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September 20, 2007

Coalition to Save Northampton's Wetlands
c/o Ms. Joanne Montgomery
VIA EMAIL

I, Dr. Bryan Windmiller of Hyla Ecological Services, submit this commentary on the non-encroachment zone provisions of the proposed revisions to the Northampton Wetland Protection Ordinance (Section 24-10, 5b). I have been retained, in this matter, on the behalf of the Coalition to Save Northampton's Wetlands. In preparing this commentary, I have relied on electronic versions of the current 1989 Northampton Wetlands Protection Ordinance and a version of the Proposed Ordinance as supplied to me by Ms. Joanne Montgomery of the Coalition. I previously summarized my qualifications and submitted my Curriculum Vitae to the Northampton Conservation Commission during my commentary on the vernal pool provisions of the proposed Ordinance.

SUMMARY OF PROPOSED LANGUAGE PERTAINING TO THE "NON-ENCROACHMENT ZONE"

The current Northampton Wetlands Protection Ordinance makes no reference to a non-encroachment zone surrounding jurisdictional wetlands in its brief performance standards (Section 24-10). However, I have been informed that, in October 2003, the Northampton Conservation Commission adopted an official policy of enforcing a 50-foot setback policy for proposed construction in upland areas adjacent to statutory wetlands. This policy has, to my knowledge, constituted a *de facto* performance standard that has generally been rigorously applied by the Commission since its adoption.

The currently proposed revised Wetlands Protection Ordinance (henceforth, "the proposed Ordinance") codifies the existing policy of the Conservation Commission:

"The City's general policy is no encroachment within 50 feet of wetlands."
(Section 24-10)

However, in the next sentence, the proposed Ordinance establishes a procedure by which applicants can request waivers from the 50-foot “no encroachment” policy. Specific criteria are then established that would, apparently, serve to qualify projects for waivers. Three of these criteria are simple:

- 1) Projects down-gradient of wetlands.
- 2) Projects in areas “*already degraded by impervious surfaces from existing structures or pavement*”.
- 3) Limited Development Projects (as defined under the regulations pursuant to the Massachusetts Wetlands Protection Act).

The fourth criterion that would serve to justify a waiver from the 50-foot “no encroachment” policy is more complex, meriting the inclusion of a table that specifies reduced “no-encroachment” zone widths depending upon the zoning district in which the project is situated. The proposed language is:

Projects in certain infill areas, in accordance with Table-(1) in Section 24-10, where development includes mitigation measures that will improve the existing condition of the wetlands or adjacent upland area and is otherwise permissible under the Massachusetts Wetlands Protection Act.

Table-1 (not given here) reduces the mandatory width of the non-encroachment zone to 10 feet in zoning districts with most intensive land uses (*e.g.* Central Business, Industrial) and to 35 feet in Urban Residential-B and –C districts. Areas within the Water Supply Protection overlay and other zoning districts not specified would be eligible for waivers “*Only in conformance with the performance standards of this Ordinance*”.

Given the uniformity with which the current 50-foot no encroachment policy is applied throughout Northampton, the net result of adoption of the Proposed Ordinance would therefore be to permit work closer to wetlands than is currently the case in projects that meet certain conditions.

In the remainder of this commentary, I summarize the scientific basis for maintaining setbacks from wetlands of 50 feet or greater and some potential problems in the administration of the non-encroachment zone provisions of the proposed Ordinance.

SCIENTIFIC BASIS FOR NON-ENCORACHMENT ZONE WIDTHS OF 50 FEET OR GREATER

There has been a great deal of scientific inquiry into the importance of wetland buffer zones. Many studies have demonstrated that buffer zones of upland vegetation surrounding wetland areas are critical to the maintenance of the integrity and functionality of the wetlands. I have, for example, authored several studies demonstrating the direct link between the diversity and abundance of vernal pool amphibian populations and the extent of forested upland buffers maintained around the

pools. In short, the consensus of the scientific literature is clearly that the value and functions of wetlands are severely compromised when buildings, roads, lawns, fields, etc., are constructed too close to the wetland edges. Negative consequences to wetlands of insufficient setbacks from wetland edges include:

- changes in wetland temperature
- increased frequency and severity of flooding
- increases in abundance of exotic invasive species
- increases in pollutant loads
- increased rate of sediment deposition
- increased fecal coliform counts
- increases in nutrient levels and in nutrophillic nuisance vegetation
- increased levels of direct human disturbance and trash accumulation
- altered distribution of native wetland plant and animal species
- decreased diversity in native wetland plant and animal species.

An excellent, though dated, review of buffer zone studies is contained within:

Castelle, A.J., C. Conolly, M. Emers, E.D. Metz, S. Meyer, M. Witter, S. Mauermann, T. Erickson, S.S. Cooke. 1992. Wetland Buffers: Use and Effectiveness. Adolphson Associates, Inc., Shorelands and Coastal Zone Management Program, Washington Department of Ecology, Olympia, Pub. No. 92-10. available in full text at: www.ecy.wa.gov/pubs/92010.pdf

The following summary findings, excerpted from Castelle *et al.*, 1992 are particularly germane to this discussion:

Buffer effectiveness increases with buffer width. As buffer width increases, the effectiveness of removing sediments, nutrients, bacteria, and other pollutants from surface water runoff increases. (p. 43)

Buffers of less than 50 feet in width are generally ineffective in protecting wetlands. Buffers larger than 50 feet are necessary to protect wetlands from an influx of sediment and nutrients, to protect wetlands from direct human disturbance, to protect sensitive wildlife species from adverse impacts, and to protect wetlands from the adverse effects of changes in quantity of water entering the wetland. (p. 44)

Buffer widths effective in preventing significant water quality impacts to wetlands are generally 100 feet or greater. (p. 44)

Buffers from 50 to 150 feet are necessary to protect a wetland from direct human disturbance in the form of human encroachment (e.g., trampling, debris). (Pp. 44-45).

Also, of particular significance are the results of a field evaluation study of wetland buffer effectiveness in the Puget Sound area of Washington State conducted Sarah Spear Cooke. These findings are summarized in Castelle et al., 1992:

*Buffer function was found to be directly related to the width of the buffer. **Ninety-five percent of buffers smaller than 50 feet suffered a direct human impact within the buffer, while only 35% of buffers wider than 50 feet suffered direct human impact.** Human impacts to the buffer zone resulted in increased impact on the wetland by noise, physical disturbance of foraging and nesting areas, and dumping refuse and yard waste. Overall, large buffers reduced the degree of changes in water quality, sediment load, and the quantity of water entering the adjacent wetland. As a rule, buffers were subjected to a reduction in size over time. Of 21 sites examined, 18 were found to have reduced buffer zones within one to eight years following establishment. (P. iv, bold-type added).*

In my own experience, as a scientist, consultant, and conservation commissioner, construction that takes place closer than 50 feet from a wetland edge inevitably results in some degree of degradation to the adjacent wetland. The degree of degradation is largely a product of the nature and intensity of the construction and the relative vulnerability of the adjacent wetland.

POTENTIAL DIFFICULTIES IN THE ADMINISTRATION OF THE PROPOSED NON-ENCROACHMENT ZONE PROVISIONS

I find the wording in proposed Section 24-10, 5B, as quoted above, to be somewhat confusing and problematic. My specific concerns and recommendations are:

- 1) The sentence: “*The Commission may allow work within the 50-foot non-encroachment zone in response to a written request for a waiver, which shall include a written and plan view assessment as part of the application process as follows:*” is confusing. The second clause provides guidance for submitting a request for a waiver (include a written and plan view assessment) yet the sentence is followed by a series of specific criteria for meeting waiver standards. The sentence would be simpler and clearer if written as:

The Commission may allow work within the 50-foot non-encroachment zone provided that the project meets any of the following criteria:

- 2) The criterion: “Projects in certain infill areas” is vague and would be open to much debate. Neither the term “infill” nor the more specific phrase “certain infill areas” are defined in the proposed Ordinance. The word “infill” is of rather recent and specialized derivation, and generally unfamiliar. Definitions of “infill” available on the Internet vary widely. If

this term is to serve as a meaningful condition by which projects might qualify for reduced non-encroachment zone widths, it must be tightly defined, ideally through reference to a mapped overlay. As currently drafted, the phrase invites applicants to argue that their particular lot is “infill” since there are other developed lots nearby, an argument that could presumably be applied to almost any site in Northampton.

- 3) The granting of non-encroachment zone waivers, as per Table-(1) is conditioned, seemingly strongly, by the clause: “*where development includes mitigation measures that will **improve** the existing condition of the wetlands or adjacent upland area....*” On face value, this clause would seem to guarantee that a reduction in setback distance from the wetland could only be permitted in cases in which there would be a net benefit to Northampton’s wetland resources.

However, determining whether a mitigation project would result in the improvement of a wetland is a difficult, subjective, and inherently somewhat dubious undertaking. Again, the condition appears to invite applicants, through their consultants, to argue that their particular project would “improve” the adjacent wetlands. Such arguments are often specious and depend upon short-term, minor mitigation measures (e.g. the removal of trash, the removal of some exotic species, or planting some native wetland species), yet typically make no detailed accounting of the negative consequences of new construction close to the wetlands or of long-term maintenance and monitoring of any proposed mitigation measures. The wording, as proposed, would tend to put conservation commissioners in the difficult task of rebutting claims by paid consultants that the mitigation measures proposed would improve the subject wetland resources. In effect, the proposed Ordinance would shift some of the burden of proof for permitting diminished non-encroachment zones onto the Conservation Commission.

In summation, I find that proposed Ordinance would effectively lessen the current protections of wetland resource areas in Northampton against injurious encroachment by construction projects. The wording would provide applicants with the means to argue that projects in many areas of Northampton would qualify for reduced wetland setbacks, often as small as 10 feet from the wetland edge. Existing scientific evidence makes it very clear that setbacks of less than 50 feet from wetland edges almost inevitably result in the degradation of the wetland resource.

The drafters of the ordinance apparently wish to encourage “infill” development, or development of vacant lots in otherwise developed landscapes, as opposed to increased sprawl. From the perspective of conservation, “infill” is clearly preferable to “sprawl”. Yet, the wording of the proposed Ordinance would leave the Northampton Conservation Commission vulnerable to arguments that almost any project should qualify as “infill”

and that almost any mitigation measure would, from the applicant's perspective, constitute an improvement of the existing wetland.

From my own experience, I recommend a simpler approach that maintains a 50-foot non-encroachment zone in all cases except for those carefully specified. If "infill" development is to be one such criterion for exception to the non-encroachment rule, it should be tightly defined, ideally through a mapped overlay. Moreover, the ordinance should give more guidance as to what constitutes suitable mitigation for closer encroachment upon wetlands. The standard of net "improvement" is almost impossible to measure and very unlikely to be attained.