



Nitrogen Regulation Task Force Sub-Committee

AGENDA

January 3, 2011

- Introductions
- Nitrogen Regulation Discussion
- Schedule Next Meeting

**Achieving Nitrogen Zero in Wareham
Town Hall Cafeteria
Drafting Committee Meeting Notes
January 3, 2011 – 10am-12pm**

Attendees:

- David Begley
- Bob Brady
- Linda Burke
- Myles Burke
- Guy Campinha
- John Charbonneau
- John Churchill
- Bob Ethier
- David Flaherty
- Brian Grady
- Ed Pacewicz
- Dave Pichette
- George Preble
- Charlie Rowley
- Alan Slavin
- Richard Wheeler
- Korrin Petersen

Call to Order – 10am (Bob Ethier)

This meeting was spent walking through Draft 2 of the proposed regulations.

Applicability:

- Discussion about whether the regulations should apply to all new development (including individual lots) or only apply to the 10+/3,300gpd required by the bylaw.

Nitrogen Reduction:

- Discussion regarding what needs to be achieved in order to restore water quality.
- CBB data shows improvement, but the MEP model estimates that water quality would only improve to a point, far short of water restoration and further action by the town to reduce existing sources will be needed.
- Recommendation that Joe Costa attend the next meeting to present on the MEP model.

Other Discussion:

- The need for a growth neutral bylaw.
- Should the regulations apply to all new development, including developments connected to sewer?
- How much time is needed by the BOH for submittal/approval?
- Management of stormwater versus reducing area of impervious may be a Con Com jurisdiction issue.

Next Meeting:

- **January 28, 2011 @ 10am – Town Hall Cafeteria**

DRAFT 2 January 3, 2011

(At the November 9th meeting it was decided that these regulations would apply to all NEW development regardless of the bylaw. This section can be amended to conform strictly with the bylaw by amending the language highlighted below.)

Wareham Board of Health Draft Regulations

- 1.0 Purpose – Coastal water quality in certain areas of the Town of Wareham is degraded. Excessive nitrogen loading in our watersheds has been identified as the major cause of this degradation. The primary source of excess nitrogen is wastewater from on-site septic systems. This regulation is promulgated in an effort to ensure that future development does not add additional nitrogen to the Town of Wareham's already degraded waters. The purpose of this regulation is to minimize the nitrogen generated by new development and require all new nitrogen to be offset.
- 2.0 Authority – This regulation is adopted by the Board of Health of the Town of Wareham, Massachusetts, acting under the authority of Chapter 111, Section 31 and Chapter 21A, Section 13 of the Massachusetts General Laws and under Title 1 and Title 5 of the State Environmental Code (310 CMR 11.00 and 15.000).
- 3.0 Definitions – On site sewage disposal system or systems is a privy, cesspool, septic tank, holding tank, grease trap, sewage treatment device or other structure, together with any associated sewer and/or leaving facilities, that is used to treat and dispose of sewage from any building or structure, and does not require a state issued groundwater discharge permit pursuant to 310 CMR 5.00.
 - 3.1 Applicant
 - 3.2 Lot
 - 3.3 Nitrogen Offset
 - 3.4 Nitrogen Offset Fee
 - 3.5 (This section will need expansion)
- 4.0 Applicability – Except as provided for in section 5.0, this regulation shall apply to:
 - 4.1 All Definitive Site Plans submitted to the Board of Health for approval after February 1, 2011, pursuant to Section IV (D) of the Rules and Regulations Governing the Subdivision of Land; and (can modify to apply to only 10 lots or more)
 - 4.2 All individual lots seeking permits for on-site sewage disposal systems located in the Town of Wareham after February 1, 2011; and (this section to be deleted if strict conformance with bylaw)

- 4.3 All lots seeking permits for a shared system serving one or more residential homes/units after February 1, 2011; and (can modify to apply to 10 homes or more)
- 4.4 A commercial development which seeks to discharge 3,300 GPD or more. (We can eliminate this section if the board wants the regulation to apply to ALL new development.)

5.0 Exemptions - This regulation does not apply to the following:

- 5.1 New construction of commercial properties whose wastewater discharge is less than 3300GPD; (We can eliminate this)
- 5.2 Existing homes and commercial properties;
- 5.3 Discharges requiring a state issued groundwater discharge permit pursuant to 310 CMR 5.00;

6.0 Nitrogen Minimization Standard for New Development in the town of Wareham. All new development including, Definitive Site Plans Submitted to the Board of Health for approval pursuant to Section IV (D) of the Rules and Regulations Governing the Subdivision of Land, shall minimize the amount of nitrogen generated from the development to the greatest extent practicable by employing the following:

- 6.1 Use of a nitrogen reducing wastewater treatment system. An applicant may obtain a permit and construct a wastewater treatment technology pursuant to section 9.0 of this regulation, which reduces the wastewater nitrogen load of the site over Title 5 loads. If an applicant reduces wastewater nitrogen load by 85% or more over title 5 loads, the applicant shall be entitled to a density bonus pursuant to the Town of Wareham's cluster bylaw Article 8 (813). Such wastewater treatment technology shall be subject to the permit requirements in section 9.0 of this regulation. The applicant shall calculate the nitrogen load from this wastewater source based on the nitrogen permit limit established pursuant to 9.0 of this regulation.
- 6.2 Minimize impervious surfaces by reducing the area of paved surfaces including driveways walkways by utilizing stormwater best management practices including, bioretention basins, constructed stormwater wetlands, pervious pavement, wet pond, or other technique approved by the Wareham Conservation Commission,) and proven to reduce the nitrogen load from stormwater runoff. Such utilization of these BMPs shall be included on any Definitive Site Plan Review and will result in the following nitrogen removal rates over impervious surface loadings:

TABLE 1

Nitrogen Reducing Stormwater	% Credit
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Comment [p1]: This needs to be added in later after a successful amendment to Article 8(813).

Comment [p2]: Is there an amendment needed to Con Com regs for this?

Comment [p3]: Maybe the applicant should receive separate approval from the Con Com on the use of these BMP's and the Con Com should report a credit, if any, to BOH for calculation purposes. These credits should also be reviewed by DEP.

Practice Used	
Bioretention Basin	30%
Constructed Stormwater Wetland	30%
Infiltration Basin	50%
Sand Filter	35%
Pervious Paving	50%

6.3 Prohibition on the Use of Fertilizer – An applicant will be entitled to a 70% reduction in the nitrogen load from fertilizer if the following requirements are met to the Board of Health's satisfaction:

- 6.3.1 The applicant must provide the Board of Health with a copy of the deed to the property, filed with the Plymouth County registry of deeds, which includes language prohibiting the use of lawn fertilizer of any kind on the property.
- 6.3.2 If the applicant is part of a homeowners association, in addition to 7.1.1, must also provide the Board of Health with a copy of the homeowners association bylaws which prohibits the use of fertilizers of any kind on all common parcels owned by the homeowners association.

6.4 Maximize the preservation of natural conditions.

7.0 Nitrogen Load Calculation – All new developments including, Definitive Site Plans submitted to the Board of Health for approval pursuant to Section IV (D) of the Rules and Regulations Governing the Subdivision of Land, shall provide the Board of Health a nitrogen load calculation for the entire site using the following methodology and loading factors provided in Table 2:

TABLE 2

Nitrogen Source	Loading Rate from the MBP
Septic System Load per house/unit (2.48 people/house)	15.25lbs/unit/yr (based on water usage, not title 5) If utilizing nitrogen reducing technology, apply permit limit established in section 9.0 as the loading factor.
Residential Lawns per square feet	.000108lbs/square foot (assumes only ½ of units will fertilize lawns.)
Park and School Lawns	3lbs/3000 square feet
Cranberry Bogs	20.46lbs/acre
Roads/Driveways/Parking Lots	13.50lbs/acre or .00031lbs/square foot
Roofs	6.76lbs/acre or .00016lbs/square foot
Municipal Wastewater Treatment Plant	2.32lbs/year for average household ww flows
Natural Surfaces	.0000103lbs/square foot

7.1.1 Calculate a preconstruction nitrogen load.

- 7.1.2 Calculate a buildout nitrogen load for the entire subdivision.
 - 7.1.3 Subtract the preconstruction loading rate in 6.1.1 from the buildout loading rate in 6.1.2 for the total amount of nitrogen to be offset.
 - 7.1.4 If the development is located in an upper watershed, the applicant shall apply a 50% attenuation factor to the amount calculated in 7.1.3 pursuant to appendix [XXX].
- 7.2 If individual lot loads are unknown at the time of application or site plan review, the applicant shall apply the following presumptions for loading numbers for each lot. The deed for each lot shall reflect these limitations which shall not be exceeded.

Comment [p4]: Need map for all subwatersheds.

TABLE 3

Wastewater – Title 5	15.25lbs/year
Residential Lawn 5,000 square feet	.54lbs/year
Impervious 4,000 square feet	1.24lbs/year
Roofs 2,000 square feet	.32lbs/year

8.0 Nitrogen Load Offset Requirement –The Board of Health shall only approve a Definitive Site Plan if the site plan demonstrates that the net nitrogen load calculated pursuant to section 7.0 above is completely offset within the same sub-watershed or by paying a Nitrogen Offset Fee as described in section 8.2 of this section. The Board of Health shall have 30 days from the date of application or the date of submission of the Definitive Site Plan to make such determination.

Comment [p5]: We need a map that applicants can refer to.

8.1 Offset Nitrogen Load by:

- 8.1.1 Reducing nitrogen from existing wastewater sources by upgrading Title V septic systems to advanced nitrogen removal within the same watershed;
- 8.1.2 Reducing nitrogen from existing wastewater sources through connection to a shared nitrogen reducing system within the same watershed;
- 8.1.3 Removal of sufficient acreage of impervious surface within the same watershed and restoring area to natural cover.
- 8.1.4 Acquisition and retirement of cranberry bogs currently in operation.

8.2 Nitrogen Offset Fee – A Nitrogen Offset Fee shall be applied by the Board of Health to all developments subject to this regulation which do not meet the nitrogen zero requirement on the following basis:

- 8.2.1 \$1,100/lb of nitrogen not offset. (how to put a dollar figure on a lb of nitrogen. If a septic system is discharging 15.25lbs of N/year and connecting that home to sewer costs ~\$14,000 and reduces the

nitrogen from 15.25lbs of N/year to 2.32lbs of N/year you have achieved a reduction of 12.93lbs of N/year at a cost of ~\$14,000 or ~\$1,100 per pound.)

8.3 Said Fee shall be deposited into a Nitrogen Offset Enterprise Account whose sole purpose is to ensure that new loads of nitrogen are offset in the same watershed receiving the new nitrogen load. BOS need to establish enterprise account.

9.0 Permitting of Nitrogen Reducing Wastewater Technologies by the Board of Health – The Wareham Board of Health shall ensure that those nitrogen reducing systems installed within its jurisdiction are operated in compliance with the appropriate Commonwealth of Massachusetts Approvals. All permits shall contain limits which are adequate to protect surface waters for their existing and designated uses and to assure the attainment and maintenance of the Massachusetts Surface Water Quality Standards.

9.1 Application Required –

9.1.1 All applications for Nitrogen Reducing Wastewater Technologies shall be submitted to the Board of Health which shall hold a hearing within 30 days of the date of application to consider their approval. The Board of Health may deny the use of a nitrogen reducing system if in its opinion the installation of said system is not in the interest of public health or the environment.

9.1.2 All applications shall be accompanied by a copy of the MA DEP Approval Letter appropriate for the technology indicating the level of approval (General Use, Remedial use, Provisional use, Piloting Use, or site specific Pilot Approval.)

9.2 Requirements on plans – All nitrogen reducing wastewater technologies shall have sampling ports appropriate for obtaining a representative sample and that are easily accessible and secured from unauthorized tampering. The design plans shall clearly illustrate the sampling locations.

9.3 Monitoring and Reporting Requirements – The Board of Health shall require monthly monitoring and reporting of any nitrogen reducing systems permitted hereunder to assure compliance with permit limitations and conditions to protect surface waters for their existing and designated uses and to assure the attainment and maintenance of the Massachusetts Surface Water Quality Standards.

Monitoring requirements shall include:

9.3.1 A monthly measurement of mass nitrogen in the influent and effluent.

9.3.2 All measurements and samples collected will be collected, transported and stored in such manner as outlined in the most recent edition of Standard Methods for the Examination of Water and Wastewater, American Public Health Association *et al*, and the latest EPA analytical procedures. The Board of Health shall approve the location

at which the influent and effluent sampling locations. The location at which effluent samples are collected shall be at a point where the effluent emerges from a treatment works, disposal system, outlet or point source and prior to being discharged to the ground.

9.4 Permit Renewal – Such permit shall be renewed every 7 years.

9.5 Responsible Entity – There shall be one named entity responsible for permit compliance under this regulation. Developer or HOA. If the initial responsible entity is the developer, than notice requirements are needed when the developer transfers responsibility to a HOA. More work needed here.

9.6 Fines and Enforcement

Other Bylaws Needed

1. Enterprise Account

The Board of Selectmen must create a new Nitrogen Offset Enterprise Account whose sole purpose is to allow the Nitrogen Offset Committee to ensure that new loads of nitrogen are offset in the same watershed receiving the new nitrogen load.

Proposed Language:

The town shall establish a Nitrogen Offset Enterprise Account whose sole purpose is to ensure that new loads of nitrogen are offset in the same watershed receiving the new nitrogen load. Such Nitrogen Offset Enterprise Account is established pursuant to M.G.L. Chapter 44, Section 53 F ½. The Director of Public Works shall submit annually to the Sewer Commissioners for their approval a summary of revenue and expense estimates, in accordance with M.G.L. Chapter 44, Section 53F ½, for the approval of Town Meeting. The sole purpose of the Nitrogen Offset Enterprise Fund shall be to fund those projects that will minimize or eliminate the nitrogen load from existing sources and within the same watershed. The Nitrogen Offset Committee, made up of a representative from each the Board of Health, Planning Board, Conservation Commission, and Sewer Commissioners shall submit an annual plan describing how the revenues will be spent.

2. Planning Board – Density Bonus – Article 8 (813) Cluster Bylaw.

3. Con Com – Stormwater BMPs

Things to resolve coming out of November 9 meeting:

Scenarios
Setback requirements
Common Areas
Fines and Enforcement

Major flaw which needs resolution: This regulation, as drafted, assumes that a developer of a subdivision knows roof area, impervious area, house size, lawn size, etc. Reality does not function this way. A developer could subdivide the land and each individual lot could be developed over a number of years by different builders. House sizes would be different, wastewater flows could be more or less. Not all of this is determined at the site plan review. Proposed resolution in section 7.2.

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