



Town Of Boxborough
Board of Health
29 Middle Road
Boxborough, Massachusetts 01719
(978)-263-1116

WELL REGULATIONS
(Amended March 25, 2004)

SECTION 1. PURPOSE

These regulations are intended to promote the public health and general welfare by ensuring that private wells are constructed in a manner which will protect the quality of the groundwater derived from private wells.

SECTION 2. AUTHORIZATION

These regulations are adopted pursuant to Chapter 111, Section 31 of the Massachusetts General Laws as amended.

SECTION 3. DEFINITIONS

As used in these regulations, the following terms shall be defined and interpreted as follows:

Abandoned Water Well: A private well that has not been used for water supply for a period of one year or more and which the owner does not intend to use again for supplying water.

Agent: The Nashoba Associated Boards of Health (hereinafter referred to as Nashoba) serving as the agent for the Board of Health, as provided by Chapter 111, Section 27A.

Aquifer: A water-bearing geologic formation that contains water in sufficient quantities to supply a well.

Geothermal Well AKA Ground Source Heat Pump (GSHP) Well: Any excavation by any method for the purpose of transferring heat to or from the earth for heating and cooling purposes in which the ambient ground temperature (prior to GSHP operations) is 90 degrees Fahrenheit or less.

Irrigation Well: a well used for the sole purpose of watering or irrigation. The well shall not be connected at any time to a dwelling or a building unless it meets the requirements of a Private Drinking Water Well and has the Board's written approval.

Person: An individual, corporation, company, association, trust, or partnership.

Potable Water: Water that is safe and fit for human consumption.

Private Drinking Water Well (private well): A well used to provide potable water which will not serve either a number of service connections or a number of individuals sufficient to qualify as part of a public water system as defined in 310 CMR 22.02.

Regulating Agency: The Boxborough Board of Health through its agent, the Nashoba Associated Boards of Health.

Sanitary Landfill: A private or municipally operated facility where trash is deposited and covered with earth.

Well: any hole or shaft drilled into the ground to inject or withdraw water, other fluids, or gases, monitor soil gasses, monitor groundwater levels or water quality, transfer heat, or provide cathodic protection.

Well Driller: Any person who is licensed by the MassDEP in accordance with 310CMR46.00 to construct wells.

SECTION 4. REQUIREMENTS FOR WELLS

4.1 No private well shall be deemed a source of potable water unless it is constructed in accordance with these regulations. No well shall be destroyed except in accordance with these regulations.

4.2 For each well constructed after the effective date of these regulations, there shall be:

- (a) a well construction permit application;
- (b) a well construction permit;
- (c) a water quality analysis;
- (d) a certificate of compliance with the terms of the permit;
- (e) a well driller's report.

4.3 For each well destroyed after the effective date of these regulations, there shall be:

- (a) a well destruction permit application;
- (b) a statement of well abandonment from the owner;
- (c) a well destruction permit;
- (d) a well driller's or contractor's report of destruction.

4.4 The Board of Health or its agent shall investigate violations of these regulations or of any permit issued and may take such actions as it may deem necessary for the protection of public health and to restrain violations of these regulations.

4.5 Whosoever violates these regulations shall be punished by a fine of not more than five hundred dollars payable to the Town of Boxborough.

SECTION 5. WELL CONSTRUCTION OR DESTRUCTION PERMITS

5.1 No person shall engage in the business of constructing or destroying wells within the Town of Boxborough under these regulations unless registered as a well driller with the MassDEP pursuant to 310CMR46.00

5.2 A well construction or destruction permit shall be obtained from Nashoba prior to the construction or destruction of any well.

5.3 An application for a well construction or destruction permit shall be submitted by the well driller or his agent to Nashoba on a form furnished by Nashoba.

5.4 No irrigation well shall be permitted without the written approval of the water district or water department if the property is served by a Public Water Supply.

5.5 The general location and design of a proposed private well along with a description of possible sources of contamination within 400 feet of the proposed well shall be submitted to Nashoba as part of the application for a well construction permit.

5.6 The specific location and design of the abandoned private well along with a written statement from the owner that the well is abandoned shall be submitted to Nashoba as part of the application for a well destruction permit.

5.7 Fees for a well construction or destruction permit will be determined and charged by Nashoba.

5.8 *For irrigation and geothermal well(s) a sketch plan must be submitted containing the following minimum information:*

- (a) *Location;*
- (b) *Proposed construction;*
- (c) *Plumbing Connection plan; and*
- (d) *Existing condition plan.*

SECTION 6. WELL DRILLER'S REPORTS

6.1 Within thirty days after completion of the construction of any well, the well driller shall submit to Nashoba a report containing the following information:

- (a) the name of the owner of the well;
- (b) the address of the property served (including street number, lot number, and assessor's parcel number);
- (c) the depth, size and method of construction of the well;
- (d) the location as shown on a sketch plan which shall show the distance from the well to at least two permanent landmarks;
- (e) the static water level;

- (f) the yield of the private well after eight hours of pumping;
- (g) the well driller's log information.

6.2 Within thirty days after completion of the destruction of any well, the well driller or contractor shall submit to Nashoba a report containing the following:

- (a) the name of the owner of the well;
- (b) the address of the property served;
- (c) method of sealing, including materials used.

SECTION 7. PRIVATE WELL LOCATION

7.1 In establishing the location of a well, the well driller shall identify sources of contamination which exist within 400 feet of the proposed well site. The following minimum lateral distances from contamination shall apply:

<i>Source of Contamination</i>	<i>Minimum Lateral Distance</i>
Subsurface sewage disposal system (leaching area)	100 feet
Septic Tank	50 feet
Property line or common way	35 feet
Public way	35 feet
Active or closed sanitary landfill	400 feet
Hazardous waste spill site	400 feet
Wetland (MA Wetland Protection Act) ¹	50 feet

¹ The owner and applicant are responsible for compliance with the Massachusetts Wetland Protection Act and local Conservation Commission requirements.

7.2 Where, in the opinion of Nashoba, adverse conditions exist, the above distances may be increased or special means of protection may be required. These special requirements shall be added to the well construction permit by Nashoba.

7.3 Where possible, the well shall be upgradient of sources of contamination. The top of a well shall be higher than any surface sources of contamination and above any known conditions of flooding by drainage or runoff from the surrounding land, unless otherwise adequately protected.

7.4 Irrigation well(s) may be subject to forfeit if in any way the well(s) encroaches on any other property.

7.5 A well proposed to be within the boundary of a disposal site (as defined in accordance with 310MCR40.00) shall be constructed under the guidance of a Licensed Site Professional (LSP).

SECTION 8. WELL CONSTRUCTION STANDARDS

Private wells shall be constructed in conformance with the recommendations of the latest edition of the Manual of Individual Water Supply Systems, U.S.E.P.A. Office of Drinking Water (exception: springs shall not be used as a potable water supply).

SECTION 9. DISINFECTION AND OTHER SANITARY REQUIREMENTS

All private wells shall be disinfected following construction, rehabilitation, and well or pump repair before the well is placed into service. The well shall be pumped to waste (not to the septic system) until the water is as clear as possible. Thereafter the well and pumping equipment (and plumbing if installed) shall be disinfected with a solution containing at least 50 ppm of chlorine. The well shall remain in contact with the chlorine solution for a minimum of 24 hours before the well is pumped to waste (not to septic system) and the water found to be free of disinfectant.

SECTION 10. WELL DESTRUCTION

A well that is abandoned shall be destroyed to protect the groundwater supply and to eliminate potential physical hazards. Wells shall be sealed with non-hazardous, impervious materials which shall be permanently in place. All casing materials, pumping equipment, and distribution lines shall be removed. The excavation shall be returned to the current existing grade of the surrounding land.

SECTION 11. WATER SAMPLING

11.1 Water samples for private wells shall be collected by Nashoba Associated Boards of Health, a Massachusetts certified laboratory or by an individual approved by the Board.

11.2 Chemical and bacteriological analyses shall be made and approval of the results by Nashoba shall be obtained before the private well shall be put into service as a potable supply.

11.3 The water sample shall be analyzed by a laboratory certified to perform drinking water analysis, by the MassDEP, for the parameters required by this regulation.

SECTION 12. WATER QUALITY

12.1 Nashoba or the Board of Health may require that a chemical analysis be performed on the private well water. Such a requirement shall specify which chemicals shall be tested, who can sample the well for analysis and when treatment is required for an exceedance in a water quality parameter.

12.2 The Boxborough Board of Health, Nashoba Associated Boards of Health, Massachusetts Department of Environmental Protection certified laboratories, or a Massachusetts Licensed Site Professional shall collect water samples immediately following construction or rehabilitation and disinfection of a private well. A representative sample for laboratory analysis shall be collected at pump discharge or from a tap in the pump discharge line. Chemical and bacteriological analysis shall meet the standards set forth by the Massachusetts Department of Environmental Protection,

Public Water Supply Division regulations for potable water for the following primary water quality parameters: total coliform, fecal coliform/E.coli, arsenic, lead, nitrate nitrogen, nitrite nitrogen, Gross Alpha (radium and uranium if necessary per Section G), PFAS (EPA Method 537.1) and radon; approval of the results by the Boxborough Board of Health or the Nashoba Associated Boards of Health shall be obtained before the well shall be put into service as a potable supply. All wells shall be tested for the following secondary standards: calcium, copper, iron, magnesium, manganese, potassium, sodium, alkalinity, ammonia, chloride, chlorine, color, conductivity, fluoride, hardness, odor, pH, sulphate, turbidity, and sediment.

- A.) The water sample shall be analyzed by a laboratory certified to perform drinking water analysis by the Department of Environmental Protection, and a record of the results sent to both the Boxborough Board of Health and the Nashoba Associated Boards of Health. Any fees for water testing will be charged and collected through the Nashoba Associated Boards of Health prior to approval of water supply service.*
- B.) Water samples submitted for bacteriological analysis shall meet the standard of zero total coliform per 100 milliliters of sample using a method accepted in the latest edition of Standard Methods for the Examination of Water and Wastewater, American Public Health Association. Following a positive coliform sample, two consecutive negative results are required.*
- C.) The Boxborough Board of Health or Nashoba Associated Boards of Health may require that additional chemical analysis shall be performed on the well water. Such a requirement shall specify which chemicals shall be tested for and the reason for the test. Private wells located within the boundary of a disposal area, as defined by 310CMR40.00, will require additional parameters based the contaminant of concern.*
- D.) The Boxborough Board of Health may require that suspected contaminated wells be tested for any biological, chemical, or radiological contaminant. The sample shall be collected by the Board of Health, its agents, or an Approved Sampler.*
- E.) Arsenic levels shall not exceed 10 ppb. Water with arsenic levels that meet or exceed 10 ppb shall require notification through the property deed after remediation to concentrations below 10 ppb.*
- F.) Water with radon levels exceeding 10,000 pCi/L shall require notification through the property deed. Adsorption and absorption filters such as charcoal, which would become radioactive waste as a result of their use, shall not be used for radon removal from water.*
- G.) If the Gross Alpha is equal to or greater than 15 pCi/L, further testing is required for radium and uranium. The Maximum contaminant level (MCL) for radium is 5 pCi/L and uranium 30 ug/L.*
- H.) All treatment systems employed for the removal of a contaminant shall be a point of entry and whole supply system. Any use of a treatment system for the purposes of achieving compliance with any drinking water standard shall require retesting to demonstrate effectiveness and shall require notification of the property record at the Registry of Deeds of the existence and need for operational equipment in order to provide potable water.*

12.4 All private wells located on property to be sold shall be similarly sampled using the untreated source and tested as described in 12.3. The analytical results must be submitted to the Board of Health no less than 30 days prior to the transfer of ownership, and are valid for 24 months from the sample date for property transfer. All private wells shall be retested at the time of sale and/or transfer of the property if primary standards are not met at initial testing and treatment is required in accordance with 12.3 (H). The backwashing discharge from any treatment equipment cannot be discharged into the onsite sewage disposal system. Treatment for coliform bacteria is not allowed.

SECTION 13 WATER QUANTITY AND PUMP TEST

- a.) The well driller shall submit to the Board a Well Completion Report for review and approval within 30 days following the construction of a well or well alterations.*
- b.) In order to demonstrate that the well capacity can provide the required volume of water for the facility it serves, the method found in the most recent version of the MassDEP's "Model Board of Health Regulations for Private Wells," section VII. shall be used*
- c.) Pump testing may be terminated after a minimum of two hours if the water level in the well has stabilized for at least 30 minutes.*
- d.) Following the pumping test, the water level in the well must be shown to recover to within eighty-five (85) percent of the pre-pumped static water level within a twenty-four (24) hour period.*

SECTION 14 -IRRIGATION WELL

- A. Irrigation wells shall be deep wells (bedrock; 100-foot minimum deep well).*
- B. Conversion of a preexisting drinking water well to an irrigation well shall require permitting and approval by the Boxborough Board of Health.*
- C. No irrigation well or nonessential well shall be permitted in Zone II or IWPA of a public water supply*

SECTION 15 GEOTHERMAL WELLS

- A. Location of closed-loop geothermal boreholes (dual-use open-loop geothermal systems are prohibited) shall be located in conformity with the chart below.*

<u>Source of Structure</u>	<u>Minimum Lateral Distance (feet)</u>
Sewer Line	10
Septic tank	25
Springs	100
Soil Absorption Area (per Title 5)	50
Water wells	100

B. *Source of drilling water for closed-loop geothermal boreholes.*

1. *All water used in drilling and construction of a closed-loop geothermal borehole shall be from a public water supply or water well.*
2. *All water used in the drilling or construction process shall be treated with enough chlorine product to retain a free chlorine residual of at least 10 ppm.*
3. *The driller shall take all steps necessary to maintain safety around the borehole until the closed loop is installed and grouted in the borehole.*

C. *A report of well driller for a closed-loop geothermal borehole system shall be submitted by the driller to the Board of Health within 30 days after the drilling or closure of the last closed-loop borehole in the system at the site.*

D. *Closed-loop geothermal borings and underground lines associated with heat transfer to geothermal boreholes are required to have detectable underground tape placed above the boring or heat transfer lines within 18 inches of land surface to denote the subsurface location of the installations.*

For systems with 10 or fewer closed-loop boreholes, the driller is required to provide a master plat to both the owner and the Board of Health of the location of each borehole. The sketch shall include related distances from major buildings, septic tanks, wells, field lines and sewer lines and shall be submitted with the report of the well driller within 30 days upon completion of drilling of the last borehole on a given project. Site plans drawn up by a licensed engineer may be used if the driller is unable to provide a master sketch.

SECTION 13. VARIANCES

13.1 Variances may be granted only as follows: the Board of Health may vary the application of these regulations with respect to any particular case when, in its opinion, the enforcement thereof would do manifest injustice, and the applicant has proven that the same degree of public health and environmental protection required under these regulations can be achieved without strict application of a particular provision(s).

13.2 Variance requests shall be in writing to the Board of Health. The Board of Health shall grant, modify, or deny a variance in writing.

SECTION 14. SUBSTANTIVE PROCEDURES

Substantive procedures shall be performed as specified in 105 CMR 400.100.

BY: BOXBOROUGH BOARD OF HEALTH

[signed by the Board 3/24/04]

[received by the Town Clerk 3/25/04]