



TOWN OF FRAMINGHAM

Board of Health

Memorial Building, Room 221
150 Concord Street
Framingham, MA 01702-8368

Board of Health

Michael R. Hugo, Esq., Chairman
Nelson Goldin, Secretary
David W. Moore, M.D.

Director of Public Health

Steven J. Ward, MPH, CHO

Tel: (508) 532-5470

Fax: (508) 620-4833

health@framinghamma.gov

Town of Framingham Board of Health Private Well Regulations

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1.00 PURPOSE

These regulations are intended to protect the public health and general welfare by ensuring that Private Wells are constructed and maintained in a manner that will protect the quality of the groundwater derived from Private Wells and to protect the groundwater resources of Framingham so that the public can be assured they are drinking safe and healthy water.

2.00 AUTHORITY

These regulations are adopted by the Framingham Board of Health, as authorized by Massachusetts General Laws, Chapter 111, Section 31 and supersede all previous regulations adopted by the Board of Health relative to the construction of Private Wells. These regulations shall be construed in each and every instance in a manner consistent with the purpose stated herein and shall not be construed to relieve any individual or entity of any duty, obligation or restriction imposed by Massachusetts General Laws, the Code of Massachusetts Regulations or any other law, regulation or ordinance relative to the installation, maintenance or protection of Private Water Supplies.

3.00 DEFINITIONS

Abandoned Well: A Private Well that is no longer in use and meets any of the criteria set forth in Section 11.02.

Agent: Any Person designated and authorized by the Board to execute these regulations. The Agent shall have all the authority of the appointing Board and shall be directly responsible to the Board and under its direction and control.

Alteration: A change in the type of construction or configuration of a private water system, including but not limited to, adding a disinfection or treatment device, converting a water well with a buried seal to a well with a pitless adapter, extending a distribution system, converting a Private Well using a well pit to a Private Well with a pitless adapter, extending the Casing above ground, deepening a Private Well, changing the type of pumping equipment when that requires making new holes or sealing or plugging existing holes in the Casing or wall of a Private Well, and repairing, extending or replacing any portion of the inside or outside Casing

or wall.

Applicant: Any Person who intends to have a Private Well constructed or altered.

Approval Not Required: A plan of land that does not constitute a subdivision, as defined in the Rules and Regulations Governing Subdivision of Land in the Town of Framingham, and thus does not require approval under the Subdivision Control Laws and is desired to be recorded with the Middlesex South District Registry of Deeds or the Land Court, that meets the three standards for this type of endorsement of a buildable lot.

Aquifer: A water-bearing geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian Aquifer: An aquifer that is bounded above and below by impermeable materials or materials of distinctly lower permeability than the Aquifer itself. The water in an Aquifer confined in this manner will rise in a drilled hole or well Casing above the point of initial penetration (above the bottom of the confining, or impermeable, layer overlying the Aquifer).

Artesian Well: A Private Well producing from an Artesian Aquifer. The term includes both flowing and non-flowing Private Wells.

Augmentation Plan: Plan demonstrating to the satisfaction of the Board that a Junior Well will be augmented so as to address any impairment of, or adverse effects on, any Senior Wells(s). The Augmentation Plan shall present hydrologic, hydrogeological, and geologic information and scientific testing results specific to the subject property. The Augmentation Plan shall describe current conditions, anticipated future conditions under withdrawal conditions, potential and/or actual impairments to Senior Well rights and/or surface water bodies, and present recommendations to address any impairments.

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 Board of Health of Framingham, Massachusetts or its authorized Agent.

Boring: A term synonymous with “hole” for the purposes of these regulations.

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.

Business of Digging or Drilling: Charging a fee for digging or drilling a well, or advertising for hire to dig and/or drill productive or non-productive 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 Private Well.

Certified Laboratory: Any laboratory that has full certification by the Department of Environmental Protection for the analysis of drinking water and required water quality analytes, as provided in the most recent edition of "Certification Status of Commercial Environmental Laboratories."

Certified Well Driller: An individual authorized by certification with the Massachusetts Department of Environmental Protection (MassDEP) Well Driller Program under 310 CMR 46.00 to engage in the business of and supervise the drilling, altering, and/or decommissioning of wells (either dug wells or drilled wells) in the Commonwealth of Massachusetts, and who signs and submits the Well Completion Report to the Massachusetts Department of Environmental Protection and the Board of Health.

Concrete: A mixture consisting of Portland cement (ASTM Standard C150, Type I or API Standard 10, Class A), sand, gravel, and water in 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.

Consolidated Formation: Any geologic formation in which the earth materials have become firm and coherent through natural rock forming processes. The term is used interchangeably with the word "bedrock" and includes, but is not limited to, basalt, granite, limestone, sandstone, and shale.

Contaminant: Any physical, chemical, biological or radiological substance or matter in water which, in the opinion of the Board of Health or other regulating agency, would present a threat to the public health.

Contamination: The presence of any physical, chemical, biological or radiological substance or matter in water at a concentration and/or for a duration or anticipated duration which, in the opinion of the Board of Health or other regulating agency, would present a threat to the public health.

Cross Connection: Any physical connection between two sources of water that, in the opinion of the Board, may allow the water to flow from one source to the other.

Deep-Well Reciprocating Pump: A double-acting piston pump that sucks water from the well during both strokes and forces the water out the pressure side. The deep-well piston sucks water through the check valve on the upstroke and forces it past the piston on the downstroke.

Decommissioning: Plugging an Abandoned Well so that it will not serve as a conduit for movement of water to or from the well or between water-bearing units.

Drilled Well: A Private Well in which the hole is drilled using means such as rotary, cable tool or augers into the Consolidated Formation.

Driven Well: A Private Well in which the hole is driven using means such as rotary, cable tool or augers into the Unconsolidated Formation.

Dug Well: A Private Well in which the hole is excavated using means such as a shovel, backhoe or any means other than those employed in creating Drilled Wells or Driven Wells as defined herein.

Dwelling: a building that contains one or two dwelling units used, intended or designed to be used, rented, leased, let or hired out to be occupied for living purposes.

Dwelling unit: a single unit providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

Exempt Well: A low-flow well for one residential lot, with a dwelling with no more than three dwelling units, which is exempt from the Impairment Assessment and Augmentation Plan regulations. Low-flow for the purposes of this definition is a well with a pumping rate up to and including 15 gallons per minute.

Foundation Wall: A wall below the floor nearest grade serving as a support for a wall, pier, column or other structural part of a Building.

Helical Rotor Pump: A rotor that operates like an auger to force water up through the pump.

Impairment Assessment: An assessment of Junior Well or water uses associated with Junior Wells to demonstrate that water will not be removed from the hydrologic system that will impair or adversely affect Senior Wells.

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

Junior Well: A well generating potable or non-potable water that has not been fully permitted after the effective date of the adoption of this regulation.

Multi-Unit Dwelling: A dwelling containing more than two dwelling units.

Nonconforming System: any on-site subsurface sewage disposal 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 gallons per day.

Non-Exempt Well: All wells other than exempt wells.

Non-Potable Well: Any dug, driven, or drilled hole with a depth greater than its largest surface diameter developed to supply water not intended for human consumption.

On-site System or Disposal System or On-site Subsurface Sewage Disposal System or System:
As described in Title 5 of the Commonwealth of Massachusetts State Environmental Code, and associated regulations at 310 CMR 15.000, a system or series of systems for the treatment and disposal of sanitary sewage below the ground surface on a facility, as follows:

(a) The standard components of a system are: a building sewer; a septic tank to retain solids and scum; a distribution system; 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. These terms also include Nonconforming Systems.

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

Potable Well/Potable Water Supply: Any dug, driven, or drilled hole with a depth greater than its largest surface diameter developed to supply water intended and/or used for human consumption.

Private Water Supply/Private Well: Any dug, driven, or drilled hole with a depth greater than its largest surface diameter developed to supply water not subject to regulation by 310 CMR 22.00.

Pump Installer: A Person who is certified by the National Water Well Association for the installation of domestic pumps (1 to 3 hp).

Pumping Test: A procedure used to determine the characteristics of a Private Well and adjacent Aquifer by installing and operating a pump.

Pumping Test Report: A report submitted by the Applicant to the Board following pumping testing.

Semi-Public Well: Any dug, driven, or drilled hole, with a depth greater than its largest surface diameter, constructed for obtaining, or used to serve or is intended to serve, water for a multiple dwelling of two or more units, or to more than one multiple dwelling under a single ownership and located on the same lot, or two restaurants, dairies, schools, institutions, motels, mobile home parks, bottling plants, campgrounds, recreational camps for children, state forest, parks and beaches.

Senior Well: An existing permitted potable or non-potable water well as of the date of the adoption of this regulation; also, any well that becomes fully permitted by the Board after such date is a Senior Well in relation to a proposed Junior Well, so long as its use is demonstrated not to impair any Senior Well.

Shallow-Well Pump: A pump which can draw water from a depth of approximately 20 feet below grade, and depends on atmospheric pressure to force water into the vacuum within the suction pipe.

Submersible Pump: A pump with several impellers that act in series to force water up the pipe.

Static Water Level: The level of water in a Private Well under non-pumping conditions.

Structure: Anything constructed or erected at a fixed location on the ground and supported by a foundation wall to give support or provide shelter for any common use and occupancy.

Test Hole: Any dug, driven or drilled hole not completed as a well of any type.

Unconsolidated Formation: Any naturally occurring uncemented, unlithified material, such as sand, gravel, clay or soil.

Water Quality Report: A report submitted by the Applicant to the Board following receipt of water quality test results.

Water Supply Certificate: Certification issued by the Board that a specified Private Well may be used as a drinking water supply.

Water Table: The upper surface of the Zone of Saturation in an unconfined Aquifer at which the pressure is atmospheric. An unconfined Aquifer means an Aquifer in which the static water level does not rise above the top of the Aquifer.

Well Completion Report: A report required by the MassDEP Well Driller Program regulations (310 CMR 46.00).

Watertight: A condition that does not allow the entrance, passage or flow of water or other fluids under normal operating conditions.

Well Construction Permit: A permit from the Board issued prior to constructing and/or altering a Private Well.

Well Driller: Any person that drills, constructs, alters, or decommissions a well for a fee, or advertises for hire to provide such services in Massachusetts. For the purposes of these regulations, any reference to "well driller" means a Certified Well Driller in the Commonwealth of Massachusetts (see "Certified Well Driller" definition).

Well Screen: Pervious durable section of pipe placed in a boring to prevent access of soil particles to the well.

Zone of Saturation: The zone below the Water Table in which all interstices (or, empty spaces within the formation) are filled with groundwater.

4.00 PRIVATE WELL REGISTRATION

4.01 Property owners shall register all Private Water Supplies (Private Wells), both Potable and Non-Potable, with the Board.

5.00 PRIVATE WELL CONSTRUCTION PERMIT

5.01 The property owner or designated representative shall obtain a permit from the Board

prior to constructing and/or altering a Private Well.

5.02 Each permit application to construct or alter a Private Well shall include the following:

- (1) The property owner's name, address and phone number;
- (2) Written permission from the owner designating a designated representative (if any);
- (3) The designated representative's name, address, phone number (if any);
- (4) The Certified Well Driller's name and proof of valid Commonwealth of Massachusetts registration;
- (5) A plan with a specified scale, signed by a registered surveyor or engineer, showing the location of the proposed Private Well in relation to existing or proposed above- or below-ground Structures;
- (6) A description and location of all existing and proposed Structures as well as location of any potential source of pollution within the radii (in feet) (noted in Section 7.00) of the Private Well;
- (7) Proof that the owner of any property abutting the Applicant's property has been notified of the Applicant's intention to install a Private Well; and
- (8) The permit fee required, as established by the Board.

5.03 In the case of undeveloped lots for new construction, well permit applications must include a copy of the recorded Approval Not Required Plan endorsed by the Framingham Planning Board, or Definitive Plan Approval and/or Decision from the Planning Board; the Homeowner's Association Documents; and a Conservation Commission Determination of Applicability or Conservation Commission Order of Conditions, where applicable.

5.04 The Well Construction Permit shall be on-site at all times that work is taking place. Each permit shall expire one (1) year from the date of issuance unless revoked for cause. Permits may be extended for one additional six-month period, provided that the Board receives a written request at least one month prior to the one-year expiration date. No additional fee shall be charged for a permit extension, provided there is no change in the plans for the proposed Private Well.

5.05 Private Well Construction Permits are not transferable.

6.00. WATER SUPPLY CERTIFICATE

6.01 The issuance of a Water Supply Certificate by the Board shall certify that the Private Well may be used as a drinking water supply. A Water Supply Certificate must be issued for the use of a Private Well prior to the issuance of an occupancy permit for an existing structure or prior to the issuance of a building permit for new construction that is to be served by the

Private Well.

6.02 The following shall be submitted to the Board to obtain a Water Supply Certificate:

- (1) A Private Well Construction Permit;
- (2) A copy of the Well Completion Report as required by the Commonwealth of Massachusetts and MassDEP (310 CMR 46.00), to be submitted to the Board within 30 days of well completion;
- (3) A copy of the Pumping Test Report required pursuant to Section 8.00 of these regulations; and
- (4) A copy of the Water Quality Report required pursuant to Section 9.00 of these regulations.

6.03 Upon the receipt and review of the above documents, the Board shall make a final decision on the application for a Water Supply Certificate. A final decision shall be in writing and shall comprise one of the following actions:

- (1) Issue a Water Supply Certificate;
- (2) Deny the Applicant a Water Supply Certificate and specify the reasons for the denial; or
- (3) Issue a conditional Water Supply Certificate with those conditions the Board deems necessary to ensure fitness, purity and quantity of the water derived from that Private Well. Said conditions may include, but not be limited to, requiring treatment or additional testing of the water.

7.00 PRIVATE WELL LOCATION AND USE REQUIREMENTS

7.01 In locating a Private Well, the Applicant shall identify all potential sources of contamination noted below within the prescribed distance(s) from the proposed location of a Private Well. When possible, the Private Well shall be located upgradient of all potential sources of contamination and shall be as far removed from potential sources of contamination as possible, given the layout of the premises. A Private Well must be located on the lot that it serves.

7.02 Each Private Well shall be accessible for repair, maintenance, testing and inspection. The Private Well shall be completed in a water-bearing formation that will produce the required quantity of water under normal operating conditions.

7.03 All Private Wells must conform to the minimum setback distance measured in feet and as set forth below:

Potable Well or Suction Line	Non-potable Well or Suction
-----------------------------------------	----------------------------------------

		Line
Property Line ¹	30	30
On-site Subsurface Sewage Disposal System	150	100
Other Wells	50	50
Subsurface Drain	25	25
Underground Oil/Gas Tanks and Distribution Lines	100	100
Disposal Sites listed by MassDEP pursuant to MGL 21E/Massachusetts Contingency Plan (MCP)	1,000	1,000
Stable, barnyard, manure storage	50	100
Normal High Water Mark of any Lake, Pond, River, Stream, Ditch or Slough ²		25
Building Sewer/Sewer Mains	100	50
Framingham Conservation Commission No Alteration Zone ³	30	30

7.04 Water supply lines shall be installed at least ten (10) feet horizontally from and eighteen (18) inches vertically above any sewer line. A variance will be required whenever water supply lines must cross sewer lines; if a variance is granted, both pipes shall be constructed of class 150-pressure pipe and shall be pressure-tested to assure water tightness.

7.05 The Board reserves the right to impose minimum lateral distance requirements from other potential sources of Contamination not listed above. All such special Private Well location requirements shall be listed, in writing, as a condition of the Well Construction Permit.

7.06 No Private Well, or its associated distribution system, shall be connected to either the distribution system of a public water supply system or any other water distribution system.

8.00 WATER QUANTITY REQUIREMENTS FOR POTABLE AND NON-POTABLE

¹ For projects under common ownership (e.g., condominium associations) where lot lines do not exist, there shall be a 50' distance between wells and structures.

² When possible, Private Water Supplies shall be located in areas above the 100-year floodplain.

³ Wells shall be located to abide by the Framingham Conservation Commission Wetland Protection Regulations.

WELLS

8.01 The Applicant shall submit to the Board for review and approval a copy of the required Commonwealth of Massachusetts Well Completion Report, as required by Massachusetts Department of Environmental Protection Well Driller Program regulations (310 CMR 46.00).

8.02 Test pumping shall be conducted at a rate at least equal to the pumping rate expected during normal Private Well use. The Pumping Test for a Potable Well shall be conducted for a minimum of four (4) hours. In order to demonstrate that the well capacity can provide the required volume of water, a Pumping Test shall be evaluated in the following manner:

1. the volume of water necessary to support the household's daily need shall be determined using the following equation: (number of bedrooms plus one bedroom) x (110 gallons per bedroom) x (safety factor of 2) = number of gallons needed daily; and
2. the storage capacity of the well shall be determined using the measured static water level and the depth and radius of the drill hole or casing; and
3. the required volume shall be calculated by adding the volumes of water in Items 1 and 2 above. This volume of water must be pumped from the well within a twenty-four (24) hour period.

The Pumping Test must be performed at the rate defined above, or the intended average daily yield, whichever is higher. 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.

Depth of Water Column in Well within 15 minutes of Completion of Pumping Test

Yields (Gallons/Minute)

Less than 150'	1.67 per bedroom
150' to 300'	1.00 per bedroom
Greater than 300'	0.80 per bedroom

If the well is to be installed for use at a commercial property rather than for use by a residence, specifications for the Pumping Test will be determined by the Board on a case-by-case basis consistent with current federal and state regulations and guidelines.

The Applicant shall submit the Pumping Test Report to the Board for review and approval. The Pumping Test Report shall include, but not be limited to, the following:

1. The name and address of the well owner;
2. The well location referenced to at least two permanent structures or landmarks;
3. The date the pumping test was performed;
4. The depth at which the pump was set for the test;
5. The location for the discharge line;
6. The static water level immediately before pumping commenced;

7. The discharge rate;
8. The time the discharge rate changed, if applicable;
9. The pumping water levels and respective times after pumping commenced;
10. The maximum drawdown during the test;
11. The duration of the test, including both the pumping time and the recovery time during which measurements were taken;
12. The recovery water levels and respective times after cessation of pumping; and
13. The reference point used for all measurements.

8.03 The Board reserves the right to require additional testing, analysis, or retesting when, in the opinion of the Board, it is necessary due to test pumping results, local conditions, and/or seasonal low-water conditions. The Board reserves the right to require such testing be done so as to simulate worst-case pumping conditions. All costs for the test pumping are the responsibility of the Applicant.

8.04 In all cases, Private Wells used as a Potable Water Supply must yield a minimum of 2.5 gallons per minute.

8.05 No Private Well used for a Potable Water Supply shall be approved if the average vertical depth of storage in the Private Well is less than 15' at the time of installation, or if the water level in the Private Well fails to recover to eight-five (85) percent of the pre-pumped Static Water Level within a twenty-four (24) hour period.

8.06 Non-Exempt Well Requirements. The following Private Well(s) are considered Junior, Non-Exempt wells, and are governed by the requirements herein for an Impairment Assessment and Augmentation Plan:

- 1) A well in a lot that was part of a subdivision that has not been issued a building permit from the Framingham Building Department as of the effective date of these regulations;
- 2) A well in an Approval Not Required (ANR) lot endorsed by the Framingham Planning Board that has not been issued a Well Permit through the Board of Health as of the effective date of these regulations; and/or
- 3) Semi-Public potable or non-potable Wells on either commercial and/or residential property where the Well Construction Permit and/or Water Supply Certificate has not been issued by the Board as of the effective date of these regulations.

Groundwater use in one area can adversely affect groundwater use in other parts of the aquifer; therefore, the Junior Well shall not impact a Senior Well. When determining water availability, it shall be assumed that groundwater and surface water are hydraulically connected.

8.06 (a) Impairment Assessment: Prior to the approval of a proposed Junior Well, the Applicant and/or developer of the property shall demonstrate to the satisfaction of the Board that the Junior Well(s) will not remove water from the hydrologic system in such a way as to impair Senior Well(s) existing productivity. That is, the Senior Well's yield must not be impacted by the installation of the Junior Well(s). Such a demonstration will be called an Impairment Assessment and shall include the following:

- (1) An Impairment Assessment for all Senior Wells within 1000' of the property

boundary line (prior to the proposed subdivision of land, if any) shall be conducted. Testing and documentation for the Senior Well Impairment Assessment shall be paid for by the proposed project Applicant and/or developer. The Impairment Assessment findings shall be submitted to the Board for review and approval.

(2) A combined, multi-well Pumping Test shall be designed and performed at projected future pumping rates using the formula provided in 8.02, or the projected future rate (whichever is higher) at each well simultaneously. The Pumping Test must demonstrate that there is no impairment to the amount of water available to the existing Senior Well(s).

Owners of Senior Wells that do not allow access to their well(s) for the purpose of such Impairment Assessment testing after a 10-day written notification period by certified mail shall not be included in such Impairment Assessment. Senior Well owners who choose not to participate in said assessment shall be ineligible from any future replacement or compensation for impaired Senior Well rights.

If Impairment Assessment is later determined to have been conducted incorrectly, and the Senior Well experiences a significant decrease in yield from its original yield (in gallons per minute), the Junior Well Applicant or developer of the property must conduct retesting. Owners of Senior Well(s) that were assessed can request retesting of their well up to 4 times per year at the expense of the Junior Well Applicant and/or developer of the property for 2 years after the last occupancy permit has been issued. Senior Well and/or Junior Wells that are not part of said project that do not produce a minimum yield of 2.5 gallons per minute during the assessment are ineligible for replacement or compensation for impairment of Senior Well rights.

8.06(b) Written notification of the Impairment Assessment shall be sent by certified mail to all abutters within 1000' of said project boundary line prior to the subdivision of land. A certified abutters list shall be requested from the Framingham Assessors Office. Proof of mailing shall be submitted to the Board in addition to the notification to abutters. Notification shall include:

- (1) Description of project;
- (2) Project owner's contact information;
- (3) Project Applicant's contact information;
- (4) Information about the Impairment Assessment; and
- (5) Information if the abutter chooses not to subject the abutter's wells to the Impairment Assessment

8.06(c) Impairment Assessment Calculation

A combined, multi-well Pumping Test shall be designed and performed at projected future pumping rates using the formula provided in Section 8.02 or the projected future rate at each well, whichever is higher, at each well simultaneously that demonstrates there is no impairment to the amount of water available to Senior Wells. The multi-well Pumping Test must be conducted in accordance with current MassDEP guidance.

If the Impairment Assessment indicates that the Junior Well water rights will result in adverse effects to Senior Well water rights, then an Augmentation Plan, described in Section 8.06 (d) is required. In addition, if actual water use by Junior Well water rights entity impairs the Senior Well water rights up to 2 years after the date of issuance of the final occupancy permit, an additional Impairment Assessment and/or Augmentation Plan will be required as described in 8.06(a) (1).

8.06 (d) Augmentation Plan: To prevent any adverse effects to the Senior Well(s) water production, the Applicant and/or developer of the property of the Junior Well(s) develops and implements an Augmentation Plan if the Impairment Assessment indicates potential and/or get depletions caused by the Junior Water well user in order to prevent adverse impacts to the Senior Well(s) user. Depletions must be replaced in time, amount, and location.

In addition, the Augmentation Plan must include a plan of action to be taken in the event the yield (in gallons per minute) for Senior Well(s) is significantly impacted after said Augmentation Plan is implemented. In addition, if actual future water use by a Junior Well user impairs the Senior Well water rights up to 2 years after the date of issuance of the final occupancy permit, an additional Impairment Assessment and/or Augmentation Plan will be required as described in 8.06(a)(1).

Any requirement in these regulations for Impairment Assessment, Augmentation Plan, and/or Pumping Test, or other testing, is to be funded by the Applicant for the Junior Well in accordance with Section 13.00 herein.

8.06(e) Upon issuance of the first occupancy permit, the developer of the property and/or Applicant shall provide a non-cancellable surety bond or other form of surety to fund the extension of public water when all other alternatives have been exhausted as described in the project's Augmentation Plan for Senior Wells within 1000' of the property boundary line (prior to the subdivision of land, if any), that are subject to Sections 8.06(a, b, c, d). The amount and form of the surety bond or other form of surety shall be determined by the Board and the Department of Public Works, but in no event shall exceed more than 25 percent of the cost of the entire projected project. The developer of the property and/or Applicant shall submit an inclusive estimate of the costs for extending the public water line to the property for each owner of a Senior Well tested in accordance with 8.06(a, b, c, d), whose well's diminished yield as described herein is not able to be remedied by an Augmentation Plan. This estimate shall be reviewed by the Framingham Town Engineer.

8.07 Installation of a water storage reservoir, excluding an approved water pressure tank, requires approval of the Board or its Agent.

9.00 WATER QUALITY TESTING REQUIREMENTS

9.01 After the Private Well has been completed and disinfected, and prior to using it as a drinking water supply, a water quality test shall be conducted.

9.02 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 Private 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.

9.03 The water quality test, utilizing U.S. EPA-approved methods and MassDEP maximum acceptable limits for drinking water testing and not methods used for analyzing wastewater, shall be conducted by a Certified Laboratory and shall include analysis for the following parameters:

Parameter	Potable	Non-potable
Total coliform bacteria	Yes	Yes
E. coli Bacteria	Yes	Yes
nitrogen (nitrate)	Yes	Yes
turbidity	Yes	No
Volatile Organic Compounds (VOCs)	Yes	No
sodium	Yes	No
alkalinity	Yes	Yes
calcium	Yes	No
chloride	Yes	No
color	Yes	No
hardness	Yes	No
iron	Yes	No ⁴
lead	Yes	No
magnesium	Yes	No
manganese	Yes	No ⁴
nitrogen (ammonia)	Yes	No
nitrogen (nitrite)	Yes	No
odor	Yes	No
pH	Yes	Yes
potassium	Yes	No
sediment	Yes	No
sulfate	Yes	No

9.04 Following receipt of the water quality test results, the Applicant shall submit a Water Quality Report to the Board, which includes:

- (1) A copy of the Certified Laboratory's test results;
- (2) The name of the individual who performed the sampling;
- (3) Where in the system the water sample was obtained; and
- (4) Water sample chain of custody.

9.05 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 the public health, safety and welfare. All costs and

⁴ Although not required, it is recommended to determine these parameters to avoid staining of structures around irrigated areas that are associated with iron and manganese.

laboratory arrangements for the water testing are the responsibility of the Applicant.

10.00 PRIVATE WELL CONSTRUCTION REQUIREMENTS

10.01 Pursuant to 310 CMR 46.00, no Person in the business of digging or drilling shall construct a Private Well unless registered with the appropriate State agency (Massachusetts Department of Environmental Protection).

10.02 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 Private Well and the pump controls shall be made pursuant to an electrical permit. All piping between the Private 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 appurtenances in the Private Well or house.

10.03 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.

10.04 General Private Well Design and Construction

10.04(a) All Private Wells shall be designed such that:

(1) The materials used for the permanent construction are durable in the specific hydrogeological environment that occurs at the Private Well site;

(2) No unsealed openings will be left around the Private Well that could conduct surface water or contaminated groundwater vertically to the intake portion of the Private Well or transfer water from one formation to another.

(b) Permanent construction materials shall not impart toxic substances, taste, odors or bacterial Contamination to the water in the Private Well.

(c) 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.

(d) Private Well construction design shall insure that surface water does not enter the Private Well through the opening or by seepage through the ground surface. Construction site waste materials shall be disposed of in such a way as to avoid Contamination of the Private Well and the Aquifer. During any time that the Private Well is unattended, the Well Driller shall secure the Private Well in a way as to prevent either tampering with the Private Well or the introduction of foreign material into the Private Well.

(e) Private Well yield shall be measured and recorded at least every fifty (50) feet during drilling.

(f) 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 Private Well or the water-bearing zones penetrated by the Private Well. Water shall be conveyed in clean sanitary containers or water lines and shall be chlorinated to an initial concentration between 50 mg/l and 100 mg/l. A free-chlorine residual of 10 mg/l shall be maintained in any water used at the drill site. Water from wetlands, swamps, ponds and other similar surface features shall not be used.

(g) All drilling equipment, including pumps and downhole tools, shall be cleaned and disinfected prior to drilling each new Private Well or test hole.

(h) 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 Private Well, the Aquifer, or the quality of the water to be pumped from the Private Well; surfactants should be biodegradable. The use of biodegradable organic polymers shall, when possible, be avoided.

(i) All Private 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: over pumping, backwashing, surging, jetting, airlift pumping.

(j) The completed Private Well shall be sufficiently straight so that there will be no interference with installation, alignment, operation or future removal of the permanent well pump.

10.05 Well Casings

10.05(a) Private 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 hydrogeological environment.

10.05(b) Steel Casing shall be used with cable tool drilling or when the Casing is installed in an open drill hole in which formation materials may suddenly collapse against the Casing.

10.05(c) All Casing used in the construction of Private 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.

10.05(d) 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 drive shoe 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.

10.05(e) Upon completion of the installation procedure, the entire length of the Casing above the intake shall be watertight.

10.05(f) For Private Wells completed above grade, the Casing shall extend at least twelve (12) inches above the finished ground surface unless the well is located in a floodplain. For Private Wells constructed in a floodplain, the Casing shall extend at least two (2) feet above the level of the highest recorded flood. The top of the Casing shall be reasonably smooth and level.

10.06 Steel Casing

10.06(a) Steel Casing shall consist of schedule 40 pipe that complies with materials standards approved by the American Water Works Association (AWWA).

10.06(b) Segments of steel Casing shall be coupled by using threaded Casing, couplings, or by welding the joint. Recessed or reamed and drifted couplings shall be used on threaded Casing and no threads shall be left exposed once the joint is completed. When welded Casing joints are used, they shall conform to the most recent revision of AWWA C206, "Standard for Field Welding of Steel Water Pipe." The weld shall be at least as thick as the wall thickness of the well Casing and shall be fully penetrating. When completed, a welded Casing joint shall have tensile strength equal to or greater than that of the Casing.

10.07 Thermoplastic Casing

10.07(a) Thermoplastic Casing used in the construction of Private Wells shall be capable of withstanding pressures equal to or greater than 200 pounds per square inch and shall conform to the most recent revision of ASTM Standard F480, "Specification for Thermoplastic Water Well Casing Pipe and Coupling Made in Standard Dimension Ratios (SDR)." In addition, the Casing and couplings shall meet the requirements of the most recent revision of National Sanitation Foundation Standard Number 14, entitled "Plastics Piping System Components and Related Materials." Materials complying with Standard Number 14 can be recognized by the marking "NSF-WC."

10.07(b) Thermoplastic Casing shall be stored in such a manner as to prevent deformation, sagging, or bending. Storage of thermoplastic Casing and couplings in direct sunlight shall be avoided.

10.07(c) Thermoplastic Casing shall be installed only in an oversized drill hole and shall not be driven, pushed or forced into a formation. Thermoplastic Casing shall be joined by mechanical means only. When pulling back thermoplastic well Casing to expose a well screen, the force applied shall not exceed the Casing weight.

10.08 Well Screen

10.08(a) A well screen is necessary for all Drilled Wells that are completed in Unconsolidated Formations. Private Wells completed in bedrock do not require a screen unless the bedrock formation is brittle in nature or has a potential for collapse. 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 Private Well efficiency and yield.

10.09 Grouting and Sealing

10.09(a) Private Wells drilled in bedrock shall be grouted from the top of the weathered rock interface to fifteen (15) feet into competent bedrock. Either neat cement grout or Sand cement grout shall be used and it shall be emplaced using standard grouting techniques as described in the MassDEP Private Well Guidelines.

10.09(b) All Private 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.

10.10 Pumps and Pumping Equipment

10.10(a) All pumps shall be installed either below the frost line with a pitless adapter or in some other heated and protected sanitary location. Aboveground pumps shall be installed in sheltered, dry, accessible locations and shall be protected from freezing.

10.10(b) Shallow-well pumps shall be installed as near the Private Well or Private Water Supply as possible to minimize suction lift.

10.10(c) Deep-well reciprocating pumps shall be installed directly over the Private Well. Submersible and helical rotor pumps must be installed in the Private Well. A deep-well jet pump may be offset from the Private Well.

10.11 Wellhead Completion

10.11(a) Well Casing shall not be cut off below the land surface unless a pitless adapter or a pitless unit is installed; or an Abandoned Well is being permanently plugged. Well Casing terminating above-grade shall extend at least twelve (12) inches above the predetermined ground surface at the wellhead except when the Private Well is located in a floodplain. When a Private 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.

10.11(b) Any Private Well that does not terminate in the base of a pump shall be equipped with a sanitary seal or watertight cap designed to prevent surface water and foreign matter from entering the Private Well. A flowing Artesian Well shall be equipped with a shut-off valve and backflow preventer so that the flow of water can be stopped completely when the Private Well is not in use.

10.11(c) All Private Wells, except flowing Artesian 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 Private 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.

10.11(d) 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."

10.11(e) 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.

10.11(f) The ground immediately surrounding the well Casing shall be sloped downward and away from the Private Well in all directions to eliminate the possibility of surface water ponding.

10.12 Disinfection

10.12(a) Upon completion of Private Well construction, the Well Driller shall disinfect the Private Well. If a pump is to be installed by the Well Driller immediately upon completion of the Private Well, the Well Driller shall disinfect the Private Well and the pumping equipment after the pump has been installed.

10.12(b) If the pump is not installed upon completion of the Private Well, the Pump Installer shall, upon installation, disinfect the Private Well and the pumping equipment. The Pump Installer shall also disinfect the entire water supply system after any maintenance or repair work is done on the pump.

10.12(c) When a Private Well is disinfected, the initial chlorine concentration shall be 100 mg/l throughout the entire water column.

10.12(d) For newly constructed or altered Private Wells in which the pump is not immediately installed, the chlorine concentration used to disinfect the Private Well shall be 100 mg/l. Upon installation of the pump, disinfection of the Private Well, the pumping equipment, and the distribution system, if connected, shall be accomplished with a chlorine concentration of 100 mg/l.

10.12(e) The disinfectant solution shall remain, undisturbed, in the Private Well for a minimum of two (2) hours. After all the chlorine has been flushed from the Private Water Source system, a water sample shall be collected and submitted to a state Certified Laboratory. For new Private Wells, the sample shall be tested pursuant to Section 6.00 of these regulations. For Private Wells which have undergone repair, the sample shall be tested for coliform bacteria and any other parameters deemed appropriate by the Board.

11.00 DECOMMISSIONING REQUIREMENTS

11.01 Abandoned Wells, test holes and borings shall be Decommissioned so as to prevent the Private Well, including the annular space outside the Casing, from being a channel allowing the vertical movement of water. Current MassDEP guidance on well decommissioning shall be followed.

11.02 The owner of the Private Well shall decommission the Private Well if the Private Well,

in the opinion of the Board, meets any of the following criteria:

- (1) Construction of the Private Well is terminated prior to completion of the Private Well;
- (2) The Private Well owner notifies the Board that the use of the Private Well is to be permanently discontinued;
- (3) The Private Well has been out of service for at least one (1) year;
- (4) The Private Well is a potential hazard to public health or safety and the situation cannot be corrected;
- (5) The Private Well is in such a state of disrepair that its continued use is impractical; or
- (6) The Private 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.

11.03 The property owner shall be responsible for ensuring that all Abandoned Wells and test holes or borings associated with Private Well installation are properly plugged. Only Certified Well Drillers may plug Abandoned Wells, test holes and borings.

11.04 In the case of new Private Well construction, all test holes and borings shall be plugged before the Well Driller completes work at the site.

11.05 Abandoned Wells or borings shall be completely filled with a grout which cures with a final permeability of less than 1×10^{-7} cm/sec. Private Wells shall be plugged with neat cement grout, sand cement grout, concrete or bentonite grout.

11.06 Regardless of the type used, the grout must meet the following specifications:

- (1) Shall be sufficiently fluid so that it can be applied through a tremie pipe from the bottom of the Private Well upward to avoid the introduction of air pockets;
- (2) Shall remain as a homogeneous fluid when applied to the subsurface rather than disaggregating by gravity into a two-phase substance;
- (3) Shall be resistant to chemical or physical deterioration; and
- (4) Shall not leach chemicals, either organic or inorganic, that will adversely affect the quality of the groundwater where it is applied.

11.07 The plugging materials shall be introduced at the bottom of the Private Well or boring and placed progressively upward to a level approximately four (4) feet below the ground surface. Sealing materials shall never be poured from the land surface into the Private Well, borehole, or annular space being sealed.

11.08 The Well Driller shall emplace the surface seal no sooner than 24 hours after the Private 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 Private 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 Private 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.

12.00 PRIVATE WELL INSPECTION AT THE TIME OF PROPERTY TRANSFER

12.01 Prior to an occupancy permit issued by the Framingham Building Department, a well inspection will be performed by a qualified well installer that includes determining the location of the Private Well and evaluating the well's equipment. In addition, a qualified professional shall conduct testing, and the results provided to any new owner(s) in accordance with these regulations.

12.02 Prior to selling, conveying, or transferring title to real property in the Town of Framingham, the owner thereof shall have tested the water of every private Potable Well serving that property. A water sample from each well shall be submitted to a Massachusetts-certified laboratory for testing of total coliform bacteria, pH, sodium, and nitrate. Results of the water test shall be submitted to the Board prior to property transfer on a form provided by the Board, on which the owner will certify that the sample(s) was taken from the well(s) serving the property being transferred.

In addition, the owner shall give copies of ALL water test results of which he/she has knowledge (regardless of age of results) for the private Potable Well in question to any buyer and/or broker identified with the transfer, and any current and future tenants of the property. 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 within 10 days of the property being put under agreement. This regulation shall not apply to the conveyance or devise of a property to a surviving spouse or to any of the heirs or devisees of the property owner, and further, shall not apply to a sale under power of sale in a bonafide mortgage affecting the property.

The Seller shall provide a copy of the Private Well location and test results to the Town of Framingham Health Department within thirty (30) days after the inspection has been completed and to the Buyer prior to the closing, but in no case less than twenty-four (24) hours prior to closing.

13.00 PEER REVIEW CONSULTANT

The Board, at its sole discretion, may determine that a project's size, scale, complexity, potential impacts, long-term monitoring, or compliance with the Board's Well Regulations warrant the use of a peer review consultant(s) (including, but not limited to, engineer, planner, lawyer, hydrogeologist or other). Such consultants shall assist the Board in the review and comment prior to action by the Board in project review, inspection and/or other technical or legal assistance necessary to ensure compliance with all relevant laws and regulations. Such assistance may include, but shall not be limited to, analyzing wells, providing legal counsel, and monitoring or inspecting a project or well during construction or post construction for compliance with the Board's Well Regulations. Such consultants shall be selected and

retained by the Board, with the actual and reasonable cost for their services to be paid by the Applicant. (Chapter 593 of the Acts of 1989 M.G.L. Ch. 44, Sec. 53G)

14.00 ENFORCEMENT

14.01 The Board shall investigate violations of these regulations and/or violations of any Water Supply Certificate conditions, and may take such actions as the Board deems necessary for the protection of the public health and the enforcement of these regulations.

14.02 If an investigation reveals a violation of these regulations, or the Water Supply Certificate conditions, the Board shall order the Private Well owner to comply with the violated provision(s).

14.03 These orders shall be in writing and served in the following manner:

(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 the Private Well owner's last and usual place of abode; and by sending the Private Well owner a copy of the order by registered or certified mail, return receipt requested, if the Private Well owner is within the Commonwealth;

OR

(c) If the Private Well owner's last and usual place of abode is unknown or outside the Commonwealth, 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 wherein the Private Well affected is situated.

15.00 HEARING

15.01 The Private Well owner to whom any order has been served 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 petition requesting a hearing on the matter. Upon receipt of such petition, the Board shall set a time and place for such hearing and shall inform the Private Well owner thereof in writing. The hearing shall commence not later than thirty (30) days after the day on which the order was served. The Board, upon application of the Private Well owner, may postpone the date of hearing for a reasonable time beyond such thirty (30) day period if, in the opinion of the Board, the Private Well owner has submitted a good and sufficient reason for such a postponement. At the hearing, the Private Well owner shall be given an opportunity to be heard and to show why the order should be modified or withdrawn. After the hearing, the Board shall sustain, modify or withdraw the order and shall inform the Private Well owner in writing of its decision. 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.

15.02 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 town or in the office of the Board.

15.03 If a written petition 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 any part, each day's failure to comply with the order as issued or modified may constitute an additional offense.

16.00 APPEAL

16.01 Any Person aggrieved by the final decision of the Board may seek relief therefrom within thirty (30) days in any court of competent jurisdiction, as provided by the laws of this Commonwealth.

17.00 PENALTIES

17.01 Any Person who violates any provision of these regulations or who fails to comply with any order by the Board for which a penalty is not otherwise provided in any of the General Laws, shall upon conviction be fined not less than ten (\$10.00) nor more than one thousand (\$1,000.00) dollars. Each day's failure to comply with an Order may constitute a separate violation.

18.00 VARIANCE

18.01 The Board may, after a public hearing, grant a variance to the application of these regulations when, in its opinion, the enforcement thereof would do manifest injustice, and the Applicant has demonstrated that the equivalent degree of protection will still be provided to the Private Water Supply without strict application to particular provisions of these regulations.

18.02 Every request for a variance shall be made in writing and shall state the specific variance sought and the reasons therefore. The writing shall contain all the information needed to assure the Board that, despite the issuance of a variance, the public health and environment will be protected. The Applicant or the Applicant's Agent shall give notice of the hearing, at least ten (10) days prior to the hearing, by certified mail to all abutters within 300 feet of the property line upon which the Private Well is located. The notice shall include a statement of the variance sought and the reasons therefor. Any grant or denial of a variance shall be in writing and shall contain a brief statement of the reasons for denying the variance. A copy of each variance shall be available to the public at reasonable hours in the office of the Board. Any person aggrieved by the decision of the Board may appeal said decision within thirty (30) days in a Court of Competent Jurisdiction.

18.03 Any variance may be subject to such qualification, revocation, suspension, condition or expiration as is provided in these regulations or as the Board expresses in its grant of the variance. A variance may otherwise be revoked, modified or suspended, in whole or in part, only after the holder thereof has been notified in writing and has been given an opportunity to be heard, pursuant to Section 13.00 of these regulations.

19.00 SEVERABILITY

19.01 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 valid and effective.

20.00 EFFECTIVE DATE

20.01 These regulations were adopted by vote of the Board, at its regularly scheduled meeting held on December 18, 2013, and are to be in full force and effect immediately upon adoption. Upon adoption, these regulations shall be filed with the Massachusetts Department of Environmental Protection, Division of Water Supply in Boston.

20.02 These regulations or any portions thereof may be amended, supplemented or repealed from time to time by the Board, with notice as provided by law, on its own motion or by petition.

21.00 DISCLAIMER

21.01 The issuance of a Water Supply Certificate shall not be construed as a guarantee by the Board or its Agents that the water system will function satisfactorily nor that the water supply will be of sufficient quality or quantity for its intended use.