

## Article 12 Aquifer Protection

### 12.1 Authority and Purpose

Pursuant to RSA 674:16-21, the Town of Kensington hereby adopts an Aquifer Protection District and accompanying regulations in order to protect, preserve and maintain potential groundwater supplies and related groundwater recharge areas within a known aquifer identified by the United States Geological Survey. The objectives of the aquifer protection district are:

- to protect the public health and general welfare of the citizens of Kensington;
- to prevent development and land use practices that would contaminate or reduce the recharge of the identified aquifer;
- to promote future growth and development of the Town, in accordance with the Master Plan, by ensuring the future availability of public and private water supplies;
- to encourage uses that can appropriately and safely be located in the aquifer recharge areas;
- to acknowledge that groundwater is a natural resource which must not be wasted or contaminated and that groundwater resources are necessary to promote health and general welfare;
- to protect animal and plant habitats and wetland ecosystems.

### 12.2 District Boundaries

#### 12.2.1 Location

The Aquifer Protection District for Kensington is delineated as part of two USGS Aquifer study areas. The reference publications are, Geohydrology and Water Quality of Stratified-Aquifers in the Exeter, Lamprey, and Oyster River Basins, Southeastern New Hampshire, 1990 and Geohydrology and Water Quality of Stratified-Drift Aquifers in the Lower Merrimack and Coastal River Basins, Southeastern New Hampshire, 1992. Each publication includes a map which defines the aquifer area by identifying the aquifer transmissivity. The respective maps are titled "Saturated Thickness and Transmissivity of Stratified Drift in the Exeter, Lamprey, and Oyster River Basins, Southeastern New Hampshire" and "Saturated Thickness, Transmissivity and Materials of Stratified Drift Aquifers in the Lower Merrimack and Coastal River Basins, Southeastern New Hampshire".

The Aquifer Protection District is a zoning overlay district which imposes additional requirements and restrictions to those of the underlying, base district zoning. In all cases, the more restrictive requirement(s) shall apply.

The Aquifer Protection District is represented on the map "Aquifer Protection District, Kensington, NH" prepared in December, 2011.

Said map(s) is hereby adopted as part of the Official Zoning Map of the Town of Kensington.

#### 12.2.2 Recharge Areas

For the purpose of this Ordinance, the primary recharge area for the identified aquifer is considered to be co-terminus with that aquifer.

#### 12.2.3 Appeals

Where the bounds of the identified aquifer or recharge area, as delineated, are in doubt or in dispute, any landowner aggrieved by such delineation may appeal the boundary location to the Planning Board. Upon receipt of such appeal, the Planning Board shall suspend further action on development plans related to the area under appeal and shall engage, at the landowner's expense, a qualified hydrogeologist to

prepare a report and determine the proper location and extent of the aquifer and recharge area relative to the property in question. The aquifer delineation shall be modified by such determination subject to review and approval by the Planning Board.

## 12.3 Use Regulations

### 12.3.1 Hydrogeologic Study

For development proposals within the Aquifer Protection District, a hydrogeologic study shall be required for the following:

- A. subdivisions of eight (8) lots or greater;
- B. any septic system or series of septic systems designed for 2,400 gallons per day or greater contained within one lot.
- C. Water development projects that withdraw more than 20,000 gallons per day from a particular site or property.

For residential subdivisions of eight (8) lots or less and for non-residential projects with proposed water usage of less than 20,000 gallons per day from a particular site or property, the Planning Board shall determine, on a case-by-case basis, the need for a hydrogeologic study. Particularly sensitive sites may include areas that have septic systems in close proximity to wells, or may contain excessively drained soils or steep slopes.

### 12.3.2

Hydrogeologic studies shall be performed by a qualified hydrogeologist registered in the State of New Hampshire. This study shall be sufficiently detailed to demonstrate to the satisfaction of the Planning Board that the development will not engender adverse short or long-term impacts to water quality and availability for approvable land uses on land drawing upon the same groundwater source; upon adjacent or nearby water wells; upon animal and plant habitat; and upon wetland ecosystems. All Hydrogeologic studies shall include at least the following:

- A. Soil borings (to evaluate soil stratigraphy) and multi level monitoring wells (to evaluate groundwater flow directions);
- B. Cumulative impact nitrogen loading analysis employing a saturation build-out model. The analysis shall include verification that the development will not cause the nitrate-nitrogen (NO<sub>3</sub>-N) concentration in groundwater beyond the site to exceed 5 mg/l;
- C. Permeability testing;
- D. Water quality sampling analysis;
- E. Water table contours and groundwater flow direction;
- F. Water budget analysis for watershed in which development is located that accounts for natural and anthropogenic recharge and discharge and storage capacity;
- G. Additional analysis/testing required by the Planning Board on a case-by-case basis.

### 12.3.3

#### Maximum Lot Coverage

- A. Within the Aquifer Protection District, no more than 20% of the area of a residential lot may be rendered impervious to groundwater infiltration.
- B. Within the Aquifer Protection District, the portion of the area of a Commercial/Industrial lot that may be rendered impervious to groundwater infiltration shall be determined by the transmissivity of that lot in accordance with the following:

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ALLOWABLE COVERAGE, %, IN COMMERCIAL/INDUSTRIAL ZONE

<u>Transmissivity</u>	<u>Coverage</u>
In ft <sup>2</sup> /day	in %
Less than 500	60
500-1000	55
1000-2000	45
more than 2000	35

- C. Within the Aquifer Protection District, where impervious areas exceed 35% of the total lot area, facilities will be provided to collect surface water from impervious areas and route same to non-impervious areas to allow for infiltration of this drainage. These facilities will be maintained free of debris, silt, etc., to ensure proper operation.

The design of the collection system must ensure that, at a minimum, the runoff from impervious areas in excess of 35% of total lot area be infiltrated to recharge groundwater.

12.3.4

Septic System Design Installation

In addition to meeting all local and state septic system siting requirements, all new wastewater disposal systems installed in the Aquifer Protection District shall be designed by a Professional Engineer licensed in New Hampshire with experience in sanitary engineering who is also a New Hampshire licensed designer of subsurface wastewater disposal systems.

The PE shall meet on-site with the installer before construction is begun to review the proposed construction schedule and sequencing, and to insure the installer understands all aspects of the plan.

The Septic System Inspector and Test Pit Witness shall inspect the installation of each new system prior to covering, and shall certify that the system has been installed as designed.

Septic systems are to be constructed in accordance with the most recent edition of the "Guide for the Design, Operation and Maintenance of Small Sewage Disposal Systems" as published by the New Hampshire Water Supply and Pollution Control Division (WSPCD).

However, the following more stringent requirements shall apply to all septic system construction:

- A. At least 24 inches of natural permeable soil above the seasonal high water table.
- B. No less than five (5) feet of natural soil above bedrock.
- C. There will be at least three feet of natural permeable soil above any impermeable subsoil.
- D. There will be no filling of wetlands allowed to provide the minimum distance of septic to wetlands.
- E. Standards for fill material: Fill material consisting of organic soils or other organic materials such as tree stumps, sawdust, wood chips and bark, even

with a soil matrix, shall not be used.

The in-place fill should have less than 15% organic soil by volume.

The in-place fill should not contain more than 25% by volume of cobbles (6 inch diameter).

The in-place fill should not have more than 15% by weight of clay size (0.002mm and smaller) particles.

The fill should be essentially homogeneous. If bedding planes and other discontinuities are present, detailed analysis is necessary.

- F. Replacement systems with no expansion in original design capacity shall be reviewed and permitted by the Septic System Inspector / Test Pit Witness in conjunction with the Town's Health Officer and Board of Selectmen. Upon application to the Septic System Inspector / Test Pit Witness, where a design fails to meet the requirements of this section, the Septic System Inspector / Test Pit Witness (in cooperation with the Health Officer and the Board of Selectmen) has the authority to waive the general requirements of this section and may grant a special permit to construct a sewage disposal system provided the following provisions are met.
- 1) The proposed system entails no expansion of use and is a replacement of the system previously occupying the lot.
  - 2) The previous system shall be discontinued. Only the proposed system shall be used once initial function is established.
  - 3) The design of the system shall comply with New Hampshire State WSPCD rules in effect at the time of approval, including waiver of these rules by the State permitting authority.

#### 12.3.5

##### Prohibited Uses

The following uses are prohibited in the Aquifer Protection Zone except where permitted to continue as a non-conforming use. Such uses shall include, but not be limited to:

- A. Disposal of solid waste (as defined by NH RSA 149-M) other than brush or stumps generated on the property on which they are to be disposed.
- B. Storage and disposal of hazardous waste.
- C. Disposal of liquid or leachable wastes except that from one or two-family residential subsurface disposal systems, or as otherwise permitted as a conditional use.
- D. Subsurface storage of petroleum and other refined petroleum products.
- E. Industrial uses which discharge contact type process waters on-site. Non-contact cooling water is permitted.
- F. Outdoor storage road salt or other de-icing chemicals.
- G. Dumping of snow containing de-icing chemicals brought from outside the district.
- H. Dry cleaning Establishments.
- I. Automotive service and repair shops, junk and salvage yards.

- J. Laundry and car wash establishments not served by a central municipal sewer.
- K. All on-site handling, disposal, storage, processing or recycling of hazardous or toxic materials.

#### 12.3.6

##### Permitted Uses

The following activities may be permitted provided they are conducted in accordance with the purposes and intent of this Ordinance:

- A. Any use permitted by Articles 8 and 9 of the Town of Kensington Zoning Ordinance, except as prohibited in 12.3.5 of this article.
- B. Activities designed for conservation of soil, water, plants and wildlife.
- C. Outdoor recreation, nature study, boating, fishing and hunting where otherwise legally permitted.
- D. Normal operation and maintenance of existing water bodies and dams, splash boards and other water control, supply and conservation devices.
- E. Foot, bicycle, and/or horse paths and bridges.
- F. Maintenance, repair of any existing structure, provided there is no increase in impermeable surface above the limit established in Section 12.3.3 of this Article.
- G. Farming, gardening, nursery, forestry, harvesting and grazing, provided that fertilizers, herbicides, pesticides, manure and other leachables are used appropriately at levels that will not cause groundwater contamination and are stored under shelter.

#### 12.3.7

##### Conditional Uses

The following uses, if allowed in the underlying zoning district, are permitted only after a Conditional Use Permit is granted by the Kensington Planning Board:

- A. Industrial and commercial uses not otherwise prohibited in Section 12.3.4 of this Article;
- B. Sand and gravel excavation and other mining which is proposed to be carried out within eight (8) vertical feet of the seasonal high water table and provided that periodic inspections are made by the Planning Board or its agent to determine compliance.

The Planning Board may grant a Conditional Use Permit for those uses listed above only after written findings of fact are made that all of the following conditions are met:

- A. the proposed use will not detrimentally affect the quality of the groundwater contained in the aquifer by directly contributing to pollution or by increasing the long-term susceptibility of the aquifer to potential pollutants;
- B. the proposed use will not cause a significant reduction in either the short or long-term volume of water contained in the aquifer or in the storage capacity of the aquifer;
- C. the proposed use will discharge no waste water on site in excess of one thousand (1,000) gallons per day, and will not involve on-site storage or disposal of toxic or hazardous wastes as herein defined;
- D. the proposed use complies with all other applicable sections of this Article.

- E. a hydro-geologic study shall be submitted as required in Section 12.3.2 of this Article.

The Planning Board may require that the applicant provide data or reports prepared by a qualified hydro-geologist to assess any potential damage to the aquifer that may result from the proposed use. The Planning Board shall engage such professional assistance as it requires to adequately evaluate such reports and to evaluate, in general, the proposed use in light of the above criteria.

12.4 Special Exception for Lots of Record

The Zoning Board of Adjustment may grant special exceptions to the aquifer protection ordinance for the erection of a structure on nonconforming lots.

12.5 Design and Operations Guidelines

Where applicable the following design and operation guidelines shall be observed within the Aquifer Protection District:

12.5.1 Nitrate loading. In those portions of the Aquifer Protection District where the aquifer has a saturated thickness of twenty (20) feet or greater and a transmissivity greater than 1000 feet squared per day, no development shall cause the nitrate-nitrogen (NO<sub>3</sub>-N) concentration to exceed 5 mg/l in the groundwater beyond the site.

12.5.2 Safeguards. Provision shall be made to protect against toxic or hazardous materials discharge or loss resulting from corrosion, accidental damage, spillage, or vandalism through measures such as spill control provisions in the vicinity of chemical or fuel delivery points; secured storage areas for toxic or hazardous materials; and indoor storage provisions for corrodible or dissolvable materials. For operations which allow the evaporation of toxic or hazardous materials into the interiors of any structures, a closed vapor recovery system shall be provided for each such structure to prevent discharge of contaminated condensate into the groundwater.

12.5.3 Location. Where the premises are partially outside of the Aquifer Protection Overlay Zone, potential pollution sources such as on-site waste disposal systems shall be located outside the Zone to the extent feasible.

12.5.4 Drainage. All runoff from impervious surfaces shall be recharged on the site, and diverted toward areas covered with vegetation for surface infiltration to the extent possible. Dry wells shall be used only where other methods are not feasible, and shall be preceded by oil, grease, and sediment traps to facilitate removal of contaminants.

12.5.6 Inspection. All conditional uses granted under 12.3.7 of this Article shall be subject to twice-annual inspections by the Building Inspector or other agent designated by the Selectmen. The purpose of these inspections is to ensure continued compliance with the conditions under which approvals were granted. A fee for inspection shall be charged to the owner according to a fee schedule determined by the Selectmen.

12.6 Non-Conforming Uses:

Any non-conforming use may continue and may be maintained, repaired and improved, unless such use is determined to be an imminent hazard to public health and safety. No non-conforming use may be changed to another non-conforming use, or renewed after it has been discontinued for a period of two years or more.

New Definitions Added:

**Aquifer:** For the purpose of this Ordinance, aquifer means a geologic formation, group of formations, or part of a formation that is capable of yielding quantities of groundwater usable for municipal or private water supplies.

**Groundwater:** All the water below the land surface in the zone of saturation or in rock fractures capable of yielding water to a well.

**Groundwater Recharge:** The infiltration of precipitation through surface soil materials into groundwater. Recharge may also occur from surface waters, including lakes, streams and wetlands.

**Hazardous or Toxic Materials:** Includes but is not limited to volatile organic chemicals, petroleum products, heavy metals, radioactive or infectious wastes, acids and alkalies, pesticides, herbicides, solvents and thinners, and such other substances as defined in N.H. Water Supply and Pollution Control Rules, Section Ws 410.04(1), in N.H. Solid Waste Rules He-P 1901.03(v), and in the code of Federal Regulations 40 CFR 261.

**Leachable Wastes:** Waste materials, including solid wastes, sludge and agricultural wastes that are capable of releasing contaminants to the surrounding environment.

**Mining of Land:** The removal of geologic materials such as topsoil, sand and gravel, metallic ores, or bedrock to be crushed or used as building stone.

**Recharge Area:** The land surface area from which groundwater recharge occurs.

**Septic System Inspector Test Pit Witness:** An agent of the Town responsible for inspecting the plans and installation of all septic systems in the Town as well as being responsible for the viewing of all test pits and percolation tests.

**Solid Waste:** Any discarded or abandoned material including refuse, putrescible material, septage, or sludge, as defined by New Hampshire Solid Waste Rules He-P 1901.03. Solid waste includes solid, liquid, semi-solid, or contain gaseous waste material resulting from residential, industrial, commercial, mining, and agricultural operations.