WILTON, NEW HAMPSHIRE

LAND USE LAWS

~~*CISTERN*~~ *FIRE PROTECTION REGULATIONS* – *FIRE CISTERNS AND SPRINKLERS*

SECTION I

ADOPTED September 2, 2020

REVISED TBD, 2022

~~TABLE OF CONTENTS~~

TABLE OF CONTENTS
FIRE PROTECTION REGULATIONS

1.0 AUTHORITY

The Town of Wilton Planning Board hereby adopts the following regulations, pursuant to its authority as set forth under RSA 674: 36, Subdivision Regulations, and RSA 674:44, Site Plan Review Regulations, to provide for adequate fire protection in the Town's new developments.

Other than requirements for (1) approved plans and (2) approval of (a) the cistern and its installation or (b) the installation of a Sprinkler System, in each case as a prerequisite to the issuance of any permit, the Fire Chief may, on a case-by-case basis, waive or adjust any of the requirements ~~for cisterns~~ under these regulations.

2.0 PURPOSE AND APPLICABILITY

Sufficient water supplies are vital to a town's ability to provide fire protection services. Because the Town of Wilton is largely rural and lacks a community-wide municipal water system, fire protection for new developments must depend on other sources of water. Accordingly, under the circumstances set forth in these regulations, fire cisterns shall be installed in new commercial, industrial and/or residential developments so that there is an adequate water supply available to support fire protection operations.

Cisterns shall be installed, in accordance with these regulations, in (1) any subdivision that creates four or more lots, and (2) other developments that, in the determination of the Fire Chief, may not have an adequate water supply to provide year-round fire protection. To the extent that they apply, these regulations shall be addressed specifically in the subdivision and/or site plan review process and nothing contained herein shall be deemed to supersede any of the requirements of the subdivision or site plan regulations.

Where they will, in the opinion of the Fire Chief, provide adequate fire protection in the absence of a cistern, Sprinkler Systems may be installed in lieu of a cistern.

3.0 DEFINITIONS

3.0.1 AASHTO Standards: Standards established by the American Association of State Highway and Transportation Officials, as they may from time to time be amended, modified or replaced.

3.0.2 ASTM Standards: Standards established by the American Society for Testing and Material, as they may from time to time be amended, modified or replaced.

3.0.3 Compaction Test: A test of the backfill compaction once a cistern has been installed. The backfill passes a Compaction Test if it meets the requirements of Section 6.6, Backfilling. The backfill must pass a Compaction Test before the cistern can be approved and become Fully Operational.

3.0.4 Dry Hydrant: A permanent piping system, normally a drafting source that provides access to a cistern.

3.0.5 Fire Chief: The Fire Chief for the Town of Wilton or the Fire Chief's duly authorized designee.

3.0.6 Flow Test: A test of the flow from a cistern after it has passed a Leakage Test. A cistern passes a Flow Test if the fire apparatus can pull and maintain a draft at the rate required by these regulations for two cycles of five minutes each. A cistern must pass a Flow Test before it can be approved and become Fully Operational.

3.0.~~8~~7 Fully Operational: The status of a (1) cistern that meets the standards and requirements set out in Section 5.0, General Requirements, including the inspections and approvals for previously installed cisterns under Section 5.3.4, or (2) Sprinkler System that has been inspected and

approved as set forth in Section 7 and continues to operate at the level of its initial testing results.

3.0.~~7~~8 Leakage Test: A test for leakage from a cistern after backfilling has been completed.~~-~~ A cistern passes a Leakage Test if the tank is filled with water to within one inch of the top cover of the manway and there is zero leakage during the following seven days. A cistern must pass a Leakage Test before it can be approved and become Fully Operational.

3.0.~~8~~9 NFPA Standards: Standards established by the National Fire Protection Association, as they may from time to time be amended, modified or replaced.

3.0.~~9~~10 Responsible Party or Parties: ~~-~~The party or parties that~~,~~ from time to time~~,~~ assume legal and financial responsibility for ~~the~~a cistern or Sprinkler System, its installation and maintenance, and for compliance with these regulations (e.g., developer, builder, structure owner, homeowners' or other association).

3.0.~~10~~11 Sprinkler System: an indoor sprinkler system (1) meeting the requirements of (a) NFPA Standard section 13, 13R or 13D, as applicable to the installation, and (b) any other requirements set forth in Section 7, and (2) otherwise acceptable to the Fire Chief.

3.0.~~11~~12 Vehicle Pad:~~-~~ A level, hard-surfaced area adjacent to a dry hydrant that is large enough and configured so as to allow a fire truck to be connected to the dry hydrant.

4.0 PERMITS

The Wilton Fire Department must issue a cistern installation permit before installation begins. A permit shall issue only after the plans submitted to the Planning Board and indicating the information required below has been approved by the Planning Board and the Fire Chief.

The cistern shall be approved, installed and Fully Operational before any building permit for a structure to be served by the cistern may be issued, and before any combustible materials may be stored on~~-~~site.

5.0 GENERAL REQUIREMENTS

The applicant/developer shall comply with the following general requirements for developments requiring a cistern:

5.1 Compliance with NFPA Standards.

All cisterns and their installation shall comply with the requirements of these regulations and all NFPA Standards, even where NFPA Standards are stricter than these regulations.

5.2 Site Plan Requirements.

The applicant shall provide the following information for review as part of the regular site plan/subdivision plan approval process:

1. In addition to all information otherwise required by the subdivision and site plan review regulations, as well as any additional information required by the Planning Board, the plans shall indicate:
   a. the location(s) of the cistern(s) and the structure or structures to be protected within 1,000 feet of each cistern. No structure shall be more than 1,000 feet from a cistern;
   b. the location(s) of the proposed Dry Hydrant(s);

c. the location(s) and dimension(s) of the Vehicle Pad(s), which shall have been designed in consultation with the Fire Chief, as required by Section 6.2.5;

d. the location(s) and dimension(s) of the easements to be granted to the Town pursuant to these regulations;

e. the Responsible Party or Parties, including whether they will differ over time; and

f. reference on the plans to any conditions, agreements and/or documentation that address the obligations outlined in Section 5.3.

2. A design package for the proposed cistern, stamped by a New Hampshire Licensed Civil Engineer and including the manufacturer's literature indicating compliance with these regulations.

5.3 Responsible Party or Parties.

The Responsible Party or Parties shall own the cistern(s) and shall, at its or their expense, in addition to bearing the costs to obtain, install and maintain each cistern as Fully Operational, as well as any other costs set out in these regulations:

1. Provide the Town of Wilton with a minimum 10-foot easement on all sides of the cistern and an additional minimum 25-foot easement from a driveway or roadway to permit access for fire suppression and testing of each cistern, which easements shall be delivered to the Planning Board for prior approval and recorded with the Registry of Deeds;
2. Maintain year-round access to the cistern(s) and to the Vehicle Pad(s), except to the extent a cistern is located next to a public way, in which case the Town of Wilton shall be responsible for snow and brush removal;
3. Make prompt repairs, as indicated by an inspection or test results or as otherwise required to keep the cistern Fully Operational, all such work to be completed by technicians approved by the manufacturer and in compliance with applicable warranties or other requirements;
4. Bear the costs associated with the biennial inspection and testing of the cistern, including the inspection fee and the cost of refilling the cistern with clean water;
5. If a Responsible Party is a homeowners' association or similar entity, its articles or other governing documents shall provide for the funding of its obligations under these regulations, in form acceptable to the Planning Board and recorded in the Registry of Deeds, including, without limitation, by an obligation to maintain insurance or establish an ongoing capital reserve fund sufficient to defray any projected costs during the entity's existence or as a condition of its dissolution;
6. If the Responsible Party is an individual, developer or builder, it shall provide such security for the timely performance of its obligations under these regulations as the Planning Board may from time to time require;
7. If a Responsible Party fails to timely discharge its obligations under these regulations, the Town of Wilton may perform the obligations for the Responsible Party and place a lien upon each lot within the subdivision served by the cistern for the cost of performance ~~and/or enforcement, such as legal fees~~, which right shall be reflected both on the plans for the development and in the document~~(s)~~ described in subsection 5.3.5 above.

5.4 Inspection, Testing, and Approval.

1. All inspections and tests shall be performed by the Fire Chief, who may engage additional engineering or other resources as deemed necessary, at the cost of the Responsible Party or Parties.

2. The installation of a cistern shall be approved by the Fire Chief, and it shall be deemed Fully Operational, after it has passed the inspections and operational tests set out in subsection 3, and an NH licensed engineer has certified that the cistern as installed complies with the specifications set out in these regulations. No building permit shall be issued for any structure to be served by the cistern until the cistern has been approved and is Fully Operational.

   The Responsible Party or Parties shall pay a fee of $100.00 to the Wilton Fire Department for the Fire Chief to perform the inspections and operational tests required for cistern installation approval.

3. An inspection schedule shall be established for each project before installation begins. During installation, and before the next phase of the installation may begin, the Fire Chief shall inspect:

   - Rough excavation,
   - Tie-down or strapping,
   - Backfill,
   - Accessibility and maintenance of cistern area and easements, and
   - Vehicle pad.

   After any deficiencies identified in the above inspections have been addressed, the Fire Chief shall conduct a random:

   - Compaction Test,
   - Leakage Test, and
   - Flow Test.

4. On a biennial basis, the Fire Chief shall inspect the accessibility and maintenance of the cistern area, easements, and the Vehicle Pad, and perform a Flow Test and a Leakage Test. The Responsible Party or Parties shall promptly address any deficiency identified by the Fire Chief.

   The Responsible Party or Parties shall pay a fee of $100.00 to the Wilton Fire Department for the Fire Chief to perform the inspections and operational tests required for each biennial inspection.

6.0 CISTERN AND INSTALLATION STANDARDS

6.1 Cisterns.

1. The cistern shall be designed to be trouble-free, and shall carry a transferable manufacturer's or reseller's warranty, for a life expectancy of at least 25 years, or such longer terms as may be available and commercially reasonable.

2. The cistern shall be rated ~~to~~for highway loading as required by AASHTO Standards.

3. All piping shall be International steel pipe or schedule 40 PVC in accordance with ASTM Standards. All external piping shall be treated with rust inhibitor and painted red.

4. All connections shall be clean, airtight and use appropriate sealing material according to the manufacturer's specifications.

5. All connections shall be anchored to the cistern to resist movement. Steel piping shall be threaded together at all joints. Schedule 40 PVC piping shall be glued at all joints.
6. The cistern shall be designed and installed so it will not float when empty.

6.2 Tanks, Hydrants and Vehicle Pad.

1. Cisterns shall be constructed of either single-wall fiberglass or precast concrete and designed (a) based on NFPA Standard #1231, Appendix B, Section B-4, and (b) specifically for the site and soil conditions where they will be installed.
2. The rated capacity of each cistern shall be at least 30,000 gallons unless the Fire Chief determines otherwise.
3. The Dry Hydrant shall have a minimum delivery capacity of 1,000 gallons per minute (GPM) for 75% of the cistern's capacity.
4. The Dry Hydrant suction connection shall be located three feet beyond the backfill grade so as to use a single 10-foot length of suction hose to connect to the fire pump when the apparatus is parked on the Vehicle Pad. The suction connection shall be no more than 15 feet above the bottom of the cistern.
5. The size and configuration of each Vehicle Pad shall be designed in consultation with the Fire Chief before an application is submitted.

   ~~A~~ Vehicle Pads should be at least 14 feet wide and 40 feet in length and tapered to meet the roadway with the connection at the center of the pad length. Each Vehicle Pad shall meet both New Hampshire Department of Transportation and Town of Wilton road design and other applicable requirements, and the pitch of the Vehicle Pad and shoulder from the edge of the pavement to the suction connection shall be between one and six percent downgrade.
6. The Vehicle Pad shall be so located as to allow fire apparatus to connect to the Dry Hydrant without blocking a travel lane of the roadway.

6.3 Suction Connections.

1. The suction connection shall be six-inch diameter steel, threaded female connection, with National Standard Thread and a suitable cap.
2. The suction piping system shall be six-inch diameter and capable of delivering 1,000 GPM for 75% of the cistern's capacity.
3. Suction piping shall be supported on the top of the tank and the bottom, six inches above the floor of the tank. All horizontal suction piping shall slope slightly uphill toward the suction connection to effect draining back to the water source.
4. The suction pipe connection shall be between 24 and 30 inches above the level of the grade where the vehicle's wheels are located when the cistern is in use. The distance from the bottom of the suction pipe to the suction connection shall not exceed 14 vertical feet.
5. The suction pipe shall be supplied with an anti-vortex plate measuring a minimum of sixteen inches square (16"~~X16~~ X 16"). The anti-vortex plate shall be attached to the bottom of the tank at least six inches off the floor.

6.4 Filler Connection.

1. The filler pipe shall ~~be~~have a four-inch diameter.

2. The filler connection shall have one four-inch Storz connector with an acceptable cover attached to a 45-degree downward sweep elbow that shall be supported vertically by the cistern. The filler pipe connection shall be 36 inches above the final grade.

6.5 Vent Pipe.

1. The vent pipe shall be six-inch diameter and shall terminate not less than 36 inches above the final grade, with the opening to the pipe facing downward.
2. Vent piping shall have screen covers to prevent access by wildlife or insects, etc.

6.6 Backfilling.

1. The cistern shall be completely piped and inspected by the Fire Chief before backfilling begins.
2. All backfill shall be screened gravel with no stone larger than 1.50 inches and shall be compacted to 95% of ASTM Standard 1557.
3. Cistern bedding shall consist of a minimum of 12 inches of crushed stone from .75 ~~inch~~inches to 1.50 ~~inch~~inches in size, compacted over a permeable geotextile membrane that prevents the stone from merging with the underlying material. No fill shall be used under the stone.
4. There shall be either (a) at least four feet of fill over the cistern, or (b) vermin-resistant foam insulation applied to the top and upper 2 feet of the sides of the cistern and at least two feet of fill over the cistern In each case, backfill shall extend 10 feet beyond the edge of the cistern and have a maximum 3:1 slope, loamed and seeded with a perennial seed mixture.
5. After backfilling, the cistern and all exposed piping shall be protected from vehicular damage by guardrails, large boulders, or concrete-filled steel pipe bollards no less than eight inches in diameter, painted red, and set in the ground below the frost line. The protection closest to each side of the connection shall have a 4-foot opening to the connection being centered.
6. Cisterns shall be equipped with a 32-inch watertight manhole with a locking device as specified by the Fire Chief. Access shall be provided to all sections of the tank.
7. The Responsible Party or Parties shall supply and install identification signs as directed by the Fire Chief and acceptable to the Wilton Highway Department, including, without limitation, "No Parking" signs.

7.0 SPRINKLER SYSTEMS

The Fire Chief may waive, in whole or in part, ~~these~~ requirements to install a cistern pursuant to these regulations to the extent that some or all of the structures within a development are to be equipped with Sprinkler Systems or are otherwise served by sufficient Town water supplies~~. The plans submitted to the Planning Board~~, provided that the Sprinkler System meets the requirements set forth in this Section 7 and any other requirements imposed by the Fire Chief~~.~~. Except as permitted by applicable law, nothing in this Section shall be deemed to require the installation of a Sprinkler System in a proposed one- or two-family residence as a condition of approval for a local permit, per RSA 674:36, IV and RSA 674:51, V.

7.1 General Requirements.

1. As part of the regular site plan/subdivision plan approval process, the applicant shall, in addition to all information otherwise required by the subdivision and site plan review ~~and approval shall~~ regulations, (a) indicate where Sprinkler Systems will be installed ~~and~~ , (b) provide design documents and manufacturing specifications and information, (c) identify and confirm their compliance with applicable standards, ~~and~~these regulations and any other requirements imposed by the Fire Chief, and (d) provide any additional information required by the Planning Board or the Fire Chief.

2. Before a building permit may issue, (a) the Sprinkler System design shall have been accepted and approved by the Fire Chief and (b) the Responsible Party or Parties shall post a bond in an amount determined by the Planning Board to guarantee the completion and operability of ~~all Sprinkler Systems. No certificate of occupancy for a structure shall issue unless the Fire Chief determines that the Sprinkler System is operational and complies with all applicable standards. Nothing in this paragraph shall be interpreted to be a requirement for the installation of a fire suppression Sprinkler System in a proposed one- or 2-family residences as a condition of approval for a local permit, per RSA 674:36, IV and RSA 674:51, V~~the Sprinkler System.

3. Before a certificate of occupancy may issue, the Fire Chief shall have determined that the Sprinkler System is Fully Operational, based on an inspection and tests by the installer in the presence of the Fire Chief, including a flow test at the most hydraulically demanding location on the system with results acceptable to the Fire Chief. The installer shall provide a certified copy of all testing results indicating the Sprinkler System's compliance with all applicable NFPA Standards, these regulations, and any additional requirements imposed by the Fire Chief.

7.2 Additional Requirements.

1. Bathrooms of any size shall be sprinklered.

2. Any enclosed spaces containing furnaces, boilers, water heaters (other than electric water heaters) or other mechanical shall be sprinklered.

3. Sprinkler System pumps and tanks shall be installed no less than seven (7) inches, and no more than nine (9) inches, above the lowest solid permanent floor of the structure served by the Sprinkler System. The materials used to accomplish this shall be permanent, solid and not allow any voids under the pump or tank installation.

4. Circuit breaker(s) powering components of the Sprinkler System shall be protected by a lockout device acceptable to the Fire Chief.

5. Sprinkler Systems shall be equipped with an external alarm horn, as well as an internal notification alarm, that will alert all occupants of the building upon system activation, which may be accomplished by connecting the Sprinkler System to the smoke detector system.

6. Residential Sprinkler Systems that are not supplied by a municipal water system or an elevated tank shall be equipped with an automatic standby electric generator to ensure operation during power outages.

7. Developers shall provide educational material to all purchasers of residences equipped with a Sprinkler System, including information on how to test operational components of the system.

7.3 Responsible Party or Parties.

The Responsible Party or Parties shall, at its or their expense, (1) bear the cost to obtain, install and maintain each Sprinkler System as Fully Operational, (2) make prompt repairs, as required to keep the Sprinkler System Fully Operational, all such work to be completed by technicians approved by the manufacturer and in compliance with applicable warranties or other requirements, and (3) provide to the Fire Chief, every other calendar year following issuance of a certificate of occupancy, written evidence that the Sprinkler System remains Fully Operational, based on an inspection as described in Section 7.1 (3) above. In the absence of such evidence, the Wilton Building Inspector may revoke the existing certificate of occupancy for the premises served by the Sprinkler System.