

# **NORTHFIELD Well Regulations 2020**

## **Purpose.**

It is the purpose of these regulations to protect the public health, safety and welfare by ensuring that wells in the Town of Northfield are properly permitted and constructed, that all water supply wells meet appropriate chemical and bacteriological standards, and that groundwater resources are protected.

## **Authority.**

These regulations are enacted by the Northfield Board of Health, hereafter referred to as the Board, under the authority which includes, but is not limited, to one or more of the following: MGL, C. 111, §§ 31, 122, 122A, 127 A&B, 143, 155, 187, 188, Sanitary Code 105 CMR 410.00 Code of Mass. Regulations 310 CMR 11.02 and MGL C. 40 § 54. These regulations supersede all previous Regulations for Wells adopted by the Board.

## **Definitions.**

In these regulations the following terms have the meanings indicated.

**ABANDONED WELL:** A well that meets any of the following criteria: construction was terminated prior to completion of the well, the well owner declares and notifies the Board that the use of the well has been permanently discontinued, the well has, after extended use, been out of service for at least three years, the well is in such a state of disrepair that its continued use is impractical or represents a physical threat, or the well has the potential for transmitting contaminants from the land surface into an aquifer or from one aquifer to another and the situation cannot be corrected.

**AGENT:** Any person designated and authorized by the Board to implement, in whole or part, these regulations. To the extent provided by the Board, the Agent shall have all the authority of the Board and shall be directly responsible to the Board and under its direction and control.

**APPLICANT** – Any person who intends to have a well-constructed.

**AQUIFER** – A water-bearing geologic formation, group of formations, or part of a formation that contains adequate saturated permeable material to yield significant quantities of water for wells and springs.

**BENTONITE GROUT:** A mixture of bentonite (API Standard 13A) and water in a ratio of not less than one pound of bentonite per gallon of water.

**BOARD:** The Northfield City/Town Board of Health or its designated agent.

**BOARD OF HEALTH:** The Northfield Board of Health.

**BUSINESS OF DIGGING OR DRILLING:** A person who charges a fee for digging or drilling a well, or a person who advertises for hire to dig or drill wells within the Commonwealth of Massachusetts.

**CASING:** Impervious durable pipe placed in a boring to prevent the walls from caving and to serve as a vertical conduit for water in a well.

**CERTIFICATE OF COMPLIANCE:** A certificate issued by the Board which authorizes the use of a private well for permitted uses.

**CERTIFIED LABORATORY:** Any laboratory which has been certified by the Department of Environmental Protection as provided in its most recent edition of Certification Status of Commercial Environmental Laboratories. Provisional certification is acceptable.

**CERTIFIED WELL DRILLER:** Any person certified with the Department of Environmental Protection Well Driller Program to dig or drill wells in the Commonwealth of Massachusetts.



- CONCRETE:** A mixture consisting of Portland cement (ASTM Standard C150, type I or API Standard 10, Class A), sand, gravel, and water in a proportion of not more than five parts of sand plus gravel to one part cement, by volume, and not more than six gallons of water. One part cement, two parts sand, and three parts gravel are commonly used with up to six gallons of water.
- FORMS:** Documents, procedures, or systems used by the Board to support the regulations. Compliance with these regulations will be administered by the forms prepared, approved or used by the Board of Health. The content of these forms may be revised by the Board of Health from time to time by administrative action of the Board of Health.
- IRRIGATION WELL:** 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 they meet the requirements of a Private Drinking Water Well and have the Board's written approval.
- GEOHERMAL WELL:** Well intended for the purpose of heating or cooling. The requirements for siting, construction and water quality sampling, necessary to obtain Board of Health and MasssDEP approval of Underground Injection Control (UIC) registration for these types of wells are specified in the MassDEP Guidelines for Ground Source Heat Pump wells.
- MASSDEP:** Massachusetts Department of Environmental Protection,
- NEAT CEMENT GROUT:** A mixture consisting of one bag (94 pounds) of Portland cement (ASTM Standard C 150, Type I or API Standard 10, Class A) to not more than six gallons of clean water. Bentonite (API Standard 13A), up to two percent by weight of cement, shall be added to reduce shrinkage. Other additives, as described in ASTM Standard C494, may be used to increase fluidity and/or control setting time.
- PERSON:** An individual, corporation, company, association, trust, or partnership.
- PUMPING TEST:** A procedure used to determine the characteristics of a well and adjacent aquifer by installing and operating a pump.
- SAND CEMENT GROUT:** A mixture consisting of Portland cement (ASTM Standard C150, Type I or API Standard 10, Class A), sand, and water in the proportion of one part cement to three or four parts sand, by volume, and not more than six gallons of water per bag (94 pounds) of cement. Up to five percent, by weight of bentonite (API Standard 13A) shall be added to reduce shrinkage.
- STATIC WATER LEVEL:** The level of water in a well under non-pumping conditions.
- STRUCTURE:** A combination of materials assembled at a fixed location to give-support or shelter, such as a building, framework, retaining wall, fence, or the like.
- TITLE 5:** The State Environmental Code for On-site Sewage Treatment and Disposal Systems.
- WATER SUPPLY CERTIFICATE:** A certificate issued by the Board that approves the use of a well as a drinking water supply.
- WELL OR PRIVATE WELL:** Any bored, drilled, driven or a dug hole for any purpose with a depth greater than its largest surface diameter. Wells may be developed to locate, use and/or supply water for any purpose not subject to regulation by 310 CMR 22.00 for public water supplies. Wells drilled for potential public water supplies will be considered wells until such time as the application has been made to the Department of Environmental Protection under the provisions of 310 CMR 22.00.
- WELL DRILLER:** Any person, association, partnership, company, or corporation that constructs or works on wells.



## Well Design and Construction Standards.

### A. Location of Wells.

- (1) In establishing the location of a well, actual or possible sources of contamination which exist or are proposed to exist within 200 feet of the proposed well site shall be identified. Wells shall be located so as to avoid all potential sources of contamination and when possible be located upgradient and as far as practical from all potential sources of contamination on the property. The following minimum lateral distances apply for each listed source of contamination:

| Source of Contamination                                                                | Minimum Lateral Distance (feet) |
|----------------------------------------------------------------------------------------|---------------------------------|
| Subsurface sewage disposal field (leaching facility, in use, abandoned, or in reserve) | 100                             |
| Cesspool, seepage pit                                                                  | 100                             |
| Septic tank                                                                            | 50                              |
| Sewer line                                                                             | 50                              |
| Property line                                                                          | 30                              |
| Public or Private Way                                                                  | 25                              |
| Driveway                                                                               | 20                              |
| Underground fuel storage tank                                                          | 100                             |
| Underground Liquid Propane storage tank                                                | 25                              |
| Utility right-of-way                                                                   | 15                              |
| Stable, barnyard, manure pile, manure storage tank, feedlot                            | 150                             |
| Surface water, including wetlands                                                      | 25                              |

- (2) Where deemed necessary or appropriate by the Board, the above distances may be increased, decrease or other reasonable means of protection may be required or both. The Board may impose other minimum lateral distance requirements from other potential sources of contamination not listed above. The Board shall add any such special requirement as a condition of the well construction permit.
- (3) No one may locate, drill or dig a well or cause the same to be done so as to limit the use or enjoyment of any neighboring property.
- (4) The construction of a new private well for drinking water purposes is prohibited where access to the municipal water supply or public water main is within 200 feet of the applicant's nearest property line or 500 feet of the structure to be served.
- (a) The Board of Health may examine each well permit request on a case by case basis in regard to issuing a variance to the above.
- (5) In the event that inadequate yield or other site conditions requires a change of the well site, relocation on the Engineer's or Sanitarian's plot plan shall be indicated and subject to approval by the Board.
- (6) Each well shall be located so that it is accessible for repair, maintenance, testing, and inspection, including minimum setbacks of 10 feet from structures and overhangs. The well shall be completed in



a water bearing formation that will produce the required volume of water under normal operating conditions.

- (7) Water supply lines shall be installed at least ten (10) feet from and eighteen (18) inches above any sewer line. Whenever water supply lines must cross sewer lines, both lines shall be constructed of Class 150 pressure pipe and shall be pressure tested to assure water tightness.
- (8) No private well, or its associated distribution system, shall be connected to either the distribution system of a public water supply system or any type of waste distribution system.

#### **B. Well Construction Standards.**

- (1) A well shall be constructed by a certified well driller unless a variance is issued by the Board.
- (2) A well shall be constructed in compliance with the sections of the MassDEP Private Well Guidelines, as amended that apply to well construction and well decommissioning
- (3) A well driller shall certify in writing that the well driller has complied with the MassDEP Private Well Guidelines, as amended and as specified in these regulations to receive a Certificate of Compliance or Water Quality Certificate.
- (4) Any work involving the connection of the private well to the distribution system of the residence must conform to the local plumbing code. All electrical connections between the well and the pump controls and all piping between the well and the storage and/or pressure tank in the house must be made by a pump installer or certified well driller, including the installation of the pump and appurtenance(s) in the well or house.
- (5) A physical connection is not permitted between a water supply, which satisfies the requirements of these regulations, and another water supply that does not meet the requirements of these regulations without prior approval of the Board.
- (6) All wells shall be designed and constructed such that:
  - a) the materials used for the permanent construction are durable in the specific hydrogeologic environment that occurs at the well site
  - b) no unsealed opening is to be left around the well that could conduct surface water or contaminated groundwater vertically to the intake portion of the well or transfer water from one formation to another.
  - c) permanent construction materials shall not leach or contribute toxic substances, taste, odors, or bacterial contamination to the water in the well.
- (7) The driller shall operate all equipment according to generally accepted standards in the industry and shall take appropriate precautions to prevent damage, injury or other loss to persons and property at the drilling site.
- (8) Well construction design shall ensure that surface water does not enter the well through the opening or by seepage through the ground surface. Construction site waste and materials shall be disposed of in such a way as to avoid contamination of the well, any surface water or the aquifer. During any time that the well is unattended, the contractor shall secure the well in a way as to prevent either tampering with the well and/or the introduction of foreign material into the well.
- (9) All water used for drilling, well development, or to mix a drilling fluid shall be obtained from a source which will not result in contamination of the well or the water bearing zones penetrated by the well. Water from wetlands, swamps, ponds and other similar surface features shall not be used.
- (10) Water shall be conveyed in clear sanitary containers or water lines and shall be chlorinated to an initial concentration between 50 mg/l and 100 mg/l. All drilling equipment including pumps and down hole tools, shall be cleaned and disinfected prior to drilling each new well or test hole.



- (11) All drilling fluids shall be nontoxic. Drilling fluid additives shall be stored in clean containers and shall be free of material that may adversely affect the well, the aquifer, or the quality of the water to be pumped from the well. Surfactants shall be biodegradable. The use of biodegradable organic polymers shall, when possible, be avoided.
- (12) All wells, including those that have been hydrofractured, shall be developed in order to remove fine materials introduced into the pore spaces or fractures during construction. One or more of the following methods shall be used for development: overpumping, backwashing, surging, jetting, air-lift pumping.
- (13) The completed well shall be sufficiently straight so that there will be no interference with installation, alignment, operation or future removal of the permanent well pump.

#### **C. Well Casing**

- (1) Private water supply wells shall be constructed using either steel or thermoplastic well casing. The casing shall be of adequate strength and durability to withstand anticipated formation and hydrostatic pressures, the forces imposed on it during installation, and the corrosive effects of the local hydrogeologic environment.
- (2) All casing used in the construction of wells shall be free of pits, breaks, gouges, deep scratches and other defects. If previously used casing is installed, it shall be decontaminated and disinfected prior to installation.
- (3) Installation of water well casing shall be done in a manner that does not alter the shape, size, or strength of the casing and does not damage any of the joints or couplings connecting sections of the casing. A standard driveshoe shall be used when casing is installed. The drive shoe shall be either welded or threaded to the lower end of the string of casing and shall have a beveled metal cutting edge forged, cast, or fabricated for this specific purpose.
- (4) Upon completion of the installation procedure, the entire length of the casing above the intake shall be watertight.
- (5) Well casing shall not be cut off below the land surface even when a pitless adapter or a pitless unit is installed, except during decommissioning of an abandoned well. Well casing terminating above-grade shall extend at least twelve (12) inches above the predetermined ground surface at the wellhead except when the well is located in a floodplain. When a well is located in a floodplain, the well casing shall extend at least two (2) feet above the level of the highest recorded flood. The top of the well casing shall be reasonably smooth and level.

#### **D. Well screen**

- (1) A well screen is required for all drilled wells that are completed in unconsolidated formations. All well screens shall be of Grade 304 stainless steel. Wells completed in bedrock do not require a screen unless the bedrock formation is brittle in nature or has a potential for collapse.
- (2) The well screen aperture openings, screen length, and diameter shall be selected so as not to limit the aquifer's water yielding characteristics while preventing access of soil particles that would detract from well efficiency and yield.

#### **E. Grouting and Sealing**

- (1) All wells shall be equipped with a sanitary seal or watertight cap designed to prevent surface water and foreign matter from entering the well. All wells completed with the casing extending above grade shall have a surface seal designed to eliminate the possibility of surface water flowing down the annular space between the well casing and the surrounding backfilled materials. The surface seal shall extend to a depth below the local frost line..



- (2) All wells except flowing artesian and dug wells shall be vented. The opening of the vent pipe shall be covered with a 24 mesh corrosion resistant screen and shall be large enough to prevent water from being drawn into the well through electrical conduits or leaks in the seal around the pump when the pump is turned on. The vent pipe shall terminate in a downward position at or above the top of the casing.
- (3) All connections to a well casing made below ground shall be protected by either a pitless adapter or a pitless unit that complies with the most recent revision of National Sanitation Foundation Standard Number 56, entitled "Pitless Well Adapters."
- (4) Above-grade connections into the top or side of a well casing shall be at least twelve (12) inches above the established ground surface or two (2) feet above the level of the highest known flood, whichever is higher. Above-grade connections shall be sealed so that they are watertight.
- (5) The ground immediately surrounding the well casing shall be sloped downward and away from the well in all directions to eliminate the possibility of surface water ponding.
- (6) ) Wells drilled in bedrock shall be grouted from the ground surface or to the bottom of the pitless adaptor (if present) to fifteen (15) feet into competent bedrock. Neat cement grout, sand cement grout, or Bentonite grout shall be used. It shall have a permeability of at least  $1 \times 10^{-7}$  and be emplaced using standard grouting techniques as described in the MassDEP Private Well Guidelines, as amended.

#### **F. Disinfection**

- (1) Upon completion of well construction, the well driller shall disinfect the well. If a pump is to be installed immediately upon completion of the well, the pump installer shall disinfect the well and the pumping equipment after the pump has been installed.
- (2) If the pump is not installed upon completion of the well, the pump installer shall, upon installation, disinfect the well and the pumping equipment. The pump installer shall also disinfect the entire water supply system immediately after any maintenance or repair work is done on the pump.
- (3) When a well is disinfected, the initial chlorine concentration shall be 100 mg/l throughout the entire water column.
- (4) For newly constructed or altered wells in which the pump is not immediately installed, the chlorine concentration used to disinfect the well shall be 100 mg/l. Upon installation of the pump, the well, the pumping equipment, and the distribution system, if connected, shall be disinfected with a chlorine concentration of 100 mg/l.
- (5) The disinfectant solution shall remain undisturbed in the well for a minimum of two (2) hours. After all the chlorine has been flushed from the water supply system, a water sample shall be collected and submitted to a Massachusetts certified laboratory. For new wells, the sample shall be tested pursuant to Section VI of these regulations.
- (6) Only well drillers approved by the Board are authorized to physically install, alter, or repair a well. For wells, that have undergone repair, a sample shall be tested for total coliform bacteria and any other parameters deemed appropriate by the Board, prior to being put back in use.

#### **G. Well Decommissioning Standards**

- (1) A permit from the Board is required to decommission a well.
- (2) All wells, test holes and borings that are abandoned shall be decommissioned to protect the groundwater supply and to eliminate potential physical hazards, including the annular space outside the casing, from being a channel allowing the vertical movement of water in accordance to the MassDEP Private Well Guidelines, as amended and these regulations.



- (3) A well shall be abandoned and properly plugged (decommissioned) if the well meets any of the following criteria;
- a) construction was terminated prior to completion of the well
  - b) the well owner has notified the local Board of Health that the use of the well has been permanently discontinued
  - c) the well has been out of service for at least three years
  - d) the well is a potential hazard to public health or safety and the situation cannot be corrected
  - e) the well is in such a state of disrepair that its continued use is impractical or represents a physical threat or is unsafe
  - f) the well has the potential for transmitting contaminants from the land surface into an aquifer or from one aquifer to another and the situation cannot be corrected
- (4) The property owner shall ensure that that all abandoned wells and test holes or borings associated with the well installation are properly plugged before work at the site is completed. Only certified well drillers may plug abandoned wells, test holes, and borings.
- (5) Only a certified well driller will plug abandoned wells, test holes, and dry or inadequate borings. In addition, when an old well is replaced by a new well, the well driller will plug the old well once a Certificate of Compliance has been issued for the new well. In the case of new well construction, any test holes and dry or inadequate borings will be plugged before the well driller completes work at the site.
- (6) Within 30 days following the completion of the plugging procedure, the certified well driller who plugged the abandoned well, test hole, or dry or inadequate boring must submit a Well Completion Report to the Division of Water Supply Protection and will submit a Decommissioning Report to the Board of Health and the owner of the property where the well, test hole, or boring is located. The following information will be included in the Decommissioning Report;
- a) name and address of the property owner
  - b) name, address, and registration number of the certified well driller who performed the plugging
  - c) reason for abandonment
  - d) location of the well, test hole, or boring referenced to at least two permanent structures or, when possible, location coordinates determined by a registered land surveyor or registered civil engineer
  - e) all information known about the well, test hole, or boring including but not limited to:
    - [1] depth
    - [2] diameter
    - [3] type of casing
  - f) calculations made to determine the volume of the well, test hole, or boring
  - g) static water level before plugging
  - h) types of plugging material used, including mix specifications
  - i) quantity of each type of plugging material used
  - j) description of the plugging procedure including, but not limited to, notes regarding;
    - [1] removal of pump and other obstructions
    - [2] removal of screen
    - [3] perforation or removal of casing



[4] method used to place plugging material (s)

k) a copy of the original well driller's report

(7) Abandoned overburden wells or borings shall be completely filled with a low permeability grout, which cures with a final permeability of less than  $1 \times 10^{-7}$  cm/sec.

(8) Wells shall be plugged with neat cement grout, sand cement grout, concrete, or bentonite grout.

(9) Regardless of the type used, the grout used for plugging shall:

a) be sufficiently fluid so that it can be applied through a tremie pipe from the bottom of the well upward

b) remain as a homogeneous fluid when applied to the subsurface rather than disaggregating by gravity into a two phase substance

c) be resistant to chemical or physical deterioration

d) not leach chemicals, either organic or inorganic, that will affect the quality of the groundwater where it is applied

(10) The plugging materials shall be introduced at the bottom of the well or boring and placed progressively upward to a level approximately four (4) feet below the ground surface. Sealing materials shall not be poured from the land surface into the well, borehole, or annular space being sealed.

(11) The well driller shall install a surface seal after the well or boring has been plugged. Before the surface seal is placed, casing remaining in the hole shall be cut off. The remaining four (4) feet at the top of the well or boring shall then be filled with concrete. The top of the seal shall comprise a concrete slab above the top of the plugged well or boring. This concrete slab shall be at least six (6) inches thick and shall be at least two (2) feet greater in diameter than the well casing or borehole wall.

(12) A well driller shall certify in writing that the well driller has complied with the MassDEP Private Well Guidelines, as amended when decommissioning the well.

#### H. Water Quality Standards.

(1) No private well shall be used as a water supply, and no building permit for a dwelling unit shall be issued for new construction on a property where the well is located, unless and until the water derived from the well has been shown to have adequate quantity and quality. The water shall be tested and approved for water quality before a use and a Certificate of Occupancy is issued.

(2) Chemical and bacteriological analyses shall be conducted by a Massachusetts certified laboratory utilizing the applicable US EPA approved method for drinking water testing, and shall not exceed the following values:

a) **Required Chemical:**

| Analysis                   | Standard (mg/liter) |
|----------------------------|---------------------|
| Ammonia (NH <sub>4</sub> ) | 0.05                |
| Arsenic                    | 0.010               |
| Sodium (Na)                | 20                  |
| Chloride (Cl)              | 250                 |
| Copper                     | 1.3                 |
| Lead                       | 0.015               |
| Fluoride                   | 4.0                 |
| Nitrate Nitrogen (N)       | 10                  |



| Analysis                         | Standard (mg/liter) |
|----------------------------------|---------------------|
| Nitrite Nitrogen                 | 1.0                 |
| Polychlorinated biphenyls (PCB)* | 0                   |
| * required near landfills        |                     |

b) **Required Bacteriological:**

| Analysis                | Standard                     |
|-------------------------|------------------------------|
| Total Coliform Bacteria | None/100 ml H <sub>2</sub> O |
| E. coli Bacteria        | None                         |

c) **Other:** In addition, the following water quality tests should be conducted for the informational benefit of the owner.

| Analysis               | Should Not Exceed |
|------------------------|-------------------|
| Total Dissolved Solids | 500 mg/liter      |
| Iron (Fe)              | 0.3 mg/liter      |
| Manganese (Mn)         | 0.05 mg/liter     |
| Sodium                 | 20 mg/liter       |
| pH                     | 6.5 - 8.5         |
| Radon                  | 10,000 pCi/L      |
| Total hardness         | 180 mg/liter      |

d) Values over the levels advised or required above may require treatment at the discretion of the Board.

- (3) Additional or repeated tests may be required when it is necessary for the protection of the public health, safety and welfare.
- (4) A water sample shall be collected either after purging three (3) well volumes or following the stabilization of the pH, temperature and specific conductance in the pumped well. The water sample to be tested shall be collected at the pump discharge or from a disinfected tap in the pump discharge line. In no event shall a water treatment device be installed prior to sampling.
- (5) In wells drilled into bedrock the Board of Health requires that in addition to the parameters listed above, a Gross Alpha Screen and Radon test be performed. If the Gross Alpha screen detects radiation of 15 pci/l or more, then the water must be analyzed for Radium and Uranium concentrations.
- (6) **Prior to selling, conveying, or transferring title to real property, the owner shall have tested the water of every private drinking water well serving that property.** A water sample from each well shall be submitted to a Massachusetts certified laboratory for testing for the parameters listed in the Water Quality section of this document. This water quality testing shall have been performed not more than one (1) year prior to transfer of the property. Results of the water quality testing shall be submitted to the Board of Health prior to property transfer. They shall also include a map with a scale of 1 inch = 20 feet with all structures and the well(s) located.
- (7) In addition, the owner shall give copies of all available water quality test results of which he/she has knowledge (regardless of age of results) for the private well in question to any buyer and/or broker involved in the transfer. In the event that there is no buyer at the time the water is tested, a copy of all water test results must be given by the owner to the buyer before the property is put under agreement.
- (8) For irrigation wells, the Board requires that these sources be clearly labeled non-potable., as accidental consumption could result in acute exposure.
- (9) The Board reserves the right to require retesting of the above parameters, or testing for additional parameters when, in the opinion of the Board, it is necessary due to local conditions or for the



protection of public health, safety, welfare and the environment. All costs and laboratory arrangements for the water testing are the responsibility of the applicant.

- (10) Following a receipt of the water quality test results, the well owner shall submit a Water Quality Report to the Board, which includes:
- a) a copy of the certified laboratory's test results
  - b) the name and contact information of the individual who performed the sampling
  - c) where in the system the water sample was obtained
- (11) This regulation requires that private drinking water wells meet all current Massachusetts' Primary and Secondary Drinking Water Standards and Guidelines adopted by the MassDEP Office of Research and Standards (ORS). In any case where a private drinking water well does not meet such Standards or Guidelines, as it deems necessary for the protection of public health, safety or welfare, that the Board may take action, but not limited to, requiring the property owner to provide an alternative source of drinking water.

#### **I. Water Quantity Standards.**

- (1) Yield test pumping shall be conducted at a rate at least equal to the pumping rate expected during normal well use, and shall be conducted for a minimum of four hours.
- (2) A well-intended for drinking water supply is required to provide, either through yield or with the addition of adequate storage facilities, an adequate number of gallons per day.
- (3) The applicant shall submit to the Board for review and approval a Pumping Test Report. The Pumping Test Report shall include at a minimum: the name and address of the well owner, well location referenced to at least two permanent structures or landmarks, date the pumping test was performed, depth at which the pump was set for the test, location for the discharge line, static water level immediately before pumping commenced, discharge rate and, if applicable, the time the discharge rate changed, pumping water levels and respective times after pumping commenced, maximum drawdown during the test, duration of the test, including both the pumping time and the recovery time during which measurements were taken, recovery water levels and respective times after cessation of pumping, and reference point used for all measurements. In order to demonstrate that the well capacity can provide the required volume of water, a pumping test shall be conducted in the following manner:
- a) The volume of water necessary to support the household's daily need shall be determined using the following equation:  $(\text{number of bedrooms plus one bedroom}) \times (110 \text{ gallons per bedroom}) \times (\text{safety factor of } 2) = \text{number of gallons needed daily}.$
  - b) The storage capacity of the well shall be determined using the measured static water level and the depth and radius of the drillhole or casing.
  - c) The required volume shall be calculated by adding the volumes of water in (1) and (2) above. It is this volume of water that must be pumped from the well within a twenty-four (24) hour period.
  - d) The pumping test may be performed at whatever rate is desired. 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.

#### **Permitting.**

##### **A. Well Construction Permit**

- (1) Well construction permit application.
- a) Well construction may proceed only upon approval of a permit application in the form of a well construction permit issued by the Board. The Board of Health will set fees from time to time.



- b) A permit for well construction expires at the end of 12 months from the date of issuance. A permit may be extended for an additional 6 months if a written request is received by the Board prior to the expiration date and there are no proposed changes, including the name of the Well Driller. An additional fee may be charged for the extension.
- c) After a permit has expired, a new application and a new fee shall be submitted to the Board.
- d) Neither a permit nor an application is transferable.
- e) The permit application fee shall be set by the Board. There may be additional fees for inspections and Certificates of Compliance.
- f) An application for a well construction permit shall be submitted by the property owner or his/her designated agent to the Board on the form provided by the Board.
- g) Except when a plan for new construction, including the following data for the well, has been submitted so as to comply with Title 5 requirements, the application shall include or be accompanied by:
  - [1] The property owner's name and address
  - [2] The assessor's map and lot number, the location of the proposed well, and a general written summary of any possible sources of contamination within 200 feet of the well site
  - [3] An extended plot plan, produced by a civil or sanitary engineer or a registered sanitarian, which will show lateral distances less than 200 feet from the proposed well site to the following:
    - [a] Existing and proposed structures.
    - [b] Subsurface waters and subsurface drainage courses.
    - [c] Subsurface sewage disposal fields, trenches, or pits and adjoining septic tanks or cesspools.
    - [d] Subsurface fuel storage tanks.
    - [e] Other potential past and present sources of pollution an experienced well driller should reasonably be expected to recognize.
    - [f] Property lines
    - [g] Public and private ways
    - [h] Utility rights-of-way
  - [4] The well driller's name and a valid Massachusetts certificate of registration, unless the certificate is on file with the Board.

**(2) Certificate of Compliance and Water Supply Certificate**

- a) No well will be put into operation or use until a Certificate of Compliance or Water Supply Certificate has been issued. The following shall be submitted to the Board to obtain a Certificate of Compliance or Water Supply Certificate:
  - [1] Within 30 days after completion of the well, the well driller shall file with the Board a copy of the Water Well Completion Report as required by the MassDEP Well Driller Program regulations (310 CMR 46)
  - [2] Following well development and disinfection, the applicant or his/her designated agent shall collect water samples for bacteriological analysis. The applicant or his/her designated agent shall cause chemical analysis to be conducted and the report submitted to the Board for approval.
  - [3] Certificate of Construction Compliance stating that the well driller has complied with MassDEP Private Well Guidelines, as amended, sections pertaining to well construction that are part of these regulations



- [4] A Pumping Test Report or water quantity certification statement that the minimum supply required pursuant to MassDEP Private Well Guidelines, as amended, and these regulations has been met
- b) Upon receipt of all of the above documents the Board shall determine whether the water supply meets all the water quantity and quality requirements for private water supplies in Northfield.
- [1] Upon an affirmative determination, the Board shall issue a Certificate of Compliance or Water Supply Certificate
- [2] Upon a negative determination, or if the Board deems it necessary to protect the public health, safety and welfare, the Board shall issue a water supply disapproval letter which requires additional water quality analysis, or quantity testing, or both.
- [3] The Board may, at its discretion, issue a conditional Certificate of Compliance or Water Supply Certificate. A conditional certificate shall set forth the conditions which the Board deems necessary to ensure fitness, purity, and quantity of the water derived from the well. This may include but need not be limited to requiring treatment of the water or regular testing.

(c) **The Board of Health may, but will not be required to, grant a private well construction permit only where it finds that connection to the public water system is not feasible;** would create an extreme financial burden on the applicant, and that the construction, operation and use of the proposed private well would pose no reasonable risk to the quality and yield of potable water for the Town of Northfield, and poses no reasonable risk to the health, safety or welfare of the general public.

#### **Administration and Enforcement.**

- A. **General Enforcement.** Environmental Code (310 CMR 11.00) Massachusetts General Laws Chapter 111 section 122, 127 A&B, Sanitary Code 105 CMR 410.00, governs the enforcement of these regulations.
- B. **Violations.** The Board has authority to investigate suspected or known violations of these regulations and/or violations of any Certificate of Compliance or Water Supply Certificate conditions. The Board may take actions, as it deems appropriate, within its authority for the protection of public health, safety welfare, or the environment, and to enforce any of the provisions of this regulation.
- C. **Enforcement.** If any investigation reveals a violation of these regulations or the Certificate of Compliance or Water Supply Certificate Conditions, the Board may order the well owner to comply with the violated provision(s), and/or take other action within its authority as the Board deems appropriate.
- D. **Separate Violations.** Each day's failure to comply with any provisions of these regulations is a separate violation. Each numbered or lettered section or subsection of these regulations violated is a separate violation, with fines of up to \$1,000 per day.
- E. **Orders.** Any Order the Board issues shall be in writing and served in the following manner:
- (1) personally, by any person authorized to serve civil process,
  - (2) by any person authorized to serve civic process by leaving a copy of the Order at the property owner's address
  - (3) by sending the property owner a copy of the Order by registered or certified mail, return receipt requested, or
  - (4) by posting a copy of the Order in a conspicuous place on or about the premises and by advertising it for at least three (3) out of five (5) consecutive days in one or more newspapers of general circulation within the municipality where the well is located, if the property owner's last and usual place of residence is unknown or outside the Commonwealth.



## F. Variance.

- (1) By vote of a majority of its full authorized membership, the Board of Health may vary the application of any provision of these regulations with respect to any particular case when, in the Board of Health's opinion, both of the following conditions are fulfilled:
  - a) The enforcement thereof would do manifest injustice.
  - b) The applicant has proved that the equivalent degree of environmental protection, and protection of the public health, safety and welfare can be achieved without strict application of the particular provision(s) sought to be varied. The alternative means of protection shall be detailed and documented by the applicant to the satisfaction of the Board of Health.
- (2) Every request for a variance shall be in writing shall state the specific provision of this regulation from which variance is sought, the reasons for seeking the variance and proof of the notice required below. The request shall also contain the information to establish manifest injustice and equivalent degree of protection
- (3) Any variance granted by the Board of Health shall be in writing. Any denial of the variance shall also be in writing and shall contain a brief statement of the reason for 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.
- (4) The Board may issue a variance subject to any qualification, revocation, suspension, condition, or expiration provided in these regulations or that the Board of Health expresses in its grant of the variance. Any such conditions shall be stated in writing in the Board's grant of the variance. A variance may otherwise be revoked, modified, or suspended, in whole or in part, only after the holder has been notified in writing and has been given an opportunity to be heard, in conformity with the requirements of Title 1 of the State Environmental Code (310 CMR 11.00) for orders and hearings.

## G. Water Emergencies

- (1) The Board may take all necessary actions to manage drought and other water related emergency situations and to protect public health and the environment. pursuant to G.L. c. 40, § 21, and c. 41, § 69B., and G. L. Chapter 111, §31 including setting water priorities, issuing voluntary or mandatory water use restrictions and issuing written orders during drought conditions requiring private well owners to limit or discontinue use of a water supply or, at the owners' option, provide a safe and adequate alternative supply of drinking water pursuant to G. L. Chapter 111, §§122 and 122A. Private wells are also subject to the Massachusetts Drought Management Plan
- (2) The Board may also issue fines and penalties of up to \$1,000 per violation per day.

## H. Appeals

- (1) Any person to whom the Board issues an Order may request a hearing before the Board by filing with the Board within seven (7) days after the day the Order was served, a written request for a hearing. Upon receipt of a hearing request, the Board shall set a time and place for the hearing and shall inform the well owner in writing.
- (2) The hearing shall commence within thirty (30) days from the day on which the written request was made, unless a later time is agreed to in writing by the Board and the person requesting the hearing.
- (3) At the hearing the person requesting the hearing shall be given an opportunity to be heard, to present witnesses or documentary evidence and show why the Order should be modified or withdrawn.

After the close of the hearing, the Board shall issue a written decision to sustain, modify, or withdraw the Order and shall mail a copy of the decision, by certified mail, return receipt requested, to the person who



requested the hearing. If the Board sustains or modifies the Order, it shall be carried out within the time period allotted in the original order or in the modification.

- (4) Failure to hold a hearing within the time period specified herein shall not affect the validity of any Order.
- (5) Any person aggrieved by the decision of the Board of Health may seek relief therefrom in any court of competent jurisdiction, as provided by the laws of this Commonwealth.
- (6) Every notice, Order, or other record prepared by the Board in connection with the hearing shall be entered as a matter of public record in the office of the clerk of the city or town, or in the office of the Board.
- (7) If a request for a hearing is not filed with the Board within seven (7) days after the day an Order has been served or if after a hearing, the Order has been sustained in whole or any part, each day's failure to comply with the order as issued or sustained shall constitute a separate violation.

#### **I. Penalties**

- (1) Whoever himself or by his servant or agent, or as the servant or agent of any person, firm, or corporation, violates any of the provisions of these regulations is subject to a fine or additional fees.
- (2) Any person who violates any provision of these regulations, or who fails to comply with any final Order of the Board, for which a penalty is not otherwise provided in any of the Massachusetts General Laws, shall upon conviction be fined not less than ten (10) nor more than one thousand (\$1,000) dollars per violation.
- (3) Each day's failure to comply with a final Order or any provision of this regulation shall constitute a separate violation.

#### **J. Amendments.**

- A. These regulations or any portion of them may be amended, supplemented, or repealed from time to time by the Board of Health, with notice as provided by law, on the Board of Health's own motion or by petition.

#### **K. Severability.**

- A. If any provision of these regulations or the application thereof is held to be invalid by a court of competent jurisdiction, the invalidity shall be limited to said provision(s) and the remainder of these regulations shall remain in full force and effect.
- B. Any part of these regulations subsequently invalidated by a new state law or modification of an existing state law shall automatically be brought into conformity with the new or amended law and shall be deemed to be effective immediately, without recourse to a public hearing and the customary procedures for amendment or repeal of such regulation.

#### **L. Effective date.**

The effective date of these regulations is March 1, 2018. These regulations were adopted by vote of the Northfield Massachusetts Board of Health, at their regularly scheduled meeting held on February , 2018 and are to be in full force and effect on and after March 1, 2018. Before said date, these regulations shall be published and a copy placed on file in the Board of Health Offices and filed with the Department of Environmental Protection, Division of Wastewater Management in Boston. These regulations or any portions thereof may be amended, supplemented or repealed from time to time by the Board, as provided by law and applicable regulations.

#### **Disclaimer.**



The issuance of a well permit shall not be construed as a guarantee or certification by the Board or its agents that the water system will function satisfactorily or that the water supply will be of sufficient quality or quantity for its intended use.

Adopted this day 9 of January 2020

Board of Health, Northfield

*[Signature]*  
*[Signature]*  
*[Signature]*

Recorded with Northfield Town Clerk on: \_\_\_\_\_ 20

*Daniel R. Campbell*  
*Town Clerk*

