

# TOWN OF NORFOLK MA

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## Groundwater Supply Protection Regulations

Published on July 18, 1988, Amended August 10, 1988

### SECTION I. AUTHORITY

The Board of Health of the Town of Norfolk, Commonwealth of Massachusetts, acting under the authority of Chapter 111, Section 31 of the Massachusetts General Laws and any amendments and additions thereto, and by any other power thereto enabling, and acting thereunder and in accordance with, have, in the interest of and for the preservation of the public health, duly made and adopted the following regulations effective upon publication.

### SECTION II. PURPOSE

These rules and regulations have been adopted to protect the water supply of the residents of Norfolk from excessive contamination of nitrate and other harmful chemicals resulting from the subsurface discharge of sewage effluent. Nitrate contamination of drinking water is a serious public health problem. Nitrate also may serve as an indicator of other groundwater degradation associated with the use of household chemicals, pesticides, solvents, and other toxic substances. Therefore, the presence of those other substances may be presumed to be present also when more than natural background levels of nitrate occur. Subsurface sewage disposal, without nitrogen removal, is a major source of nitrate-nitrogen loading in the groundwater and surface waters.

These rules and regulations shall also protect surface and groundwater from excessive nitrate-nitrogen and other nutrient loading and will retard the process of eutrophication of the lakes and ponds.

By requiring sufficient dilution nitrates as well as these other by-products of human activity may be decreased to a level which does not constitute a threat to the public health. Adequate land area surrounding a subsurface sewage disposal system will result in the dilution of the subsurface sewage discharge to levels of contaminants that will not constitute a threat to public or environmental health.

The Town of Norfolk derives its water supply from the groundwater. The groundwater supplies both the public water system and individual on-site wells. The groundwater of the Town of Norfolk constitutes its water supply and therefore all groundwater bearing formations within the town constitutes its "sole source of aquifer". Therefore, these regulations apply to all areas of the town.

### SECTION III. REQUIREMENTS

The applicant for construction of any septic system in the town, except for the repairs of existing systems which have failed and are not being enlarged to provide for additional building construction or use, shall submit a GROUNDWATER IMPACT REPORT (GIR) to the Board of Health. In the case of a subdivision, the GIR shall be submitted at the time of the preliminary plan. In the case of lots not requiring approval as subdivision, the GIR shall be submitted at the time the application for a Disposal Works Construction Permit.

### SECTION IV. METHOD OF CALCULATION

The GIR shall be based on the following methodology for determination of nitrate loading which has been accepted by and has been adopted and used by governmental planning agencies, enforcement agencies, and the U.S. geological Survey. The GIR shall determine whether or not the proposed project will cause unacceptable groundwater quality at the project boundary limits for the proposed use, based on the expected nitrate-nitrogen loading. The calculations shall follow the guidelines contained herein, using data that is appropriate for the Town of Norfolk.

The maximum allowable calculated concentration of nitrate-nitrogen within each project boundary shall be five (5) milligrams per liter in Zone II of the Public Water Supply and ten (10) milligrams per liter in all other areas within the town.

#### CRITERIA AND FORMULA ASSUMPTIONS

**NITRATE NITROGEN MAXIMUM ALLOWABLE CONCENTRATION (NMAX) AT PROJECT BOUNDARY: -**

At project boundary:

- 5 milligrams per liter in Zone II for the Public Water Supply.
- 10 milligrams per liter for all other areas.

In the case of multi-structure or multi-lot projects, the maximum allowable concentration shall be no greater than 10 milligrams per liter at any individual lot line, but shall be no greater than (NMAX) at the project boundary.

ASSUME COMPLETE MIXING AND STEADY STATE (EQUILIBIUM) CONDITIONS.

CONTAMINANT ATTENUATION IS CAUSED BY DILUTION ONLY.

EVAPOTRANSPIRATION FROM SEPTIC SYSTEMS IS 10 PER CENT.

PRECIPITATION RECHARGE TO GROUNDWATER: Nitrate-Nitrogen Concentration – 0.25 milligrams per liter

Quantity: Inches per Year Soil Percolation Rate (Minutes per Inch)

17	Less than 5
15	5 to 9.9
13	10 to 14.9
11	15 to 19.9
9	20+

Wetlands shall be considered having a percolation rate greater than 20 minutes per inch for this calculation purpose.

**WATER SUPPLY:**

Town Water:	Nitrate-Nitrogen Concentration – 2.5 milligrams per liter
Private Well Water:	Nitrate-Nitrogen Concentration – 5 milligrams per liter

**HOME SEPTIC SYSTEM:**

Nitrate-Nitrogen Quantity – 5 pounds per person per year  
 Quantity of Sewage - 55 gallons per person per year  
 Persons per Household – 3

**OTHER:**

Criteria for users or other criteria not included herein shall be evaluated on a case by case basis according to criteria that is acceptable to the Board of Health.

**SECTION V. VARIANCE**

The Board of Health may vary the application of this regulation when, in its opinion, and following a public hearing for this purpose, the applicant has provided sufficient evidence for the Board of Health to find that (1) The enforcement thereof would do manifest injustice: and (2) that the same degree of public health and environmental protection can be achieved without the strict application of the particular regulation.

**SECTION VI. SEVERABILITY**

If any part or portions of these regulations be adjudicated to be invalid, the adjudication shall apply only to the material so adjudged, and the remaining regulation shall be deemed valid and in full force and effect.