TOWN OF TISBURY

Board of Health Regulation, Section [##]

Regulation of New Development within the

Lake Tashmoo and Lagoon Pond Watershed Nitrogen Overlay Districts

SECTION 1. FINDINGS

1. The Town of Tisbury's population has grown to the point where the wastewater treatment infrastructure in place lacks the capacity and/or capability to remove sufficient nitrogen to assure that Tisbury's ponds and other water resources meet applicable water quality standards as well as provide for the safety of those using those resources.

2. It is now established that excess amounts of nitrogen, in the form of oxides, have the potential to damage human health, particularly in infants, young children, pregnant women and some people with compromised immune systems who consume nitrates in excess of established Safe Drinking Water Standards.

3. In addition, the presence of excess nitrogen in water resources contributes to undesirable algal and aquatic plant growth, destroying wildlife habitat and degrading the waters for shellfishing, recreation and other public purposes.

4. The Massachusetts Estuaries Project reports for Lake Tashmoo and Lagoon Pond ("**Reports**") concluded that 6,435 (32%) and 13,016 (35%) pounds, respectively, of the *current* nitrogen load entering these water bodies annually must be removed in order for Lake Tashmoo and Lagoon Pond to satisfy the nitrogen standards in the federal Clean Water Act and remain sustainable water resources. These quantities are premised on the assumption that *no new nitrogen* will be entering these water bodies as a result of New Development.

5. To this end, the Board of Health proposed, and the Town of Tisbury approved, regulations reducing by approximately one-third the amount of nitrogen entering Lake Tashmoo and Lagoon Pond from lawn fertilizer.

6. The Report noted that nitrogen from human wastewater is considered to be controllable locally and that it constitutes 80% and 76% of the overall

controllable nutrient loading for Lake Tashmoo and Lagoon Pond. The current wastewater loading equates to approximately 15,128 and 27,695 pounds, respectively, of nitrogen annually.

SECTION 2. PURPOSE

This regulation establishes a 'no new net nitrogen' policy the objective of which is to protect the public health by maintaining, and ultimately improving, the water quality of the groundwater in the Districts and in Lake Tashmoo and Lagoon Pond, while moving toward compliance with applicable water quality standards relating to controllable nitrogen. This regulation is intended to hold Property Owners financially responsible for wastewater-based nitrogen entering the groundwater by assessing a fee payable by Property Owners for nitrogen discharge. It is also intended to provide a revenue source (a) in the form of a rebate for Property Owners implementing innovative wastewater de-nitrification strategies, and (b) for the Town to implement nitrogen reduction strategies in the Districts. Fees apply only to New Development in the Districts. The collected Fees may only be used to fund nitrogen reduction strategies in the Districts.

SECTION 3. AUTHORITY

This Regulation is adopted by the Tisbury Board of Health as authorized by Massachusetts General Laws, Chapter 111, Section 31.

SECTION 4. DEFINITIONS

For the purposes of this regulation (including the Appendices), the following words shall have the following meanings unless the context clearly indicates a different meaning:

Assessment Date means the date on which water usage for the preceding 6 months is assessed for the relevant property and, in the case of a property which uses well water, such semi-annual dates as may be determined by the Tisbury Water Works.

Bedroom means any room or other area that the Board of Health considers to be a bedroom for the purpose of determining the adequacy of the capacity of a residential wastewater disposal system.

District means the area of Tisbury lying within the boundaries of (a) the Lake Tashmoo Watershed Nitrogen Management Overlay District or (b) the Lagoon Pond Watershed Nitrogen Management Overlay District, both as defined by the Town of Tisbury at the Town Meeting on April 14, 2015, and as indicated on Appendix A.

Enhanced De-Nitrification Technology (sometimes referred to as an innovative or alternative technology) means an on-site innovative de-nitrification wastewater disposal technology approved by the Board of Health that, compared to a Title 5 Septic System, is designed to remove a greater amount of nitrogen, and includes both in-home technologies, such as innovative de-nitrifying toilets, and in-ground technologies.

Mitigation Fee or **Fee** means the semi-annual fee calculated in accordance with the principles set out in Appendix B.

New Development means any new structure, the renovation of or addition to any existing structure and, in the case of commercial and industrial development, also includes any increase in intensity of use, or any change in use, which generates an increase in human wastewater flow for disposal through a wastewater disposal system as may be determined by the Tisbury Board of Health in accordance with the principles set out in this regulation.

Property Owner means the owner of record of the New Development.

Title 5 Septic System means a septic system approved and certified by the DEP under the State Environmental Code, Title 5, as capable of maintaining established sanitation standards and which removes a portion of the wastewater-based nitrogen entering the system.

SECTION 5. MITIGATION FEE

1. All New Development in the Districts is subject to a Mitigation Fee. Application of the Fee is triggered by the filing for a building permit.

5.2 The Mitigation Fee will be assessed semi-annually in arrears by Tisbury Water Works to the Property Owner effective from the issuance of a certificate of occupancy for the New

Development. The Fee applies regardless of whether the property is on Town-supplied or well water.

1. If the Board of Health determines that any variable in the fee calculation formula set out in Appendix B should be changed, the Board of Health will amend this regulation and a revised fee will be calculated effective from the date of the amendment.

2. A Property Owner may reduce the Mitigation Fee payable by installing an Enhanced De-Nitrification Technology, in which case the Fee will be adjusted, based on the nitrogen removal capabilities of the technology as determined by performance data, from the date of the installation of that technology. Pending collection of such performance data, the Board may preliminarily adjust the Fee on an interim basis on the basis of theory or prototype results.

3. No Property Owner shall be liable to pay a Mitigation Fee in respect of any period of time after the earlier of:

(a) the date on which the New Development connects to the Town sewer system;

1. 20 years from the initial assessment of the Mitigation Fee; and

2. the date on which the Town of Tisbury certifies that it is capable of removing sufficient nitrogen from that Property Owner's District to enable it to meet established water quality standards for nitrogen applicable to that District.

SECTION 6. USE OF FUNDS

6.1 Tisbury shall retain all Mitigation Fees collected under this regulation in a separate interest bearing account.

6.2 Mitigation Fees collected shall be used solely to remediate, mitigate, reduce or eliminate nitrogen pollution Lagoon Pond and lake Tashmoo and in those portions of the Lake Tashmoo and Lagoon Pond Districts that lie within Tisbury town borders (to the extent that such a geographical restriction is practicable). The Town may use Mitigation Fees:

(a) to expand the Town's sewer and wastewater treatment system serving the Districts;

1. to provide a rebate to a Property Owner for the sole purpose of defraying the costs incurred by that Property Owner in connecting to the sewer line or in commissioning an Enhanced De-Nitrification Technology provided that:

    1. a Property Owner may seek approval of and commission more than one such de-nitrification strategy, not necessarily simultaneously;

    2. the total rebate for all such strategies commissioned shall not exceed 35% of the Mitigation Fees paid by that Property Owner during the initial 10 years of Fee payment;

    3. the Property Owner need not wait to commission a de-nitrification strategy until the initial 10-year period has expired; and

    4. each rebate is subject to Board of Health approval;

2. to subsidize any price reduction for Enhanced De-Nitrification Technologies that the Town may be able to negotiate, such price reduction (including any such reduction even if not funded by Mitigation Fees) to be solely available to Property Owners in respect of New Development; and

3. for such other nitrogen mitigation technologies or strategies as the Board of Health considers appropriate.

6.3 Mitigation Fees collected from one District may not be used in another District.

6.4 Mitigation Fees payable under this regulation may not be paid to the general Treasury of the Town and may not be used as general revenues by the Town.

SECTION 7. SEVERABILITY

If any part or provision of this regulation is deemed invalid or unconstitutional by a court of competent jurisdiction, that decision shall not affect the validity of the remaining terms of this regulation as a whole or any part thereof, other than the part or provision held invalid or unconstitutional.

SECTION 8. EFFECTIVE DATE

This regulation shall take effect on [ ] and shall be binding on any application for a building permit filed with the Town after that date.

Appendices

Appendix A

Map of the Lake Tashmoo Nitrogen Management Overlay District and the Lagoon Pond Watershed Nitrogen Management Overlay District

Appendix B

Mitigation Fee Calculation Principles

Appendix C

Illustrative Annual Mitigation Fees For Various Types of New Development (Year-Round Residential Property Owners)

Appendix A

Map of the Lake Tashmoo Nitrogen Management Overlay District and

the Lagoon Pond Watershed Nitrogen Management Overlay District


The picture can't be displayed.

Appendix B

Mitigation Fee Calculation Principles

The Mitigation Fee is calculated as follows:

$$\underline{\text{Mitigation Fee}} = [\text{Water Usage (gal)}] \times [0.9] \times [.00022 (\text{pounds of N/wastewater gal})] \times [\text{De-Nitrification Credit (\%)}] \times [\$300/\text{pound}]$$

Where:

1. Water usage is based on actual metered water usage (and thus varies with seasonal use and the number of occupants). In multi-family homes, if individual metering is not available, actual water usage is apportioned among units based on the number of Bedrooms. If a property is served by well water and metering is not available, usage will be based on current mediam water usage by Tisbury residential Property Owners with the same number of Bedrooms.

2. A factor of 0.9 is applied to correct for estimated water not entering the nitrogen treatment system.

3. A factor of .00022 pounds of nitrogen per gallon is applied, representing the efficiency of a Title 5 Septic System in eliminating nitrogen.

4. A de-nitrification credit is applied to reflect the additional nitrogen removal capability of an Enhanced De-Nitrification Technology installed by the Property owner. (Note that this credit can amount to approximately 1/3 if the Property Owner installs an enhanced de-nitrifying septic technology. Examples of other de-nitrification strategies include composting toilets and urine separating toilets. The credit for these technologies depends on how the compost or urine is subsequently processed.)

5. $300 represents the minimum cost to the Town to remove a pound of nitrogen from wastewater, using a sewage treatment plant capable of removing >95% of the nitrogen. The $300 figure includes operating costs and amortized capital costs and assumes optimal conditions such as the homes connected to the treatment facility are in close proximity to each other and to the facility.

Appendix C illustrates Mitigation Fees calculated using assumed water usage data.

Appendix C

Illustrative Annual Mitigation Fees For Various Types of New Development (Year-Round Residential Property Owners)

Type of Use	Annual Median Water Usage[1] (gal)	Annual Septic Wastewater Flow (gal)[2]	Pounds of Nitrogen Entering Groundwater			Annual Mitigation Fee at a Charge of $300 per Pound of Nitrogen Entering Groundwater[3]		
Year-Round Residential Property Owners			Title 5 Septic System (0.00022 pounds of nitrogen per gallon)	Enhanced De-Nitrification Septic Technology ~33% Credit	Denitrifying Toilets[4] ~90% Credit	Title 5 Septic System	Enhanced De-Nitrification Technology	Denitrifying Toilets
Single Family Homes								
1 Bedroom	~37,000	~33,000	7.4 Pounds	4.9 Pounds	0.74 Pounds	~$2,200	~$1,500	~$220
2 Bedrooms	~43,000	~39,000	8.5 Pounds	5.7 Pounds	0.85 Pounds	~$2,600	~$1,700	~$260
3 Bedrooms	~54,000	~49,000	10.8 Pounds	7.2 Pounds	1.1 Pounds	~$3,200	~$2,100	~$320
4 Bedrooms	~62,000	~56,000	12.3 Pounds	8.2 Pounds	1.2 Pounds	~$3,700	~$2,500	~$370
5 Bedrooms	~74,000	~66,600	14.7 Pounds	9.8 Pounds	1.5 Pounds	~$4,400	~$2,900	~$440
One Bedroom Addition								
Based on average water usage differences between homes varying in size by 1 Bedroom						~$1200	~$900	~$120
Replacing Title 5 Septic System with Enhanced De-Nitrification Technology						NA	$0	
Multi-Family Homes	Same Mitigation Fee mechanism as Single Family Homes when individual water metering is available. When individual water metering is not available, actual water usage is apportioned among units based on the number of Bedrooms.							

1Water usage data represents actual annual median annual water usage for Tisbury residential Property Owners for the 2014 and 2015. Mitigation Fees will be assessed based on the Property Owner's actual water usage unless otherwise noted.
2 Water usage is reduced by a factor of 10% to correct for estimated water not entering the nitrogen treatment system.
3 $300 figure is the minimum cost to the Town to remove a pound of nitrogen from wastewater using a sewage treatment plant capable of removing >95% of the nitrogen. The $300 figure includes operating costs and amortized capital costs and assumes optimal conditions such as the homes connected to the treatment facility are in close proximity to each other and to the facility.
[4]Assumes that a de-nitrifying toilet removes ~90% of the nitrogen from the wastewater stream.