



December 8, 2005

# Town of Dennis

## Regulations for Subsurface Disposal of Sewage

### FINDINGS

The Board of Health of the Town of Dennis finds that:

1. the groundwater underlying this town is the sole source of its existing and future water supply, including drinking water;
2. the groundwater aquifer is integrally connected with and flows into, the surface waters, lakes, streams and coastal estuaries which constitute significant recreational and economic resources of the town used for bathing and other water-related recreation, shellfishing and fishing;
3. discharges of septic systems have repeatedly threatened the quality of such groundwater supplies and related water resources on Cape Cod, posing potential public health and safety hazards and threatening economic losses to the affected communities;
4. unless preventative measures are adopted to control the discharge of septic materials in a timely, consistent and scientifically accepted manner, predictably, groundwater, drinking water, and recreational waters within the town will pose a public health problem.

The following regulations are promulgated by the Dennis Board of Health and replace all previous Town of Dennis rules and regulations with subsequent amendments. The regulations are adopted in accordance with provisions of Chapter 111, Section 31, as amended, Massachusetts General Laws, Ter. Ed., and are being adopted to supplement, clarify, modify and augment the provisions of Title 5, of the State Environmental Code. Applicants shall refer to the Massachusetts Environmental Code for basic requirements.

### 1.0 ENFORCEMENT

For purposes of enforcing these regulations, the Health Agent or designee, an Agent of the Board of Health, shall be the enforcing officer.

### 2.0 DISPOSAL WORKS CONSTRUCTION PERMIT

No individual sewage disposal system or other means of sewage disposal shall be located, constructed, altered, repaired, or installed, until a permit for its location, construction, alteration, or repair installation shall have been issued by the Board of Health. A fee shall be charged by the Board of Health at the time the application is made for a permit for construction and/or alteration and/or repair.

Fees for permits shall not be returned if construction or repair is abandoned.

A Disposal Works Construction Permit shall be void if installation of a subsurface sewage disposal system

is not completed within 12 months from the date of issue of such permit. A new permit may be issued by the Board of Health, following submission of a new application. New percolation tests, observation pits, and plans may be required.

### **3.0 APPLICATION FOR DISPOSAL WORKS CONSTRUCTION PERMIT**

Applications for permits to install, construct or repair private sewage systems in the Town of Dennis shall be submitted to the Board of Health Agent for approval and a plan of the proposed system, prepared by a Registered Professional Engineer or other persons, who in the opinion of the approving authority, are qualified. The fee for a permit, made payable to the Town of Dennis, shall be submitted with the application. The Agent of the Board of Health will order the issuance of all permits, following approval.

### **4.0 BUILDING ALTERATIONS**

The owner, or other person, or persons having control over any existing building or building hereafter altered and added to, shall not commence construction under a building permit for living quarters until a permit for alteration of the sewage disposal system has been first obtained from the Agent of the Board of Health. Occupancy of any such construction shall not take place until a Certificate of Compliance has been issued by the Agent of the Board of Health, as required under Regulation 7.0.

### **5.0 USE**

The use of an individual sewage system by more than one property, dwelling or other premises shall be subject to review and approval by the Board of Health. The sewage disposal facility shall be located on the property that it serves, unless otherwise approved by the Board of Health.

### **6.0 DISPOSAL WORKS INSTALLERS PERMIT**

No person or firm shall engage in the construction, alteration, installation, or repair of any individual sewage disposal system without first obtaining an Installer's Permit from the Board of Health. Such permit shall expire at the end of the calendar year in which it is issued unless earlier revoked by the Board of Health. Each Disposal Works Installer shall be required to complete a (simple test) questionnaire and execute a memorandum of understanding to qualify an applicant for an Installer's Permit.

### **7.0 CERTIFICATE OF COMPLIANCE**

A Certificate of Compliance, signed by the Agent of the Board of Health, and relating to the design plan materials, and construction, shall be submitted upon completion of the installation of a private sewage system to the installer.

## 8.0 REQUIREMENTS FOR PLANS

The plan shall be prepared by a Registered Professional Sanitary Engineer, Registered Professional Civil Engineer, or other persons, who in the opinion of the approving authority, are competent. The plan is to be submitted on a scale of no less than 1" = 20', which lies within 10' of any portion of the sewage disposal system.

- a. The property and building to be served and location of the proposed sewage disposal facilities, precise location of the manholes, clean-out plugs, location of any streams, drains, or known sources of water supply within 200 feet of the disposal system. The plan shall include existing and proposed contour of the land on a two-foot interval within the immediate area of the leaching facility.
- b. Lot lines and distance necessary to satisfy requirements set forth in Regulation 9.0.
- c. The plan shall include a detailed layout of the proposed system including invert elevations of the septic tank, distribution box, and leaching facility. Size and gradation of stones used in the disposal field shall be noted.
- d. Location and depth of the observation pits, location and results of percolation test. The elevation of the highest water table and soil log must be shown and recorded on the plan.
  - (1) **The elevation of highest water table must be adjusted according to the USGS Groundwater Adjustment Criteria, or**
  - (2) **Observation of soil color using the Munsell system and the abundance, size, and contrast of mottling, if present.**
- e. The Health Department shall determine the number of copies of the plan to be submitted. The identity, location and elevation of the benchmark shall be shown on the plan. Provision will be made on the plan for the endorsement of approval of the Board of Health Agent. No permit shall be issued until the plan has been endorsed accordingly.
- f. If a soil absorption system is in front of the house, a cross section plan showing elevations of the street centerline, property lines, foundation wall, septic tank, and the leaching facility shall be shown.
- g. Dwellings with expansion attics shall provide a septic system according to the total number of possible bedrooms.
- h. Blocks or risers used to bring the systems within 1 foot of grade shall be cemented.
- i. A flow rate of 55 gallons per day, per person, or 110 gallons per day, per bedroom, shall be used as a design factor.

## 9.0 LOCATION OF DISPOSAL FACILITIES

Distances between the disposal facilities and other system components shall meet the minimum standards in the following table:

COMPONENT	SEPTIC TANK	LEACHING FACILITY
Well or Suction Line	50 Ft.	100 Ft.
Water Supply Line	10 Ft. (18" below)	10 Ft. (18" below)
Property Line	10 Ft.	10 Ft.
Dwelling	10 Ft.	20 Ft.
Surface Water Supplies or Tributaries	50 Ft.	100 Ft.
Watercourses including Streams & Ponds	25 Ft.	100 Ft.

All grades of roads in subdivisions adjoining waters within Dennis shall be not less than six feet (6') above the mean high water of lakes, ponds, streams, tidal waters, flats, and all tributaries of such tidal waters and flats.

Foundations of dwellings shall be not less than two feet (2') above the lowest point of the road or roads adjoining each lot. This provision may be waived by the Agent of the Board of Health, upon determination that no adverse effect will result. On land, adjoining lakes, ponds, streams, drainage ditches, tidal waters, flats, and all tributaries of such tidal waters and flats, sewage disposal systems shall comply with the Commonwealth of Massachusetts DEP, Title 5, and said systems shall terminate not less than one hundred feet (100') from a wetland as recognized by Chapter 131, Section 40, MGL; and further defined by the Wetlands Protection Policy, 92-1, and 310 CMR 10.4 or to a greater height where conditions warrant it.

**9.1** Permits for on-site sewage disposal or water supply may be approved for construction when located within Zones A, AE, AH, AO, A1-A30, A99, V, V1-V30, as designated on the Town of Dennis Flood Insurance Rate Map (FIRM) issued by the Federal Emergency Management Agency (FEMA) for the administration of the NFIP, dated July 3, 1986 and July 2, 1992, on file with the Town Clerk, Board of Health, the Planning Board and the Building Inspector, when it is demonstrated by the applicant that, in the event of flooding to base flood elevations, such facilities are designed to minimize contamination.

Any new or replacement water supply system or sanitary sewerage system within such area shall be designed to minimize contamination or eliminate infiltration of floodwaters into the system and discharges from the system into floodwaters. Applicant shall also comply with provisions of the Massachusetts Department of Environmental Protection, Title 5.

**9.2** The minimum leaching area per bedroom shall be 110 gallons per day when a leaching field is utilized as final dissemination of sewage. This area shall be increased according to regulation of

Title 5, of the Massachusetts Department of Environmental Protection, where a garbage disposal is installed.

### 9.3 SOIL STABILITY

Septic sewage systems shall not be installed in any area of a buildable lot where there is active shifting sands or earth. This shall include:

- a. Coastal beaches, to include any unconsolidated sediment subject to wave, tidal, and coastal storm action which forms the gently sloping shore of a body of salt water and includes tidal flats. Coastal beaches extended from the mean low water line landward to the dune line, coastal bank line or the seaward edge of existing manmade structures, when these structures replace one of the above lines, whichever is closest to the ocean.
- b. Coastal dunes, to include any natural hill, mound or ridge of sediment landward of a coastal beach deposited by wind action or storm overwash. Coastal dune also means sediment deposited by artificial means and serving the purposes of storm damage prevention or flood control.
- c. Barrier beaches, to include any low-lying strip of land generally consisting of coastal beaches and coastal dunes extending roughly parallel to the trend of the coast. It is separated from the mainland by a narrow body of fresh, brackish or saline water or a marsh system. A barrier beach may be joined to the mainland at one or both ends.
- d. Coastal banks composed of unconsolidated sediments, to include the seaward face or side of any elevated landform, other than a coastal dune, which lies at the landward edge of a coastal beach, land subject to tidal action or other wetland. These banks are exposed to vigorous wave action and through that action serve as a major continuous source of sediment for beaches, dunes and barrier beaches as well as other landforms caused by coastal processes. Coastal banks with previously existing manmade structures such as seawalls, ripraps, revetments, and bulkheads are exempt from this provision.
- e. For new construction, no fill shall be deposited when the water table is within three feet (3') of the original grade.

#### 9.3A ENVIRONMENTALLY SENSITIVE AREA

The following shall be considered environmentally sensitive areas by the Board of Health:

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- a. Land area (whether developed or not) that borders on and is within one hundred feet (100') of marshland, tidal flats, coastal dunes, barrier beaches, coastal banks, coastal beaches, surface water;
  - b. land area containing subsurface water, which is six feet (6') or less below natural ground surface elevation;
  - c. existing or known future water supplies;
  - d. terrestrial and/or aquatic plant/animal habitats or threatened or endangered species when certified by an agency that specializes in such taxonomy and/or environmental science. Credibility of the certifying agency shall be determined by the Board of Health;
  - e. Zone II's Water Recharge Maps, as approved by DEP, as amended;
  - f. the areas of Critical Planning Concern, pursuant to designated applicable law.

## 10.0 TESTS

- a. Complete data used in determining the percolation rate shall be shown on the plan. All percolation tests shall be conducted in accordance with the requirements of Title 5, of the DEP.
- b. One or more observation pits shall be excavated in the area of the proposed system. THE DEPTHS OF THE PITS SHALL BE AT LEAST FIVE FEET (5') BELOW THE BOTTOM OF THE PROPOSED LEACHING FACILITY. Observation pits shall be left open for 24 hours, on request of the Board of Health or its Agent. A soil log, which shall be taken from the observation pits, must be recorded on both the application and plan.
- c. Percolation tests shall be performed on each lot where a septic system is to be constructed, except where the Agent of the Board of Health deems it unnecessary. This information shall be recorded on the plan.
- d. All percolation tests are to be performed in the presence of the Agent of the Board of Health. Prior notice of at least 48 hours for excavation and tests must be provided.
- e. In general, and at the discretion of the Agent of the Board of Health, percolation tests must be conducted and high water elevations shall be determined during the high water time of the year. Soil with an average percolation rate slower than 15

minutes per inch will be considered unsuitable for the subsurface disposal of sewage by the Board of Health.

## 11.0 SEPTIC TANKS

The size of the tank may depend upon the estimated ultimate volume of the sanitary sewage to be discharged from the premises to be served. Septic tanks for residential dwellings shall be designed to accommodate a minimum flow of 110 gallons per day, per bedroom, times a factor of 4.5 for treatment.

## 12.0 CONSTRUCTION IN FILLED LAND

Construction of leaching facilities in clean granular fill is permissible when the following conditions exist:

- a. when the impervious material can be excavated to pervious material below and be replaced with clean fill, per Regulation 15.02(17) of Title 5, of the State Environmental Code, and the underlying pervious strata is at least four feet thick;
- b. where a depth of at least five feet of pervious material is natural soil and can be maintained below the bottom of the leaching area. In no case will excavation be allowed into impervious material without penetrating into pervious material as in a., above.
- c. For new construction, the septic tank and the leaching facility must be at least one foot below the existing natural grade, when in an environmentally sensitive area, as defined by Section 9.3A.

## 13.0 INSPECTIONS

The Board of Health requires that all construction be inspected by the Agent of the Board of Health before backfilling. Prior notice of at least 24 hours for said inspection must be provided to said Agent. The Certificate of Compliance will not be issued unless all construction has been completed in accordance with the approved plan and the required inspections done.

### 13.A INSPECTIONS FOR REAL ESTATE TRANSACTIONS

Septic system inspections for real estate transactions shall be performed pursuant to 310 CMR 15.301 by a Registered Sanitarian, Civil/Sanitary Engineer, or other person licensed by the Massachusetts Department of Environmental Protection. Said Inspector shall utilize a report provided by the Dennis Health Department. A copy of the report shall be submitted to the Health Department within 10 days of completion of the inspection.

## 14.0 MAINTENANCE

Every owner or agent of premises in which there are any private sewers, individual sewage disposal systems or other means of sewage disposal shall keep the sewer and disposal system in good repair and shall have such works cleaned or repaired at such times as ordered by the Board of Health. Should the owner or agent of the premises fail to comply with such an order, the Board of Health may cause the works to be cleaned and repaired and all expenses incurred will be paid by the owner.

## 15.0 EXPANSION

Plans submitted for approval shall contain an additional area reserved for future expansion of the disposal field at least equal to the area of the disposal field. Said expansion area must conform to all requirements of these regulations and to Title 5, of the State Sanitary Code. The expansion area is to be kept open and may not be built upon with the exception of movable structures, such as tool houses and above-ground swimming pools. Additions to the dwelling or in-ground swimming pools may not be constructed which would preclude the expansion area from conforming with the minimum distances established in Regulation 9.0.

## 16.0 FURTHER REGULATIONS

The Dennis Board of Health reserves the right to adopt further regulations as deemed necessary or restrict or delete any of the above regulations in the best interest of the Town of Dennis. These Board of Health Regulations are subject to the various provisions set forth in Title 5, of the State Sanitary Code.

- a. **Variances from septic regulations shall not be granted in environmentally sensitive areas, as defined in Regulation 9.3A, except under exceptional circumstances. Failed systems with no addition of space in the structure served by the system and upgrading of existing systems shall be exempt from this regulation.**

## 16.B STANDARDS FOR ENVIRONMENTALLY SENSITIVE AREAS

A variance is required from the Board of Health when new construction or additions/alterations of habitable space is proposed in an environmentally sensitive area, as defined by Regulation 9.3A.

The proposed system shall meet the following minimum criteria:

1. **Shallow systems shall be the preferred design for the soil absorption systems.**
2. **Nitrogen loading shall not exceed 5 ppm, in accordance with the Cape Cod Commission Water Resource Office's Technical Bulletin 91-001.**

3. All new or repaired septic systems in an Environmentally Sensitive Area (ESA), as defined in Regulation 9.3A, shall have \*nitrogen loading calculations submitted with the permit.
4. New and repaired septic system within 100' of surface water may have nitrogen reduction systems added to the septic plan, if the nitrogen loading exceeds \*5 ppm .
5. Applicants for new construction in an ESA, as defined in Regulation 9.3A, must demonstrate that it is more likely than not that the construction and related septic system shall not adversely contribute to the decline of existing water quality or food sources.

The applicant must prove exceptional circumstances.

\*Calculations as per the Barnstable County's formula.

## 16.C ALTERNATIVE SEPTIC SYSTEMS

1. In considering permitting the use of various Innovative/Alternative septic treatment technologies in the Town of Dennis, the Board of Health of the Town of Dennis recognizes that there may be specific local circumstances which warrant the Board to require more stringent conditions for the installation, maintenance, and monitoring of these Innovative/Alternative systems than may be required by the Massachusetts Department of Environmental Protection. As allowed under MGL, ch. 111, sec. 31 and as permitted by 310 CMR 15.003, 15.285(2)(d), 15.286(5), and 15.288(4), the Board of Health of the Town of Dennis hereby adopts the following requirements concerning all I/A systems and all systems where the soil absorption system is designed for pressure distribution of effluent (hereinafter, "pressure-dosed systems").
2. **Purpose** The purpose of these requirements is to provide a greater degree of protection to environmental and public health, to protect groundwater from contamination, prevent the spread of disease, and provide specific reporting and monitoring requirements for the use of I/A and/or pressure-dosed systems.
3. **Monitoring** The Board hereby requires that all owners and operators of I/A and/or pressure-dosed systems approved for use in the Town of Dennis shall submit for approval to the Board a proposed Inspection and Maintenance Plan to evaluate the performance of the system. Said plan shall include a description of any long-term operational, and any educational, financial assurance, or other mechanism proposed to ensure effective long-term operation and maintenance.
4. **Reporting of Monitoring and Maintenance Results** The Board hereby requires that owners and operators of all I/A and/or pressure-dosed systems shall report the results of all operation, maintenance, and monitoring activities required by the foregoing provision or by the Department to the Board and to the Barnstable County Department of Health and Environment (hereinafter, "the County"). Such reporting shall be performed in the manner specified by the Board in imposing the monitoring requirement or in the form approved by the County and shall occur within fifteen (15) days after each maintenance or monitoring event.

5. **Reporting of Malfunctioning Systems** The Board hereby further requires that when a system operator performs a system inspection and finds that a system has malfunctioning components which have compromised the system's ability to treat sewage as designed or as approved by the Board, the operator shall report on the system's status and any planned corrective action, including a proposed deadline for said corrective action, to the Board and the County within 48 hours of the inspection.
6. **Malfunctioning Systems** If at any time a monitoring or maintenance report indicates that an I/A and/or pressure-dosed system is in need of corrective action, the Board or its Agent(s) may take enforcement action, including but not limited to, the imposition of fines, orders to take corrective action or cease operation of system, establishment of a schedule to complete corrective action, or any other action otherwise necessary to protect public health, safety, welfare and the environment.
7. **Right to Impose Additional Conditions Reserved** The Board hereby reserves the right to impose any additional maintenance and/or monitoring conditions, effluent water quality standards, and/or monitoring and reporting requirements which, in the Board's discretion, seems reasonable, and which it views as necessary to ensure the performance as designed and/or approved by the Board of any I/A and/or pressure-dosed systems permitted within the Town of Dennis. Such conditions may include, without limitation, specification of site or effluent characteristics; flow limitations; monitoring, testing, and reporting requirements; a requirement that a certified operator operate the system; or financial assurance mechanisms.
8. **Certified Operator Requirement** If a condition of approval for an I/A and/or pressure-dosed system requires that it be operated by a certified system operator, the owner or operator shall provide the Board with documentation verifying that said system will be operated by an operator certified by the Board of Certification of Operators of Wastewater Treatment Facilities pursuant to the provisions of Massachusetts General Laws, Chapter 21, Section 34A. A list of such certified operators doing business within the Town of Dennis shall be on file with the Board for inspection or examination by any person.

#### 16.D DISTRICT OF CRITICAL PLANNING CONCERN – THE QUIVET NECK/CROWE'S PASTURE RESOURCE PROTECTION DISTRICT

The Dennis Board of Health finds the following local conditions exist which justify enactment of requirements for septic systems which are more stringent than existing Title 5 regulations:<sup>1</sup>

1. The Quivet Neck/Crowe's Pasture Resource Protection District (QNCPRPD) is characterized by two predominant soil types. The first are soils with seasonal water tables of less than 5 feet in depth. The shallow depth to groundwater reflects opportunities for rapid transference of pollutants into the groundwater system. The second are soils considered to be of poor quality for cleansing pollutants including phosphorous and nitrogen. These soils are classified by Title 5 as good for septic systems in that Title 5 predominantly focuses on the ability of the soils to allow a septic system to leach wastes away from the surface. Even where water tables are greater than 5 feet in

depth, the rapid permeability of these soils provides little protection to the underlying groundwater table. The rapid permeability of these soils reflect opportunities for rapid transference of septic wastes and other pollutants into the groundwater system. This section intends to ensure that the most appropriate technology is used in the Resource Protection District, including consideration of aggregate sewage disposal systems.

2. Separation to groundwater for all septic systems shall exceed six (6) feet in the Cape Cod Bay and Quivet Creek Recharge areas illustrated in Zoning Inset Map 2, Water Recharge Areas, and eight (8) feet within the Coles Pond Recharge Area.
3. Given the complexity of soil associations and ground water table fluctuations, deep holes and percolation tests shall be done within ten (10) feet of the installed sewage disposal leaching facilities and in all other aspects deepholes and percolation tests shall be conducted pursuant to Title 5, 310 CMR 15.000. A minimum of three (3) deep holes and two (2) percolation tests shall be conducted for all leaching facilities.
4. On-site sewage disposal leaching facilities shall be prohibited within a barrier beach, coastal dune, any area of shifting sands or FEMA Flood Zones A or V.
5. On-site sewage disposal leaching facilities shall be prohibited within 100 feet of the top of a coastal bank, 100 feet of a coastal dune, 100 feet of a vegetated wetland, 200 feet of a vernal pool,<sup>1</sup> and 300 feet upgradient of Coles Pond.
6. Development on any lot shall not exceed a 5 ppm total nitrogen loading standard as calculated using the applicable Cape Cod Commission Nitrogen Loading Formula.
7. The property owners and their successors in title will bear the cost sufficient to cover review of all aspects of on-site sewage design, construction and on-going maintenance and/or monitoring. All facilities shall be monitored with reporting to the Board of Health to demonstrate on-going compliance with this regulation.

## 17.0 EFFECTIVE DATE

No regulations shall be enforced retroactively.

## 18.0 VIOLATIONS AND PENALTIES

1. Violations of this Subsurface Disposal of Sewage Regulation will be subject to the provisions of MGL, ch. 40, sec. 21D, regarding Non-Criminal dispositions, as adopted by the Town of Dennis.
2. Any proprietor/owner/permit holder who fails to comply with these regulations shall be subject to the following action for each offense:

- a. A warning may be issued for the first offense.
- b. A fine of one hundred dollars (\$100.00) may be issued for the second offense, a fine of two hundred dollars (\$200.00) may be issued for the third offense, and a fine of three hundred dollars (\$300.00) may be issued for any subsequent offenses.
- c. Following a third offense, the Dennis Board of Health may, after a public hearing, suspend any license or permit issued by it for each day of non-compliance or
- d. withhold the renewal of any license or permit issued by the Board of Health for a period of time to be determined by the Dennis Board of Health.
- e. Any person aggrieved by a decision of the Board of Health, or by the failure of the Board to act, may appeal to Superior Court, Barnstable County, pursuant to the provisions of the Massachusetts General Laws.
- f. The Dennis Board of Health may apply for injunctive relief to enforce the provisions of this subsection in a court of competent jurisdiction.

## 19.0 SEVERABILITY

If any provision of these regulations is declared invalid or unenforceable, the other provisions shall not be affected thereby but shall continue in full force and effect.

### DENNIS BOARD OF HEALTH

Approved: December 8, 2005  
Effective: December 15, 2005

Paul J. Covell, Chairman  
Diane T. Chamberlain, Clerk  
Barbara Bird  
Curt A. Livingston

Adopted: 03.12.74  
Effective: 04.01.74

Amended:	12.07.76	04.14.94	09.11.03
	09.13.84	12.08.94	10.14.04
	09.12.85	03.09.95	12.08.05
	01.03.86	03.23.95	
	03.21.86	05.14.98	
	09.29.88	08.13.98	
	01.19.89	04.08.99	
	12.13.93	05.22.03	
	03.10.94	07.10.03	

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<sup>1</sup>. Quivet Neck/Crowe's Pasture Environmental Review Team (ERT) Study, by The Pilgrim Resource Conservation & Development (RC&D) Area Council, Inc.