

**NORFOLK BOARD OF HEALTH REGULATIONS FOR THE SITING, CONSTRUCTION,  
INSPECTION, UPGRADE, REPAIR, AND EXPANSION OF ON-SITE WASTEWATER  
DISPOSAL SYSTEMS**

**EXECUTIVE SUMMARY – February 11, 1997**

The present Board of Health regulations for septic systems have been adopted in the past at various intervals. They have supplemented the state regulations, which have been in effect over that period, but which were only minimum standards. As a result, septic systems constructed in Norfolk in recent years have provided more stringent protection than required by state regulations. Research and experience have shown that the more stringent regulation by the Norfolk Board of Health was prudent, because of the many deficiencies that have been identified in the old Title 5. Now, however, the new state regulation, Title 5, although still a minimum standard, is much improved, stronger, and contains some of the features that have been in effect in Norfolk.

The goal of these new regulations is to be as compatible as possible with Title 5. Most current Norfolk technical provisions for determining the size of septic systems, which were more stringent than Title 5, are to be deleted in favor of those set forth in the new Title 5, for single family dwellings, and for most other situations. Special criteria, however, is provided for facilities with high flows, and where wastewaters and flow patterns differ significantly from single family dwellings, such as restaurants, supermarkets, schools, and multifamily facilities.

In addition, a very important aspect of the new regulation is that it recognizes that there are separate needs for upgrades of failed systems and provides less strict criteria, which still follow the provisions of Title 5 for those situations. The reason for this is to encourage upgrades and to control costs to homeowners, while still providing an adequate level protection of the public health and the environment.

Since Title 5 now allows alternative and shared systems, these regulations provide for the necessary local control, where Title 5, although enabling it for local Boards of Health, does not provide for the specifics of Board of Health input. These regulations place the Board of Health on an equal basis with DEP and assure local control. Shared systems will be under a strict and limited level of control and used mostly for upgrade situations until it is assured that the sophisticated fiscal and legal support mechanisms exist to deal with land owners who might not agree to do needed maintenance, repair, and replacement.

These regulations also provide additional guidance for system siting and construction, where Title 5 provides little or no information. Owners, engineers, and installers will be able to achieve more efficiency, cost effectiveness, and quality for the construction. Such guidance is provided for administrative procedures; soil testing; ground water determination; plan preparation and submission; permit issuance; coordination with the Conservation Commission where wetlands are involved; construction procedures and methods; construction inspections; use of additives for system remediation; pump system design; system abandonment; procedures when there are additions, alterations, changes of use, increase in design flow to existing facilities; and special industrial and commercial requirements.

Prepared by William R. Domey, P.E.

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# **NORFOLK BOARD OF HEALTH REGULATIONS FOR THE SITING, CONSTRUCTION, INSPECTION, UPGRADE, REPAIR, AND EXPANSION OF ON-SITE WASTEWATER DISPOSAL SYSTEMS**

## **I. AUTHORITY AND PURPOSE**

These regulations shall be effective on and after 02/11/97, and shall so remain until modified or amended by the Norfolk Board of Health. They are enacted under authority which includes, but is not limited to one or more of the following: Massachusetts General Laws, Chapter 111, Sections 31, 122, 122A, 127, 143, 155, 187, Sections 310 CMR (Code of Massachusetts Regulations) 11.02; Board of Health regulations are an exercise of the power under which the various levels of government are responsible for protection of the public health, safety, welfare, and the environment.

This regulation of the Board of Health has been enacted for the purpose of protection of the public health, safety, welfare of the citizens of the Town of Norfolk and also the protection of the environment. The Town of Norfolk relies solely upon on-site subsurface systems for the disposal of sewage in town. It relies solely upon ground water for its water supply, from either public or private on-site wells. There are considerable areas of severe geologic conditions which consist of poorly drained soils, shallow soil depth to fractured ledge and ground water, wetlands, flood plain, and contributing areas to the water supply. There are several lakes within the town, resulting in sensitive conditions in those areas. As a minimum code, Title 5 is incomplete and ambiguous in certain specifications and silent on other topics. Accordingly, local Board of Health regulations are necessary to assure more complete protection from sewage overflows to the ground surface, which are sources of filth and disease, and also to assure more complete protection from potential pollution of ground water, wells, surface waters, and wetlands. Local regulations are also necessary for purposes of efficient administration and management, as well as for additional guidance in the process of construction of septic systems. These regulations do not conflict with Title 5, but rather complement them, and provide additional guidance.

## **II. INTRODUCTION**

The revised State Environmental Code, Title 5, 310 CMR 15.00 went into effect March 31, 1995 and was further revised on 11/03/95, replacing the previous version that was effective on January 1, 1978. This new State Code, as revised and amended, sets forth minimum rules and regulations to be followed in matters of on-site wastewater systems. In like fashion, this codification of rules and regulations of the Norfolk Board of Health is intended to replace the Board's existing regulations for on-site wastewater disposal, which were originally adopted in 1974 with respect to the use with the state regulations in effect up to March 31, 1995. In the case where the new Title 5 is in effect, these revised Board of Health regulations shall apply. In the case where the 1978 version of Title 5 remains effective as prescribed in the new 310 CMR 15.005, Transition Rules, the previous versions of the Norfolk Rules and Regulations shall remain in full force and effect. In either case, where the provisions of the Norfolk Board of Health Rules and

Regulations are more strict than existing federal and state ones, they will prevail. Where federal and state rules and regulations are more strict, they will prevail.

### **III. DEFINITIONS**

Definitions and acronyms for these regulations shall be as defined in Title 5 unless listed below as an alternative or new definition.

Abutter - Direct abutters, including land owners across the street.

AGENT - An Agent of the Board of Health is any person authorized by the Board to act under these regulations. The Agent may not vary these regulations without specific approval of the Board of Health.

BOH - Norfolk Board of Health

DEP - Massachusetts Department of Environmental Protection.

DSCP - Disposal System Construction Permit

FORM 1 - Form required for Board of Health approval for issuance of a building permit for additions or change of use.

LTAR - Long Term Acceptance Rate for leaching area sewage loading.

OSDS - On Site Wastewater Disposal System

### **IV. GENERAL REGULATIONS**

**1. PERMIT REQUIREMENTS:** No on-site system or facility to be used for treating, neutralizing, stabilizing, or disposing of wastewater from homes, public buildings, commercial or industrial buildings, or any other types of establishments, shall be located, constructed, altered, repaired, or installed, until a Disposal System Construction Permit for such work shall have been issued by the Norfolk Board of Health.

**2. RESPONSIBILITY:** All persons carrying on an activity regulated by the State Environmental Code and local regulations will be held strictly accountable for complying with the provisions of this instrument. Issuance of a Board of Health Permit does not relieve the permittee of the responsibility to conform to the State or Norfolk Board of Health regulations.

**3. CONSTRUCTION:** No building construction shall proceed until the Board of Health has issued a Disposal System Construction Permit (DSCP) or otherwise approved the construction by use of "Form 1", on forms as provided by the Board of Health.

**4. POSSESSION OF PLAN AND PERMIT:** All installers of On-Site Wastewater Disposal Systems shall have the Board of Health Disposal System Construction Permit and copy of the approved plan in their possession on the site while installing the system, to be available for the Board of Health Agent at the time of any inspection.

**5. APPROVAL OF BOARD OF HEALTH:** No new homes or any other buildings or facilities which utilize an on-site wastewater system, shall undergo a change of use, or increase in design flow, shall be occupied, nor shall any occupancy permit be granted for such, until the Board of Health has approved such dwelling or other building or facility for the adequacy of wastewater disposal, water supply, and storm water drainage. For additions, or changes to existing single family homes, Form 1 must be completed and submitted to the Board of Health for approval before obtaining a Building Permit.

**6. ON-SITE WASTEWATER SYSTEM LOCATION:** In determining a suitable location for a system, consideration shall be given to the size, shape, and slope of the lot, hydrogeologic conditions, natural and adjusted drainage, existing and known, future water supplies, depth to ground water, and impervious material, as well as room for future expansion of the system.

**7. TEMPORARY FACILITY:** All builders and contractors must provide sanitary facilities for their employees at their work sites.

**8. INSPECTION - SYSTEM UNCOVERED:** Every OSDS must be inspected by the Board of Health Agent before it is covered. All manhole and clean-out covers and inspection holes over baffles must be loose for easy removal. Heavy covers shall be removed from the tank before inspection. No tar or asphalt or other sealant should be placed on the top of the septic tank or distribution box.

**9. SYSTEM PUMPERS AND CARTERS:** Chapter 111, Section 31D, of the Massachusetts General Laws stipulates that system pumpers and carters must have permit issued by the Norfolk Board of Health. All system pumpers engaged in this business within the Town of Norfolk must obtain a permit for each vehicle used for this purpose. Permits may be applied for at the Board of Health office during normal business hours. Permits will be issued for the calendar year, on a per vehicle basis, subject to an annual fee as may be set from time to time by the Board of Health. Only system pumpers having valid permits and having filled out and signed the required Board of Health form for their effluent will be allowed to discharge at the town of Norfolk approved facility. Failure to comply with these regulations may result in an enforcement action as provided in the State Environmental Code.

**10. CONSTRUCTION INSPECTION AND SOIL TESTING LIMITATIONS:**

Inspections shall not be made when snow covers the ground, nor shall soil tests be permitted in frozen soil.

**11. ABANDONMENT OF ON-SITE SEPTIC SYSTEMS:** Abandonment of on-site systems shall be performed in accordance with the requirements of the Board of Health to be established on a case by case basis.

**VI. GENERAL PROCEDURES FOR OBTAINING A DSCP AND CONSTRUCTION OF OSDS.**

1. The applicant shall complete an application for Site Evaluation, on a form provided by the Board of Health, at the Board of Health Office. An application fee, as set by the BOH from time to time, must be paid at this time.

2. The applicant shall secure the services of a State Approved Soil Evaluator and a Registered Professional Engineer or Registered Sanitarian when applicable, qualified in matters of wastewater treatment and disposal who will prepare the design for the proposed system or facility and shall conduct or otherwise arrange for the necessary soil and other tests required for proper designs. The Soil Evaluator

or Engineer or Sanitarian shall contact the Board of Health Office for the purpose of obtaining an appointment such that the soil tests shall be performed in the presence of the Board of Health agent at a mutually acceptable time.

3. The site and soil evaluation shall be performed in accordance with Title 5 and the instructions described in Section VII(2) of these regulations.
  4. The design engineer or sanitarian shall prepare plans for the proposed system and submit to the applicant.
  5. The applicant shall complete an application for a Disposal System Construction Permit on a form provided by the Board of Health and shall submit four (4) copies of the plans to the Board of Health Office, along with an application fee as set by the BOH from time to time. Plans shall not be considered submitted or stamped "received" until all required items are submitted.
  6. The Board of Health Agent/Engineer then reviews the plans. If the plans comply with the necessary regulations and are in accordance with good engineering practice, a permit is issued. one (1) copy of the approved permit and three (3) copies of the plan, stamped "APPROVED" will be returned to the applicant. The applicant then may apply for a Building Permit from the Inspector of Buildings where applicable.
  7. If the plan is not complete or does not comply with state or Board of Health Regulations in all respects, it will be returned to the applicant, who must have his designer correct the plan as required. An additional fee, as set by the BOH from time to time, shall be required for each time the plan is returned for revision, except for the first one.
  8. Prior to any construction of a system, the location and elevation of the top of the foundation of the structure to be served, and also the location of any on-site well where applicable, shall be located by a Registered Land Surveyor or Registered Professional Engineer, and shall be submitted to the Board of Health on a plan bearing the seal and signature of the Registered Land Surveyor or Registered Professional Engineer, as well as the date. A copy shall also be submitted to the Norfolk Conservation Commission.
- It is strongly recommended that this be accomplished when the foundations forms are in place in order to minimize the expense and inconvenience of correcting an improper installation. It is the responsibility of the applicant, the designer, and the installer to examine the plan to assure themselves that the house is in the right place and the system can be constructed as shown on the approved plan. In such case as the structure is not as shown on the approved design plan, a new, revised plan shall be required. An application fee, as set by the BOH from time to time, shall be required.
9. Construction of such systems or facilities shall be made by firms or individuals who have obtained a Disposal System Installer's Permit from the Board of Health to perform such services. The installer shall notify the Board of Health at least three (3) working days prior to start of construction.
  10. Board of Health Disposal System Construction Permits are valid only for the person or firm to whom it is issued. If there is a change in applicant, a transfer permit must be obtained from the Board of Health. The DSCP shall expire after three (3) years from date of initial issuance, if the system is not completed.

11. No liability is incurred by the town of Norfolk or its agent by reason of any approval or any advice given for wastewater disposal or treatment system. Approval by the town is based on plans and specifications supplied by the applicant. No guarantee is intended or implied by reason of any approval given by the Norfolk Board of Health or its Agent.

## **VII. SPECIFICATIONS FOR SYSTEMS**

**THE BASIC SPECIFICATION FOR SUCH SYSTEM DESIGNS SHALL BE TITLE 5 OF THE STATE ENVIRONMENTAL CODE, EXCEPT AS PROVIDED OTHERWISE IN THESE RULES AND REGULATIONS, WHICH INCLUDE ADDITIONAL AND/OR MORE STRICT REQUIREMENTS.**

The plans and specifications shall contain the following information, as well as that required by Title 5, and also as contained in the "Checklist", which is provided as designer guidance in the appendix to these regulations.

**1. PLANS:** Plan of system area drawn to a scale of 1 inch = 20 feet, showing the source of water supply; the location of house, garage and/or other structures; layout and profile of sewage disposal system; location of water line, and other under-ground utilities (where applicable), driveway, foundation drain (where needed), manholes and clean-out plugs; and location of any streams, seasonal brooks and swales, brooks, great ponds, rivers, swamps, drains, and any other wetland resource areas within 150 feet of the sewage disposal system.

All on-site wells or other known water supplies within 200 feet for dwellings or other facilities having design flows of 1,000 gallons per day or less, of the proposed leaching area or expansion area shall be located and shown on the plan. The distance shall be 500 feet for dwellings or other facilities having design flows greater than 1000 gpd. All public wells within 500 feet of any proposed OSDS shall be shown.

The plan shall include a statement that there are no public wells within 500 feet; private wells within 200 feet; bordering vegetated wetlands within 150 feet; inland banks within 150 feet; surface waters within 150 feet; surface drains within 50 feet; open, surface, subsurface or foundation drains which intercept high ground water within 50 feet; vernal pools within 100 feet; storm drainage leaching catch basins or dry wells within 50 feet; perennial stream within 200 feet, and any boundary of a regulatory floodway or 100 year flood within 150 feet; unless as shown on the plan.

Elevations shall refer to Mean Sea Level (NGVD Datum of 1929), unless specifically otherwise allowed by the Board of Health Agent.

Elevations shall be obtained by direct measurement in the field in the areas of the OSDS and the various proposed structures on the property. Elevations obtained by aerial mapping shall not be allowed in those areas.

The plan shall show spot elevations, including elevation of road, basement floor, top of foundation, garage floor and elevation schedule for the sewage disposal system including invert elevations at house foundation, entrance to septic tank, entrance to distribution box and leaching components including the bottom of the leaching area, and the finished grade of the system construction area. The high ground water elevation beneath all components of the septic system and the facility to be served shall be shown. A benchmark shall be provided within 50 feet of the leaching area and shall be shown on the plan.

Where "stepped" systems are proposed, the plan shall include a cross-section showing the existing grade, the proposed grade, the trenches or other system configuration, the high ground water, and ledge or limiting soil layer.

For new construction, in addition to the layout of the sewage disposal system, a suitable area shall be designated as being reserved for such expansion of the disposal system as may become necessary. The area so designated shall provide for a 100% relocation of the leaching area, and be in an area suitable for sewage disposal in accordance with these regulations. Complete design of such expansion leaching structures shall be included.

Sufficient additional elevations shall be shown, including final grades at each of the four corners of the building, to indicate clearly how the surface drainage is to be handled. In some cases it shall be necessary to consider effect on nearby properties. No "low spots" that allow "ponding" of rainfall runoff shall be permitted.

Materials to be used for the building sewer and all distribution pipelines shall be specified by the designer and noted on the plan.

All sewage disposal system designs for dwellings shall include provisions for proper number of bedrooms, dishwasher, automatic clothes washer and garbage grinder, except that upgrades of existing failing systems shall not be required to include the provision for the garbage grinder provided that a suitable document is recorded in the Norfolk County Registry of Deeds which signifies that no garbage grinder shall be installed or used in the dwelling on the subject property.

All plans submitted must be legible, and must also show the name and address of the applicant for whom plans have been prepared, the name and address of the owner of the property, date, scale, location of lot, street number, lot number, Assessor's map and lot number, and shall be signed by and stamped with the seal of the "Registered Professional Engineer" or "Registered Sanitarian" responsible for the design .

## **2. PERCOLATION AND WATER TABLE DATA**

Percolation tests may be conducted at any time of the year, unless that time period is suspended by a vote of the Board of Health, because of excessively dry or freezing weather conditions.

All Soil testing to determine maximum ground water elevation for septic system design and permits for a given year for new construction must be conducted after December 20th and completed before May 29th, unless that time period is extended or shortened by a vote of the Board of Health. Soil evaluators shall place monitor wells in all deep test pits. Ground water levels shall be measured by the soil evaluator in such monitor wells between the 22nd and 29th of a month following the test hole analysis. All water levels measured are subject to a seasonal ground water adjustment. This shall be as determined by the Board of Health using the method as described in "U.S. Geological Survey, Water Resources Investigations, Open File Report 80-1205--Probable High Groundwater Levels in Massachusetts", or by the method of soil morphology as determined by the Soil Evaluator with the agreement of the Board of Health agent. Other adjustment values may be allowed by the Board on a case by case basis if supported by clear and convincing technical evidence to support such proposal by the soil evaluator.

For new construction, applications for percolation testing and high ground water testing during the ground water season shall be submitted prior to April 1st. Testing shall not be performed during the current year for the applications received after that date.

A completed soil test application shall consist of the application form, the required fee and a drawn to scale locus plan, no smaller than drawn on a scale of 50 feet to an inch, showing the proposed lot, the proposed location of the test holes and shall indicate generally the location of any water supplies, disposal systems, or wetlands or perennial streams within 200 feet of the lot being tested as well as the distance to the nearest intersecting street. It shall show the location of any public water supply well within 500 feet. If there are no such water supplies, disposal systems or wetlands within that distance, it shall be so stated on the locus plan.

At the subject site at the time of testing, the soil classification as shown on the USDA NRCS shall be provided to the Board of Health agent. There shall be a minimum of two (2) deep test pits evenly distributed within the limits of the proposed leaching area and integrated expansion area, plus any others that might be designated by the Board of Health Agent, either at the time of testing or during the plan review period. If ledge or other severe soil conditions are encountered, it may be necessary to dig additional test holes, including, but not limited to, one at each corner of the proposed leaching area and one in the center, to assure consistent conditions throughout. An additional test pit shall be dug at the location of the proposed new dwelling or otherwise habitable structure to establish the elevation of the High Ground Water at that location. Deep test pits shall be dug to a minimum depth of four (4) feet below the bottom of the proposed leaching area, and in no event less than ten (10) feet deep, except in cases of refusal at the test hole location. The results of the deep tests shall be shown in a graphical "log" format, showing soil strata with elevation, elevation of the ground surface, elevation of the bottom of the hole, elevation of any ledge or refusal encountered, the elevation of ground water if encountered, or indicate "none encountered" when applicable, the date of the test and the name of the Board of Health representative who observed such test. Deep test pit results shall not be accepted or observed by the Board of Health at other times of the year from that designated above, except for the upgrade of systems failing to protect the public health or safety or the environment.

A minimum of two (2) stabilized percolation tests shall be performed at an elevation which is representative of the soil extending for a depth of four (4) feet below the leaching field and along its side walls. Additional tests shall be required, either at the time of testing or during the plan review period, when, in the opinion of the Board of Health Agent, the percolation rate is not consistent or similar between the two tests, when large disposal areas are required or where the soil structure varies. Percolation tests shall be conducted in accordance with Title 5 of the State Environmental Code with the following modifications:

- a. Percolation rates shall be expressed to the nearest integer minute per inch.
- b. The overnight soak procedure as described in Title 5 shall be required in all cases where the percolation rate is slower than fifteen (15) minutes per inch.
- c. The results of the percolation tests shall be tabulated on an inch by inch basis and that data shall be inscribed on the design plan. If the rate of water drop is not uniform, in the opinion of the Board of Health or its Agent, the test shall be repeated until such uniform rate is achieved.
- d. The sewage application rates as designated in Title 5 shall not be interpolated. Measured values shall be rounded up to the next percolation rate value as stated in Title 5.

All tests shall be observed by the Board of Health Agent.

All tests shall be performed in natural soil that has not been disturbed or altered by previous filling, excavation, blasting or other means. All test pits shall be adequately protected by the applicant to prevent accidents to both humans and animals. The pits shall not be filled in until they have been inspected by the Board of Health Agent. After the tests are completed and all data has been recorded, the test holes shall be filled. Test holes shall not be left open overnight.

In addition to the percolation tests, grain size analysis of the soil shall be required whenever the design flow is greater than 1000 gallons per day, or otherwise deemed necessary by the Board of Health agent to verify the soil classification.

### 3. SEPTIC TANKS

#### A. The maximum liquid depth of septic tanks shall be as follows:

- Tanks 2000 gallons or less - 5 feet
- Tanks >2000 gallons up to 4000 gallons - 6 feet
- Tanks > 4000 gallons - 7 feet

#### B. Septic tanks shall have minimum liquid capacities as follows:

##### (1) SEPTIC TANKS FOR SINGLE FAMILY DWELLINGS

Septic tanks for new dwellings shall be designed to incorporate the use of a garbage grinder, whether or not such an installation is anticipated at the time of the application of the DSCP.

Minimum liquid capacity for any dwelling facility shall be 1,500 gallons.

##### (2) SEPTIC TANKS FOR MULTIPLE DWELLINGS

Septic tank sizes for multiple dwelling facilities shall be the sum of the minimum requirement for each individual unit in accordance with the following table.

<b>No. of Bedrooms</b>	<b>Minimum liquid Capacity (Gallons)</b>
*1 in multiple dwellings only	300
*2 in multiple dwellings only	600
*3 in multiple dwellings only	900
*4	1,200
*5	1,500

For each additional bedroom in excess of 5, add 220 gallons.

- (3) Septic Tanks for Restaurants shall have a liquid capacity 300% of the daily flow as estimated from Title 5.
- (4) Septic Tanks for Schools shall have a liquid capacity 200% of the daily flow as estimated from Title 5.
- (5) If any septic tank or distribution box is located under pavement, all manholes shall be extended to finished grade with metal frame and cover. The manhole shall be constructed to be supported in such a manner as to not place loading on the distribution box or outlet piping which will result in misalignment of the outlets.
- (6) All concrete manhole covers shall be provided with suitable handles to facilitate removal.
- (7) Inlet and outlet tees shall be sanitary tees of the piping into and out of the tank respectively. Built in tees shall not be allowed.

#### **4. LEACHING FACILITIES:**

- A. General: Leaching trenches shall be used.
- B. Leaching galleys, chambers, or similar types of alternative leaching system structures shall only be allowed if proposed in a trench configuration, along the longitudinal axis of the galley, chamber, or other structure.
- C. Leaching beds or fields or chambers in a bed configuration will not be approved for new construction. For unusual necessitating circumstances, such as for replacement of a "failed" leaching area on a lot that has insufficient space to provide for trenches, bed configurations may be used. If such bed configurations are used, 75% of the bottom area shall be considered leaching area for chambers, and 50% of the bottom area shall be considered leaching area for leaching beds or fields. No credit shall be given for sidewalls.
- D. All single family dwellings shall be designed for a minimum for 3 bedrooms. A system may be designed for 2 bedrooms if a deed restriction, with proof of recording at the Registry of Deeds, limiting the use of the dwelling to 2 bedrooms is provided.
- E. Where vents are required by Title 5, they shall be equipped with odor control in the form of an activated carbon filter with capability for easy replacement of media. Vent pipe headers for trench systems shall be, at a minimum, above the crown elevation of the end of the distribution piping.
- F. Each leaching trench, or other leaching area type, shall be connected to the distribution box so that each distribution box outlet discharges to equal areas of leaching interface.
- G. The soil placed as backfill over the system shall be a minimum of 9 inches, excluding topsoil. It shall be clean and free of stones and boulders greater than 6 inches in size. Tailings, clay, or similar materials shall be prohibited. A final cover of a minimum of 4 inches of topsoil, capable of sustaining perennial vegetative growth, shall be placed over the 9 inch soil layer. The leaching area and fill sideslopes shall be planted or suitably mulched for erosion protection.

- H. Perforated observation pipes shall be installed to the bottom of the leaching interface of all segments of a leaching area, extended to within 6 inches of finished grade with a cap, and shall be available for inspection when required. The locations of the observation pipes shall be shown on the as-built plan.
- I. All trench and galley systems of stone, concrete, plastic, or other approved materials shall be provided with a perforated pipe throughout the trench length for effluent distribution or, where incompatible with galley construction, shall be provided with multiple effluent inlets at a spacing not greater than 20 feet.

## **5. LTAR - EFFLUENT LOADING RATES**

The listed Title 5 effluent loading rates apply only to settled sanitary sewage or septic tank effluent of typical or normal strength. Other wastewaters, such as from restaurants or supermarkets or nursing homes as examples, may have strengths of Biochemical Oxygen Demand or Total Suspended Solids three times or greater than that of normal strength sanitary sewage. The loading rates required for such stronger wastewaters shall be determined on a case by case basis depending on the expected concentration of 5-Day Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS). Expected concentrations can be established by sampling and analysis of wastewaters from similar existing facilities, if no other suitable data is available. The modified loading rate for stronger wastewaters at the respective percolation test rates shall be decreased proportionally for those parameters, and in no case shall be such that the loading rate exceeds  $0.92 \times 10^{-3}$  pounds of BOD per day per square foot or  $0.34 \times 10^{-3}$  pounds of TSS per day per square foot of horizontal leaching surface (Bottom Area only).

## **6. EXPANSION AREA AND TRENCH SPACING**

For new construction, the minimum clear distance between leaching trenches shall be ten (10) feet. The area between the trenches shall be utilized for the expansion area, with the exception of one of the expansion area trenches.

## **7. MINIMUM SETBACK DISTANCES AND VERTICAL CLEARANCE**

No sewage disposal system leaching area shall be constructed within 75 feet of any watercourse, pond, stream, brook, river, swamp, marsh, or 50 feet from any wetland as defined in state regulation 310 CMR 10.00 - 10.99 of the Wetlands Protection Act.

Such distance are considered minimum and may be increased for multiple dwellings or higher volume sewage discharges. This distance shall be determined by the Board of Health on an individual basis, depending upon the particular circumstances.

The minimum setback of a leaching area from a foundation or basement drain which penetrates into the water table shall be 25 feet. If a foundation drain is planned or existing it must be shown on the plan along with its discharge point. Foundation drainage systems shall not terminate below the surface of the ground.

The vertical distance from any leaching surface of a subsurface disposal system to bedrock, ledge, fractured ledge or impervious soil shall be a minimum of 6 feet for soils having a percolation rate of 2 minutes per inch or less and 5 feet for soils having a percolation rate of greater than 2 minutes per inch.

All system piping shall be a minimum of six (6) inches above High Groundwater Elevation.

Setback from private water supply wells shall be in accordance with the following:

The minimum setback from the well shall be determined by the soil percolation rate and the vertical clearance of the leaching area above the high ground water (HGW) as follows.

	Distance from well (Feet)	Height above HGW (Feet)
Percolation Rate less than 5 min/inch	150	4
	125	5
	100	6
Percolation Rate 5 to 10 min/inch	125	4
	100	5
Percolation Rate Greater than 10 min/inch	100	4

For all systems having a design flow of 2000 gallons per day or greater, the separation to ground water shall be calculated by adding the effect of ground water mounding to the high groundwater elevation. This calculation requires, at a minimum, the determination of depth to ground water, thickness of aquifer, and soil permeability as determined by an in-situ field borehole permeability test.

**8. REVISION TO DESIGN:** The septic system shall be constructed in strict accordance with the approved plan. No changes may be made without prior written approval of the system designer and the Board of Health.

**9. VERTICAL CLEARANCE TO WETLANDS AND FLOOD PLAINS:** No soil absorption area and no basement floor shall be constructed less than 2 foot above the 100 year flood level in any area subject to periodic flooding. No basement floor shall be constructed less than 2 feet above the high ground water elevation.

**10. PERMIT IN LANDS BORDERING WETLANDS OR FLOOD PLAIN:** The Board of Health shall not issue a permit for an on-site disposal system that requires any construction or filling or grading within 150 feet of any wetland area or floodway or 100 year flood boundary without written concurrence from the Conservation Commission that any such wetland line or floodway or flood boundary is correct as represented on the plan.

**11. FILLING OF FLOOD PLAIN:** If filling of floodplain is to be performed for construction of the facilities shown on the Disposal System Construction Permit, compensatory flood storage area and volume, satisfactory to the Board of Health, shall be provided.

**12. SYSTEM CONSTRUCTION INSPECTIONS:** Inspection requests shall be made to the Board of Health office by the installer, a minimum of 24 hours before the scheduled time for inspection. Ordinarily there shall be an inspection upon excavation of an area if required to be filled, when the construction has

been completed except for backfilling, and when the finished grading of the lot is completed, and at any other time deemed appropriate by the Board of Health agent.

The entire system, including the building sewer, shall remain exposed for the inspection. All manholes covers shall be removed. The distribution box shall be filled with water up to the level of the outlet pipe inverts. In addition, a 5 gallon container of water shall be readily available at the site of the distribution box for testing purposes. A water supply hose shall not substitute for the 5 gallon container. Where plastic inserts are to be used, the flow test shall be conducted by the Board of Health Agent prior to their installation to assure correct pipe flow and alignment.

At the time of final grade inspection, the septic tank manhole covers shall be exposed to verify depth.

### **13. INSTALLER SKETCH**

**PRIOR TO FINAL BACKFILL INSPECTION:** The installer shall submit to the Boards of Health a sketch showing dimensions from the building corners to the septic tank opening, distribution box, and ends of trenches or centers of pits. Also, depths of all access covers shall be stated.

### **VIII. ALTERNATIVE, INNOVATIVE AND SHARED SYSTEMS**

For alternative, innovative, or shared systems, the Board of Health may establish any special conditions necessary to ensure adequate protection of public health and safety and the environment, and to ensure appropriate evaluation and testing. Such conditions may include without limitation: specification of site of effluent characteristics; flow limitations; monitoring; testing; and reporting requirements; a requirement that a certified operator operate the system; or financial assurance mechanisms. The Board of Health may also specify changes or modifications of requirements otherwise applicable to conventional systems that are appropriate for use of the alternative, innovative, or shared systems.

Except for upgrades for "failed" systems, construction or use of shared systems are prohibited until, in the opinion of the Board of Health, sufficient financial and management safeguards are available to assure the protection of the public health, safety, and the environment in the Town of Norfolk.

### **IX. INTERCEPTOR DRAINS**

Lowering the water table through the use of interceptor or curtain drains to permit marginal or unacceptable conditions to be improved to meet minimum requirements for the installation of subsurface sewage disposal systems is prohibited by the Board of Health.

## **X. SYSTEMS IN FILL**

1. DEWATERING: Any system fill shall be placed upon a dry or dewatered, scarified area. When the excavation for the septic system to be constructed penetrates to a depth below the water table, it shall be necessary that the design engineer devise a procedure to accomplish the necessary dewatering and placement of the system fill. Such plan shall be submitted to the Board of Health for approval prior to any implementation. The Conservation Commission shall also be contacted for any conditions that might be required by the Commission for this operation.

It shall be necessary that the design engineer be present on the job site during the dewatering operation and the placement of fill below the elevation of the water table in order to supervise the operations. The area to be filled shall be dewatered and scarified. The fill material shall be dumped at the edge of the excavation and then pushed by crawler tractor or cast by an excavator backhoe onto the prepared area. Upon completion of the placement of the fill as described, the engineer shall write a letter of certification to the Board of Health to the effect that the fill has been placed in accordance with the prescribed procedure. The Board of Health office shall be notified at least 48 hours in advance as to when the operations will be conducted.

### **2. IMPERVIOUS BARRIERS AND RETAINING WALLS.**

The following may be substituted for reinforced concrete retaining walls and impervious barriers where appropriate and designed by a Registered Professional Engineer, who shall prepare an as-built plan of the wall or barrier and certify its construction.

A. For retaining walls, A structural component consisting of concrete blocks or pressure treated structural timbers combined with a backing of a minimum of 30 mil high density polyethylene plastic (HDPE) extending to the elevation of the ground water.

B. For buried impervious barriers, a structural component consisting of concrete blocks or a plain concrete wall combined with a backing of a minimum of 30 mil high density polyethylene plastic (HDPE) extending to the elevation of the ground water.

## **XI. ADDITIVES TO SEPTIC SYSTEMS, TANKS, OR CESSPOOLS**

No chemical or biological system cleaner additive is allowed in the septic systems, septic tanks, or cesspools in the Town of Norfolk unless approval is granted, in writing, by the Town of Norfolk Board of Health.

In order for the Board of Health to make a decision regarding the approval for such use, the applicant shall provide the following:

1. Provide laboratory or other analyses to clearly identify the constituents of the product.
2. Provide technical data which establishes the required quantities or dosages to be used for various applications, as well as the mechanism by which the product functions.
3. Case histories which demonstrate that any beneficial effect is the result of the product rather than other circumstances.

4. Description and quantities of any and all residual products as a result of the treatment.
5. Estimated time span over which the septic system or cesspool recovery may be expected before additional measures must be taken.
6. Provide data which clearly and convincingly demonstrates that the process is not injurious to the public health, will contaminate ground water, or will otherwise be harmful to public or environmental health.

## **XII. PUMP SYSTEMS**

### **1. GENERAL:**

- a. The design engineer shall provide complete specifications for the pump, and also include the name of the manufacturer, performance curves, as well as calculations for the total dynamic head and the corresponding pump flow rate in gallons per minute. The pump rate must be shown to provide a minimum velocity in the force main piping of 2.5 feet per second.
- b. The pump installation shall include a control panel, which includes, for each pump, a Manual On-Manual Off-Automatic On-Off switch, visual alarm, audible alarm, and audible alarm silencer switch. There shall be a minimum of 3 switches in the pump chamber.
- c. Provision shall be included to drain the force main after each pump cycle to avoid freezing. Also, the force main shall have a constant uphill pitch from the pump to the point of discharge, unless other measures acceptable to the Board of Health agent are provided to prevent freeze-ups.
- d. The alarm shall be connected to a separate electrical circuit from the pump.
- e. The pump electrical system shall be equipped with a transfer switch to allow connection to a portable generator.
- f. Prior to inspection of the pump system, the system designer shall conduct a flow rate test for each pump and certify such in writing to the Board of Health. The designer shall provide drawings and complete calculations showing the actual inside dimensions of the pump chamber, the on-off elevations of the switches, the volume to be pumped for each cycle, the actual total dynamic head, the pump performance curve (Total Dynamic Head vs. Flow Rate), and the manufacturer's stated flow rate for the actual total dynamic head calculated.
- g. The system installer shall cause the pump electrical system to be inspected and approved by the electrical inspector.
- h. The pump shall be located beneath the access manhole of the pump chamber.
- i. The access manhole shall be constructed to finished grade with a secure cover that is either lockable or extra heavy weight to prevent unauthorized access.
- j. The system owner shall be provided with informational brochures and advice for maintenance and repair of the pump system by the installer.

## 2. PUMPING PRIOR TO SEPTIC TANK

If pumping is permitted prior to a septic tank, the minimum septic tank capacity shall be 1500 gallons. and the outflow of the septic tank shall not exceed 15 gallons per minute. For a standard 1500 gallon septic tank, with a depth of approximately 4 feet, the maximum time per on-pump cycle to achieve this for pumping rates higher than 15 gallons per minute is as follows:

<b>Pump Rate (gpm)</b>	<b>Maximum On-Time (minutes)</b>
20	5.
30	2.5
40	1.8
50	1.4
60	1.1

Cycle times for other size septic tanks shall be determined on a case by case basis. The pump flow rate shall be less than 60 gallons per minute at the total dynamic head for non-grinder pumps and shall be less than 20 gallons per minute at the total dynamic head for grinder pumps.

At a minimum, the submittal and installation requirements for pumping less than 25% of the design daily flow shall include items designated in Section XII.1.a. For pump systems serving 25% of the design flow or greater, all requirements of Section XII.1 shall be met unless otherwise allowed by the Board of Health agent.

## **XIII. REQUIREMENT FOR ADVICE TO OCCUPANTS**

Prior to the issuance of a Certificate of Compliance by the Board of Health, the applicant or the system installer shall:

- A. Provide a permanent chart at a location in the dwelling near the building sewer exit location, which shows the as-built location on the lot of the septic tank, distribution box, leaching area, and well where applicable.
- B. The chart shall also contain a written advisory as follows: "The Board of Health recommends that the septic tank be inspected annually. The septic tank shall be pumped when the depth of the sludge at the bottom of the tank plus the depth of scum at the top of the tank are one-third or more of the total tank liquid depth below the outlet pipe."

## **XIV. ADDITIONS, ALTERATIONS, CHANGES OF USE, AND INCREASES IN DESIGN FLOW OF EXISTING BUILDINGS.**

### **1. REQUIREMENT FOR FORM 1.**

No building construction for additions or alterations to existing buildings served by on-site wastewater disposal systems, or changes of use, or increases in design flow shall be allowed or shall proceed until the Board of Health has reviewed the proposal and issued an approval. For these situations, the applicant shall complete a "Form 1" and pay an application fee as may be set by the BOH from time to time.

## **2. MINOR ADDITIONS TO SINGLE FAMILY DWELLINGS.**

The following will normally receive BOH approval as long as the required setbacks are observed. No septic system modifications will be required unless there is an on-going sewage overflow. No septic system inspection will be required except for location purposes if its location is not known.

Unfinished porches, breezeways, windows or chimneys;  
Enclosure of existing porch or breezeway, not to be a finished room;

Detached accessory structures such as tool sheds, storage buildings, garages, gazebos, and cabanas;

Bathrooms, as long as the wastewater flows by gravity to the septic tank, and no pumping is involved.

Interior room revisions with no change in number of rooms. This does not include construction of additional bedrooms, additional kitchens, or additional rooms in an existing larger space.

## **3. FLOOD, FIRE, OR NATURAL DISASTER**

No septic system upgrade will be required, provided that there is a direct replacement, with no increase in gross floor area, and with no significant change in foundation, and provided that there is not an on-going sewage overflow.

## **4. EXTENSIVE REHABILITATION OF AN UNOCCUPIED DILAPIDATED STRUCTURE**

It will be required that the septic system be upgraded to present day standards.

## **XV. VARIANCE PROCEDURES**

A. The Board of Health may vary the application of any of these Board of Health rules and regulations with respect to any particular case when, in its opinion, the enforcement thereof would be manifestly unjust, considering all the relevant facts and circumstances of the individual case; and the person requesting the variance has established that an equivalent level of public health and environmental protection will otherwise be provided without strict application of the provisions for which the variance is sought.

For new construction, enforcement of the provision from which a variance is sought must be shown to deprive the applicant of substantially all beneficial use of the subject property in order to be manifestly unjust.

Every variance request shall be in writing and shall make reference to the specific regulation for which a variance is sought, and a statement which provides evidence of the conditions stated above.

No application for a variance shall be considered complete until the applicant has notified all abutters by certified mail, return receipt requested, at his/her own expense at least ten days before the Board of Health meeting at which the variance request will be on the agenda. The notification shall reference the specific regulation from which the variance is sought, a statement of the required standards, and the date, time and place where the application will be discussed.

B. Any variance allowed by the Board of Health shall be in writing. Any denial of the variance shall also be in writing and shall contain a brief statement of the reasons for denial.

When, in its opinion, it is in the public health interest, the Board may require that the variance granted be placed on record by a document filed at the Registry of Deeds.

C. Any variance or other modification authorized to be made by these regulations may be subject to such qualification, revocation, suspension or expiration as the Board of Health expresses in its grant. A variance or modification authorized to be made by these regulations may otherwise be revoked, modified or suspended, in whole or in part, only after the holder thereof has been notified in writing and has been given an opportunity to be heard.

## **XVI. SPECIAL INDUSTRIAL AND COMMERCIAL REQUIREMENTS**

For industrial or commercial projects or for any other project except for the construction of single and two family dwellings, as well as any industrial or commercial operations conducted on residential dwelling property of any size, and also to any hobbyist operation which utilizes materials on the Massachusetts Substance

List, septic tanks serving any such facilities shall have the contents of the septic tank serving the facility sampled and tested on an annual basis for volatile organic compounds (EPA 624 or equivalent) and pH, as well as any other parameters required by the Board of Health on a case by case basis, including but not limited

to hydrocarbons, heavy metals, pesticides, semi-volatile organics, and non-volatile organics. The sampling shall be performed and the results submitted to the Board of Health without having to be requested. The sample shall be taken in the time period of March, April, or May of each year and the results submitted to the Board of Health prior to July 1st. No floor drains from such facilities, except those serving only sanitary facilities, shall be discharged to an OSDS.

## **XVII. ENFORCEMENT**

A. The provisions of Title 1 of the State Environmental Code shall govern the enforcement of these regulations.

**XVIII. SEVERABILITY:**

If any part or portion of these Rules and Regulations be adjudicated as invalid, the adjudication shall apply only to the material so adjudged, and the remaining Rules and Regulations shall be deemed valid and of full force and effect.

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**Date of Adoption: 02/11/97**

**NORFOLK BOARD OF HEALTH**

\_\_\_\_\_  
Thomas R. Gilbert, Chairman

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Laurence M. Magner, Clerk

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Albert G. Andersen