310 CMR: DEPARTMENT OF ENVIRONMENTAL PROTECTION

310 CMR 15.000: THE STATE ENVIRONMENTAL CODE, TITLE 5: STANDARD REQUIREMENTS FOR THE SITING, CONSTRUCTION, INSPECTION, UPGRADE AND EXPANSION OF ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS AND FOR THE TRANSPORT AND DISPOSAL OF SEPTAGE

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15.001: Purpose, Authority and Related Provisions

(1) The purpose of Title 5, 310 CMR 15.000, of the Massachusetts Environmental Code is to provide for the protection of public health, safety, welfare and the environment by requiring the proper siting, construction, upgrade, and maintenance of on-site sewage disposal systems and appropriate means for the transport and disposal of septage.

(2) 310 CMR 15.000 is promulgated pursuant to the authority of M.G.L. c. 21A, § 13.

(3) The provisions of 310 CMR 15.000 should be read together with 314 CMR 5.00 and 6.00 which are applicable to all discharges to ground of sanitary sewage.

(4) Title 5, 310 CMR 15.000, should be read together with M.G.L. c. 21 §§ 6 through 53, M.G.L. c. 111, §§ 17, 27, 27A, 27B, 27C, 30, 31, 31A, 31B, 31C, 31D, 31E, 122, 124, 125, 125A, 127, 127A, 127P, 127B and 129; M.G.L. c. 83, § 11; and M.G.L. c. 131, § 40 which contain relevant provisions.

15.002: Definitions

For the purposes of 310 CMR 15.000, the following terms shall have the following meanings, unless the context clearly requires otherwise. Terms expressed in the singular shall be construed to incorporate the plural, and vice versa, unless the context otherwise requires.

1978 Code - Title 5 of the Massachusetts Environmental Code, 310 CMR 15.000, as revised and in effect as of 1978.

15.002: continued

Acre - a unit of land measure equal to 40,000 square feet which is considered a building acre in accordance with standard real estate practices.

Agency - an agency, department, board, commission or authority of the Commonwealth or of the federal government and any authority of any political subdivision which is specifically created as an authority under special or general law. The term shall not include housing authorities permitted pursuant to M.G.L. c. 40A.

Alternative Systems - Systems designed to provide or enhance on-site sewage disposal which either do not contain all of the components of an on-site disposal system constructed in accordance with 310 CMR 15.100 through 15.293 or which contain components in addition to those specified in 310 CMR 15.100 through 15.293 and which are proposed to the local approving authority and/or the Department for remedial, pilot, provisional, or general use approval pursuant to 310 CMR 15.280 through 15.289.

Approving Authority - A local approving authority as defined in 310 CMR 15.002; or the Department, with regard to systems owned or operated by an agency of the Commonwealth or of the federal government, or on a case-by-case basis as determined by the Department to be necessary to carry out the purposes of 310 CMR 15.000.

ASTM - The American Society of Testing and Materials.

Bank (Coastal) - 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 as defined in M.G.L. c. 131, § 40 and 310 CMR 10.30(2).

Bank (Inland) - A portion of the land surface which normally abuts and confines a water body as defined in M.G.L. c. 131, § 40 and 310 CMR 10.54(2).

Barrier Beach - A narrow low-lying strip of land generally consisting of coastal beaches and coastal dunes extending roughly parallel to the trend of the coast, separated from the mainland by a narrow body of fresh, brackish, or saline water or a marsh system, as defined in M.G.L. c. 131, § 40 and 310 CMR 10.29(2).

Bedrock - Solid rock exposed at the surface or overlain by unconsolidated gravel, sand, silt and/or clay. Bedrock includes weathered or saprolitic components thereof. Bedrock types are defined and most of their areal extent are described in the "Bedrock Geologic Map of Massachusetts" published by the Department of Public Works (1983).

Bedroom - A room providing privacy, intended primarily for sleeping and consisting of all of the following:

(a) floor space of no less than 70 square feet;
(b) for new construction, a ceiling height of no less than 7'3";
(c) for existing houses and for mobile homes, a ceiling height of no less than 7'0";
(d) an electrical service and ventilation; and
(e) at least one window.

Living rooms, dining rooms, kitchens, halls, bathrooms, unfinished cellars and unheated storage areas over garages are not considered bedrooms. Single family dwellings shall be presumed to have at least three bedrooms. Where the total number of rooms for single family dwellings exceeds eight, not including bathrooms, hallways, unfinished cellars and unheated storage areas, the number of bedrooms presumed shall be calculated by dividing the total number of rooms by two then rounding down to the next lowest whole number. The applicant may design a system using design flows for a smaller number of bedrooms than are presumed in this definition by granting to the approving authority a deed restriction limiting the number of bedrooms to the smaller number.

Biological Mat - A layer composed of microorganisms and organic material located below a soil absorption system which forms on the infiltrative surface of soil and which provides biological treatment of septic tank effluent.

15.002: continued

Blackwater - Wastewater from toilets, urinals, and any drains equipped with garbage grinders.

Bordering Vegetated Wetland - shall mean any land or surface area so defined by the Massachusetts Wetlands Protection Act, M.G.L. c. 131, § 40 and 310 CMR 10.55(2).

Building - A structure enclosed within exterior walls or firewalls, built, erected, or framed of any materials, whether portable or fixed, having a roof, to form a structure for the shelter of persons, animals or property.

Building Sewer - A pipe which begins outside the inner face of a building wall and extends to an on-site system or municipal or private sewer.

Campground - A facility regulated pursuant to 105 CMR 430.00 or 105 CMR 440.00 and any campground operated by the Department of Environmental Management in a State Park.

Cellar Wall - That portion of the inside surface of the foundation wall enclosing a full basement which is above the cellar floor and below the ground surface.

Certificate of Compliance or Certificate - A certificate issued by the approving authority to the owner or operator of a system in accordance with 310 CMR 15.021 indicating that an on-site system has been constructed or upgraded, and inspected, as necessary in compliance with 310 CMR 15.000.

Certified System - An alternative system which has been approved by the Department for specified uses or site conditions pursuant to 310 CMR 15.288. Systems which have been certified may be approved for use by approving authorities without further Departmental review but subject to any limitations on their use imposed by the Department in 310 CMR 15.000.

Certified Vernal Pool - A surface water body that has been certified by the Massachusetts Division of Fisheries and Wildlife as a vernal pool in accordance with the "Vernal Pool Certification Guidelines" pursuant to the Massachusetts Natural Heritage and Endangered Species Program administered by the Massachusetts Department of Fisheries, Wildlife and Environmental Law Enforcement at the time a permit application is submitted to the approving authority.

Cesspool - A pit with open-jointed linings or holes in the bottom and/or sidewalls into which raw sewage is discharged, the liquid portion of the sewage being disposed of by seeping or leaching into the surrounding soils, and the solids or sludge being retained in the pit. Cesspools are nonconforming systems.

Coastal Beach - 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, as more fully defined in M.G.L. c. 131, § 40 and 310 CMR 10.27(2).

Commercial Sewage Waste - Non-toxic, non-hazardous wastewater from commercial facilities, including but not limited to institutional and commercial food operations, self-service laundries, and animal holding facilities.

Cover Material - The soils placed on top of a soil absorption system to bring the area to finish grade.

Crown - The top of the internal cross section of a pipe or fitting.

Deep Observation Hole - An open pit dug to permit examination of the soils and to obtain data relative to the mean annual high groundwater elevation.

Department - The Massachusetts Department of Environmental Protection.

15.002: continued

Design Flow - The quantity of sanitary sewage, expressed in gallons per day (gpd), for which a system must be designed in accordance with 310 CMR 15.203.

Designer - A registered sanitarian or a professional engineer registered in the Commonwealth of Massachusetts.

Disposal Area - The subsurface environment in which a soil absorption system or reserve area is located.

Disposal System - *see* on-site system.

Disposal System Construction Permit or Permit - Written approval issued by the approving authority in accordance with 310 CMR 15.020 authorizing the construction, upgrade or expansion of an on-site system.

Disposal System Installer - A person, licensed in accordance with 310 CMR 15.019, who constructs, repairs, or replaces an on-site subsurface sewage disposal system.

Disposal System Installer Permit - A permit issued in accordance with 310 CMR 15.019.

Distribution Box - A level, watertight structure which receives septic tank effluent and distributes it in substantially equal portions to distribution lines in a soil absorption system.

Distribution Line - A pipe which provides dispersion of septic tank effluent within a soil absorption system.

Dosing Chamber - A watertight structure placed between a septic tank and either a distribution box or a soil absorption system which is equipped with a pump designed to discharge septic tank effluent at a predetermined rate to a soil absorption system.

Dry Well - A pit with open-jointed lining or holes through which storm-water drainage from roofs, basement floors, foundations or other areas seeps into the surrounding soil.

Dune - a coastal dune, as defined in M.G.L. c. 131, § 40 and 310 CMR 10.28(2).

Dwelling - A building which is used, intended, or designed for human habitation, including but not limited, to houses, hotels, motels, apartments, mobile and modular homes and condominiums.

Effective Capacity - The liquid volume of a tank below the liquid level line.

Effluent - Sanitary sewage discharged into the environment, whether or not treated.

Emergency Repair - The repair of a system which is necessary to prevent sewage backup into a building, surface breakout of sewage, or to alleviate an imminent danger to public health, safety or the environment in accordance with 310 CMR 15.353.

Facility - Any real property (including any abutting real property) and any buildings thereon, which is served, is proposed to be served, or could in the future be served, by a system, where:

(a) legal title is held or controlled by a single owner; or

(b) the local approving authority or the Department otherwise determines such real property is in single ownership or control pursuant to 310 CMR 15.011 (aggregation).

Failed Subsurface Sewage Disposal System or Failed System - A system which fails to protect public health and safety or the environment as set forth at 310 CMR 15.303 or 15.304.

15.002: continued

Family Mobile Home Park - A facility upon which two or more mobile homes are located on a continual or seasonal non-recreational basis, regardless of whether a charge is made therefor.

Fill - The clean, uncontaminated, nonindigenous soil placed beneath, above, and/or around a soil absorption system, as specified in 310 CMR 15.201 through 15.293.

Grease Trap - A watertight structure located on a building sewer before a septic tank in which grease and oils are separated from other solid and liquid constituents of sewage and accumulated in accordance with 310 15.230.

Greywater - Any putrescible wastewater discharged from domestic activities including but not limited to washing machines, sinks, showers, bathtubs, dishwashers, or other source except toilets, urinals and any drains equipped with garbage grinders.

Groundwater - Water found in cracks, fissures and pore spaces in the saturated zone below the ground surface, including but not limited to perched groundwater.

Groundwater Quality Standards - The Massachusetts Ground-Water Quality Standards - 314 CMR 6.00.

High Groundwater Elevation - as determined in accordance with 310 CMR 15.103, 15.104, and 15.107.

(a) Inland - The elevation above which in eight out of ten consecutive years the groundwater table does not rise. This elevation is commonly, but not invariably, reached during the months of December through April.

(b) Coastal - For groundwaters influenced by tidal action, the average of the monthly spring tide high groundwater level as recorded over the most recent consecutive 19-year period.

Housing for the Elderly - a facility restricted to use by adults over 55 years of age (in accordance with 42 USC 3601 *et seq*. as referenced in M.G.L. c. 151B, § 4, paragraph 7.).

H-10 Loading - Standard H-10 truck loading as specified by the American Association of State Highway Officials.

H-20 Loading - Standard H-20 truck loading as specified by the American Association of State Highway Officials.

Humus/Composting Toilet - A self-contained system consisting of a composter with a separate toilet fixture from which no liquid or solid waste materials are discharged to the surface or subsurface environment and from which a humus/compost-like end product is produced. Such systems may be approved for use only in accordance with the provisions of 310 CMR 15.280 through 15.289.

Impervious - material having a percolation rate greater than 60 minutes per inch for reasons including, but not limited to, the presence of bedrock, schist, peat, ledge, unconsolidated material, organic matter or topsoil or subsoil.

Industrial Waste - Any water-carried or liquid waste resulting from any process or industry, manufacture, trade, business, or activity listed in 310 CMR 15.004.

Interim Wellhead Protection Area (IWPA) - An interim well-head protection area, as defined in Massachusetts drinking water regulations, 310 CMR 22.02. Generally, this is a ½-mile radius for sources whose approved pumping rate is 100,000 or greater. For smaller sources, the radius in feet is determined by multiplying the approved pumping rate in gallons per minute by 32, and adding 400.

Invert - The lowest portion of the internal cross section of a pipe or fitting.

15.002: continued

Irrigation Well - Any on-site source of groundwater not certified as a potable water supply by the local Board of Health or the Department in accordance with M.G.L. c.111, § 122A and 160 or 310 CMR 22.00.

Local Approving Authority - The board of health or its authorized agent or an agent of a health district constituted pursuant to M.G.L. c. 111, § 27 acting on behalf of the applicable board of health.

Local Upgrade Approval - an approval granted by the local approving authority allowing the owner or operator of a nonconforming system to perform an upgrade of the nonconforming system to the maximum feasible extent, all in accordance with the provisions of 310 CMR 15.401 through 15.405.

Long-Term Acceptance Rate (LTAR) - The stable rate of effluent acceptance through the biological mat of a soil absorption system measured in gallons per day per square foot (gpd/sf).

Maintenance - All activities required to assure the effective and continuous operation and performance of an on-site system including, but not limited to, solids and scum removal from the septic tank, re-leveling the distribution box, and the upgrade of one or more of the system components all as more fully described in 310 CMR 15.201 through 15.422.

Mobile Home - A single transportable structure on a chassis designed to be used, with or without a permanent foundation, as a dwelling. The support system of a mobile home is constructed so that the mobile home may be moved from time to time.

Modular Home - A prefabricated building designed and constructed to be used as a dwelling and to be transported in two or more sections to a site where the sections are permanently connected and installed on a permanent foundation.

Mottling Due to Wetness (Red Oximorphic Features) - A color pattern in soil consisting of blotches or spots of contrasting high and low chroma colors which may be an indication of the upper extent of soil saturation by groundwater.

Multiple Compartment Tank - A septic tank containing more than one settling compartment in series.

Munsell System - The system of classifying soil color consisting of an alpha-numeric designation for hue, value and chroma together with a descriptive color name accepted by the USDA/SCS as a standard procedure in soil classification.

Naturally Occurring Pervious Material - Soil exhibiting a percolation rate of 60 minutes or less per inch which was deposited on a site by natural causes and not by human action.

New Construction - the construction of a new building for which an occupancy permit is required or an increase in the actual or design flow to any nonconforming system or to any other system above the existing approved capacity. New construction shall not include replacement or repair of an existing building totally or partially destroyed or demolished if there is no increase in flow or no increase in flow above the existing approved capacity to any system.

Nitrogen Sensitive Area - An area of land and/or natural resource area so designated by the Department in accordance with 310 CMR 15.215.

Nonconforming system - any system which is not in full compliance with the standards and requirements of 310 CMR 15.000 and for which a variance or local upgrade approval has not been obtained. Nonconforming systems include, but are not limited to, cesspools, privies, failed systems, and systems with a design flow above 10,000 gpd.

15.002: continued

Observed Ground-Water Elevation - That elevation below the ground surface at which water is observed weeping, flowing from the walls of, or standing in a deep observation hole.

On-site System or Disposal System or On-site Subsurface Sewage Disposal System or System - A system or series of systems for the treatment and disposal of sanitary sewage below the ground surface on a facility.

(a) The standard components of a system are: a building sewer; a septic tank to retain solids and scum; a distribution box; a soil absorption system containing effluent distribution lines to distribute and treat septic tank effluent prior to discharge to appropriate subsurface soils; and a reserve area.

(b) These terms also include tight tanks, shared systems and alternative systems. Unless the text of 310 CMR 15.000 indicates otherwise, these terms also include nonconforming systems.

Open Drain - Any uncovered ditch or culvert used for the conveyance of surface water runoff or groundwater. A culvert that carries a water course or intermittent stream is not a surface drain.

Operate - To use or occupy a facility served by an on-site system or to own a facility where such use or occupation exists.

Operator - A person who alone or together with other persons has charge or control of any system.

Owner - A person who, alone or together with other persons, has legal title to any facility served by a system or control of the facility, including but not limited to any agent, executor, administrator, trustee, lessee, or guardian of the estate for the holder of legal title.

Percolation Test - A field test to assess the suitability of soils in a defined area for the subsurface disposal of sewage as described at 310 CMR 15.106 and 15.107.

Person - Any individual, partnership, corporation, firm, association, authority, trust or group, including, but not limited to, a city, town, county, the Commonwealth and its agencies, and the federal government.

Privy - A structure used for the disposal of human wastes without water transport consisting of a shelter built over an unlined pit or vault in the ground into which waste is deposited. A privy is a nonconforming system.

Recirculating Sand Filter (RSF) - A biological and physical treatment process consisting of a bed of sand to which septic tank effluent is distributed and then collected with the collected effluent recirculated through the sand bed filter and/or recirculating tank prior to discharge to the soil absorption system.

Regulatory floodway - The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height (typically one foot), the boundary of which is the area designated as floodway on the most recently available flood profile data prepared for the community within which the site is located under the National Flood Emergency Program (NFIP, currently administered by the Federal Emergency Management Agency, successor to the U.S. Department of Housing and Urban Development). Within this area flooding characterized by a significant velocity of flow is likely to occur.

Reserve Area - An area of land with demonstrated capacity for subsurface sewage disposal upon which no permanent structure shall be constructed and which is intended for replacement of the principal system should it fail.

15.002: continued

Retirement Mobile Home Park - A facility upon which two or more mobile homes, restricted to use by adults over 55 years of age (in accordance with 42 USC 3601 *et seq.*), are located on a continual or seasonal non-recreational basis, regardless of whether a charge is made therefore.

Salt Marsh - A coastal wetland as defined in the Massachusetts Wetlands Protection Act, M.G.L. c. 131, § 40, and the regulations promulgated pursuant thereto at 310 CMR 10.32(2).

Sanitary Sewage or Sewage - Greywater and blackwater from domestic, commercial and other non-industrial sources.

Saturated Zone - Any portion of the earth below the land surface where available openings (pore, fissure, joint or solution cavity) are filled with water.

Sanitary Sewer - Any system of pipes, conduits, pumping stations, force mains and all other structures and devices used for collecting and conveying wastewater to a public or private treatment works.

Scum - A mass of light solids, such as hair, grease, oils and soaps, floating on the surface of the wastewater in a septic tank.

Separation Distance - The clear distance between system components.

Septage - Material physically removed from any part of an on-site system, including, but not limited to, the solids, semi-solids, scum, sludge and liquid contents of a septic tank, privy, chemical toilet, cesspool, holding tank, or other sewage waste receptacle. It does not include any material which is hazardous waste.

Septic System Additive - Any solid or liquid material or biological agent intended or used primarily for cleaning, treating, degreasing, unclogging, disinfecting, deodorizing or otherwise effecting the performance of any component of an on-site system.

Septage Hauler - A person licensed by an approving authority to remove septage from on-site sewage disposal systems and transport it to an approved disposal location in accordance with 310 CMR 15.500.

Septage Hauler Permit - A permit issued pursuant to the authority of M.G.L. c. 111, § 31 and 310 CMR 15.500 entitling a person to transport septage within the Commonwealth.

Septic Tank - A watertight receptacle to receive sewage from a building sewer which is designed and constructed to permit sufficient retention of wastewater to allow for the separation of scum and sludge and the partial digestion of organic matter before discharge of the liquid portion to a soil absorption system.

Septic Tank Effluent - The liquid portion of settled sewage which is discharged from the outlet of a septic tank to distribution lines in a soil absorption system.

Shared System - A system sited and designed in accordance with 310 CMR 15.100 through 15.293 which serves, or is proposed to serve, more than one facility or more than one dwelling on a single facility and which has been approved in accordance with 310 CMR 15.290 through 15.293. A system serving a condominium unit or units located on the same facility is not a shared system.

Soil Absorption System - A system of trenches, galleries, chambers, pits, field(s) or bed(s) together with effluent distribution lines and aggregate which is installed in appropriate soils to receive effluent from a septic tank and transmit it to the soil interface for treatment in a biological mat and disposal to the underlying soils.

Soil Evaluator - A person approved by the Department pursuant to 310 CMR 15.101 as capable of determining the suitability of a specific site for the use of an on-site subsurface sewage disposal system in compliance with 310 CMR 15.000.

15.002: continued

Soil Texture - The relative proportions of sand, silt and clay in a given soil medium as defined by the USDA-SCS.

Subsurface Drain - Any underground conduit used for the underground conveyance of surface or groundwater, including, but not limited to, stormwater culverts, curtain drains and French drains.

Surface Water - All waters other than groundwaters within the jurisdiction of the Commonwealth, including without limitation, rivers, streams, lakes, ponds, springs, reservoirs, impoundments, estuaries, wetlands, coastal waters and certified vernal pools.

Surface Water Supply - Any lake, pond, reservoir, or impoundment designated as a public water supply in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00.

System - *see* on-site system.

System Inspector - A person approved by the Department pursuant to 310 CMR 15.340 as capable of appropriately assessing the condition of systems in accordance with 310 CMR 15.000.

Temporary - A single time period or an accumulation of time periods not exceeding 180 total days in any 365-day period.

Tight Tank - A water tight vessel having an inlet to receive raw sewage but no outlet and which is designed and used to collect and store sewage until it is removed for disposal.

Title 5 of the State Environmental Code, 310 CMR 15.000, as amended and in effect as of March 31, 1995.

Treatment Works - Any and all devices, processes, and properties, real or personal, used in the collection, pumping, transmission, storage, treatment, disposal, recycling, reclamation or reuse of waterborne pollutants, including septage receiving facilities but not including any works receiving a hazardous waste from off the site of the works for the purpose of treatment, storage or disposal. Treatment works must be permitted by the Department pursuant to the authority of M.G.L. c. 21, §§ 27 through 52 and regulations thereunder.

Tributary to Surface Water Supply - Any body of running water, including a river, stream, brook or creek, which moves in a definite channel in the ground due to a hydraulic gradient, and which is designated as a tributary to a public water supply in 314 CMR 4.06, provided that such water supply is a surface water supply as defined in 310 CMR 15.000. In the case of tributaries to those public water supplies (Ware, Quabbin and Wachusett) to which the provisions of 350 CMR 11.00 (MDC Watershed Protection regulations) apply, such tributaries shall be identified solely by reference to the maps identified in 350 CMR 11.07(3)(most recent edition of Mass.GIS maps unless MDC submits more detailed maps to legislature in accordance with 350 CMR 11.07(3)). To aid in identifying the location of all other tributaries to a public water supply, reference may be made to a Department publication entitled "Designated Outstanding Resource Waters of Massachusetts 1990", dated July 1993, as amended; such publication is intended solely as an informational aid to the applicant and in the event of conflicting information, the water supply regulations at 314 CMR 4.06 shall prevail.

USDA/SCS - The United States Department of Agriculture, Soil Conservation Service.

USGS - The United States Geological Survey, within the United States Department of the Interior.

Upgrade - The modification of one or more components of an on-site system or the design and construction of a new on-site system which is intended to bring a nonconforming system into conformance with 310 CMR 15.000 to the maximum feasible extent. An emergency repair is not an upgrade.

15.002: continued

Velocity Zone or V-zones - A coastal area of special flood hazard which extends from the mean low water line to the inland limit of the 100-year floodplain supporting waves greater than three feet in height. The boundary of a velocity zone shall be determined by reference to the National Flood Insurance Program flood data and Flood Insurance Rate Maps for each community.

Vernal pool - *see* certified vernal pool.

Waters of the Commonwealth or waters or water bodies - All waters within the jurisdiction of the Commonwealth, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, wetlands, estuaries, coastal waters, groundwaters, and vernal pools.

Watershed - Any region or area measured in a horizontal topographic divide which directs water runoff from precipitation, normally by gravity, into a stream, a body of impounded surface water, a coastal embayment or a water supply well.

Water Supply Well - Any public or private source of groundwater used for human consumption, including but not limited to, a source approved for such use by the local Board of Health or the Department in accordance with M.G.L. c. 111, § 122A or 310 CMR 22.00.

Wetland - Any land area or surface area so defined by the Massachusetts Wetlands Protection Act, M.G.L. c. 131, § 40 and regulations promulgated pursuant thereto at 310 CMR 10.00 or pursuant to § 404 of the Federal Water Pollution Control Act, 33 U.S.C. 1341.

Zone I - The protective radius required around a public water supply well or wellfield, as defined in Massachusetts drinking water regulations, 310 CMR 22.02. For public water supply system wells with approved yields of 100,000 gpd or greater, the protective radius is 400 feet. Tubular well fields require a 250 protective radius. Protective radii for all other public water system wells are determined by the following equation: Zone I radius in feet = [150 x log of pumping rate in gpd] - 350.

Zone II - That area of an aquifer which contributes water to a well under the most severe pumping and recharge conditions that can realistically be anticipated, as defined in Massachusetts drinking water regulations, 310 CMR 22.02.

15.003: Coordination with Local Approving Authorities

(1) In general, full compliance with the provisions of 310 CMR 15.000 is presumed by the Department to be protective of the public health, safety, welfare and the environment. Specific site or design conditions, however, may require that additional criteria be met in order to achieve the purpose and/or intent of 310 CMR 15.000.

(2) The approval of any system, including the issuance of Disposal System Construction Permits, Local Upgrade Approvals, and Certificates of Compliance, shall be by the local approving authority, except with regard to systems owned or operated by an agency of the Commonwealth or of the federal government. The following systems or circumstances must also be approved by the Department:

(a) alternative systems which are proposed in compliance with 310 CMR 15.280 through 15.289;
(b) shared systems which are proposed in compliance with 310 CMR 15.290 through 15.293;
(c) variances granted by the local approving authority in accordance with 310 CMR 15.412 (except as provided in 310 CMR 15.412(4)) and 310 CMR 15.414 for which Departmental review is required; and
(d) upgrade or expansion of systems with a design flow of 10,000 gpd or greater but less than 15,000 gpd, or continued use of systems subject to 310 CMR 15.304(2);
(e) any system or proposed system which the Department determines requires its review for the purposes of protection of public health, safety, welfare and the environment or determining consistency with 310 CMR 15.000.

15.003: continued

(3) Local approving authorities may enact more stringent regulations to protect public health, safety, welfare and the environment only in accordance with M.G.L. c. 111, § 31 and M.G.L. c. 21A, § 13.

(4) Local requirements, or portions thereof, which were in effect prior to March 31, 1995 and which are less stringent than 310 CMR 15.000 shall not be applied to new construction, upgrade or expansion of existing systems.

(5) Local regulations adopted under M.G.L. c. 111, § 31 shall be filed with the Department's Division of Water Pollution Control Boston Office and the appropriate Regional Office of the Department in accordance with M.G.L. c. 21A, § 13.

15.004: Applicability

(1) The provisions set forth at 310 CMR 15.280 through 15.289 (alternative systems) shall take effect on November 10, 1994 and the provision set forth at 310 CMR 15.100(2) (requirement for soil evaluation) shall take effect on January 1, 1996. All other provisions of 310 CMR 15.000 shall take effect on March 31, 1995 provided the Department publishes in the *Massachusetts Register* a determination that it has granted approval for general use (*i.e.* use in new construction as well as remediation) to at least two alternative systems in addition to those listed at 310 CMR 15.289, with costs comparable to conventional systems designed pursuant to 310 CMR 15.000. Except as otherwise provided in 310 CMR 15.005 (transition rules), any application filed on or after the effective date shall be governed by 310 CMR 15.000.

(2) The approving authority shall not approve the construction, upgrade, or expansion of an on-site subsurface sewage disposal system unless it is:

(a) a system serving or designed to receive only sanitary sewage from a facility where the total design flow generated on the facility, is less than 10,000 gallons per day;

(b) a system or systems serving a facility with a total design flow of 10,000 gpd or greater but less than 15,000 gpd constructed in accordance with 310 CMR 15.005(7) (transition rule) and 15.006 (design flows of 10,000 gpd or greater but less than 15,000 gpd); or

(c) a facility for which subdivision approval has been obtained, to construct dwellings with a cumulative total design flow of 10,000 gpd or greater provided that a disposal system construction permit to construct a system in compliance with 310 CMR 15.000 on each of the subdivision lots to be served by a system is obtained and such separate subdivision lots are to be conveyed to independent owners.

(3) No system shall serve more than one facility except as explicitly allowed pursuant to 310 CMR 15.010 (division and aggregation) or 310 CMR 15.290 through 15.292 (shared systems).

(4) No new system shall be constructed, and no system shall be upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, except in the following circumstances:

(a) the system is an alternative system approved for such use pursuant to 310 CMR 15.280 through 15.287 and the Department has made the determination:

1. in approving the remedial use of an alternative system pursuant to 310 CMR 15.284 that any person using such system need not connect the facility to such sanitary sewer; or

2. in granting provisional approval of an alternative system pursuant to 310 CMR 15.286 that the alternative system is likely to provide a level of environmental protection at least equivalent to that of a sewer; or

3. in certifying an alternative system for general use pursuant to 310 CMR 15.288 that the performance of the alternative system will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sewer; or

(b) the owner of an existing system has obtained a variance from this requirement pursuant to 310 CMR 15.410 through 15.415.

15.004: continued

(5) The provisions of 310 CMR 15.000 apply only to the on-site collection, treatment and disposal of sanitary sewage, and to the transport and disposal of associated septage and grease, and do not apply to the wastewater containing wastes from any other activity including, but not limited to, activities under the Standard Industrial Classification (SIC) Codes set forth at 310 CMR 15.004(6). SIC Codes are established by the U.S. Office of Management and Budget and may be determined by referring to the publication, Standard Industrial Classification Manual and any subsequent amendments thereto. Systems designed to dispose of only sanitary sewage from facilities subject to the following SIC codes may be approved under 310 CMR 15.000. Nothing contained in 310 CMR 15.000 shall be construed to authorize or grandfather the discharge of effluent other than sanitary sewage to an on-site system.

(6) SIC CODE(S)	INDUSTRY CATEGORY
753-7549	Automotive Repairs and Services
7231,7241	Beauty Shops, Barber Shops
7211-7219	Laundry Cleaning and Garment Services
4911,4925,4931,4939	Electric, Gas Services (Power Generation Gas Production Only)
4011 - 4581	Transportation (Maintenance Only)
8062 - 8069	Hospitals
2000 - 3999	Manufacturing
2000 - 2099	Food Products
2100 - 2199	Tobacco Products
2200 - 2299	Textile Mill Products
2300 - 2399	Apparel and Other Finished Products Made from Fabrics and Similar Materials
2400 - 2499	Lumber and Wood Products, Except Furniture
2500 - 2599	Furniture and Fixtures
2600 - 2699	Paper and Allied Products
2700 - 2799	Printing, Publishing and Allied Industries
2800 - 2899	Chemicals and Allied Products
2900 - 2999	Petroleum Refining and Related Industries
3000 - 3099	Rubber and Miscellaneous Plastics
3100 - 3199	Leather Tanning and Finishing
3200 - 3299	Stone, Clay, Glass and Concrete Products
3300 - 3399	Primary Metal Industries
3400 - 3499	Fabricated Metal Products (Except Machinery and Transportation Equipment)
3500 - 3599	Industrial and Commercial Machinery and Computer Equipment
3600 - 3699	Electronic and Other Electrical Equipment and Components, Except Computer Equipment
3700 - 3799	Transportation Equipment
3800 - 3899	Measuring, Analyzing and Controlling Instruments; Photographic, Medical and Optical Goods; Watches and Clocks
3900 - 3900	Miscellaneous Manufacturing Industries

15.004: continued

(7) No person shall discharge or allow the discharge of wastes from the industry categories listed in 310 CMR 15.004(6) to any system regulated under 310 CMR 15.000. No system shall receive oil, hazardous materials or waste, medical wastes or radioactive wastes.

(8) No person shall discharge or allow the discharge of stabilized recreational vehicle wastes, stabilized boat wastes, wastes from funeral homes, car washes or buses, or from the backwash of water purification or filtration devices to any system regulated under 310 CMR 15.000.

(9) No discharge of sewage to a dry well or open drain shall be permitted pursuant to 310 CMR 15.000. Discharges to dry wells shall be in compliance with the Underground Water Source Protection Control regulations, 310 CMR 27.00. Backwash of water purification or filtration devices may be discharged to a dry well or to the ground.

15.005: Transition Rules

(1) Except as explicitly set forth in 310 CMR 15.005, all provisions of 310 CMR 15.000 shall apply to all systems, regardless of date of construction.

(2) Applications for Disposal Works Construction Permits filed prior to March 31, 1995. Applications for disposal works construction permits filed prior to March 31, 1995, except applications for systems with design flows of 10,000 gpd or greater that would, if constructed, threaten public health and safety and the environment as described in 310 CMR 15.304(2) shall be reviewed, and if approved, such systems shall be constructed in accordance with, the 1978 Code requirements and any applicable local requirements. Construction of systems for which such a disposal system construction permit application is granted shall be completed within three years of the receipt of such disposal system construction permit or the provisions of 310 CMR 15.000 shall apply.

(3) Isolated Lot. The owner of a lot duly recorded and not held in common ownership with any adjoining land, as of August 1, 1994 , and on which construction of such a system in full compliance with 310 CMR 15.000 is not feasible, is entitled to construct a system on that land with a cumulative design flow of up to 330 gpd, provided that all of the following conditions are met:

(a) the applicant demonstrates that such a system could have been constructed on that lot in compliance with the 1978 Code, without variances other than variances from property line, swimming pool, or cellar wall distances set forth in 310 CMR 15.03(7) of the 1978 Code;

(b) the owner of that facility files a valid application for a Disposal System Construction Permit in accordance with 310 CMR 15.000 on or before January 1, 2000 and

(c) the system is constructed in compliance with 310 CMR 15.000 to the maximum extent feasible, as determined by the local approving authority pursuant to 310 CMR 15.404 and 15.405, and in compliance with the Disposal System Construction Permit issued by the local approving authority. Permitted construction shall be completed within three years of the receipt of the Disposal System Construction Permit.

(4) Contiguous Lots. Where full compliance with 310 CMR 15.000 is not feasible on one or more contiguous lots which were held in common ownership on August 1, 1994 and which lots are not subject to a subdivision plan endorsed by a Planning Board pursuant to the Subdivision Control Law, the local approving authority may issue only one Disposal System Construction Permit other than in full compliance with 310 CMR 15.000 for any such lot, authorizing construction of a system with a cumulative design flow of up to 330 gpd, provided that the conditions set forth at 310 CMR 15.005(3)(a) through 15.005(3)(c) are met. All other systems on such contiguous lots in addition to the one-330 gpd system authorized herein shall be constructed in full compliance with 310 CMR 15.000. For purposes of 310 CMR 15.005(4) two lots shall be considered contiguous if they abut on any border or if they are each contiguous with one or more other lots under common ownership.

15.005: continued

It shall be the burden of the applicant to establish that 310 CMR 15.005(4) applies to the proposed system(s). The provisions of 310 CMR 15.000 shall apply to systems subject to 310 CMR 15.005(5) if the Disposal System Construction Permit is not obtained or construction is not completed within the time periods specified in 310 CMR 15.005(5).

(5) Subdivisions. The owner of any lot shown on a plan of land endorsed by a Planning Board pursuant to the Subdivision Control Law prior to March 31, 1995 is entitled to construct a system on each lot with a cumulative design flow of up to 330 gpd, if full compliance with 310 CMR 15.000 is not feasible and the conditions set forth at 310 CMR 15.005(3)(a) through 15.005(3)(c) are met.

In accordance with M.G.L. c. 111, § 127P, systems proposed for facilities in accordance with a plan of land endorsed by a Planning Board pursuant to the Subdivision Control Law between January 1, 1992 and March 31, 1995 may be constructed in accordance with the requirements of the 1978 Code and any applicable local requirements if the following conditions are met:

(a) an application for a Disposal System Construction Permit is filed within three years of the plan endorsement; and

(b) such Disposal System Construction Permit application is reviewed and approved by the approving authority; provided that such permitted construction is completed within three years of the receipt of the Disposal System Construction Permit.

In accordance with M.G.L. c. 111, § 127P, an applicant proposing to construct a system or systems for facilities in accordance with a plan of land submitted to, but not endorsed by, a Planning Board pursuant to the Subdivision Control Law prior to March 31, 1995 may apply for a Disposal System Construction Permit within three years of the date of final subdivision endorsement. Such applications shall be reviewed and, if approved, such systems shall be constructed in accordance with the 1978 Code requirements and any applicable local requirements. Permitted construction shall be completed within three years of the receipt of the Disposal System Construction Permit.

It shall be the burden of the applicant to establish that 310 CMR 15.005(5) applies to the proposed system(s). The provisions of 310 CMR 15.000 shall apply to systems subject to 310 CMR 15.005(5) if the Disposal System Construction Permit is not obtained or construction is not completed within the time periods specified in 310 CMR 15.005(4).

(6) 40B Comprehensive Permit. An applicant proposing to construct a system or systems for facilities in accordance with a Comprehensive Permit issued pursuant to M.G.L. c. 40B, §§ 20 through 23, prior to March 31, 1995 shall obtain a Disposal System Construction Permit pursuant to 760 CMR 31.09(3) no later than January 1, 2000. Such applications shall be reviewed and, if approved, such systems shall be constructed in accordance with the requirements of the 1978 Code, and any applicable local requirements. Permitted construction shall be completed within three years of the receipt of the Disposal System Construction Permit.

An applicant proposing to construct a system or systems for facilities in accordance with an application for a Comprehensive Permit pursuant to M.G.L. c. 40B, §§ 20 through 23, filed with a Board of Appeals, prior to March 31, 1995 shall obtain a Disposal Works Construction Permit pursuant to 760 CMR 31.09(3) within three years of the date of final comprehensive permit approval pursuant to 760 CMR 31.08(4). Such applications shall be reviewed and, if approved, such systems constructed in accordance with the requirements of the 1978 Code and any applicable local requirements. Permitted construction shall be completed within three years of the receipt of the Disposal System Construction Permit.

It shall be the burden of the applicant to establish that 310 CMR 15.005(6) applies to the proposed system(s). The provisions of 310 CMR 15.000 shall apply to systems subject to 310 CMR 15.005(6) if the Disposal System Construction Permit is not obtained or construction is not completed within the time periods specified in 310 CMR 15.005(6).

15.005: continued

(7) Large Systems. The owner of a facility served or to be served by a system with a total design flow of 10,000 gpd or greater but less than 15,000 gpd may complete the approved development of the facility, provided that:

(a) no such facility may construct systems designed to accept design flows in excess of those resulting from plans which were proposed to and approved by the local planning board or other approving body prior to March 31, 1995; and

(b) all disposal system construction permits for such system have been issued by March 31, 1995.

Such systems shall be constructed in accordance with the requirements of the 1978 Code and any applicable local requirements.

(8) Large Systems Threatening Public Health, Safety and the Environment pursuant to 310 CMR 15.304(2). If a system constructed under 310 CMR 15.005(2), (4), (6), or (7) is a significant threat to public health and safety and the environment, as determined pursuant to 310 CMR 15.304(2), the owner or operator will be required to bring the system into compliance with the groundwater treatment program requirements of 314 CMR 5.00 and 6.00, including the obligation to obtain a groundwater discharge permit, within the timeframes set forth in 310 CMR 15.305(2), unless the owner or operator satisfies the requirements of 310 CMR 15.305(3). Groundwater discharge permits typically require a higher level of treatment than is provided by systems constructed under 310 CMR 15.000. Any owner who chooses to complete construction of a system or facility that will threaten public health and safety and the environment, as determined pursuant to 310 CMR 15.304(2), shall provide notice of the provisions of 310 CMR 15.005(8) and the likely obligation to obtain a groundwater discharge permit to any potential owner or operator of all or any part of the facility or system.

15.006: Facilities Where the Total Design Flow Generated on the Facility Equals of 10,000 gpd or Greater but Less than 15,000 gpd

(1) It shall be the duty of each owner or operator of systems with design flow of 10,000 gpd or greater but less than 15,000 gpd to ascertain the actual design flow of their system or systems.

(2) Consistent with the 1978 Code, the Department may require the issuance of a groundwater discharge permit pursuant to 310 CMR 5.00 and the installation of technology capable of discharging effluent which meets Class I groundwater standards pursuant to 314 CMR 6.00 for any system with design flow of 10,000 gpd or greater but less than 15,000 gpd unless the Department determines after consideration of the factors set forth in 310 CMR 15.304(3) that this requirement would be manifestly unjust, considering all the relevant facts and circumstances of the individual case, and the owner or operator has established that a level of environmental protection that is at least equivalent to that provided by 314 CMR 5.00 and 6.00 can be achieved without strict application of 310 CMR 15.006.

(3) There shall be no increased flow to an existing system of less than 10,000 gpd which results in a design flow of 10,000 gpd or greater but less than 15,000 gpd unless such system is a subdivision entitled to M.G.L. c. 111, 127P protection, 40B comprehensive permit land, or a large system with approved plans and disposal system construction permits issued by March 31, 1995 in accordance with 310 CMR 15.005 (transition rules) or in accordance with a variance allowed by the Department pursuant to 310 CMR 15.414.

(4) There shall be no increased flow to an existing system of 10,000 gpd or greater but less than 15,000 gpd unless in accordance with a variance allowed by the Department pursuant to 310 CMR 15.414.

15.007: Campgrounds

(1) For the purposes of 310 CMR 15.000, a campground is any facility which is regulated pursuant to 105 CMR 430.00 or 105 CMR 440.00 and/or is a campground operated by the Department of Environmental Management in a State Park.

15.007: continued

(2) Except as otherwise set forth in 310 CMR 15.007(3) and (4), a campground in existence on December 1, 1993 with design flows in excess of 10,000 gpd and which receives only temporary use is in compliance with 310 CMR 15.000 provided that all of the following conditions are met:

(a) the campground is not subject to an existing enforcement order issued by the local approving authority, the Department or court;

(b) the campground is not failing to protect public health or safety or the environment pursuant to 310 CMR 15.304(2);

(c) each system serving the facility is in compliance with 310 CMR 15.000;

(d) no single system on the facility has a design flow in excess of 10,000 gpd;

(e) no system is less than 100 feet from another system;

(f) systems on the campground are inspected and maintained in accordance with 310 CMR 15.300 through 15.354, including necessary upgrade of systems or components;

(g) no sewage from mobile home tight tanks which has been fixated or treated with chemical additives, except as approved by the Department, is disposed of at the campground; and

(h) no additional flows of sewage are added over the approved design flow of the system as of March 1, 1995.

(3) Campgrounds which receive more than temporary use are in compliance with 310 CMR 15.000 provided:

(a) the provisions of 310 CMR 15.007(2) are complied with; and

(b) the volume of sewage flow generated from all systems on the facility from non-temporary use does not exceed 10% of the design flow generated during peak seasonal use.

(4) All new construction at campgrounds shall be in accordance with the provisions of 310 CMR 15.000.

15.010: Division and Aggregation of Facilities

(1) Ownership of a facility and the design flow of the facility shall be determined whenever application is made for a Disposal System Construction Permit.

(2) In the event that a facility is divided after a system is constructed to serve the facility, the new owners shall each obtain a Certificate of Compliance in accordance with 310 CMR 15.022 and shall alter the system as required by the approving authority for each new facility divided out of the original facility.

(3) If two or more facilities in separate ownership are later joined into single ownership control after construction of systems to serve the separate facilities, the owner or operator of the new combined facility shall obtain a Certificate of Compliance from the approving authority for the new, combined facility within one year. If the total design flow from the facility is 10,000 gpd or greater, the owner shall arrange to have an inspection of all of the systems pursuant to 310 CMR 15.301(6) and 15.302 completed within one year.

(4) The Department or the approving authority, upon determining that ownership or control of the facilities asserted to be in separate ownership or control was arranged to circumvent the treatment or effluent standard requirements of 310 CMR 15.202 (recirculating sand filters) or 314 CMR 5.00 or 314 CMR 6.00 (groundwater discharge program), may order the owner or operator to consolidate the separate systems, to comply with the requirements of 310 CMR 15.202 (Recirculating Sand Filters), to obtain a groundwater discharge permit pursuant to 314 CMR 5.00 and 6.00, or to take any other action necessary to protect public health, safety, welfare or the environment.

15.011: Facilities Claimed to be in Separate Ownership or Control

(1) In assessing whether facilities are in single ownership for purposes of determining whether the total design flow exceeds the 2,000 gpd threshhold of 310 CMR 15.202 (recirculating sand filters) or treatment and effluent standard requirements of 314 CMR 5.00 or 314 CMR 6.00, the approving authority, with the advice and assistance of the Department, shall consider:

(a) whether the fee title of facilities asserted to be in separate ownership are owned by parents, spouse, siblings, or children of the owner;

(b) whether the owner or operator of facilities asserted to be in separate ownership operate the facilities independently and with due regard for the financial interests of the beneficiaries, if any, of the assertedly separate facilities;

(c) whether the owner of a facility for which a Disposal System Construction Permit is sought has the legal ability to control the disposition or development of facilities which are, are proposed to be, or could in the future be the subject of a Disposal System Construction Permit;

(d) whether facilities asserted to be in separate ownership or control are treated as a single facility by the owners thereof;

(e) whether legal agreements exist which grant the owner or operator of one facility rights, use or access to another facility asserted to be in separate ownership or control;

(f) the existence of some evidence that ownership or control of the facilities asserted to be in separate ownership or control was arranged to circumvent the requirements of 310 CMR 15.202 (Recirculating Sand Filters), 314 CMR 5.00 or 314 CMR 6.00 (groundwater discharge program); and

(g) any other relevant factor.

(2) In the event the Department determines, using the criteria set forth at 310 CMR 15.011(1) that facilities asserted to be in separate ownership or control should be treated as a single facility for the purposes of 310 CMR 15.000, that determination may be appealed in accordance with 310 CMR 15.422 (appeals).

15.017: Approval of Soil Evaluators

(1) Any person who meets the criteria of 310 CMR 15.017(2) and who passes a standardized examination prepared and administered by the Department or an agent of the Department shall be approved as a Soil Evaluator by the Department.

(2) In order to qualify for the examination described in 310 CMR 15.017(6), the applicant must demonstrate to the Department or an agent authorized by the Department that he/she is a Massachusetts Registered Sanitarian, a Massachusetts Registered Professional Engineer, Engineer in Training, Massachusetts Registered Land Surveyor, Certified Health Officer, Board of Health Member or Agent, or an employee of the Department involved in the administration of 310 CMR 15.000.

(3) The Department shall maintain a list of approved Soil Evaluators. Any person who is denied approval as a Soil Evaluator based on failure to pass the examination required in 310 CMR 15.017(6) may request, within 90 days of the examination, and is entitled to receive from the Department a written statement of the Department's basis for denial.

(4) The approval of any person as a Soil Evaluator may be revoked or suspended by the Department, following opportunity for a hearing pursuant to M.G.L. c. 30A, based on evidence obtained by the Department that the evaluator has violated 310 CMR 15.018(1) or falsified, substantially misinterpreted or misrepresented a site evaluation in the evaluator's certification pursuant to 310 CMR 15.101(2). In any such proceeding, the burden shall be on the person seeking to have approval reinstated to establish that no such falsification, misrepresentation or misinterpretation occurred.

(5) A training course provided by the Department or an agent authorized by the Department is highly recommended for any person meeting the criteria of 310 CMR 15.017(2) in order to prepare for the standardized examination required pursuant to 310 CMR 15.017(6).

15.017: continued

(6) A written and field examination shall be prepared and administered by the Department or an agent authorized by the Department to the applicant meeting the criteria of 310 CMR 15.017(2). The examination shall consist of at least the following elements:

(a) Principles of On-site Sewage Treatment and Disposal;
(b) Geology and Soils of Massachusetts;
(c) Soil Profile Descriptions;
(d) Estimating Mean Seasonal High Ground-Water Elevations Using Soil Morphology;
(e) Principles of Ground-Water Hydrology;
(f) Methods for Documenting Site Conditions;
(g) Important Reference Materials;
(h) Field Training in Soil Evaluation and Logging.

The passing score shall be correctly answering 70% of all the questions on the written examination and successful completion of the field examination.

15.018: Function of Soil Evaluators

(1) The function of the soil evaluator is to enhance the review and approval of proposed systems by ensuring that appropriate expertise in soil identification, groundwater hydrology, and topography is available when the characteristics of the proposed disposal area are determined for purposes of applying the siting and design criteria set forth in 310 CMR 15.000. Soil Evaluators may perform the site evaluation required by 310 CMR 15.100 while acting either as an agent of an approving authority (a fee may be assessed pursuant to M.G.L. c. 40, § 22F), or as an independent agent of the owner in the presence of the approving authority. If the evaluator is an agent or member of the approving authority having jurisdiction over the system, he or she shall not act as an agent for the owner.

(2) Based upon an evaluation of the suitability of the proposed disposal area for a proposed, upgraded or expanded system in accordance with 310 CMR 15.100 through 15.107, the Soil Evaluator shall certify to the approving authority and the Designer as to the accuracy of the soil evaluation in conformance with 310 CMR 15.201 through 15.293. The certification shall contain a recitation of the facts and rationale underlying the soil evaluation and a copy of the soil evaluation form. The soil evaluator shall submit the results with the following statement:

> I certify that on _____(date) I have passed the examination approved by the Department of Environmental Protection and that the above analysis has been performed by me consistent with the required training, expertise, and experience described in 310 CMR 15.018(2).

Any certifications shall be forwarded to the approving authority, the Designer and the property owner. Failure to forward certifications to the approving authority within 60 days of the date of the field testing shall be cause for revocation of the Site Evaluator's certification.

15.019: Disposal System Installer's Permit

No person shall engage in the construction, upgrade or expansion of any on-site system without first obtaining a Disposal System Installer's Permit from the approving authority. Disposal System Installer Permits shall be issued for a period of not more than two years. The local approving authority shall issue Disposal System Installer Permits only to those persons who have demonstrated capacity or knowledge of the proper construction and installation of systems in accordance with 310 CMR 15.000.

15.020: Disposal System Construction Permits

(1) No person shall construct, upgrade, or expand a system without a Disposal System Construction Permit which has been issued by the approving authority after the soil evaluation set forth in 310 CMR 15.100 through 15.107 has been completed. In the event it is discovered during installation of the system that site conditions differ from those contained in the soil evaluation and/or the approved design plans, the originally issued Disposal System Construction Permit is void, installation shall stop, and the applicant shall reapply for a new Disposal System Construction Permit. Except for subdivisions entitled to M.G.L. c. 111, § 127P protection, M.G.L. c. 40B comprehensive permit land, and large systems with approved plans and disposal system construction permits issued by March 31, 1995 all as set forth in 310 CMR 15.005 (transition rules) or pursuant to a variance issued by the Department in accordance with 310 CMR 15.415, a Disposal System Construction Permit shall not authorize increased design flow which would bring the total design flow to 10,000 gpd or greater but less than 15,000 gpd. Disposal System Construction Permits shall be in a form approved by the Department.

(2) All systems for which a Disposal System Construction Permit has been issued shall be completed, and the Certificate of Compliance shall be obtained, within three years of issuance of the permit. Unless an extension pursuant to 310 CMR 15.020(3) is issued, the permit, and any variances or local upgrade approvals from 310 CMR 15.000 allowed therewith, shall expire if the work by it authorized is not completed within the three-year period.

(3) The local approving authority or the Department may issue a written one year extension to the Disposal System Construction Permit required by 310 CMR 15.020(1) upon written request of the permittee, filed before the expiration date, and documented showing of facts preventing the completion of the approved system within the time frame of the original permit. Only one extension shall be granted.

15.021: Certificates of Compliance

(1) No person shall discharge sewage to a new, upgraded or expanded system without first obtaining a Certificate of Compliance from the approving authority in accordance with 310 CMR 15.021(2) through (6). Certificates of Compliance shall be in a form approved by the Department. The approving authority shall provide the owner or operator a copy of the Department's operation and maintenance guide, or inform him or her where a copy can be obtained.

(2) Subsurface components of a system shall not be backfilled or otherwise concealed from view until a final inspection has been conducted by the approving authority and permission has been granted by the approving authority to backfill the system. In addition, for systems with a design flow of 2,000 gpd or higher, the designer shall inspect the construction after the initial excavation, prior to backfilling, and during backfilling in addition to the final inspection which shall be conducted by the approving authority in the presence of the system designer of record or his/her authorized agent prior to the issuance of a Certificate of Compliance pursuant to 310 CMR 15.021(3). Any component of the system which has been covered without such permission shall be uncovered upon the request of the approving authority or the Department.

(3) Prior to the issuance of a Certificate of Compliance, the Disposal System Installer and Designer shall certify in writing on a form approved by the Department that the system has been constructed in compliance with 310 CMR 15.000, the approved design plans and all local requirements, and that any changes to the design plans have been reflected on as-built plans which have been submitted to the approving authority by the Designer prior to the issuance of a Certificate of Compliance. The as-built plans shall be prepared in accordance with 310 CMR 15.220. Prior to the issuance of a Certificate of Compliance for a system, the approving authority shall make sufficient inspections of the system in accordance with 310 CMR 15.021(2) to determine that the work has been completed in compliance with the requirements of 310 CMR 15.000, the Disposal System Construction Permit, the approved design plans, and any local requirements.

15.021: continued

(4) A Certificate of Compliance shall not constitute a statement that the system will function as designed nor shall it in any way limit the powers or responsibilities of the local approving authority or the Department to enforce any requirement, or to take any other action to protect public health, safety, welfare or the environment.

(5) The approving authority shall give to the building inspector or other official of the municipality responsible for the issuance of a Certificate of Occupancy pursuant to 780 CMR 100 a copy of the Certificate of Compliance. No person shall apply for a Certificate of Occupancy to inhabit or use new construction until a Certificate of Compliance has been issued by the approving authority.

15.022: Duty of Compliance

Except as otherwise specified, the duty to comply with the provisions of 310 CMR 15.000 with regard to any system shall be upon the owner(s) and the operator(s) of a facility served by a system, jointly and severally.

15.023: Approving Authority Access

The local approving authority or the Department may at any reasonable time examine facilities served by systems in order to determine compliance with 310 CMR 15.000 and any permits, approvals or orders issued under 310 CMR 15.000 or under local authority. If access to a facility is denied or restricted, the local approving authority or the Department may seek a warrant in order to obtain access. The filing of an application for a Disposal System Construction Permit or other approval under 310 CMR 15.000 shall constitute the applicant's consent for entry at reasonable times for these purposes.

15.024: Violations of 310 CMR 15.000

It shall be a violation of 310 CMR 15.000 for any person to:

(1) construct or use a system in any manner that is not in compliance with an applicable Disposal System Construction Permit, Certificate of Compliance, other approval or order;

(2) use, modify, or alter a facility in such a way that a larger system is required under 310 CMR 15.000 using the design flows at 310 CMR 15.203 without the approval of the approving authority in accordance with 310 CMR 15.000;

(3) aggregate facilities or divide a facility into separate facilities without complying with the provisions of 310 CMR 15.010;

(4) construct, upgrade, or expand a system without the prior approval of the local approving authority or the Department in the form of a Disposal System Construction Permit or approval of an emergency repair;

(5) fail to take necessary corrective actions as directed by the local approving authority or the Department in accordance with 310 CMR 15.000;

(6) fail to obtain an inspection in accordance with 310 CMR 15.000 when and as required; or

(7) violate any other provision of 310 CMR 15.000, or local requirements.

15.025: Enforcement by Approving Authorities

(1) The provisions of 310 CMR 15.000 shall be implemented and enforced by the approving authority with oversight and assistance by the Department as necessary or as set forth in 310 CMR 15.000.

15.025: continued

(2) Local approving authorities may enforce the provisions of 310 CMR 15.000 in the same manner in which local health rules and regulations are enforced.

(3) The Department may enforce the provisions of 310 CMR 15.000 under applicable provisions of M.G.L. c. 21, §§ 27 through 53; M.G.L. c. 21A, §§ 13 and 16 and any other applicable law.

(4) The local approving authority or the Department may choose to document the noncompliance of an owner or operator of a system through the issuance of a letter of noncompliance which requests the recipient to perform actions necessary to come into compliance with 310 CMR 15.000. Such letter is not an order and is not appealable pursuant to 310 CMR 15.420 through 15.422.

(5) Whenever a local approving authority fails to enforce 310 CMR 15.000 within a reasonable length of time, the Department may act to effect compliance with 310 CMR 15.000. Nothing in 310 CMR 15.025 shall be construed to limit the authority of the Department to take any action pursuant to M.G.L. c. 21 or other applicable law.

15.026: Orders

(1) The local approving authority or the Department may issue orders requiring the owner or operator of a facility to come into compliance with the provisions of 310 CMR 15.000 or to take any other action necessary to protect public health, safety, welfare or the environment. Any person aggrieved by such orders may either appeal to any court of competent jurisdiction pursuant to 310 CMR 15.421 if such order is issued by the local approving authority, or may request an adjudicatory hearing pursuant to 310 CMR 15.422 if such order is issued by the Department.

(2) Unless otherwise stated in 310 CMR 15.000, orders may be served on any person responsible for a violation of 310 CMR 15.000 in accordance with the following procedure:

(a) personally, by any person authorized to serve civil process, or

(b) by any person authorized to serve civil process by leaving a copy of the order at his/her last and usual place of abode, or

(c) by sending him/her a copy of the order by registered or certified mail, return receipt requested, if his/her last and usual place of abode can be determined based on a review of the local tax assessor's records, or

(d) if his/her last and usual place of abode is unknown, by posting a copy of the order in a conspicuous place on or about the facility and by advertising it for at least three out of five consecutive days in one or more newspapers of general circulation within the municipality wherein the affected facility is situated.

(3) Whenever an imminent threat to public health, safety, welfare or the environment exists, or could result during the pendency of a hearing on the order, the local approving authority or the Department may issue the order reciting the existence of the emergency and requiring that such action be taken as they may deem necessary.

(4) Notwithstanding any other provision of 310 CMR 15.000, any person to whom an order is directed shall comply therewith within the time specified in the order. Each day's failure to comply with the order shall constitute a separate offense and may result in penalties. Any person aggrieved by an order issued by the Department may seek review pursuant to 310 CMR 15.421 or 15.422 (Appeals).

15.027: Prohibition of Septic System Additives

(1) It shall be a violation of 310 CMR 15.000 for any approved System Inspector, Soil Evaluator, Licensed Installer or Septage Hauler to add, place, introduce or recommend the addition, placement or introduction of septic system additives to any system without the prior written determination of the Department that the additive has met the criteria set forth in 310 CMR 15.027(3). The Department shall maintain and publish a list of allowed septic system additives.

15.027: continued

(2) It shall be a violation of 310 CMR 15.000 for any person to add, place or introduce septic system additives to any system without the prior written determination of the Department that the additive has met the criteria set forth in 310 CMR 15.027(3).

(3) The Department may allow a septic system additive when it is demonstrated to the Department's satisfaction that the additive will not:
(a) harm the components of the system;
(b) adversely affect the functioning of the system; or
(c) adversely affect the environment.

(4) A Department determination that the additive has met the criteria contained in 310 CMR 15.027 shall not constitute an endorsement or approval with respect to the effectiveness or performance of the additive. Representation by any person that such Department determination constitutes such endorsement or approval shall be a violation of 310 CMR 15.000.

15.028: Soil Absorption System Restoration

(1) It shall be a violation of 310 CMR 15.000 for any approved System Inspector, Soil Evaluator, Licensed Installer or Septage Hauler to introduce or to recommend the use of any physical, chemical or biological treatment process to restore or condition a soil absorption system without the prior written determination of the Department that the proposed treatment process has met the crieria set forth in 310 CMR 15.027(3). Physical treatment is not intended to include pumping, flushing, and routing of pipes or any mechanical methods of repairing existing components. The Department shall maintain and publish a list of allowed treatment processes.

(2) It shall be a volation of 310 CMR 15.000 for any person to use any physical, chemical or biological treatment process to restore or condition a soil absorption system without the prior written determination of the Department that the proposed treatment process has met the criteria set forth in 310 CMR 15.027(3).

(3) A Department determination that the treatment process has met the criteria contained in 310 CMR 15.027(4) shall not constitute an endorsement or approval with respect to the effectiveness or performance of the treatment process. Representation by any person that such Department determination constitutes such endorsement or approval shall be a violation of 310 CMR 15.000.

15.029: Construction of Wells Near Existing Systems

It is a violation of 310 CMR 15.000 for any person to construct or install a water supply well closer to a system component than the relevant setbacks set forth in 310 CMR 15.211.

15.030: Records

(1) The local approving authority shall maintain records for each system within its jurisdiction and shall keep on file copies of the following documents:
(a) Applications, plans and specifications for the construction, upgrade or expansion of on-site subsurface sewage disposal systems, including all forms and data submitted by the applicant and Soil Evaluator;
(b) Disposal System Construction Permits;
(c) As-built plans indicating all modifications to the approved plans subsequent to the issuance of a Disposal System Construction Permit;
(d) Reports of construction inspections made prior to issuance of a Certificate of Compliance;
(e) Certificates of Compliance issued or denied;

15.029: continued

(f) Inspection Forms and plans and specifications for the upgrade or expansion of failing or nonconforming on-site subsurface sewage disposal systems in compliance with 310 CMR 15.300 through 15.354;
(g) system pumping records;
(h) Letters of Non-Compliance issued;
(i) Local enforcement actions taken.

(2) The records listed above shall be available for review upon request.

(3) The local approving authority shall maintain the records set forth in 310 CMR 15.030(1) until such time as the system is abandoned in accordance with 310 CMR 15.000 or an approved connection is made to a sewer in accordance with 314 CMR 7.00.

15.040: Advisory Committee

An Advisory Committee shall be appointed by the Commissioner of the Department to consult with the Department regarding the implementation of 310 CMR 15.000 and to make recommendations regarding regulatory revisions as appropriate. The advisory committee shall at a minimum consist of representatives from health boards, environmental, real estate, and homebuilders organizations and a concerned citizen. The advisory committee shall meet at least quarterly and the members shall serve without compensation. The Commissioner may invite the heads of other state agencies to delegate representatives to the Advisory Committee.

15.041: Report on Percolation Rate, Soils Analysis, Shared and Alternative Systems

(1) By January 1, 1998 the Department shall prepare a report for public review and comment which details its experience in implementing this revision to 310 CMR 15.000 and contains suggested regulatory revisions as appropriate. The report shall focus on:
(a) the use of a 30 to 60 minute per inch percolation rate for the repair of existing systems and the considerations applicable to increasing the allowable percolation range for new construction;
(b) the feasibility of developing and using a system siting procedure based solely on soils analysis, or upon a combination of soils analysis and percolation rates;
(c) a summary of the Department's experience regarding construction and maintainance of shared systems;
(d) a summary of the Department's experience in approving alternative systems pursuant to 310 CMR 15.000;
(e) an assessment of the number and cost of system upgrades which should be accomplished in order to protect public health, safety, welfare and the environment based upon the results of inspections conducted to date and other relevant information;
(f) an assessment of critical resource areas and impacts of pollution to those areas to determine whether a program for identification and upgrade of failing systems beyond what is provided in 310 CMR 15.000 is needed to ensure adequate protection;
(g) the feasibility of developing siting and design criteria that have express terms addressing pollutant loadings directly rather than through estimated flow;
(h) an analysis of septage disposal to determine if additional requirements concerning the designation of disposal locations by local approving authorities is necessary to ensure adequate septage disposal and proper allocation of septage capacity statewide in accordance with a septage management plan;
(i) an analysis of the application of the nitrogen loading limitations contained in 310 CMR 15.214 to commercial uses where the use of both on-site systems and drinking water supply wells is proposed to serve the facility;
(j) an assessment of local regulations more stringent than 310 CMR 15.000 and the reasons stated by the local approving authorities at the public hearing in accordance with M.G.L. c. 111, § 31 identifying the local conditions which exist or the reasons for requiring more protection than is provided under 310 CMR 15.000; and
(k) a summary of the Department's experience in inspections at time of transfer and alternative approaches.

15.041: continued

(2) By January 1, 1998 the Executive Office of Environmental Affairs and the Department shall issue a report making recommendations based upon the information gathered above and other relevant materials, which shall provide clear and concise direction for the use of innovative, alternative, clustered and shared on-site sewage treatment and disposal systems on land not currently buildable.

The reports shall contain recommendations, based upon the studies and information gathered, for amendments to 310 CMR 15.000. By January 1, 1999 the Department shall revise 310 CMR 15.000 as it deems necessary to implement the recommendations. The Department is committed to increasing the maximum allowable percolation rate to 60 minutes per inch together with the use of soils analysis for new construction as well as the repair of existing systems unless the Department concludes based on the report that this is not appropriate.

15.050: Severability

The provisions of 310 CMR 15.000 are severable. If any provision of 310 CMR 15.000 is declared to be invalid or inapplicable to any particular circumstance, that invalidity or inapplicability will not effect the enforceability of the remainder of 310 CMR 15.000.

15.100: General Provisions

(1) Every location proposed for the construction, upgrade, or expansion of an on-site subsurface sewage disposal system shall be evaluated based upon an analysis of all site characteristics which may affect system function and performance in accordance with the evaluation criteria specified in 310 CMR 15.101 through 15.107.

(2) After January 1, 1996, every location (which has not filed for or which does not have a valid disposal works construction permit issued under the 1978 Code) shall be field evaluated for suitability for subsurface sewage disposal consistent with 310 CMR 15.000 by a Soil Evaluator approved by the Department in accordance with 310 CMR 15.018 prior to the commencement of final system design pursuant to Subpart C of 310 CMR 15.000 and application for a Disposal System Construction Permit. The evaluation shall include a soil profile on every proposed disposal area for which a Disposal System Construction Permit has not yet been issued.

15.101: Soil Evaluation Criteria

(1) Every proposed disposal area shall be examined to determine if the disposal area is compatible with the proposed sewage disposal system in relation to the design flow set forth in 310 CMR 15.203 and system location criteria set forth in 310 CMR 15.106.

(2) Every proposed disposal area shall be assessed based on the following field test and analysis criteria:

(a) deep observation hole testing;
(b) soil profile determination;
(c) percolation testing;
(d) landscape position; and
(e) hydrogeologic properties

(3) Soil evaluation may be conducted at any time of the calendar year, provided that the Soil Evaluator makes and records on the site evaluation form proper consideration of the hydrogeologic properties of the specific site as required in 310 CMR 15.107 for the period of the water year within which the evaluation is performed.

15.102: Deep Observation Hole Test

(1) The purpose of the deep observation hole test is to determine in accordance with 310 CMR 15.103 the soil profile in the proposed disposal area, the depth of overburden above ledge, bedrock or impervious layer(s), and to determine the observed ground-water elevation at the time of testing and to gather evidence to determine the adjusted ground-water elevation.

15.102: continued

(2) A minimum of two deep observation hole tests shall be performed at every proposed disposal area. Additional testing may be required if, in the opinion of the Soil Evaluator or the approving authority, additional testing is necessary to properly assess site conditions within the proposed location to ensure that it can be installed entirely on soils and slopes in conformance with the requirements of 310 CMR 15.000.

(3) Deep observation holes shall be excavated in two adjoining segments, the first ending at approximately the five-foot level to allow detailed examination by the Soil Evaluator without need for shoring, and an adjoining segment which shall extend to a minimum depth of four feet below the bottom elevation of the proposed soil absorption system but in no case less than ten feet below existing/natural grade unless such depth is unattainable due to bedrock or refusal or high groundwater, or where human safety may be in jeopardy.

(4) Every deep observation hole shall be located from known and recoverable reference points or benchmarks so that it may be located on the system design plan with an accuracy of one foot. The location of the hole shall be defined as being half way between the side walls of the excavation at the point where the five foot deep segment adjoins the deeper segment.

(5) It shall be the responsibility of the owner or agent to ensure that every deep observation hole is secured to prevent accidents whenever work is not in progress.

15.103: Soil Profile

(1) The Soil Evaluator shall prepare a soil log using a form approved by the Department, in accordance with the Department's most recent manual for Soil Evaluators.

(2) The following characteristics of each recognizable soil horizon or substratum in the deep observation hole testing shall be determined and recorded on the form:

(a) Depth and thickness of horizon;
(b) Estimated soil textural class, using the USDA/SCS system of classification;
(c) Estimated volume percentage of coarse fragment;
(d) Abundance, size and contrast of mottling, if present;
(e) Soil structural class (soil profile pits only); and
(f) Soil consistence.

(3) High ground-water elevation shall be determined by:

(a) observation of actual high water table during times of annual high water table; and/or
(b) soil color using the Munsell system, the abundance, size and contrast of mottling if present and the use of USGS wells for correlating comparisons in water tables during times when the water table is not at the annual high range; and/or
(c) 1. a Department-approved method for determining inland high ground-water elevation as contained in Frimpter, M.H. 1980. "Estimating maximum ground-water levels in Massachusetts," in Farquhar, O.C., Ed. March 1980, *Proceedings of Conf. Geotechnology in Massachusetts*, p. 73; or
2. a Department-approved method for determining coastal high groundwater elevation which incorporates tidal fluctuation information into the use of historical high groundwater data as contained in Frimpter, M.H. and G.C. Belfit, 1992, "Estimating highest ground-water levels for construction and land use planning, Cape Cod, Massachusetts," updated, Barnstable, MA, Cape Cod Commission Technical Bulletin 92-001 or, if the location of the system is affected by tidal cycle typically within 300 feet of mean high water of the ocean, monitoring the high groundwater elevation over a tidal cycle during a full moon high tide.

(4) The Soil Evaluator shall indicate on the soil log whether four feet of naturally occurring pervious materials exist in all areas observed throughout the area proposed for the soil absorption system.

15.104: Percolation Testing

(1) The standard percolation test is intended to give an approximate measure of the soil's percolating capacity. Unsaturated hydraulic conductivities vary dramatically from the saturated hydraulic conductivity with changes in soil characteristics and moisture content. Percolation testing may be conducted at any time of the year and the data obtained in accordance with the procedures specified by 310 CMR 15.000 may be deemed valid for an indefinite period provided the soils within the site evaluated remain undisturbed and unaltered.

(2) A percolation test shall provide data necessary to assess the suitability of the soil to transmit water from the soil absorption system and to a depth of four feet below this elevation. Where the soil varies with depth as indicated by the results of the deep observation hole testing performed pursuant to 310 CMR 15.102, percolation tests shall be required in the soil which is identified to be the most restrictive by the Soil Evaluator with the concurrence of the approving authority.

(3) Percolation tests shall be performed by a Massachusetts Registered Professional Engineer, Massachusetts Registered Sanitarian, a Soil Evaluator, or a person who:

(a) in the opinion of the approving authority is qualified to perform such tests;

(b) has one year of documented experience in satisfactorily performing such tests; and

(c) has used or gained skills that demonstrate sufficient competence to perform such tests. All percolation testing shall be performed in the presence of an authorized representative of the approving authority.

(4) At least two percolation tests shall be performed at the proposed disposal area, one in the primary area in which the soil absorption system is to be located and one in the proposed reserve area. Additional tests shall be required where soil conditions vary or where system design exceeds 2,000 gpd. In such instances, a minimum of three percolation tests, spaced uniformly over the proposed soil absorption area, shall be performed in addition to the test in the proposed reserve area.

(5) Where 310 CMR 15.104(4) requires multiple percolation tests, the results of the test providing the slowest rate shall be used for system design. Averaging of percolation test rates across the site is prohibited.

(6) Percolation tests may be performed at any time of the year provided the soil to be tested is below the frozen soil layer.

(7) Percolation tests shall not be performed in holes that have remained open to the atmosphere for more than three consecutive days.

(8) Percolation tests shall not be performed in filled or disturbed ground.

15.105: Procedure for Performing a Percolation Test

A percolation test shall be conducted by performing the following steps in sequence:

(1) Prepare a test hole located within the proposed disposal area which, in the judgment of the Soil Evaluator or the Approving Authority, is the most limiting. The test hole shall have a diameter of 12 inches, as precisely as possible, with vertical sides 18 inches deep not including any allowable liners or filter layers on either the bottom or sides.

(2) Establish a fixed point at the top or bottom of the test hole from which all measurements will be taken.

(3) Scratch the bottom and sides of the test hole to remove any smeared soil surfaces, taking care not to significantly change the hole dimensions. Add two inches of coarse sand to protect the bottom from scouring, or insert a board or other impervious object in the hole so that water may be poured down or on it during the filling operation. A mesh or perforated liner designed to maintain the test hole dimensions in extremely loose soils while allowing essentially unrestricted flow of water may be used with permission of the approving authority.

15.105: continued

(4) Carefully fill the hole with clear water to a minimum depth of 12 inches from the bottom of the hole. Maintain this minimum 12 inch or greater water level by adding water as necessary in order to saturate surrounding soils for a period of no less than 15 minutes after first filling the hole.

(5) After saturation, if the water level drops to a depth of nine inches in fewer than 30 minutes, measure the length of time in minutes for it to drop from a depth of nine inches to a depth of six inches. If the rate is erratic in the opinion of the approving authority, the hole shall be refilled and soaked until the drop per increment of time is steady. The time for the level to drop from a depth of nine inches to a depth of six inches, divided by three, is the percolation rate in minutes per inch.

(6) If the initial three-inch drop requires more than 30 minutes (rate equal to more than ten minutes per inch) the soil shall be saturated by filling the hole to the top and maintaining it full for at least four hours. The soil should then be permitted to swell a minimum of 12 hours so that the soil conditions will approach those which exist during the wettest season of the year. After the 12 hour swelling period, the test shall be made again by filling the hole to a 12-inch depth and maintaining that level for 15 minutes, letting the level drop to nine inches, then timing the drop between nine inches and six inches. The time elapsed between nine inches and six inches, divided by three, shall be the percolation rate.

(7) In certain soils, particularly coarse sands, the soil may be so pervious as to make a percolation test difficult, impractical, and meaningless. At the discretion of the Soil Evaluator and with the concurrence of the approving authority, the percolation test may be discontinued and a rate of two minutes per inch or less can be assumed provided that at least 24 gallons of water has been added to the percolation hole within 15 minutes and it is impossible to obtain a liquid depth of nine inches.

15.106: Landscape Position

(1) The topography of the proposed disposal area shall be identified and recorded on the evaluation form. Particular attention shall be given to recording features which may adversely affect the functioning of an on-site system. These include:

(a) bedrock outcrops or areas with many stones and/or boulders;
(b) steep slopes (greater than 3:1, horizontal to vertical) exhibiting signs of unstable soil such as landslide scars, slump blocks, tree trunks or shrubs bending downslope;
(c) highly disturbed ground as indicated by such features as remnants of foundations or pavements or buried construction debris;
(d) low-lying coastal areas exhibiting signs of tidal inundation or tidal marsh vegetation;
(e) low-lying inland areas exhibiting signs of influence of surface water runoff, ponding or freshwater wetland vegetation; and
(f) flat low-lying areas adjacent to surface water bodies and streams.

(2) The boundary of a velocity zone shall be determined by reference to the National Flood Insurance Program Flood Data and Flood Insurance Rate Maps for each community.

15.107: Hydrogeologic Properties

(1) The hydrogeologic properties of the proposed disposal area shall be identified and recorded on the evaluation form with respect to the following:

(a) estimated direction of ground-water flow;
(b) ground-water table elevation (observed and adjusted by USGS water year data and/or soil mottling);
(c) estimated depth to bedrock if a factor in design of proposed system, or actual depth if encountered during deep observation hole tests;
(d) depth of unsaturated zone, including any perched water tables.
(e) drainage classification of dominant soil type as defined by SCS;
(f) lateral distance to surface water and wetland delineation;
(g) location of every water supply, public and private,

15.107: continued

1. within 400 feet of the proposed system location in the case of surface water supplies and gravel packed public water supply wells,
2. within 250 feet of the proposed system location in the case of tubular public water supply wells, and
3. within 150 feet of the proposed system location in the case of private water supply wells;

(h) approximate safe yield or design capacity of every public water supply, if information is available;

(i) identification of proposed disposal area in relation to the location of nitrogen sensitive areas designated pursuant to 310 CMR 15.215.

(2) When observation wells are appropriate or necessary to determine the hydrogeologic properties of a site or region, such as direction of ground-water flow, perched ground-water tables and seasonal ground-water elevation fluctuations, the general guide for the proper use and installation of ground-water observation wells provided in Department guidance shall be followed.

15.201: Type of System

Each on-site subsurface sewage disposal system approved pursuant to 310 CMR 15.000 shall consist of a septic tank which discharges liquid effluent through a gravity distribution or pressure dosing network to a soil absorption system as hereafter described. No modifications or alterations to the design criteria shall be allowed except pursuant to the alternative system and shared systems provisions of 310 CMR 15.280 through 15.293, or the local upgrade approval or variance procedures of 310 CMR 15.400.

15.202: Use of Recirculating Sand Filters

(1) A recirculating sand filter or equivalent alternative technology approved by the Department in accordance with 310 CMR 15.280 through 310 CMR 15.289 shall be a required design component of all systems with a design flow of 2,000 gpd or more to be located in Nitrogen Sensitive Areas, provided that such RSF shall not be required for a facility for which subdivision approval has been obtained to construct dwellings with a cumulative total design flow of 2,000 gpd or greater if a disposal system construction permit to construct a system with a total design flow of less than 2,000 gpd in full compliance with 310 CMR 15.000 on each of the subdivision lots to be served by a system is obtained and such separate subdivision lots are to be conveyed to independent owners.

(2) A recirculating sand filter may be used to enhance nitrogen removal in systems with a design flow below 2,000 gpd in accordance with 310 CMR 15.217 (enhanced nitrogen removal).

(3) Recirculating sand filters designed and approved in accordance with Department guidance are a certified alternative system for facilities or conditions as set forth at 310 CMR 15.289 (certification of alternative systems).

(4) Recirculating sand filters or equivalent technology shall meet the following requirements:

(a) effluent discharge concentrations shall meet or exceed secondary treatment standards of 30 mg/L BOD_5, 30 mg/L TSS and a minimum of 85% of the influent BOD_5 and TSS shall be removed. The effluent pH shall not vary more than 0.5 standard units from the influent water supply.

(b) total nitrogen concentration in the effluent shall not exceed 25 mg/L and a minimum of 40% of the influent total nitrogen concentration shall be removed.

(c) systems will be required to monitor influent and effluent quality on a quarterly basis. Effluent discharge limits shall be determined on a case by case basis as set forth in 310 CMR 15.202(4)(a) and (b) and shall require, at a minimum, effluent standards for pH, BOD_5, TSS, TKN and NO_3-N.

15.202: continued

(d) recirculating sand filter systems shall contain all components of a standard on-site system and be capable of functioning as a conventional system. Any departures from this provision require written approval from the Department.
(e) the Department and the local approving authority shall be notified of any component or system failure within 24 hours of detection of such failure.
(f) systems with design flows of 2,000 gpd or greater but less than 10,000 gpd shall not qualify for the credit for enhanced nitrogen removal allowed under 310 CMR 15.217.
(g) pressure dosing is required for all systems with design flows of 2,000 gpd or greater but less than 10,000 gpd. Pressure dosing systems shall be designed in accordance with Department guidance.
(h) the four foot separation to high groundwater as required under 310 CMR 15.212 shall be calculated after adding the effect of groundwater mounding to the mean annual high groundwater elevation as determined pursuant to 310 CMR 15.103(3).
(i) the system must be inspected annually by a Massachusetts Registered Professional Engineer and certification submitted to the local approving authority that the system and its components are functioning as designed.
(j) operation and maintenance manuals and procedures must be prepared by a Massachusetts Registered Professional Engineer and submitted as part of the application.

(5) Prior to the use of any recirculating sand filter or equivalent alternative technology approved by the Department in accordance with 310 CMR 15.280 through 310 CMR 15.289, the applicant shall submit to the Department the written approval of the local approving authority together with a copy of the complete application submitted to the local approving authority. The application shall be deemed approved by the Department if, within 60 days of receipt of a complete application the Department fails, in writing:
(a) to request additional information from the applicant; or
(b) grant a written approval, which may include any special conditions the Department believes appropriate to protect public health, safety, or welfare or the environment; or
(c) to deny the approval of the recirculating sand filter or equivalent alternative technology.
In the event the Department requests additional information from the applicant, the 60 day period for Department review shall commence upon receipt of such additional information. In the event the Department denies the approval of the recirculating sand filter or equivalent alternative technology, that determination may be appealed in accordance with 310 CMR 15.422.

15.203: System Sewage Flow Design Criteria

(1) Each component of an on-site subsurface sewage disposal system shall be designed to treat sanitary sewage discharged from all buildings to be served by the system using the System Sewage Flow Design flows set forth at 310 CMR 15.203(2) through (5). Actual water meter data shall not be substituted for the design flow criteria for the activities listed below unless pursuant to 310 CMR 15.416. Design flow is equivalent to estimated generated flow for the proposed use plus a factor representing flow variations.

15.203: continued

TYPE OF ESTABLISHMENT	UNIT	GALLONS PER DAY	MINIMUM ALLOWABLE GPD FOR SYSTEM DESIGN
(2) RESIDENTIAL			
Bed & Breakfast	per bedroom	110	440
Bed & Breakfast with restaurant open to public add	per bedroom	110	
	per seat	35	1000
Camp, resident, mess hall	per person*	10	
Camp, day, washroom and toilets	per person	10	
Camp, day, mess hall	per person	3	
Campground, showers and toilets	per site	90	
Family Dwelling, Single	per bedroom	110	330**
Family Dwelling, Multiple	per bedroom	110	***
Family Mobile Home Park	per mobile home	300	
Motel, Hotel, Boarding House	per bedroom	110	
Retirement Mobile Home Park	per site	150	
Housing for the Elderly	per unit	150	
Work or Construction Camp	per person	50	

* Person in the context of 310 CMR 15.203 shall mean an individual.

** A system may be designed for flows of 220 gpd, if a deed restriction limiting use of the dwelling to two bedrooms is provided, as described in the definition of "bedroom" in 310 CMR 15.002.

*** The number of bedrooms in a condominium shall be as specified in the Master Deed. Establishment of bedrooms in excess of the specified number shall be considered an increase in design flow.

(3) COMMERCIAL			
Amusement Center	per sq.ft.	2	1000
Airport	per passenger	5	150
Barber Shop/Beauty Salon	per chair	100	
Bowling Alley	per alley	100	
Country Club, dining room	per seat	10	
Country Club, snack bar or lunch room	per seat	10	
Country Club, lockers and showers	per locker	20	
Doctor Office	per doctor	250	
Dentist Office	per chair	200	
Factory or Industrial Plant without cafeteria	per person	15	
Factory or Industrial Plant with cafeteria	per person	20	
Gasoline Station	per island****	75	300
with service bays	per bay	125	

**** Plus flows for bays, if any

Kennel/Veterinary Office	per kennel	50	
Lounge, Tavern	per seat	20	
Marina	per slip	10	500
Movie Theater	per seat	5	
Non-single family/ automatic clothes washer	per washing machine	400	
Office building	per 1000 sq.ft.	75	200

15.203: continued

TYPE OF ESTABLISHMENT	UNIT	GALLONS PER DAY	MINIMUM ALLOWABLE GPD FOR SYSTEM DESIGN
(3) COMMERCIAL (continued)			
Retail Store	per 1000 sq.ft.	50	200
Restaurant	per seat	35	1000
Restaurant, thruway service area	per seat	150	1000
Restaurant, Fast Food	per seat	20	1000
Restaurant, kitchen flow [for sizing of grease trap only]	per seat	15	
Service Station [no gas]	per bay	150	450
Skating Rink	per seat	5	3000
Swimming Pool	per person	10	
Tennis Club	per court	250	
Theater, Auditorium	per seat	3	
Trailer, dump station	per trailer	75	
(4) INSTITUTIONAL			
Church or Temple	per seat	3	
Correctional Facility	per bed	200	
Function Hall	per seat	15	
Gymnasium	per participant	25	
Gymnasium	per spectator	3	
Hospital	per bed	200	
Nursing Home/Rest Home	per bed	150	
Public Park, toilet waste only	per person	5	
Public Park, bathhouse, showers and flush toilets	per person	10	
(5) SCHOOLS			
Elementary School, without cafeteria, gymnasium or showers	per person	5	
Elementary School, with cafeteria but no gymnasium with showers	per person	8	
Elementary School, with cafeteria, gymnasium and showers	per person	10	
Secondary/Middle School, without cafeteria, gymnasium or showers	per person	10	
Secondary/Middle School, with cafeteria but no gymnasium or showers	per person	15	
Secondary/Middle School, with cafeteria, gymnasium and showers	per person	20	
Boarding Schools, Colleges	per person	65	

15.203: continued

(6) System design flows for facilities other than those listed above shall be established, with approval of the Department, in relation to actual meter readings of established flows from known or similar installations. In those instances, design flows shall be based on 200% of average water meter readings in order to assimilate maximum daily flows.

(7) In schools, flows generated from sinks or other drains receiving wastes from science laboratories, graphics arts classrooms, or vocational school activities, including, but not limited to, automotive repair painting, or metal fabrication are classified industrial wastes and shall be directed pursuant to an appropriate permit, to a sewer, if a sewer connection is feasible and, if not, then to an industrial waste holding tank approved by the Department or an approved hazardous waste collection receptacle.

15.210: Setback Requirements and Loading Limitations for Locating and Designing Systems

15.211: Minimum Setback Distances

(1) All systems must conform to the minimum setback distance for septic tanks and soil absorption systems, including reserve area, measured in feet and as set forth below. Where more than one setback applies, all setback requirements shall be satisfied.

	Septic Tank	Soil Absorption System
Property Line	10	10
Cellar Wall or Swimming Pool (inground)	10	20
Slab Foundation	10	10
Water Supply Line (pressure)	10[1]	10[1]
Surface Waters (except wetlands)	25	50
Bordering Vegetated Wetland (BVW), Salt Marshes, Inland and Coastal Banks	25	50
Surface Water Supply - Reservoirs and Impoundments	400	400
Tributaries to Surface Water Supplies	200	200
Wetlands bordering Surface Water Supply or Tributary thereto	100	100
Certified Vernal Pools	50	100[2]
Private Water Supply Well or Suction Line	50	100
Public Water Supply Well	(2)	(2)
Irrigation Well	10	25
Open, Surface or Subsurface Drains which discharge to Surface Water Supplies or tributaries thereto	50	100
Other Open, Surface or Subsurface Drains (excluding foundation drains) which intercept seasonal high groundwater table [3]	25	50
Other Open, Surface or Subsurface Drains (excluding foundation drains)	5	10
Leaching Catch Basins & Dry Wells	10	25
Downhill Slope	not applicable	15[4]

[1] Disposal facilities shall also be at least 18 inches below water supply lines. Wherever sewer lines must cross water supply lines, both pipes shall be constructed of class 150 pressure pipe and shall be pressure tested to assure watertightness.

15.211: continued

[2] The required setback shall be 50 feet where the applicant has provided hydrogeologic data acceptable to the approving authority demonstrating that the location of the soil absorption system is hydraulically downgradient of the vernal pool. Surface topography alone is not determinative.
[3] Surface or subsurface drains which will regularly or periodically intercept the seasonal high groundwater table and carry that groundwater away from an area must meet the specified setbacks.
[4] The setback distance shall be measured from a naturally-occurring downhill slope which is not steeper than 3:1 (horizontal:vertical). A minimum 15 foot horizontal separation distance shall be provided between the top of the peastone in the soil absorption system and the adjacent downhill slope. For a system located in an area with any adjacent naturally occurring downhill slope steeper than 3:1, slope stabilization shall be provided in accordance with best engineering practice which may include construction of a concrete retaining wall constructed in accordance with 310 CMR 15.255(2).

(2) No system shall be constructed within a Zone I of a public water supply well or wellfield. No system shall be upgraded or expanded within a Zone I of a public water supply well or wellfield unless a variance is granted pursuant to 310 CMR 15.410 through 15.415.

(3) All setback distances from water bodies shall be measured from the bank of the water body. All setback distances from wetlands shall be measured in accordance with the criteria of the wetlands protection act and 310 CMR 10.00, from the most landward edge of the following features: bordering vegetated wetland as defined in 310 CMR 10.55(2); salt marsh as defined in 310 CMR 10.32(2); top of inland bank as defined in 310 CMR 10.54(2); or top of coastal bank as defined in 310 CMR 10.30(2). In the event of disputes concerning landward boundary of resources subject to the Wetlands Protection Act, the boundary shall be as delineated by the municipal Conservation Commission or the Department in accordance with 310 CMR 10.00, as amended, and relevant interpretive guidance documents.

15.212: Depth to Groundwater

The minimum vertical separation distance of the bottom of the stone underlying the soil absorption system above the high ground-water elevation shall be
(a) four feet in soils with a recorded percolation rate of more than two minutes per inch;
(b) five feet in soils with a recorded percolation rate of two minutes or less per inch.

15.213: Construction in Velocity Zones and Floodways

(1) No septic tank or humus/composting toilet shall be constructed in a velocity zone on a coastal beach, barrier beach, or dune, or in a regulatory floodway, except a septic tank that replaces a tank in existence on the site as of March 31, 1995 that has been damaged, removed or destroyed, where placement of the tank outside of the velocity zone or regulatory floodway, either horizontally or vertically, is not feasible. Where reconstruction of a system in existence on March 31, 1995 occurs or reconstruction of a building or buildings is allowed in accordance with the wetlands protection act and 310 CMR 10.00, it shall be presumed to be feasible to elevate the tank if the building is elevated above the velocity zone or regulatory floodway.

(2) No soil absorption system shall be constructed in a velocity zone on a coastal beach, barrier beach, or dune, or in a regulatory floodway, unless
(a) the system is to serve a building or buildings that were in existence on March 31, 1995 or reconstruction of such building or buildings where allowed in accordance with the wetlands protection act and 310 CMR 10.00;
(b) there is no increase in design flow from such building or buildings;
(c) no connection to a public sewer or shared system is available;
(d) the owner or applicant cannot site the system elsewhere;
(e) the septic tank or humus/composting toilet is sited outside of the velocity zone or regulatory floodway, either horizontally or vertically;
(f) the system achieves required separation from high groundwater elevation required by 310 CMR 15.212; and

15.213: continued

(g) any portion of the soil absorption system that is within the velocity zone or regulatory floodway is a leaching bed or trench system or any other system constructed in accordance with the wetlands protection act and 310 CMR 10.00.

15.214: Nitrogen Loading Limitations

(1) No system serving new construction in Nitrogen Sensitive Areas designated in 310 CMR 15.215 shall be designed to receive or shall receive more than 440 gallons of design flow per day per acre except as set forth at 310 CMR 15.216 (aggregate flows) or 15.217 (enhanced nitrogen removal).

(2) No system serving new construction in areas where the use of both on-site systems and drinking water supply wells is proposed to serve the facility shall be designed to receive or shall receive more than 440 gallons of design flow per day per acre from residential uses except as set forth at 310 CMR 15.216 (aggregate flows) or 15.217 (enhanced nitrogen removal).

(3) It shall be the duty of the owner of the system or proposed system to ascertain whether or not the facility to be constructed will be in a nitrogen sensitive area. The Department will prepare and make available at locations generally accessible to the public maps portraying designated nitrogen sensitive areas within the Commonwealth.

15.215: Designation of Nitrogen Sensitive Areas

The following areas have been determined by the Department to be particularly sensitive to the discharge of pollutants from on-site sewage disposal systems and are therefore designated nitrogen sensitive. The necessity of providing increased treatment of pollutants and reduction in nutrients discharged from on-site sewage disposal systems, including nitrogen, nitrogen as nitrate, phosphorous and pathogens in these areas warrants the imposition of the loading restrictions set forth in 310 CMR 15.214.

(1) Interim Wellhead Protection Areas and mapped Zone IIs of public water supplies as set forth in 310 CMR 22.21;

(2) Nitrogen sensitive embayments or other areas which are designated as nitrogen sensitive for purposes of 310 CMR 15.000 shall be mapped based on scientific evaluations of the affected water body and adopted through parallel public processes in both 310 CMR 15.000 and in the Massachusetts Water Quality Standards - 314 CMR 4.00.

15.216: Aggregate Determinations of Flows and Nitrogen Loadings

The 440 gallons per day per acre nitrogen loading limitations imposed by 310 CMR 15.214 may be calculated in the aggregate in the following situations:

(1) in identified areas within regions or communities that have submitted to the Department a plan to protect surface and ground-water supplies within the community or those designated areas from pollutant and nutrient loading and a proposed mechanism for implementing the plan and where the plan has been approved in writing by the Department. For areas that include Zone IIs or Interim Wellhead Protection areas, the plan shall include, but not be limited to, a nitrate loading plan as specified in 310 CMR 22.21(2)(d); or

15.216: continued

(2) the applicant demonstrates that a combination of inherent physical limitations upon the development of the facility in question and/or recorded publicly- and/or privately-imposed land use and development restrictions and/or conservation easements upon the facility in question and/or adjacent land areas result in a net rate of 440 gpd or less per acre across the facility and adjacent land areas, although not on every individual acre comprising the facility, and the plan has been approved in writing by the approving authority and, in the case of recorded land use and development restrictions and/or conservation easements on adjacent land areas, approved by the Department and the owner. The plan will have been deemed approved by the Department if, within 60 days of receipt of such plan, the Department fails, in writing:

(a) to request additional information from the applicant; or

(b) grant a written approval, which may include any special conditions the Department believes appropriate to protect public health, safety, or welfare or the environment; or

(c) to deny the approval of the plan.

In the event the Department requests additional information from the applicant, the 60 day period for Department review shall commence upon receipt of such additional information.

15.217: Systems with Enhanced Nitrogen Removal

(1) The nitrogen loading limitations established in 310 CMR 15.214 shall not apply to discharge of an effluent meeting the federal Safe Drinking Water Act nitrate standard of 10 ppm through either an approved alternative system or a treatment works with a groundwater discharge permit issued pursuant to 314 CMR 5.00 (groundwater discharge program).

(2) For systems with a design flow below 2000 gpd, an increase in calculated allowable nutrient loading per acre may be allowed for the use of a technology certified for enhanced nutrient removal pursuant to 310 CMR 15.281 through 15.289 as illustrated by the following example:

Recirculating Sand Filter	550 gpd/acre

The increased design flow allowed reflects the nutrient removal performance of the approved technology compared to a standard system otherwise described in 310 CMR 15.100 through 15.293. A system receiving a design flow credit for enhanced nutrient removal pursuant to 310 CMR 15.217 must still comply with the requirements of 310 CMR 15.100 through 15.293 with respect to system siting and design; the credit does not affect any other siting or design requirement.

15.220: Preparation of Plans and Specifications

The plans and specifications for every on-site system shall be prepared as follows:

(1) Every system shall be designed by a Massachusetts Registered Professional Engineer or a Massachusetts Registered Sanitarian provided that such Sanitarian shall not design a system designed to discharge more than 2,000 gallons per day pursuant to 310 CMR 15.203. Any other agent of the owner may prepare plans for the repair of a system designed to discharge not more than than 2,000 gallons per day pursuant to 310 CMR 15.203 provided they are reviewed by a Massachusetts Registered Sanitarian and approved by the approving authority;

(2) Every plan submitted for approval must be dated and bear the stamp and signature of the designer;

(3) Every plan for a new system or plan for the upgrade or expansion of an existing system which requires a variance to a property line setback distance, must also reference a plan which bears the stamp and signature of a Massachusetts Licensed Land Surveyor in accordance with M.G.L. c. 112, § 81D;

15.220: continued

(4) Every plan for a system shall be of suitable scale (one inch = 40 feet or fewer for plot plans and one inch = 20 feet or fewer for details of system components) and shall include depiction of:

(a) the legal boundaries of the facility to be served;

(b) the holder and location of any easements appurtenant to or which could impact the system;

(c) the location of the all dwelling(s) or building(s) existing and proposed on the facility and identification of those to be served by the system;

(d) the location of existing or proposed impervious areas, including driveways and parking areas;

(e) location and dimensions of the system (including reserve area);

(f) system design calculations, including design daily sewage flow, septic tank capacity (required and provided); soil absorption system capacity (required and provided); and whether system is designed for garbage grinder;

(g) North arrow and existing and proposed contours;

(h) location and log of deep observation hole tests including the date of test, existing grade elevations marked on each test, and the names of the representative of the approving authority and soil evaluator;

(i) location and results of percolation tests including the date of test and the names of the representative of the approving authority and soil evaluator;

(j) name and certification number of the Soil Evaluator of record;

(k) location of every water supply, public and private,

1. within 400 feet of the proposed system location in the case of surface water supplies and gravel packed public water supply wells,

2. within 250 feet of the proposed system location in the case of tubular public water supply wells, and

3. within 150 feet of the proposed system location in the case of private water supply wells;

(l) location of any surface waters of the Commonwealth, rivers, bordering vegetated wetlands, salt marshes, inland or coastal banks, regulatory floodway, velocity zone, surface water supplies, tributaries to surface water supplies, certified vernal pools, private water supplies or suction lines, gravel packed or tubular public water supply wells, subsurface drains, leaching catch basins, or dry wells; and the location of any nitrogen sensitive area identified in 310 CMR 15.215 within which portions of the proposed system are located.

(m) location of water lines and other subsurface utilities on the facility;

(n) observed and adjusted ground-water elevation in the vicinity of the system;

(o) a complete profile of the system;

(p) a note on the plan listing all variances to the provisions of 310 CMR 15.000 sought in conjunction with the plan;

(q) the location and elevation of one benchmark within 50 to 75 feet of the facility which is not subject to dislocation or loss during construction on the facility;

(r) when dosing is proposed, complete design and specification of the dosing system proposed including but not limited to dosing chamber capacity (required and provided), pump curves and specifications, number of dosing cycles and depth per cycle;

(s) when a Recirculating Sand Filter or equivalent alternative technology is required or proposed, a complete plan and specification for the system, including a hydraulic profile;

(t) a locus plan to show the location of the facility including the nearest existing street;

(u) the street number and lot number, if any, of the facility; and

(v) the materials of construction and the specifications of the system.

15.221: General Construction Requirements for All System Components

(1) All tanks, including septic tanks, distribution boxes, dosing chambers and grease traps, shall be either:

(a) watertight through manufacturer's specification and warranty; or

(b) made watertight by the manufacturer, equipment supplier or installer using asphalt or synthetic polymer sealer specified by the concrete or synthetic material manufacturer.

15.221: continued

(2) Septic tanks, grease traps, dosing chambers and distribution boxes shall be constructed or set level and true to grade on a level stable base which has been mechanically compacted. If the component is placed in fill, proper compaction is required to ensure stability and to prevent settling; native ground with a six inch stone base is otherwise adequate.

(3) Septic tanks, grease traps and dosing chambers shall be equipped with a watertight access manhole(s) with a minimum diameter of 20 inches and constructed of durable material.

(4) All system components shall be constructed of corrosion resistant materials.

(5) All piping shall be a minimum of Schedule 20 PVC in areas not subject to automobile or heavy equipment traffic. In areas where such traffic exists or is anticipated, Schedule 40 PVC shall be used.

(6) All pressurized pipes shall be designed and installed to meet the following requirements:
(a) to prevent freezing by being installed below the frost line, by being adequately insulated if installed above the frost line, or be self-draining;
(b) to specify the appropriate class or schedule of pipe to withstand maximum pressure and/or anticipated vehicular loads; and
(c) to specify appropriate thrust blocking at all angles, bends, branches, plugs and wherever else necessary to prevent disruption of proper functioning of the line.

(7) The top of all system components, including the septic tank, distribution box or dosing chamber and soil absorption system, shall be installed no more than 36" below finish grade. Where site restrictions prevent compliance with this provision, a variance may be sought.

(8) Where any portion of any component is to be placed at or below the ground-water table, all system tankage, including the septic tank, distribution box, dosing chamber or grease trap, shall be designed with counter weights, anchors or ballast and a buoyancy calculation for the entire volume of each component, when empty, shall be performed and submitted with the system plans and specifications.

(9) Recirculating sand filters or equivalent technology shall be used in accordance with the provisions of 310 CMR 15.202 and Department guidance.

15.222: Building Sewers

(1) The building sewer shall be sufficient to serve the connected fixtures. In no case shall the building sewer be less than four inches in diameter.

(2) The minimum distance between a building sewer, and a private water supply well or suction line shall be ten feet.

(3) The building sewer shall be constructed of corrosion resistant material and equipped with water tight joints; cast-iron, schedule 40 PVC pipe or the equivalent.

(4) All pipe joints of the building sewer shall be made water-tight and protected against damage by roots. Poured-type joints shall be properly wiped on the inside to eliminate obstruction of flow.

(5) The building sewer shall be laid on a compacted firm base.

(6) The building sewer shall be designed to provide a minimum velocity of sewage flow of two feet per second when flowing full. This requirement is met when a four-inch
building sewer is laid at a slope of not less than 0.01 (⅛ inch per foot). A slope of 0.02 (¼ inch per foot) is preferable.

(7) The building sewer shall be laid on a continuous grade and as nearly as possible in a straight line in accordance with accepted engineering practice.

15.222: continued

(8) Manholes, with metal frames and covers at grade, shall be provided at the junction of two or more sewers, at all sharp changes in direction or a change in grade of the sewers, and at intervals no greater than 100 feet. Where building sewers join lateral sewers or at changes in direction less than 90° and a long radius bend is provided, a cleanout accessible at ground surface may substitute for a manhole. All gravity sewer manholes shall have an open channel depth equal to or greater than the diameter of the inlet sewer and the change of direction in each manhole shall not exceed 90°. (Change of direction is the interior angle between the new direction of flow and the projected extension of the original direction of flow.)

(9) The building sewer shall be vented through the vent stack or main vent of the building served by it. No trap shall be installed in the building sewer or building drain.

(10) All building sewers shall be constructed in accordance with the State Plumbing Code, 248 CMR 2.00.

15.223: Septic Tanks

(1) Septic tanks shall have the following capacities:
(a) For a single family dwelling unit, a minimum effective liquid capacity of 200% of the design flow or a minimum hydraulic detention flow of 48 hours, whichever is greater, shall be required. In no case shall the effective liquid capacity of the tank as measured below the outlet invert elevation be less than 1,500 gallons.
(b) When designed to serve facilities other than a single family dwelling unit, and whenever the calculated design capacity is greater than 1,000 gallons per day, a two compartment tank or two tanks in series which meet(s) the design criteria specified in 310 CMR 15.203 is required. The minimum effective liquid capacity of each tank in series shall be 200% of the design flow. In no case shall the effective liquid capacity of each tank be less than 1,500 gallons.
(c) When a domestic garbage grinder is proposed or installed, the minimum liquid capacity of the septic tank shall be 200% of the design flow with a minimum tank size of 1,500 gallons and a two compartment tank or two tanks in series shall be required which meet the design criteria specified in 310 CMR 15.223. Domestic garbage grinders shall be prohibited in systems which include an elevated septic tank constructed in accordance with 310 CMR 15.213 (construction in V-zones).

(2) The liquid depth of the tank, measured from the outlet tee invert to the tank bottom, shall be a minimum of four feet. A tank with a minimum depth of three feet below the outlet tee invert may be permitted only for upgrade of existing nonconforming or failed systems, pursuant to 310 CMR 15.404 (local upgrade approvals), where installation of a tank with a four foot liquid depth is not feasible and shall be pumped on an annual basis with the results submitted to the local approving authority.

(3) Tanks which are rectangular in cross-section shall have a minimum inside length to width ratio of no less than 1.5 to 1. Round tanks may be allowed. The inside length of all tanks, measured from the inlet tee to the outlet tee, shall be a minimum of six feet. The inside width of the tank shall be a minimum of three feet. Larger length to width ratios are preferred.

(4) Vertical cylindrical tanks shall have a minimum diameter of five feet.

(5) Horizontal cylindrical tanks shall have a minimum length of six feet and a minimum width at the liquid surface of three feet.

15.224: Multiple Compartment Tanks

Tanks with multiple compartments shall be required as specified in 310 CMR 15.223(1). When multiple compartment tanks are used the following shall be required:

(1) The number of compartments shall not exceed two;

15.224: continued

(2) The first compartment shall be sized for a minimum hydraulic detention time of 48 hours based on the design flow;

(3) The second compartment shall be sized for a minimum hydraulic detention time of 24 hours based on the design flow;

(4) The compartments shall be interconnected by a minimum four inch vented, inverted U-shaped pipe which extends below the bottom of the scum layer; and

(5) The outlet tee and the compartment interconnection shall be equipped with a corrosion resistant gas baffle.

15.225: Tanks in Series

(1) Tanks in series may be approved to satisfy the requirements of 310 CMR 15.224 provided that:
(a) the number of tanks does not exceed two; and
(b) the design criteria of each tank corresponds to the requirements for compartmental tanks in 310 CMR 15.224.

(2) Septic tanks in parallel shall not be allowed without the prior written approval of the Department.

15.226: Construction of Septic Tanks

(1) Septic tanks shall be constructed of sound and durable watertight materials not subject to excessive corrosion, decay, or frost damage, or cracking or buckling due to settlement or backfilling. Septic tanks may be constructed of the following materials:
(a) poured-in-place concrete;
(b) precast reinforced concrete;
(c) fiberglass;
(d) polyethylene; or
(e) other materials as approved in writing by the Department.
Metal septic tanks are prohibited.

(2) Tank construction materials shall meet the following minimum specifications:
(a) Concrete
1. Concrete Strength f'c 4,000 PSI @ 28 days. Density 140 PCF
2. Cement, Portland Type I or III per ASTM C150-81
3. Admixtures per ASTM C233-82
4. Reinforcing per ASTM A615 for wire fabric. Grade 40/60 R'd or equivalent.
5. Design loading H-10
6. Minimum wall thickness: four inches; three inch thickness is allowable if reinforced.
(b) Synthetic
1. Ultimate tensile strength - minimum 12,000 PSI when tested in accordance with ASTM D 638-89, Standard Method of Test for Tensile Properties of Plastics.
2. Flexural strength - minimum 19,000 PSI when tested in accordance with ASTM D 790-86, Standard Method of Test for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
3. Flexural modulus of elasticity - minimum 800,000 PSI when tested in accordance with ASTM D 790-86, Standard Method of Test for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

(3) Tanks, covers, connections and piping shall be designed and constructed so as to withstand an anticipated minimum H-10 loading. Any tank installed in a location where there is the potential for vehicles or heavy equipment to pass over it shall be designed to withstand an H-20 loading.

15.226: continued

(4) Manufacturers of septic tanks shall implement a quality control/quality assurance program in conformity with ASTM standard C 1227-93. Tanks shall be embossed with a seal stating that this ASTM standard has been met.

15.227: Placement and Construction of Tees

(1) Inlet and outlet tees shall be of cast-iron, Schedule 40 PVC, or cast-in-place concrete, and shall extend a minimum of six inches above the flow line of the septic tank and be on the center line of the septic tank located directly under the clean-out manhole. Cross-sectional flow baffles shall not be used as substitutes for inlet or outlet tees.

(2) The minimum separation between inlet and outlet tees shall be no less than the liquid depth of the septic tank and shall be the longest direction (which shall not include the diagonal distance) across the tank in plan view.

(3) Inlet and outlet tees to rectangular tanks shall be set in the end walls or into a side wall within 12 inches of the end wall. For circular tanks, the inlet and outlet tees shall be set and stabilized on opposite ends of a diameter of the tank.

(4) There shall be an air space of at least three inches between the tops of the tees and the inside of the tank cover. The tops of the tees shall be left open to provide ventilation or separate ventilation shall be provided. The outlet tee and compartment connection shall be equipped with gas baffles.

(5) The inlet pipe elevation shall be no less than two inches nor more than three inches above the invert elevation of the outlet pipe.

(6) The inlet tee shall extend a minimum of ten inches below the flow line. The outlet shall be provided with a tee extending below the flow line in accordance with the following table:

Liquid Depth in Septic Tank	Depth of Outlet Tee below Flow Line
4 feet	14 inches
5 feet	19 inches
6 feet	24 inches
7 feet	29 inches
8 feet	34 inches

15.228: Placement and Accessibility of Septic Tank

(1) Septic tanks shall be installed level and true to grade on a level stable base that has been mechanically compacted and on to which six inches of crushed stone has been placed to minimize uneven settling. If the septic tank is placed in fill, proper compaction is required to ensure stability and to prevent settling. Septic tanks shall have a minimum cover of nine inches.

(2) At least three 20 inch manholes with readily removable impermeable covers of durable material shall be provided. Access ports shall be placed at the center and over each inlet and outlet tee. For compartmental tanks, the center manhole shall be placed as access to the compartment connection. Inlet and outlet tees shall be made accessible for inspection and maintenance by providing precast concrete or equivalent watertight risers (with steps where appropriate) with covers over the access ports to within six inches of finish grade for system designs in excess of 1,000 gpd. For system designs of 1,000 gpd or less, at least one access port shall be accessible within six inches of final grade. Manholes brought to final grade shall be secured to prevent unauthorized access.

(3) Septic tanks shall be accessible for inspection and maintenance. No structures shall be located directly upon or above the septic tank access locations which interfere with performance, access, inspection, pumping, or repair.

15.228: continued

(4) Septic tanks shall be inspected and maintained in accordance with 310 CMR 15.300 and applicable local requirements.

15.229: Pumping to Septic Tanks

(1) System designs specifying pumping of sewage to a septic tank may be approved by the local approving authority for a single family dwelling discharging a volume of sewage less than 25% of the design flow of the system, provided the pump discharge pipe is connected to the building sewer and:

(a) in the case where the sewage ejector pump is a non-grinder pump, the discharge flow rate shall be fewer than 60 gallons per minute at the design total dynamic head (TDH) and capable of passing a two-inch diameter solid, and the septic tank shall have a minimum effective volume of 1,000 gallons; or

(b) in the case where the sewage ejector pump is a grinder pump, the discharge flow rate shall be less than 20 gallons per minute at the design TDH, and the septic tank has a minimum effective volume of 1,500 gallons.

(2) It is not recommended to pump greater than 25% of the design flow of the system to a septic tank; however, when necessary system designs specifying pumping of sewage to a septic tank may be approved by the local approving authority for a single family dwelling discharging a volume of sewage greater than 25% of the design flow of the system, provided the pump discharge pipe is connected to the building sewer and:

(a) the requirements of 310 CMR 15.229(1)(a) or 15.229(1)(b) are met;

(b) the pump discharges to a multi-compartment septic tank designed in accordance with 310 CMR 15.224; and

(c) standby power, a hookup for standby power or storage capacity equal to at least the volume of the design flow for one day is provided.

Non-grinder pumps are the preferred alternative.

(3) All other uses of sewage pumps prior to the septic tank without the prior written approval of the Department are prohibited.

15.230: Pretreatment Units - Grease Traps

(1) Grease traps shall be provided for kitchen flows at restaurants, nursing homes, schools, hospitals and other facilities from which quantities of grease can be expected to be discharged.

(2) Grease traps shall be installed on a separate building sewer serving kitchen flows into which the grease will be discharged. The discharge from the grease trap must flow to a properly designed septic tank or to a building sewer prior to the septic tank.

(3) Grease traps shall have a minimum depth of four feet and a minimum capacity of 1,000 gallons, and shall have sufficient capacity to provide at least a 24-hour detention period for the kitchen flow. Kitchen flow shall be calculated in accordance with 310 CMR 15.203.

(4) Grease traps shall be watertight and constructed of the materials specified in 310 CMR 15.221 and 15.226(1) and (2).

(5) The inlet tee shall extend to the mid depth of the tank. The outlet tee shall extend to within 12 inches of the bottom of the tank. Tees shall be cast-iron or Schedule 40 PVC and properly supported by a hanger, strap or other device.

(6) Grease traps shall be installed on a level stable base that has been mechanically compacted and onto which 6 inches of crushed stone has been placed to minimize uneven settling.

(7) Grease traps shall be provided with a minimum 20-inch diameter manhole frame and cover to grade over the inlet and outlet tees.

15.230: continued

(8) Grease traps shall be accessible for inspection and maintenance. No structures shall be constructed directly upon or above the grease trap access locations.

(9) The invert elevation of the inlet of a grease trap shall be at least two inches above the invert elevation of the outlet. The inlet and outlet shall be located at the center line of the tank, and at least 12 inches above the maximum groundwater elevation.

(10) Backfill around the grease trap shall be placed in such a manner as to prevent damage to the tank.

(11) Grease traps shall be maintained in accordance with 310 CMR 15.351.

(12) Grease removal by other devices located within the building as part of the internal plumbing are not within the jurisdiction of 310 CMR 15.000 and shall not be considered for compliance with 310 CMR 15.230 except with the prior written approval of the Department.

15.231: Dosing Chambers and Pumps

(1) A dosing chamber shall be required for any system designed for intermittent discharge of septic tank or recirculating sand filter effluent, or in conjunction with pressure dosing pursuant to 310 CMR 15.254(2) for any system with a design flow of greater than 2,000 gpd, or where multiple soil absorption systems are proposed.

(2) All dosing chambers shall have an emergency storage capacity above the working level equal to the daily design flow of the system, and shall be equipped with sensors and alarms to protect against high water due to failure of the pump or pump controls. The volume below the working level shall include an allowance for the volume of all drainage which may flow back to the chamber when pumping has ceased.

(3) The volume of the dosing chamber between pump operating levels shall be adequate to assure the entire soil absorption system is dosed each cycle in accordance with the required number of cycles per day.

(4) Construction and materials of dosing chambers shall be in accordance with 310 CMR 15.221 and 15.226.

(5) All dosing chambers shall be equipped with one 20-inch manhole with a readily removable watertight cover of durable material. The access cover shall be located within six inches of final grade.

(6) Every dosing chamber, except for systems serving two dwelling units or less, shall be equipped with two pumps the discharge lines of which shall be valved to allow dosing of the entire soil absorption system by either pump.

(7) Pumps shall be capable of passing a minimum solid size of 1¼ inch diameter and shall be installed in accordance with the manufacturers specifications.

(8) Pumps shall operate in the following sequence:
- (a) pumps off
- (b) primary (lead) pump on
- (c) backup (lag) pump on and alarm on
- (d) pumps must alternate.

(9) All pumps must be equipped with an alarm located in the building served which is powered by a circuit separate from the circuit to the pumps.

15.232: Distribution Boxes

(1) For all gravity flow distribution systems, a water tight distribution box designed to provide equal distribution of septic tank effluent to the distribution lines of the soil absorption system shall be provided between the septic tank and soil absorption system.

(2) Construction of the distribution box shall be in conformance with the provisions of 310 CMR 15.221 (general construction requirements) and 15.226 (septic tank construction), with the following exceptions:

(a) The distribution box may be constructed of plastic or other materials approved by the Department if anchored in place with or on a concrete pad which is at least six inches in thickness and 1.5 times the bottom surface area of the distribution box.

(b) The minimum inside dimension of the distribution box, regardless of material, shall be 12 inches.

(c) The minimum wall thickness for reinforced concrete shall be two inches.

(3) The distribution box shall conform to the following design specifications:

(a) When the soil absorption system is to be dosed or the slope of the inlet pipe exceeds 0.08 feet per foot, an inlet tee, baffle or splash plate extending to one inch above the outlet invert elevation shall be provided to dissipate the velocity of the influent.

(b) The invert elevation of all outlets shall be equal to each other and located at least two inches below the invert elevation of the inlet. The distribution lines leading from the distribution box shall all have the same invert elevation as determined by flooding the distribution box to the height of the distribution line invert after all lines have been sealed in place. If all inverts are not the same elevation, they shall be adjusted by filling with durable and non-deformable material permanently fastened to the line or reconstructing the lines until all inverts are at the same elevation.

(c) Outlet distribution lines shall be level for a minimum of the first two feet of their length. There shall be at least one outlet for each effluent distribution line.

(d) Every distribution box shall have a water tight cover or in the case of systems with a design flow greater than 2,000 gpd, water tight manhole with cover.

(e) Every distribution box shall have a minimum sump of six inches as measured below the outlet invert elevation.

15.233: Siphons

The use of siphons for on-site systems, including shared systems, is prohibited unless approved as a component of a recirculating sand filter or other alternative technology.

15.240: Soil Absorption Systems

(1) On-site subsurface sewage disposal systems shall be located in an area where there is at least a four foot depth of naturally occurring pervious soil below the entire area of the soil absorption area and reserve area unless a variance is issued in accordance with the provisions of 310 CMR 15.415(2). The four foot stratum must be free of impervious (as defined in 310 CMR 15.002) materials.

(2) Effluent from any component of an on-site sewage disposal system shall not be disposed of by direct discharge to any waters of the Commonwealth, unless in compliance with a permit issued pursuant to 314 CMR 3.00 (surface water permitting) or 314 CMR 5.00 (groundwater permitting).

(3) Soil absorption systems shall be designed as an integral part of the system. Septic tank effluent is to be distributed throughout the soil absorption system by means of effluent distribution lines so that the effluent can migrate through the underlying soil column under unsaturated flow conditions. All soil absorption systems shall achieve the following objectives of the soil treatment process:

(a) maximum stabilization of organic wastes in the effluent;

(b) removal of pathogenic organisms, nutrients, and particulates;

15.240: continued

(c) recharge of the ground-water table with adequately treated effluent with minimal attendant pollution of the groundwater; and
(d) disposal of the effluent without discharge to the ground surface or the creation of any nuisance.

(4) The minimum area for the design of a soil absorption system shall be determined by the results of the site evaluation set forth in 310 CMR 15.100 through 15.107 and in accordance with the appropriate long-term acceptance rate criteria specified in 310 CMR 15.242 (effluent loading rates). Area requirements will be increased by 50% when garbage grinders are installed.

(5) All soil absorption systems designed to serve a single dwelling shall be designed to serve a minimum of three bedrooms, unless a deed restriction limiting use to two bedrooms is granted to the local approving authority.

(6) Absorption trenches shall be used whenever possible. When trenches cannot be used because of area limitations, other soil absorption system configurations may be proposed for substitution.

(7) No driveway, parking or turning area or other impervious area shall be located above a soil absorption system, except where restrictions on the use of the land make it unavoidable. In such cases, the soil absorption system shall be vented to the atmosphere in accordance with 310 CMR 15.241.

(8) The bottom of each soil absorption system shall be excavated to a level grade. If the removal of stones or boulders is required, creating localized depressions, filling to grade with the excavated soil is acceptable.

(9) The soil placed as backfill over the system shall be a minimum of nine inches, excluding topsoil, placed in lifts and sufficiently compacted to prevent depressions due to settling which may intercept or collect surface water runoff above the system. Backfill must be clean and free of stones and boulders greater than six inches in size. Tailings, clay or similar materials are prohibited.

(10) Final cover above the system shall be graded to reduce infiltration of surface water and minimize erosion. Finish grade shall have a minimum slope of 0.02 feet per foot.

(11) Surface drainage shall be directed away from the soil absorption system.

15.241: System Venting

Systems to be located either in whole or in part under driveways, parking or turning areas or other areas of impervious material shall be designed to achieve proper venting of the system according to the following criteria:
(a) the disposal area distribution system shall be piped to the atmosphere using the same diameter pipe as the distribution system;
(b) the vent pipe shall be designed to prevent entrance of animals or precipitation and shall be backfilled tightly to prevent seepage of surface water into the system;
(c) the vent pipe shall be located beyond the limit of the impervious area subject to vehicular traffic;
(d) where trenches, fields or beds are used, the end of each distribution lateral shall be connected to one or more vent(s);
(e) where pits are used, the vent shall extend under the cover of the pit; and
(f) the riser and above ground components of the vent shall be constructed of durable, non-corrosive materials.

15.242: LTAR - Effluent Loading Rates

(1) The effluent loading rates set forth below are adjusted to account for the long term acceptance rate (LTAR) of the proposed soil absorption system. The LTAR is limited in large part by both the texture of the most hydraulically restrictive soil layer included within the four-foot zone beneath the proposed soil absorption system and the formation of a biomat based on the strength of effluent applied to the soil. As such the effluent loading rates have been based on the strength of typical settled sanitary sewage and may be adjusted proportionately downward if the proposed effluent strength is determined by the local approving authority or the Department to exceed that of typical sanitary sewage. Soil textural classes and soil types comprising the classes are defined in 310 CMR 15.243 and 310 CMR 15.244.

(a) The following effluent loading rates shall apply prior to January 1, 2004:

EFFLUENT LOADING RATE gpd/sq.ft (cm/day)

PERC. RATE (min./inch)	SOIL CLASS CLASS I	CLASS II	CLASS III	CLASS IV
≤5	.74 (3.0)	0.60 (2.5)	-	-
6	0.70 (2.9)	0.60 (2.5)	-	-
7	0.68 (2.8)	0.60 (2.5)	-	-
8	0.66 (2.7)	0.60 (2.5)	-	-
10	-	0.60 (2.5)	-	-
15	-	0.56 (2.3)	0.37 (1.5)	-
20	-	0.53 (2.2)	0.34 (1.4)	-
25	-	0.40 (1.6)	0.33 (1.3)	-
30	-	0.33 (1.3)	0.29 (1.2)	-

Loading Rate Criteria Listed Below Apply Only to the Upgrade of Existing Systems pursuant to 310 CMR 15.405(1)(c) or Systems Constructed pursuant to 310 CMR 15.417.

40	-	-	0.25 (1.0)	-
60	-	-	0.15 (0.6)	0.15 (0.6)

(b) The following effluent loading rates shall apply as of January 1, 2004:

EFFLUENT LOADING RATE gpd/sq.ft (cm/day)

PERC. RATE (min./inch)	SOIL CLASS CLASS I	CLASS II	CLASS III	CLASS IV
≤5	.74 (3.0)	0.60 (2.5)	-	-
6	0.70 (2.9)	0.60 (2.5)	-	-
7	0.68 (2.8)	0.60 (2.5)	-	-
8	0.66 (2.7)	0.60 (2.5)	-	-
10	-	0.60 (2.5)	-	-
15	-	0.56 (2.3)	0.37 (1.5)	-
20	-	0.53 (2.2)	0.34 (1.4)	-
25	-	0.40 (1.6)	0.33 (1.3)	-
30	-	0.33 (1.3)	0.29 (1.2)	-
40	-	-	0.25 (1.0)	-
50	-	-	0.25 (0.8)	0.20 (0.8)
60	-	-	0.15 (0.6)	0.15 (0.6)

(2) Effective January 1, 2004, the effluent loading rates set forth in 310 CMR 15.242(2) may be used in place of those listed in 310 CMR 15.242(1)(b) when the effluent from a septic tank, installed in compliance with 310 CMR 15.223, is distributed over the soil absorption system using pressure distribution designed in compliance with 310 CMR 15.254(2).

15.242: continued

SEPTIC TANK EFFLUENT LOADING RATE WITH PRESSURE DISTRIBUTION
gpd/sq.ft (cm/day)

PERC. RATE (min./inch)	SOIL CLASS CLASS I	CLASS II	CLASS III	CLASS IV
40	-	-	0.29 (1.2)	
50			0.25 (1.0)	0.25 (1.0)
60	-	-	0.20 (0.8)	0.20 (0.8)

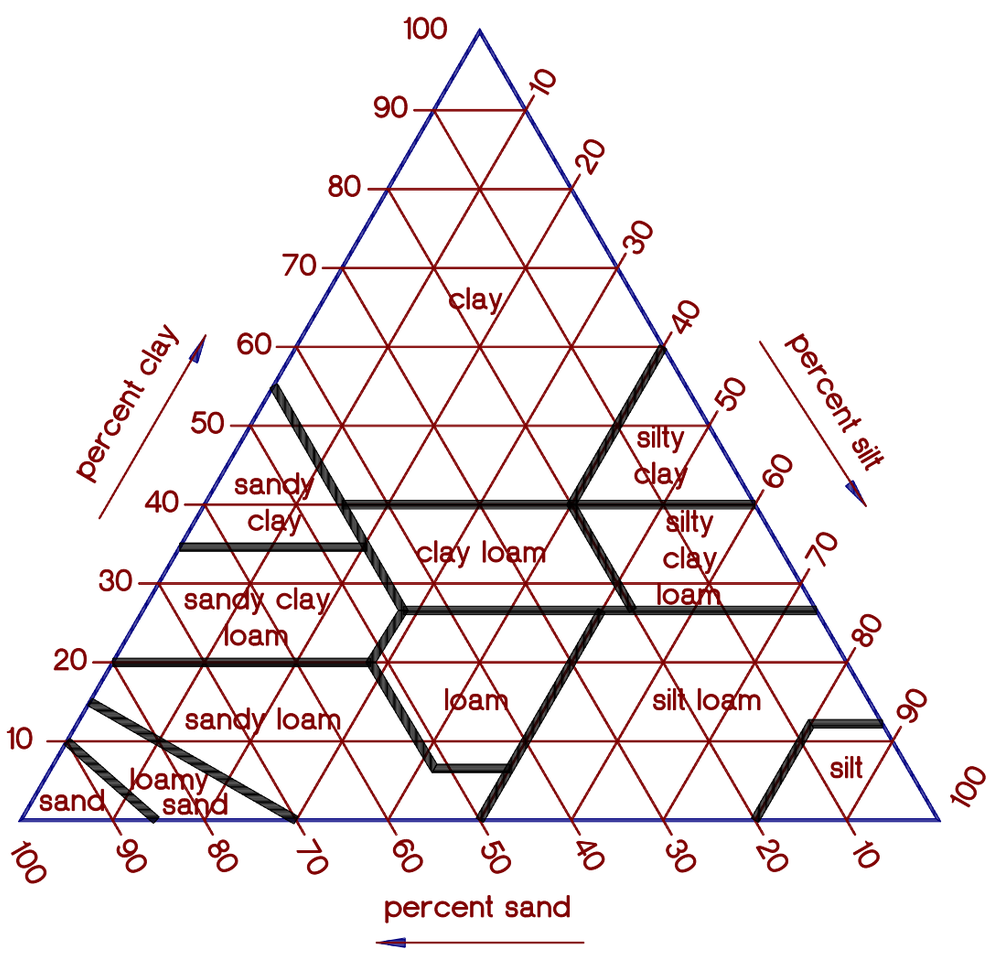
15.243: Types of Soil Textural Classes

(1) The following soil textural classes apply to soil types of which they are composed:

CLASS I	Sands, Loamy Sands
CLASS II	Sandy Loams, Loams
CLASS III	Silt Loams, Sandy Clay Loams with less than 27% clay, Silt
CLASS IV	Clays, Silty Clay Loams, Sandy Clay Loams with 27% or more clay, Clay Loams and Silty Clays

(2) Textural Classifications are made based on the relative proportion of sand, silt and clay in the soils and in accordance with the following textural triangle:

SOIL TEXTURAL TRIANGLE



15.244: Types of Soils

Sands:	Soil is 85% or more sand and the percentage of silt plus 1.5 times the percentage of clay is 15 or less.
Loamy sands:	At the upper limit soil is 85 to 90% sand and the percentage of silt plus 1.5 times the percentage of clay is 15 or less; at the lower limit, soil is 70 to 85% sand and the percentage of silt plus twice the percentage of clay is 30 or less.
Sandy loams:	Soil is 20% or less clay and 52% or more sand and the percentage of silt plus twice the percentage of clay exceeds 30; or soil is less than 7% clay, less than 50% silt, and between 43 and 52% sand.
Loam:	Soil is 7 to 27% clay, 28 to 50% silt, and less than 52% sand.
Silt loam:	Soil is 50% or more silt and 12 to 27% clay; or 50 to 80% silt and less than 12% clay.
Silty clay loam:	Soil is 27 to 40% clay and less than 20% sand.
Clay:	40% or more clay, less than 45% sand, and less than 40% silt.
Silt:	80% or more silt and less than 12% clay.
Sandy clay loam:	20 to 35% clay, less than 28% silt, and more than 45% sand.
Clay loam:	27 to 40% clay and 20 to 46% sand.
Sandy clay:	35% or more clay and 45% or more sand.

15.245: Soil Absorption System Siting Requirements

(1) Prior to January 1, 2004, new systems shall not be sited in areas with percolation rates slower than 30 minutes per inch. Effective January 1, 2004, new systems shall not be sited in areas with percolation rates slower than 60 minutes per inch.

(2) When recorded percolation rates are between those listed in 310 CMR 15.242, the next slower rate shall be used for design purposes.

(3) Prior to January 1, 2004, soils with percolation rates between 30 - 60 minutes per inch may only be used for upgrade of existing systems where no other suitable area for sewage disposal is available and where approval has been granted in accordance with 310 CMR 15.405 (local upgrade approval). This limitation shall not apply subsequent to January 1, 2004.

(4) Soils with percolation rates in excess of 60 minutes per inch are impermeable and shall not be used for the construction of a soil absorption system except in conjunction with a tight tank approved by the Department pursuant to 310 CMR 15.260 and 15.261.

(5) Surface and subsurface drainage shall be directed away from the soil absorption system.

15.246: Excavation and Flagging of Soil Absorption System

(1) Excavation for construction of a soil absorption system may be by mechanical means, provided care is taken to assure that the soil at the bottom of the excavation is not compacted or smeared. The bottom and sides of the excavation shall be level and scarified. Vehicular traffic and parking of vehicles or equipment in or on the area of the soil absorption system should be avoided at all times prior, during and after construction of the system.

(2) From the date of the installation of the soil absorption system until receipt of a Certificate of Compliance from the approving authority in accordance with 310 CMR 15.021, the perimeter of the soil absorption system shall be staked and flagged to prevent the use of such area for all activities which might damage the soil absorption system. Such flagging is not intended to preclude the final grading and landscaping of the area of the soil absorption system. Stockpiling of materials or equipment within the area is prohibited.

15.247: Aggregate

Aggregate shall be required for all soil absorption systems, unless approved in writing by the Department in accordance with 310 CMR 15.280, according to the following specifications:

(1) Base aggregate for leaching structures shall be provided from below the elevation of the crown of the distribution line(s) to the bottom elevation of the soil absorption system and shall consist of double washed stone ranging from ¾ to 1½ inches in diameter and shall be free of iron, fines and dust in place.

(2) A minimum of a two-inch layer of double washed stone ranging from ⅛ to ½ inch diameter and free of iron, fines and dust in place shall cover the base aggregate to prevent intrusion of fine textured soils to the system.

15.248: Reserve Area

(1) New systems designed and approved in accordance with 310 CMR 15.000 shall include a reserve area sufficient to replace the primary soil absorption system. The area required for the reserve area shall be calculated in accordance with 310 CMR 15.242 (soil absorption design), based on the percolation rate in the reserve area.

(2) No permanent buildings or other structures shall be constructed on the reserve area.

15.249: Design Criteria for Soil Absorption Systems

(1) Every soil absorption system shall consist of one or more trenches, beds, fields, pits, galleries or chambers.

(2) Effluent disposal area requirements shall be determined in accordance with 310 CMR 15.242.

(3) System designs employing equipment designed to distribute effluent without the use of aggregate (*i.e.*, "gravelless systems") are prohibited except in accordance with the procedures set forth at 310 CMR 15.280 through 15.289.

(4) Soil absorption systems for Class III and IV soils with percolation rates greater than 30 minutes per inch shall not include beds or fields except in accordance with 310 CMR 15.255.

15.251: Trenches

(1) Trench Design Specifications:

(a) Length (each trench)	100 feet maximum
(b) Width (each trench)	2 feet minimum 4 feet maximum

(c) Effective Depth: shall be equal to the depth of the trench below the invert of the distribution pipe up to a maximum of two feet.

(d) The minimum separation distance between any two trenches shall be three times the effective width or depth of each trench, whichever is greater.

(e) The effective leaching area shall be calculated using the bottom area and a maximum of two feet (per side) of side wall area for each trench.

(2) Trenches shall be situated, where possible, with their long dimension perpendicular to the slope of the natural soil. Where possible they shall follow the contour lines.

(3) Trenches constructed at different elevations shall be designed to prevent effluent from the higher trench(es) flowing into the lower trench(es).

(4) The area between trenches may be designated as system reserve area only where the separation distance between the excavation sidewalls of the primary trenches is at least six feet.

15.251: continued

(5) Distribution lines for leaching trenches shall be constructed of either polyvinyl chloride (PVC) plastic (ASTM 26655), schedule 40 NSF; or Acrylonitrile-butadiene-styrene (ABS) plastic (ASTM F 405-85 or ASTM F 810-85). PVC schedule 35 NSF may be used for systems designed for less than 2,000 gpd and where no vehicular traffic is anticipated.

(6) All connections and joints shall be mechanically sound and tight.

(7) Minimum diameter of each distribution line shall be three inches.

(8) Effluent distribution line outlet orifices shall be evenly spaced along two rows running the length of the line, on each side, midway between the invert and center-line which separates the upper and lower halves of the pipe. For gravity distribution, orifices shall be no smaller than ⅜ inch and no larger than ⅝ inch in diameter.

(9) Effluent distribution lines shall have a slope of 0.005 feet per foot and shall have ends capped or connected together by unperforated pipe of the same materials specifications.

(10) Distribution lines connecting the distribution box or pump chamber to the soil absorption system distribution lines shall be unperforated with water tight connections and joints.

(11) Distribution lines exceeding 50 feet in length shall be connected and venting provided in accordance with 310 CMR 15.241.

15.252: Beds or Fields

(1) The use of leaching beds or fields is restricted to systems with a calculated design flow of less than 5,000 gpd per leaching bed or field.

(2) Bed or field specifications:
(a) Minimum number of distribution lines = 2.
(b) Length - 100 feet maximum.
(c) Slope of distribution lines - 0.005 feet per foot.
(d) Separation distance between lines - six feet maximum.
(e) Separation distance between lines and edge of the bed - four feet maximum.
(f) Separation distance between adjacent beds/fields - ten feet.
(g) Aggregate depth (below the invert of the distribution lines) - six inches minimum, 12 inches maximum.
(h) Distribution lines - refer to 310 CMR 15.251(5) through (10) (Trenches).
(i) Effective leaching area - shall include only the bottom area, not the sidewalls.

15.253: Pits, Galleries, or Chambers

(1) Pit, Gallery or Chamber design specifications:
(a) Effective Depth - A maximum of two feet of sidewall depth below the invert of the inlet per unit shall be used when calculating the effective leaching area.
(b) Surrounding Aggregate - 1 foot minimum per side.
4 feet maximum per side.
(c) Separation Distance Between Units - two times the effective width or depth, whichever is greater.

(2) Construction shall be of precast perforated concrete or interlocking concrete blocks laid dry with open joints in a manner to prevent displacement.

(3) Each pit, gallery or chamber shall have a minimum of one inspection access cover per unit. For systems with a design flow greater than 2,000 gpd, the manholes shall be at least 24 inches in diameter with metal frames and covers to finished grade.

(4) When two or more pits are used, the system shall be designed so that all pits function in parallel.

15.253: continued

(5) Two or more chambers or galleries connected in series shall constitute a chamber or gallery system. The application of 310 CMR 15.253(1)(c) (pits separation distances) shall be applied to adjacent chamber or gallery systems as a unit rather than to the individually connected chambers or galleries.

(6) Inlets to chamber and gallery systems installed in trench configuration shall be provided at intervals not to exceed 20 feet. Chamber or gallery systems in bed configuration shall be provided with at least one inlet for every 40-foot square section.

15.254: Dosing

(1) Gravity Distribution.
(a) Dosing systems employing gravity distribution to the soil absorption system shall be restricted to systems designed to accept less than 2,000 gpd.
(b) The dosing chamber and pumps shall be designed in accordance with 310 CMR 15.231.
(c) Distribution lines to the soil absorption system shall have a minimum diameter of two inches and shall otherwise be in conformance with the provisions of 310 CMR 15.251 (Trenches).
(d) Septic tank effluent shall be dosed to the soil absorption system based on the system design flow in accordance with the following frequency:

Soil Type	Dosing Frequency
Sands, Loamy Sands	4 Doses Per Day
Sandy Loam, Loams	1 Dose Per Day
Silt Loam	1 Dose Per Day
Clays, Silty Clay Loams	1 Dose Per Day

(2) Pressure Distribution.
(a) Pressure distribution of septic tank/recirculating sand filter effluent to the soil absorption system shall be required for all system designs in excess of 2,000 gpd.
(b) The dosing chamber and pumps shall be designed in accordance with 310 CMR 15.231.
(c) The pressure distribution system shall be designed in accordance with the procedures set forth in Department guidance.
(d) Pumps, alarms and other equipment requiring periodic or routine inspection and maintenance shall be operated, inspected and maintained in strict accordance with the manufacturer's specifications. In no instance shall inspection be performed less frequently than once every three months. The results of such inspections shall be submitted to the approving authority.

15.255: Construction in Fill

(1) Any system where fill is required to replace topsoil, subsoil, peat or other unsuitable or impervious soil layer above the requisite four feet of naturally occurring pervious material shall be considered as a system constructed in fill. Any system constructed in fill which extends either wholly or partially above natural grade for the purpose of complying with 310 CMR 15.212 (depth to groundwater) is a mounded system. All soil absorption systems constructed in fill shall be sized using the soil type of the underlying naturally pervious material.

(2) The finished side slopes of a mounded system shall not be steeper than 3:1 (horizontal:vertical). A minimum 15 foot horizontal separation distance shall be provided between the soil absorption area and the adjacent side slope as measured from the edge of the top of the two inch layer of ⅛ to ½ inch washed stone aggregate cover. The toe of the slope shall be a minimum of five feet from any adjacent property line; or a swale or other drainage system directing runoff away from the adjacent property shall be installed. Adjustments to the above side slopes may be allowed if a suitable impervious barrier (such as a vertical concrete retaining wall constructed in accordance with 310 CMR 15.255(2)) is installed to mitigate potential sewage breakout.

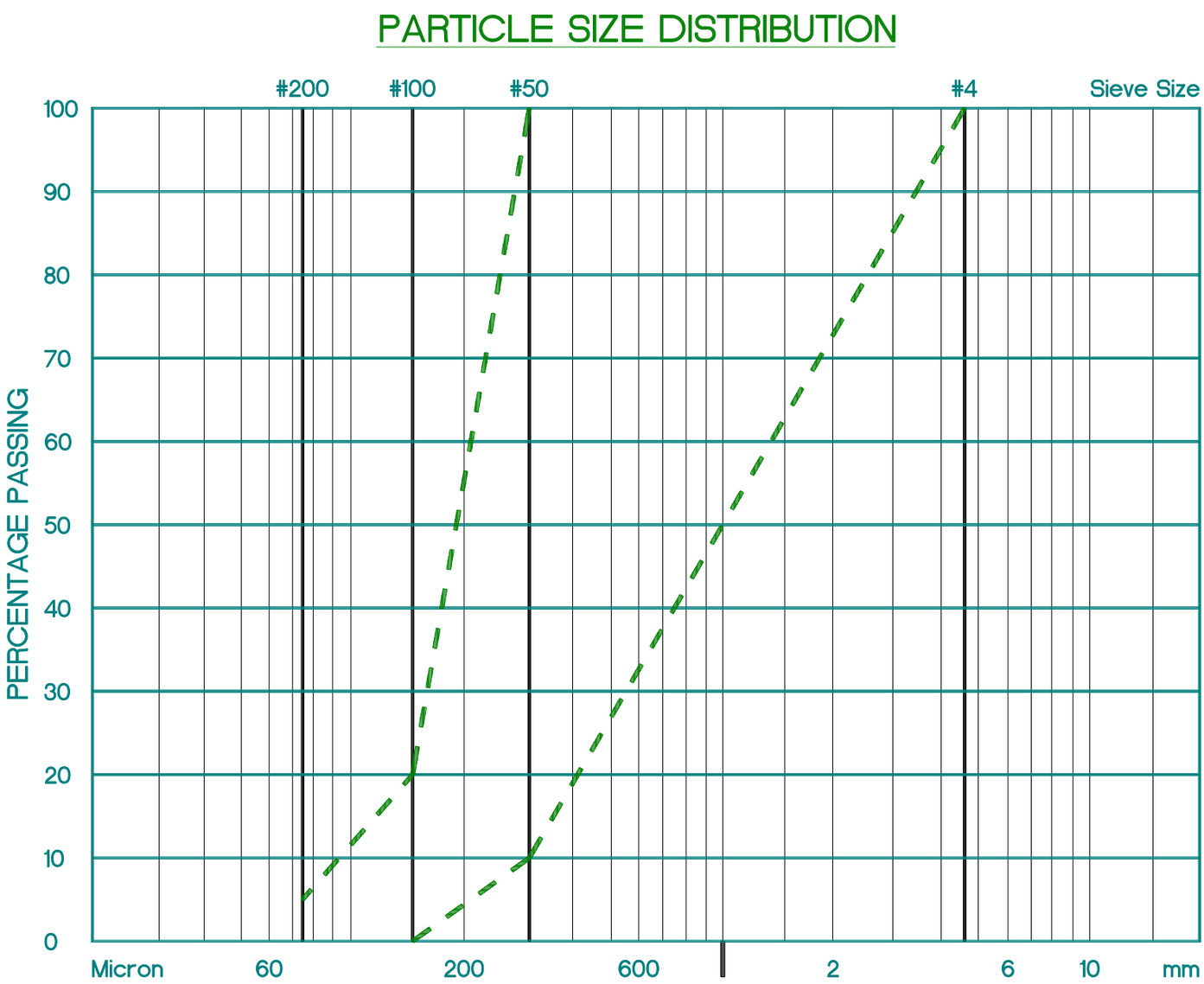
15.255: continued

(a) The retaining wall shall be constructed of reinforced concrete, shall have no weep holes, and shall be waterproof.
(b) The retaining wall shall be designed by a Registered Professional Engineer, who shall certify that the above condition is met by the submitted design.
(c) The upgradient side of the retaining wall shall be waterproofed.
(d) Construction of the retaining wall shall be supervised by the design engineer.
(e) An as-built plan shall be prepared and certified by the design engineer that the wall has been constructed in accordance with his approved design plan.
(f) The elevation of the top of the retaining wall shall be no lower than the "breakout" elevation, which is the elevation of the top of the two inch layer of ⅛ inch to ½ inch washed stone aggregate cover.
(g) The distance from the wall to the edge of the leaching area should be at least ten feet.

(3) Fill material for systems constructed in fill shall consist of select on-site or imported soil material. The fill shall be comprised of clean granular sand, free from organic matter and deleterious substances. Mixtures and layers of different classes of soil shall not be used. The fill shall not contain any material larger than two inches. A sieve analysis, using a #4 sieve, shall be performed on a representative sample of the fill. Up to 45% by weight of the fill sample may be retained on the #4 sieve. Sieve analyses also shall be performed on the fraction of the fill sample passing the #4 sieve, such analyses must demonstrate that the material meets each of the following specifications:

SIEVE SIZE	EFFECTIVE PARTICLE SIZE	% THAT MUST PASS SIEVE
# 4	4.75 mm	100%
# 50	0.30 mm	10% - 100%
#100	0.15 mm	0% - 20%
#200	0.075 mm	0% - 5%

A plot of the sieve analyses of the portion of the sample passing the #4 sieve shall fall on or between the lines on the following graph:


PARTICLE SIZE DISTRIBUTION
#200
#100
#50
#4
Sieve Size
PERCENTAGE PASSING
100
90
80
70
60
50
40
30
20
10
0
Micron
60
200
600
2
6
10
mm

15.255: continued

(4) If required by the local approving authority, a minimum of one representative sample may be taken from the in-place fill for a system serving a single family residence and tested for compliance with the grain size distribution specification. One test per pit per removal day shall be required for systems with design flows of 2,000 gpd or more.

(5) Where fill is required to replace unsuitable or impermeable soils, the excavation of the unsuitable material shall extend a minimum of five feet laterally in all directions beyond the outer perimeter of the soil absorption system to the depth of naturally occurring pervious material as required by 310 CMR 15.240 (soil absorption systems) and replaced with fill material meeting the specifications of 310 CMR 15.255(3).

(6) Prior to placement of the fill, which shall be stockpiled at the edge of the excavation and filled in gradually, the bottom surface of the excavation shall be scarified and relatively dry. Fill shall not be placed during rain or snow storms. If the water table elevation is above the elevation of the bottom of the excavation, the excavation shall be dewatered as necessary.

15.260: Tight Tanks

(1) Departmental approval of the use of a tight tank is required and may be granted only after review and approval of site-specific plans and only to eliminate a failed on-site system when no other feasible alternative to upgrade the system in accordance with 310 CMR 15.201 through 15.293 exists. Tight tanks shall not be approved for new construction or for increased flow to existing systems except as approved by the Department for:

(a) boat waste pump-out facilities where no other feasible alternative exists; or

(b) to serve buildings necessary for the operation of a public water supply where it is not feasible to connect to a sewer or to construct a system in compliance with 310 CMR 15.000.

(2) The design of a tight tank shall conform to the following criteria:

(a) The tight tank shall be sized at a minimum of 500% of the system sewage design pursuant to 310 CMR 15.201 through 15.293 but in no case less than 2,000 gallons;

(b) plans for the tank shall be prepared, stamped and signed by a Massachusetts Registered Professional Engineer or Registered Sanitarian and submitted to the Department by the applicant for approval;

(c) audio and visual alarms shall be set to activate at 3/5 tank capacity in suitably conven-ient location. Transmission of the alarm signal to a locus manned 24 hours per day may be required;

(d) the application for approval shall indicate the method and frequency of removal of the contents;

(e) the specific location and method of disposal of the contents shall be indicated and be in accordance with 310 CMR 15.401 through 15.422;

(f) the tight tank shall have at least one 24-inch diameter cast iron frame and cover at finished grade constructed so as to eliminate entrance of surface waters. Permanent suction piping may also be required;

(g) the tight tank shall be located so as to provide year-round access for pumping;

(h) a permit to install the tank shall be obtained from the local approving authority;

(i) an operation and maintenance plan, acceptable to the local approving authority, shall be implemented which requires monitoring of the system at a minimum frequency of once every three months to ensure proper operation and maintenance;

(j) the tight tank shall be waterproof and watertight and shall not be located below the water table without extensive testing to prove the integrity of the tank and design against uplift; and

(k) aeration or other method of odor control may be required.

(3) The Department may require that monthly reports be submitted to the local approving authority and/or the Department concerning operation and maintenance of the tank.

(4) No tight tank shall be utilized until written certification by a Massachusetts Registered Professional Engineer or Registered Sanitarian that the tight tank has been constructed and installed in accordance with the approved plan has been submitted to the Department and the local approving authority.

15.260: continued

(5) When a sewer system becomes available, any person owning a tight tank shall connect to the sewer within 30 days and the tight tank system shall be abandoned in accordance with 310 CMR 15.354.

(6) A copy of the Department's written approval shall be recorded in the chain of title to the property served by the tight tank.

15.261: Use of Tight Tanks in Special Areas

(1) The Department may consider the use of a modified tank in conjunction with a soil absorption system in specific system upgrade situations where the limiting site factor is a percolation rate of slower than 60 minutes per inch. In such cases, application for a variance shall be prepared and submitted in accordance with the procedures set forth in 310 CMR 15.400 and contain system design plans as specified in 310 CMR 15.260 and 310 CMR 15.261(4) and (5).

(2) No tight tank shall be constructed in a velocity zone on a coastal beach, barrier beach, or dune, or in a regulatory floodway.

(3) Approval for the use of a modified tight tank soil absorption system will be granted only for sites with a recorded percolation rate between 30 and 90 minutes per inch.

(4) The design of the soil absorption system shall be based on a maximum effluent loading rate of 0.15 gpd/square foot.

(5) The tank design specified at 310 CMR 15.260 shall be modified to include:
(a) an outlet tee designed in accordance with 310 CMR 15.227;
(b) a minimum of two-day storage capacity between the outlet invert elevation and the top of the outlet tee; and
(c) in the event of a system failure or the activation of the alarm due to effluent backup from the soil absorption system, a manual operating valve or gate located in the tank discharge pipe that allows the pipe to be sealed thus converting the system to a tight tank.

NON-TEXT PAGE

15.261: continued

(6) Alarm activation or system failure shall require the closing of the effluent valve and immediate pumping of the tank by a licensed septage hauler. Pumping shall be performed as often as necessary until the liquid level in the distribution box has stabilized below the invert elevation of the outlets until which time the valve shall remain closed.

(7) The facility owner shall have the tank pumped at least annually regardless of the operational mode of the system.

(8) All pumping shall be reported to the local approving authority.

(9) A copy of the Department's written approval shall be recorded in the chain of title to the property served by the modified tight tank.

15.280: Approval of Alternative Systems

15.281: Purpose

(1) Alternative systems, when properly designed, constructed, operated and maintained, may provide enhanced protection of public health, safety, welfare and the environment. The purposes of 310 CMR 15.281 through 15.289 are: to provide an orderly system to facilitate review of proposed alternative systems; to encourage development of alternative systems with performance superior to conventional systems; and to ensure that alternative systems are approved with appropriate conditions to protect public health, safety, welfare and the environment.

(2) The provisions of 310 CMR 15.281 through 15.289 shall apply to all proposals to construct, upgrade, or replace on-site systems using alternative systems.

(3) Any proposed system which is designed or constructed in any manner other than as described in 310 CMR 15.100 through 15.279 shall be considered an alternative system, unless a groundwater discharge permit is obtained pursuant to 314 CMR 5.00 (groundwater discharge permit program). Alternative systems may include substitutes or alternatives for one or more components of a conventional system as described in 310 CMR 15.100 through 15.279, or may be fundamentally different approaches intended to eliminate the need for a standard system. The use of an alternative system in accordance with conditions established pursuant to 310 CMR 15.281 through 15.289 may be authorized without a variance. It shall be a violation of 310 CMR 15.000 for any person to sell or install an alternative system which has not been approved by the Department.

(4) The review processes established in 310 CMR 15.280 through 15.289 are intended to provide two different mechanisms for approval of alternative systems. Approval for remedial use (310 CMR 15.284) is intended to provide a mechanism for system owners to improve existing conditions at particular sites (including upgrade or replacement of failed or substandard systems) through the use of an alternative system. The sequence of approval for piloting (310 CMR 15.285), provisional approval (310 CMR 15.286), and certification for general use (310 CMR 15.288), is intended to provide a process through which proponents of an alternative system may have that system approved for general usage in the Commonwealth, including use for new construction. This sequence is intended to develop information on the performance of the alternative system; if adequate information from other jurisdictions or from systems in remedial use is available, it is unnecessary to proceed separately through all three steps of this sequence.

15.282: Types of Alternative Systems

Alternative systems proposed may include, but shall not be limited to, any of the following:

(1) humus or other composting toilets;

15.282: continued

(2) alternative mounded systems (such as the "Wisconsin mound") designed to overcome limiting site conditions;

(3) any system designed to chemically or mechanically aerate, separate or pump the liquid, semi-solid or solid constituents in the system; or

(4) any system designed specifically to reduce, convert, or remove nitrogenous compounds, phosphorus, or pathogenic organisms (including bacteria and viruses) by biological, chemical, or physical means.

15.283: Process for Review of Alternative System Proposals

(1) A person seeking approval of an alternative system shall prepare and submit a formal application to the Department's Division of Water Pollution Control, in accordance with the Department's timely action schedule and fee regulations, 310 CMR 4.00, and any form prepared for that purpose by the Department. For these purposes, until revisions to 310 CMR 4.00 have been promulgated by the Department, approval for remedial use of an alternative system shall be construed as approval for miscellaneous disposal under 310 CMR 15.18 of the 1978 Code and approval for piloting, provisional and general use shall be construed as a groundwater permit with experimental or alternative technology. Therefore, the permit application fee and timely action schedule are as set forth in 310 CMR 4.10(7)(c), category BRPWP03, for remedial use and as set forth in 310 CMR 4.10(7)(h), category BRPWPO5, for piloting, provisional and general use. No application to the Department is required for use of an alternative system that has been provisionally approved pursuant to 310 CMR 15.286 or certified for general use pursuant to 310 CMR 15.288, provided that such use is consistent with any conditions established in the provisional approval or certification.

(2) For approval for remedial use pursuant to 310 CMR 15.284, the local approving authority shall be given notice of the initial proposal prior to seeking approval by the Department. For proposals for piloting pursuant to 310 CMR 15.285 that include identification of any proposed piloting site, the applicant shall notify the local approving authority no later than she or he submits the application to the Department. The applicant shall publish notice of any application for provisional approval pursuant to 15.286 or certification for general use pursuant to 15.288 in the MEPA Environmental Monitor when the application is filed. All other alternative systems must be approved by the Department pursuant to 310 CMR 15.283 through 25.289.

(3) Any proposal to construct, upgrade or expand any existing system using an alternative system of any type shall be subject to the permitting requirements set forth at 314 CMR 5.00 (discharges of pollutants to groundwater) unless the applicant complies with the terms and conditions of 310 CMR 15.281 through 15.289.

(4) All proposals to construct alternative systems of any type shall include:

(a) plans and specifications of the proposed system, showing all relevant components, stamped by a Massachusetts Registered Professional Engineer or, for systems designed for flows of 2,000 gpd or less, a Massachusetts Registered Sanitarian;

(b) all available testing and performance data on the alternative system;

(c) a comparison between the proposed alternative system and the conventional system or counterpart components, if any, described in 310 CMR 15.100 through 15.293, or a comparison between the proposed alternative system and sewer, where connection to a sewer system is feasible, together with evidence that the proposed alternative system will provide at least equivalent protection to public health, safety, welfare and the environment;

15.283: continued

(d) an identification of other states, if any, where the alternative system has been approved for use, where approval requests are pending, and where approval requests have been denied. Where approval has been granted a copy of the written approval shall be provided. The name of the reviewing agency in each such state and the name, address and telephone number of a contact person in that agency familiar with the performance of the alternative system shall be included with the list. Where a decision has been reached in another state, the listing shall also identify the nature and any conditions of approval, if any, or reasons for denial in that state;

(e) for alternative systems proposals for which approval for piloting is sought pursuant to 310 CMR 15.285 or provisional approval pursuant to 310 CMR 15.286, a proposed monitoring and reporting plan to evaluate the performance of the alternative system meeting the requirements of those sections; and

(f) a description of any long-term operational or maintenance requirements of the alternative system, and any educational, financial assurance or other mechanism proposed to ensure effective long-term operation and maintenance of the alternative system if approved.

The Department shall waive 310 CMR 15.283(4)(b), (c), and (d) for applications for remedial use pursuant to 310 CMR 15.284 if such information is adequate and already on file with the Department.

(5) The Department may request additional information regarding alternative system proposals in the course of its review, pursuant to 310 CMR 4.00.

15.284: Approval for Remedial Use

(1) The purpose of approval for remedial use is to allow for the rapid approval of an alternative system that is likely to improve existing conditions at a particular facility or facilities currently served by a failed, failing or nonconforming system.

(2) Remedial use of an alternative system shall be allowed where the Department finds that all of the following conditions are met:

(a) the proposed use of the alternative system is for upgrade of a failed, failing or nonconforming existing system(s);

(b) the design flow is less than 10,000 gallons per day, and there is no increase in design flow to be served by the proposed alternative system;

(c) the applicant has established, through evidence of effective past performance of the alternative system over a period of at least one year of general usage in other states where relevant physical and climatological conditions are comparable to those in Massachusetts, that the alternative system will provide a level of environmental protection

1. at least equivalent to that of a system designed and constructed in accordance with 310 CMR 15.100 through 15.293, for use where connection to a sewer system is not feasible, or

2. at least equivalent to a sewer system, for use where connection to a sewer system is feasible.

The Department shall waive this requirement in situations where such evidence is already on file with the Department for that system;

(d) the local approving authority has found that conditions 310 CMR 15.284(a) through (c) are satisfied; and

(e) the applicant has made arrangements through contract with a vendor or in another manner acceptable to the local approving authority and the Department to ensure that necessary operation and maintenance of the alternative system will be performed appropriately.

(3) The provisions of 310 CMR 15.287 shall apply to any remedial use of an alternative system.

(4) If at any time the local approving authority or the Department determines that a system that has been installed pursuant to an approval for remedial use is failing or has failed, enforcement action may be taken.

15.284: continued

(5) Unless an environmental and performance monitoring and reporting program comparable to those required by 310 CMR 15.283(4)(e) has been approved by the Department and implemented at facilities approved for remedial use, the record of performance of an alternative system at such facilities shall not constitute a basis to approve that alternative system for provisional use or to certify the system for general use. Approval for remedial use is not intended to provide the sole means for demonstrating that an alternative system is acceptable for provisional or general use.

(6) In approving remedial use of an alternative system, the Department shall determine whether any person wishing to use such system must connect the facility to a sanitary sewer if such connection is or becomes feasible.

15.285: Approval for Piloting

(1) Approval for piloting is intended to provide field testing and technical demonstration that a particular alternative system can or cannot function effectively under relevant physical and climatological conditions at one or more pilot facilities. Although information obtained during piloting is likely to be relevant to long term operation and maintenance concerns about a particular alternative system, approval for piloting is not intended, in and by itself, to provide a full evaluation of these issues.

(2) The Department shall approve a number of pilot facilities, not greater than 15, at which piloting may be conducted for an alternative system, and shall approve each individual proposed piloting facility prior to use of the alternative system on that facility. The use of multiple piloting sites is strongly encouraged and may be required by the Department. Piloting facilities must comply with one or more of the following conditions:

(a) the proposed use of the alternative system is for upgrade of an existing system that has failed, is failing or is substandard provided there is no increase in design flow to the system;

(b) the proposed use of the alternative system is for new construction or increased flow to serve a facility for which an on-site sewage disposal system in compliance with 310 CMR 15.000 exists on site, or for which a site evaluation for an on-site system in compliance with 310 CMR 15.100 through 15.293 has been approved by the approving authority;

(c) the proposed use of the alternative system is for new construction or increased flow to serve a facility which has access to a municipal sewer, as evidenced by a local connection or discharge permit, to which any discharge from the proposed system will be made should the alternative system fail; or

(d) the site is owned or controlled by an agency of the Commonwealth or of the federal government and has been approved by the Department.

A local approving authority may impose additional conditions on the use of alternative systems approved for piloting under 310 CMR 15.000 only in accordance with regulations adopted pursuant to 310 CMR 15.003(3).

(3) The Department shall approve an alternative system for piloting when all of the following conditions are met:

(a) the Department has determined, based upon relevant technical data including without limitation actual field performance of the proposed alternative system in other states or data obtained by independent testing organizations, that the proposed alternative system is likely to be capable of providing a level of environmental protection at least equivalent to that of a system designed and constructed in accordance with 310 CMR 15.100 through 15.293.

(b) the applicant has proposed an environmental monitoring and reporting plan covering no less than 18 months of operation at each pilot facility that will produce a timely and full technical evaluation of the performance of the alternative system at the pilot facilities, including prompt identification of performance difficulties and the effectiveness of any corrective actions or adjustments to the alternative system; and

(c) the applicant has made arrangements through contract with a vendor or in another manner acceptable to the Department and the local approving authority to ensure that necessary operation and maintenance activities will be performed appropriately.

15.285: continued

(4) The Department may establish special conditions, as it deems necessary, to ensure protection of public health, safety, welfare and the environment in its approval for piloting.
(5) The provisions of 310 CMR 15.287 shall apply to any piloting of an alternative system.

(6) If at any time the Department or the local approving authority determines that an alternative system installed pursuant to an approval for piloting is failing or has failed, enforcement action may be taken.

(7) Upon completion of piloting in compliance with 310 CMR 15.285, the Department may: grant provisional approval of the alternative system pursuant to 310 CMR 15.286; determine that additional piloting in accordance with this 310 CMR 15.285 is required; or disapprove use of the alternative system.

(8) If the Department determines that additional piloting is necessary, it may require an additional number of piloting facilities, not greater than five, and may require any modifications or adjustments to the alternative system, or impose such other requirements, as the Department deems necessary to ensure protection of public health, safety, welfare and the environment.

(9) Should the Department disapprove use of the alternative system, any person wishing to use such an alternative system may file a permit application for use of such alternative system pursuant to 314 CMR 5.00 (groundwater permitting). Denial for the use of an alternative system pursuant to 310 CMR 15.000 shall not prejudice any action on an application pursuant to 314 CMR 5.00.

(10) It shall be a violation of 310 CMR 15.000 to make a false representation that an alternative system has been approved for piloting.

15.286: Provisional Approval of Alternative System

(1) Provisional approval is intended to evaluate alternative systems that appear technically capable of providing levels of protection at least equivalent to those of standard on-site disposal systems and to determine whether, under actual field conditions in Massachusetts with broader usage than a controlled pilot setting, general use of the alternative system will provide such protection, and whether any additional conditions addressing long-term operation and maintenance and monitoring considerations are necessary to ensure that such protection will be provided.

(2) The Department shall grant provisional approval for use of an alternative system where connection to a sewer is not feasible, if the applicant has demonstrated that the alternative system is likely to provide a level of environmental protection at least equivalent to that of a system designed and constructed in accordance with 310 CMR 15.100 through 15.293. The Department shall grant provisional approval for use of an alternative system where connection to a sewer is feasible, if the applicant has demonstrated that the alternative system is likely to provide a level of environmental protection at least equivalent to that of a sewer, through either 310 CMR 15.286(2)(a) or (b). The demonstration may be made through either:

(a) evidence, satisfactory to the Department, of effective past performance of the alternative system over a period of at least two years of general usage in one or more states where relevant physical and climatological conditions are comparable to those in Massachusetts; or
(b) successful completion of piloting pursuant to 310 CMR 15.285, or equivalent piloting in one or more states where relevant physical and climatological conditions are comparable to those in Massachusetts. Piloting shall be considered successful when at least 75% of piloted systems have performed at the relevant level for at least 12 months.

15.286: continued

(3) The Department 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 of the alternative system in its provisional approval. Such conditions may include without limitation: specification of site or effluent characteristics; flow limitations; monitoring, testing, and reporting requirements; or financial assurance mechanisms. The Department may also specify changes or modifications of requirements otherwise applicable to conventional systems that are appropriate for use of the alternative system.

(4) Any approving authority may allow the use of a provisionally approved system, subject to any special conditions established pursuant to 310 CMR 15.286(3), in any of the following situations:

(a) the proposed use of the alternative system is for upgrade of an existing system that has failed, is failing or is substandard provided there is no increase in design flow to the system (if connection of the facility to a sewer is feasible, provisional use shall be allowed only if the Department has determined that the alternative system is likely to provide a level of environmental protection at least equivalent to that of a sewer);

(b) the proposed use of the alternative system is for new construction or increased flow to serve a facility where access to a sewer is not feasible and for which an on-site sewage disposal system in compliance with 310 CMR 15.000 exists on site, or for which a site evaluation for an on-site system in compliance with 310 CMR 15.100 through 15.293 has been approved by the approving authority;

(c) the proposed use of the alternative system is for new construction or increased flow to serve a facility which has access to a municipal sewer (as evidenced by a local connection or discharge permit) to which any discharge from the proposed system will be made should the alternative system fail, if the Department has determined that the alternative system is likely to provide a level of environmental protection at least equivalent to that of a sewer; or

(d) the site is owned or controlled by an agency of the Commonwealth or of the federal government and has been approved by the Department for use of the provisionally- approved system.

(5) A local approving authority may impose additional conditions on the use of alternative systems approved for piloting under 310 CMR 15.000 only in accordance with regulations adopted pursuant to 310 CMR 15.003(3).

(6) The proponent of a provisionally-approved alternative system shall conduct a performance evaluation of at least the first three years of operation of at least the first 50 systems installed pursuant to the provisional approval and a representative sampling of additional systems installed during this period in accordance with a plan approved by the Department pursuant to 310 CMR 15.287(2). The evaluation plan shall be designed to identify promptly any failure of the alternative system to provide the expected level of environmental protection, and to identify the cause if possible. Generally, the evaluation plan is not expected to provide the same intensity of sampling and analysis required for piloting, but similar plans may be appropriate in some instances depending on the nature of the alternative system. The plan shall provide for reporting to the Department at periodic intervals.

(7) Upon receipt of the performance evaluation conducted pursuant to 310 CMR 15.286(6), the Department may: certify the alternative system for general use pursuant to 310 CMR 15.288, determine that additional evaluation in accordance with 310 CMR 15.286 is required; or may disapprove use of the alternative system.

(8) If the Department determines that additional evaluation is required, it may require any modifications or adjustments to the alternative system, or impose such other requirements, as are necessary, in the opinion of the Department, to ensure protection of public health, safety, welfare and the environment.

15.286: continued

(9) Should the Department disapprove general use of the alternative system which was provisionally approved, any person wishing to use such system may file a permit application for use of the alternative system pursuant to 314 CMR 5.00 (groundwater permitting). Disapproval under 310 CMR 15.286 shall not prejudice any action on an application pursuant to 314 CMR 5.00.

(10) The conditions established in 310 CMR 15.287 shall apply to any use of a provisionally approved alternative system.

(11) If at any time the local approving authority or the Department determines that an alternative system that has been installed pursuant to a provisional approval is failing or has failed, enforcement action may be taken.

(12) It shall be a violation of 310 CMR 15.000 to make a false representation that an alternative system has been approved for provisional use.

15.287: General Conditions for Use of Alternative Systems Pursuant to 310 CMR 15.284 through 15.286

The following conditions shall apply to all uses of alternative systems pursuant to 310 CMR 15.284 through 15.286:

(1) All plans and specifications shall be stamped and signed by a Massachusetts Registered Professional Engineer or, for systems designed for flows of 2,000 gpd or less, a Massachusetts Registered Sanitarian.

(2) Any required operation and maintenance, monitoring and testing plans shall be submitted to the Department and approved prior to initiation of the use. Monitoring and sampling shall be performed in accordance with a Department approved plan. Sample analysis shall be conducted by an independent U.S. EPA or Commonwealth of Massachusetts approved testing laboratory, or an approved independent university laboratory, unless otherwise provided in the Department's written approval. It shall be a violation of 310 CMR 15.000 to omit from a report or falsify any data collected pursuant to an approved testing plan.

(3) The facility served by the alternative system and the system itself shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.

(4) The Department and/or the local approving authority may require the owner or operator of the system to cease operation of the system and/or to take any other action necessary to protect public health, safety, welfare and the environment.

(5) The owner or operator shall provide written notice to any new owner or operator that the system is an alternative system. Such notice shall include notice of the general conditions and any special conditions applicable to the system.

(6) The owner or operator, or the proponent of the alternative system, shall obtain and provide the Department with a determination from the board of certification of operators of wastewater treatment facilities established pursuant to M.G.L. c. 21, § 34A as to whether a certified operator is required for operation of the alternative system. The Department shall waive this requirement if it has on file a determination for the alternative system, and shall notify the owner, operator, or proponent of the determination.

(7) It is a violation of 310 CMR 15.000 to install, construct, or operate an alternative system except in full compliance with the written approval and 310 CMR 15.287.

(8) The Department may require the issuance of a groundwater discharge permit pursuant to 310 CMR 5.00 (groundwater discharge program) for any alternative system.

15.288: Certification of Alternative Systems for General Use

(1) Certification for general use is intended to facilitate the use, under appropriate conditions, of alternative systems that have been demonstrated to provide levels of environmental protection at least equivalent to those of standard on-site systems.

(2) The Department shall certify an alternative system for general use when the Department determines that the applicant has demonstrated that the alternative system in general usage will provide a level of environmental protection at least equivalent to that of a standard on-site system designed and constructed in accordance with 310 CMR 15.100 through 15.293 through evaluation of broad scale field use in Massachusetts pursuant to 310 CMR 15.286, or comparable use in one or more states where relevant physical and climatological conditions are comparable to those in Massachusetts. The applicant shall be considered to have demonstrated effective performance when at least 90% of provisionally approved alternative systems have performed at a level at least equivalent to that of a standard on-site system over the period of the provisional approval.

(3) The Department may establish any special conditions necessary, to ensure adequate protection of public health and safety and the environment in its certification of an alternative system for general use. 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. The Department may also specify changes or modifications of requirements otherwise applicable to conventional systems that are appropriate for use of the alternative system.

(4) A local approving authority may impose additional conditions on the use of alternative systems certified for general use under 310 CMR 15.000 only in accordance with regulations adopted pursuant to 310 CMR 15.003(3).

(5) Systems with performance superior to conventional systems.

(a) If the Department determines that an alternative system is more effective than conventional systems in removing nitrates, the Department shall establish the nutrient removal credit which will be allowed for use of such system pursuant to 310 CMR 15.217, based on the nutrient removal performance of the certified technology.

(b) In certifying an alternative system for general use, the Department may determine that any person wishing to use such system need not connect the facility to a sanitary sewer if such connection is or becomes feasible, if the performance of the alternative system will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sewer system.

(6) Should the Department deny certification of the alternative system for general use, any person wishing to use such system may file a permit application for use of such alternative system pursuant to 314 CMR 5.00 (groundwater permitting). Denial under 310 CMR 15.288 shall not prejudice any action on an application pursuant to 314 CMR 5.00.

15.289: List of Alternative Systems

(1) The Department shall maintain and publish at least annually in the MEPA Environmental Monitor a complete list of all alternative systems which have been certified for general use, all systems for which an application for certification for general use is pending, all systems with provisional approval, and all systems approved for piloting. The list shall include, if applicable, the unit manufacturer's name and address, the model number of the unit approved, a general description of the system, and a brief description of any restrictions or conditions on such use. The Department shall also maintain and provide to any interested person a list of alternative systems for which data required for approval for remedial use pursuant to 310 CMR 15.284 are on file. Any person may provide comment to the Department concerning any listed systems.

15.289: continued

(2) Recirculating sand filters designed in accordance with Department guidance are certified for general use in the following situations:

(a) systems serving facilities with design flows of 2,000 gpd or greater but less than 10,000 gallons per day in accordance with 310 CMR 15.202; and

(b) systems with design flows below 2,000 gallons per day which are designed and approved in accordance with 310 CMR 15.217.

(3) (a) Humus/Composting Toilets are certified for remedial use subject to the following conditions:

1. There shall be no liquid wastewater discharge from the humus/composting toilet. If the humus/composting toilet produces a liquid by-product that is not recycled through the toilet, the liquid by-product is either

a. discharged through a greywater system on the facility that includes a septic tank and leaching system, or

b. removed by a licensed septage hauler and properly disposed.

Any other disposal of a liquid by-product requires specific approval by the Department.

2. If there is a greywater discharge or a discharge from a drain equipped with a garbage grinder from the facility, there shall be a septic tank and a leaching facility designed in accordance with this title which are sized to accommodate at least 60% of the facility's design flow. A filter system specifically approved by the Department for that purpose may be used in place of the septic tank, provided that there is no discharge of garbage grinder waste or of liquid by-product from the composting toilet to the greywater system. An existing cesspool may serve as a leaching pit for these purposes where:

a. the cesspool is pumped and cleaned when the other components of the system are installed;

b. the cesspool is not located within groundwater;

c. the cesspool meets the design criteria of 310 CMR 15.253 (pits, chambers, and galleries) with respect to effective depth, separation between units, and inspection access, or the cesspool is replaced by a precast concrete leaching pit meeting those requirements; and

d. the hydraulic loading requirements of 310 CMR 15.242 (effluent loading rates) are satisfied; and

3. The system shall be designed to store compostable and composted solids for at least two years. Residuals from the system shall be disposed of either:

a. by burial on-site or in another manner and location approved by the local approving authority, covered with a minimum of six inches of clean compacted earth; or

b. by a licensed septage hauler.

(b) Humus/Composting Toilets are certified for non-remedial use subject to the conditions set forth at 310 CMR 15.289(3)(a), where a system in full compliance with 310 CMR 15.000 could otherwise be installed on the site.

(4) Effluent tee filters approved by the Department are certified for use when installed in accordance with the terms and conditions of the DEP approval.

15.290: Shared Systems

(1) An approving authority may allow the use of shared systems, subject to any special conditions established pursuant to 310 CMR 15.293, for upgrade of existing systems, for new construction, or for increased flow to an existing system, in accordance with 310 CMR 15.290 through 15.292.

(2) Any application for use of a shared system shall include the following:

(a) complete plans and specifications for the system as required by 310 CMR 15.201 through 15.255;

(b) a description of how the proposed shared system compares to systems constructed in full compliance with 310 CMR 15.100 through 15.293 in terms of its capacity to protect public health, safety, welfare and the environment;

15.290: continued

(c) a proposed operation and maintenance plan for the shared system;
(d) a description of the form of ownership which any component of the system serving more than one building or dwelling will take, together with relevant legal documentation describing or establishing that ownership including, without limitation, easements, condominium master deed, or homeowners' association documents. All forms of private ownership of system components serving more than one building or dwelling shall establish that each user of the system has the legal ability to accomplish any necessary maintenance, repair, or upgrade of the component;
(e) a description of the financial assurance mechanism proposed to ensure effective long-term operation and maintenance of the system. A copy of a proposed insurance policy, for example, naming the local approving authority and the Department as additional insureds, which provides for upgrade of the shared system in the event the shared system fails to protect public health and the environment pursuant to the criteria established in 310 CMR 15.303 shall be deemed to satisfy this requirement. The actual insurance binder shall be provided to the local approving authority and the Department prior to construction of the system; and
(f) a copy of a proposed Grant of Title 5 Covenant and Easement essentially identical to that contained in Appendix 1 shall be recorded and/or registered with the appropriate Registry of Deeds and/or Land Registration Office within 30 days of the latter of the following: receipt from the local approving authority of the approved Covenant and Easement or the expiration of the 30-day DEP constructive approval period pursuant to 310 CMR 15.293. The applicant shall file a certified Registry copy of this Covenant and Easement with the local approving authority and the Department within 30 days of its date of recordation and/or registration, and prior to construction of the system.

(3) Local approving authorities shall provide the Department with notice of all shared systems approved by them pursuant to 310 CMR 15.290(3). No approval of a shared system shall be final prior to Department review pursuant to 310 CMR 15.293.

(4) A local approving authority may impose additional conditions on the use of shared systems under 310 CMR 15.000 only in accordance with regulations adopted pursuant to 310 CMR 15.003(3).

15.291: Upgrades Using Shared Systems

(1) The approving authority may allow use of shared systems, subject to any special conditions established pursuant to 310 CMR 15.293, for upgrade of existing systems without granting a variance pursuant to 310 CMR 15.410 through 15.413 only where:
(a) the proposed shared system satisfies all technical requirements of 310 CMR 15.100 through 15.293 without the need for a variance except setbacks from property lines between facilities served by the shared system;
(b) there will be no increase in design flow from the facility or facilities to be served by the shared system;
(c) the applicant proposes institutional arrangements as described in 310 CMR 15.290(2)(d); through documents essentially identical to those contained in Appendix 1 (Grant of Title 5 Covenant and Easement); and
(d) the applicant provides the local approving authority and the Department with the insurance policy or other comparable financial assurance mechanism required pursuant to 310 CMR 15.290(2)(e).

(2) The use of shared systems for upgrade of existing systems in any situation not described in 310 CMR 15.291(1) may only be approved through a variance.

(3) Local approving authorities shall provide the Department with notice of all shared systems approved by them pursuant to 310 CMR 15.291.

15.291: continued

(4) A local approving authority may impose additional conditions on the use of shared systems under 310 CMR 15.000 only in accordance with regulations adopted pursuant to 310 CMR 15.003(3).

15.292: New Construction or Increased Flow to Existing Systems Using Shared Systems

(1) The approving authority may allow use of shared systems, subject to any special conditions established pursuant to 310 CMR 15.293, for new construction or increased flow to existing systems without granting a variance only where:

(a) the proposed shared system satisfies all technical requirements of 310 CMR 15.100 through 15.293 except setbacks from property lines between facilities served by the shared system;

(b) the applicant demonstrates that the design flow from the facility or facilities to be served by the shared system does not exceed the design flow which could have been constructed in compliance with 310 CMR 15.100 without the use of a shared system.

(c) the applicant proposes institutional arrangements as described in 310 CMR 15.290(c) through documents essentially identical to those contained in Appendix 1 (Grant of Title 5 Covenant and Easement); and

(d) the applicant provides the local approving authority and the Department with the insurance or other comparable financial assurance mechanism required pursuant to 310 CMR 15.290(2)(e).

(2) The use of shared systems for new construction or for increased flow to existing systems in any situation not described in 310 CMR 15.292(1) may only be approved through a variance.

(3) Local approving authorities shall provide the Department with notice of all shared systems approved by them pursuant to 310 CMR 15.292.

(4) A local approving authority may impose additional conditions on the use of shared systems under 310 CMR 15.000 only in accordance with regulations adopted pursuant to 310 CMR 15.003(3).

15.293: Department Approval of Shared Systems

(1) Prior to construction of any shared system, the applicant shall submit to the Department the written approval of the local approving authority together with a copy of the complete application submitted to the local approving authority. The application for the shared system shall be deemed approved by the Department if, within 60 days of receipt of a complete application the Department fails, in writing:

(a) to request additional information from the applicant; or

(b) grant a written approval, which may include any special conditions the Department believes appropriate to protect public health, safety, or welfare or the environment; or

(c) to deny the approval of the shared system.

In the event the Department requests additional information from the applicant, the 60 day period for Department review shall commence upon receipt of such additional information.

(2) In the event the Department denies the approval of the shared system, that determination may be appealed in accordance with 310 CMR 15.422.

15.300: Purpose and General Provisions

(1) The proper operation and maintenance of all systems is essential to their proper functioning, to the avoidance of public health hazards and to the protection of the environment. 310 CMR 15.300 is intended to ensure the proper operation and maintenance of all systems.

(2) The provisions of 310 CMR 15.300 represent an initial effort to identify and upgrade those failed systems which pose the greatest risk to public health and safety and to the waters of the Commonwealth.

15.300: continued

(3) The Department shall annually produce educational materials suitable for distribution to the general public describing the importance of proper maintenance and operation of on-site systems and the impact of such systems on public health and the environment. In addition to its own distribution, the Department shall make such materials available to local approving authorities and other interested persons.

(4) Any person owning or operating a facility on which an on-site subsurface sewage treatment and disposal system is installed shall be responsible for the inspection and maintenance of, and any necessary upgrades to, the system.

15.301: System Inspection

(1) Inspection at time of transfer. Except as provided in 310 CMR 15.301(2), 15.301(3), and 15.301(4), a system shall be inspected at or within two years prior to the time of transfer of title to the facility served by the system. An inspection conducted up to three years before the time of transfer may be used if the inspection report is accompanied by system pumping records demonstrating that the system has been pumped at least once a year during that time. If weather conditions preclude inspection at the time of transfer, the inspection may be completed as soon as weather permits, but in no event later than six months after the transfer, provided that the seller notifies the buyer in writing of the requirements of 310 CMR 15.300 through 15.305. A copy of the inspection report shall be submitted to the buyer or other person acquiring title to the facility served by the system.

(2) The following transactions shall not be considered transfers of title for the purposes of 310 CMR 15.301(1):

(a) taking a security interest in a property, including but not limited to issuance of a mortgage;

(b) refinancing a mortgage or similar instrument, whether or not the identity of the lender remains the same;

(c) a change in the form of ownership among the same owners, such as placing the facility within a family trust of which the owners are the beneficiaries, or changing the proportionate interests among a group of owners or beneficiaries;

(d) adding or deleting a spouse as an owner or beneficiary; or a transfer between spouses during life, out right or in trust; or the death of a spouse;

(e) the appointment of or a change in a guardian, conservator, or trustee.

(3) Applicability to specific transfers of title.

(a) Condominium units. The condominium association shall be responsible for the inspection, maintenance, and upgrade of any system or systems serving the units, unless otherwise provided in the governing documents of the condominium association. For a facility comprised of five condominium units or more, each system located on the facility shall be inspected at least once every three years and all existing systems shall be inspected by December 1, 1996. For a facility comprised of fewer than five condominium units:

1. each system located on the facility shall be inspected at least once every three years and all existing systems shall be inspected by December 1, 1996, or

2. at the time of transfer of title of any unit, the system serving that unit shall be inspected in accordance with the time of transfer provisions of 310 CMR 15.301.

(b) Foreclosure or deeds in lieu of foreclosure. Inspection of the system must occur within two years before or six months after the execution of the memorandum of sale (irrespective of whether the foreclosing institution, the loan guarantor, the loan servicer, an unaffiliated third party, or any combination thereof, is/are executing such memorandum of sale) or delivery of the deed in lieu of foreclosure to the foreclosing institution or the loan servicer. An inspection conducted up to three years before the time of transfer may be used if the inspection report is accompanied by system pumping records demonstrating that the system has been pumped at least once a year during that time. To the extent that foreclosing institutions or loan servicers have contractually allocated responsibility for the inspection to the unaffiliated third party or the loan guarantor acquiring the property within the specified timeframes, such foreclosing institutions or loan servicers will not be responsible for inspection of the system(s). Entities foreclosing on properties are required to notify those who acquire title of the inspection and upgrade requirements contained at 310 CMR 15.300 through 15.305, in writing, prior to or at the time of transfer.

15.301: continued

(c) Inheritance by will or intestacy (without a will). With the exception of inheritance by a spouse which would not require an inspection, inspection of the system must occur within two years before or one year after the will being allowed by the probate court and the appointment of the executor; or within two years before or one year of the appointment of an administrator if the deceased dies intestate regardless of whether the property passes specifically or as part of the residue of the estate. An inspection conducted up to three years before the time of transfer may be used if the inspection report is accompanied by system pumping records demonstrating that the system has been pumped at least once a year during that time. Executors or administrators are required to notify, in writing, those who acquire title to real property from an estate of the inspection and upgrade requirements contained at 310 CMR 15.300 through 15.305.

(d) Legal life estate or an interest for life or for a term of years in trust. Inspection of the system must occur within two years before or six months of the death of the life tenant or the expiration of a present interest in trust for a term of years. If a successive life interest or an interest in trust for a term of years passes to a spouse, the inspection must occur within two years before or six months of the death of the last surviving spouse or the expiration of a present interest in trust to the spouse for a term of years. An inspection conducted up to three years before the time of transfer may be used if the inspection report is accompanied by system pumping records demonstrating that the system has been pumped at least once a year during that time.

(e) Inter-family transfers where new parties are involved (*e.g.* parents deed property to children). Inspection of the system must occur within two years prior to transfer or if weather conditions prevent inspection at the time of transfer, the inspection must occur as soon as weather permits, but in no event later than six months after the transfer. An inspection conducted up to three years before the time of transfer may be used if the inspection report is accompanied by system pumping records demonstrating that the system has been pumped at least once a year during that time.

(f) Tax taking either by the federal, state, or municipal government. Inspection of the system must occur within two years prior to transfer by governmental entity to buyer or within six months after the expiration of the right of redemption, provided that the govern-mental entity notifies the buyer in writing of the requirements contained at 310 CMR 15.300 through 15.305 for inspection and upgrade, if necessary. An inspection conducted up to three years before the time of transfer may be used if the inspection report is accompanied by system pumping records demonstrating that the system has been pumped at least once a year during that time.

(g) Levy of execution that results in a conveyance of property. Inspection of the system must occur within two years prior to officer's deed of debtor's interest to buyer or within six months after the expiration of the right of redemption, provided that the officer notifies the buyer in writing of the requirements contained at 310 CMR 15.300 through 15.305 for inspection and upgrade, if necessary. An inspection conducted up to three years before the time of transfer may be used if the inspection report is accompanied by system pumping records demonstrating that the system has been pumped at least once a year during that time.

(h) Bankruptcy. Inspection of the system must occur within two years prior to transfer by bankruptcy trustee to buyer or within six months after the transfer, provided that the debtor notifies the buyer in writing of the requirements contained at 310 CMR 15.300 through 15.305 for inspection and upgrade, if necessary. An inspection conducted up to three years before the time of transfer may be used if the inspection report is accompanied by system pumping records demonstrating that the system has been pumped at least once a year during that time.

(i) Change in ownership or the form of ownership where new parties are introduced (*e.g.*, introduction of new beneficiary/ies in a nominee trust; introduction of new joint tenant(s) or new tenant(s) in common; introduction of new parties where property is transferring from joint ownership to nominee or business trust, or where a new general partner is introduced; creation of a legal life estate or an interest for life or for a term of years in trust for a party other than the creator or his or her spouse, etc.). Inspection of the system must occur within two years prior to transfer or if weather conditions prevent inspection at the time of transfer, the inspection must occur as soon as weather permits, but in no event later than six months after the transfer, provided that the new party is notified in writing of the requirements contained at 310 CMR 15.300 through 15.305 for inspection and upgrade, if necessary. In

15.301: continued

a nominee trust situation, whoever has authority to add a new beneficiary is responsible for the inspection. An inspection conducted up to three years before the time of transfer may be used if the inspection report is accompanied by system pumping records demonstrating that the system has been pumped at least once a year during that time.

(4) Exclusions. Inspection of a system is not required at the time of transfer of title of the facility served by the system in the following circumstances:

(a) a certificate of compliance for the system has been issued by the approving authority within two years prior to the time of transfer; or

(b) the owner of the facility or the person acquiring title has signed an enforceable agreement with the approving authority to upgrade the system or to connect the facility to a sanitary sewer or a shared system within the next two years following the transfer of title, provided that such agreement has been disclosed to and is binding on the subsequent owner(s); or

(c) the facility is subject to a comprehensive local plan of on-site septic system inspection approved in writing by the Department and administered by a local or regional governmental entity, and the system has been inspected at the most recent time required by the plan. A comprehensive local plan may prioritize systems to be inspected on the basis of proximity to water resources, soil or geological conditions, age or size of systems, history of performance, frequency of pumping or other routine maintenance activity, or other relevant factors, and may establish different schedules and frequency of inspection on the basis of such criteria, provided that all systems are inspected at least once every seven years by a System Inspector approved by the Department.

(5) A system shall be inspected upon any change in use or expansion of use of the facility served, for which change or expansion a building permit or occupancy permit from the local building inspector is required. Unless the system is a cesspool, failing as set forth in 310 CMR 15.303 and 15.304(1), or a significant threat to public health, safety and the environment as set forth in 310 CMR 15.304(2), upgrade of the system is not required if the system was designed to accept design flows resulting from the change in use or expansion of use. Upgrades to accept increases in actual or design flow to any cesspool or to any other system above the existing approved capacity shall be in accordance with 310 CMR 15.352. Whenever an addition to an existing structure which changes the footprint of a building with no increase in design flow is proposed, the system inspection shall be an assessment to determine the location of all system components, including the reserve area, in order to ensure that the proposed construction will not be placed upon any of the system components. If official records are available to make a determination regarding location of system components, an inspection is not required for footprint changes.

(6) Facilities where the total design flow generated on the facility equals or exceeds 10,000 gallons per day at full build out, shall be inspected by the last day of the calendar year pursuant to the following schedule in accordance with the provisions of 310 CMR 15.006 and the applicable provisions of 310 CMR 15.300 through 15.354 or 314 CMR 5.00 and 6.00. Such systems shall be reinspected during the fifth calendar year following the applicable year of initial inspection listed below and then during every fifth calendar year thereafter. An inspection of a system conducted within 30 months prior to the last day of the applicable year of initial inspection may be used as the initial inspection, provided that a System Inspection Form approved by the Department is submitted to the Department within 30 days of the inspection.

Year of initial inspection	Basin in which system is located
1997	Charles, Housatonic, Hudson (Hoosic), North Coastal, Ten Mile
1998	Blackstone, Chicopee, Connecticut, Nashua
1999	Boston Harbor (Neponset), Cape Cod, French & Quinebaug, Merrimack, Narragansett Bay/Mt. Hope Bay, Parker
2000	Buzzards Bay, Deerfield, Ipswich, Islands Millers, Shawsheen
2001	Concord (Sudbury, Assabet, Concord), South Coastal, Farmington, Taunton, Westfield

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Basin boundaries shall be determined by reference to the most recent edition of the Massachusetts GIS maps. If all of the components of a system are not located in the same basin, then the system shall be inspected during the earliest of the applicable inspection years.

(7) Shared systems shall be inspected annually.

(8) When a facility is divided or the ownership of two or more facilities is combined as specified in 310 CMR 15.010(2) or (3), all systems serving the facility or facilities shall be inspected.

(9) All systems shall be inspected when the owner or operator thereof is ordered to do so by the local approving authority, the Department or court.

(10) The results of any inspection(s) required by 310 CMR 15.301 shall be submitted to the approving authority on a System Inspection Form approved by the Department within 30 days of the inspection by the approved System Inspector, provided that this sentence shall not be construed to require the owner of a system or a System Inspector to submit to the approving authority the results of a voluntary assessment of the condition of a system that is not performed to comply with a requirement of 310 CMR 15.301. Any system determined to require upgrade pursuant to 310 CMR 15.303 or 310 CMR 15.304 solely as a result of a voluntary assessment shall not be subject to the deadlines for completion of upgrades in accordance with 310 CMR 15.305 unless the owner or operator of the system is ordered to do so by the local approving authority, the Department or court. Inspection forms for systems with design flows over 10,000 gpd and shared systems shall be submitted to the Department by the approved System Inspector and the owner. All inspections required by 310 CMR 15.301 shall be conducted by a currently approved System Inspector.

NON-TEXT PAGE

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(11) Failure of an owner or operator of a system to have the system inspected, and use or operation of any system described in 310 CMR 15.301(1) through (9) after the dates or events set forth therein without a required inspection shall constitute violations of 310 CMR 15.000.

15.302: Criteria for Inspection

(1) The intent of 310 CMR 15.302 is to provide reasonable guidelines for the inspection of existing systems in as non-intrusive a manner as is possible, to avoid damage to the system and any unnecessary disturbance of the surrounding soil area which is related to the treatment process. The inspection is not designed to provide information to demonstrate that the system will adequately serve the use to be placed upon it by the new owner. The inspection criteria are intended to allow for timely inspection to avoid undue delay in the transfer of property.

(2) An inspection shall consist of the collection and recording of the following information:

(a) a general description of the system components and layout;

(b) quantification of the source/type of sanitary sewage. This should include type of use (domestic or commercial/industrial) as well as the design flow and whether or not the facility being served is occupied at the time of the inspection;

(c) an analysis of the factors set forth in 310 CMR 15.303 (failure criteria) and, if the system has a design flow of 10,000 gpd or greater, 15.304 (threats to public health and environment).

(d) water use records for the previous two years for facilities served by public water supply, if available from the supplier;

(e) a description of the septic tank including:

1. approximate age, size, and condition of the tank;
2. distance between bottom of grease/scum layer and the bottom of the outlet baffle;
3. distance between the top of the scum layer and the top of the outlet tee;
4. thickness of the grease/scum layer;
5. depth of the sludge layer and distance from sludge to outlet tee;
6. physical condition of inlet and outlet tees;
7. any evidence of leakage into or out of tank; and
8. any evidence of backup of effluent.

(f) a characterization of the distribution box, and of dosing tanks with pumps, if any, including:

1. any evidence of solids carryover;
2. leakage into or out of box;
3. is flow equally divided ;
4. any evidence of backup; and

(g) a description of the condition of the soil absorption system including:

1. any signs of hydraulic failure;
2. condition of surface vegetation;
3. level of ponding within disposal area;
4. encroachments into disposal area; and
5. other sources of hydraulic loading.

At a minimum, the septic tank and distribution box if present, or cesspool if present, must be located and inspected, and reasonable professional efforts made to locate and identify other components and features, as described in 310 CMR 15.302(2).

(3) The inspector shall make reasonable professional efforts to determine the location and condition of all system components and relevant physical features. If any component cannot be located or inspected, or any determination cannot be made, the inspector shall state on the inspection form the reasons and the steps taken to complete the inspection. In particular, the following constitute reasonable professional efforts:

(a) Determination of high groundwater elevation. A deep hole observation test is not required to determine high groundwater elevation during an inspection. It is intended that the high groundwater elevation be estimated by the inspector, using best professional judgment, based on the methods desribed herein.

15.302: continued

1. The inspector shall review local maps and records of groundwater elevation (previous deep hole observation tests or groundwater monitoring results) on the site or nearby properties, if available.
2. If the system includes a cesspool, the cesspool shall be pumped during the inspection and then examined to determine whether groundwater flows into the cesspool, indicating that the cesspool is below high groundwater elevation.
3. If the system includes a septic tank and distribution box, the condition of these components and the surrounding soil shall be observed for indications that groundwater has infiltrated the system. Care should be taken not to destabilize the distribution box or the piping to or from.

These minimum requirements shall not prevent the use of additional methods. The elevation of nearby water bodies, or evidence of groundwater infiltration in other subsurface structures (for example, cellars), or hand augering to determine depth may aide in determining whether the system is located in the groundwater. The methods used to determine high groundwater elevation shall be described in the inspection report. A system owner may choose to have the high groundwater elevation determined by an observation well or deep hole observation test to confirm or disprove the results obtained by the minimum requirements of 310 CMR 15.302(3)(a), or in place of the minimum requirements.

(b) Location of soil absorption system. The location of any cesspool must be determined. For systems with a septic tank and distribution box, excavation is not required to determine the location of the soil absorption system. Reference may be made to as-built plans of the system (if any). Where the failure criteria specified in 310 CMR 15.303(1)(c) are not in issue, the location may be approximated by considering design flow, location of the distribution box and direction of outlet pipes, and physical condition of the site. The location may also be determined by running a metal snake or similar device from the outlet of the distribution box and using a metal detector, or use of similar methods. Nothing in 310 CMR 15.302(3)(b) shall prevent an owner from choosing to establish the location of the leaching system through more intrusive methods.

15.303: Systems Failing to Protect Public Health and Safety and the Environment

(1) If one or more of the following conditions exist as documented by inspection by an approved System Inspector, or determined by the local approving authority or the Department, the system is failing to protect public health and safety and the environment and shall be upgraded in accordance with the timeframes of 310 CMR 15.305(1) and the standards of 310 CMR 15.404 and 15.405:

(a) Criteria applicable to all systems:

1. there is backup of sewage into the facility served by the system or any component of the system as a result of an overloaded and/or clogged soil absorption system or cesspool;
2. there is a discharge of effluent directly or indirectly to the surface of the ground through ponding, surface breakout or damp soils above the disposal area or to a surface water of the Commonwealth;
3. the static liquid level in the distribution box is above the level of the outlet invert;
4. the liquid depth in a cesspool is less than six inches from the inlet pipe invert or the remaining available volume within a cesspool above the liquid depth is less than ½ of one day's design flow;
5. the septic tank or cesspool requires pumping more than four times a year;
6. the septic tank is made of metal, unless the owner or operator has provided the System Inspector with a copy of a Certificate of Compliance indicating that the tank was installed within the twenty year period prior to the date of the inspection; or the septic tank is cracked or is otherwise structurally unsound, indicating that substantial infiltration or exfiltration is occurring or is imminent;
7. a cesspool, privy or any portion of the soil absorption system extends below the high groundwater elevation;

(b) Criteria applicable to cesspools and privies:

1. A cesspool or privy is located:
   a. within 100 feet of a surface water supply or tributary to a surface water supply;

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b. within a Zone I of a public well;
c. within 50 feet of a private water supply well;
d. less than 100 feet but 50 feet or more from a private water supply well, unless a well water analysis for coliform bacteria and volatile organic compounds indicates that the well is free from pollution from that facility and the presence of ammonia nitrogen and nitrate nitrogen is equal to or less than 5 ppm.

2. Evaluation of cesspools and privies near water resources:

A cesspool or privy is failing to protect public health and safety and the environment if any portion of it is within any of the dimensional criteria below and the local approving authority in its professional judgment determines the system is not functioning in a manner to protect the public health and safety and the environment.

a. within 50 feet of a surface water;
b. within 50 feet of a bordering vegetated wetland or a salt marsh.

In making a determination pursuant to 310 CMR 15.303(1)(b)2, the local approving authority shall consider

1. the condition, design, and treatment provided by the existing system;
2. the vertical separation of the existing soil absorption system from groundwater;
3. the horizontal separation of the existing soil absorption system from the water body;
4. the soil characteristics of the site;
5. the condition of the waterbody or wetland, including any sensitive use areas such as beaches or shellfish beds.

(c) Evaluation of systems with septic tanks and soil absorption systems near drinking water supplies:

If any portion of the soil absorption system is within any of the dimensional criteria below, unless the local approving authority in its professional judgment, with the concurrence of the public water supplier if any, determines the system is functioning in a manner to protect the public health and safety and the environment.

1. within 100 feet of a surface water supply or tributary to a surface water supply;
2. within a Zone I of a public well;
3. within 50 feet of a private water supply well;
4. less than 100 feet but 50 feet or more from a private water supply well, unless a well water analysis for coliform bacteria and volatile organic compounds indicates that the well is free from pollution from that facility and the presence of ammonia nitrogen and nitrate nitrogen is equal to or less than 5 ppm.

In making a determination pursuant to 310 CMR 15.303(1)(c), the local approving authority shall consider

1. the condition, design, and treatment provided by the existing system;
2. the vertical separation of the existing soil absorption system from groundwater;
3. the horizontal separation of the existing soil absorption system from the water body;
4. the soil characteristics of the site;
5. the condition of the water supply, including a water supply analysis for coliform bacteria and volatile organic compounds indicating that the well is free from pollution from that facility and the presence of ammonia nitrogen and nitrate nitrogen is equal to or less than 5 ppm. Where available, existing data may be used for this analysis.

(2) Any system shall be upgraded upon the order of the Department or the local approving authority determines that a specific circumstance exists by which any system threatens public health, safety or the environment or causes or threatens to cause damage to property or creates a nuisance as determined by the local approving authority or the Department. Where necessary to protect public health and safety and the environment, the Department or the local approving authority may require the owner to install a recirculating sand filter or equivalent alternative technology in accordance with 310 CMR 15.202 or to obtain a groundwater discharge permit in accordance with 314 CMR 5.00 and 6.00.

15.304: Large Systems which Fail to Protect or which Threaten Public Health and Safety and the Environment

(1) A system serving a facility with a design flow of 10,000 gpd or greater but less than 15,000 gpd is failing to protect public health and safety and the environment if any of the conditions identified in 310 CMR 15.303(1) are present, as documented by inspection by an approved System Inspector, or determined by the local approving authority or the Department. Any such system shall be upgraded in accordance with the timeframes of 310 CMR 15.305(1) and the standards of 310 CMR 15.404 and 15.405; provided, that the Department shall be the approving authority for all such upgrades.

(2) A system serving a facility with a design flow of 10,000 gpd or greater but less than 15,000 gpd is a significant threat to public health and safety and the environment if any of the following conditions are present, as documented by inspection by an approved System Inspector, or determined by the local approving authority or the Department:

(a) the system is located within 400 feet of a surface water supply or within 200 feet of a tributary to a surface water supply; or

(b) the system is located within a nitrogen sensitive area as designated pursuant to 310 CMR 15.215.

The owner or operator of any such system will be required to bring the system and the facility into compliance with the groundwater treatment program requirements of 314 CMR 5.00 and 6.00, including the obligation to obtain a groundwater discharge permit, within the timeframes of 310 CMR 15.305(2), unless the Department determines after consideration of the factors set forth in 310 CMR 15.304(3) that this requirement would be manifestly unjust, considering all the relevant facts and circumstances of the individual case, and the owner or operator has established that a level of environmental protection that is at least equivalent to that provided by 314 CMR 5.00 and 6.00 can be achieved without strict application of this requirement.

(3) (a) In determining whether enforcement of the requirement set forth at 310 CMR 15.304(2) would be manifestly unjust, the Department shall include at a minimum the following considerations:

1. The owners of any such system for which permit applications were filed after May 9, 1994, or anywhere new construction occurred after March 31, 1995, shall be deemed to have had knowledge that a groundwater discharge permit would likely be required for such system pursuant to 310 CMR 15.304(2), and a reasonable opportunity to make arrangements to come into compliance within the timeframes of 310 CMR 15.305(2);

2. The costs of preparing the demonstrations and implementing control measures required by 310 CMR 15.304 shall be compared to the costs of compliance with the requirement to obtain a groundwater discharge permit; and

3. The Department shall consider any other relevant factor.

(b) In determining whether the applicant can provide at least the same degree of environmental protection required by 310 CMR 15.304(2), the Department shall require at a minimum the following:

1. inspection reports for the system as required by 310 CMR 15.301;

2. an assessment of the groundwater flow at the site, including but not limited to direction and rate of groundwater flow, assessment of saturated flow conditions and concentrations of nitrate and other pollutants associated with the system;

3. an assessment of water quality of relevant surface water supply, groundwater supply, or nitrogen sensitive areas;

4. a proposed design and engineering plans for upgrade of the system, prepared by a Massachusetts Registered Professional Engineer, that will, at a minimum,

a. satisfy the requirements of 310 CMR 15.202 (recirculating sand filter or equivalent alternative technology);

b. satisfy the nitrogen loading requirements of 310 CMR 15.214;

c. ensure that the standards applicable to groundwater discharge permits pursuant to 314 CMR 5.00 and 6.00 are met at the property line and at the point the discharge from the facility reaches any surface water or water supply well;

5. a proposed maintenance, monitoring, and reporting plan that will ensure proper functioning of the upgraded system, and detection of any malfunction or failure to attain required discharge quality before discharges from the system leave the property; and

15.304: continued

6. if size and use of the facility is relevant to the demonstration that an equal level of environmental protection has been provided, appropriate use restrictions shall be granted to ensure that such conditions are not changed.

(c) An applicant for a determination pursuant to 310 CMR 15.304(3) shall file a request for such determination not less than two years prior to the date by which the owner would otherwise be required to obtain the groundwater discharge permit pursuant to 310 CMR 15.305(2).

(d) In making any determination pursuant to 310 CMR 15.304(3), the Department shall impose such conditions as it determines appropriate to ensure protection of public health and safety and the environment. At a minimum, such conditions shall include upgrade of the system to the standards described in 310 CMR 15.304(3)(b)4., and a maintenance, monitoring and reporting plan as described in 310 CMR 15.304(3)(b)5.

(4) Any system serving a facility with a design flow of 10,000 gpd or greater but less than 15,000 gpd shall be upgraded upon the order of the Department or the local approving authority when a specific circumstance exists by which the system threatens public health, safety or the environment or causes or threatens to cause damage to property or creates a nuisance as determined by the local approving authority or the Department. Where necessary to protect public health and safety and the environment, the Department or the local approving authority may require the owner to install a recirculating sand filter or equivalent alternative technology in accordance with 310 CMR 15.202 or to obtain a groundwater discharge permit in accordance with 314 CMR 5.00 and 6.00.

15.305: Deadlines for Completion of Upgrades

(1) If a system is failing to protect public health and safety or the environment as set forth in 310 CMR 15.303(1) or 15.304(1), the owner or operator shall upgrade the system within two years of discovery unless:

(a) a shorter period of time is set by the local approving authority or the Department based upon the existence of an imminent health hazard; or

(b) the continued use of the system is permitted by the local approving authority in accordance with the provisions of an enforceable schedule for upgrade. Bases for continued use include, but are not limited to, proposals to connect to a sanitary sewer or shared system. A fiscal commitment to the sewering plan or shared system plan, together with an approved facility plan where appropriate, proposing connection or replacement of the failing system within five years, and an enforceable commitment by the owner to perform interim measures (for example, regular pumping) shall accompany any such local approval. Such approval shall expire in five years or upon the failure of the applicant for such approval to meet interim deadlines set forth in the enforceable schedule for upgrade and the plan. The Department may by specific written approval authorize the local approving authority to allow a longer period of time, where the municipality has provided the Department a proposed implementation schedule for design and construction and has made a demonstrated financial commitment to the construction schedule. The Department may revoke any such approval if the approved schedule is not met.

NON-TEXT PAGE

15.305: continued

(2) If a system serving a facility with a design flow of 10,000 gpd or greater but less than 15,000 gpd is a significant threat to public health and safety or the environment as set forth in 310 CMR 15.304(2), the owner or operator shall upgrade the system within five years of discovery in accordance with the provisions of an enforceable schedule unless:

(a) a shorter period of time is set by the Department based upon the existence of an imminent health hazard;

(b) the continued use of the system is permitted by the Department because it is necessary to allow implementation of an environmentally superior solution. An enforceable commitment by the owner to perform interim measures (*e.g.*, regular pumping, addition of fill) shall accompany any such approval by the Department. Such approval shall expire in seven years or upon the failure of the applicant for such approval to meet interim deadlines set forth in the enforceable schedule for upgrade.

(3) The owner or operator shall take appropriate measures throughout the period between discovery of the condition requiring upgrade and completion of the upgrade to ensure that there is no backup or direct discharge of sewage or effluent to buildings, to the surface of the ground, or to surface waters. The local approving authority or the Department may order the owner or operator to take any measure necessary to ensure the protection of public health and safety and the environment during such period.

(4) All systems shall be abandoned in accordance with 310 CMR 15.354 and the buildings served by the systems shall be connected to a sewer when a sewer becomes available, unless:

(a) the system is an alternative system approved for such use pursuant to 310 CMR 15.280 through 15.287

(b) the Department has made the determination in approving either the remedial use of an alternative system pursuant to 310 CMR 15.284 or in certifying an alternative system for general use pursuant to 310 CMR 15.288 that any person using such system need not connect the facility to a sanitary sewer if such connection is feasible; or

(c) the owner of an existing system has obtained a variance from this requirement pursuant to 310 CMR 15.410 through 15.415.

All systems shall be abandoned in accordance with 310 CMR 15.354 and the buildings served by the systems shall be connected to a sewer when directed to do so by the Board of Health pursuant to M.G.L. c. 83, § 11, by the Department pursuant to 310 CMR 15.000, or by court order.

15.340: Approval of System Inspectors

(1) System Inspectors who perform inspections pursuant to 310 CMR 15.301 shall be:

(a) Massachusetts Registered Professional Engineers with a concentration in civil, sanitary or environmental engineering; Massachusetts Registered Sanitarians; or Certified Health Officers; or

(b) Board of Health members or agents, Engineers in Training (EIT certified) with a concentration in civil, sanitary or environmental engineering, professional home inspectors, licensed septage haulers or system installers, or other individuals with a minimum of one year of demonstrated experience in septic system inspection, who have attended training provided or authorized by the Department; and who have passed an examination prepared and administered by the Department or an agent authorized by the Department to qualify as an approved System Inspector pursuant to 310 CMR 15.340(2).

(2) The Department may approve System Inspectors who attend training provided or authorized by the Department and pass a standard examination prepared and administered by the Department or an agent authorized by the Department. Said examination shall be designed to establish the fitness of the applicant for certification to assess the condition and function of on-site systems and to determine whether maintenance, including repair or replacement of system components, is necessary.

(3) The passing score for the examination shall be 75% correct answers to all questions posed. Any person who is denied approval as a System Inspector based on his or her failure to pass the examination given by the Department may request, and is entitled to receive, a written statement of the Department's basis for denial.

15.340: continued

(4) The Department shall maintain a list of all approved System Inspectors. The list shall be available for inspection or examination by any person.

(5) The Department may revoke or suspend the approval and/or listing of a Systems Inspector after opportunity for a hearing conducted pursuant to M.G.L. c. 30A when it determines that the inspector has falsified or fraudulently altered a system inspection report or misrepresented the results of an inspection performed by the Inspector.

(6) It shall be a violation of 310 CMR 15.000 for any person to falsify, misrepresent or fraudulently alter a system inspection report or the results of an inspection.

(7) System Inspectors shall submit the results of their inspection on a System Inspection Report form approved by the Department to the approving authority together with the signed statement at the bottom of the form certifying that the inspection has been performed and any recommendations regarding upgrade, repair, or maintenance of the system made by the inspector in the form were made consistent with the Inspector's training and experience in the maintenance and proper functioning of on-site systems.

(8) System Inspectors may perform system inspections required by 310 CMR 15.301 while acting as an agent of an approving authority (a fee may be assessed pursuant to M.G.L. c. 40, § 22F), or as an independent agent of the system owner.

15.350: Other Maintenance Requirements

15.351: System Pumping and Routine Maintenance

(1) Every septic tank or cesspool shall be pumped whenever necessary to ensure proper functioning of the system. Pumping is required whenever the top of the sludge or solids layer is within 12 inches or less of the bottom of the outlet tee or the top of the scum layer is within two inches of the top of the outlet tee or the bottom of the scum layer is within two inches of the bottom of the outlet tee. Pumping frequency is a function of use, although pumping is typically necessary at least once every three years and recommended on an annual basis for a system with a domestic garbage grinder. Without limiting the foregoing, a septic tank or cesspool shall be pumped when the owner or operator is required to do so by the local approving authority or the Department. Whenever a septic tank or cesspool is pumped, its condition shall be noted on a system pumping form approved by the Department, and the results shall be submitted to the local approving authority. Such notation of the system's condition on the system pumping form shall not constitute a System Inspection Report submitted to the local approving authority in accordance with 310 CMR 15.340.

(2) Grease traps shall be inspected monthly and shall be cleaned by a licensed septage hauler whenever the level of grease is 25% of the effective depth of the trap, or at least every three months, whichever is sooner.

15.352: Increases in Design Flow to System

No person shall increase the actual or design flow to any cesspool or to any other system above the existing approved capacity, unless the system is upgraded. Upgrades to accept increased design flow shall be performed in full compliance with the requirements applicable to new construction unless a variance is allowed pursuant to 310 CMR 15.414.

15.353: Emergency Repair

(1) Emergency repair or replacement of systems shall be limited to the following:
(a) pumping of a septic tank or cesspool as frequently as necessary to prevent backup or breakout; and

15.353: continued

(b) repair or replacement of one or more structural components of a system which is otherwise in compliance with 310 CMR 15.000, such as a clogged building sewer or distribution line, damaged building sewer, septic tank or distribution box, or broken tee which is determined to be the probable cause of the system failure and for which no modification or alteration of the system design is required; and shall be completed within 30 days.

(2) All emergency repairs other than pumping shall be followed within 30 days of the emergency repair by an application for a Disposal System Construction Permit, local upgrade approval, or an application for a variance, if needed, pursuant to 310 CMR 15.411(2). The applicant may backfill any excavation required for the emergency repair unless directed otherwise by the approving authority. Pumping shall be reported to the local approving authority.

(3) Any upgrade or expansion of a system which is not an emergency repair shall be designed, approved, and constructed in accordance with 310 CMR 15.000.

15.354: Abandonment of Systems

(1) Whenever the use of a system is discontinued following connection to a municipal or private sanitary sewer or following condemnation or demolition of a building served by the system, the system shall be considered abandoned and any further use of the system for any purpose shall be prohibited unless, after inspection, the approving authority determines the system is in compliance or can be brought into compliance with 310 CMR 15.000.

(2) Continued use of a septic tank where the tank is to become an integral part of a sanitary sewer system requires the prior written approval of the Department.

(3) The following procedure shall be used to abandon a system:
(a) The facility owner shall apply to the approving authority to abandon the existing system citing the reason(s) abandonment is necessary, and where connection to municipal or private sanitary sewer has been made, a copy of the sewer connection permit shall be submitted with the application;
(b) Upon receipt of the approving authority's written approval to abandon the system, the septic tank shall be pumped of its entire contents by a licensed septage hauler; and
(c) The tank shall be excavated and removed from the site, or the bottom of the tank shall be opened or ruptured after being pumped of its content so as to prevent retainage of water and the tank shall be completely filled with clean sand.

15.401: General Provisions

(1) Except as set forth in 310 CMR 15.401 through 15.422, every application to construct, upgrade or expand a system shall be prepared, and the work therefore authorized pursuant to a Disposal System Construction Permit shall be conducted, in full compliance with the procedural and technical requirements of 310 CMR 15.100 through 15.293.

(2) In general, full compliance with the provisions of 310 CMR 15.000 is presumed to be necessary for the protection of public health, safety, welfare and the environment. Any requests to vary from the standards of 310 CMR 15.000 by means of a local upgrade approval or a variance shall be carefully reviewed by the approving authority and, where required, by the Department.

15.402: Use of Local Upgrade Approvals or Variances

(1) Local Upgrade Approvals may be granted by local approving authorities without review by the Department for required or voluntary upgrade of failed or nonconforming systems with design flows below 10,000 gpd in accordance with the terms and provisions of 310 CMR 15.402 through 15.405. Upgrade Approvals for required or voluntary upgrade of systems with design flows of 10,000 gpd or greater but less than 15,000 gpd which are failing to protect or are a significant threat to public health and safety and the environment as set forth in 310 CMR 15.304 shall be approved by the Department.

(2) Proposals for new construction or for increase in flow to an existing system other than in full compliance with 310 CMR 15.100 through 15.293 must seek and obtain a variance from the local approving authority and the Department (with the exception of those variances set forth at 310 CMR 15.412(4) for which the Department has no review) in accordance with the terms and conditions of 310 CMR 15.410 through 15.417.

15.403: Local Upgrade Approvals

(1) The owner or operator may upgrade a failed or nonconforming system with design flows below 10,000 gpd (systems which trigger failure criteria set forth at 310 CMR 15.303) or systems with design flows of 10,000 gpd or greater but less than 15,000 gpd which fail to protect public health and safety and the environment (large systems set forth at 310 CMR 15.304(1)) pursuant to a local upgrade approval in accordance with the standards and requirements of 310 CMR 15.404 and 15.405 without obtaining variances. Local upgrade approvals for any system serving a facility owned by an agency of the Commonwealth or the federal government or systems with design flows of 10,000 gpd or greater but less than 15,000 shall be granted by the Department applying the same standards. The application for a local upgrade approval shall be made using a form approved by the Department. Notification to abutters shall be provided pursuant to 310 CMR 15.411(1)(b).

(2) Local Upgrade approvals shall not be granted for upgrade proposals which include the addition of new design flows to a cesspool or privy or for the addition of new design flows above the existing approved capacity of a system constructed in accordance with the provisions of 310 CMR 15.000 or the 1978 Code.

(3) System upgrades which cannot be performed in accordance with 310 CMR 15.404 and 15.405 require a variance from the provisions of 310 CMR 15.000, which shall be processed in accordance with 310 CMR 15.410 through 15.417.

(4) The system owner or operator shall provide a copy of the local upgrade approval to the Department upon issuance by the local approving authority and before commencement of construction.

15.404: Maximum Feasible Compliance - Approvals for Upgrades and Lots Grandfathered Pursuant to 310 CMR 15.005(3), 15.005(4), and 15.005(5)

(1) Goal of full compliance. Wherever feasible, a failed or nonconforming system (other than systems threatening public health and safety or the environment as described in 310 CMR 15.304(2)) shall be brought into full compliance through installation of one or more of the following:

(a) an upgraded system which is in full compliance with 310 CMR 15.100 through 15.293;

(b) an alternative system which has been approved for such use pursuant to 310 CMR 15.284 (remedial use), 15.285 (piloting), 15.286 (provisional approval), or 15.288 (certification for general use);

(c) where proposed by the owner or operator, a shared system which has been approved for such use pursuant to 310 CMR 15.290 and 15.291; or

(d) connection to a sewer system.

15.404: continued

Where failure of the system is solely due to failure of the septic tank, distribution box, soil absorption system, piping, and/or building sewer, upgrade of that component(s) in full compliance with 310 CMR 15.000 shall be deemed to meet the goal of full compliance; provided that the upgraded component functions properly with the other system components, the system functions properly hydraulically, and the owner obtains a certificate of compliance from the approving authority. If other system failures are discovered during upgrade of that component(s), such other system failures shall be upgraded in accordance with 310 CMR 15.405.

(2) When full compliance pursuant to 310 CMR 15.404(1) is not feasible, the approving authority shall issue a local upgrade approval authorizing upgrade of the system with the goal of maximizing protection of public health and safety and the environment to the maximum extent feasible. The following requirements shall not be varied by the local approving authority except as explicitly set forth in 310 CMR 15.404(2)(b) and (d):

(a) A septic tank with an effective liquid capacity providing no less than 24 hours of retention time or 1000 gallons, whichever is greater, shall be provided unless the septic tank is an elevated tank constructed in accordance with 310 CMR 15.213 (construction in V-zones) in which case the effective liquid capacity may consist of a 500-gallon tank.

(b) A minimum of four feet of separation between the bottom of the soil absorption system and the high groundwater elevation shall be provided, using fill if necessary. The local approving authority may allow a three foot separation only in full compliance with 310 CMR 15.405(1)(i).

(c) A minimum of four feet of naturally occurring pervious soil below the entire area of the soil absorption area and reserve area shall be provided.

(d) The soil absorption system shall be designed to provide as much of the required area as possible on the facility served or, if proposed by the owner or operator, on an abutting facility pursuant to a valid recorded easement. The local approving authority may reduce the required soil absorption system area no more than 25%, as provided in 310 CMR 15.405(1). Reductions in the required subsurface disposal area in excess of 25% may only be varied by the Department, and may require the installation of a Department-approved septic tank effluent tee filter, dosing of portions of the soil absorption system on an alternating basis, and/or other measures to protect the integrity of the soil absorption system; and

(e) the soil absorption system shall not be located within 100 feet of a surface water supply or tributary to a surface water supply, within 50 feet of a private water supply well, or within the Zone I of a public water supply well.

15.405: Contents of Local Upgrade Approval

(1) In granting local upgrade approvals pursuant to 310 CMR 15.404(2) where full compliance as defined in 310 CMR 15.404(1) is not feasible, the local approving authority shall consider the impact of the proposed system and shall vary to the least degree necessary the requirements of 310 CMR 15.100 through 15.293 so as to allow for both the best feasible upgrade within the borders of the lot, and have the least effect on public health, safety and the environment. The local approving authority is allowed to diverge from the goal of full compliance only to the extent necessary to achieve a feasible upgrade. In determining whether full compliance is feasible, the approving authority should appropriately consider not only physical possibility as dictated by the conditions of the site, but also the economic feasibility of the upgrade costs. The approving authority should emphasize protection of water resources and treatment of the sanitary sewage. Absent conditions which would result in a different outcome based on best professional judgment, the options set forth below should be considered in the order in which they appear with 310 CMR 15.405(1)(a) being the first option to be considered and rejected or adopted and 310 CMR 15.405(1)(i) being the last option to be considered and rejected or adopted:

(a) Reduction of system location setbacks otherwise established in 310 CMR 15.211 for property lines provided that a survey of the property line shall be required if a component is to be placed within five feet of the property line, and no such reduction shall result in the soil absorption system being located less than ten feet from a soil absorption system on an abutting property;

(b) Reductions of system location setbacks from cellar wall, swimming pool, or slab foundations;

15.405: continued

(c) Placement of the leaching structure within an area where percolation rate is between 30 and 60 minutes per inch, in accordance with 310 CMR 15.242 for applications filed prior to January 1, 2004;
(d) Up to a 25% reduction in the required subsurface disposal area design requirements;
(e) Where upgrade is required pursuant to 310 CMR 15.303(1) because it is within Zone I of public well or within 100 feet of private well, relocation of the well. Any relocation of a public well shall be performed pursuant to 310 CMR 22.00 (water supply source approval);
(f) Reduction of system location setbacks from bordering vegetated wetlands;
(g) Reduction of system location setbacks from surface waters, salt marshes, inland and coastal banks, certified vernal pools in accordance with 310 CMR 15.211(1)[2], leaching catch basins, dry wells, or surface or subsurface drains other than those which discharge to surface water supplies or tributaries thereto;
(h) Reduction of system location setbacks from water supply lines, private water supply wells (but not within 50 feet of the well), tributaries to surface water supplies, surface water supplies, but not within 100 feet of the surface water supply or tributary thereto or open, surface or subsurface drains which discharge to surface water supplies or tributaries thereto.
(i) the local approving authority may reduce the required four foot separation (in soils with a recorded percolation rate of more than two minutes per inch) or the required five foot separation (in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the soil absorption system and the high groundwater elevation only if all of the following conditions are met:

1. An approved Soil Evaluator who is a member or agent of the local approving authority determines the high groundwater elevation.
2. A minimum three foot separation (in soils with a recorded percolation rate of more than two minutes per inch) or a minimum four foot separation (in soils with a recorded percolation rate of two minutes or less per inch) between the bottom of the soil absorption system and the high groundwater elevation is maintained.
3. The system is a failed or non-conforming system serving an existing building with a design flow of less than 2,000 gpd
4. No increase in design flow or square footage of the building is allowed.
5. No reduction in required leaching field size or setbacks from public or private wells, bordering vegetated wetlands, surface waters, salt marshes, coastal banks, certified vernal pools, water supply lines, surface water supplies or tributaries to surface water supplies, or drains which discharge to surface water supplies or their tributaries, is allowed.

(2) No application for an upgrade approval in which the setback from property lines or a private water supply well is reduced shall be complete until the applicant has notified all abutters whose property or well is affected by certified mail at his/her own expense at least ten days before the Board of Health meeting at which the upgrade approval will be on the agenda. The notification shall reference the standards set forth in 310 CMR 15.402 through 15.405 and indicate the date, time and place where the upgrade approval will be discussed.

(3) If the nonconforming system cannot be upgraded in accordance with 310 CMR 15.404 and 15.405(1) the owner shall:
(a) obtain a groundwater discharge permit pursuant to 314 CMR 5.00 and 6.00,
(b) apply to the Department to use a tight tank or modified tight tank in accordance with the provisions of 310 CMR 15.260 through 15.262,
(c) apply for a variance pursuant to 310 CMR 15.410 through 15.415, or
(d) abandon the system in compliance with 310 CMR 15.354.

(4) Nothing in 310 CMR 15.405 shall authorize violation of M.G.L. c. 131, § 40 and 310 CMR 10.00, or any other applicable provision of law.

15.410: Variances - Standard of Review

(1) Local approving authorities and the Department may vary the application of any provisions of 310 CMR 15.000 with respect to any particular case except those listed in 310 CMR 15.415. Variances shall be granted only when, in the opinion of the approving authority:

(a) The person requesting a variance has established that enforcement of the provision of 310 CMR 15.000 from which a variance is sought would be manifestly unjust, considering all the relevant facts and circumstances of the individual case; and

(b) The person requesting a variance has established that a level of environmental protection that is at least equivalent to that provided under 310 CMR 15.000 can be achieved without strict application of the provision of 310 CMR 15.000 from which a variance is sought.

(2) With regard to variances 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.

15.411: Process for Seeking a Variance From Local Approving Authorities

(1) The local approving authority shall review requests for variances as follows.

(a) Every request for a variance shall be in writing and shall make reference to the specific provision of 310 CMR 15.000 for which a variance is sought and a statement in compliance with 310 CMR 15.410.

(b) No application for a variance shall be complete until the applicant has notified all abutters by certified mail 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 provisions of 310 CMR 15.000 from which a variance is sought, a statement of the standards set forth in 310 CMR 15.410 and the date, time and place where the application will be discussed.

(2) Emergency repairs pursuant to 310 CMR 15.353 may be performed without seeking a variance. The owner of the system must seek a variance within 30 calendar days after performing the emergency repairs.

(3) Any variance allowed by the local approving authority shall be in writing. Any denial of a variance shall also be in writing and shall contain a brief statement of the reasons for the denial. A copy of each variance shall be conspicuously posted for 30 days following its issuance; and shall be available to the public at all reasonable hours in the office of the city or town clerk or the office of the Board of Health while it is in effect.

(4) A request for a variance for a residential facility with four units or less (as described in M.G.L. c. 111, § 31E) shall be deemed constructively approved by the local approving authority if the local approving authority does not act upon it within 45 days of receipt of a complete application. Such variances are still subject to review by the Department in accordance with 310 CMR 15.412.

15.412: Review of Variances by the Department

(1) Except as provided in 310 CMR 15.412(4), the applicant shall file a copy of each variance granted by the local approving authority with the Department together with the fee specified at 310 CMR 4.00. The Department shall review all those issues raised before the local approving authority and may review other issues raised by the application, all in accordance with the standards set in 310 CMR 15.410.

(2) The Department shall approve, disapprove or modify the variance granted by the local approving authority, or shall request additional information to be provided by the applicant, within 30 calendar days of the Department's receipt of the request. If the Department has requested additional information, it shall approve, disapprove or modify the variance within 30 days of receiving the applicant's response.

15.412: continued

(3) No work shall be done under any variance request for which Department approval is required until the Department has approved it or 30 days (or any extension thereof pursuant to 310 CMR 15.412(2)) has elapsed without its comment.

(4) No Department review of the following variances is required where the variance has been approved by the local approving authority:

(a) Reduction of system location setbacks otherwise established in 310 CMR 15.211 for property lines, provided that a survey of the property line shall be required if a component is to be placed within five feet of the property line, and no such reduction shall result in the soil absorption system being located less than 10 feet from a soil absorption system on an abutting property;

(b) Reductions of system location setbacks from cellar wall, swimming pool, or slab foundations.

(c) With the exception of those watersheds (Ware, Quabbin and Wachusett) to which the provisions of 350 CMR 11.00 (MDC Watershed Protection regulations) apply, local approving authorities may, after consultation with the local water supplier, issue variances for the siting of systems within the setbacks to surface water supplies or to tributaries to surface water supplies and may exempt tributaries consistent with the standards and procedures of 350 CMR 11.00 without Department approval provided that no such variance or exemption shall result in the siting of a septic tank or soil absorption system within 200 feet of said surface water supplies or 100 feet of said tributaries, or siting of a septic tank within 25 feet or a soil absorption system within 50 feet of any surface water. Copies of all such variances for uses and exemptions of tributaries shall be submitted to the Department.

15.413: Conditioning of Variances

(1) The local approving authority or the Department may issue variances subject to such conditions, including, but not limited to, monitoring and reporting requirements, deed recordation requirements, financial assurances or other qualifications on the use of the system, as it deems necessary to protect public health and safety and the environment. Any conditions shall be expressed in writing in allowing the variance.

(2) Any denial of a variance by the local approving authority or the Department may direct the applicant to upgrade an existing system consistent with the requirements and standards of 310 CMR 15.404 and 15.405. Failure to do so may be the subject of enforcement action by the local approving authority or the Department.

15.414: Variances for Increased Flow to Existing System

Local approving authorities and the Department may vary the application of any provisions of 310 CMR 15.000 with respect to any particular case involving increased flow to an existing system only when in the opinion of both the Department (except as provided in 310 CMR 15.412(4)) and the local approving authority all of the following conditions are met. A showing by the person requesting a variance that the proposed variance would satisfy the maximum feasible compliance provisions as set forth in 310 CMR 15.404 and 15.405 shall not presumptively entitle such person to a variance.

(1) The person requesting a variance has established that strict enforcement of the provision of 310 CMR 15.000 from which a variance is sought would be manifestly unjust, considering all the relevant facts and circumstances of the individual case including, at a minimum, the following:

(a) the owners of any such system for which permit applications were filed after March 31, 1995 shall be deemed to have had knowledge that full compliance with the requirements applicable to new construction is preferred;

(b) the costs of full compliance with the requirements applicable to new construction shall be compared to the costs of compliance with a variance; and

(c) whether an upgrade in full compliance with 310 CMR 15.000 is feasible without increased flow.

15.414: continued

(2) The system cannot be brought into full compliance through any of the following:
(a) an upgraded system which is in full compliance with 310 CMR 15.100 through 15.293;
(b) an alternative system which has been approved for such use pursuant to 310 CMR 15.284 (remedial use), 15.285 (piloting), 15.286 (provisional approval), or 15.288 (certification for general use);
(c) a shared system which has been approved for such use pursuant to 310 CMR 15.290 and 15.291; or
(d) connection to a sewer system.

(3) The upgraded system with the increased flow provides better protection of public health and safety and the environment than the existing system with no increase in flow. Increased flows not in compliance with 310 CMR 15.000 will rarely provide better protection than existing flows to a system designed and constructed in compliance with the 1978 Code or 310 CMR 15.000, but are more likely to constitute improvements over nonconforming or failed systems.

15.415: Provisions From Which No Variance May be Granted

(1) No variance from the minimum requirement of four feet of naturally occurring pervious material set forth in 310 CMR 15.240(1) shall be granted for new construction.

(2) For upgrade of systems, or increase of flow to existing systems, no variance from the minimum requirement of four feet of naturally occurring pervious material set forth in 310 CMR 15.240(1) shall be granted unless the applicant demonstrates that alternatives for siting an on-site system with four feet of naturally occurring pervious material or connection to a sanitary sewer or connection to a shared system are not feasible. Where no such alternatives are feasible, a variance to allow the repair or replacement in the disposal area with no less than two feet of naturally occurring pervious material may be considered upon the applicant's demonstration of the following:
(a) evidence, the result of deep observation hole testing, that the four feet requirement cannot be met anywhere on the site;
(b) evidence that easements to adjacent property on which a system in compliance with the four feet requirement could be installed have been requested and can not be obtained; and
(c) evidence that site testing to establish high ground-water elevation conducted in accordance with the procedures set forth in 310 CMR 15.103 has been conducted in conjunction with preparation of design plans and specifications for the repair or replacement.

15.416: Variances for Schools

(1) For purposes of 310 CMR 15.416, a school means any public or privately-owned elementary, middle, or secondary school. University, college or other adult educational facilities, regardless of ownership, are not considered schools for these purposes.

(2) The Department may vary the application of provisions of 310 CMR 15.000 as specified in 310 CMR 15.416 where a school demonstrates to the satisfaction of the Department that:
(a) the variance is necessary to accommodate an overriding community, regional, state or national public interest; and
(b) a level of environmental protection that is at least equivalent to that provided under 310 CMR 15.000 can be achieved without strict application of the provision of 310 CMR 15.000 from which a variance is sought.
The provisions of 310 CMR 15.411 through 15.413 shall apply to such variances.

15.416: continued

(3) The Department may vary the design flow values for elementary, middle or secondary schools set forth in 310 CMR 15.203(5), where the applicant:

(a) satisfies the criteria of 310 CMR 15.416(2);

(b) demonstrates through the use of metered maximum daily water flow readings from the facility or similar facilities in the same or surrounding communities that because of water conservation techniques or other factors flows are or will be substantially different from those contained in 310 CMR 15.203(5), including consideration of occupancy and use rates; and

(c) demonstrates that system design has also accounted for any anticipated pollutant loadings and greater concentration of pollutants that result from reducing flows.

If the Department grants such a variance, it shall require determination of design flows based on 200% of the average daily water meter readings when school is in session in order to assimilate maximum daily flows.

(4) If any school with a design flow of 10,000 gpd or greater but less than 15,000 gpd is threatening public health, safety and the environment pursuant to 310 CMR 15.304(2), a groundwater discharge permit will be required unless the Department determines after consideration of the factors set forth in 310 CMR 15.304(3) that this requirement would be manifestly unjust and the owner or operator of the school has established that a level of environmental protection that is at least equivalent to that provided under 310 CMR 15.000 can be achieved without strict application of this requirement.

(5) The Department may vary the prohibition on increased flows to systems with design flows between 10,000 and 15,000 gpd set forth in 310 CMR 15.006(3), where the applicant:

(a) satisfies the criteria of 310 CMR 15.416(2) and 310 CMR 15.414(3) (increases in flow to existing facilities);

(b) demonstrates that there are no reasonable conditions or alternatives that would allow the system to be expanded in compliance with the provisions of 310 CMR 15.000 or other applicable requirements; and

(c) demonstrates that the upgraded system with the increased flow provides better protection of public health and safety and the environment than the existing system with no increase in flow.

15.417: Variances from Percolation Rate

(1) To assist in determining the advisability of revising the slowest allowable percolation rate as set forth in 310 CMR 15.245, the Department may permit the construction of up to 20 single family dwellings per year in accordance with 310 CMR 15.417. All other provisions of 310 CMR 15.000 shall apply to such sites.

(2) Process. No earlier than March 31, 1995 the Department shall publish a request for proposals informing applicants how to apply for such approvals, including any deadlines, information requirements, and preference criteria. A completed application shall include a proposed monitoring plan, and a letter from the local approving authority stating its support for the application. Upon the Department's approval of a site under 310 CMR 15.417, the applicant shall obtain a Disposal System Construction Permit from the local approving authority.

(3) The Department shall not approve under 310 CMR 15.417 any site located within a nitrogen sensitive area.

(4) The Department and the local approving authority shall impose such conditions as they deem appropriate for the protection of public health and safety and the environment. Any approval under 310 CMR 15.417 shall include a monitoring plan which includes at least an annual inspection of the system for at least the first seven years of operation.

(5) The owner or operator shall provide written notice to any new owner or operator that the system has been constructed pursuant to 310 CMR 15.417. Such notice shall include notice of the general conditions and any special conditions applicable to the system.

15.417: continued

(6) No applicant shall be deemed to be entitled to selection of his or her site under 310 CMR 15.417, and the selection determination shall not be subject to the review process set forth in 310 CMR 15.422. A rejected applicant may file an application for a Disposal System Construction Permit pursuant to 310 CMR 15.020, and if necessary may seek a variance pursuant to 310 CMR 15.410 through 15.415.

(7) As provided at 310 CMR 15.245(1), variances from percolation rate pursuant to 310 CMR 15.417 shall not be required for percolation rates between 30 and 60 minutes per inch after January 1, 2004.

15.420: Appeals of Variance Determination

(1) The denial of a variance is not an order.

(2) Variances which are reviewed by the local approving authority but not acted on by the Department may be appealed pursuant to 310 CMR 15.421.

(3) Variance requests which are reviewed and decided by the Department may be appealed pursuant to 310 CMR 15.422.

15.421: Appeals From Determinations by Local Approving Authority

Any person aggrieved by any order, variance, issuance or denial of a Disposal System Construction Permit, Local Upgrade Approval or Certificate of Compliance issued by a local approving authority may appeal to any court of competent jurisdiction as provided for by the laws of the Commonwealth.

15.422: Appeals of Departmental Determinations

(1) An applicant who is aggrieved by a variance determination by the Department may request an adjudicatory hearing on that determination in accordance with 310 CMR 1.00 and M.G.L. c. 30A.

(2) Any person aggrieved by an order, or by a commonality determination pursuant to 310 CMR 15.011, issued by the Department, may request an adjudicatory hearing in accordance with the provisions of 310 CMR 1.00 and M.G.L. c. 30A.

15.500: Purpose

The provisions of 310 CMR 15.500 through 15.505 are intended to provide for safe, efficient and economical means of collecting transporting and disposing of septage.

15.501: Regional Abatement Districts

(1) Handling of septage through regionalized authorities or districts can promote public safety, efficient regional planning, sufficient capacity and cost-savings for individuals, the Commonwealth and its political subdivisions.

(2) One or more cities and towns, pursuant to the provisions of M.G.L. c. 21, §§ 29 and 30, and M.G.L. c. 111, §§ 31 and 31D may enter into an abatement district for the purpose of arranging for the transport and disposal of septage generated within their boundaries. A model regulation for the purposes of forming a district may be obtained from the Department.

15.502: Transportation

(1) No person shall remove and transport septage through the streets of any city or town or via any state or federal highway located within any city or town in which the septage was first collected without first obtaining a permit from the board of health of such city or town in accordance with 310 CMR 15.000 and M.G.L. c. 111, § 31A. An application for such permit shall be in such form and contain such information, on oath, as such board shall require.

15.502: continued

(2) All such permits shall expire at the end of the calendar year in which they are issued, but may be renewed annually on application as herein provided. No permit shall be transferred except with the written approval of the said board.

(3) All permits shall designate the treatment works, approved by the Department, where the hauler is authorized to dispose of septage and a copy of all contracts or other agreements between the hauler and the receiving facility shall be submitted to, and retained by, the approving authority.

(4) A duly registered septage hauler may transport septage through the streets of a city or town in which said substances were not collected provided the hauler registers with the board of health of such city or town; and, provided further, that he or she transports said substances in accordance with such reasonable rules and regulations as may be established by such board of health.

(5) Motor vehicles owned by the Commonwealth or any of its political subdivisions and motor vehicles engaged under contract with the Commonwealth in the transportation of septage shall be exempt from the provisions of 310 CMR 15.302. A city or town may recommend to the department of highways, in writing, an alternative route of travel for such motor vehicles whereby the noise or nuisance incident to such travel shall be minimized or abated and said department shall consider such alterations or changes in the travel routes of such motor vehicles as will result in the minimization of such noise or nuisance.

(6) The contents of privies, cesspools, septic tanks and tight tanks shall be transported in a manner that will not create a nuisance or a health hazard.

15.503: Transfer Locations

Local Boards of Health may regulate locations for the transfer of septage from one truck, tanker or other storage container equipped with wheels sufficient for over-the-road or rail travel to another pursuant to M.G.L. c. 111, §§ 31D and 143, provided that no permanent structures for holding or storage are constructed. The Department may impose additional requirements on transfer locations pursuant to the authority of 310 CMR 15.000 and M.G.L. c. 21 §§ 26 through 53 and M.G.L. c. 83, § 6.

15.504: Disposal

(1) Cities, towns and sewerage districts may, subject to the approval of the Department, provide treatment works for the receipt and disposal of septage and may establish such charges for the use of such facilities as may be necessary for defraying the cost of construction, operating and maintaining the same.

(2) Disposal of septage shall be by discharge to a sanitary sewer or to a treatment works. All such treatment works shall be approved by the Department in accordance with M.G.L. c. 21, §§ 26 through 53 and applicable provisions of 314 CMR 3.00, 4.00, 5.00, 6.00, 7.00 and 12.00. If disposal is by discharge to a sanitary sewer, it shall be in a manner and at such times as may be acceptable to the authority having jurisdiction over the sewer and in accordance with any applicable regulations or permit conditions. Any other disposal is a violation of 310 CMR 15.000.

(3) The Department may investigate treatment works for the receipt of septage in cities, towns and sewerage and septage districts. If the Department determines such works are inadequate for proper disposal of septage, it may recommend necessary action for the protection of the public. If after a reasonable time, the city, town or sewerage or septage district fails to act upon the Department's recommendation, the Department may issue an order requiring the provision of adequate septage receiving facilities. Nothing in 310 CMR 15.504 shall be construed to limit the authority of the Department to take any action pursuant to M.G.L. c. 21, §§ 26 through 53.

15.504: continued

(4) Pursuant to M.G.L. c. 40, § 22F, a city, town or sewerage or septage district may establish such charges for the use of septage receiving facilities as may be necessary for defraying the cost of constructing, operating and maintaining the works.

(5) Disposal of septage at treatment works where it is dewatered and beneficially reused shall be encouraged and practiced wherever feasible.

15.505: Equipment

(1) No person shall use equipment to remove or transport the contents of privies, cesspools, septic tanks or tight tanks unless such equipment has first been inspected and approved by the approving authority.

(2) Mobile tanks shall be securely mounted on trucks. They shall be watertight, equipped with necessary odor controls, provided with a leak proof cover and tight discharge valves.

(3) Mobile tanks shall be provided with a vent constructed in a manner that will permit the escape of gas, but not the liquid contents of the tank.

(4) Suction or pressure hose shall be in good repair.

(5) Pumps shall be maintained in a condition that will prevent the leakage of septage.

Appendix 1

Upon recording, mail to:
Bureau of Resource Protection
Department of Environmental Protection
One Winter Street
Boston, MA 02108

GRANT OF TITLE 5 COVENANT AND EASEMENT
(property served by Shared System)
310 CMR 15.__

This GRANT OF TITLE 5 COVENANT AND EASEMENT made as of this __ day of _____, 19 , by _____, of _____, _____ County, Massachusetts ("Grantor").

WITNESSETH

WHEREAS, Grantor being the owner(s) in fee simple of that [those] certain parcel(s) of [vacant] land located in _____, _____ County, Massachusetts, with the buildings and improvements thereon, pursuant to a deed from _____ to Grantor, dated _____, and recorded with _____ County Resgistry of Deeds in Book __, Page ___ [source of title other than by deed] and/or pursuant to Certificate of Title No. _____ issued by the Land Registration Office of the _____County Registry District, said parcel(s) of land being more particularly bounded and described in Exhibit A, attached hereto and made a part hereof, and being shown on a plan entitled, "_____", dated _____, prepared by _____, recorded with _____ County Registry of deeds as Plan No. __, in Plan Book _____ and/or registered as Land Court Plan No. __, on file with the Land Registration Office of ____ County Registry District ("Property"); and

WHEREAS, there is appurtenant to and the Property has the benefit of a Shared System, as defined in 310 CMR 15.002, said Shared System being located on a parcel(s) of [vacant] land located in _____, ____ __ County, Massachusetts, with the buildings and improvements thereon, pursuant to a deed from _____ to _ ____ [or Grantor], dated _____, and recorded with _____ County Resgistry of Deeds in Book ___, Page __ [source of title other than by deed] and/or pursuant to Certificate of Title No. _____ issued by the Land Registration Office of the _____County Registry District, said parcel(s) of land being more particularly bounded and described in Exhibit B, attached hereto and made a part hereof, and being shown on a plan entitled, "_____ __", dated _____, prepared by _____, recorded with ____ County Registry of deeds as Plan No. __, in Plan Book _____ and/or registered as Land Court Plan No. ___, on file with the Land Registration Office of ____ County Registry District ("Shared System Property"); and

WHEREAS, the Property has the benefit of a Shared System Easement, being more particularly bounded and described in Exhibit C, attached hereto and made a part hereof, and being shown on a plan entitled, "_____", dated _____, prepared by _____, recorded with ____ County Registry of Deeds as Plan No. ___, in Plan Book _____ and/or registered as Land Court Plan No. ___, on file with the Land Registration Office of _____ County Registry District [or to be recorded/filed for registration herewith] ("Shared System Easement"); and

WHEREAS, the Shared System has been approved by the Approving Authority, as defined in 310 CMR 15.002, in accordance with Title 5, 310 CMR 15.000, as amended ("Title 5"); said approval being based upon the agreement by Grantor to incur certain obligations regarding the construction, inspection, maintenance, upgrade and expansion of the Shared System and to grant to the Approving Authority and to DEP a perpetual easement to construct, inspect, maintain, upgrade and expand any component of the Shared System and in connection herewith a perpetual easement to pass and repass over the Property and the Shared System Property for purposes of inspecting the Shared System to insure compliance with and fulfillment of the terms of this Covenant/Easement as hereafter set forth;

Appendix 1: continued

NOW, THEREFORE, pursuant to the provisions of 310 CMR 15.290, Grantor does hereby GRANT to the Town/City of _____, a Massachusetts municipal corporation situated in _____ County, having an address at _____, Massachusetts, acting through its Board of Health ("_____") and to the DEPARTMENT OF ENVIRONMENTAL PROTECTION, a duly constituted agency organized under the laws of the Commonwealth of Massachusetts, having offices at One Winter Street, Boston, Massachusetts 02108 ("DEP"), for nominal, non-monetary consideration, with QUITCLAIM COVENANTS, a TITLE 5 COVENANT AND EASEMENT ("Covenant/Easement") in, on, upon, through, over and under the Shared System Easement, the terms and conditions of which are as follows:

OBLIGATIONS AND EASEMENT

1. Inspection and Pumping. Grantor agrees to have the Shared System inspected at least once annually by a System Inspector, as defined in 310 CMR 15.002, and pumped on an as needed basis, but in no event shall the Shared System be pumped less than every three years. The System Inspector shall submit the results of the inspection on a System Inspection Report (Appendix _) to the _____ [Local Approving Authority] and to DEP within 30 days of the Shared System's inspection. Grantor shall provide the _____[Local Approving Authority] and DEP with a copy of the receipt obtained from the duly registered septage hauler upon pumping of the Shared System within 30 days of the Shared System's pumping.

2. Insurance. Grantor agrees to provide the _____ [Local Approving Authority] and DEP with an insurance policy/binder, naming the _____ [Local Approving Authority] and DEP as additional insureds, which shall provide for upgrade of the Shared System in the event the Shared System fails to protect public health and the environment pursuant to the criteria established in 310 CMR 15.303 [or other comparable financial assurance mechanism].

3. Maintenance. The Grantor agrees to construct the Shared System such that the Sanitary Sewage, as defined in 310 CMR 15.002, from any Facility, as defined in 310 CMR 15.002, owned by Grantor may be denied access to the Shared System in the event Grantor fails to pay its proportionate share of the construction, inspection, maintenance, upgrade and expansion costs incurred by said Shared System.

4. Easements. In creating this Covenant/Easement, Grantor hereby grants to the _____ [insert Local Approving Authority], its agents, contractors, subcontractors and employees and to DEP, its agents, contractors, subcontractors and employees, a perpetual EASEMENT to enter upon and the right to bring equipment onto the Shared System Easement to do any and all acts deemed necessary to construct, install, lay, operate, maintain, inspect, upgrade, repair, remove, excavate, replace, and expand any component of the Shared System, together with a right to pass and repass by foot and by vehicle over the Shared System Easement for said purposes, including the removal and trimming of crops, vegetation, trees, or shrubs therefrom, and for purposes of inspecting the Shared System Easement to insure compliance with and fulfillment of the terms of this Covenant/Easement.

5. Lien Authority of Local Approving Authority. For purposes of enforcing a lien against the Property and the Shared System Property, Grantor hereby agrees that the phrase "...land upon which the structure is or was located..." as used in the second paragraph of MGL c.111 §127B shall include the Property and the Shared System Property, thereby authorizing the _____ [insert Local Approving Authority] to impose a lien on either or both the Property and the Shared System Property in the event the _____ [insert Local Approving Authority] has incurred debt in accordance with the provisions of M.G.L. c. 111, §127B.

6. Severability. If any court or other tribunal determines that any provision of this instrument is invalid or unenforceable, such provision shall be deemed to have been modified automatically to conform to the requirements for validity and enforceability as determined by such court or tribunal. In the event the provision invalidated is of such a nature that it cannot be so modified, the provision shall be deemed deleted from this instrument as though it had never been included herein. In either case, the remaining provisions of this instrument shall remain in full force and effect.

7. Enforcement. Grantor expressly acknowledges that a violation of the terms of this instrument could result in the following:

Appendix 1: continued

(i) upon determination by a court of competent jurisdiction, in the issuance of criminal and civil penalties, and/or equitable remedies, including, but not limited to, injunctive relief, such injunctive relief could include the issuance of an order to modify or remove any improvements constructed upon the Shared System Easement in violation of the terms of this Covenant/Easement; and

(ii) in the assessment of penalties and enforcement action by the Local Approving Authority and DEP to enforce the terms of this Covenant/Easement, pursuant to Title 5; M.G.L. c. 111, §§ 17, 31, 122, 124, 125, 125A, 127A through 127O, and 129; and M.G.L. c. 83, § 11.

8. Provisions to Run with the Land. This Covenant/Easement sets forth rights, liabilities, agreements and obligations upon and subject to which the Shared System Easement or any portion thereof, shall be improved, held, used, occupied, leased, sold, hypothecated, encumbered, or conveyed. The rights, liabilities, agreements and obligations herein set forth shall run with the Property and the Shared System Property, as applicable thereto, and any portion thereof and shall inure to the benfit of and be binding upon Grantor and all parties claiming by, through or under the Local Approving Authority, DEP, or Grantor. The rights hereby granted to the Local Approving Authority and DEP, their successors and assigns, constitute the perpetual right of the Local Approving Authority and DEP to enforce this Covenant/Easement and Grantor hereby covenants for himself/herself/itself and his/her/its executors, administrators, heirs, successors and assigns, to stand seized and hold title to the Property and the Shared System Property, as applicable thereto, and any portion thereof, subject to this Covenant/Easement, provided, however, that a violation of this Covenant/Easement shall not result in a forfeiture or reversion of Grantor's title to the Property or the Shared System Property, as applicable thereto.

9. Concurrence Presumed. It being agreed that Grantor and all parties claiming by, through or under Grantor shall be deemed to be in accord with the provisions herein set forth and to agree for and among themselves and any party claiming by, through or under them, and their respective agents, contractors, sub-contractors and employees, that the Covenant/Easement herein established shall be adhered to and not violated and that their respective interests in the Property and the Shared System Property, as applicable thereto, shall be subject to the provisions herein set forth.

10. Incorporation into Deeds, Mortgages, Leases and Instruments of Transfer. Grantor hereby agrees to incorporate this Covenant/Easement, in full or by reference, into all deeds, easements, mortgages, leases, licenses, occupancy agreements or any other instrument of transfer by which an interest in and/or a right to use the Property and the Shared System Property, or any portion thereof, is conveyed.

11. Recordation. Grantor shall record and/or register this Covenant/Easement with the appropriate Registry of Deeds and/or Land Registration Office within 30 days of the latter of: receipt from the Local Approving Authority of the approved Covenant/Easement or the expiration of the 60-day constructive approval period granted to DEP pursuant to 310 CMR 15.293. Grantor shall file with the Local Approving Authority and the DEP a certified Registry copy of this Covenant/Easement as recorded and/or registered within 30 days of its date of recordation and/or registration.

12. Amendment and Release. This Covenant/Easement may be amended or released only upon approval by the Local Approving Authority and DEP. Any such amendment or release shall be recorded and/or registered with the appropriate Registry of Deeds and/or Land Registration Office.

13. Term. This Covenant/Easement shall run in perpetuity and is intended to conform to M.G.L. c. 184, § 26, as amended.

Appendix 1: continued

14. Rights Reserved. This Covenant/Easement is granted to the Local Approving Authority and DEP in connection with the approval of a Shared System pursuant to 310 CMR 15.290 through 15.293. It is expressly agreed that acceptance of this Covenant/Easement by the Local Approving Authority or constructive approval of the Shared System by DEP shall not operate to bar, diminish, or in any way affect any legal or equitable right of the Local Approving Authority or DEP to issue any future order with respect to the Property and the Shared System Property, as applicable thereto, or in any way affect any other claim, action, suit, cause of action, or demand which the Local Approving Authority of DEP may have with respect thereto. Nor shall acceptance of this Covenant/Easement serve to impose any obligations, liabilities, or any other duties upon the Local Approving Authority.

This Covenant/Easement shall become effective upon its recordation and/or registration with the appropriate Registry of Deeds and/or Land Registration Office.

WITNESS the execution hereof under seal this __ day of ____, 19_.

_____
Grantor

COMMONWEALTH OF MASSACHUSETTS

_____, §§
_____, 19_

_____Then personally appeared the above-named _____ and acknowledged the foregoing instrument to be __ free act and deed before me.

_____

_____
_____Notary Public:

My commission expires:

The _____ [insert Local Approving Authority] hereby approves this Grant of Title 5 Covenant and Easement (as to form only).

_____

Date: _____

Local Approving Authority

REGULATORY AUTHORITY

310 CMR 15.000: M.G.L. c. 21A, § 13.

NON-TEXT PAGE