Model
River Protection Regulations
For Vermont Rivers and Streams

Prepared by the Vermont Natural Resources Council
in consultation with Elizabeth Sahr
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"What are the natural features which make a township handsome? A river, with its waterfalls and meadows, a lake, a hill, a cliff or individual rocks, a forest, and ancient trees standing singly. Such things are beautiful; they have a high use which dollars and cents never represent. If the inhabitants of a town were wise, they would seek to preserve these things...for such things educate more than any hired teachers or preachers...

It would be worth the while if in each town there were a committee appointed to see that the beauty of the town received no detriment. If we have the largest boulder in the country, then it should not belong to an individual, nor be made into door-steps.

As in many countries precious metals belong to the crown, so here more precious natural objects of rare beauty should belong to the public.

Not only the channel but one or both banks of every river should be a public highway. The only use of a river is not to float on it."

Henry David Thoreau

1861
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MODEL RIVER PROTECTION REGULATIONS
INTRODUCTION

Vermont's rivers and riparian wetlands are irreplaceable natural assets serving valued recreational, aesthetic, and environmental quality protection functions. These Model River Protection Regulations are intended to maintain and enhance the quality of these waters by limiting land uses and environmental disturbances along rivers.

The Battenkill is a diverse river, sometimes flowing quickly sometimes meandering through woodlands, farms, residential neighborhoods and a busy commercial area. The West Branch of the Battenkill originates in the Dorset Marsh and flows south to meet the south-flowing East Branch in Manchester Center. The river then continues south through Manchester, Sunderland, and Arlington where it turns abruptly to the west through the Taconic Range and flows through New York State to its confluence with the Hudson River.

This popular river is widely known as an outstanding natural trout stream and is recognized by both local residents and tourists for its recreational and scenic values. John Kaufmann stated in his book Flow East: A Look At Our North Atlantic Rivers, that "the Battenkill is everything one imagines a trout stream to be: beautiful to look at as it winds through lush meadows and alder thickets under the benign watchfulness of gentle mountains: beautiful to fish too." The Department of the Interior's "Nationwide Rivers Inventory," (which identifies rivers having outstanding natural, cultural, scenic and recreational values) states that the Battenkill is "the most significant natural trout and trout spawning habitat" in New England.

These River Protection Regulations should be adopted as part of the municipality's permanent zoning ordinance. In addition to supporting the common goal of protecting a river's natural values, river protection regulations provide a type of "property insurance" for riparian landowners by ensuring that other landowners will not diminish the value of the river corridor resource and thus devalue their own properties. These regulations do not require riparian landowners to permit access to the river nor does it enlarge the state government's role in local government.

A key element of these regulations is the preservation of natural riparian vegetation. Such vegetation protects many of the values associated with river corridors by:

1. **Shading** the river channel, thereby keeping the water cool. Because cool water contains more oxygen than an equal volume of warm water, a river with cool water will support healthier fish populations and have better waste assimilative capacity than a river with warmer water (other factors being equal).

MODEL RIVER PROTECTION REGULATIONS
(2) **Providing Shelter**, through overhanging vegetation, for aquatic wildlife.

(3) **Supplying a major source of aquatic food**, in the form of leaf fall and other important organic materials to organisms at the base of the stream ecosystem food chain. Loss of this food source would affect the entire food chain, ultimately reducing the diversity and abundance of fish.

(4) **Stabilizing** the river bank, and replacing the need for rip-rap. Stable banks result in less erosion thereby maintaining the integrity of the river course, and aquatic habitat.

(5) **Filtering** pollutants from overland runoff, thereby reducing the amount of sediment and other pollutants entering a river.

(6) **Supplying food, shelter and travel corridors** for wildlife.

(7) **Enhancing** the aesthetic appeal and recreational experiences of the river corridors.

These regulations also provide for the preservation and enhancement of riparian wetlands because they:

(1) Provide temporary water storage for flood and stormwater runoff;

(2) Maintain and improve the quality of surface and ground water through biological and chemical action;

(3) Minimize the adverse effects of erosion and stormwater runoff by filtering silt and organic matter;

(4) Contribute to the viability of fisheries by providing spawning, feeding and general habitat for freshwater fish;

(5) Supplies a source of food and nutrients to aquatic biota;

(6) Provide habitat for both game and non-game species of wildlife, including a number of threatened and endangered species;

(7) Provide stopover habitat for waterfowl and other migratory birds;

(8) Support hydrophytic vegetation;
(9) Provide valuable resources for education and research in natural sciences;

(10) Serve as an important recreational resource (hunting, fishing, nature study, etc.) with resultant economic benefits; and

(11) Contribute to the open-space character and overall beauty of the landscape.

By adopting regulations similar to the ones contained in this model bylaw, municipalities can: maintain the natural character and visual integrity of their most important rivers and wetlands; reduce the amount of impervious ground cover near rivers and wetlands, thereby controlling overland runoff and the amount of pollutants carried by the runoff; and decrease the amount of nutrients and pathogens migrating from septic system leach fields into rivers and wetlands.
SECTION 1: RIVER PROTECTION REGULATIONS

1.1 PURPOSE

These river protection regulations are intended to promote and protect the public health, welfare and safety, aesthetic, recreational and natural resources values, and to provide for a healthy natural ecosystem. These regulations are designed to preserve nature from despoilage and harm resulting from the unrestricted human activities.

1.1.1 The goals of the (Town Name) River Protection Regulations are to protect, enhance and restore the shoreline cover, and to:

A. Encourage the design of new developments and land uses to be designed in such a way that they result in stable riverbanks and minimal disturbance to the riparian environment;

B. Prevent an increased rate of stormwater runoff to the river;

C. Minimize erosion and siltation from adjacent land use activities;

D. Provide and enhance fish and wildlife habitat within and along the river;

E. Preserve and enhance adjacent wetlands and other environmentally sensitive areas along the shoreline;

F. Conserve the scenic values of the river corridor along the (River Name).
NOTE: MOST MUNICIPALITIES WOULD ADOPT THESE REGULATIONS AS A SPECIAL SECTION OF THEIR ZONING BYLAWS. IF THE DEFINITIONS SECTION OF THESE REGULATIONS ARE ADDED TO THE EXISTING DEFINITIONS, MUNICIPALITIES SHOULD CHECK TO MAKE SURE THERE ARE NO INTERNAL CONFLICTS.

1.2 DEFINITIONS

1.2.1 A

Aesthetic: Retention or improvement of natural conditions, including natural lighting, sounds, odors and significant trees, as at the time are experienced by the general public from public ways, including waterways.

1.2.2 B

Bank: That land area immediately adjacent to the bed of the stream which is essential in maintaining the integrity thereof. (10 V.S.A. §1002(2))

Bed: The maximum area covered by waters of the stream for not less than 15 consecutive days in one year. (10 V.S.A. §1002(3))

Buffer Strip: A vegetated area between the top of the bank of the river or edge of the wetland and any development or land use.

Bylaw: Means zoning regulations (including River Protection Regulations), subdivision regulations, sewage regulations or the official map.

1.2.3 C

Channel: An open conduit either naturally or artificially created which intermittently or continuously contains moving water, or which forms a connection between two bodies of standing water.

Conditional Use: A use for which conformance to additional standards is required as a means of regulating the location and character of the development and its impact to avoid undesirable effects that would likely occur unless the standards for the principal permitted uses were substantially modified. A conditional use may be permitted only by approval of the board of adjustment, and the board may attach reasonable conditions and safeguards as it may deem necessary to implement the purposes of the zoning regulations. (24 V.S.A. §4407(2))
1.2.4 D

**Dump**: Land used for the disposal of garbage, sewage, sludge, trash, construction debris, discarded appliances, machinery, vehicles, or parts thereof, or waste material of any kind other than a certified stump dump.

1.2.5 E

**Excavation**: The process of digging out and removing, or exposing to view by digging out, land below its natural pre-development condition.

1.2.6 F

**Filling**: The deposit of any material that would raise the elevation of land above pre-development conditions.

**Floodway**: Means the channel of a river or other watercourse and the adjacent land area that must be reserved in order to discharge the base flood without accumulatively increasing the water surface elevation more than one foot. (24 V.S.A. §4412(3))

**Floodway Fringe**: means an area which is outside the floodway and is flooded with an average frequency of one or more times in each 100 years as determined by the secretary of natural resources with full consideration given to upstream impoundments and flood control projects. (10 V.S.A.§6001(7))

1.2.8 H

**Hydrophytic**: Vegetation growing in water, soil, or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content. (Vermont Wetlands Rules, 1990)

1.2.10 J

**Junkyard**: Land or building used for the collection, storage, or sale of waste paper, rags, scrap metal or discarded material, or for the collecting, wrecking, dismantling, storage, salvaging and sale of machinery, parts or vehicles.
1.2.12 Land Development: Means the division of a parcel into two or more parcels, the construction, reconstruction, conversion, structural alteration, relocation or enlargement of any building or other structure, or of any mining, clearing of land, excavation or landfill, and any change in the use of any building or other structure, or land, or extension of use of land. (24 V.S.A. §4303(3))

1.2.13 Manure stockpile: A gradually accumulating pile of manure.

1.2.14 Natural vegetation: Vegetation which consists of indigenous species.

1.2.16 Planned Residential Development: An area of land, controlled by a landowner, to be developed as a single entity for two or more dwelling units, the plan for which does not correspond in lot size, bulk or type of dwelling, density, lot coverage and required open space to the regulations established in any one or more districts created, from time to time, under the provisions of a municipal zoning ordinance, and as outlined in Title 24 V.S.A. Section 4407(3).

Planned Unit Development: An area of land, controlled by a landowner, to be developed as a single entity for a number of dwelling units, and commercial and industrial uses, if any; the plan for which does not correspond in lot size, bulk or type of dwelling, commercial or industrial use, density, lot coverage and required open space to the regulations established in any one or more districts created, from time to time, under the provisions of a municipal zoning ordinance (24 V.S.A. §4303(14)), and as outlined in 24 V.S.A. §4407(12).

Principal Building (Use): A structure in which is conducted the main, or principal, use of the lot on which said structure or use is located.

1.2.18 Riparian: Living on or related to the bank of a river.

River frontage: The distance measured across that portion of a lot which is adjacent to and parallel to a watercourse.
**Riverine**: Relating to, formed by, or resembling a river (i.e., tributary, stream, brook). Includes all wetlands, deepwater habitats contained within a channel.

**Sewage Disposal "On-Site"**: Means any approved method of sewage disposal which requires an on-site location for the treatment and disposal of sewage, not involving a discharge to the waters of the State.

**Shoreline**: The land adjacent to the waters of lakes, ponds, reservoirs and rivers. (10 V.S.A. §6001(17)) A line that constitutes the top of the river bank.

**Silvicultural Activities**: Those activities associated with the sustained management of forest land for the planting, harvesting, and removal of trees.

**Structure**: An assembly of materials for occupancy or use including, but not limited to, a building, mobile home or trailer, sign, wall or fence. (24 V.S.A. §4303(11))

**Watercourse**: Any depression below the elevation of surrounding land serving to give direction to a current or flow of water having a bed and well-defined bank. (10 V.S.A. §1002(10))

**Wetland**: A wetland shall be distinguished from an upland by the following criteria: (Vermont Wetlands Rules, 1990)

1. The prevalence of hydrophytic vegetation including the presence of one or more dominant, obligate wetland plant species; or

2. The prevalence of facultative species where at least two of the following are present: saturated or seasonally saturated soils, wetland hydrology, or aquatic life; or

3. In the absence of vegetation or in the absence of nondisturbed vegetation, two of the following are present: saturated or seasonally saturated soils, wetland hydrology, or aquatic life; or

4. There are seasonally saturated soils which are necessary to support aquatic life.

Specific wetlands are identified on but not limited to the wetlands inventory maps prepared by the United States Department of the Interior, Fish and Wildlife Service.
1.3 JURISDICTION

These regulations shall create a River Overlay District to the 
(River Name) and adjacent wetlands within the jurisdiction of 
(Town Name), its shorelines and landward 200 feet from 
each river bank or, landward 100 feet from the wetland edge 
whichever is the greater distance. All distances shall be 
measured in horizontal feet.

The (Town Name) River Protection Regulations refer to the 
overlay district and shall be superimposed on the other districts 
established by this bylaw. All regulations of the (Town Name) 
Zoning Bylaw applicable to such underlying districts shall remain 
in effect, except that when these Regulations impose a greater 
degree of control, in such case, these Regulations shall 
prevail.

These regulations may be adopted under the authorization of 
Chapter 117, Title 24 V.S.A., Section 4401.

1.4 APPLICATION PROCEDURES

Before any land development occurs within the River Overlay 
District, a zoning permit must be obtained pursuant to the 
requirements of this section. Local permit approval shall not 
constitute approval from the departments within the Agency of 
Natural Resources as required by Title 24 V.S.A. Section 4409.

Application for land development shall include the following 
components:

1.4.1 Completed application form.

1.4.2 Site Development Plan

A. The Site Development Plan shall adhere to the following 
scales:

1. For parcels of less than one acre: 1" equals 20';
2. For parcels of one to ten acres: 1" equals 50';
3. For parcels of more than ten acres: 1" equals 100'.

B. The Plan shall show:

1. Boundaries, dimensions, and total area of the lot;
2. Delineation of the top of the river bank;
3. Existing and proposed buildings on the lot and on adjacent lots within a distance of 50 feet from the subject lot;

4. Existing and proposed streets and driveways adjacent to and within a distance of 50 feet from the subject lot;

5. Proposed vehicular circulation and parking on the lot;

6. Existing trees, shrubs, hedges, bodies of water as well as the detail of any proposed changes in the landscaping, and any other significant natural features;

7. Areas where soils will be disturbed during construction;

8. Stormwater runoff, drainage and discharge plans and calculations;

9. Contour intervals and slope calculations;

10. Delineation of 100 year floodway fringe.

11. Location of wetlands as indicated on the National Wetlands Inventory Maps.

1.5 RIVER PROTECTION STANDARDS

The purpose of creating a buffer strip, requiring minimum lot dimensions, regulating the cutting of existing natural vegetation and land clearing is to protect scenic beauty, control erosion and reduce effluent and nutrient flow from the shoreline. All land uses within the River Overlay District, including all residences developed either on river frontage lots or within a Planned Residential or Planned Unit Development (PRD/PUD), shall comply with the following restrictions:

1.5.1 Minimum River Frontage

The minimum required river frontage measured along the shoreline shall be 200 feet, if more than one principal building is located within the overlay district, then 200 feet of river frontage shall be required for each building.
1.5.2 Minimum Lot Depth

A distance extending at least 200 feet in depth, to be measured landward from each river bank or edge of wetland shall be required for all new lots within the River Overlay District.

1.5.3 Buffer Strip

A buffer strip of at least 50 feet, landward from each river bank or edge of wetland, shall be retained in a natural and scenic condition; clearing may occur on no more than 50% of the remainder of the land within the Overlay District. The cutting restrictions of §1.5.4 shall apply.

A. No buildings or structures shall be erected, enlarged, altered or moved within the buffer strip, unless a building is destroyed by accident or natural causes, in which case it may be replaced to its original condition.

B. All sewage facilities and sewage disposal systems shall be constructed or replaced in accordance with the design requirements of the (Town Name) Sewage Ordinance or Health Regulations. In addition an isolation distance of 150 feet, or as far from the river as feasible, shall be maintained between any portion of the septic system/sewage facility and the top of the river bank.

1.5.4 Cutting Restrictions

These provisions shall not apply to the removal of diseased, dying, or dead trees or to other vegetation that in the opinion of the Zoning Administrator present safety or health hazards.

In the case of the buffer strip of the river and any wetlands, the removal of vegetation, including trees, shall be permitted on river frontage lots provided the following standards are met:

Within 50 feet extending inland from all points along the top of the bank no live vegetation may be removed. This area shall be maintained as an undisturbed natural buffer strip. The exception to this standard will be an allowance for the landowner to gain access to the river by creation of a continuous opening in the buffer strip not to exceed 10% of the total river frontage or 20 feet, whichever is less, on any individual lot. The opening should be sited on the lot so as to allow for a view and access but be done in
such a way as to not increase erosion. The maintenance of this access shall not result in fertilizer, herbicides or cuttings entering the surface water.

1.5.5 **Aesthetic Impact**

All new development shall be blended into the existing landscape on the property so as to minimize its visual impact and maintain natural beauty and environmentally sensitive shoreline areas through use of vegetative and structural screening, landscaping, grading, and appropriate location of structures on the lot.

1.5.6 **Stormwater Run-off**

Stormwater run-off from new development shall be directed toward vegetation for surface infiltration.

1.5.7 **Violations**

Where a shoreline lot owner violates the shoreline cutting restrictions of Sections 1.5.3 and 1.5.4, the Zoning Administrator shall require native trees/vegetation of reasonable diameter in size to be planted so as to create a buffer strip area which is in compliance with this section. A vegetative recommendation can be made by the Soil Conservation Service, if requested by the Zoning Administrator. This provision shall be in addition to any and all penalties provided by law.

1.6 **PERMITTED USES**

Uses which are permitted in the underlying zone are permitted in the River Overlay District provided that all requirements of the River Protection Standards are satisfied.

1.7 **CONDITIONAL USES**

Uses which are conditionally permitted in the underlying zone are conditionally permitted in the River Overlay District provided that all requirements of the River Protection Standards are satisfied.
1.8 PROHIBITED USES

The following uses are prohibited in the River Overlay District even though they may be permitted in the underlying zone. Any existing use in the River Overlay District which is identified herein as a "prohibited use" may continue. Such use may not be extended or expanded unless it comes into compliance with Section 1.5 of these regulations.

Uses which are not specifically permitted or conditionally permitted in the underlying zone are prohibited.

1.8.1 The storage or processing of materials that are flammable, poisonous, explosive, or which could be injurious to human, animal or fish and other aquatic life.

1.8.2 Sanitary landfills, dumps, or other solid waste disposal facilities including any further encroachment toward the shoreline of existing sites.

1.8.3 Removal, excavation, dredging or filling of riverine materials, except as allowed by the State of Vermont.

1.8.4 Clear-cutting existing vegetation as outlined in Section 1.5.2 (Cutting) of this section.

1.8.5 Junkyards.

1.8.6 Underground or above ground fuel storage tanks.

1.8.7 Open storage of road salt or other de-icing chemicals, and excavated materials.

1.8.8 Gasoline stations, car washes, auto repair or auto body shops.

1.8.9 Commercial metal plating, finishing, and polishing.

1.8.10 Chemical, medical, and bacteriological laboratories or manufacturing facilities.

1.8.11 Dry cleaning establishments and laundromats.

1.8.12 Manufacturing facilities that produce any of the following: electrical equipment, pharmaceuticals, plastic, fiberglass, rubber goods, and textiles.

1.8.13 Commercial food processing, photographic processing, or wood processing facilities.

1.8.14 Printing establishments.

1.8.15 Concrete plants, gravel or stone washing operations.
1.8.16 Furniture stripping establishments.
1.8.17 Machine shops.
1.8.18 Any other uses that involve, as the principal activity, the generation, storage, use, treatment, transportation, or disposal of hazardous materials.
1.8.19 Manure stockpiles.
1.8.20 Pesticide, herbicide and fungicide applications, with the exception of those reviewed and approved by the Department of Agriculture.
1.8.21 Any other use not specifically permitted or allowed within the protection district, unless the Zoning Board of Adjustment finds, on clear and convincing evidence, that the use poses no threat to the biological integrity of the ___(River Name)___ and adjacent wetlands.

1.9 ADDITIONAL CONDITIONAL USE CRITERIA

The following criteria may be added to the municipality's regular conditional use criteria in the zoning bylaws. Conditions may be imposed to protect the best interests of the town and the integrity of the River Overlay District. The Board shall evaluate the effect of the proposed use based on the following:

1.9.1 Complies with River Protection Standards in Section 1.5.
1.9.2 Is situated on a portion of the site that will most likely conserve shoreline vegetation and the integrity of the buffer strip.
1.9.3 Will not cause an adverse visual impact from the river or wetland and is integrated into the existing landscape through features such as vegetative buffers and through retention of the natural shorelines.
1.9.4 Will not result in erosion or sedimentation.
1.9.5 Will not result in water pollution.
1.9.6 Will not result in increased flooding.
1.9.7 Will not decrease fish and wildlife habitat.
1.10 PLANNED RESIDENTIAL DEVELOPMENT/PLANNED UNIT DEVELOPMENT

Planned Residential Developments (PRD) and Planned Unit Developments (PUD) lying entirely or partially within the River Overlay District shall be laid out in accordance with Section _____ (reference section of the existing zoning bylaw that permits PRD/PUD's) and the additional requirements contained herein, and shall require site plan approval from the Planning Commission, as specified in this bylaw. (To promote better communication and to avoid misunderstanding, applicants are encouraged to submit a Preliminary Plan for review by the Planning Commission prior to the application for a permit.)

1.10.1 Additional Site Plan Approval Criteria

In addition to the Site Plan Approval Criteria in Section _____ of the ______ (Town Name) Zoning Ordinance, the Planning Commission/Zoning Board of Adjustment shall also consider whether uses proposed for Site Plan Approval in the River Overlay District meet the following criteria:

A. Complies with River Protection Standards in Section 1.5;

B. Is situated on a portion of the site that will conserve shoreline vegetation and the integrity of the buffer strip;

C. Will not cause an adverse visual impact from the river or wetland and is integrated into the existing landscape through features such as vegetative buffers and through retention of the natural shorelines.

D. Will not result in erosion or sedimentation.

E. Will not result in water pollution.

F. Will not result in increased flooding.

G. Will not decrease fish and wildlife habitat.

1.10.2 PRD & PUD Standards

In addition to PRD/PUD Standards in Section _____ of the ______ (Town Name) Zoning Ordinance, there are also these standards which should be considered in the river overlay district.

A. A PRD/PUD lot in the River Overlay District shall have a minimum river frontage of 200 feet (except where the underlying district requires a greater size).
B. All buildings, roads, drainage systems and utilities shall be laid out to minimize, to the fullest extent possible, their impact on the scenic qualities of the river, and on important natural resources including prime farmlands, wetlands, and tributary watercourses.

C. Open land within a PUD/PRD shall be retained within the River Overlay District to the greatest extent possible.