5.1 Existing land uses, except as follows:
- A. When the existing land use, or any building or structure involved in that use, is enlarged, increased, or extended to occupy a greater area of land; or
 - B. Land use existing as of the effective date of this ordinance, or any building or structure involved in that use, is moved (in whole or in part) to any other portion of the property; or

- C. Where the existing land use is agriculture, pasture or another primarily unbuilt land use, and that land use ceases and is proposed to be converted to a built land use such as residential, commercial or industrial.
- 5.2 Maintenance, repair or operation of gas or oil pipelines, electric transmission and distribution power lines and construction of gas or oil pipelines having a diameter of 6 inches or less, and maintenance or repair of designated county drains, if the pipelines or drains are constructed, maintained or repaired in a manner to assure that any adverse effect on the riparian buffer will be otherwise minimized.
- 5.3 Construction of a single-family residence that is part of a plat for subdivision or approved site plan prior to _____ (DATE OF ORDINANCE ADOPTION), including the usual appurtenances, provided that:
- A. Based on the size, shape or topography of the property, as of the effective date of this ordinance, it is not reasonably possible to construct a single-family dwelling without encroaching upon the riparian buffer area;
 - B. The dwelling conforms with all other zoning regulations;
 - C. Septic tanks or drain fields are not located within the riparian buffer area;
 - D. Dwelling avoids to maximum extent practicable disturbance of the riparian forest buffer area.
- 5.4 Other uses permitted under the Natural Resources and Environmental Protection Act or the federal Clean Water Act, Section 404 provided that they are consistent with all best management practices established by the Michigan Department of Environmental Quality and U.S. Environmental Protection Agency.
- 5.5 Notwithstanding the above, all exempted uses, structures or activities shall comply with the requirements of the Natural Resources and Environmental Protection Act, Part 91, Soil Erosion and Sedimentation Control, 1994, Act 451, as amended 2000, Act 504 and all applicable best management practices and shall not diminish water quality as defined by the Michigan Natural Resources and Environmental Protection Act and federal Clean Water Act.

Section 6. Riparian Buffer Zones

- 6.1 A riparian buffer shall consist of a vegetated strip of land extending along both sides of a stream and its adjacent wetlands, floodplains and slopes.
- 6.2 The Riparian Buffer Zone shall have three distinct areas requiring the following minimum widths and vegetative targets (Appendix A provides an illustration of the Three-Zone Riparian Buffer.):
 - A. Zone 1: Streamside Zone
 1. Undisturbed vegetated area aims to protect the physical and ecological integrity of the stream ecosystem.
 2. Begins at the edge of the stream bank of the active channel and extends a minimum distance of 25 feet, measured horizontally on a line perpendicular to the water course or water body
 3. The vegetative target for the streamside zone is undisturbed native woody species with native plants forming canopy, understory, and duff layer; where such forest does not grow naturally, then native vegetative cover appropriate for the area (such as grasses, forbs or shrubs) is the vegetative target
 - B. Zone 2: Middle Zone
 1. This managed area of native vegetation protects key components of the stream ecosystem and provides distance between upland development and the streamside zone.
 2. Extends immediately from outer edge of Zone 1 for a minimum distance of 55 feet
 3. The vegetative target for the middle zone is either undisturbed or managed native woody species or, in its absence, native vegetative cover of shrubs, grasses or forbs. Undisturbed forest, as in Zone 1, is encouraged strongly to protect further water quality and the stream ecosystem.
 - C. Zone 3: Outer Zone
 1. This zone prevents encroachment into the riparian buffer, filters runoff from adjacent land, and encourages sheet flow of runoff into the buffer.
 2. Extends a minimum of 20 feet immediately from outer edge of Zone 2
 3. The vegetative target for the outer zone is native woody and herbaceous vegetation to increase the total width of the buffer; native grasses and forbs are acceptable

Section 7. Width Requirements of the Riparian Buffer

- 7.1 The width of the riparian buffer shall be established as the greatest of the following:
- A. The total combined width of Zones 1, 2, and 3 shall be no less than 100 feet on each side of the stream with minimum required distances as given in Section 6, herein.
 - B. The riparian buffer width shall be modified if there are steep slopes which are within 500 feet of the stream. In those cases, the riparian buffer width shall be adjusted, as given in Table 1.

Table 1: Width for Zone 3 Vegetation in a Riparian Buffer

Percent Slope	Width (ft)
0-8	20
9-15	30
> 15	40

USDA, NRCS Technical Guide Section IV Statewide Riparian Forest Buffer 391

- C. The riparian buffer width shall be expanded if the stream within or adjacent to the land development area is designated as Natural Rivers in Michigan Public Act 451 of 1994, Part 305, the Natural Rivers Act. In such cases the riparian buffer width shall meet the minimum required setback distances as defined in the Michigan Department of Natural Resources, Fisheries Division, Huron River Plan (revised 2002).
- D. In the case of the presence of a floodplain, or wetland wholly or partially within the riparian buffer, an additional twenty-five (25) feet will be added to floodplain or wetland boundary.

☞ *Widths presented in the table below include the sum of buffer widths (Zones 1 and 2 combined) on both sides of water courses or water bodies for selected wildlife species should a community desire to increase the minimum required distances in order to provide habitat for specific wildlife species.*

**Recommended Widths (Zones 1 and 2 combined)
for Various Wildlife Species on Both Sides of a Watercourse**

Species	Minimum Buffer Width (ft)
Frog, salamander, turtle	100
Muskrat	165
Beaver, mink, salmonids	300
Pileated woodpecker, kingfisher	450
Bald eagle, cavity nesting ducks, heron rookery, sandhill crane, neotropical migrants	600

USDA, NRCS Technical Guide Section IV Statewide Riparian Forest Buffer 391

☞ *If a community's sole intended purpose for riparian buffers is to reduce pollution from sediment, nutrient and pesticide, then the total combined width of Zones 1, 2, and 3 shall be no less than 55 feet with minimum required distances following the proportions given in Section 6, herein.*

Section 8. Uses Prohibited Specifically in the Riparian Buffer

- 8.1 Any use or activity not authorized within Section 9, herein, shall be prohibited within the riparian buffer area (all zones) and the following activities and facilities are prohibited specifically:
- A. Clear cutting of trees and/or other vegetation.
 - B. Drainage by ditching, underdrains, or other systems.
 - C. Deposit of materials.
 - D. Removal of soils and minerals.
 - E. Housing, grazing, or other maintenance of livestock, except as stated in Section 9.2, herein.
 - F. Roads or driveways, except where permitted as buffer crossings in compliance with Section 9.2, herein.

- G. Motor or wheeled vehicle traffic in any area not designed to accommodate adequately the type and volume.
- H. Parking lots.
- I. Expansion of existing structures, except as permitted in Section 5, herein.
- J. Any type of permanent structure, including fences, except structures needed for a use permitted in Section 9, herein.
- K. The following land uses and/or activities are considered potential water pollution hazards, and must be set back from any stream or waterbody by the minimum distance indicated below and must be outside the floodplain:
 - 1. Land application of biosolids (100 feet)
 - 2. Storage of any hazardous or noxious materials including petroleum (150 feet)
 - 3. Storage and use of fertilizers, pesticides, and/or other chemicals (150 feet)
 - 4. Confined animal feedlot operations (250 feet)
 - 5. Commercials or industrial storage facilities, junkyards (300 feet)
 - 6. Subsurface sewage disposal areas (100 feet)
 - 7. Raised septic systems (250 feet)

Some ordinances employ a simpler approach in which the zone classification is eliminated in favor of single standards for the entire buffer. In such cases, the prohibited and permitted uses presented in Zone 1: Streamside Zone are used for the entire buffer.

Section 9. Uses Permitted within Riparian Buffer

- 9.1 The riparian buffer, including wetlands and floodplains, shall be managed to enhance and maximize the unique value of these resources.
- 9.2 Zone 1: Streamside Zone. Uses allowed with a permit from the Zoning Administrator:
 - A. Open space uses that are passive primarily in nature, such as wildlife sanctuaries, nature preserves, forest preserves, fishing areas, educational/public awareness signs. The area encompassed for any such use on a lot shall not include buildings and shall not result in disturbance of soil or vegetation that exceeds 20% of the area of the riparian buffer on that lot.
 - B. Reforestation and stream stabilization.
 - C. Removal of dead or diseased trees, and those causing safety concerns.
 - D. Water quality monitoring and stream gauging.
 - E. Designated historic building reconstruction.

F. Flood control structures and utility rights of way.

9.3 Zone 1: Streamside Zone. Uses requiring a special use permit from the planning commission of _____ [COMMUNITY].

A. Stream crossings, when no other feasible or prudent alternatives exist, such that the angle of any crossing shall be perpendicular to the stream or buffer to minimize clearing requirements; such that a single-span stream crossing shall be used wherever possible; and such that the right-of-way shall be the minimum width needed to allow for maintenance access and installation, are permitted by conditional use:

1. Driveways serving 1 or 2 single-family detached dwelling units.
2. The minimum number of road crossings should be used within each subdivision.
3. Agricultural crossings by farm vehicles and livestock.
4. Recreation trails of pervious material, railroads, and sewer, water or utility lines.

Appendix B provides example language for maintenance and construction along the stream corridor that a community may consider for enhancing protection of the natural river environment.

B. Structures which, by their nature, cannot be located anywhere except within the riparian buffer area. These structures 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. However, such structures should provide for the minimum practicable disturbance of the riparian buffer area by minimizing size and location, taking advantage of co-location, and satisfying the mitigation requirements of Section 9, herein.

9.4 Zone 2: Middle Zone. Uses allowed with a permit from the Zoning Administrator:

A. Uses listed in Section 9.2, herein.

B. Biking and hiking paths with pervious materials.

C. Stormwater management facilities, with the approval of _____ [COMMUNITY].

D. Recreational uses that do not involve impervious surfaces or encourage concentrated flow of stormwater into the buffer.

E. Limited forestry management techniques and timber harvesting with approval from _____ [COMMUNITY].

9.5 Zone 3: Outer Zone. Uses allowed with a permit from the Zoning Administrator:

- A. Uses listed in Sections 9.2 and 9.3, herein.
- B. There shall be no septic systems, permanent structures or impervious cover, with the exception of paths that measure 6 feet or less in width and overhead clearance of 8 feet or less.
- C. Fences; provided that such fences must be constructed so as not to impede floodwaters.

Section 10. Nonconforming Structures and Uses in Riparian Buffer

All nonconforming uses and structures existing at the effective date of this regulation and within a riparian buffer that are not permitted under this regulation may be continued but shall not be changed or enlarged in a manner that increases the degree of nonconformity.

Section 11. Riparian Buffer Plan and Maintenance Requirements

- 11.1 A plan approved by _____ [COMMUNITY] is required for all development activities as outlined in Section 4 of this ordinance.
- 11.2 The plan shall contain the following information in addition to the existing site plan requirements of _____ [COMMUNITY]:
 - A. Field-delineated and surveyed riparian buffers by outside professional consultants
 - B. Steep slopes greater than twelve (12) percent for areas adjacent to and within two hundred (200) feet of streams, wetlands, or other waterbodies
 - C. A narrative of the species and distribution of existing vegetation within the buffer
 - D. A note to reference any riparian buffer stating: “There shall be no clearing, grading, construction or disturbance of vegetation except as permitted by the _____ [COMMUNITY].”
 - E. A note to reference any protective covenants governing all riparian buffer areas stating: “Any riparian buffer shown hereon is subject to protective covenants that may be found in the land records and that restrict disturbance and use of these areas.”

☞ *Typically, communities require the applicant to retain the consultant of their choice to conduct the necessary field work. However, communities with their own wetlands or environmental consultants on staff may choose to make their consultant’s field services available to applicants and add the cost to the permit fee.*

- 11.3 The buffer plan shall be submitted in conjunction with the required grading plan for any development, and the vegetated buffer should be delineated clearly on the final grading plan.
- 11.4 Permanent boundary markers, in the form of educational signage approved by _____ [COMMUNITY] shall be installed every 200 feet prior to final approval of the required clearing and grading plan. Signs shall be placed at the transitional edge of Zone 2 and Zone 3 (See Section 6.2).
- 11.5 Removal of vegetation shall be restricted to invasive vegetation including buckthorn, honeysuckle, and multiflora rose, or noxious vegetation including poison ivy, poison sumac, and poison oak, except as provided for in section 11.2, herein.
- 11.6 Selected removal or trimming of indigenous vegetation for woodlot management due to diseased woody species, access paths, or sight lines is allowed.
- 11.7 All riparian buffers shall be maintained through
EITHER
a declaration of protective covenant, which is required to be submitted for approval by the board of trustees of _____ [COMMUNITY]. The covenant shall be recorded in the land records and shall run with the land and continue in perpetuity.
OR
A conservation easement in favor of _____ [DESIGNATED LAND TRUST]. The easement shall be recorded in the land records and shall run with the land and continue in perpetuity. Terms of such an easement shall be at least as restrictive as those included in this ordinance. The easement shall be submitted to the planning commission for their review prior to execution.
- 11.8 All lease and sales agreements must contain a notation regarding the presence and location of protective covenants for riparian buffers, and which shall contain information on the management and maintenance requirements for the riparian buffer for the new property owner.
- 11.9 An offer of dedication of a riparian buffer area by conservation easement to _____ [DESIGNATED LAND TRUST OR RESPONSIBLE ENTITY] shall not be interpreted to mean that this offer automatically conveys to the general public the right of access to this area.
- 11.10 _____ [DESIGNATED LAND TRUST OR RESPONSIBLE ENTITY] shall inspect the buffer annually and immediately following severe storms for evidence for sediment deposition, erosion, or concentrated flow channels and identify corrective actions to be taken to ensure the integrity and functions of the forest buffer.

- 11.11 Where land uses such as agriculture or silviculture within the area of the buffer are proposed to be converted to other uses, the full three-zone riparian buffer shall be reestablished in accordance with section 6 and section 7, herein. In reestablishing the buffer, management measures shall be undertaken to provide woody, shrub, and/or herbaceous vegetation that assures the buffer functions set forth in this ordinance. For specifications on plant type, spacing and density, refer to the USDA NRCS Technical Guide Section IV Statewide Riparian Forest Buffer 391 (Appendix C).

Section 12. Waivers and Variances

- 12.1 Waivers. _____ [COMMUNITY] may grant waivers for the following, if deemed appropriate by _____ [Specific legislative or administrative body/office in COMMUNITY]:
- A. Buffer Averaging: The buffer width may be relaxed and the buffer permitted to become narrower at some points, as long as the average width and total area meets the requirements set forth in Section 7, herein. This averaging of the buffer may be used to allow for the presence of an existing structure or to recover a lost lot. However, the buffer width in any given location may be narrowed by no more than twenty five (25) percent.
 - B. Regulatory Flexibility: _____ [COMMUNITY] may allow clustering elsewhere on the site in compensation for the loss of developable land due to the requirements of this ordinance. This compensation may increase the total number of dwelling units on the site up to the amount permitted under the base zoning.

➡ *Refer to community's existing cluster requirement language to ensure consistency of this regulation with said language.*

- 12.2 Variances. Any applicant seeking a variance shall submit a written request for a variance to _____ [COMMUNITY].
- A. Each applicant must provide documentation that describes:
 - 1. Existing site conditions, including the status of the riparian buffer area; and
 - 2. The needs and purpose for the proposed project; and
 - 3. Justification for seeking the variance, including how the buffer encroachment will be minimized to the greatest extent possible; and
 - 4. A proposed mitigation plan that offsets the effects of the proposed encroachment during site preparation, construction, and post-construction phases.

- B. In determining whether a variance should be granted the following criteria shall be considered by _____ [COMMUNITY]:
1. Public and private need for the proposed activity
 2. Availability of prudent and feasible alternatives
 3. Extent of beneficial and detrimental effects
 4. Probable cumulative impact
 5. Impact on historic, cultural, scenic, ecological, or recreational values
 6. Size of impact proposed relative to total size of the buffer
 7. Amount of remaining buffer in the area
 8. Proximity to the waterway or waterbody
 9. Economic value of the proposed activity
- C. Farm operations may encroach into the buffer area as follows:
1. No farm operations shall be conducted within Zone 1, i.e., within 25 feet of the edge of any stream channel.
 2. Less intensive farm operations, such as hay harvesting, in accordance with a Soil Conservation Plan approved by the County Conservation District are permitted in Zones 2 and 3.
 3. Farm operations upslope of the protected riparian buffer (all zones) shall be managed to prevent concentrated flows of surface water from breaching the buffer area and appropriate measures may be taken to prevent invasive or noxious vegetation (as described in Section 11, herein) from invading the buffer area.

Section 13. Inspection

- 13.1 _____ [COMMUNITY] shall have the authority to conduct investigations as it may reasonably deem necessary to carry out its duties as prescribed in this ordinance, and for this purpose to enter at reasonable time upon any property, public or private, for the purpose of investigating and inspecting the sites of any land-disturbing activities within the protection area.
- 13.2 The Zoning Enforcement Officer may make periodic inspections during the course of land development and shall make a final inspection following completion of the work.

The permittee shall assist the Zoning Enforcement Officer in making such inspections, if need be.

13.3 The Zoning Enforcement Officer may make periodic inspections following completion of the land development to determine riparian buffer intactness.

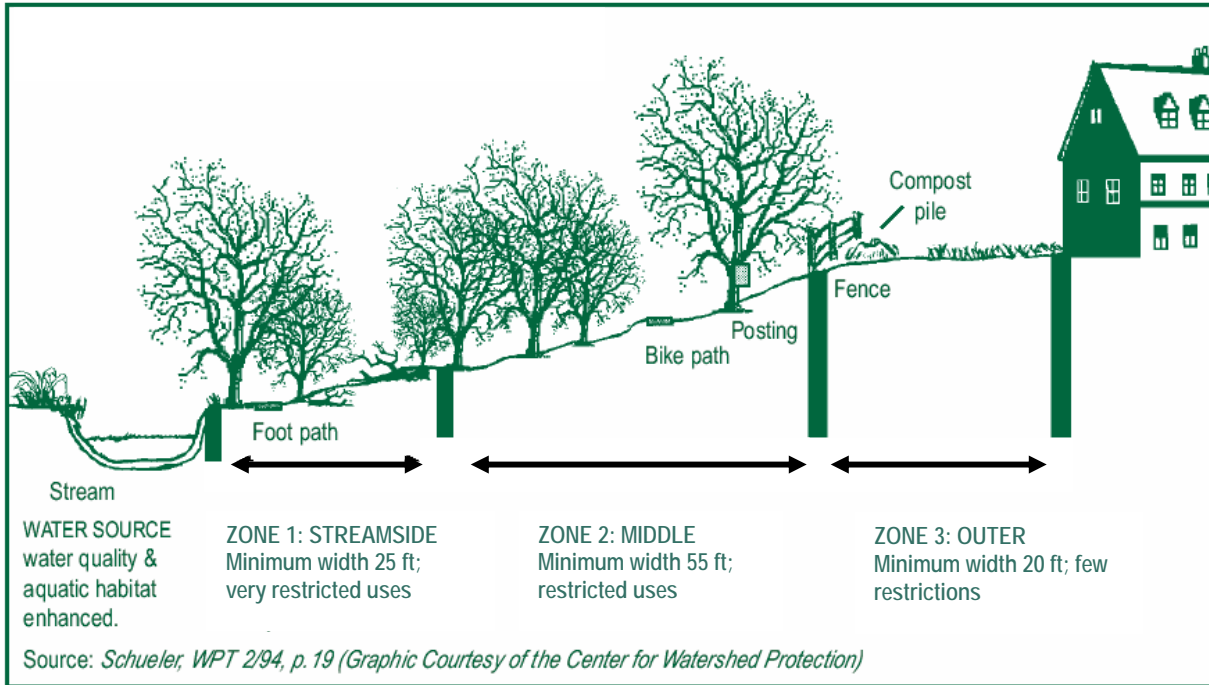
13.4 No person shall refuse entry or access to any authorized representative or agent who requests entry for purposes of inspection, and who presents appropriate credentials, nor shall any person obstruct, hamper or interfere with any such representative while in the process of carrying out official duties.

Sections Concerning Performance Guarantees; Violations, Enforcement, and Penalties; Administrative Appeal and Judicial Review; Severability; and Relationship to Other Laws

Refer to the relevant existing sections in the community's ordinance. Huron River Watershed Council or a local planner can provide sample language for these sections upon request.

APPENDIX A. ZONED BUFFER SYSTEM

**Three-Zone Riparian Buffer System
for Intent and Purpose of this Riparian Buffer Ordinance
including Pollutant Reduction, Temperature Moderation, and Wildlife Habitat**



APPENDIX B. SAMPLE LANGUAGE FOR MAINTENANCE AND CONSTRUCTION OF UTILITIES AND PUBLIC ROADS ALONG THE STREAM CORRIDOR

(Based on Michigan Administrative Code R 281.306. Construction and maintenance of approved projects; applicable requirements and specifications.)

The _____ [COMMUNITY], in addition to the above requirements may require other reasonable measures to further protect the natural river environment, including the following as are deemed appropriate and necessary:

- (a) Upon reaching the natural vegetation strip during clearing operations for overhead electric transmission line, communication line, and pipeline rights-of-way, tall-growing tree species may selectively be removed. Shrubs, low-growing tree species with a mature height of less than 20 feet, and other vegetation shall be left as natural as possible. Following construction, special measures may be required to discourage damaging off-road vehicle use, enhance wildlife habitat, or protect against soil erosion. The _____ [COMMUNITY] may require that the right-of-way be left in a rough, ungraded condition, and that slash and stumps be scattered over the right-of-way or made into brush piles, if landowner concurrence is obtained.
- (b) If an underground utility right-of-way crosses the natural vegetation strip, only minimal brush and tree removal shall be performed during construction. Following construction, special measures may be required to restore the natural appearance of the area, stabilize river banks, discourage damaging off-road vehicle use, or enhance wildlife habitat. If revegetation is required, native plant materials commonly used in that area, as specified by the department, shall be replanted in the natural vegetation strip. The _____ [COMMUNITY] may require that the right-of-way be left in a rough, ungraded condition and that slash and stumps be scattered over the right-of-way or made into brush piles, if landowner concurrence is obtained.
- (c) Management of trees, shrubs, and other vegetation for maintenance of all rights-of-way shall be done manually in the natural vegetation strip. However, herbicides may be applied by hand to stumps of selectively cut trees in the natural vegetation strip, where establishing and maintaining a low growing shrub community in this zone will further the objectives of the act. The _____ [COMMUNITY] may authorize application of selected pesticides to control insect or disease infestations.
- (d) Materials used for bank stabilization following a river crossing shall maintain and enhance the natural and aesthetic qualities of the natural river area, control bank erosion, restore fish habitat, and discourage damaging off-road vehicle use. Specifications regarding stabilization efforts and revegetation shall be consistent with the goals of maintaining stream width as near as possible to the original width, and to provide early revegetation of the area involved.

- (e) During construction for a new road or bridge, or reconstruction of an existing road or bridge, strict erosion control measures shall be taken to prevent sediment from reaching the river. Only minimal clearing of existing vegetation, grubbing, and grading shall be performed in the natural river area. The construction area shall be restored to as natural a condition as possible in the riparian buffer area immediately following construction.
- (f) Where bank stabilization is needed to stabilize a bank along a road or at bridge crossings, materials shall be used that insure the maintenance and enhancement of the natural and aesthetic qualities of the riparian area.

APPENDIX C. USDA NRCS TECHNICAL GUIDE SECTION IV STATEWIDE RIPARIAN FOREST BUFFER 391

On following pages



Protecting the river since 1965

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The Huron River Watershed Council is the first and oldest river protection group in Michigan. Founded in 1965 as a public, non-profit organization, the Council is a coalition of Huron Valley residents, businesses and local governments established under Michigan's Local River Management Act (253 P.A. 1964). Since its formation, the Council has grown to be a respected voice for protection of the Huron River and its tributary streams, lakes wetlands and groundwater.

The Huron River Watershed Council has a history and reputation of working creatively and cooperatively to tackle a wide variety of issues facing the basin. The Council has worked closely with local governments throughout the Huron River Basin to enact local wetland protection ordinances, stormwater management plans, and groundwater protection ordinances. The Council was instrumental in the passage of several of Michigan's wetland and water quality protection statutes, and in passage of State Natural River designation for the Huron. Today, more than forty communities, representing over 500,000 residents, support technical assistance, hands-on education and advocacy programs through voluntary HRWC membership.