

ATTACHMENT A

**A RESOLUTION SETTING A PUBLIC HEARING ON AN AMENDMENT TO THE
CARRBORO LAND USE ORDINANCE TO MODIFY WATER QUALITY BUFFER
PROVISIONS**

Resolution No. 26/2008-09

WHEREAS, the Carrboro Board of Aldermen seeks to consider fully policies, plans and regulations pertaining to development opportunities; and

NOW, THEREFORE BE IT RESOLVED that the Board of Aldermen:

Section 1. Sets a public hearing on “AN ORDINANCE REVISING ARTICLE XVI OF THE CARRBORO LAND USE ORDINANCE DEALING WITH FLOOD DAMAGE PREVENTION, STORMWATER MANAGEMENT, AND WATERSHED PROTECTION” for November 25, 2008; and

Section 3. Refers the draft ordinance to the Planning Board and Orange County for review.

BE IT FURTHER RESOLVED that the draft ordinance is also referred to the following advisory boards and commissions for consideration and recommendation prior to the specified public hearing date:

- | | |
|--|--|
| <input type="checkbox"/> Appearance Commission | <input checked="" type="checkbox"/> Recreation and Parks Commission |
| <input checked="" type="checkbox"/> Transportation Advisory Board | <input checked="" type="checkbox"/> Northern Transition Area Advisory Committee |
| <input checked="" type="checkbox"/> Environmental Advisory Board | <input checked="" type="checkbox"/> NC Division of Water Quality/Environmental Management Commission |
| <input checked="" type="checkbox"/> Economic Sustainability Commission | <input checked="" type="checkbox"/> OWASA |
| <input checked="" type="checkbox"/> Greenways Commission | <input checked="" type="checkbox"/> Orange County Erosion Control |

This is the 21st day of November
in the year 2008.

**AN ORDINANCE REVISING ARTICLE XVI OF THE CARRBORO LAND USE
ORDINANCE DEALING WITH FLOOD DAMAGE PREVENTION,
STORMWATER MANAGEMENT, AND WATERSHED PROTECTION**

THE BOARD OF ALDERMEN OF THE TOWN OF CARRBORO ORDAINS:

Section 1. All references in this ordinance are to Chapter 15 of the Carrboro Town Code, the Carrboro Land Use Ordinance.

Section 2. Sections 15-265, 15-268, and 15-269 of Part II of Article XVI of the Carrboro Land Use Ordinance are repealed and the following provisions are adopted in lieu thereof:

ARTICLE XVI

**FLOOD DAMAGE PREVENTION, STORMWATER MANAGEMENT, AND
WATERSHED PROTECTION**

PART III. WATER QUALITY BUFFERS

Section 15-270 Findings and Purpose

(a) The Board finds that:

- (1) Soil and pollutants carried overland from upstream land uses can be effectively trapped by leaving a relatively undisturbed strip of vegetation parallel and adjacent to a drainage feature.
- (2) Properly managed overland water flow can be directed into this water quality buffer area in a manner that will minimize the concentration of flow and promote diffuse flow and infiltration of the water.
- (3) Sediments and other pollutants carried by water will be reduced as a result of the dispersion and infiltration of flow and associated filtering, absorption, and uptake of pollutants.

(b) The purpose of this part is to protect, preserve, and enhance water quality buffers in order to maintain their pollutant removal functions and protect the quality of surface waters and water supplies.

Section 15-270.1 Definitions

For purposes of this part, the following terms shall have the meaning indicated:

- (a) 'Access Trails' means pedestrian trails constructed of pervious or impervious surfaces, and related structures to access a surface water including boardwalks, steps, rails, signage.
- (b) 'Archaeological Activities' means activities conducted by a Registered Professional Archaeologist (RPA).
- (c) 'Buffer' means a water quality buffer, or an undeveloped area parallel and adjacent to a drainage feature to protect and enhance water quality.
- (d) 'DBH' means diameter at breast height of a tree measured at 4.5 feet above ground surface level.
- (e) 'Diffuse flow' means flow that generally moves down slope via sheet flow rather than concentrating in rills, gullies, and ditches and in doing so is able to infiltrate into the soil and plant root zone.
- (f) 'Ditch' means a man-made channel other than one created in order to reroute a naturally occurring stream.
- (g) 'Ephemeral stream' means a drainage feature that only carries surface runoff in direct response to precipitation. An ephemeral stream may or may not have a well-defined channel and the stream bed is always above the water table. An ephemeral stream lacks the biological, hydrological, and physical characteristics commonly associated with continuous or intermittent streams.
- (h) 'Forest plantation' means an area of planted trees that may be conifers (pines) or hardwoods. On a plantation, the intended crop trees are planted rather than naturally regenerated from seed on the site, coppice (sprouting), or seed that is blown or carried into the site.
- (i) 'Full Pond Elevation' means the elevation equal to the top of the flood gates at gated impoundments and the top of the open spillway at impoundments that do not have gates.
- (j) 'Greenway / Hiking Trails' means pedestrian and bicycle trails constructed of pervious or impervious surfaces and related structures including but not limited to boardwalks, steps, rails, and signage.
- (k) 'High Value Tree' means a tree that meets or exceeds the following standards: for pine species, 14-inch DBH or greater or 18-inch or greater stump diameter; and, for hardwoods and wetland species, 16-inch DBH or greater or 24-inch or greater stump diameter.
- (l) 'Intermittent stream' means a well-defined channel that contains water for only part of the year, typically during winter and spring when the aquatic bed is below the water table. The flow may be heavily supplemented by stormwater runoff. An intermittent stream often lacks the biological and hydrological characteristics commonly associated with the conveyance of water.
- (m) 'Perennial stream' means a well-defined channel that contains water year round during a year of normal rainfall with the aquatic

bed located below the water table for most of the year.

Groundwater is the primary source of water for a perennial stream, but it also carries stormwater runoff. A perennial stream exhibits the typical biological, hydrological, and physical characteristics commonly associated with the continuous conveyance of water.

- (n) 'Riparian buffer enhancement' is defined as the process of converting a non-forested riparian area, where woody vegetation is sparse (greater than or equal to 100 trees per acre but less than 200 trees per acre) to a forested riparian buffer area. The enhanced, forested riparian buffer area shall include at least two native hardwood tree species planted at a density sufficient to provide 320 trees per acres at maturity, and diffuse flow through the riparian buffer shall be maintained.
- (o) 'Riparian buffer restoration' is defined as the process of converting a non-forested riparian area, where woody vegetation is absent (less than 100 trees per acre) to a forested riparian buffer area. The restored, forested riparian buffer area shall include predominately native hardwood tree species planted at a density sufficient to provide 320 trees per acres at maturity, and diffuse flow through the riparian buffer shall be maintained.
- (p) 'Shoreline stabilization' is the in-place stabilization of an eroding shoreline. Stabilization techniques which include "soft" methods or natural materials (such as root wads, or rock vanes) may be considered as part of a restoration design. However, stabilization techniques that consist primarily of "hard" engineering, such as concrete lined channels, rip rap, or gabions, while providing bank stabilization, shall not be considered stream restoration.
- (q) "Stream" means a body of concentrated flowing water in a natural low area or natural channel on the land surface.
- (r) 'Stream restoration' is defined as the process of converting an unstable, altered or degraded stream corridor, including adjacent riparian zone and flood-prone areas to its natural or referenced, stable conditions considering recent and future watershed conditions. This process also includes restoring the geomorphic dimension, pattern, and profile as well as biological and chemical integrity, including transport of water and sediment produced by the stream's watershed in order to achieve dynamic equilibrium. 'Referenced' or 'referenced reach' means a stable stream that is in dynamic equilibrium with its valley and contributing watershed. A reference reach can be used to develop natural channel design criteria for stream restoration projects. 'Stump diameter' means the diameter of a tree measured at six inches above the ground surface level.
- (s) 'Surface waters' means any ephemeral, intermittent, or perennial stream, lake, pond, or reservoir.

- (t) 'Temporary road' means a road constructed temporarily for equipment access to build or replace hydraulic conveyance structures or water dependent structures, or to maintain public traffic during construction.
- (u) 'Tree' means a woody plant with a DBH equal to or exceeding five inches or a stump diameter exceeding six inches.

Section 15-270.2 Required Buffers

(a) Subject to the remaining provisions of this part, the water quality buffer areas described in this section are hereby designated as described below. The width of these buffers shall be as prescribed in Section 15-270.3. Disturbance of the area within these buffers is restricted or prohibited as provided in Section 15-270.5

(b) Buffers shall be established adjacent to all surface waters designated as such on either the most recent version of the soil survey map prepared by the Natural Resources Conservation Service of the United States Department of Agriculture, the most recent version of the 1:24,000 scale (7.5 minute) quadrangle topographic maps prepared by the United States Geologic Survey (USGS), or other more accurate mapping approved by the N.C. Environmental Management Commission.

- (1) If surface water is not designated as such on any of the foregoing maps, then the buffer requirements of this article applicable to perennial streams, intermittent streams, lakes, or ponds shall not apply, but buffers applicable to ephemeral streams may apply.
- (2) Where the specific initiation point of an intermittent stream is in question, a publication of the N.C. Division of Water Quality entitled *Identification Methods for the Origins of Intermittent and Perennial Streams* shall be used to establish that point.
- (3) When a landowner or other affected party believes that surface waters shown on the above described maps have been inaccurately designated as perennial streams, intermittent stream, lakes or ponds, then such landowner or other affected party may have an on-site evaluation completed by a party who has successfully completed the NC Division of Water Quality *Surface Water Identification Training Certification* course, its successor, or other equivalent training curriculum approved by the Division, and submit the results of that evaluation to the town. The decision as to the type of surface water, if any, present on the site shall be made by the permit issuing authority when it makes a final decision on the issuance of the permit.

- (c) Buffers shall also be established adjacent to all ephemeral streams that have a contributing drainage area that is at least five acres in size, as depicted in the Town's GIS database.
- (1) When a landowner or other affected party believes that the designation of an area by the town as an ephemeral stream with a contributing drainage area of at least five acres is in error, such landowner or other affected party may request that Town staff perform an onsite visit and/or submit to the town data sufficient to make this case. Upon request, Town staff shall make a site visit and consider the information submitted by the landowner or other affected party as well as other relevant information.
 - (2) The decision as to the existence of an ephemeral stream with a contributing drainage area of at least five acres shall be made by the permit issuing authority when it makes a final decision on the issuance of the permit.
- (d) The administrator may require that the precise location of any surface water be surveyed and accurately shown on development plans whenever necessary to ensure that a proposed development complies with the provisions of this article.

Section 15-270.3 Width of Buffers

- (a) **ZONES OF THE RIPARIAN BUFFER.** The protected riparian buffer shall have two zones as follows:
- (1) A streamside zone ("Zone 1") shall consist of an undisturbed area except as provided for in Section 15-270.5. The function of the streamside zone is to protect the physical and ecological integrity of the stream ecosystem, and filter runoff received from Zone 2. The desired vegetation for Zone 1 is mature forest. The location of Zone 1 shall be as follows:
 - a. Zone 1 shall begin at the most landward limit of the top of the bank. Where the location defining the top of bank cannot be readily determined, Zone 1 shall be measured from the center of the stream. Zone 1 shall extend landward on either side of the stream as indicated in Table 1, measured horizontally on a line perpendicular to a vertical line marking the origin of the buffer as defined above.
 - b. For ponds, lakes and reservoirs, Zone 1 shall begin at the most landward limit of the normal water level and extend landward as indicated in Table 1, measured horizontally on

a line perpendicular to a vertical line marking the edge of the surface water.

(2) Zone 2 shall consist of an undisturbed area except as provided for in Section 15-270.5. The functions of this zone are to: protect the streamside zone, to filter runoff from upland development, and deliver runoff to Zone 1 in a dispersed fashion. Grading and revegetating Zone 2 is allowed provided that the health of the vegetation in Zone 1 is not compromised. Zone 2 shall begin at the outer edge of Zone 1 and extend landward as indicated in Table 1 as measured horizontally on a line perpendicular to the surface water. The desired vegetation for this zone is mature native vegetation; forest cover is encouraged.

(3) The total buffer width shall be the sum of the widths of the two zones, as indicated in Table 1, and shall extend on all sides of the waterbody.

Table 1: Required Minimum Buffer Width (*)

Waterbody type	Zone 1 width		Zone 2 width		Total width	
	Watershed	Outside of Watershed	Watershed	Outside of Watershed	Watershed	Outside of Watershed
Perennial Streams, Ponds, Lakes, Reservoirs	100'	50'	--	50'	100'	100'
Intermittent Streams	60'	30'	--	30'	60'	60'
Ephemeral Streams	--	--	30'	15'	30'	15'

* "Watershed" means within the University Lake Watershed, and "Outside of watershed" means the remainder of the Town's planning jurisdiction. For streams, the width indicated is in one direction from the stream channel; the total width is therefore twice the width indicated.

(4) Notwithstanding the other provisions of this section, in no case shall the width of any buffer be less extensive than the special flood hazard area for the same stream, pond, or lake drainage feature designated in accordance with the provisions of Part I of this article.

Section 15-270.4 Diffuse Flow Requirement

To the extent practicable and in consideration especially of topography and existing uses, diffuse flow of runoff at non-erosive velocities shall be established before the runoff enters the buffer, and maintained in the buffer by dispersing runoff that has concentrated into rills, gullies, and ditches, and reestablishing vegetation where concentrated flow has displaced vegetation. Corrective action to restore diffuse flow shall be taken if necessary to impede the formation or expansion of erosion rills or gullies. Where site conditions constrain the ability to ensure diffuse flow through both Zones 1 and 2, emphasis will be placed on ensuring diffuse flow through Zone 1, as provided for in 15-270.3. No new engineered stormwater devices or conveyances are allowed in the buffers except as provided for in Section 15-270.5.

Section 15-270.5 Exempt and Allowable Activities

(a) The table set forth in subsection (c) below sets out the activities and their designation under this part as exempt, allowable, or allowable with mitigation, except as provided for in 15-270.2. All activities not designated as exempt, allowable, or allowable with mitigation are prohibited within the buffer unless a variance is granted pursuant to Section 15-270.8.

(b) Activities designated in the table below as exempt, allowable, and allowable with mitigation shall be subject to the following requirements. All activities shall be designed, constructed and maintained to minimize soil disturbance and to provide the maximum water quality treatment capacity of the buffer.

- (1) Exempt. Activities designated as exempt are allowed within the buffer. In addition, exempt uses shall meet the requirements listed in the table and the accompanying notes for the specific use
- (2) Allowable. Activities designated as allowable are permissible within the buffer provided that there are no practical alternatives to the requested use as determined in accordance with Section 15-270.6.
- (3) Allowable With Mitigation. Activities designated as allowable with mitigation are permissible within the buffer provided that there are no practical alternatives to the requested use as determined in accordance with Section 15-270.6, and an appropriate mitigation strategy has been approved pursuant to Section 15-270.7.

(c) Table of Exempt and Allowable Activities in Water Quality Buffers

Activity	Exempt	Allowable	Allowable with Mitigation
Drainage, Stormwater, Erosion Control, and other Water-based activities			
Dam maintenance activities: <ul style="list-style-type: none"> • Dam maintenance activities that do not cause additional buffer disturbance beyond the footprint of the existing dam or those covered under the U.S. Army Corps of Engineers Nationwide Permit No. 3 • Dam maintenance activities that do cause additional buffer disturbance beyond the footprint of the existing dam or those not covered under the U.S. Army Corps of Engineers Nationwide Permit No. 3 	X	X	
Drainage of a pond in a natural drainage way provided that a new buffer that meets the requirements of this Section is established adjacent to the new channel			X

Activity	Exempt	Allowable	Allowable with Mitigation
<p>Drainage ditches, roadside ditches and stormwater conveyances through buffers:</p> <ul style="list-style-type: none"> • New stormwater flows to existing drainage ditches, roadside ditches, and stormwater conveyances provided that flows do not alter or result in the need to alter the conveyance and are managed to minimize the sediment, nutrients and other pollution that conveyed. • Realignment of roadside drainage ditches retaining the design dimensions provided that no additional travel lanes are added and the minimum required roadway typical section is used based on traffic and safety considerations. • New or altered drainage ditches, roadside ditches and stormwater outfalls provided that a stormwater management facility is installed to manage water quality and quantity before the conveyance discharges through the buffer. New drainage ditches, roadside ditches and stormwater conveyances that do not provide a stormwater management facility due to topography constraints provided that other practicable BMPs have been employed. 	X	X	X
<p>Ponds created by impounding streams and not used as stormwater BMPs:</p> <ul style="list-style-type: none"> • New ponds in Zone 2 only provided that the diffuse flow requirements in 15-270.4 are established • All other new ponds 		X	X
Scientific studies and stream gauging	X		
<p>Stormwater BMPs:</p> <ul style="list-style-type: none"> • Constructed wetlands in Zone 1, if not closer than 30' to surface waters • Wet detention, bioretention, and constructed wetlands in Zone 2 if diffuse flow of discharge is provided into Zone 1 	X	X	

Activity	Exempt	Allowable	Allowable with Mitigation
Stream relocation The alteration of location of the channel of an stream so long as the newly created buffer area provides equal or better runoff treatment capabilities than the buffer in its original location, subject to State and Federal requirements	X		
Stream restoration	X		
Stream bank stabilization	X		
Temporary sediment and erosion control devices: <ul style="list-style-type: none"> • In Zone 2 only, devices that are greater than 50' from the most landward limit of the surface water provided that the vegetation in Zone 1 within that 50' is not compromised and that discharge is released as diffuse flow in accordance with Section 15-270.5 • In Zones 1 and 2, devices that are within 50' from the most landward limit of the drainage feature to control impacts associated with uses approved by the Town or that have received a variance provided that sediment and erosion control for upland areas is addressed to the maximum extent practical outside the buffer • In-stream temporary erosion and sediment control measures for work within a stream channel 	X	X	
Water dependent structures: <ul style="list-style-type: none"> • Water dependent structures as defined in 15A NCAC 02B .0202 where installation and use do not result in disturbance to riparian buffers • Water dependent structures as defined in 15A NCAC 02B .0202 where installation and use result in disturbance to riparian buffers 	X	X	

Activity	Exempt	Allowable	Allowable with Mitigation
Water wells <ul style="list-style-type: none"> • Single family residential water wells • All other water wells 	X	X	
Wetland, stream and buffer restoration that results in impacts to the riparian buffers: <ul style="list-style-type: none"> • Wetland, stream and buffer restoration that requires DWQ approval for the use of a 401 Water Quality Certification • Wetland, stream and buffer restoration that does not require DWQ approval for the use of a 401 Water Quality Certification 	X	X	
Miscellaneous			
Archaeological activities	X		
Fences: <ul style="list-style-type: none"> • Fences provided that disturbance is minimized and installation does not result in removal of trees as defined in Section 15-316 • Fences provided that disturbance is minimized and installation results in removal of trees as defined in Section 15-316 	X	X	
Grading and revegetation in Zone 2 only provided that diffuse flow and the health of existing vegetation in Zone 1 is not compromised and disturbed areas are stabilized until they are revegetated	X		

Activity	Exempt	Allowable	Allowable with Mitigation
<p>Mining activities:</p> <ul style="list-style-type: none"> • Mining activities that are covered by the Mining Act provided that new buffers that meet the requirements of this section are established adjacent to the relocated channels • Mining activities that are not covered by the Mining Act OR where new buffers that meet the requirements of this section are not established adjacent to the relocated channels • Wastewater or mining dewatering wells with approved NPDES permit 	X	X	X
Preservation or maintenance of historic or cultural sites		X	
Protection of existing structures, facilities and stream banks when this requires additional disturbance of the riparian buffer or the stream channel		X	
Removal of previous fill or debris provided that diffuse flow is maintained, a stabilizing ground cover sufficient to restrain erosion is established, and any woody vegetation removed is restored		X	
Recreation			
<p>Access trails: Pedestrian access trails leading to the surface water, docks, fishing piers, boat ramps and other water dependent activities:</p> <ul style="list-style-type: none"> • Pedestrian access trails that are restricted to the minimum width practicable and do not exceed 4 feet in width of buffer disturbance, and provided that installation and use does not result in removal of trees as defined in Section 15-316 and no impervious surface is added to the buffer • Pedestrian access trails that exceed 4 feet in width of buffer disturbance, the installation or use results in removal of trees as defined in this Section or impervious surface is added to the buffer 	X	X	

Activity	Exempt	Allowable	Allowable with Mitigation
Canoe Access provided that installation and use does not result in removal of trees as defined in Section 15-316 and no impervious surface is added to the buffer.	X		
Greenway / hiking trails ¹ designed, constructed and maintained to maximize nutrient removal and erosion protection, minimize adverse effects on aquatic life and habitat, and protect water quality to the maximum extent practical		X	
Playground equipment: <ul style="list-style-type: none"> • Playground equipment on single family lots • Playground equipment installed on lands other than single-family lots 	X	X	
Recreational and accessory structures <ul style="list-style-type: none"> • Gazebos and sheds in Zone 2, <ul style="list-style-type: none"> ○ Total footprint of less than 150 square feet per lot. ○ Total footprint of more than 150 square feet per lot. • Slatted decks and associated steps <ul style="list-style-type: none"> ○ Deck at least eight feet in height and no vegetation removed from Zone One. ○ Deck less than eight feet in height or vegetation removed from Zone One. 			
Transportation			
Bridges		X	

¹ To the extent practicable, greenway easements shall be located a minimum of 10 feet from the top of bank; surfaces shall be a minimum of 15 feet from the top of bank

Activity	Exempt	Allowable	Allowable with Mitigation
Driveway crossings of streams and other surface waters subject to this Section: <ul style="list-style-type: none"> • Individual driveway crossings that disturb equal to or less than 25 linear feet or 2,500 square feet of buffer • Individual driveway crossings that disturb greater than 25 linear feet or 2,500 square feet of buffer • Multiple driveway crossings in any development that cumulatively disturbs equal to or less than 150 linear feet or one-third of an acre of buffer • Multiple driveway crossings in any development that cumulatively disturbs greater than 150 linear feet or one-third of an acre of buffer • Driveway impacts other than crossing of a stream or other surface waters subject to this Section 	X	X	X
Railroad impacts other than crossings of streams and other surface waters subject to this Section.		X	
Railroad crossings of streams and other surface water drainage features subject to this Part: <ul style="list-style-type: none"> • Railroad crossings that impact equal to or less than 40 linear feet of riparian buffer • Railroad crossings that impact greater than 40 linear feet but equal to or less than 150 linear feet or one-third of an acre of riparian buffer • Railroad crossings that impact greater than 150 linear feet or one-third of an acre of riparian buffer 	X	X	X
Road relocation: Relocation of existing private access roads associated with public road projects where necessary for public safety: <ul style="list-style-type: none"> • Less than or equal to 2,500 square feet of buffer impact • Greater than 2,500 square feet of buffer impact 		X	X

Activity	Exempt	Allowable	Allowable with Mitigation
Temporary roads, provided that restoration activities, such as soil stabilization and revegetation, occur immediately after construction:: <ul style="list-style-type: none"> • Less than or equal to 2,500 square feet of buffer disturbance • Greater than 2,500 square feet of buffer 	X	X	
Transportation (vehicular, pedestrian, bike) crossings of streams and other surface waters subject to this Section: <ul style="list-style-type: none"> • Transportation crossings that impact equal to or less than 40 linear feet of riparian buffer • Transportation crossings that impact greater than 40 linear feet but equal to or less than 150 linear feet or one-third of an acre of riparian buffer • Transportation crossings that impact greater than 150 linear feet or one-third of an acre of riparian buffer 	X	X	X
Transportation impacts other than crossings of streams and other surface waters subject to this Section			X
Vehicle access roads and boat ramps leading to the surface water, docks, fishing piers, and other water dependent activities: <ul style="list-style-type: none"> • Vehicular access roads and boat ramps to the surface water but not crossing the surface water that are restricted to the minimum width practicable not to exceed 10 feet in width • Vehicular access roads and boat ramps to the surface water but not crossing the surface water that are restricted to the minimum width practicable and exceed 10 feet in width 		X	X
Utilities			

Activity	Exempt	Allowable	Allowable with Mitigation
Electric utility, aerial, perpendicular crossings ^{2,3,4} : <ul style="list-style-type: none"> • Disturb equal to or less than 150 linear feet of buffer • Disturb greater than 150 linear feet of buffer 	X	X	
Electric utility, aerial, other than perpendicular crossings ³ : <ul style="list-style-type: none"> • Impacts in Zone Two • Impacts in Zone One^{2,4} 		X	X
Electric utility, underground, perpendicular crossings ^{3,4,5} : <ul style="list-style-type: none"> • Disturb less than or equal to 40 linear feet of buffer • Disturb greater than 40 linear feet of buffer 	X	X	

² Provided that, in Zone One, all of the following BMPs for overhead utility lines are used. If all of these BMPs are not used, then the overhead utility lines shall require a no practical alternative evaluation by the Administrator as defined in Section 15-270.6.

- A minimum zone of 10 feet wide immediately adjacent to the water body shall be managed such that only vegetation that poses a hazard or has the potential to grow tall enough to interfere with the line is removed.
- Woody vegetation shall be cleared by hand. No land grubbing or grading is allowed.
- Vegetative root systems shall be left intact to maintain the integrity of the soil. Stumps shall remain where trees are cut.
- Riprap shall not be used unless it is necessary to stabilize a tower.
- No fertilizer shall be used other than a one-time application to re-establish vegetation.
- Construction activities shall minimize the removal of woody vegetation, the extent of the disturbed area, and the time in which areas remain in a disturbed state.
- Active measures shall be taken after construction and during routine maintenance to ensure diffuse flow of stormwater through the buffer.
- In wetlands, mats shall be utilized to minimize soil disturbance.

³ Perpendicular crossings are those that intersect the surface water at an angle between 75 degrees and 105 degrees.

⁴ Provided that poles or aerial infrastructure shall not be installed within 10 feet of a water body unless the Administrator completes a no practical alternative evaluation as defined in Section 15-270.6

⁵ Provided that, in Zone One, all of the following BMPs for underground utility lines are used. If all of these BMPs are not used, then the underground utility line shall require a no practical alternative evaluation by the Administrator, as defined in Section 15-270.6.

- Woody vegetation shall be cleared by hand. No land grubbing or grading is allowed.
- Vegetative root systems shall be left intact to maintain the integrity of the soil. Stumps shall remain, except in the trench created for the line installation.
- Underground cables shall be installed by vibratory plow or trenching.
- The trench shall be backfilled with the excavated soil material immediately following cable installation.
- No fertilizer shall be used other than a one-time application to re-establish vegetation.

Activity	Exempt	Allowable	Allowable with Mitigation
Electric utility, underground, other than perpendicular crossings ^{3,5} : • Impacts in Zone Two • Impacts in Zone One ²	X X		
Non-electric utility, perpendicular crossings ^{3,5} : • Disturb equal to or less than 40 linear feet of buffer with a maintenance corridor equal to or less than 10 feet in width • Disturb equal to or less than 40 linear feet of buffer with a maintenance corridor greater than 10 feet in width • Disturb greater than 40 linear feet but equal to or less than 150 linear feet of buffer with a maintenance corridor equal to or less than 10 feet in width • Disturb greater than 40 linear feet but equal to or less than 150 linear feet of buffer with a maintenance corridor greater than 10 feet in width • Disturb greater than 150 linear feet of buffer	X	X X	X X
Non-electric utility, other than perpendicular crossings ^{3,5} : • Impacts in Zone Two • Impacts in Zone One ²		X	X
Vegetation Management			
Forest harvesting - see Section 15-270.9			
Fertilizer application: • One-time fertilizer application to establish vegetation	X		

• Construction activities shall minimize the removal of woody vegetation, the extent of the disturbed area, and the time in which areas remain in a disturbed state.

Activity	Exempt	Allowable	Allowable with Mitigation
Vegetation management:			
• Emergency fire control measures provided that topography is restored	X		
• Mowing and harvesting of plant products in Zone 2 only	X		
• Planting vegetation to enhance the riparian buffer	X		
• Pruning forest vegetation provided that the health and function of the forest vegetation is not compromised	X		
• Removal of individual trees which are in danger of causing damage to dwellings, other structures or human life	X		
• Removal of poison ivy	X		
• Removal of invasive exotic vegetation as defined by the North Carolina Botanical Gardens	X		

(d) Additional Setback Requirements for Specific Water Pollution Hazards

The following activities are designated as potential water pollution hazards, and must be set back from any stream or waterbody by the required buffer width provided in 15-270.3 or the distance indicated below, whichever is greater:

Activity	Setback
Above or below ground storage of hazardous substances, petroleum or biofuels	150 feet
Animal feedlot operations	250 feet
Land application of biosolids	100 feet
Solid waste landfills or junkyards	300 feet

(e) Because it is not the intent of this part to render undevelopable lots of record on the effective date of this part, intrusions into the protective buffer are permitted in the event that a lot of record would otherwise be made undevelopable by the provisions of this part, to the extent necessary for the lot in question to be developed as permitted by the underlying zoning designation and in such a manner as to minimize the disruption of the protective buffer.

(f) No new lot may be created through a major or minor subdivision process that would be undevelopable under the provisions of this part because of the amount or

dimensions of protective buffer land included in it, unless such lot has already been developed, or it plainly appears that such lot is intended to be devoted to permanent open space use.

- (g) Areas set aside as protective stream buffers as required by this part may be counted towards required open space as set out in Sections 15-198, so long as they meet all the provisions of that section.
- (h) Nothing in this part shall prevent a single family residence (including a mobile home) from being located within the required protective stream buffer areas if such home (i) replaces a home that had been located within such buffer within six months prior to the effective date of this part and is located on the same location as the previous home, or (ii) is located on a mobile home pad or foundation that was in existence on the effective date of this part.

Section 15-270.6 Determination of "No Practical Alternatives"

(a) Persons who wish to undertake uses designated as allowable or allowable with mitigation under Section 15-270.5 shall submit a written request to the permit issuing authority for a "no practical alternatives" determination. The applicant shall certify that the criteria identified in subsection (b) are met and may submit any information deemed relevant to the permit issuing authority determination, in addition to the plans and other information submitted as part of the application for a permit under Article IV of this chapter. A "no practical alternatives" determination shall only be made for proposed developments with respect to which permit applications under Article IV are pending.

(b) The permit issuing authority shall make a "no practical alternatives" determination if s/he concludes, after reviewing the project plans and any other applicable information, that:

- (1) The basic project purpose cannot be practically accomplished in a manner that would better minimize disturbance, preserve aquatic life and habitat, and protect water quality, and;
- (2) Best management practices shall be used if necessary to minimize disturbance, preserve aquatic life and habitat, and protect water quality.

(c) Requests for a "no practical alternatives" determination shall be reviewed and either approved or denied. The permit issuing authority shall issue his/her decision in writing.

Section 15-270.6 Mitigation for Water Quality Buffers

(a) **PURPOSE.** The purpose of this section is to set forth the mitigation requirements for water quality buffer protection

(b) **THE AREA OF MITIGATION.** Staff shall determine the required area of mitigation, which shall apply to all mitigation options identified in this section, according to the following:

(1) The impacts in square feet to each zone of the buffer shall be determined by adding the area of the footprint of the activity causing the impact to the riparian buffer, including any clearing and grading within the buffer necessary to accommodate other activities, and the area of any ongoing maintenance corridors within the buffer associated with the activity.

(2) The required area of mitigation shall be determined by applying the following multipliers to the impacts determined in subsection (b)(1) to each zone of the riparian buffer:

- a. Impacts to Zone one of the riparian buffer shall be multiplied by three;
- b. Impacts to Zone two of the riparian buffer shall be multiplied by one and one-half.

(c) **THE LOCATION OF MITIGATION.** The mitigation effort shall be located within the Town's planning jurisdiction, and as close to the location of the impact as feasible.

(d) **OPTIONS FOR MEETING THE MITIGATION DETERMINATION.** The mitigation determination may be met through one of the following options:

(1) Payment of a compensatory mitigation fee to the Town's Water Quality Enhancement Fund;

(2) Donation of real property or of an interest in real property pursuant to subsection (e) of this Section;

(c) Riparian buffer enhancement, or riparian buffer restoration. This shall be accomplished by the applicant after submittal and approval of a restoration plan pursuant to Item (f) of this Section.

(e) **PAYMENT TO THE WATER QUALITY ENHANCEMENT FUND.** Persons who choose to satisfy their mitigation determination by paying a compensatory mitigation fee to the Water Quality Enhancement Fund as allowed here shall use the following procedure:

(1) The Town shall establish annually, and include on the Miscellaneous Fees and Charges Schedule, a per square foot buffer mitigation fee. The fee shall be based upon a reasonable estimate of the per square foot cost of accomplishing riparian buffer restoration.

(2) The amount of the compensatory mitigation fee due shall be determined by multiplying the area in square feet of mitigation calculated in accordance with subsection (b) by the per square foot buffer mitigation fee.

(3) The required fee shall be submitted to the Town prior to construction plan approval.

(f) **DONATION OF PROPERTY.** Persons who choose to satisfy their mitigation determination by donating real property or an interest in real property to the Town shall meet the following requirements:

(1) The donation of real property interests may be used to either partially or fully satisfy the payment of a compensatory mitigation fee to the Water Quality Enhancement Fund. The value of the property interest shall be determined by an

appraisal performed in accordance with subsection (f)(4)d of this Section. The donation shall satisfy the mitigation determination if the appraised value of the donated property interest is equal to or greater than the required fee. If the appraised value of the donated property interest is less than the required fee, the applicant shall pay the remaining balance due.

(2) The donation of conservation easements to satisfy compensatory mitigation requirements shall be accepted only if the conservation easement is granted in perpetuity.

(3) Donation of real property interests to satisfy the mitigation determination shall be accepted only if such property meets all of the following requirements:

- a. The property shall contain riparian buffers that are in need of restoration.
- b. The restorable riparian buffer on the property shall have a minimum length of 200 linear feet along a surface water and a minimum width of 50 feet as measured horizontally on a line perpendicular to the surface water.
- c. The size of the restorable riparian buffer on the property to be donated shall equal or exceed the acreage of riparian buffer required to be mitigated under the mitigation responsibility determined pursuant to Item (b) of this Section.
- d. The property shall not require excessive measures for successful restoration, such as removal of structures or infrastructure. Restoration of the property shall be capable of fully offsetting the adverse impacts of the requested use.
- e. The property shall be suitable to be successfully restored, based on existing hydrology, soils, and vegetation.
- f. The estimated cost of restoring and maintaining the property shall not exceed the value of the property minus site identification and land acquisition costs.
- g. The property shall not contain any building, structure, object, site, or district that is listed in the National Register of Historic Places established pursuant to Public Law 89-665, 16 U.S.C. 470 as amended.
- h. The property shall not contain any hazardous substance or solid waste.
- i. The property shall not contain structures or materials that present health or safety problems to the general public. If wells, septic, water or sewer connections exist, they shall be filled, remediated or closed at owner's expense in accordance with state and local health and safety regulations.
- j. The property and adjacent properties shall not have prior, current, and known future land use that would inhibit the function of the restoration effort.
- k. The property shall not have any encumbrances or conditions on the transfer of the property interests.

(4) At the expense of the applicant or donor, the following information shall be submitted to the Town with any proposal for donations or dedications of interest in real property:

- a. Documentation that the property meets the requirements laid out in subsection (f)(3) of this Section;
- b. Documentation showing the location of the property to be donated along with information on existing site conditions, vegetation types, presence of existing structures and easements;
- c. A current property survey performed in accordance with the procedures of the North Carolina Department of Administration, State Property Office as identified by the State Board of Registration for Professional Engineers and Land Surveyors in "Standards of Practice for Land Surveying in North Carolina." Copies may be obtained from the North Carolina State Board of Registration for Professional Engineers and Land Surveyors, 3620 Six Forks Road, Suite 300, Raleigh, North Carolina 27609;
- d. A current appraisal of the value of the property performed in accordance with the procedures of the North Carolina Department of Administration, State Property Office as identified by the Appraisal Board in the "Uniform Standards of Professional North Carolina Appraisal Practice." Copies may be obtained from the Appraisal Foundation, Publications Department, P.O. Box 96734, Washington, D.C. 20090-6734; and
- e. A title certificate from a licensed NC attorney.

(g) **RIPARIAN BUFFER RESTORATION OR ENHANCEMENT.** Persons who choose to meet their mitigation requirement through riparian buffer restoration or enhancement shall meet the following requirements:

- (1) The applicant may restore or enhance a non-forested riparian buffer if either of the following applies:
 - a. The area of riparian buffer restoration is equal to the required area of mitigation determined pursuant to subsection (b) of this Section; or
 - b. The area of riparian buffer enhancement is three times larger than the required area of mitigation determined pursuant to subsection (b) of this Section.
- (2) The location of the riparian buffer restoration or enhancement shall comply with the requirements in subsection (c) of this Section.
- (3) The width of the riparian buffer restoration or enhancement site shall comply with Section 15-270.3.
- (4) The applicant shall submit a restoration or enhancement plan for approval. The restoration or enhancement plan shall contain the following:
 - a. A map of the proposed restoration or enhancement site;
 - b. A vegetation plan. The vegetation plan shall include a minimum of at least two native hardwood tree species planted at a density sufficient to provide 320 trees per acre at maturity;
 - c. A grading plan. The site shall be graded in a manner to ensure diffuse flow through the riparian buffer;

- d. A fertilization plan; and
 - e. A schedule for implementation.
- (5) Within one year after the permit issuing authority has approved the restoration or enhancement plan, the applicant shall present proof that the riparian buffer has been restored or enhanced. If proof is not presented within this timeframe, then the person shall be in violation of the riparian buffer protection program.
- (6) The mitigation area shall be placed under a perpetual conservation easement that will provide for protection of the property's nutrient removal functions.
- (7) The applicant shall submit annual reports for a period of five years after the restoration or enhancement showing that the trees planted have survived and that diffuse flow through the riparian buffer has been maintained. The applicant shall replace trees that do not survive and restore diffuse flow if needed during that five-year period.

Section 15-270.7 Variances

(a) For purposes of this section, a "minor variance" request pertains to activities that are proposed only to impact any portion of a buffer that extends more than 30' from the edge of the buffer where that adjoins the surface water, as well as any request that impacts any portion of a buffer adjoining an ephemeral stream. All other requests shall be considered "major variances."

(b) All variances shall first be considered and acted upon in accordance with the provisions of Section 15-92.

(c) If a minor variance request is approved by the Board of Adjustment, no further action need be taken to make that decision effective. If a major variance request is approved by the Board of Adjustment, that decision shall not become effective unless and until that decision is affirmed by the Environmental Management Commission.

Section 15-270.8 Requirements Specific to Forest Harvesting

The requirements of this section shall apply to forest harvesting operations and practices within the buffers prescribed by this part.

- (a) All the following measures shall apply in the entire buffer as applicable:
1. Logging decks and sawmill sites shall not be placed in the buffer.
 2. Access roads and skid trails shall be prohibited except for temporary and permanent stream crossings established in accordance with 15A NCAC 11.0203. Temporary stream crossings shall be permanently stabilized after any site disturbing activity is completed.
 3. Timber felling shall be directed away from the stream or water body.

4. Skidding shall be directed away from the stream or water body and shall be done in a manner that minimizes soil disturbance and prevents the creation of channels or ruts.
5. Individual trees may be treated to maintain or improve their health, form or vigor.
6. Harvesting of dead or infected trees as necessary to prevent or control the spread of tree pest and disease infestation shall be allowed. These practices must be approved by the Division of Forest Resources for a specific site pursuant to the rule.
7. Removal of individual trees that are in danger of causing damage to structures or human life shall be allowed.
8. Natural regeneration of forest vegetation and planting of trees, shrubs, or ground cover plants to enhance the buffer shall be allowed provided that soil disturbance is minimized. Plantings shall consist primarily of native species.
9. High intensity prescribed burns shall not be allowed.
10. Application of fertilizer shall not be allowed except as necessary to provide a stabilizing ground cover sufficient to restrain erosion. Broadcast application of fertilizer or herbicides to the adjacent forest stand shall be conducted that the chemicals are not applied directly to or allowed to drift into the buffer.

(b) In Zone 1, forest vegetation shall be protected and maintained. Selective harvest as provided for below is allowed on forest lands that have a deferment for use value under forestry in accordance with G.S. 105-277.2 through 277.6 or on forest lands that have a forest management plan prepared or approved by a registered professional forester. A plan drafted under either option shall meet the standards set out in this Item. Copies of either the approval of the deferment for use value under forestry or the forest management plan shall be produced upon request. For such forest lands, selective harvest is allowed in accordance with the following:

- (1) Tracked or wheeled vehicles are not permitted for the purpose of selective timber harvesting where there is no other practical alternative for removal of individual trees provided activities comply with forest practice guidelines for water quality as defined in Rule 15A NCAC 01I .0101 through .0209, and provided no equipment shall operate within the first 10 feet immediately adjacent to the stream except at stream crossings designed, constructed and maintained in accordance with Rule 15A NCAC 1I .0203;
- (2) Soil disturbing site preparation activities are not allowed; and

(3) Trees shall be removed with the minimum disturbance to the soil and residual vegetation.

(c) In addition to the requirements of (b) in this item, the following provisions for selective harvesting shall be met:

- (1) The first 10 feet of Zone 1 directly adjacent to the stream or waterbody shall be undisturbed except for the removal of individual high value trees as defined provided that no trees with exposed primary roots visible in the stream bank be cut.
- (2) In the outer 20 feet of Zone 1, a maximum of 50 percent of the trees greater than five inches DBH may be cut and removed. The reentry time for harvest shall be no more frequent than every 15 years, except on forest plantations where the reentry time shall be no more frequent than every five years. In either case, the trees remaining after harvest shall be as evenly spaced as possible; and
- (3) In Zone 2, harvesting and regeneration of the forest stand shall be allowed in accordance with 15A NCAC 01I .0100 through .0200 as enforced by the Division of Forest Resources.

Section 3. Subsection 15-198 (b) (4) of the Carrboro Land Use Ordinance is amended by rewording subdivisions (b) and (c) to read as follows:

- b. Hardwood areas as depicted within the Geographic Information System (GIS) of the Town of Carrboro.
- c. With respect to perennial and intermittent streams designated in the GIS of the Town of Carrboro, those areas within an average perpendicular distance of sixty feet from the centerline of the stream,.

Section 4. Subsections 15-184(g) and (h) are hereby repealed.

Section 5. All provisions of any town ordinance in conflict with this ordinance are repealed.

Section 6. This ordinance shall become effective upon approval by the North Carolina Environmental Management Commission, following adoption by the Carrboro Board of Aldermen.

WORKSESSION ON LAND USE ORDINANCE REVISIONS FOR WATER QUALITY BUFFERS

Staff has completed an evaluation of stream buffer provisions and offers a draft ordinance amending these provisions for the Board's review.

Randy Dodd, the town's Environmental Planner, made the presentation.

Alderman Gist expressed concern that a property owner who owns property within the 5% to 10% mapped buffer area would not run into extraordinary problems that they did not have when they built or purchased their property.

Alderman Coleman had the following comments/suggestions:

- That tree removal be a mitigation category and that those trees be expected to be replanted
- On Page C-20, Item G – what does undevelopable mean?
- Look at developing impact thresholds for those for certain activities, i.e., transportation crossing, railroad crossing, etc., that vary in length in relation to the varying widths of buffers for different stream types. For example, narrower thresholds for ephemeral streams and wider thresholds for perennial streams.
- Look at five acre drainage as the area at which the staff is recommending ephemeral streams be regulated.

Mike Brough stated that subsection (g) would allow development of an undevelopable lot that is within the protective buffer area without the necessity of the property owner seeking a variance.
