



**STATE OF CONNECTICUT  
DEPARTMENT OF ENVIRONMENTAL  
PROTECTION**

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Hartford, CT 06106-5127

**Sidney J. Holbrook**  
Commissioner

**GUIDELINES  
UPLAND REVIEW AREA REGULATIONS  
CONNECTICUT'S INLAND WETLANDS &  
WATERCOURSES ACT**

June, 1997

Wetlands Management Section  
Bureau of Water Management



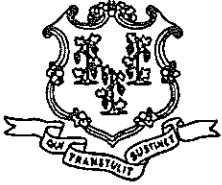
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Cover Picture From: Forested Wetlands/Functions, Benefits and the Uses of Best Management Practices, U.S.D.A. Forest Service.

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STATE OF CONNECTICUT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



To: Municipal Inland Wetland Agencies

From: Charles E. Berger, Director  
Inland Water Resources Division

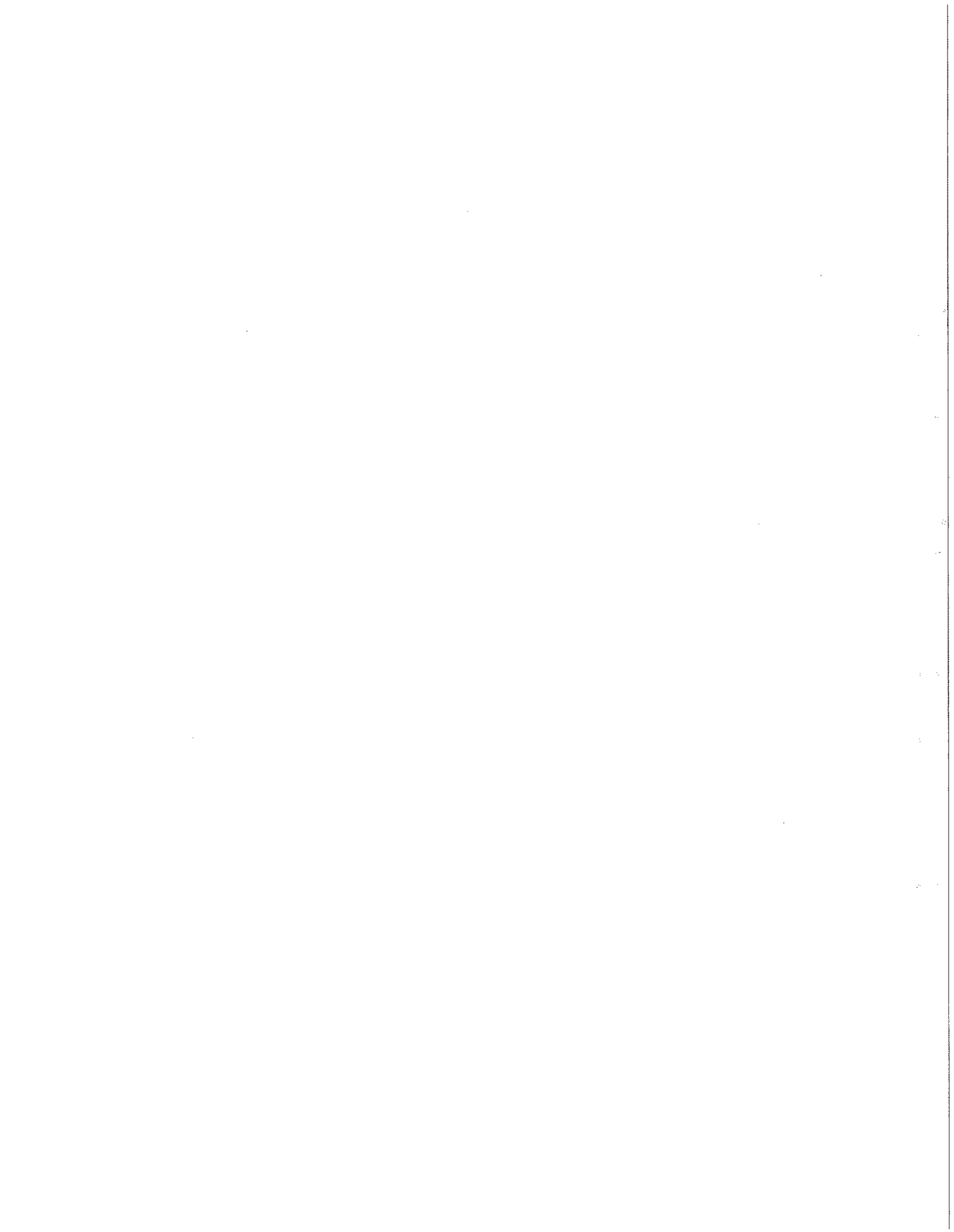
A handwritten signature in cursive script, appearing to read "Charles E. Berger".

Date: June 30, 1997

Under the Inland Wetlands and Watercourses Act, Connecticut's municipalities regulate proposed development activities in or affecting wetlands and watercourses. In support of the municipal wetland agencies, DEP's Wetlands Management Section provides a comprehensive Wetlands Management Training Program for wetland agency commissioners and *Model Regulations* for local inland wetland programs. *Guidelines for Upland Review Area Regulations* was published in accordance with sections 22a-42(d) and 22a-42a(f) of the General Statutes to assist Connecticut's inland wetland agencies in developing and implementing municipal regulations for activities proposed on uplands around wetlands or watercourses.

The guide was drafted in response to inquiries from wetland agency members, river management groups, the regulated community, and other interest persons, for guidance in implementing what are popularly called buffer or setback provisions in wetland regulations. The guide uses the term upland review area to describe the non-wetland or non-watercourse area in which certain types of activities, as defined in municipal regulations, are regulated activities. Other terms for describing this area are used in municipal regulations. We selected the term upland review area because it best conveys the regulatory scheme under the inland wetlands statutes wherein a wetland agency reviews regulated activities case-by-case and approves or disapproves them on their merits.

For further information about DEP's Inland Wetlands Management Programs, please call (860) 424-3019.



# Guidelines for Upland Review Area Regulations Under Connecticut's Inland Wetlands and Watercourses Act

## Wetlands and Uplands: an Introduction

The relationship between a wetland or watercourse and its surrounding upland is complex. Upland land clearing, excavating, filling and other construction activities if not properly planned and executed can have significant impacts on adjacent wetlands and watercourses. Under the Inland Wetlands and Watercourses Act, the municipal wetlands agency has broad authority to issue permits not only for activities in wetlands or watercourses themselves, but for activities located elsewhere when such activities are likely to impact or affect wetlands or watercourses. *It is the department's policy to encourage municipal wetland agencies to review proposed activities located in upland areas surrounding wetlands and watercourses wherever such activities are likely to impact or affect wetlands or watercourses.*<sup>1</sup>

An understanding of how certain activities in upland areas affect wetlands and watercourses has led most towns to adopt regulations requiring wetland agency review of proposed development adjacent to wetlands and watercourses.<sup>2</sup> Such regulations are optional under the Act, but serve to inform the public as to the circumstances under which a wetlands permit is required of activities proposed adjacent to a wetland or watercourse.<sup>3</sup>

While requiring a permit for specified activities within defined *upland review area boundaries*, these wetland agencies still maintain their authority to regulate proposed activities located in more distant upland areas if they find that the activities are likely to impact or affect a wetland or watercourse.

The purpose of these guidelines is to assist municipal wetlands agencies to review and revise their wetlands and watercourses regulations, if necessary. As such, the guidelines provide a foundation for consistency in municipal regulations and permitting activities. They are not intended to substitute for reasoned evaluation and judgement by municipal wetlands agencies of the local wetland and watercourse resources, the conditions surrounding those resources, and the types of activities which are likely to impact or affect those resources. Nor are they intended to guide wetlands agencies through the decision making process for acting on permits. Both these topics are more appropriately addressed in detail through the department's Inland Wetlands Management Training Program for wetland agency commissioners and their staff. Wetlands agencies are reminded that they should review proposed changes in their inland wetlands and watercourses regulations with their town attorney.

## Model Municipal Upland Review Area Regulations

In addition to implementing the law to protect wetlands and watercourses, regulations inform the public on what to expect if one proposes an activity in or affecting a wetland or watercourse in the subject town. Upland review area regulations reduce or eliminate the need for case-by-case rulings by providing notice as to what activities need wetland permits. By specifying where a permit is required, such regulations foster consistency and are convenient for the public. In determining the boundaries for its upland review area regulations, the wetland agency should consider the specific kinds of development activities on uplands which are likely to impact or affect wetlands and watercourses and the nature of that impact or affect.

An upland activity which is likely to impact or affect wetlands or watercourses is a *regulated activity* and should be identified as such in the regulations. In identifying upland review area regulated activities, the wetlands agency must apply the standard established under section 22a-42a(f) of the General Statutes and find that the activity is "... likely to impact or affect wetlands or watercourses."<sup>4</sup> Examples of upland regulated activities are included in the models below. In implementing its upland review area regulations, the wetland agency must be cognizant that certain proposed activities, which are permitted uses as of right or as nonregulated uses under section 22a-40 of the General Statutes, are not regulated and do not require a permit from the wetlands agency under the Inland Wetlands and Watercourses Act.

There are a number of ways that the boundaries of an upland review area may be defined in regulations. In selecting its approach, the wetland agency should consider the special nature of their town's wetland and watercourse resources, the purposes and intent of the Inland Wetlands and Watercourses Act, and how the regulations will be implemented.

Three models for upland review area regulations are presented below. The first model provides that certain specified activities if conducted within a specified distance measured from *any* wetland or watercourse are regulated activities. As such, the first model is the basic model and easiest to implement. The second model expands upon that basic model by identifying specific wetland and watercourse resources of special concern and providing site specific review area widths for those resources. This model should be used where the wetland agency believes additional protection though a wider review area is needed or to take existing land development or uses into account with a narrower review area. The third model adds to the basic model a slope and soil factor in determining the site specific width or location of the upland review area. The first and second models are easily understood and implemented, while the third is technically complex and not easily implemented without trained staff.

Note that the first sentence of each model definition below is the definition of the term *regulated activity* taken from section 22a-38(13) of the Inland Wetlands and Watercourses Act and, as such, its meaning may not be changed in municipal inland wetlands regulations.

## *Model Regulation Options<sup>5</sup>*

Model I. “Regulated activity” means any operation within or use of a wetland or watercourse involving removal or deposition of material, or any obstruction, construction, alteration or pollution, of such wetlands or watercourses, but shall not include the specified activities in section 22a-40 of the Connecticut General Statutes. Furthermore, any clearing, grubbing, filling, grading, paving, excavating, constructing, depositing or removing of material and discharging of storm water on the land within \_\_\_\_\_ feet measured horizontally from the boundary of any wetland or watercourse is a regulated activity. The Agency may rule that any other activity located within such upland review area or in any other non-wetland or non-watercourse area is likely to impact or affect wetlands or watercourses and is a regulated activity.

Model II. “Regulated activity” means any operation within or use of a wetland or watercourse involving removal or deposition of material, or any obstruction, construction, alteration or pollution, of such wetlands or watercourses, but shall not include the specified activities in section 22a-40 of the Connecticut General Statutes. Furthermore, any clearing, grubbing, filling, grading, paving, excavating, constructing, depositing or removing of material and discharging of storm water on the land within the following upland review areas is a regulated activity:

- (1) within \_\_\_\_\_ feet measured horizontally from the ordinary high water mark<sup>6</sup> of Town Lake, Smith Lake or Pine Meadow Pond;
- (2) within \_\_\_\_\_ feet measured horizontally from the ordinary high water mark of Ledge Brook and of Big Trout Brook between the Route 51 and Main Street Bridges over Big Trout Brook.
- (3) within \_\_\_\_\_ feet measured horizontally from the boundary of the wetlands comprising Great Swamp;
- (4) within the area enclosed by the \_\_\_\_\_ foot contour elevation surrounding Ice Pond Bog; such contour is depicted on the Inland Wetlands and Watercourses Map for the Town of \_\_\_\_\_;
- (5) within \_\_\_\_\_ feet measured horizontally from the boundary of any other wetland or watercourse.

The Agency may rule that any other activity located within such upland review area or in any other non-wetland or non-watercourse area is likely to impact or affect wetlands or watercourses and is a regulated activity.

Model III. “Regulated activity” means any operation within or use of a wetland or watercourse involving removal or deposition of material, or any obstruction, construction, alteration or pollution, of such wetlands or watercourses, but shall not include the

specified activities in section 22a-40 of the Connecticut General Statutes. Furthermore, any clearing, grubbing, filling, grading, paving, excavating, constructing, depositing or removing of material and discharging of storm water in the following areas is a regulated activity:

- (1) on land within \_\_\_\_ feet measured horizontally from the boundary of any wetland or watercourse, provided
- (2) if the slope of such land exceeds 5%,<sup>7</sup> within the distance measured horizontally from the boundary of the wetland or watercourse equal to \_\_\_\_ feet plus an additional 5 feet for each 1% increase in slope greater than 5%, but not more than \_\_[e.g., 200]\_\_ feet;
- (3) on land designated on the Inland Wetlands and Watercourses Map of the Town of \_\_\_\_\_ as containing highly erodible soils.

The Agency may rule that any other activity located within such upland review area or in any other non-wetland or non-watercourse area is likely to impact or affect wetlands or watercourses and is a regulated activity.

## Considerations in Establishing Upland Review Areas

### *Regulated Activities*

The Inland Wetlands and Watercourses Act (Sections 22a-36 through 22a-45a of the General Statutes) defines *regulated activity* to mean:

*“... any operation within or use of a wetland or watercourse involving the removal or deposition of material, or any obstruction, construction, alteration or pollution of such wetlands or watercourses, but shall not include the specified activities in section 22a-40 of the Connecticut General Statutes.”<sup>8</sup>*

In addition to activities located in a wetland or watercourse, any activity located in a non-wetland or non-watercourse area which is likely to impact or affect a wetland or watercourse may be deemed to be a regulated activity (unless the activity is a use permitted as of right or as a nonregulated activity). However, the likelihood of an activity having a substantive impact on a wetland or watercourse will depend on a number of factors, including the nature of the wetland or watercourse, the activity, soils and slope of the land, and would generally decrease with increasing distance of the activity from the wetland or watercourse. At some point, impacts from that activity on wetlands and watercourses would be expected to become de minimis and not measurable.

The DEP believes that a 100 foot-wide upland review area is sufficient for reviewing construction



activities in areas surrounding wetlands or watercourses because most of the activities which are likely to impact or affect these resources will be located in that area. However, based on the special factors of concern to a wetlands agency, e.g., wetland and watercourse values, slope, soils, existing development, etc., a greater or lesser distance may be appropriate for a particular municipality. However, beyond 100 feet it is neither practical nor desirable, from a wetlands and watercourses management perspective, to automatically require an inland wetlands permit for *all* construction activities. It must be emphasized that other municipal authorities and mechanisms involving planning, zoning and subdivision decisions and plans of conservation and development, play a role in addressing the broader watershed issues.

### *Upland Review Areas, Setbacks and Buffers*

In a number of municipal inland wetlands regulations, upland review areas are referred to as setbacks or buffers.<sup>9</sup> We chose the term *upland review area* to describe the non-wetland or non-watercourse area in which certain activities would be regulated because it best conveys the regulatory scheme under the wetlands statutes wherein a wetland agency reviews regulated activities case-by-case and approves or disapproves them on their merits. The inland wetland statutes do not authorize a blanket prohibition of *all* activities either in the wetlands or in upland review, buffer or setback areas.

### *Use of Upland Review Area Regulations*

Most municipal wetland agencies have already adopted some form of upland review area regulations.<sup>10</sup> Such regulations are based on a presumption that the regulated activity will have an adverse impact on the adjacent wetland or watercourse. A person proposing to conduct a regulated activity has the burden to demonstrate to the wetlands agency that the impacts of his proposal are consistent with the purposes and provisions of the Inland Wetlands and Watercourses Act and, therefore, that he is entitled to the permit. An applicant who successfully documents to the satisfaction of the wetlands agency that his proposed activities are fully consistent with the purposes and provisions of the Inland Wetlands and Watercourses Act is entitled to receive a permit. The factors the wetlands agency must consider in making its decision on the application are prescribed in section 22a-41 of the General Statutes.<sup>11</sup>

### *The Role of the Upland Review Area in Protecting Wetlands and Watercourses*

Upland areas surrounding wetlands or watercourses function in a number of ways to protect these resources. An understanding of these functions and how they potentially may be impacted by construction activity or development is necessary for the wetlands agency to adopt an upland review area and subsequently regulate activities therein. Since the functions will vary depending on the specific project site, each permit application will be different and must be reviewed on its individual merits.

### Control Non-point Source Pollution

\*Vegetation and natural soils foster removal of nutrients, sediments, particulates, and other potential pollutants and pathogens from storm-water runoff thereby protecting water quality

\*Sediments arising from road sanding and construction activities are trapped

\*Flood flows, stream bank erosion, and storm-water discharges to wetlands and watercourses are attenuated

\*Separating distances from wetlands or watercourses allow for treatment of wastewaters

### Protect Aquatic Habitat

\*Wind-thrown trees, dropped branches and detritus create important habitat for aquatic organisms within watercourses

\*Stabilize under cutting stream banks, providing shelter for fish and other aquatic organisms

\*Riparian areas are an essential component of habitat and for mammals, birds, amphibians, reptiles, invertebrates and other wetland animals

\*Watercourses are allowed to meander naturally without endangering development

### Control Temperature

\*Shrubs and trees shade wetlands and watercourses and help maintain cold water aquatic habitats in summer and insulate them from deep frost in winter

\*Water temperatures suitable for fish spawning and egg and fry development are maintained

\*Cooler water supports higher dissolved oxygen

### Provide Food for Aquatic Life

\*Decomposing leaves and detritus contribute to the food chain, especially of aquatic insects

\*Insects falling from branches feed fish and other aquatic life

### Insulate Fish and Wildlife From Human Activities

- \*Potential for human interference with fish and wetland wildlife is reduced

### Provide a Corridor Linking Wetlands and Watercourses

- \*Wildlife habitats are continuous, not fragmented or isolated, allowing for migratory habits of wetland wildlife

### ***Examples of Regulated Activities in Upland Review Areas and Their Potential Wetland or Watercourse Impacts***

Keep in mind that the substance and significance of an impact will vary from site to site and may decrease with increasing distance from the wetland or watercourse.

#### Clearing, grubbing and grading

- \*Loss of stream shading
- \*Increased surface water temperature
- \*Loss of food source for aquatic organisms
- \*Loss of riparian habitat/diminished in stream habitat value
- \*Increased storm-water runoff
- \*Reduced capacity to remove nutrients and other impurities from runoff
- \*Soil erosion/sedimentation
- \*Destabilization of stream banks
- \*Increased disturbance of aquatic and wetland animals
- \*Release of nutrients bound in the soil
- \*Loss of instream habitat diversity from wind-thrown trees and branches

#### Paving

- \*Increased storm-water runoff/discharge
- \*Decreased ground-water recharge, reduced stream flow during dry seasons
- \*Non-point source of water pollution, including petroleum products from motor vehicles
- \*Source of sand and grit from storm water discharges
- \*Disruption of fish spawning and fish-egg incubation
- \*Periodic disturbance from maintenance of storm-water management system
- \*Thermal loading in watercourses

#### Excavating

- \*Soil erosion/sedimentation
- \*Altered surface and ground-water discharge patterns and quantity

- \*Diversion or dewatering of wetland/watercourse
- \*Destabilization of watercourse channels

### Filling

- \*Diversion of surface water drainage/dewatering
- \*Loss of flood-water storage
- \*Increased flooding or flood hazards
- \*Increased stream erosion
- \*Erosion of fill material
- \*Sedimentation

### Constructing

- \*Soil erosion/deposition
- \*Disturbance of adjacent fish and wildlife habitats
- \*Increased non-point sources of water pollution
- \*Fragmentation of wetland/watercourse habitats

### Depositing material

- \*Erosion/loss of material into regulated area
- \*Leaching/pollution potential
- \*Disturbance of adjacent aquatic habitats
- \*Alteration of riparian habitats
- \*Other impacts similar to filling and constructing

### Removing material

- \*Discharge/loss of material to regulated area
- \*Modification of riparian habitats
- \*Surface drainage changes
- \*Other impacts similar to clearing, grubbing or grading

### Discharging storm water

- \*Water quality - discharge of road sands/grit; oils; grease
- \*Water quantity - flow attenuation; velocity dissipation
- \*Erosion/sedimentation
- \*Assimilation of potential pollutants
- \*Change in receiving stream water temperature
- \*Increase velocity of runoff and decrease travel time to the receiving watercourse
- \*Nuisance flooding

### ***Determining Upland Review Area Boundaries***

Due to the variability of Connecticut's landscape features, even within the same watershed, and the multiplicity of regulated activities which may be involved in site development, it is not practical to establish separate upland review area boundary distances *for each category or type of regulated activity*. Instead, the upland review area should be of sufficient width to ensure that it will encompass the activities that are most likely to impact or affect the adjacent wetlands or watercourses. It is recommended that upland review area boundaries be delineated using a uniform distance measured horizontally and perpendicular from the ordinary high water mark of a lake, pond, river or stream or from a wetland soil boundary.

The upland review area width adopted by the wetlands agency may be wider or narrower than the 100 foot width recommended by DEP. DEP encourages municipal wetlands agencies base their upland review area widths giving due consideration to local landscape factors including the value, or importance, of wetland or watercourse resources, extent of existing land use and, if a wetland agency deems it to be practicable, on the slope and soils of the land to be developed or other factors.

To be enforceable, the upland review areas must be adopted in the town's inland wetlands and watercourses regulations following the procedures described under section 22a-42a of the General Statutes.<sup>12</sup> Importantly, the upland review area regulations must be easy to understand by a property owner and easy to implement by the inland wetlands agency (should it need to take an enforcement action), as well as by any other interested person.

A uniform review area width has the advantage of simplicity over a variable width in that it is easier to delineate, understand and administer. The disadvantage of a variable, non-uniform, width upland review area regulation is that its inherent complexity may make the regulation difficult to establish and subsequently administer. Ordinarily, the agency will need a professional staff person to delineate and enforce variable upland review area regulations. Also, citizens may be confused using a variable approach and disagreements over the actual location on the ground of the outer limit of the upland review area may complicate permit and enforcement proceedings. Verification of the upland review area location is particularly important in an enforcement action where the burden is on the agency to prove that there is a violation of its regulations. For these reasons, the department urges caution in adopting complex upland review area boundaries (e.g., Model Option III, above).

While it is desirable for upland review areas to be depicted on the town's official inland wetlands and watercourses map, depending on the type of review area adopted, actual mapping may not be necessary provided appropriate narrative description is included in the town's inland wetlands and watercourses regulations and such provisions *are clearly referenced on the official map*. Wetlands agency regulations governing wetlands maps and the official wetlands maps themselves should state that such wetlands and watercourses maps were prepared for information purposes only and that the actual character of the land shall govern the agency's jurisdiction thereon. The

official wetlands and watercourses maps should also clearly reference or depict all upland review areas which have been adopted by the agency.

### Boundary Factors

There are a number of factors which should be considered in defining upland review area boundaries. For unique situations, such as with an important bog, the boundary of the review area could be set by using an elevation contour encompassing the subject area. In addition, upland review areas may be wider or narrower for specified wetlands or watercourses. For example, an upland review area for a significant wetland or watercourse habitat or for wetlands and watercourses located in a public water supply watershed could be set wider than a review area for wetlands or watercourses located in other less critical areas.

#### \* Significant Wetland and Watercourse Resources

All wetlands have intrinsic value, some wetland areas being more or less ecologically valuable than others. But if a wetland or watercourse is known to be ecologically significant, or to have a critical function or value such as in flood control or as habitat for an endangered species, a wider, more protective, upland review area may be appropriate. Unique wetland and watercourse values such as in research, education or recreation may also warrant a wider upland review area.

DEP encourages all towns to evaluate their wetlands resources. To that end, DEP offers training guidance on a methodology for identifying the relative importance of the wetlands and watercourses in a town or within a watershed. (See: DEP Bulletin # 9 *Method for the Evaluation of Inland Wetlands in Connecticut*, 1989<sup>13</sup>) This methodology uses mathematical and word expressions to assign relative "wetland value units" (WVU) to a number of the common wetland and watercourse functions. The following functions are defined in DEP Bulletin #9:

- Flood Control
- Ecological Integrity
- Wildlife Habitat
- Fish Habitat
- Nutrient Retention and Sediment Trapping
- Education Potential
- Visual/Esthetic Quality
- Agricultural Potential
- Forestry Potential
- Water Based Recreation
- Ground-water Use Potential
- Shoreline Anchoring and Dissipation of Erosive Forces
- Noteworthiness, including public water supply watersheds

In addition, guidance on vernal pools is provided in a recent publication by the Connecticut Forest Stewardship Program and the University of Connecticut Cooperative Extension System titled *Identification and Protection of Vernal Pool Wetlands of Connecticut*. Both of the above referenced publications are available from the DEP Bookstore, 79 Elm Street, Hartford, phone 860-424-3555.

#### \* Slope

By enlarging the width of the upland review area in proportion to its slope upward from the wetland or watercourse, the wetland agency may have a better opportunity to protect wetlands and watercourses from sedimentation originating from upland construction activities. For example, wherever the minimum 100 foot upland review area slope exceeds 5%, regulations could add 5 feet (or other reasonable measure) of review area distance *horizontally* for each 1% increase in slope. Thus, if the basic 100 foot wide review area has a 15% slope upward from the ordinary high water line or wetland soil boundary, an additional 50 feet would be added to the horizontal width of the upland review area ( $5\text{ft}/1\% \times 10\% = 50\text{ft}$ ). Similarly, where the land slopes away (downward) from the regulated area, e.g., as in the case of a hill-side seep wetland, the width of the review area could be reduced.

In general, the greater the slope of the land being developed, the greater the potential threat of damage to adjacent wetlands and watercourses from erosion and sedimentation. However, in practice, unless a town already has good town-wide topographic mapping, calculating a slope parameter for a town-wide map of the upland review area boundary would require considerable professional engineering expertise.

A practical approach to using the slope factor may be for wetland agencies to assert their jurisdiction case-by-case over major construction activities on any steeply sloped areas located outside the upland review area where wetlands and watercourses may be threatened by sedimentation caused by erosion at upland construction sites. Such sedimentation is deemed to be pollution and may be cause for an enforcement action under the inland wetlands statutes (see definition of regulated activity above).

#### \* Soils

Combined with slope, the type of soil found adjacent to wetlands and watercourses is an important factor in how development may affect adjacent wetlands or watercourses. Soil characteristics such as texture, cohesiveness and organic content influence the creation of rill and gully formation as a result of erosion by water. In turn, this creates a potential for sedimentation of adjacent wetlands and watercourses. The United States Department of Agriculture, Natural Resources Conservation Service, has compiled lists of highly erodible soil map units which can be located using their published soil surveys. While these lists were compiled primarily for agricultural applications, they may also be useful in evaluating the erosion potential from construction activity.

Also, the permeability of a particular soil, the rate at which groundwater travels through a soil, is an important consideration when evaluating the potential for an upland review area to renovate wastewater discharges to the ground water that may subsequently discharge to a wetland or watercourse. This may be an important consideration when septic system leaching fields or storm water infiltration trenches are proposed adjacent to wetlands or watercourses.

For more information on highly erodible soils, refer to *Highly Erodible Soil Map Units of Connecticut*, USDA-NRCS (1986). For more information on soil permeability characteristics, contact your local USDA-Natural Resource Conservation Service Center (call 860-487-4011 for the center near you). Information on ground-water as it relates to sewage treatment can be found in *Seepage and Pollutant Renovation* (DEP Bulletin # 7) and *Carrying Capacity of Public Water Supply Watersheds* (DEP Bulletin # 11).

Except when soils are used to define wetlands, regulation of development based on soil characteristics is largely a responsibility of the town sanitarian and the planning and zoning commission(s).<sup>14</sup> However, where highly erodible soils are located adjacent to wetlands and watercourses, erosion and sedimentation control is especially critical and should also be addressed by the wetland agency.

Upland review area boundaries based on soil characteristics should be depicted as such on the official inland wetlands and watercourses map for the subject town.

#### \* Floodplain Limits

The landward boundary of a mapped floodplain, such as delineated by the 100-year flood mapped by the National Flood Insurance Program, has been determined using a theoretical design flood on the subject watercourse. Mapped flood limits have no direct relation to the location of wetlands or smaller watercourses on the floodplain. Also, the floodplain boundaries for most small watercourses have not been mapped. For these reasons, flood insurance floodplain maps may not reflect a reasonable boundary of the upland review area.

#### \*Urban Areas and Existing Development

Existing development of the area surrounding wetlands and watercourses has, more likely than not, already had an impact on the upland area's ability to protect those resources. Degraded conditions should not be used to justify further degradation. The wetlands or watercourses themselves may have been filled or modified for storm water or flood control. For these reasons any remaining fringe of undisturbed area between the wetland or watercourse and existing upland development may be all that there is to buffer adjacent water resources from further degradation from new development. In such urban areas, particular attention should be given to how storm water discharges are managed so as to minimize the opportunity for pollution and alteration of wetland or watercourse habitats.



New development in urban areas that contain degraded wetlands or watercourses, may provide an opportunity to improve these degraded resources while mitigating the impact of the new development. This can be accomplished by habitat restoration or enhancement or by using storm water management system retrofits that are designed to improve the quality of the storm water discharge.

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## Endnotes

1. This document was prepared in response to inquiries from municipal wetland commissioners, the Rivers Advisory Committee, the regulated community and other interested persons for guidance on implementing setback and buffer provisions in municipal regulations adopted under Connecticut's Inland Wetlands and Watercourses Act. Section 22a-42d of the General Statutes directs the department to provide guidance for the implementation of Section 22a-42a(f) of the General Statutes.
2. Over 80% of Connecticut's municipal wetlands agencies have regulations governing regulated activities in areas surrounding wetlands or watercourses.
3. Section 22a-42a(c)(2) of the General Statutes provides that a wetlands agency may delegate approval authority for non-significant activities proposed in upland review areas to its agent provided such agent has had DEP training.
4. Section 22a-42a(f) provides that the wetlands agency has jurisdiction over those activities proposed in the upland review area which are "... likely to impact or affect wetlands or watercourses." In documenting the necessity for regulating specific activities conducted in upland review areas, it is not sufficient to merely assert that the activity "may" impact or affect wetlands or watercourses.
5. Contact DEP for a copy of *Inland Wetlands and Watercourses Model Regulations*. DEP's *Model Regulations* provide a comprehensive guide for implementing the Inland Wetlands and Watercourses Act through municipal wetland agency regulations. *Model Regulations* is updated as needed to reflect current legislation.
6. "Ordinary high water mark" means a mark on the land caused by the presence and action of water, which presence and action is so common and usual and so long continued in all ordinary years so as to mark upon the land a distinction between the abutting upland and the watercourse. Such mark may be found by examining the bed and bank of any watercourse and ascertaining thereon an abrupt change in the characteristics of soil or vegetation or slope of the land. This term should be defined in municipal wetlands regulations.
7. Percent slope is most simply determined by dividing the difference in elevation between two points by the distance between the points (i.e., rise/run) and multiplying the result by 100. If a slope factor is used in regulations, the regulations must provide guidance as to how the slope should be measured in the field e.g., on shortest straight line transect from any wetland or watercourse boundary to the highest up gradient point on the land to be developed; number and location of transects; and, in recognition that

the actual slope of the land is not uniform, methods for averaging of slope over a site.

8. In implementing upland review area regulations, the wetlands agency must be cognizant of the "uses as of right" provisions of section 22a-40 of the General Statutes. Under section 22a-40, certain activities are uses of wetland and watercourses as of right or as a nonregulated use. Such uses are not regulated and do not require a permit from the wetland agency. For example, subdivision (4) of section 22a-40(a) prescribes that certain "... uses incidental to the enjoyment and maintenance of residential property ..." are permitted as of right: "[s]uch uses shall include maintenance of existing structures and landscaping but shall not include removal or deposition of significant amounts of material from or onto a wetland or watercourse or diversion or alteration of a watercourse." Other uses permitted as of right include certain agricultural and forestry uses, boat anchorage and mooring, certain water company activities and maintenance of drainage pipes which pre-date the regulations. Nonregulated uses include a number of conservation and recreational activities. Persons proposing such uses should seek confirmation from the municipal wetlands agency that their proposed project does not require a permit.

9. DEP has not adopted an upland review area provision for state agency actions because, unlike municipal wetland agencies which have only one opportunity to review a project, DEP has a number of opportunities during both planning and permitting of state agency projects. DEP reviews state agency projects under the Environmental Policy Act (Findings of No Significant Impact, Environmental Impact Statements) and several permit programs under Title 22a and 25 of the General Statutes. As partners in state government, state agencies generally act cooperatively to address environmental issues. Utilizing its technical resources, the State strives to apply site specific best management practices during the different planing and regulatory reviews.

10. Depending on the wetland agency, upland review area widths range from 25 feet up to 650 feet from wetland or watercourse boundaries.

11. Section 22a-41 of the Inland Wetlands and Watercourses Act established the criteria for decision on permit applications as follows: In carrying out the purposes and policies of sections 22a-36 to 22a-45, inclusive, of the Connecticut General Statutes, including matters relating to regulating, licensing and enforcing of the provisions thereof, the Agency shall take into consideration all relevant facts and circumstances, including but not limited to:

- a. the environmental impact of the proposed regulated activity on wetlands or watercourses;
- b. the applicant's purpose for, and any feasible and prudent alternatives to, the proposed regulated activity which alternatives would cause less or no environmental impact to wetlands or watercourses;
- c. the relationship between the short term and long term impacts of the proposed regulated activity on wetlands or watercourses and the maintenance and enhancement of long-term productivity of such wetlands or watercourses;
- d. irreversible and irretrievable loss of wetland or watercourse resources which would be caused by the proposed regulated activity, including the extent to which such activity would foreclose a future ability to protect, enhance or restore such resources, and any mitigation measures which may be considered as a condition of issuing a permit for such

activity including, but not limited to, measures to (1) prevent or minimize pollution or other environmental damage, (2) maintain or enhance existing environmental quality, or (3) in the following order of priority: restore, enhance and create productive wetland or watercourse resources;

- e. the character and degree of injury to, or interference with, safety, health or the reasonable use of property which is caused or threatened by the proposed regulated activity; and
- f. impacts of the proposed regulated activity on wetlands or watercourses outside the area for which the activity is proposed and future activities associated with or reasonably related to, the proposed regulated activity which are made inevitable by the proposed regulated activity and which may have an impact on wetlands or watercourses.

Additionally, if the wetlands agency holds a hearing because it found that the subject activity may have a significant impact, the wetlands agency may not grant the permit unless it finds that the activity is acceptable under the criteria listed above and that there is no less environmentally damaging feasible and prudent alternative.

12. Under Section 22a-42a(b) of the General Statutes, the wetlands agency must provide the DEP with a copy of notice of its hearing on proposed regulations and a copy of the proposed regulations no less than 35 days prior to the hearing thereon. DEP must review and approve all proposed wetland agency regulations except proposed map revisions.

13. The methodology described in DEP Bulletin #9 is a resource planning tool intended to be used for town-wide or watershed-wide assessments of wetland resources and is not designed to be used by applicants or wetlands agencies to evaluate the significance of the impact of activities proposed in permit applications.

14. Section 22a-329 of the General Statutes provides that regulations adopted by a municipality pursuant to CGS Secs. 8-2 and 8-25 shall require that proper provisions be made for soil erosion and sediment control.

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### Agency Mission

The mission of the Department of Environmental Protection (DEP) is to conserve, improve and protect the natural resources and environment of the State of Connecticut and to do this in a way that encourages the social and economic development of Connecticut while preserving the natural environment and the life forms its supports in a delicate, interrelated and complex balance, to the end that the state may fulfill its responsibility as trustee of the environment for present and future generations. The DEP achieves its mission through regulation, inspection, enforcement and licensing procedures which help control air, land and water pollution in order to protect health, safety and welfare. The Department also improves and coordinates the state's environmental plans, functions and educational programs in cooperation with the federal, regional and local governments, other public and private organizations and concerned individuals, while managing and protecting the flora and fauna for compatible uses by the citizens of the state.