

Appendix S

"Nitrogen Loading Regulations", May 11, 2006

TOWN OF CHATHAM BOARD OF HEALTH NITROGEN LOADING REGULATION

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SECTION 1 AUTHORITY

- 1.1 The Town of Chatham Board of Health, in accordance with, and under the authority of, Chapter 111, section 31 of the Massachusetts General Laws, does hereby adopt the following rules and regulations.
- 1.2 The effective date of this regulation shall be September 9, 1991.
- 1.3 The effective date of the revised regulation is July 22, 2004.
- 1.4 The effective date of the revised regulation is May 26, 2005.
- 1.5 The effective date of the revised regulation is May 11, 2006.

SECTION 2 FINDINGS AND PURPOSES

Many houses were built in the Town of Chatham prior to the 1950's at a time when much of the town was developed as a summer retreat. Most of these houses were constructed with individual on-site wells for water supply and individual on-site sewage disposal systems (i.e., cesspools) for wastewater disposal.

Health officials now realize that the on-site soil and hydrological conditions of these lots are in many situations inadequate for sanitary and environmentally safe wastewater disposal. Furthermore, health officials now realize that soil conditions throughout Chatham are generally such that wastewater can migrate rapidly from individual sewage disposal systems to nearby surface waters and well sites.

Inadequately treated wastewater effluent presents various threats to the public health and water quality. Because these threats are better understood today than they were in previous years, many houses and small commercial developments in Chatham could not now be constructed with individual on-site sewage disposal systems under current zoning *bylaws* and health regulations. In Chatham, the minimum lot size permitted for houses with individual on-site sewage disposal systems is currently twenty thousand square feet (20,000 ft²). This compares with the five thousand to fifteen thousand square foot lots (5,000 ft² - 15,000 ft²) common in older subdivisions.

Health officials now realize that the cumulative impact of numerous adjacent individual on-site sewage disposal systems, given the sandy soil conditions prevalent in Chatham, jeopardizes the quality of ground and surface waters. The effluent from these systems has a high potential of contaminating ground and surface waters. This can lead to closures of shellfishing areas and prohibitions on water contact activities, and have a detrimental effect on the ecosystem. This threat is due not only to contaminants such as fecal coliform bacteria, infectious pathogenic bacteria and viruses, other bacteria associated with fecal discharges, and chemicals from household products, but also to the long-term build-up of nitrates in both ground and surface waters and of phosphorus in surface waters.

Nitrogen compounds found in septic system effluent can cause contamination of drinking water, particularly when systems are located in highly porous sandy soils. Consuming too much nitrate may have serious health consequences. There is strong evidence that nitrate can convert to nitrosamines - known cancer-causing agents. Excessive nitrogen can also produce nutrient loading of surface waters that can result in algae blooms that choke aquatic life. Nitrate contamination is also a "marker" - high concentrations show that other forms of contamination may exist in the water.

The two principal sources of nitrogen contamination and nutrient loading are sewage effluent from individual on-site sewage disposal systems and fertilizers from lawn care practices.

There is increasing pressure in Chatham to expand houses in order to accommodate year-round use and increased seasonal occupancy. This expanded and intensified use increases the discharge of wastewater effluent and increases the threats to the public health and environmental safety from contaminants found in the effluent.

Because of the prevalence of ponds, streams, and other surface water bodies in Chatham, virtually every area of town is critical to protecting the quality of surface and groundwater. Because of the town's reliance on ground water for public and private drinking water, the discharge of wastewater also threatens the quality of drinking water. As a result the BOH voted to declare the entire Town an "Area of Nitrogen Concern" on July 12, 2004.

In order to alleviate the further contamination of ground and surface water resources, and to address threats to the public health that result from wastewater discharge, the Board of Health of the Town of Chatham has determined that immediate measures must be taken. This regulation represents the minimum steps necessary to protect the public health from the adverse effects of the discharge of nitrates and other contaminants from individual on-site sewage disposal systems into the town's ground and surface waters.

SECTION 3 DEFINITIONS

For the purposes of this regulation, the following definitions shall apply:

- 3.1 **MULTI-UNIT HOUSING:** Condominiums, apartments, apartments incidental to commercial space, and congregate, cluster, or attached housing where the land is communally owned but the individual units are either owned or rented and where the total Title 5 sewage flow for the lot(s) is less than two thousand (2000) gallons per day. (For developments producing two thousand (2,000) gallons per day or more, the Town of Chatham Sewage Discharge Permit Regulation shall apply.)
- 3.2 **RESIDENTIAL SUBDIVISIONS:** Subdivisions as defined in Massachusetts General Law Chapter 41, section 81L, where lots are created and intended for the construction of single-family homes.
- 3.3 **BEDROOM:** A room providing privacy intended primarily for sleeping, and consisting of all of the following:
- a. floor space of no less than 70 square feet;
 - b. for new construction, a ceiling height of no less than seven (7) feet three (3) inches;
 - c. for existing houses, a ceiling height of no less than seven (7) feet;
 - d. the required ceiling height, as defined in (b.) and (c.) above, cover at least fifty percent (50%) of the required floor area, and that, for sloped ceilings, no part of the required floor area shall have less than five (5) feet in ceiling height;
 - e. an electrical service and ventilation; and
 - f. must meet the Minimum Standards of Fitness for Human Habitation (State Sanitary Code, Chapter II, and 105 CMR 410.000).
- Living rooms, dining rooms, kitchens, halls, bathrooms, and unfinished cellars, and unfinished, unheated storage areas over garages are not considered bedrooms.
- 3.4 **LOT AREA:** An area of land in one ownership that is not a Wetland Resource Area as defined in Sections 3.8.1 and 3.8.2.
- 3.5 **AREA OF NITROGEN CONCERN:** Those portions of the mainland area of Chatham where groundwater, the aquifer, and adjacent estuarine environments can be significantly altered by the addition of nitrogen.
- 3.6 **DIVISION OF LAND:** The division of a tract of land, including preliminary and definitive subdivisions, Approval Not Required (ANR) plans, Open Space Residential Developments (OSRD), and other legal means, and shall include re-subdivisions. The modification of existing lot lines, not resulting in the creation of new lots, is not subject to this regulation.

- 4.2 Properties already connected to town sewer or that are already using alternative technology that removes nitrogen to the appropriate level for their watershed are exempt from this regulation.

SECTION 5 PROCEDURES

- 5.1 No Disposal System Construction Permit shall be issued by the Board of Health or its Agents for any of the projects described in Section 4 above unless the proposed system is designed to receive or shall receive four hundred forty (440) gallons per day or less per forty thousand square feet (40,000 ft²) of lot area.
- 5.2 No building permit, foundation permit, special permit, or plumbing permit shall be issued for any of the projects described in Section 4 above until a Sewer Entrance Permit or Disposal System Construction Permit has first been obtained, unless the Board of Health, or its agent, determines that the existing sewage disposal system is adequate, including that the system is designed to receive or shall receive four hundred forty (440) gallons per day or less per forty thousand square feet (40,000 ft²) of lot area.
- 5.3 On-site subsurface sewage disposal systems for single-family dwellings shall be designed for the actual number of bedrooms present or by that number determined by the Board of Health or its Agent. On-site subsurface sewage disposal systems designed for less than 3 bedrooms shall cause the property to be deed restricted to the actual number of bedrooms present.
- 5.4 On-site subsurface sewage disposal systems for other than single family dwellings shall be designed for the actual flow.
- 5.5 Owners and operators of all innovative/alternative sewage treatment technologies, including composting and incinerating toilets and tight tanks, shall report the results of all operation, maintenance, and monitoring activities to Barnstable County Department of Health and Environment. Such reporting must be performed in the manner specified by Barnstable County Department of Health and Environment and must occur within 15 days after each maintenance or monitoring event. Further, when a system operator performs a system inspection and finds that a sewage treatment technology has malfunctioning components which have compromised the system's ability to treat sewage as designed, the operator shall report on the system's status and any planned corrective actions to the Chatham Board of Health and Barnstable County Department of Health and Environment within 48 hours of inspection.
- 5.6 Any lot reduced in area by the laying out of, and acceptance of, a road or roads as a public way or ways, or for any other municipal purpose serving the common good, shall be allowed to use the area taken in determining compliance with this regulation.

SECTION 6 VARIANCES

- 6.1 Variances from this regulation may be granted by the Board of Health only if the applicant:
- a. demonstrates to the satisfaction of the Board that a literal enforcement of this regulation would involve substantial hardship, financial or otherwise, to the petitioner(s), i.e., would deprive the landowner of all reasonable use of the lot in question, or
 - b. proves to the Board that the installation of an on-site subsurface sewage disposal system, or systems, would not measurably contribute nitrate to any ground or surface water resource in which there is a threat of contamination due to nitrogen loading or a threat of degradation due to nutrient loading.
- 6.2 This regulation shall not prohibit the construction of a two (2) bedroom house on any vacant lot providing that said lot is not in a Nitrogen Sensitive Area, as defined in 310 CMR 15.215.

6.3 For residential application the Board may allow, by variance, one (1) additional bedroom over the number allowed by Sections 5.1 or 5.2 with the use of an Innovative/Alternative Technology on-site subsurface sewage disposal system.

6.4 Every request for a variance shall be made in writing and shall state the specific variance sought and the reasons therefore.

No variance shall be granted except after the applicant has notified all abutters by certified mail at his own expense at least ten (10) days before the Board of Health meeting at which the variance request will be on the agenda. The notification shall state the specific variance sought and the reasons therefor.

6.5 If applying for a variance under Subsection 6.1 (a) above, the petitioner shall submit a nitrogen loading report showing several different methods of dealing with the nitrogen load on the property. The petitioner shall also submit written documentation as to why the enforcement of this regulation would cause hardship. The Board reserves the right to require more information of the petitioner in reviewing the variance.

6.6 If applying for a variance under Subsection 6.1 (b) above, the petitioner shall submit, but not be limited to, the following data prepared by a qualified professional: a nitrogen loading report, a hydrogeologic report including direction of ground water flow and depth to ground water, population density and build-out study, soil conditions, topography, and a map showing the position of the lot(s), surrounding surface waters, wetlands, etc., existing and known future water supply wells, buildings, and any other information deemed pertinent. The Board of Health reserves the right to require only approved modeling and input variables for the ground water study.

6.7 The Board of Health will consider, but not be limited to, the following factors when reviewing a variance application:

- a. There is a significant setback from surface water resources.
- b. There are no present or known future private or public drinking water wells within twenty-five hundred (2500) feet.
- c. This applicant has made every effort to be sensitive to environmental resources and balance density and use vs. environmental resources.
- d. The implementation schedule of the Comprehensive Wastewater Management Plan.

6.8 Any variance granted by the Board of Health shall be in writing. Any denial of a variance shall also be in writing and shall contain a brief statement of the reasons for the denial. A copy of each variance shall be available to the public at all reasonable hours in the office of the Board of Health while it is in effect.

6.9 Any variance or other modification authorized to be made by this regulation may be subject to such qualification, revocation, suspension, or expiration as the Board of Health expresses in its grant. A variance or other modification authorized to be made by this regulation may otherwise be revoked, modified, or suspended, in whole or in part, only after the holder thereof has been notified in writing and has been given an opportunity to be heard, in conformity with the requirements for an order and hearing as contained in 310 CMR 11.07 and 11.08.

6.10 Any variance or other modification authorized to be made by this regulation is subject to the following condition in the form of a covenant recorded at the Registry of Deeds:

"At such time as the Town of Chatham, through its Board of Health and/or Board of Water and Sewer Commissioners, directs the connection of the land herein described to a municipal sewer, the construction of an alternative wastewater treatment system, connection to a shared septic system, or any other wastewater management option for the removal of nitrogen, I, for myself and my Grantees, covenant and agree to comply with such direction. The Board of Health and/or Board of Water and Sewer Commissioners shall determine the schedule for compliance."

- 9.4 Every notice, order, or other record prepared by the Board of Health in connection with the hearing shall be entered as a matter of public record in the office of the Board of Health.
- 9.5 If written petition for a hearing is not filed with the Board of Health within seven (7) days after the day the order has been served or if after the hearing the order has been sustained in any part, each day's failure to comply with the order as issued or modified shall constitute a separate offense.

SECTION 10 APPEAL

Any person aggrieved by the final decision of the Board of Health may seek relief therefrom within thirty (30) days in any court of competent jurisdiction, as provided by the laws of the Commonwealth.

SECTION 11 PENALTIES

- 11.1 Any person who shall violate any provision of this regulation for which penalty is not otherwise provided in any of the General Laws or in any other provision of this regulation or Title 1 of the State Environmental Code shall, upon conviction, be fined not less than ten (10) nor more than five hundred (500) dollars.
- 11.2 Any person who shall fail to comply any order issued pursuant to the provisions of this regulation shall, upon conviction, be fined not less than ten (10) nor more than five hundred (500) dollars. Each day's failure to comply with an order shall constitute a separate offense.

SECTION 12 SEVERABILITY

If any title, regulation, section, paragraph, sentence, clause, phrase, or word of this code shall be declared invalid for any reason whatsoever, that decision shall not affect any other portion of this code or regulation, which shall remain in full force and effect; and to this end the provisions of this code and regulation are hereby declared severable.

Signed: _____
Paul R. Kelley, Chairman

Effective Date: May 11, 2006

Ronald Broman, Vice Chairman

Edward Sheehan, Member

Rick Roy, Member

Mary Ann Gray, Member