BOARD OF HEALTH REGULATION ON THE CONTENT AND APPLICATION OF FERTILIZER USED IN THE TOWN OF CHATHAM

SECTION 1.FINDINGS AND PURPOSE

Mounting scientific evidence supports the claim that excessive nutrient enrichment of Chatham's groundwater and surface waters, specifically by nitrogen and phosphorus, may have significant public health significance.

Direct public health effects of excess nutrients on drinking water sources are well known and include the increased concentrations of nitrogen to levels that violate the Safe Drinking Water Standards. Nitrates and nitrites are nitrogen-oxygen chemical units which combine with various organic and inorganic compounds. Nitrates are common components in fertilizer. Once taken into the body, nitrates are converted to nitrites. Infants below six months who drink water containing nitrate in excess of the maximum contaminant level (MCL) could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and Blue Baby Syndrome. The groundwater underlying Chatham is the sole source of its existing and future water supply. The groundwater aquifer is integrally connected with and flows into the surface waters, lake, streams and coastal estuaries which constitute significant recreational and economic resources of the town used for bathing and other water-related recreation, and shell fishing and fishing.

The indirect public health effects expressed through surface water enrichment can be equally pronounced and include ecological alterations that can result in toxic algae blooms and the proliferation of human and animal disease organisms, including bacterial, fungal, myxozoa, and insect vector pathogens. Excessive amounts of nitrogen and phosphorus contribute to undesirable algal and aquatic plant growth within the Town's fresh and salt water bodies.

The Massachusetts Estuaries Project (MEP), a collaborative effort of MADEP and the Univ. of Mass. Dartmouth School of Marine Science and Technology, has completed extensive scientific evaluations of the sources and amounts of nitrogen impacting Chatham's estuaries and near-shore waters. Those studies indicate that fertilizer accounts for approximately 9% of the "locally controllable load" unattenuated nitrogen load being contributed to Chatham's estuaries (see Figure IV-4 in reports entitled *Linked Watershed-Embayment Model to Re-evaluate Critical Nitrogen Loading Thresholds for Stage Harbor/Oyster Pond, Sulphur Springs/Bucks Creek and Taylors Pond/Mill Creek, Chatham Massachusetts, February 2007* and *Linked Watershed-Embayment Model to Determine Critical nitrogen Loading Thresholds for the Pleasant Bay System, Orleans, Chatham, Brewster and Harwich, Massachusetts, May 2006*).

This undesirable algal and aquatic plant growth has an adverse effect on public health through the degradation of waters used for drinking water, shellfishing, and recreational swimming and boating. Algal blooms form in water when cyanobacteria (blue-green algae) grow quickly and form scums or mats in the water. Some blooms can produce toxins harmful to people and animals. These are called Harmful Algae Blooms. Algal blooms are caused by excess levels of

nutrients in water bodies and can come from human-related sources. Phosphorus and nitrogen are two important nutrients used by blue-green algae in their growth, and can be found in fertilizers and human and animal waste.

Health concerns from Harmful Algae Blooms and their toxins vary depending on the type of exposure, and the amounts and types of toxin present:

- Contact with these algae can cause skin and eye irritation.
- Ingesting small amounts can cause gastrointestinal symptoms. Ingesting large amounts of toxins may cause liver or neurological damage.
- Inhaling water spray with algae/toxins in it can cause asthma-like symptoms.
- Small children and pets are more susceptible to the effects of toxins than adults. Livestock and pet deaths from ingesting algal toxins have occurred.

Chatham has significant amounts of glacially deposited coarse, sandy soils that are subject to rapid water infiltration, percolation, and leaching of nutrients. These soil characteristics mean that agronomic practices of soil fertilization common in other parts of the region, state and country may not be appropriate in Chatham.

The Board of Health, recognizing that excessive, inappropriate or improper use of fertilizers is part of the overall problem of nutrient pollution, promulgates the following regulation regarding the use of fertilizer on turf. This regulation incorporates by reference the UMass Amherst Extension's Turf Management Best Management Practices (BMP's) which from time to time may undergo changes in response to scientific research. The practices and standards set out herein, if followed, are deemed to protect the public health, assist in improving water quality and in achieving compliance with the Total Daily Maximum Loads (TMDL) for the Town's water resources prescribed by the Commonwealth of Massachusetts while allowing reasonable use of fertilizers for the enhancement of turf quality.

SECTION 2. APPLICABILITY

2.1. It is necessary and desirable to control by regulation in the Town of Chatham, Massachusetts the use of fertilizer that contains phosphorus and nitrogen for the purposes set out herein.

2.2. This Regulation allows for a reduction of nitrogen and phosphorus going into the Town's waters and wetlands by means of an organized system of education, certification, standardization and regulation of practice. This Regulation is not intended to eliminate the use of fertilizer but only to eliminate excess amounts of phosphorus and nitrogen from reaching our surface water and groundwater. This Regulation adopts the Best Management Practices (BMP) as the normal operating procedures for turf management throughout the Town.

2.3. This Regulation shall apply to turf and to the application of nitrogen and phosphorus-containing fertilizer and other materials to turf within the Town.

2.4. This Regulation shall serve as the Town's Implementing Regulations pursuant to the Fertilizer Management District of Critical Planning Concern designation, Barnstable County Ordinance 13-07.

SECTION 3. AUTHORITY

3.1. This Regulation is adopted by the Town of Chatham's Board of Health as authorized by Massachusetts General Laws, Chapter 111, Section 31, and is further authorized as Implementing Regulations pursuant to the Fertilizer Management District of Critical Planning Concern designation, Barnstable County Ordinance 13-07, and by Section 9 of Chapter 262 of the Acts of 2012.

SECTION 4. DEFINITIONS

For the purposes of this Regulation the following words shall have the following meanings unless the context clearly indicates a different meaning:

"Chatham" is the Town and all of its waters.

"Agriculture/ Agricultural Use" means farming in all of its branches including the cultivation and tillage of the soil, the production, cultivation, growing, and harvesting for sale of any agricultural, floricultural or horticultural commodities, including but not limited to cranberries.

"Best Management Practices" (BMP), means a sequence of activities designed to limit a nonpoint pollution source. For the purposes of this Regulation and pursuant to Section 5.1 of this Regulation, BMP means the most current edition of *"Best Management Practices for Soil and Nutrient Management in Turf Systems"*, prepared by the University of Massachusetts Extension Turf Program.

"Certified Fertilizer Applicator" means an Applicator certified in the manner prescribed hereunder to apply fertilizer and manage turf in conformance with the BMP.

"Combination Products" sometimes known as "Weed and Feed," means any product that, in combination with fertilizer, contains pre- or post-emergence herbicides, insecticides other pesticides or plant growth regulators.

"Compost" the biologically stable humus-like material derived from composting, or the aerobic, thermophilic decomposition of, organic matter, which is used as a fertility source for turf.

"Fertilizer Applicator" means any person who applies fertilizer to turf and soils.

"Fertilizer" means a substance that enriches turf with elements essential for plant growth, such as nitrogen, phosphorus, or other substances; fertilizer hereunder does not include dolomite, limestone, or lime and grass clippings, or compost/compost tea.

"Fertilize, Fertilizing, or Fertilization" means the act of applying fertilizer to turf.

"Heavy Rain" shall mean rainfall greater than 2 inches in a 24 hour period as measured at Chatham Municipal Airport.

"Impervious Surface" means a surface that has been compacted or covered with a layer of material so that it is highly resistant to infiltration by water, except for compacted areas on athletic fields such as clay or baseball infields, intensely trafficked turf and the like.

"Landscape Professional" means a person, either as a sole proprietor or an employee of a company, who, in exchange for money, goods, services, or other consideration, performs landscaping services. A Landscape professional can include turf management staff at a private golf course operation or other private entity.

"Landscaping" means, for purposes of this Regulation, establishment (including by sod, seeding, or transplanting), renovation, maintenance, management or fertilization of turf.

"Municipal Applicator" means a public employee of a town, the county, or the state or federal government (or an employee of a department of and within such public entity) who fertilizes and manages turf located on property owned or controlled by a town, the county, the state or federal government (including publicly owned golf courses and athletic fields) within the scope of their official public employment responsibilities.

"Non-Certified Fertilizer Applicator" means an Applicator, such as a home owner, who is not certified in the manner prescribed hereunder to manage turf and apply fertilizer in conformance with the BMP.

"Nutrient" means any of the following 17 elements needed for growth of a plant; the three (3) non-mineral elements: carbon, hydrogen, and oxygen; the six (6) macronutrients: nitrogen, phosphorus, potassium, calcium, magnesium, and sulfur; and the eight (8) micronutrients: boron, copper, iron, chloride, manganese, molybdenum, nickel and zinc.

"Nutrient Management" means the systematic control of the application and availability of nutrients to plants in order to minimize nutrient loss and to maintain the productivity of the soil.

"Readily Available Nitrogen" means any water-soluble nitrogen (WSN) that is readily available to turf after application.

"Restricted Fertilizer Application Times" means no application of fertilizers to drought-dormant, cold-dormant, inactive turf or to frozen ground, and no application between November 12 and the following April 14.

"Slow-release, Controlled-release, Timed-release, or Slowly Soluble/Available Nitrogen (SRN)" means nitrogen in a form that delays its availability for uptake and use after application, and is not rapidly available to turf.

"Soil" means the upper-most layer of the earth's surface, comprised of mineral and organic matter, which can host biological communities.

"Soil Test" means a technical analysis of soil conducted by a soil testing laboratory that uses standards recommended by and in agreement with the University of Massachusetts Amherst Extension Program BMP, including a Modified Morgan soil testing procedure and extractable nutrient values.

"Turf" means grass-covered soil held together by the roots of the grass, also known as "sod" or "lawn."

"Waters" or "Water-bodies" include, but are not limited to, streams, including intermittent streams, creeks, rivers, freshwater and tidal wetlands, ponds, lakes, marine waters, canals, lagoons, and estuaries within the Town, including without limitation all waters defined in Massachusetts General Laws Chapter 131, Section 40 and Town Wetland By-law, Ordinance or Regulations with the exception of the following: coastal and inland banks, beaches, coastal dunes, dune fields, and lands subject to coastal storm flowage, inland or coastal flooding or inundation, or within 100 feet of the hundred-year storm line.

SECTION 5. STANDARDS OF PERFORMANCE

5.1. Best Management Practices ("BMP"), as defined herein and attached hereto, is hereby incorporated into and made part of this Regulation

5.2. Performance Standards for Fertilizer Applicators

5.2.1. Fertilizer Applicators shall not apply fertilizer during or immediately prior to Heavy Rain, such as but not limited to thunderstorms, hurricanes, or northeastern storms, or when the soil is saturated due to heavy rainfall.

5.2.2. Fertilizer Applicators shall not apply fertilizer during Restricted Fertilizer Application Times.

5.2.3. Fertilizer Applicators shall not apply, spill, or deposit fertilizer on any Impervious Surface or fail to remove the applied, spilled, or deposited fertilizer immediately (and in which case the applicator shall then either contain, dispose of legally or apply the fertilizer as allowed), and shall not apply, spill or deposit fertilizer in a manner that allows fertilizer to enter into any stormwater conveyance or infrastructure.

5.2.4 Fertilizer Applicators shall install spreader deflector shields when fertilizing via rotary (broadcast) spreaders. Deflectors must be positioned such that fertilizer granules are deflected away from all Impervious Surfaces, fertilizer-free zones and Water-bodies, including wetlands.

5.2.5. Unless the Town's existing Laws and Regulations, including its Wetland By-law or Regulations, contain a stricter standard or other enforcement or approval mechanism an

applicators shall not apply fertilizer closer than 100 feet to any water-body, or within the Zone 1 (400 foot radius) to a public drinking water well, unless permission is obtained through the enforcement authority set out in Section 6.3 herein allowing such activity.

5.2.6. Fertilizer Applicators shall not apply fertilizer that contains phosphorus, unless a soil test taken not more than three years before the proposed fertilizer application indicates that additional phosphorus is needed for growth of that turf, or unless establishing new turf or re-establishing or repairing turf after substantial damage or land disturbance, in which case the application shall be in compliance with the BMP.

5.2.7. A single application of fertilizer that contains nitrogen shall not exceed 1.0 pound of actual nitrogen per thousand square feet, shall consist of at least 20%[1] Slow-release Nitrogen (SRN) fertilizer, or a higher limit as recommended in BMP. The annual rate shall not exceed 3.2 pounds of actual nitrogen per thousand square feet. Single applications shall be done at intervals of no less than four weeks until the annual maximum is reached.

5.2.8. The fertilizer application requirements of this Section 5.2. shall apply with the same limitations to combination products, i.e. amount of nitrogen applied, in the vicinity of water bodies, etc.

5.3. Performance Standards for Certified Fertilizer Applicators

5.3.1. Certified Fertilizer Applicators shall be exempt from the requirements set forth in Section 5.2 of this Regulation, provided that they shall manage turf and apply fertilizer to turf in accordance with the BMP. The burden shall be on the Certified Fertilizer Applicator, if and as required, to show that he/she is applying fertilizer in accordance with the BMP.

5.4. Exemptions. The following activities shall be exempt from this Regulation:

5.4.1. Application of fertilizer as a fertility source for Agriculture/Agricultural Use.

5.4.2. Application of fertilizer as a fertility source to home gardens, landscape ornamentals, shrubs, trees, bushes, vegetables, fruits, and container plants.

SECTION 6. EDUCATION, CERTIFICATION, ENFORCEMENT, AND PENALTIES

6.1. Fertilizer/Turf Management Education

6.1.1. The Town may rely on Cape Cod Cooperative Extension to assist in maintaining a program of fertilizer and turf management education that is based on the BMP.

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[1] This represents the minimum percentage. Use of higher SRN content is generally preferable, especially on sandy root zones, during stress and pre-stress periods, and when there are fewer annual applications of nitrogen made to a lawn[1].

6.1.2. The Town may rely on Cape Cod Cooperative Extension to assist with or administer an assessment to determine an Applicator's proficiency of the BMP.

6.1.3. The Town may rely on Cape Cod Cooperative Extension to assist with or administer a Fertilizer Certification process, which if administered by Extension, may be a county-wide process.

6.1.4. Fertilizer education may consist of, but is not limited to, collaboration with retailers to post in-store information on town fertilizer regulations, the BMP and Fertilizer Certification requirements; mailings and flyers for the general public concerning town fertilizer regulations, the BMP and Fertilizer Certification requirements; and outreach to Landscape professionals and Municipal Applicators concerning fertilizer-related laws, the BMP and Fertilizer Certification requirements.

6.1.5. The Cape Cod Commission may assist the Cape Cod Cooperative Extension in the administrative duties associated with the processes outlined in Sections 6.1 and 6.2.

6.2. Fertilizer Certification

6.2.1 Any Non Certified Fertilizer Applicator may apply to the Town or Cape Cod Cooperative Extension, as the case may be, for Fertilizer Certification as a Certified Fertilizer Applicator.

6.2.2. The Town or Cape Cod Cooperative Extension, as the case may be, will establish application requirements for and the process required to obtain Fertilizer Certification and renewals thereof, including evidence that the applicant is proficient in the BMP.

6.2.3. Notwithstanding the requirement for a proficiency assessment set out in Section 6.2.2, Municipal Applicators or Landscape Professionals who meet the following criteria shall be presumed to be proficient in the BMP and may become Certified Fertilizer Applicators without the need for an additional proficiency assessment:

1. Active membership in the Cape Cod Landscapers Association, the Golf Course Superintendents Association of Cape Cod, Massachusetts Association of Lawn Care Professionals (MALCP) or a substantially similar organization; and one of the following;

2. Current Massachusetts Pesticide Commercial Applicator License (category 00) or Commercial Applicator License with Turf Certification (category 37) or Commercial Applicator License with Shade Tree & Ornamentals Certification (category 36), with evidence of participation in a recognized continuing education program for turf management within the past year, or

3. Associate's Degree or higher in Turf Management, or closely related field, with evidence of participation in a recognized continuing education program for turf management within the past year; or

4. Current Massachusetts Certified Landscape Professional (MCLP) Certification, or substantially similar professional certification with emphasis on turf management, with evidence of participation in a recognized continuing education program for turf management within the past year; or

5. Certificate of Completion from the University of Massachusetts Extension Green School (Turf or Landscape sections) or the University of Massachusetts Winter School for Turf Managers, or a horticultural certificate from Cape Cod Community College, or substantially similar professional certification with emphasis on turf management, with evidence of participation in a recognized continuing education program for turf management within the past year.

6.2.4. Municipal Applicators or Landscape Professionals who are Non-Certified Fertilizer Applicators may nonetheless apply fertilizer and manage turf pursuant to the standards for Certified Fertilizer Applicators set out in Section 5.3 of this Regulation so long as they fertilize and manage turf under the direct supervision of a manager or supervisor who has attained Fertilizer Certification hereunder.

6.2.4.1. "Direct Supervision" shall mean the instruction and control by such manager or supervisor who is responsible for fertilizer applications made and that person making them, and who is either physically present at the time and place the fertilizer is applied, or if not physically present, is available if and when needed.

6.2.5. Any Certified Fertilizer Applicator shall ensure that a copy of the official documentation of said Fertilizer Certification is readily available when and at the location fertilizer is being applied, and shall provide such Certification when requested to do so by an officer or agent of the enforcement authority set out in Section 6.3 herein.

6.3. Enforcement

6.3.1. Non-Criminal Disposition

This Regulation may be enforced by the Director of Natural Resources, Health Agent, Health Inspector/Assistant Conservation Agent or Conservation Agent. Whoever violates any provision of this Regulation may be penalized by a noncriminal disposition process as provided in G.L. c.40, §21D and the Town's non-criminal disposition by-law. If noncriminal disposition is elected, then any person who violates any provision of this Regulation shall be subject to a penalty according to the following:

VIOLATION	FINE
First Offense	Warning
Second Offense	$50.00
Third Offense	$100.00
Fourth Offense	$200.00
Each Subsequent Offense	$300.00

6.3.2. Other

The Board of Health may enforce this Regulation or enjoin violations thereof through any lawful process, and the election of one remedy by the Board of Health shall not preclude enforcement through any other lawful means.

SECTION 7. SEVERABILITY CLAUSE

Should any section, part or provision of this Regulation be deemed invalid by a court of competent jurisdiction, such decision shall not affect the validity of the remaining terms of this Regulation as a whole or any part thereof, other than the section, part or provision held invalid, which shall remain in full force and effect.

SECTION 8. AMENDMENTS

Amendments to this Regulation may be adopted by Board of Health after a public hearing thereon, notice of the time, place and subject matter of which, sufficient for identification, shall be given by publishing in a newspaper of general circulation in the Town once in each of two successive weeks, the first publication to be not less than fourteen days prior to the date set for such hearing Amendments shall also be subject to the procedures set out in Sections 10 and 11 of the Cape Cod Commission Act, Chapter 716 of the Acts of 1989, as amended. Specifically, amendments must also be consistent with the Fertilizer Management District of Critical Planning Concern designation, Barnstable County Ordinance 13-07 and the Guidelines for Implementing Regulations set out therein, including the requirement for consistency with the BMP.

SECTION 9. EFFECTIVE DATE

The effective date of this Regulation shall be the publication date pursuant to G.L. c. 111, §31, provided further that the Regulation has been certified by the Cape Cod Commission as consistent with the Fertilizer Management District of Critical Planning Concern designation, Barnstable County Ordinance 13-07, and has been approved by the Attorney General pursuant to MGL Ch. 40, Sec. 32, if and as required.

SECTION 10. INTERIM PROVISION

Notwithstanding any provisions to the contrary contained herein, any application of fertilizer to turf shall be made in accordance with Section 5 herein unless and until the Fertilizer Certification process outlined in Section 6.2 herein is implemented and in effect.

Effective Date: TBD

Paula A. Fabin
A True Copy, ATTEST:
Chatham Town Clerk

Signed: _____
Edward Sheehan – Chairman

_____
Edwin Whittaker – Vice Chairman

_____
Mary Ann Gray

_____
Ronald Broman

_____
Allen Ward, M.D.