

**Town of Wilbraham Water Department 240
Springfield Street
Wilbraham, MA 01095**



Rules and Regulations

Revised June 2022

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SECTION 1: INTRODUCTION AND GENERAL PROVISIONS

1.1 INTRODUCTION

Any person, group, business, or corporation who is supplied by the public water distribution system shall be required to comply with the following Rules and Regulations established by the Board of Water Commissioners. The Board of Water Commissioners reserves the right to final interpretation or variance to these Rules and Regulations.

1.2 DEFINITIONS

The definitions presented in this section shall serve as a reference for the terminology utilized in the Rules and Regulations.

Air Gap - A physical separation sufficient to prevent backflow between the free-flowing discharge end of the potable water system and any other system. Physically defined as a distance equal to twice the diameter of the supply side pipe diameter but never less than one (1) inch.

Approved – Accepted by the Reviewing Authority as meeting an applicable specification stated or cited in this regulation or as suitable for the proposed use.

Approved Backflow Prevention Device or Devices – A method to prevent backflow approved by the MassDEP for use in Massachusetts.

Atmospheric Vacuum Breaker - A device which prevents back siphonage by creating an atmospheric vent when there is either a negative pressure or sub atmospheric pressure in the water system

Auxiliary Water Supply - Any water supply, on or available, to the premises other than the purveyor's approved public potable water supply.

Backflow – The flow of water or other liquids, mixtures, or substances into the distribution pipes of a potable water supply from any source other than the intended source.

Backflow Preventer - A device or means designed to prevent backflow or back siphonage. Most commonly categorized as Air Gap, Atmospheric Vacuum Breaker, Double Check Valve Assembly, Reduced Pressure Zone, Pressure Vacuum Breaker, Hose Bib Vacuum Breaker, Residential Dual Check, Double Check w/Intermediate Atmospheric Vent, and Barometric Loop.

Backpressure - A condition in which the owners' system pressure is greater than the supplier's system pressure.

Back-siphonage - The flow of water or other liquids, mixtures or substances into the distribution pipes of a potable water supply system from any source other than its intended source caused by the sudden reduction of pressure in the potable water supply system.

Bill – A written statement issued by the Water Department to a customer, in which is set forth the actual or

estimated amount of water consumed through the period stated on the bill, all charges due for water service during such period, and such additional information as may be required under these Regulations.

Board of Water Commissioners – Three member elected board that governs the Wilbraham Water System in Wilbraham and Ludlow as allowed by MGL Ch.40 S. 39A.

Charges and Rates – All fees, rates, and other charges for water services, facilities, and commodities which are furnished or supplied by the Water Department and which it is authorized under the MGL Ch.41 S. 69B to repair, revise, charge, and collect.

Containment - A method of backflow prevention that requires a backflow prevention device at the service connection after the Water meter. (High Hazard applications)

Contaminant – Any physical, chemical, biological, or radiological substance or matter in water.

Cross Connection – Any actual or potential connection between a distribution pipe of potable water from a public system and any waste pipe, soil pipe, sewer, drain, or other unapproved source.

Cross Connection Violation Form – A violation form designated by the MassDEP, which is sent to the Owner by the water supplier with copies sent to the MassDEP, plumbing inspectors, and Board of Health delineating cross connection violations found on the Owner's premises and a procedure for corrective action.

Customer – The person or entity listed on the records of the Water Department as the party responsible for payment of bills for charges for water to a building, whether or not the premises are occupied by the customer or the customer's authorized representative(s).

Delinquent Account – An account with the Water Department that remains unpaid 30 days after the date of issuance.

Double Check Valve Assembly – A backflow prevention device that incorporates an assembly of check valves, with shut-off valves at each end and appurtenances for testing.

Demand Notice – A notice indicating the scheduling of termination of water service in addition to a water shut-off/turn-on fee, mailed by the Water Department to accounts that remain unpaid after the billing due date.

Equivalent Dwelling Unit (EDU) – Representative of the water capacity required to serve an average single family residential customer (4 bedrooms).

Fee Schedule – List of charges imposed by the Board of Water Commissioners for services provided by the Water Department reviewed and updated by the Board of Water Commissioners at public meetings as necessary.

In-Plant Protection – The location of approved backflow prevention devices in a manner that provides simultaneous protection of the public water system and the potable water system within the premises.

MassDEP – The Massachusetts Department of Environmental Protection

Private Road - For the purpose of these Rules and Regulations, a private road shall mean a existing street or way that is privately owned and listed in Appendix A used by abutting land owners in semi-public fashion and is private only by reason of the fact that it has not been laid out and accepted as a public way or street by

the Selectmen and by vote of a Town Meeting. Exceptions include roads within developments designed and approved to be maintained by the owner or its designee.

Private Water System-Water system under the control of the Water Department on private property not located on the private road list in Appendix A or a Town easement designed and Town approved to be maintained by the owner or its designee.

Public Water System- All water mains (pipes), valves, fire hydrants, storage tanks and other appurtenances used for the purposes of providing drinking water which either originally or subsequently are within public roads, private roads listed in Appendix A streets or Town easement and considered part of the Wilbraham Water Distribution System.

Service Connection- All branch connections off of the municipal water system to individual houses, commercial or industrial establishments, piping on private property around residential, commercial or industrial properties, and branch connections intended to provide water service to private property. Water service piping includes but is not limited to service fittings, meters, auto reader, piping, service/gate boxes connected to the public water main typically on Town property or a Town easement.

System Development Charge – A one time charge for new water system customers or developments for system capacity or increased capacity for existing customers. Methodologies developed using the AWWA M1 Principles for Water Rates, Fees and Charges.

Nonexclusivity of Remedies – Nothing shall be construed to limit or infringe upon the right of the Water Department to:

(1) Make, without notice, such temporary interruptions in water service as it deems necessary on a routine or emergency basis for restoration, repair or replacement of the water works system as defined in the Special Acts, or

(2) Pursue its remedies for the unauthorized use, meter tampering, theft of water, diversion of water or for damage to the Water Department's property under other regulations promulgated by the Water Department, or other applicable laws.

(3) Water use restrictions

Owner – The person or entity shown on the records of the Town Assessors of the Towns of Wilbraham and Ludlow as the owner of a building, or any unit thereof, to which water service is supplied.

Potable Water - Water from any source that has been approved by the Department for human consumption.

Pressure Vacuum Breaker - An approved backflow prevention device designed to prevent only back siphonage and which is designed for use under static line pressure and which has necessary appurtenances for testing.

Reduced Pressure Backflow Preventer -An approved backflow prevention device incorporating (a) two or more check valves, (b) an automatically operating differential relief valve located between the two checks, (c) two shut-off valves, (d) necessary appurtenances for testing.

Residential Building – A building containing one or more dwelling units occupied by one or more residential

occupants, but excluding cooperatives, nursing homes, hotels, and motels.

Regulatory Agency - The Massachusetts Department of Environmental Protection

Residential Dual Check -An assembly of two spring loaded, independently operating check valves without tightly closing shut-off valves and tests cocks. Generally employed downstream of the water meter to act as a containment device.

Reviewing Authority – The MassDEP, its Designee, The Town of Wilbraham, its Designee or the local plumbing inspector, authorized by M.G.L. c. 142 and licensed by the Board of State Examiners of Plumbers and Gas Fitters, whichever is responsible for the review and approval of the installation of an approved backflow prevention device.

Unapproved Source - The source or distribution system for any water or other liquid or substance that has not been approved by the Department as being of safe and sanitary quality for human consumption.

Water Impact Assessment Fee – A fee charged to the owner if a consultant is needed to analyze the impact of the proposed development on the Town’s water system.

Water Meter – A device for measuring and recording the water consumption at a building, installed by or at the request of the Water Department, and used for billing by the Water Department. All water services are required to have a functioning water meter. The Water Department has a right of entry to all meter pits.

Water Rates – The schedule of charges used to calculate customer water bills which may consist of volumetric and fixed or base charges established by the Board of Water Commissioners and reviewed and updated at public meetings set to the appropriate amount of funds needed to operate and maintain the Wilbraham Water System.

Water Shut-Off/Turn-On Fee – A fee added to any bills or charges for the termination and/or reactivation of water service.

1.3 AUTHORITY TO ADOPT RULES AND REGULATIONS

These Regulations are adopted pursuant to the authority granted to the Water Commissioners and Water Department.

1.4 APPLICATION; NONEXCLUSIVITY OF REMEDIES

These Regulations shall apply to all water customers, billing and collections of charges for water service, water service connections, and to termination of service for nonpayment of the same. The following rates and regulations, and all subsequent changes in same or amendments and additions thereto, shall constitute a part of the contract with every person, corporation and owner of property supplied with Town water, and every such person, corporation and property owner using such supply shall be considered as having expressed consent to be bound thereby. The Water Department shall have the authority to require a written contract for water users if deemed in the best interest of the Wilbraham Water Department and/or to comply with local, state and federal regulations.

A copy of these regulations may be obtained upon request, and all persons are requested to read the same carefully, as failure to know the Rules and Regulations will not excuse anyone from the consequences of neglect or infringement of such Rules and Regulations.

Nothing in these Regulations shall, however, be construed to limit or infringe upon the right of the Water Department to pursue any other remedies available under applicable laws for the collection and enforcement of charges for water service.

SECTION 2: WATER SERVICE

2.1 INTRODUCTION

The purpose of this section is to inform owners of the procedures associated with applying to the Wilbraham Water Department for a new, modified or property change of use water connection. This section discusses the application procedures for new water service and outlines general requirements for new, modified or property change of use service connections and pipeline extensions. More detailed information on material standards and construction standards are presented in Sections 5 and 6, respectively.

2.2 WATER SERVICE CONNECTION APPLICATION

Each application for a new, modified, or property change of use water service must be submitted to the Water Department on forms provided for that purpose. The form must be completed by a qualified professional and signed by the owner of the property requesting service or by its authorized representative. The application must describe the extent of water connection required, include the date of application, the location of the property, service size(s), estimated peak hourly, peak day demand, average daily demand and the purpose for which water is to be used. Fire flow demand must be included.

The Water Department reserves the right to set an expiration date for water service connection permits and/or require an additional impact assessment after the expiration date of the water service connection permit.

All charges for water service and water consumed will be billed to the property owner. Payment to the Town is the ultimate responsibility of the property owner.

The Water Department reserves the right to refuse, restrict or limit water service to any real estate or location where, in its opinion, proper and adequate service cannot be provided under the guidelines set forth by the Massachusetts Department of Environmental Protection or other regulatory codes, or where the extension of such water service would be detrimental to the existing water system.

Applications for water service connection to residential, institutional, commercial, or industrial developments shall be submitted to the Wilbraham Water Department for approval along with a site plan prepared by a Massachusetts Registered Professional Engineer or other qualified professional unless waived by the Water Department showing existing and proposed property dimensions, building locations and utility locations. All water system extensions serving new subdivisions or developments must be looped unless waived by the Water Department.

2.3 WATER SERVICE CONNECTIONS

All connections off existing public water mains are classified as water service connections with the exception of a water main extensions intended to become a public water main, regardless of size. Service connections shall conform to the requirements of the Water Department's Rules and Regulations.

The ownership and entire cost of all service connections, from the main line to the inside of the cellar wall to the point of termination, as applicable, shall be borne by the property owner or designee applying for water service connection.

The Water Department shall coordinate and may perform the water service tap of the public water main at the expense of the owner and in accordance with the Water Department Fee Schedule. The owner is also responsible for the remainder of the water service connection to the building. Payment for water service connections will be required by the Water Department before a water connection permit is issued.

Property owners are responsible for the cost and construction of their own system of pipes, hydrants, valves, and service connections to the new buildings within the development or on Town property if required to provide service to the development. If the Water Department performs work on a private property, the owner will be charged for all work carried out by the Water Department in accordance with the Water Department Fee Schedule or an alternative charge approved by the Water Commissioners. The Water Department reserves the right to refuse work on private property.

2.4 Meter and Meter Pits

Meters are required for all users and must be installed by a licensed plumber. Meter pits are required for all new or redevelopments or redeveloped services unless waived by the Water Department. Meter pits may be required if the water service to a single family home is longer than 50' or proposed in a location that has limited access for repairs. At their expense, the property owner shall install a meter pit, meter and meter reading device in an approved below grade enclosure at the street line near the curb stop. Under this arrangement, maintenance to the meter pit, and service pipe from the meter enclosure to the building shall be the property owner's responsibility. The Water Department maintains and/or replaces the meter unless damage from negligence or tampering. The Water Department has the right to require a meter pit on all properties including residential applications if deemed in the best interest of the department.

2.5 PIPELINE

All main pipe extensions and associated water infrastructure private or public shall be installed in accordance with Local, State and Federal Regulations. Engineered plans and specifications shall be submitted to the Water Department for approval.

No main pipe extension or service connection will be installed until the street or property through which the pipe will pass has been brought to sub-grade.

2.6 ALTERATIONS IN WATER SERVICE PIPING

All alterations in the water service piping shall not be made without obtaining a Water Service Connection Permit. Water service piping shall include service fittings, meters, piping, service/gate boxes, etc.

The Water Department is not responsible for the actions of any property owner who alters land contours, sidewalks, driveways, or landscaping arrangements which cause the life of the pipe to depreciate due to freezing or lack of pipe depth coverage. Relocation or repair of the water service shall be the responsibility of the property owner.

SECTION 3: CONDITIONS FOR WATER SERVICE

3.1 INTRODUCTION

The purpose of this section is to define the requirements for submitting a development plan to the Water Department for water service connection and explanation of associated fees listed in the Water Department Fee Schedule.

3.2 GENERAL REQUIREMENTS

All requests for new, modified or change of use service connections shall submit a *Water Service Connection Application*.

In the event the Water Department determines that the proposed development can be properly served by the municipal water system, then the owner shall submit to the Department a plan of the water piping system that meets the requirements outlined in Section 4, "Conditions of Construction".

In the event the Water Department determines that the proposed development cannot be served by the municipal water system, then the owner's only alternative will be to utilize individual wells for water supply. Private re-pumping of the municipal water system must be approved by the Water Department.

Water Impact Assessment Fee

The Water Department may charge the owner a review fee or engineering fee shown in the Water Department Fee Schedule if a third party consultant is required to analyze the impact of the proposed development on the Town water system.

Water Department Connection Fees

Using the M1 Principles of Water Rates, Fees and Charges published by the American Water Works Association (AWWA), the Board of Water Commissioners has established connection fees for all new, modified or property change of use water service connections. Applicants are responsible to pay the applicable fees to the Water Department at the time of application unless an alternate payment schedule is approved by the Water Commissioners. Fees are as follows:

Single Family Home

A connection fee for a residential single family home located on a public water system.

System Development Charge (SDC)

A connection fee for residential units or non-residential developments.

The Water Department has in the past and continues to expend capital improvement funds to provide for and maintain a water supply and distribution system that meets the service area water supply needs, complies with applicable regulatory requirements and is upgraded as the system ages. System Development Charges help finance the past and future development of growth-related or capacity-related water facilities and are

an important funding/financing source for these facilities. SDCs are normally paid upfront unless otherwise approved by the Water Commissioners.

All approved new and/or modified water service connections or a property change of use are subject to a System Development Charge (SDC).

$$\frac{\text{System Value (\$)}}{\text{Maximum System Capacity (GPD)}} \times \text{Customer Capacity Demands (GPD)} = \text{SDC (\$)}$$

Gallons per Day (GPD)
Million Gallons per Day (MGD)

System Value is based on a combined approach of the value of existing system's capacity and the cost to expand the existing system's capacity or infrastructure. The Water Commissioners shall evaluate the SDC minimum every two years and update on on the Water Department Fee Schedule as necessary.

System Capacity is the Massachusetts Water Resource Authority (MWRA) contractual maximum daily limit.

Customer Capacity Demands shall be calculated using 310 CMR 15.203 or another Water Department approved engineering method. The net demand between existing and proposed use shall be calculated for a change of use using the existing flow data on file from the Water Department if available. New water main connection are considered new service connections.

In addition to or in lieu of a SDC, the Water Department may also require an owner to reimburse the Town for the total or proportional cost of infrastructure upgrades necessary to provide water to the proposed development. The Water Department may require the owner to complete the work in lieu of reimbursement.

If a proposed development uses more than 30% of the estimated daily or annual usage, the water department shall reserve the right to invoice the development the additional SDC and/or restrict water usage for non-essential use (i.e. irrigation).

Fire Service Connection Fee

A Fire Service Connection Fee shall be charged for all connections based on the inch diameter of the fire service in accordance with the Water Department Fee Schedule.

SECTION 4: CONDITIONS FOR CONSTRUCTION

4.1 INTRODUCTION

This section describes the conditions of construction that the owner must meet if the Water Department has determined that the development can be served from the municipal water system and the owner proceeds with its development.

4.2 PLAN SUBMITTALS

Plans submitted to the Planning Board, Zoning Board of Appeals, Conservation Commission or any other Town Board or department shall include engineered design plans and an Engineer's Report which will be used by the Water Department for review and/or approval of the water infrastructure design.

The plan submitted to the Water Department shall show existing and proposed streets, water infrastructure, utilities, buildings, property lines, and 2-foot counters. The Engineer's Report shall include proposed peak hourly, peak day and average day flows including fire flow requirements. The plan and report shall be prepared in a professional manner and in sufficient detail to permit engineering analysis and shall be prepared and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts.

4.3 PIPING SYSTEM DESIGN REQUIREMENTS

The piping system shall meet the following minimum requirements and shall be subject to the approval of the Water Department.

- a. Pipe shall be Ductile Iron, 8-inch minimum, designed in accordance with AWWA C150, and manufactured in accordance with AWWA C151. Buried pipe and fittings shall be Class 52 with push on joints.
- b. Hydrants shall be spaced at 350 feet minimum.
- c. Hydrants along a street shall be located opposite the common property line of two lots.
- d. Every hydrant shall be equipped with a 6-inch shut-off valve, bolted or anchored to the hydrant tee.
- e. Valves on straight runs of pipe shall be spaced no more than 800 feet apart and as determined by the Water Department.
- f. Connections to the existing water system shall be made by a cut-in and shall be valved three ways. Under various circumstances, the Water Department may allow the use of a tapping sleeve and valve.
- g. Dead ends shall be avoided by looping of all water mains. Developments will not be served water where many dwellings (maximum of 4) are on dead- end distribution piping, which in the Water Department's opinion can be avoided by constructing a water main loop in a reasonable manner. Dead ends will be eliminated by looping even if the owner must provide easements for such pipe construction. Acquisition of property or easements and related engineering services necessary for looping shall be the responsibility of the owner. Easement width shall be 20 feet minimum and subject to upward revision depending upon pipe diameter

- h. All water mains and service pipe shall be laid in a trench separate from any other utility. The horizontal distance between water mains or service pipe and any other utility shall be a minimum of ten feet. Exception to this rule shall be at the discretion of the Water Department or its assigned representative.
- i. All materials shall be in accordance with Section 5, "Material Standards". All material shall be new and shall be of the type currently used by the Water Department Water Department
- j. All construction shall be in accordance with Section 6, "Construction Standards". All construction shall be of the best quality, in accordance with the current practice of the Water Department
- k. Fire Service Connections shall be a minimum of 6-inch and metered separately.

4.4 TIME FRAME FOR CONNECTIONS

Connections to the existing water distribution system may be made only during the period beginning April 1st and ending December 1st unless otherwise approved by the Water Department. Connections outside of this period may be made only if the owner assumes full responsibility for maintenance and repair of the excavated area and provides the necessary equipment and manpower to excavate, backfill, and restore the trenched area to the satisfaction of the Department of Public Works. The owner shall be required to obtain the necessary permits to excavate within the public ways and shall be subject to any conditions imposed thereon. Preparation and restoration of any road or sidewalk surface shall be in accordance with the Wilbraham Department of Public Works Specifications.

4.5 RESPONSIBILITY FOR CONNECTIONS

At the discretion of the Water Department, tapping the water main may be performed by the Water Department at the owner's expense or by the owner at their expense. The owner shall hire a licensed contractor to complete the tap and/or the remainder of the water service connection to the building. In its entirety the owner shall pay the full cost of the labor, materials, and equipment required for the water service connection in accordance with the Water Department Fee Schedule.

4.6 DEVELOPMENT OF SUBDIVISIONS

Within a subdivision, all water infrastructure shall be installed by the Owner in accordance with plans approved by the Water Department. Maintenance of the water infrastructure is under the control of the Water Department and shall be maintained by the Owner until the road and infrastructure is accepted as a public way at Town Meeting.

4.7 WATER INFRASTRUCTURE LOCATED ON PRIVATE PROPERTY

All water piping systems and associated infrastructure located within private developments shall comply with Local, State and Federal regulations. If a consecutive system meets the five criteria described in 310 CMR 22.04(3) they do not have to be regulated independently as a Public Water System by DEP and maybe regulated, if approved by, and under the control of the Water Department. The water infrastructure shall be maintained by the owner at their expense. The Water Department shall have the authority to require the property owner(s) to make infrastructure improvements, provide updated Operation and Maintenance Plans and and/or provide documentation of maintenance and compliance with the Federal, State and Local

regulations through a legal agreement or these regulations.

Unless otherwise stated in a legal agreement, the Water Department has the authority regulation, operate and maintain water mains and associated infrastructure on private roads listed Appendix A without notification or permission from the owner(s). Water services shall be maintained at the owner's expense.

4.8 INSPECTION OF CONSTRUCTION

All construction by the owner's contractor shall be subject to inspection by either Water Department personnel (when available) or by personnel of its consulting engineer. The cost of such inspection shall be charged to the owner. The owner shall coordinate its construction activity so that this inspection can be provided easily and economically. If approved by the Water Department, the owner may hire its own inspector.

4.9 INSPECTION OF CONSTRUCTION

Upon the completion of the construction of a development water distribution system, whether housing, commercial or industrial, including but not limited to, all piping, hydrants, valves with boxes, service pipelines including corporations to curb boxes, servicing all building lots, said water distribution system shall not be considered for acceptance until As-Built Drawings has been filed and accepted by the Water Department. Said plans shall show dimension ties to valve boxes, curb stops and buried fittings, including corporations, as well as locations where water pipelines, other than service lines, cross other buried utilities such as sewers, drains, power, television, gas, telephone, etc. and any fire service lines shall be shown on said plans. However, As-Built Drawings of Commercial and Industrial Water Distribution Systems need not identify service pipelines to parcels of land not yet sold to a known water user.

4.10 WATER SYSTEM USAGE

The owner and/or its contractor shall not operate any hydrants, valves, curb stops, or corporations, nor shall they draw any water from the system without the specific approval of the Water Department.

No contractor, owner, or other entity shall be allowed to use town water for building, construction, or private purposes without of the Water Department. Any such temporary water service will be subject to charges for installation, and for water usage, as well as a service charge each time the Water Department has to turn it on or off in accordance with the Water Department Fee Schedule. Water usage will be metered or estimated and will be charged for at the prevailing water rates.

Valves, hydrants, corporations, and curb stops will be operated only by Water Department personnel, unless authorized by the Water Department. Failure to conform to these requirements will result in fines and loss of water service.

4.11 CHARGES FOR WATER SERVICE

Any person, group, business, or corporation applying for water service shall be subject to connection charges if the Water Department performs the work. The owner shall be subject to and shall pay the following charges:

- a. **Rock Excavation** - A charge on a cost reimbursement basis will be made for all rock excavation in connection with a service installation or main pipe extensions on existing streets and shall be paid for before water is turned on. In new developments or services where ledge, hard rock, or severe terrain interferes with construction of the necessary activities of the Water Department Fire Water Department No.1, a private contractor will be hired and its services will be billed to the property owner. In new and old constructions where the Water Department Water Department reconstructs piping and conditions are hazardous because of another utility's

encroachment, the Water Department reserves the right to relocate water mains or services at the expense of the property owner.

- c. **Connection Charge** - A service connection charge is a charge for each connection to the existing water system and/or a service connection off of a private water system for domestic use or for fire protection purposes. The charges are subject to change without notice.
- d. **Construction Cost** - The owner shall bear the entire cost of constructing the proposed main piping and service pipe system as shown on the approved Definitive Plan.

Final Acceptance - When the owner's water system has been completed, has met all requirements of the Water Department and all charges have been paid, the Water Department will certify the work and provide water service.

SECTION 5: MATERIAL STANDARDS

5.1 INTRODUCTION

This section specifies the material standards with which owners and their contractors shall conform for construction projects for the Water Department. This section covers specifications for pipe, pipe joints, fittings, tapping sleeves, couplings, gate valves, tapping valves, valve boxes, hydrants, hydrant tees, service piping and connections, meter pits, and service location.

5.2 PIPE

Distribution system pipe shall be at least 8-inches in diameter, shall be either Class 52 ductile iron pipe, double cement lined and seal coated with a bituminous outside coating or C-909 PVC pipe per AWWA Specifications. All ductile iron pipe for a particular development or replacement project shall be from a single manufacturer and shall be manufactured in the United States. The pipe shall be manufactured by U. S. Pipe & Foundry Company, Griffin Manufacturing or Atlantic States Corp. All PVC C-909 pipe for a particular development or replacement project shall be from a single manufacturer and shall be manufactured in North America. The pipe shall be manufactured by IPEX, or JM Eagle Corp. Private service connections, whether for fire protection or domestic service, shall be determined by the Water Department at the time of preliminary plan review.

Pipe used for developments shall be 8-inches unless otherwise approved by the Water Department

Pipe used for hydrant branches and sprinkler lines shall be at least 6-inches in diameter and shall meet the above-mentioned specifications.

On all water pipe and fittings, the contractor shall make provisions for the electrical continuity of the pipeline by inserting two bronze wedges into the joint. Wedges shall be placed as close to the 3 o'clock and 9 o'clock positions as possible.

The contractor shall furnish and install a polyethylene encasement over the ductile iron pipe in accordance with AWWA Specifications as deemed necessary by the Water Department. Polyethylene shall be manufactured in accordance with the requirements of ASTM Standard Specification D-1248, Polyethylene Plastics Molding and Extrusion Materials and shall be in the form of a tube. Installation of wrap shall be in accordance with method "A" of AWWA Specification C105 and shall encase all pipe, fittings, valves, and all other appurtenances.

5.3 PIPE JOINTS

Tyton pipe joints are recommended on straight runs of pipe. Gaskets shall be standard for pipe used and approved by the Water Department, shall be manufactured in the United States, and shall comply with applicable AWWA Specifications.

The Water Department Water Department may require under certain terrain conditions that restrained type joints be used. The method of restraint may either be an interlocking type or mechanical joint with restrainer gland as specified by the Department.

All fittings, bends, valves, sleeves, or other mechanical type joints shall be restrained with the use of retainer glands. Concrete thrust blocks shall also be used at all tees, bends (regardless of the deflection angle or direction), hydrants, caps, and plugs.

Mechanical joint retainer glands shall be installed on all fittings. Retainer glands shall be specifically designed to fit standard mechanical joint bells with corrosion resistant, low- alloy T-head bolts conforming to AWWA Specifications. Retainer glands shall be U.S. Pipe Field Lok kits or equal.

These devices shall have a minimum 350 psi pressure rating with a minimum safety factor of 2:1. Glands shall be listed with Underwriters Laboratories and/or approved by Factory Mutual. Set screws shall be of hardened ductile iron and require the same torque in all sizes. Steel set screws are not permitted.

5.4 FITTINGS

Ductile iron fittings must be used and shall be cement-lined. Fittings are required to be equipped with mechanical joints and retainer glands unless otherwise specified by the Water Department. Mechanical joint fittings in sizes 4-inch through 12-inch shall be ductile iron compact fittings and rated for 350 psi working pressure. All nuts and bolts shall be of a type equal to ductile iron or KOR-10 steel T-bolts and nuts.

5.5 TAPPING SLEEVES

Tapping sleeves shall only be allowed for private service connections as determined by the Water Department. The sleeve shall be of a type equal to the Power Seal Style manufactured by the Power Seal Company, Inc. The body shall be Stainless Steel. The flange shall be either steel-flat faced, or mechanical end recessed for the tapping valve, AWWA C207 Class D-ANSI 150 Lb. Drilling. Nuts and bolts shall be 18-8 Stainless Steel. The gasket shall be Buna-N (Nitrile) ASTM D2000 BA508, resistant to water, oil and hydrocarbon fluids with a maximum 212 degree F continuous service. The sleeve shall be provided with a 3/4" test plug to ensure proper seal before tapping.

5.6 TAPPING SADDLES

Tapping saddles shall only be allowed for private service connections as determined by the Water Department. The saddle shall be of a type equal to the Smith Blair Style 317 Double Stainless Steel Strap Flexi-blue epoxy coated Iron Service saddle with a working pressure equivalent to 300 psi.

5.7 COUPLINGS

Couplings shall only be allowed when connecting standard outside diameter pipe to oversized or pit cast pipe. The coupling shall be of a type equal to TPS Hymax style, Romac Macro Style, or an approved equal. Couplings shall be provided with plain, Grade 27 rubber gaskets and with black, steel, track-head bolts with nuts.

5.8 GATE VALVES/TAPPING VALVES

The resilient wedge gate valves shall comply with all requirements of AWWA Specifications C509 or C515, latest revision, and shall be as manufactured in the United States by U.S. Pipe Metroseal, Mueller A-2360 or American Flow Control Series 2500.

All resilient wedge gate valves shall be designed for 250 PSIG working pressure, shall be factory seat tested at 250 PSIG with no leakage past the seat from either side of the disc, and shall be shell tested at 500PSIG.

All gate valves shall be of the non-rising stem (N.R.S.) design, shall be set vertically, and shall open RIGHT (clockwise). All buried valves shall be furnished with 2 inch square operating nuts.

All gate valves shall have O-Ring sealed stems with one O-Ring located below the thrust collar and with two O-Rings located above the thrust collar. The thrust collar shall be factory lubricated, and the thrust collar and its lubrication shall be isolated by the O-Rings from the water way and from outside contamination, providing permanent lubrication for long term ease of operation.

The resilient-seated disc wedge shall be of the resilient wedge fully supported type. Solid guide lugs shall travel within channels in the body of the valve. These disc and guide lugs shall be fully (100%) encapsulated in SBR (styrene butadiene rubber).

Disc wedges that are not 100% fully encapsulated shall not be acceptable. Guide caps of an acetal copolymer bearing material shall be provided to protect the rubber- encapsulated solid guide lugs from abrasion for long life and ease of operation.

Minimum body and bonnet wall thickness shall be as set forth in Table 2, Section 4.3.1 of AWWA C509. Body and bonnet wall thicknesses less than the minimum thickness as specified in Table 2 shall not be acceptable. Bonnet to body seal shall be effected by a flat neoprene gasket. Bonnet and body flanges shall be fully machined to assure proper sealing of the gasket.

End connections for above ground installations shall be flanged in accordance with ANSI B16.1, Class 125 or AWWA/ANSI C110/A21.10; or threaded with end dimensions complying to ANSI B2.1. For underground installations, end connections shall be mechanical joint, slip-on (for use with cast iron OD pipe) or radial end compression (for use with ID size PVC pipe) in accordance with ANSI/AWWA C111/A21.11.

Gate valve stems shall be of bronze rolled bar stock in accordance with ASTM B584, and shall have a forged thrust collar. The stem material shall provide 70,000 PSI tensile strength with 15% elongation and a yield strength of 30,000 PSI. Cast stems shall not be acceptable. Stems shall have acme form threads for strength and efficiency. An anti-friction thrust washer shall be provided both above and below the thrust collar for ease of operation.

All internal and external exposed ferrous surfaces of the valve shall be coated with a fusion-bonded, thermosetting powder epoxy coating conforming to AWWA C550 and certified to NSF 61. Coating shall be non-toxic and shall impart no taste to water. Coating thickness shall be nominal 10 mils.

5.9 VALVE BOXES

All Gate Boxes shall be BiBi or Tyler make. Each gate valve shall be accompanied by a valve box of the adjustable type of heavy pattern, constructed of cast iron and provided with a 6 inch cast iron cover.

The upper section of each box shall have a flange on top having sufficient bearing area to prevent settling. The bottom of the lower section shall be belled to enclose the operating nut of the valve. The barrel shall be 5½ inch O.D. minimum. Boxes shall be of lengths consistent with pipe depths. Boxes shall be slide adjustable, with a lap of at least 6 inch when in the most extended position. Valve boxes shall be suitable for the size valve on which they are used. The length of the lower section shall be adequate for trench adjustment, no top or mid-section adapters. Covers shall be slotted for easy removal. Covers for valve boxes on water mains shall have the word "WATER" cast in the top. Valve boxes shall be coated with coal-tar pitch enamel or other approved coating. Valve boxes shall be suitable for the size valve on which they are used and shall weigh at least 100 pounds with cover. The upper sections shall be 26 inch and the lower section shall be adequate for trench adjustment, no top or mid-section adapters.

5.10 HYDRANTS

Hydrants shall comply with all requirements off AWWA Specifications and shall be as manufactured in the United States by U.S. Pipe Metropolitan 250, Model 94, or Mueller Super Centurion 200. They shall open LEFT (counterclockwise) and shall have one pumper connection, 4½ inch diameter NST and two 2½ inch diameter NST hose connections. Valve at hydrant base shall be 4-5/8 inch minimum.

The length of the hydrant barrel shall be such that when installed with the proper depth of cover on the branch pipeline, the hydrant will be set with the normal ground line of the barrel between 3 inch minimum and 6 inch maximum above the finished surface elevation.

The color of the hydrant above ground shall be red.

Connecting pipe and pipe nipples between the main line tee and hydrant shall be 6- inch ductile iron conforming to the requirements for ductile iron pipe hereinbefore. Hydrant tee shall have line bells conforming to the requirements of the main pipe. The hydrant outlet shall be of 6-inch mechanical joint.

Hydrant valve and valve box shall be a standard Water Department, 6-inch water works gate valve, opening RIGHT (clockwise), one end for the hydrant anchoring tee and mechanical joint opposite end.

5.11 HYDRANT TEES (ANCHORING TEES)

Anchoring tees shall have main run ends as required for the installation. The branch shall have a plain end with an integral gland and rotating mechanical joint gland to provide a restrained connection with the adjacent valve.

5.12 SERVICE PIPING & CONNECTIONS

Service pipe shall be continuous Type "K" Heavy Wall Annealed seamless copper tubing conforming to the requirements of ASTM B88 or copper or copper tube size (CTS) high density polyethylene PE3408 rated for 200 psi (SDR-9) working pressure in accordance with AWWA C-901, ASTM D-1248, and ASTM D-2737, 1-inch minimum from the water main to the curb stop for all new service connections. Existing ¾" service line replacement will be allowed to replace with the same size. Service pipe from the Curb Stop to residential homes shall be 1-inch minimum either Type "K" copper or polyethylene tubing. Service pipe fittings shall be brass and of compression type. All service fittings shall be extra heavy brass, manufactured by either Red

Hed Supply or Mueller Water Distribution Products.

Corporations shall be Lead-free ball-style either Red Hed 43821 LF or Mueller Model No. B25008N. All corporations shall have a C.C. thread (reinforced AWWA) inlet and compression connection outlet.

Curb stops shall be Lead Free either Red Hed Figure 41511 or Mueller Model No. B25209N. Compression ends shall be standard on both the inlet and outlet.

Service pipes less than 60 feet in length measured from the curb stop to the meter must be one continuous length of 1-inch Type K copper or CTS polyethylene tubing.

Each service pipeline shall be provided with a curb stop and a cast iron Erie Telescoping type box with a brass pentagon plug, 3/8 inch standard rod and stainless steel cotter pin. Curb boxes shall be completely and thoroughly coated with bitumastic paint.

No electrical grounds shall be made on water service pipes where a driven ground rod can provide the needed grounding service, as determined by the Water Department.

5.13 METER PITS

Meter pits up to 1" shall be Mueller Thermal coil with the following options when ordering: 330-CS-18-60-L-B-B-S. Meter pits above 1" size shall be Mueller/Hunt EZ- Vault with the following options when ordering: 550-VS-60-F-B-B. All meter pits shall be supplied with insulating pad and side locking pit lids.

5.14 SERVICE LOCATION

The service piping shall be laid at right angle to the distribution main from a point directly in front of the foundation of each planned building and each owner-occupied family unit shall have its own service connection with meter unless otherwise specified by the Water Department.

SECTION 6: CONSTRUCTION STANDARDS

6.1 INTRODUCTION

This section specifies the construction standards that owners and their contractors shall abide for construction projects for the Water Department. This section covers specifications for excavation, trench preparation, laying of pipe, installation of mechanical joints, setting valves and fittings, setting hydrants, anchorage, backfilling, testing, and disinfection.

Prior to the start of excavation, Dig Safe and the Town of Wilbraham must be notified, erosion control measures must be installed and all Federal, State and Local permits must be obtained.

6.2 EXCAVATION AND PREPARATION OF TRENCH

6.2.1 General Description

The contractor shall perform test pit exploration as needed to locate underground infrastructure. The trench shall be dug so that the pipe can be laid to the alignment and depth required. Regardless of whether one machine is used for both excavation and handling of pipe or whether a separate machine is used for handling of pipe, trench excavation is not to be advanced substantially ahead of pipe-laying operations.

Backfilling as hereinafter specified is to be carried out as close as possible behind the pipe-laying operation.

Upon completion of operations at the end of the work day, or upon the halting of operations for any reason whatsoever, backfilling is to be completed so that only one length of pipe is exposed in the open trench, and the end of that pipe shall be blocked to prevent entry of soil, water, or animals.

Excavation and backfill are to be planned and carried out so that the trench can be adequately supported and drained and so that pipe-laying operations can be carried out efficiently and satisfactorily.

6.2.2 Width of Trench

The width of trench shall be ample to permit the pipe to be laid and jointed and the backfill to be placed and compacted. The trench width shall be sufficient to permit the convenient placing of supports, sheathing, and/or bracing and for the handling of drainage and groundwater where required.

At locations where valves, fittings, or specials are to be installed, additional width of excavation shall be dug as required for the satisfactory installation and jointing of these items.

Since the ability of the pipe to support external loads is related to trench width and is decreased as trench width increases, the trench width must be maintained as narrow as practicable, consistent with pipe-laying requirements. The portion of the trench from 1 foot above the top of the pipe to the bottom limit of excavation should not be wider than the pipe diameter plus 2 feet.

6.2.3 Pipe Clearance in Rocks

Ledge, rock, boulders, and large stones shall be removed to provide a clearance of at least 6- inches below and

on each side of all pipe, valves, and fittings.

The specified minimum clearances are the minimum clear distances that will be permitted between any part of the pipe and appurtenances being laid and any part, projection, or point of such rock, boulder, or stone.

6.2.4 Excavation to Grade

Excavations in paved areas shall be sawcut so as to prevent damage to pavement outside of the work limits. The trench shall be excavated to the depth required so as to provide a uniform and continuous bearing and support for the pipe on solid and undisturbed ground at every point between bell holes. The final excavation shall be done using hand tools so that the finished sub-grade of the pipe is accurately prepared and is undisturbed.

Any part of the bottom of the trench excavated below the required sub-grade shall be corrected with approved material and thoroughly compacted as directed by the Water Department

6.2.5 Excavation Below Grade

In locations where the trench bottom is composed of ledge, cemented gravel, hard pan, or other materials that cannot be properly prepared to provide uniform and continuous support for the pipe, the contractor will be required to excavate 6-inches below the specified sub- grade for the pipe.

Earth pads are then to be placed in the trench bottom in at least two locations to support the pipe above the trench bottom during the process of installing the pipe, aligning the pipe, and centering the spigot of the newly laid pipe in the bell of the adjacent pipe. Prior to making up the joint, additional earth is to be placed along and under the bell of the pipe and is to be thoroughly tamped so as to provide support for the pipe. The earth used for the supporting pads and for backfill under the barrel of the pipe is to be sand or other granular native material. In the event that satisfactory native material cannot be obtained from the excavation, then suitable material shall be brought in to the job.

6.2.6 Excavation in Poor Soil and Refilling to Grade

Where the bottom of the trench at sub-grade is found to be unstable or to include ashes, cinders, any type of refuse, vegetable, or other organic material, or large pieces or fragments of inorganic material, the contractor shall excavate and remove such unsuitable material to the width and depth ordered by the Water Department. Before the pipe is laid, the sub-grade shall be made by backfilling with an approved material in 3-inch compacted layers. The layers shall be thoroughly tamped so as to provide a uniform and continuous bearing and support for the pipe at every point between bell holes.

6.2.7 Sub-grade in Rock Trenches

Where excavation is made in rock or boulders and the clearance specified in Section 6.2.3 is provided, the sub-grade shall be made by backfilling with an approved material in 3-inch compacted layers. The layers shall be thoroughly tamped so as to provide a uniform and continuous bearing and support for the pipe at every point between bell holes.

6.2.8 Blasting

Blasting for excavation will be permitted only after securing all required state and local permits, providing adequate notice to the residents, providing proof of insurance to cover blasting operations as well as conducting a pre-blast survey.

The owner and its contractor shall comply with OSHA, State and Local regulations relating to the transportation, storage, or handling of explosives. Particular care is to be exercised to see that the explosives are stored so that they will not be lost, mishandled, mislaid, or stolen. Blasting caps shall be stored separately from the explosive itself but shall be subject to the same requirements and regulations.

6.2.9 Braced and Sheeted Trenches

The owner and its contractor shall provide such sheathing, bracing, and support for the trench sides as may be required by federal, state and local laws and as may be necessary to adequately protect life, adjacent property, adjacent structures, or the work under construction.

Use approved trench box and bracing as may be necessary for safety of personnel, protection of work, adjacent work, utilities and structures, or as required by various Regulatory Agencies.

6.2.10 Control of Water

The trench shall always be maintained in a dry and satisfactory condition. Care shall be exercised to see that water does not collect in the bell holes at any time in a depth sufficient to wet the bell of pipes waiting to be jointed.

Dewatering discharge if necessary.

- a. Install erosion control measures, sand and gravel, or crushed stone, filters in conjunction with sumps, well points, and/or deep wells to prevent the migration of fines from the existing soil during the dewatering operation.
- b. Transport pumped or drained water without interference to other work, damage to pavement, other surfaces, or property. Pump water through a silt filter bag or other approved sedimentation device prior to discharge to grade of drainage system.
- c. Do not discharge water into any sanitary sewer system.
- d. Provide separately controllable pumping lines.

Under all conditions, the owner and its contractor must maintain the trench so that water does not enter the completed pipeline. This applies equally during pipe laying operations and upon completion of pipe laying operations but prior to placing the pipeline into service. At no time is the completed pipeline to be used as a drain for groundwater or drainage water. All open portions of the pipeline that have not been completed such as hydrant branches, branch lines, and the end of the pipeline during periods when pipe laying operations are shut down, are to be adequately protected so as to prevent the entrance of groundwater and other materials from the trench. The protection is to be watertight and is not to be removed until the trench has been completely dewatered.

6.2.11 Trenching by Hand or Machine

In general, it is expected that the major portion of the excavation will be carried out using machine methods.

The final portion of excavation in the trench bottom is to be carried out using hand methods as described under Section 6.2.4 so as to prevent disturbance to the supporting sub-grade.

In special locations where the use of machinery for excavation may result in damage to adjacent pipelines or structures, the contractor shall use hand methods of excavation. This requirement is especially applicable in the immediate vicinity of conduits, service pipes, and other pipelines where the use of machinery could result in danger.

6.2.12 Interruption of Service

No valve or other control device on the existing water system shall be operated for any purpose without Water Department approval. No tap or cut-in to the existing water system shall be made by the owner or its contractor without the expressed approval of the Water Department.

6.2.13 Winter Conditions Construction (December 1 to April 1)

1. Owners shall be required to specifically request authorization to perform winter conditions construction in writing to the Water Department. The request must specifically address how each of the requirements of this section will be achieved.
2. Water main installations within proposed new subdivision roadways that are still under construction and final pavement has not been placed will be allowed provided that all other conditions in this section are satisfied.
3. Excavation will not be permitted within public ways or on permanent pavement unless otherwise approved by the Water Department
4. Connections to the existing distribution system and/or excavation within 20 feet of an existing in-service water main will not be permitted.
5. Pipe and fittings shall not be installed on frozen soil.

The installation of pipe and fittings will not be permitted during weather conditions which put proper, high quality installations in jeopardy. In general, no work shall occur during snow or rain events or when cold temperatures may jeopardize the proper installation of gaskets, bolts, etc. Final determination of these conditions is at the discretion of the Water Department.

6. Frozen soil shall not be used as trench backfill material from the bottom of the trench to 1 foot over the top of the pipe.
7. Upon completion of construction, new water mains shall not be filled with water until non-freezing, non-winter conditions exist after April 1. In the interim, the water mains shall be capped with a watertight cap or plug-type, mechanical joint fitting. All filling, testing,

disinfection, flushing, etc. shall occur only during non-freezing, non-winter conditions after April 1.

8. All pipe, fittings, valves, hydrants and service connection installation work shall be inspected by the Water Department prior to backfilling unless otherwise agreed to in advance by the Water Department.
9. The operation of valves and hydrants will not be permitted.
10. All work activities, means and methods used by the Contractor shall be such that flooding, icing and/or other nuisance or hazards to adjacent public or private property does not occur.
11. It is the intent of the Water Department that all water main and appurtenances be constructed only during non-freezing and non-winter conditions except by specific approval of the Water Department on an individual case-by-case basis and only under conditions which:
 - a. Allow for proper construction,
 - b. Are conducive to a high quality finished product,
 - c. Do not endanger the existing water distribution system,
 - d. Do not excavate within public ways or at permanent pavement,
 - e. Do not impose any nuisance or hazards to adjacent public ways, public property or private property.
12. If winter conditions construction is approved by the Water Department, then during the performance of that work, the Water Department shall have the authority to order the Contractor to cease construction at anytime that any one or more of the conditions listed in this section becomes apparent.

6.3 LAYING OF PIPE

6.3.1 Handling of Water Main Materials in the Trench

Proper implements, tools, and facilities shall be provided and used for the safe and convenient prosecution of the work. All pipe, fittings, valves, and hydrants shall be carefully lowered into the trench piece by piece by means of power equipment, ropes, or other suitable tools or equipment, in such a manner as to prevent damage to water main materials and protective coatings and linings. Under no circumstances shall water main materials be dropped or dumped into the trench.

There shall be no chain or forklift scars on the lining. Any damage to pipe lining or coatings will result in the pipe or fitting being rejected and removed from the job.

6.3.2 Inspection

All pipe and fittings shall be carefully inspected for defects prior to placing them in the trench.

If any defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe in a satisfactory manner.

6.3.3 Cleaning Pipe and Fittings

All lumps, blisters, and excess coal-tar coating shall be removed from the bell and spigot- end of each pipe, and the outside of the spigot or plain end and the inside of the bell shall be wire-brushed and wiped clean, dry, and free from oil and grease before the pipe is laid.

On all pipe using a rubber type joint, the bell of the pipe and the plain end of the adjacent pipe are to be wire-brushed and cleaned of all rust and dirt. The bell of the pipe and the plain end of the adjacent pipe are then to be lubricated with the joint lubricant furnished with the pipe in accordance with the manufacturer's directions.

6.3.4 Laying Pipe

Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the line. During laying operations, no debris, tools, clothing, or other materials shall be placed in the pipe.

When laying a rubber-jointed, ductile-iron pipe, the plain end shall be centered in the bell, the pipe forced home, and the joint completely assembled. The pipe is then to be adjusted to correct line and grade and to be secured in place with approved backfill material, properly tamped under and around the pipeline.

At all times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug or other means. This provision shall apply during the noon hour and overnight, as well as during delays in the pipe laying operations.

After joining the pipe, a metal feeler gauge shall be used to verify that the rubber gasket is correctly positioned. Two bronze wedges per joint shall be inserted to provide electrical continuity.

Install pipe with a minimum of 5 feet of cover. If 5 feet of cover cannot be obtained insulation shall be installed with Water Department's approval.

6.3.5 Cutting Pipe

All cutting of pipe required for inserting valves, fittings, or closure pieces and all cutting of pipe required for nipple pieces shall be done in a neat and workmanlike manner without damage to the pipe or cement lining. The cutting is to be done so as to leave a smooth end at right angles to the axis of the pipe. Cutting shall be done with a power saw and edges shall be beveled and made smooth with hand grinding tools.

Except for very unusual circumstances, field cutting will not be allowed for ductile iron pipe using rubber push-on joints. Where it is necessary to field cut a pipe, a rubber gasket mechanical joint type connection shall be made. On ductile iron pipe using rubber joints, the outside edge of the cut end must be tapered back approximately ¼ inch at an angle of about 30 degrees so as to provide for the proper assembly of this joint.

6.3.6 Direction of Laying

Pipe is to be laid with the bell facing in the direction of laying. The only exception is in areas of steep grade

where the pipe is to be laid with the bells facing uphill and laying is to proceed in a uphill direction.

6.3.7 Permissible Deflection of Joints

Wherever it is necessary to deflect pipe from a straight line, either in the vertical or horizontal plane, to avoid obstructions, or where long-radius curves are permitted, the amount of deflection allowed shall not exceed that recommended by the pipe manufacturer.

Prior to deflecting the pipeline, the spigot of the pipeline should be marked flush with the bell end to assure that the spigot is not withdrawn as a result of the deflection.

In general, all radius curves called for on the plans or permitted at the time of construction are to be made using full lengths of pipe. The use of short lengths of pipe and extra joints in order to make a smaller radius turn will not be allowed without the written approval of the Water Department.

6.3.8 Unsuitable Laying Conditions

No pipe is to be laid in water, in an unsuitable trench, or during unsuitable weather conditions.

6.3.9 Polyethylene Encasement

Polyethylene encasement shall be slipped over the exterior of the pipe and/or fittings prior to placement in the trench. Secure polyethylene to the pipe with compatible polyethylene adhesive tape at several locations along the barrel of the pipe.

At each pipe joint, the wrap shall be overlapped 12-inches minimum, secured with a non-corrosive strap behind the pipe bell, and overlapped with a new section of wrap and secured in place with a second strap on the spigot end.

6.4 MECHANICAL JOINTS

Mechanical joints are to be installed in accordance with the manufacturer's instructions and AWWA Specifications.

The plain end is to be centered in the bell of adjacent pipe or fitting after both the end and the bell have been carefully cleaned, wire-brushed, and lubricated. The gasket is then to be pushed home into the bell and is to be followed by the follower ring.

The bolts are to be tightened using torque measuring or torque indicating wrenches. Under no circumstances shall extension wrenches or an extended handle ratchet wrench be used to gain greater leverage. The normal range of torque to be applied to the joints is as follows:

Joint Size (Inches)	Bolt Size (Inches)	Range of Torque (Ft. lb.)	Length of Wrench
3	5/8"	40-60	8"
4-24	3/4"	60-90	10"

30-36	1"	70-100	12"
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When tightening bolts, the gland or follower ring must be brought up toward the pipe flange evenly, maintaining approximately the same distance between the gland and the base of the flange at all points around the socket. This is to be done by partially tightening up opposite bolts, first at the bottom, then at the top, then at either side and finally the intermediate bolts. This cycle is to be repeated until all bolts are within the above range of torque.

Where required by the Water Department, retainer glands are to be used.

If effective sealing of the joint is not obtained at the maximum torque indicated, the joint must be disassembled and reassembled after thorough cleaning. Over stressing of the bolts to compensate for poor installation practice is not approved.

6.5 SETTING VALVES AND FITTINGS

Valves, fittings, plugs, and caps shall be set and jointed to pipe in a manner heretofore specified for cleaning, laying, and jointing pipe.

All buried valves shall be set solidly in the line so as to prevent movement under unbalanced head conditions. In the case of main line valves, the pipes on each side of the valve shall be butted solidly against the bottom of the valve joint.

A valve box shall be provided for every valve. The valve box shall not transmit shock or stress to the valve and shall be centered and plumb over the wrench nut of the valve, with the box cover flush with the surface of the planned finished pavement or ground surface.

6.6 SETTING HYDRANTS

6.6.1 Location

Hydrants shall be located as shown on the plan or as directed at the time of construction by the Water Department. Hydrants shall be located in a manner as to provide complete accessibility and also in such a manner that the possibility of damage from vehicles or injury to pedestrians will be minimized.

When placed behind a curb, the hydrant barrel shall be set so that no portion of the pumper or hose nozzle cap will be less than 12-inches from the gutter face of the curb.

When set in a lawn space between the curb and the sidewalk, or between the sidewalk and the property line, no portion of the hydrant or nozzle cap shall be within 6-inches of the sidewalk. When set at the property line, the back of the hydrant shall be at the property line.

Hydrant set-back and depth of bury requirements are as follows:

Setback Dimensions:	
• Concrete or blacktop sidewalk up to curbing with no grass treebelt	Face of hydrant setback 12 inches off face of curbing

• Grass treebelt up to curbing with concrete or blacktop sidewalk usually to 3 feet off curbing	Back of hydrant setback to edge of sidewalk but no more than 3 feet off face of curb or edge of pavement from face of hydrant
• Grass treebelt up to curbing or edge of pavement with no sidewalk	Face of hydrant setback 3 feet off face of curb or edge of pavement
Depth of Bury:	
In concrete or blacktop way	Bottom of traffic flange between 2 to 6 inches above finished grade
In grassed areas	Bottom of traffic flange between finished grade and 4 inches above finished grade

All hydrants in place, but not in service shall be covered with burlap or other suitable material. The covering shall be securely fastened to the hydrant and shall remain in place until such time that the new hydrant has been tested and accepted by the Water Department and placed in service.

6.6.2 Position

All hydrants shall stand plumb and shall have their nozzles parallel with or at right angles to the road, with the pumper nozzle facing the road. Hydrants shall be set to the established grade, with the bottom at least 3 -6 inches above the ground.

6.6.3 Connection to the Main

Each hydrant shall be connected to the main with a 6-inch iron branch. The 6-inch branch is to contain a 6-inch gate valve box. Hydrant tee shall be an anchoring tee.

6.6.4 Hydrant Drainage

Wherever a hydrant is set, drainage shall be provided at the base of the hydrant by placing crushed stone around the bottom of the hydrant.

An area approximately 2 feet in every direction from the center of the hydrant is to be excavated to the bottom of the hydrant. This area is to be backfilled to a point approximately 6-inches above the waste opening in the hydrant using washed or crushed stone. This gravel or stone is to be ¼-inch size or pea stone.

6.6.5 Backfill Around Hydrant

Backfill of excavation around the hydrant barrel is to be accomplished with granular native soil. In the event that a granular native soil is not available from materials excavated from the trench, use gravel borrow.

6.7 ANCHORAGE

6.7.1 General

Unless otherwise specified, all anchorage or supports for the various fittings, specials, valves and hydrants installed shall be accomplished using poured concrete or precast thrust blocks in conjunction with retainer glands.

Thrust blocks of machine-mixed, poured-in-place concrete, having a 28-day compressive strength of 3,000 psi and containing an air-entraining admixture, shall be placed at all bends, caps, offsets, hydrants, tees, dead ends, and similar locations.

The thrust blocks shall be carried to undisturbed solid ground at the side of the trench. All poured-in-place thrust blocks shall be formed with wood forms; rough earth forms will not be acceptable. Pipelines shall be protected from direct adherence of the concrete thrust block by wrapping the pipeline in plastic sheeting. The thrust blocks shall not bear directly on pipe joints and shall not interfere with future adjustments or tightening of the joint. All thrust blocks shall bear against undisturbed soil at the side or end of the trench, perpendicular to the direction of the thrust. Care must be taken that this bearing area is cut clean and vertical so that the back of the thrust block will not have a sloping face.

The thrust blocks shall have a minimum horizontal thickness of 2 feet and shall have the following minimum bearing surface measured perpendicular to the direction of thrust:

8-inch or less	6 square feet (2' x 3')
12-inch	12 square feet (3' x 4')

6.7.2 Support for Hydrants

Each hydrant is to be supported by a stone placed under the hydrant and by a pre-poured thrust block or blocks placed behind the hydrant and wedged against unexcavated earth at the edge of the trench. Retainer glands shall be used at hydrant.

Each hydrant shall be set on a block of concrete or a solid flat stone having an area of more than 2 square feet.

6.7.3 Anchorage of Fittings and Specials

All plugs, caps, tees, and bends shall be provided with a concrete thrust block to prevent movement. This thrust block shall be constructed in accordance with the provisions of Section 6.7.1. Retainer glands are required.

6.8 BACKFILLING

6.8.1 General

All backfill material is to be obtained from the material excavated under the provisions of Section 6.2 of these construction standards.

All rock excavated shall be disposed of off the construction site, and no portion of this rock, regardless of its condition, is to be used as backfill material in the trench.

All backfill material shall be free from cinders, ashes, refuse, vegetable or organic material, boulders, rocks or stones, or other material which, in the opinion of the Water Department, is unsuitable. However, from 1 foot above the top of the pipe to the sub-grade of the pavement, material containing stones up to 6-inches in their greatest dimension may be used, unless specified otherwise herein.

Frozen material shall not be used as backfill nor should backfill be placed on frozen material.

Clay dams will be required to prevent groundwater migration along the proposed pipeline. Clay dams shall be installed along the proposed water main at 200-foot increments if pipe bending materials utilized are not native materials excavated from the trench line.

6.8.2 Use of Excavated Material for Backfill

In general, use of excavated material for backfilling of the trench will be required. The best, most granular portions of the excavated material shall be used for backfilling purposes with the better material used in the bottom of the trench and around the pipeline.

Where there is insufficient available backfill material due to a rejection of a part of the excavation as unsuitable for backfill, the excavated material shall be disposed of and the owner shall furnish the required amount of sand, gravel, or other approved backfill materials.

6.8.3 Initial Backfilling

All trenches shall be backfilled by hand from the bottom of the trench to a point 1 foot above the top of pipe with the most granular material available from the excavation. This initial backfill is to be placed in layers of approximately 3-inches and thoroughly tamped under the pipe and compacted around the pipe. This initial backfilling shall be deposited in the trench for its full width on each side of the pipe, fittings and appurtenances simultaneously. While this initial backfill is being carried out under and up to the midpoint of the pipeline, one man shall be tamping in the trench for each man shoveling backfill material into the trench. In general, the only time that mechanical backfilling of this portion

of the trench will be approved is when the backfilling material is composed of sand and is entirely free of stone and other hard or solid lumps.

6.8.4 Backfilling to Grade

From a point 1 foot above the pipe to the subgrade of the finished road grade, the trench may be backfilled by approved mechanical methods. No heavy stone or rock shall be dropped into the trench, nor large masses of backfilling material be dropped in the trench in such a manner as to endanger to the pipe. No dimension greater than 12" shall be placed in the trench and if larger stones than these are found in the material to be used for backfilling, they shall be broken up before being placed in the trench or hauled away from the site of the work. Care is to be taken that stones and lumps shall not become nested and that all voids between stones shall be completely filled with fine material.

Compaction of backfill shall be done by approved mechanical methods in lifts not to exceed 12 inches.

- A. Modified Proctor Test (ASTM D1557) results and soil classification (ASTM D2487) for all proposed backfill materials at the frequency specified below:
 - 1. For suitable soil materials removed during Excavation, perform one test for every 1,000 cubic yards of similar soil type. Similarity of soil types will be as determined by the Engineer.
 - 2. For borrow materials; perform tests at frequency specified in Section 02320, Borrow Materials.
- B. Compaction test results (i.e. ASTM D6938 or ASTM D1556) at a frequency of one test for every 100 cubic yards of material backfilled or at a minimum of one test per lift. The Engineer will determine the locations and lifts to be tested. The Contractor shall plan his operations to allow adequate time for laboratory tests and to permit taking of field density tests during compaction.
 - 1. Methods and equipment proposed for compaction shall be subject to prior review by the Engineer. Compaction generally shall be done with vibrating equipment. Static rolling without vibration may be required by the Engineer on sensitive soils that become unstable under vibration. Displacement of, or damage to existing utilities or structure shall be avoided. Any utility or structure damaged thereby shall be replaced or repaired as directed by the Engineer.
 - 2. Additional compaction testing may be required when there is evidence of a change in the quality of moisture control or the effectiveness of compaction.
 - a. Any costs associated with correcting and retesting as a result of a failure to meet compaction requirements shall be borne by the Contractor.
 - 3. If all compaction test results within the initial 25% of the total anticipated number of tests indicate compacted field densities equal to or greater than the project requirements, the Engineer may reduce frequency of compaction testing. In no case will the frequency be reduced to less than one test for every 500 cubic yards of material backfilled.
 - 4. The Contractor is cautioned that compaction testing by nuclear methods may not be effective where trenches are so narrow that trench walls impact the attenuation of the gamma radiation, when adjacent to concrete that impacts the accuracy of determining moisture

content, or where oversize particles (i.e. large cobbles or coarse gravels) are present. In these cases, other field density testing methods may be required.

All tests results must be submitted to the Water Department.

6.8.5 Backfilling in Freezing Weather

Backfilling shall not be done in freezing weather, and frozen material shall not be used for backfilling. No backfill shall be placed in a trench when the material exposed in the trench sides or bottoms is already frozen.

6.9 TESTS & DISINFECTION

6.9.1 Procedure & Responsibility

The owner shall employ a firm or person experienced in testing and disinfecting water systems, acceptable to the Water Department. The Water Department personnel shall supervise and direct the testing and disinfection and determine if the new piping system passes the test. No piping system will be served with municipal water until it passes the leakage test.

The owner shall pay the testing firm directly for the leakage test and the disinfection.

6.9.2 Disinfection

The completed pipeline shall be disinfected in accordance with AWWA Specifications. Prior to disinfecting the water main, the main shall be completely filled to remove all air pockets and then flushed to remove particulates. The flushing velocity in the main shall not be less than 2.5 ft/s unless the Water Department determines that conditions do not permit the required flow to be discharged to waste. Note that flushing is no substitute to preventative measures during construction.

TABLE 3.1-1

Required Flow to Flush Pipelines (40 psi residual pressure in water main)*

Pipe Diameter (in)	Flow Required to Produce 2.5 ft/s (Approximate) Velocity in Main	Number of 2 1/2 inch Hydrant Outlets
6	200 gpm	1
8	400 gpm	1
10	600 gpm	1
12	900 gpm	2
16	1,600 gpm	2

*AWWA C651, AWWA Standard for Disinfecting Water Mains

At a point not more than 10 feet downstream from the beginning of the new main, water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will not have less than 25 mg/L (PPM) free chlorine throughout the entire section of pipe to be chlorinated.

TABLE 3.1-2

Chlorine Required to Produce 25-mg/L Concentration in 100 Feet of Pipe – By Diameter*

Pipe Diameter (in)	100 % Chlorine (Pounds)	1% Chlorine Solution (Gals.)
6	0.030	0.36
8	0.054	0.65
10	0.085	1.02
12	0.120	1.44
16	0.217	2.60

**AWWA C651, AWWA Standard for Disinfecting Water Mains*

The completed pipeline shall be disinfected with a chlorine concentration of approximately 50 ppm prior to being placed in service. The introduction of this chlorine solution shall be accomplished by pumping hypochlorite (sodium based) solution into the main at a point not more than 10 feet downstream from the beginning of the new main while flowing in the manner similar to initial filling at the opposite end of each water main segment. The owner shall install taps for chlorination and sampling. The owner shall uncover and backfill the taps as required. Special disinfecting procedure shall be used in connections to existing mains and where the method outlined above is not practical.

The chlorinated water is to remain in the new pipeline for at least 24 hours. After a 24-hour holding period, there should be a free chlorine concentration of not less than 10 mg/L. During this period, proper precautions shall be taken to prevent this chlorinated water flowing back into the existing system. In addition, all valves and hydrants in the treated section shall be operated to ensure disinfection of the appurtenances.

All valves and hydrants within the treated section shall be operated to ensure disinfection of the appurtenances.

Following the chlorination period, all treated water shall be flushed from the lines at their extremities and replaced with water from the distribution system. The flushed chlorinated water, meeting all local, state, and federal regulations, shall be discharged to the sewer system or disposed of using other approved means provided in AWWA C651. No discharge to any storm sewer or natural water course may be allowed. Bacteriological sampling and analysis of the replacement water may then be made by the contractor in full accordance with AWWA C651 and under the supervision of the Water Department or its Engineer. The contractor will be required to re-chlorinate, if necessary, and the line shall not be placed into service until the bacteriological requirements of AWWA C651 are met. Owners shall pay for coliform tests by a State-approved laboratory.

After all disinfection and testing is completed, the owner will be required to blow out the new water mains under the direction of the Water Department. Blowing out of the main is to be accomplished at as high a velocity as possible consistent with the ability of the existing system to supply water and the ability of the area around the blow-off point to drain the water off. After clean water substantially free of chlorine is obtained at the blow-off, the flow of water at reduced rates is to be continued until tests show normal chlorine residual and no coliform.

After completion of the blowing-off operation, and no coliform is found, the new main is to be placed in service. However, the main is to be checked occasionally to determine if any build-up of chlorine or taste occurs. If any build-up does occur, a blow-off is to be operated at a slow rate for a period sufficient to clear the pipeline.

BACTERIOLOGICAL ANALYSES

- C. After the 24-hour disinfection period and all chlorine solution has been thoroughly flushed, the bacteriological sampling and analysis of the replacement water may then be performed.
 - 1. Bacteriological sampling shall be made by the Contractor's competent person(s) in full accordance with AWWA C651- Section 5, *Bacteriological Tests* and under the supervision of the Engineer.
 - 2. Analysis shall be performed by an independent commercial laboratory certified by the State Department of Environmental Protection and U.S. Environmental Protection Agency for analyzing public drinking water supplies. All results shall be provided to the Engineer for review.
 - 3. Two consecutive sets of acceptable samples, taken at least 16-Hours apart are required prior to placing the main into service. Samples shall be collected every 1,200 ft of the new water main, plus one set from the end of the line and at least one from each branch greater than one pipe length. Failure of any one of the bacteriological test samples shall require rechlorination and retesting by the Contractor.
 - 4. The line shall not be placed in service until the bacteriological requirements of AWWA C651 are met.

6.9.3 Pressure and Leakage Tests

After approved disinfection, a pressure test and a leakage test shall be run simultaneously. The owner shall furnish a pump, pipe connections, gauges, all necessary apparatus, and connections to the new main.

All newly installed hydrant and branch connections must be subject to line pressure in an open trench to determine tightness of joints before backfilling, unless they are a part of the overall pipeline pressure and leakage test.

6.9.4 Time for Making Test

No pipeline is to be placed under pressure or subjected to hydrostatic pressure until at least 5 days have elapsed after poured concrete thrust blocks have been installed. If high early

strength concrete is used in the poured concrete thrust blocks, the hydrostatic pressure can be applied to the main after 3 days have elapsed from time of construction of the thrust blocks.

6.9.5 Test Parameters

- A. For water mains, the pressure test shall not be conducted until the new main has been flushed clean, disinfected and the chlorinated water properly disposed of. After acceptable completion of the water system disinfection, the Contractor may commence pressure testing of the new water main.
- B. Run pressure test and leakage test simultaneously in accordance with ANSI/AWWA C600.
- C. After the pipeline has been brought up to normal operating pressure, all air shall be expelled from the pipeline. Hydrants and blow offs are to be used for this purpose to the extent possible. Additional ¾-inch taps at points of beginning and end of job and at highest elevation in the pipeline shall be installed in order to completely remove all air and to apply chlorine solution for disinfection. At the conclusion of the test, the taps shall be removed and plugged or left in place at the discretion of the Water Department.
- D. Test pressure shall not be less than 1.25 times the working pressure at the highest point along the test section and not less than 1.5 times the working pressure at the lowest elevation of the test section in accordance with AWWA C600. Test pressure shall not exceed pipe or thrust-restraint design pressures.
- E. The hydrostatic test shall be of at least 2-hour duration or until such time as the Engineer indicates acceptance of the pipeline.
- F. Test pressure shall not vary by more than ± 5 psi (35 MPa or 0.35 bar) for the duration of the test.
- G. On pipelines where the elevation along the route of construction varies substantially, the Town reserves the right to valve off and test portions of the line.
- H. On extensive construction jobs, the Town reserves the right to require the testing of individual portions of the line as construction proceeds rather than await completion of the entire project in order to undertake a pressure or leakage test.
- I. Do not operate valves in either direction at differential pressure exceeding the rated valve working pressure. Use of a test pressure greater than the rated valve pressure can result in trapped test pressure between the gates of a double-disc gate valve. For tests at these pressures, the test setup should include a provision, independent of the valve, to reduce the line pressure to the rated valve pressure on completion of the test. The valve can then be opened enough to equalize the trapped pressure with the line pressure, or fully opened if desired.
- J. Test pressure shall not exceed the rated pressure of the valves when the pressure boundary of the test section includes closed, resilient-seated gate valves or butterfly valves.
- K. During the test period, an accurate measure of the amount of water required to maintain the test pressure shall be maintained and recorded.

SECTION 7: BILLING AND METERING PROCEDURES

7.1 INTRODUCTION

The purpose of this section is to provide customers of the Water Department with a description of its billing and metering procedures. This section includes discussions of meter reading procedures, water usage fees, billing and payment information, and procedures for meter repair and testing. The Wilbraham Water Department's budget and revenues is managed as an Enterprise Fund governed by the Board of Water Commissioners.

7.2 ACTUAL METER READINGS

7.2.1 Required Semi Annual Readings

Except as otherwise provided in this section, the Water Department will take an actual reading of the official Water Department water meter for each account twice a year.

7.2.2 When Meter Cannot Be Read; Procedure

The property owner shall provide a reasonable and adequate location for the entry of the water service pipe into the cellar. Space must be provided for a water meter of a suitable size. The property owner shall keep the entrance valves and water meter accessible at all times, free from rubbish and other material that could obstruct access by the Water Department.

In locations where a water meter location satisfactory to the Water Department is not available within the building, the property owner shall be required to bear the extra cost of installing the water meter in a vault approved by the Water Department or its authorized representative.

Any property owner who interferes in any manner or refuses to allow or permit the personnel of the Water Department to install, maintain, read, and inspect annually, a water meter or meters on their own premises shall be subject to a 48-hour shut off notice. Failure of said owner to desist from said interference or its continued refusal to cooperate with the Water Department will result in the shut off of its water supply at the expiration of shut off notice period. Fire service will not be shut-off unless approved by the Fire Department.

If the water service inspectors are unable to gain access to a water meter for any reason other than willful refusal of permission by the customer, the Water Department will take appropriate and reasonable measures to assure an actual reading, including but not limited to making an appointment with the customer or scheduling readings for times other than normal business hours.

1. **Notice left at account premises** - In addition to the efforts to be made to gain an actual reading listed in this subsection, the Water Department will complete a pre-printed notice form and leave it at the premises' principal entry.
2. **Contents of notice** - The notice shall provide a space for the meter reader to record the date and time of the attempted reading. The notice shall state that failure to return mail the notice will result in an estimated bill for the quarter or shut-off if the access is not permitted within 60 days.

7.3 ESTIMATED BILLS

In the preparation of bills for water service, the Water Department may rely upon an estimate of a customer's water consumption using the following methodologies:

1. Average of the previous three years actual readings for the corresponding billing cycle (winter or summer);
2. Usage based on the discretion of the Water Commissioners and the property location if actual accurate historical readings are not available.

The bill shall include on its face a clear indication that it is based upon estimated water consumption, including the conspicuous use of the word "Estimate" or "E".

7.4 UNBILLED CUSTOMERS

Users of water not receiving a bill will be invoiced immediately upon discovery for all unbilled water at the start of service using actual or estimated readings.

7.5 ILLEGAL WATER SUPPLY

No water shall be supplied by any water customer to a person not entitled to its use, and full rates for such supply will be charged to any water customer so supplying other parties.

7.6 WATER USAGE RATES AND FEES

The Board of Water Commissioners establishes the water usage rates and fees listed in the Water Department Fee Schedule, and possesses full authority to change the fees and rates through a public meeting process. The fee schedule may be obtained by contacting the Water Department. The Board of Water Commissioners shall establish rates and fees to operate and maintain the Wilbraham Water System and to promote growth and sustainability.

7.7 BILLING INFORMATION

7.7.1 Face of the Bill

The face of every bill rendered by the Water Department to a customer will include, but not be limited to the following information:

1. The beginning and ending dates of the current billing period;
2. The number of days within which payment in full must be made in order to avoid delinquency charges on the account;
3. The amount of all charges remaining unpaid or unadjusted from the previous bill, labeled "Past Due";
4. A conspicuous statement that, in addition to any delinquency charges or other remedies of the Water Department, service may be terminated if the past due amount remains unpaid;
5. The amount of the current charges for water;

6. A statement of the current delinquency charges due on past balances;
7. The actual or estimated meter reading;
8. A statement of the rate or rates upon which such charges are based;
9. The total current charges; and
10. The total amount due.

7.7.2 Reverse of the Bill

The reverse of a bill rendered by the Water Department will include a statement of information from the Board of Water Commissioners.

7.8 BILLING AND PAYMENT

7.8.1 Mailing

The Board of Water Commissioners and its personnel will undertake to deliver to property owners via the U. S. Postal Service the original bills for water and other charges against them, as committed by the Board of Water Commissioners, and the sending of such original bills may be deemed to constitute a sufficient notification of same and a demand for their prompt payment. The failure of the property-owner to receive his bill does not relieve him from the obligation of its payment nor from the consequences of its non-payment as required.

7.8.2 When Due

All charges or bills shall be due and payable upon receipt. Bills will be considered delinquent and subject to delinquency charges under applicable law or these Regulations if not paid within 30 days from the billing date. Unpaid bills rendered in the previous calendar year may be added as a lien to the Real Estate Property Tax for the current year, Section 42A through 42F, inclusive.

7.8.3 Demand Notice and Additional Shut-off/Turn-on Fee

A Demand Notice with a late fee and interest will be issued to a delinquent account, 30 days after the billing date of the initial bill, notifying that water service may be terminated if payment is not made in full. The Water Department may charge a water shut-off/turn-on fee upon the termination and reactivation of the water service.

7.8.4 Payments

A customer may make payments for water charges or services by mail, online or in person at the Water Department Office. A customer must designate the account or accounts to which a payment will be applied.

7.8.5 Short-check Charge

When a check is not honored by the customer's bank, regardless of the reason, a charge of shall be made to the customer in addition to the amount of the water bill in accordance with the Water Department Fee Schedule.

7.8.6 Refunds; Application of Credit Balances

In the event that a customer overpays a bill or has a credit balance on an account, the overpayment or credit balance will be applied to a future bill. If a customer does not otherwise instruct, the Department will apply a credit balance to the next bill for the account and to successive bills until it is used up. Or, if the customer has more than one account, the Department will apply the remainder of the credit balance to the account with the largest past due balance.

7.8.7 Payment to Avoid Termination

In order to forestall termination of service to a delinquent account, payment following the issuance of a Final Payment Notice - Demand Notice, pursuant to Section 9.2.1 (c), shall be made either in cash or by a certified or a bank cashier's check. A person making a payment in person to forestall termination shall be referred to the Water Department. Upon receipt of payment, the Water Department will issue a stop termination order.

7.8.8 Payment after Termination

A customer seeking restoration of water service after termination due to the customer's non- payment of charges must pay the arrearages on the account in addition to a water shut- off/turn-on fee and overtime costs if applicable. Payment must be in cash or by a certified or bank cashier's check.

7.9 INSTALLATION AND REPLACEMENT OF WATER METERS AND REMOTE READING DEVICES

The Water Department will maintain a program for the replacement of broken, worn, stuck, antiquated, or missing water meters. The Water Department reserves the right to install remote reading devices on any customer's service pipe for reasons which are in the best interest of the Water Department. In addition, the water meter must be accessible at all times.

7.10 METER TESTING

7.10.1 Meter Tests

The Department shall provide meter tests upon request. The Department shall charge a standard fee for this service, and shall require payment at the time of the test. If the meter in question is found to be defective or following the test, the fee will be reimbursed. Fee for testing meters that are under registering will not be reimbursed.

7.10.2 Replaced Meters

Upon a customer's request, the Department will test any meter that is removed and replaced. When the Department removes a meter other than at a customer's request, the Department shall have the right to test the removed meter. The testing will be done in accordance with the Department's procedures by an outside testing facility.

7.11 REIMBURSEMENT FOR SERVICES

Fees for reimbursement are included in the Water Department Fee Schedule.

The property owner is responsible for the cost of any repairs or replacements of its water service from the curb stop to the meter. This includes cellar floor, foundation wall repairs, road restoration, sidewalk repair,

and landscaping. If the work is completed by the Water Department the owner is responsible for the full cost.

Emergency work, routine repairs, cleaning, or replacement of services may be undertaken by the Water Department after application is made by the property owner and a satisfactory deposit and liability waiver for the work has been submitted.

The full cost of all repair or replacement work on the a new service connection shall be borne by the property owner. Charges for this work shall be due when rendered.

The Water Department shall reserve the right to refuse work on private property.

7.12 METERING ENTRANCE PIPES AND BYPASS ARRANGEMENTS

All entrance pipes in new construction and major renovations shall be provided with two valves between which the water meter shall be placed.

All bypass arrangements shall be appropriately valved and metered. Bypass arrangements shall be permitted on water meters 2-inches and above and at the written authorization of the Water Department.

7.13 UNMETERED OUTLETS

All unmetered outlets from fire pipes and sprinkler systems shall be closed and sealed; the sealing of such outlets to be done by the Water Department. Said seals shall not be broken, except in case of emergency, in which Water Department shall be properly notified in writing.

7.14 METER SEALS

All meters, bypass valves, and outlets sealed by the Water Department shall not be tampered with. Any seals broken by unauthorized persons or accident will be replaced and the Owner will be charged for the materials and labor to complete the work. Action will be taken against those who willfully or wantonly remove seals, damage meters or steal water, in accordance with Massachusetts General Law, Chapter 165, Section II, which reads as follows:

"Intentional injury to or interference with meter: penalty. Whoever unlawfully and intentionally injures, or suffers to be injured, a water meter belonging to a city, town, Water Department, or company engaged in supplying water, or prevents such meter from duly registering the quantity of water supplied through it, or hinders or interferes with its proper action or just registration, or attaches a pipe to a main or pipe belonging to the town Water Department or company without the consent of the same, unless it passes through a meter set by such, town, Water Department, or company, shall be punished by a fine of not more than \$1000 or by imprisonment for not more than one year, or both.

SECTION 8: TERMINATION OF WATER SERVICE

8.1 INTRODUCTION

This section is intended to provide Water Department customers with the conditions associated with termination of water service and measures that customers can take to avoid termination of water service due to non-payment of bills or other reasons described in this section.

The Water Department reserves the right at all times to shut off water without notice, for repairs, extensions, alterations, or other necessary work associated with the water system. Nobody shall be entitled to damages, nor to have any portion of their payment refunded, due to the loss of water service and/or discoloration of water.

The Water Department and/or their authorized representative may enter the premises of any water customer, at any reasonable time to examine the pipes, meter and fixtures, the quantity of water used, and the manner of its use. Where the right to so examine is denied, the water will be shut off from said premises and not turned on again until such examination is allowed.

8.2 NONPAYMENT OF BILLS

8.2.1 Conditions to be met Prior to Termination

Except as otherwise provided in these Regulations, the Water Department may terminate water service for nonpayment of water usage bills or other charges imposed by the Water Department only if:

- (a) **Unpaid bill** - The amount shown as due on a bill remains unpaid for more than (45) days from the billing date of the initial bill for such amount, or such longer period as may be permitted by Section 8.2.1;
- (b) **"Final Payment Notice - Demand Notice"** - The Water Department shall forward a "Final Payment Notice - Demand Notice" to the delinquent account, 30 days after the billing date of the initial bill but not less than 15 days prior to the date for termination. The notice has been postpaid by certified or registered mail, first class to:
 - (1) The customer at its address as shown on the records of the Water Department
 - (2) the owner of the premises, addressed to the premises, in addition to the premises being posted, demanding such payment of charges within 15 days of the date upon which such notice and demand was mailed and posted, upon penalty of having the water service to such premises terminated.
- (c) **Bill unpaid on termination date** - The bill or charges remain unpaid on the termination date as indicated on the Final Payment Notice - Demand Notice; and
- (d) **Final check** - The Water Department checks at the close of business on the last business day before the date on which water service is scheduled to be terminated that:

- (1) no one has made a payment on the account sufficient to justify halting termination,
- (2) the Water Department has not received a notice that an appeal has been filed in the courts,
- (3) the account is otherwise not subject to termination.

8.2.2 Content of Notices

In addition to the information required by Section 9.2.1 of these Regulations, the special request for payment and the final payment notice - demand notice shall contain the information required under Section 9.3 of these Regulations with respect to termination of service to customers.

8.2.3 Notice of Termination to Occupied Building

When service to a building is terminated for any reason, the Water Department shall notify the Wilbraham Board of Health and shall exercise its best efforts to post a notice in a common area of the building or property stating the reason for the termination and the conditions under which water service will be resumed. The notice shall also include a telephone number of the Department which a customer or residential tenant may call for an explanation of the situation and the customer's rights.

8.2.4 Termination for Illegal Taking; Emergencies

Nothing in this Section shall be construed to prevent termination for the illegal taking of water or reasons of safety, health, cooperation with civil authorities or any other reason for which the power to terminate service is specifically granted by the Special Acts, Legislative Acts or by the General Laws.

8.2.5 Time When Termination May be Effected

Termination of water service for failure to pay a delinquent account may be effected only between the hours of 8:00 a.m. and 3:30 p.m., Monday through Friday, provided that such day is not a holiday as defined under Section 7 of Chapter 4, of the General Laws, or the day before such a holiday.

8.3 REASONS OTHER THAN NON-PAYMENT OF BILL

8.3.1 Conditions/Notice Periods Prior to Termination

This section applies to cases in which the Water Department has discovered the existence of any of the following conditions:

- (1) **Streamlined pipe** - Customer plumbing which does not permit proper installation of a water meter, whether due to insufficient access, inadequate connecting area or pipes, or otherwise.
- (2) **Bad plumbing** - Customer plumbing which lacks a functioning shut-off valve, or which in the judgment of the Water Department, has deteriorated to the extent that the installation or repair of a water meter could damage such plumbing.

- (3) **Illegal tap** - Any unmetered connection of customer plumbing extending from the municipal water system that is not used for fire protection purposes only.
- (4) **Refusal of access** - Any refusal by a customer, owner, or tenant to permit access by the Water Department to customer plumbing for the purposes of inspecting a meter connection or for the purpose of reading, inspecting or installing a meter or other Water Department equipment related thereto (including any refusal to provide clear access to such connection, meter or other equipment).
- (5) **Customer service pipe emergency** - Any leak or malfunction in customer service connection which in the opinion of the Water Department is a threat to public safety or at the request of the owner or their designee an interruption of service to one or more customers or that which is the owner's responsibility to repair. Permission to enter private property along with a liability waiver must be granted by the owner or its designee if not deemed an emergency. The Water Department shall have the right to invoice the owner in accordance with the Water Department Fee Schedule.

Nothing in this Section shall be construed to limit or infringe upon the right of the Water Department to:

- (1) Make, without notice, such temporary interruptions in water service as it deems necessary on a routine or emergency basis for restoration, repair or replacement of the water works system , or
- (2) Pursue its remedies for the unauthorized use or diversion of water or for damage to the Water Department's property under other regulations promulgated by the Water Department, or other applicable laws.

The following notice periods shall apply to termination under this chapter:

Reason for Termination	Notice to Cure Condition	Final Notice and Demand
(1) Streamlined Pipe	30 days	48 hours
(2) Bad Plumbing	30 days	48 hours
(3) Illegal Tap	15 days	48 hours
(4) Refusal	15 days	48 hours
(5) Customer Service Pipe Emergency	Such reasonable period as in the judgment of the Water Department	None

In the event that a customer pursues his or her rights to appeal the measures required by the Water Department, the notice and termination periods prescribed in this section shall control.

8.3.2 Inspection, Notification and Termination

- (a) **Initial inspection** - Upon receipt of notification that one of the conditions set forth in Section 9.6.1 exists on a customer's premises, the Water Department shall inspect the premises and verify the existence of the conditions.
- (b) **Notice to cure condition** - When the Water Department determines after an inspection that a condition specified in Section 9.6.1 exists or either is denied access or is unable, after reasonable efforts, to secure access to the premises for the purpose of verifying the condition, the Water Department shall forthwith:
 - (1) Post on the premises,
 - (2) Mail to the customer at its address as shown on the records of the Water Department,
- (c) **Final notice and demand** - After the expiration of the period specified in the Notice to Cure Condition, a Water Department employee will return to the premises in order to determine whether the condition has been corrected. If the condition has not been corrected or if the Water Department employee is unable to obtain access to the premises, the Water Department shall forthwith:
 - (1) Post on the premises, and
 - (2) Mail to the owner at its address as shown on the records of the Water Department,
- (d) **Termination** - Upon the expiration of the forty eight hour period specified in subsection (c) of this Section, a Water Department employee will return to the premises to determine whether the condition has been corrected. If the condition has not been corrected or if the employee is unable to obtain access to the premises, service will be terminated.
- (e) **Customer service pipe emergency notice** - Notwithstanding any other provisions of these regulations, in the event of a customer service connection emergency, the Water Department will be required to give only such notice prior to termination as it deems practicable in the particular circumstances. After termination because of a customer service pipe emergency, the Water Department employee will make every effort possible to notify the owner affected by the termination of water service and unaware of it being an emergency situation.
- (f) **Post-termination notice** - In the event that the notices called for in subsections (b) and (c) of this Section cannot be given prior to termination, the Water Department will, as soon as practicable following termination, notify the persons described in subsection (b) of this Section. This notice will contain all applicable information required to be included in a notice given pursuant to subsection (b) and will be transmitted as specified in that subsection.

8.3.3 Resumption of Service

At any time following termination, upon receiving satisfactory proof that a condition that required termination has been cured, the Water Department shall restore service. At that time, a Water Turn off/Turn on Fee and overtime charges if applicable will need to be paid prior to restoration of service. If

work occurs after normal business hours.

SECTION 9: HYDRANT USE

9.1 INTRODUCTION

This section is intended to inform customers, owners, and contractors of the procedures of the Water Department with respect to fire hydrant usage.

9.2 FIRE HYDRANT USAGE

No person, except firefighters at fires, or authorized employees or representatives of the Water Department shall open or operate any public or private fire hydrant without written consent of the Water Department. No person whatsoever, without written consent, shall open, operate, or close any water gate or air valve on mains or any sidewalk valve or any corporation valve attached to the water main or service pipes.

9.3 TESTING FIRE EQUIPMENT

Private hydrants, fire pumps, and sprinkler systems, using Town water, may be tested only in the presence of a representative of the Water Department, after permission to test has been granted by the Water Department or its authorized representative. The Water Department shall specify the time and date in which the test(s) shall take place and shall be reimbursed for all costs.

9.4 ILLEGAL USE OF PUBLIC AND PRIVATE FIRE HYDRANTS

No person shall, open, operate, obstruct, remove, draw water from, or in any way tamper with a private or public fire hydrant without first procuring a written permit to do so from the Water Department. It shall be unlawful for any person to destroy, damage, or vandalize a fire hydrant.

9.5 AUTHORIZED FIRE HYDRANT USE

At the discretion of the Water Department public fire hydrants may be allowed to be used for Town projects or local projects. All costs associated with connection, water use and operation of the hydrant by Water Department personnel will be the responsibility of the person requesting water.

SECTION 10 MILLER STREET, LUDLOW- WATER MAINS AND SERVICES

10.1 Minimum Standards for Excavation

1. Site plans showing the type work requiring excavation near, under and over water mains and services are to be approved by the Water Department.
2. Water Department requires hydro-excavation around all water mains unless waived by the Water Department.
3. Water Department shall provide an estimate to have a Water Department technician at the construction site when work is to occur near, under and over mains and services. Those costs are to be prepaid by owner and/or contractor before relevant excavation begins.
4. Only Licensed Water Installer's specifically designated by the Water Department qualified to work around or near the 16' water main are authorized to make repairs.
5. Contractor will have on site all the materials needed to facilitate any needed repairs. Water Department may supply some materials available and will invoice the contractor if used.
6. All approved plans require three (3) business days notice to Water Department before beginning excavation including test holes. Work shall be planned for a Monday through Friday schedule, excluding holidays.
7. Due to higher water consumption and the need for both water transmission mains to be fully operational, no excavation are allowed near, under and over water mains from May 15 to September 15 unless otherwise approved by the Water Department.
8. Contractor and builder will have a minimum of One Million Dollars comprehensive general liability insurance for significant projects as determined by the Water Department.
9. The area of work will be marked out by Water Department, indicating all mains, services and water related structures.
10. Contractor(s) are required to "hand dig" to locate a marked water main and service when working within three (3) feet of said structure.
11. A minimum clearance of twelve (12) inches is required between any newly installed pipe or conduit and a water main.
12. A minimum clearance of twelve (12) inches is required between any newly installed pipe or conduit and water main.
13. No excavation under existing 16" Asbestos Cement (AC) water main is allowed. When installation needs require pipe and/or conduit to be placed under the 16" AC water main – boring is required. The use of underground piercing tools (i.e. The bullet, hole-hog, pneumatic gopher,) is not allowed when boring is less than three (3) feet under main. No jetting with water is allowed.

14. Excavating is allowed under existing 10" cast iron water main only when flowable fill is to be used as backfill. Flowable fill is to be used in all areas of trench and/or hole that support any weight of water main.
15. Excavating is allowed under water service lines when sand backfill is compacted in successive layers not to exceed six (6) inches in depth. No frozen material shall be used as backfill.
16. When uncovering a water main and/or service, a minimum of six (6) inches of sand is to be backfilled on top of pipe, before backfilling to grade.

APPENDIX A
Private Roads with Public Water Mains Maintained by the Town

Bartlett Court
Bruer Road
Country Lane
Elm Circle
Grant Street
Lake Drive
Mile Morgan Court
Pleasant Street
Pomeroy Street
Railroad Avenue
Seneca Street
Washington Road
Wilton Drive

APPENDIX B

Cross Connection and Backflow Prevention Program

11.1 INTRODUCTION

The purpose of this section is to describe the Water Department's Cross Connection and Backflow Prevention Program. A cross connection is an actual or potential connection between a drinking water distribution system pipe and any waste pipe, soil pipe, sewer, drain, or other unapproved source. Backflow is the flow of water or other liquids, mixtures, or substances from any source into the water distribution system.

11.2 PURPOSE

The purpose of the cross connection and backflow prevention program is:

1. To protect the public potable water supply of the Water Department from the possibility of contamination or pollution by isolating within the customer's internal distribution system or the customer's private water system such contaminants or pollutants which could backflow into the public water system;
2. To promote the elimination or control of existing cross-connections, actual or potential, between the customer's in-plant water system and non-potable water systems, plumbing fixtures, and industrial piping systems; and
3. To provide for the maintenance of a continuing Program of Cross-Connection Control which will systematically and effectively prevent the contamination or pollution of all potable water systems from a physical or potential cross-connection.

11.3 AUTHORITY

The Wilbraham Water Commissioners acting through the Water Department requires that any cross-connection, actual or potential, between a distribution pipe of potable water from the public water system and any waste pipe, soil pipe, sewer, drain, or other unapproved source, be maintained in accordance with the Federal Safe Drinking Water Act of 1974 (Public Law 93-523), the Commonwealth of Massachusetts Drinking Water Regulations (310 CMR 22.22), and Water Department Rules and Regulations, as most recently amended.

The Water Department being a Delegated Authority by the Department of Environmental Protection, reserves the right to adopt policy above the minimum requirements set by the DEP in CMR 22.22.

11.4 RESPONSIBILITY

The Water Commissioners acting through the Water Department shall be responsible for the protection of the public potable water distribution system from contamination or pollution due to the backflow or backsiphonage of contaminants or pollutants. If, as a result of a survey of the premises, the Water Department determines that an approved backflow prevention device is required at the Water Departments' water service connection or as in-plant protection, then approved backflow prevention devices shall be installed. The customer shall, within a time frame determined by the Water Department, install such approved device or devices at its own expense, and failure or refusal or inability on the part of the customer to install said device

or devices within the specified time frame shall constitute grounds for discontinuing water service to the premises until such device or devices have been properly installed.

11.5 ADMINISTRATION

The Water Department will operate an active cross connection control program, including the keeping of necessary records, which fulfills the requirements of the MassDEP's Cross Connection Regulations and is approved by MassDEP.

The Owner shall allow its property to be inspected for possible cross connections and shall follow the provisions of the Water Department's program and MassDEP Regulations.

11.6 WATER DEPARTMENT

On new installations, the Water Department will provide a representative for evaluation and/or inspection of plans in order to determine the type of backflow preventer, if any, that will be required, and notify the Owner of plan approval requirements by the appropriate reviewing authority. The Owner shall install backflow prevention device in a manner approved by the MassDEP, the Water Department and State Plumbing Code

For premises existing prior to the start of this program, the Water Department will perform surveys of the premises and reviews of as-built plans and issue a cross connection violation form to the Owner detailing any corrective action required, the method of achieving the correction, and the time allowed for the correction to be made. The time period allowed shall depend on the degree of hazard involved.

The Water Department will not allow any cross connection to remain unless it is protected by an approved backflow preventer for which a permit has been issued and which will be regularly tested to ensure satisfactory operation.

If the Water Department determines at any time that a serious threat to the public health exists, the water service will be terminated immediately.

The Water Department shall have on its staff, or shall have a delegated representative, who is a backflow prevention device tester certified by the Commonwealth of Massachusetts.

The Water Department will continually conduct premise inspections to determine the nature of existing or potential hazards. The focus will be on high hazard industries and commercial premises.

11.7 OWNER

The Owner shall be responsible for the elimination or protection of all cross connections on its premises.

The Owner shall be responsible for applying for and obtaining all necessary approvals and permits for the maintenance of cross connections and installation of backflow prevention devices.

The Owner shall have any device that fails an inspection or test repaired by a licensed plumber.

The Owner shall immediately inform the Water Department of any proposed modification or proposed new cross connection and also any existing cross connection of which the Town is not aware.

The Owner shall not install a bypass around any backflow prevention device unless there is a backflow

prevention device of the same type on the bypass. Owners who cannot shut down operation for testing of the device must supply an additional device necessary to allow testing to take place.

The Owner shall install backflow prevention device in a manner approved by the MassDEP, the Water Department and State Plumbing Code

The Owner shall install only reduced pressure backflow prevention devices and double check valve assemblies approved by the MassDEP and the State Plumbing Code.

The Owner of any industrial, commercial, institutional or residential premises having a private well or other private water source will not be allowed a physical connection with the public water system.

The Owner shall be responsible for the payment of all fees for permits, device testings, re- testing in the case that the device fails to operate correctly, and second re-inspections for noncompliance with Water Department or MassDEP requirements.

11.8 DEGREE OF HAZARD

The Water Department recognizes the threat to the public water system arising from cross connections. As such, the Water Department, whereas it is responsible for the quality of the public water supply, may require a containment device on the water service entrance to any customer who, as a result of unprotected cross connections, could contaminate the public water supply system.

11.9 ENFORCEMENT

The Water Department shall not allow a cross connection to exist with the public water supply system unless it is considered necessary and all appropriate approvals and permits have been issued.

If an inspection of a facility or the premises reveals a cross connection does exist, whether physical or potential, the Water Department shall issue a "Notice of Non-compliance Cross Connection Violation" detailing the violation(s) and a procedure for corrective action. The Owner shall be required to submit plans and specifications indicating the method of protection to both the Water Department and the MassDEP within 60 days of receipt of the notice.

If the Owner of the premises does not initiate corrective actions by the prescribed deadline, the Water Department shall then issue a follow-up notice or a "Second Notice of Non-compliance Cross Connection Violation" indicating that the Owner remains in violation and under 310 CMR 22.22 Section 2(b) will have water service terminated unless corrective action is initiated within 15 days of receipt of the notice.

If the Owner of the premises fails to initiate corrective action by the prescribed deadline as required in the follow-up notice, a third and final notice or "Notice of Termination of Water Service" shall be issued notifying the Owner that water service will be terminated within 24 hours upon receipt of the notice. In addition, the Owner will be charged a Water Shut- off/Turn-On Fee for the physical termination of water service.

If the Owner of the premises fails to submit payment for testing and/or inspection of cross connection devices, the Water Department shall issue a "Notice of Non-Payment" along with an additional copy of the unpaid invoice. The Owner shall be required to submit payment within 30 days of receipt of the notice.

If, after the required 30 days of receiving the "Notice of Non-Payment", the Owner still has not submitted

payment for testing and/or inspection of cross connection devices, the Water Department shall issue a “Water Shut-Off Notice” to notify the Owner that water service will be shut off within 15 days upon receipt of the notice. In addition, the Owner will be charged late fees and interest and a Water Shut-off/Turn-On Fee, for the physical termination of water service.

11.10 EXISTING IN-USE BACKFLOW PREVENTION DEVICES

An existing backflow prevention device shall be allowed by the Water Department to continue in service unless the degree of hazard is such as to supersede the effectiveness of the present backflow prevention device or result in an unreasonable risk to the public health. Where the degree of hazard has increased, as in the case of a residential installation converting to a business establishment, an existing backflow prevention device must be upgraded to a reduced pressure backflow prevention device, or a reduced pressure backflow prevention device must be installed in the event that no backflow device was present.

11.11 PERIODIC TESTING

Reduced pressure backflow prevention devices assemblies shall be tested and inspected a minimum of two times per year. Double check valve assemblies shall be tested and inspected a minimum of one time per year.

The Water Department’s certified tester may perform the testing for a fee in accordance with the Water Department Fee Schedule. The Water Department also reserves the right to require the Owner to test and inspect their own devices using a licensed certified backflow tester and cross connection surveyor. The Water Department will provide the Owner with a list of all Commonwealth of Massachusetts licensed certified testers and surveyors.

The testing shall be conducted during the Water Department's regular business hours. Exceptions to this, when at the request of the Owner, may require additional charges to cover the increased costs to the Water Department.

Any backflow prevention device that fails during a periodic test must be repaired or replaced by a licensed plumber. When repairs are necessary, upon completion of the repair, the device will be retested at the Owner's expense to ensure proper operation. High hazard situations will not be allowed to continue unprotected if the backflow prevention device fails the test and cannot be repaired immediately. In other situations, a compliance date of not more than fourteen days after the test date will be established. The Owner is responsible for spare parts, repair tools, or a replacement device. Parallel installation of two devices is an effective means of the Owner ensuring that uninterrupted water service remains during testing or repair of devices and is strongly recommended when the Owner desires such continuity.

Backflow prevention devices will be tested more frequently where there is a history of test failures and the Water Department feels that due to the degree of hazard involved, additional testing is warranted. Cost of the additional tests shall be borne by the Owner.

11.12 INCIDENT RESPONSE

Upon a report of a contamination event, the MassDEP’s cross connection inspector/tester shall investigate the nature of the contamination and in light of the circumstances found to exist, determine if in fact a backflow incident did or is occurring. Under the Drinking Water Regulations of the Commonwealth of Massachusetts, 310 CMR 22.22, Section 10(b)5, the MassDEP shall take appropriate action to eliminate the hazardous conditions. Action may include immediate termination of water service to any premises suspected of contaminating the public water supply.

In any event where backflow is or was either suspected or confirmed, the following agencies will be immediately notified by the Water Department:

1. The Massachusetts Department of Environmental Protection, Western Region
2. The Wilbraham Board of Health Department

Samples shall be taken by a certified laboratory for analysis to determine the nature of the contamination, if any. The scope of the incident shall be determined and all consumers affected by the contamination shall be notified immediately if there is any threat to public health.

Any remedial action to mitigate the contamination shall be initiated as promptly as possible. Mitigation actions shall include installation of backflow prevention devices, disconnecting systems or equipment, or flushing and chlorinating affected water lines, all on the part of the Owner and under the supervision of the Cross Connection Inspector/Tester. No water in the affected area shall be used for drinking, bathing, or cooking until such time as further sampling and analysis indicates that no threat to the public health exists.

Any and all action taken shall be well-documented and recorded by the Cross Connection Inspector/Tester.

11.13 RECORDS AND REPORTS

The Water Department will initiate and maintain the following:

1. Master files on customer cross connection tests and/or inspections
2. Master files on approved cross connection installations
3. Copies of lists and summaries supplied to the MassDEP

The Water Department will submit the following to The MassDEP:

1. Initial listing of high hazard cross connections
2. Initial listing of low hazard cross connections
3. Annual updated lists of items 1 and 2 above
4. Annual summary of cross connection inspections and surveys

11.14 SURVEY PROCEDURE

1. The Water Department shall determine if a cross connection survey is required for all commercial, institutional, and industrial establishments.
2. The Water Department and/or delegated licensed representative shall notify the Owner that a survey of the premises is required.
3. The Water Department shall determine if an actual survey will be conducted by in-house personnel, a delegated licensed representative, or if the Owner will be required to hire a certified cross connection surveyor.

4. The Water Department and/or delegated licensed representative will provide an inspection/evaluation report checklist for both in-house and Owner's surveyor for all survey work. If no cross connections are discovered, the checklist will be completed and no further action is necessary. Completed checklists will be provided to the Owner and kept on file at the Water Department office.
5. If a cross connection is detected at the Owner's facility, the Owner must hire a licensed plumber and/or licensed surveyor who develops plans and data sheets for all associated work.
6. For non-fire service backflow prevention devices, the licensed plumber and/or licensed surveyor must submit plans and a permit application to the Water Department for review and approval (meet Water Department and CMR requirements). The Water Department will notify the Plumbing Inspector of the location of the devices. For cross connection prevention devices on a fire service, all plans must also be submitted to the Fire Department for approval and permitting.
7. Once the Owner receives Water Department approval, the Owner's licensed plumber and/or licensed surveyor must submit plans and application to the plumbing inspector.
8. Once the plumbing inspector reviews the plan and issues an authorization permit, the work may begin.
9. When the work is completed, the plumber must notify both the plumbing inspector for final inspection and the Water Department for initial device testing. The Water Department will verify that the approved appropriate device has been installed, installation is consistent with submitted design plans, the device has passed initial testing, and a spare repair kit is on site. It is the Owner's responsibility to ensure that both inspecting parties sign off on the initial inspection/evaluation report checklist.
10. When both inspecting parties have signed the initial inspection/evaluation report checklist, the Owner shall be considered to be in compliance.

11.15 RESIDENTIAL EDUCATION PROGRAM

Residential Irrigation Systems

Where a single or multi-family residential customer served by the public water supply system has or proposes to install a lawn sprinkler or irrigation system, the minimum required backflow protection to prevent back siphonage shall be the pressure vacuum breaker.

Pressure vacuum breakers (PVB) shall be located, specified, installed, maintained and accessible for inspection in a manner acceptable to the Water Department and the Town of Wilbraham plumbing or building code enforcement official. The minimum height of a PVB shall be twelve (12) inches higher than the highest downstream sprinkler head.

For the residential irrigation systems described below, the public water system shall be protected against backflow by requiring the customer to perform the following:

1. Install an approved Reduced Pressure Backflow Preventer device on those systems where provisions are made for chemical injection. Locations with these devices will be required to be tested every six months in accordance with the Water Department's Cross Connection Control Program.

2. Any activity, situation, or use of water which establishes a degree of hazard within a single or multi family residence equivalent to that of a commercial user shall be required to have the appropriate backflow protection devices. Examples include but are not limited to customers utilizing boiler feed corrosion inhibitors, antifreeze loops, single wall heat exchangers, etc.

3. Residential properties are required to have hose bib vacuum breaker backflow prevention on all threaded hose connections.

The Water Department will establish and maintain a residential education program.

Policy on Coordination with Building Department on Backflow Prevention at Residences

The Massachusetts Department of Environmental Protection (MassDEP) has required the Wilbraham Water Department to develop a written policy to work with the Building Department, specifically the Plumbing Inspector, to identify facilities and residences installing Double Check Valves (DCVs) and/or Reduced Pressure Backflow Preventors (RPBPs) to reduce the public health risk presented by cross connections.

As you are aware, a cross connection is an actual or potential connection between the public water supply and a source of possible contamination or pollution. The potential for cross connection exists in every home and business.

The Wilbraham Water Department routinely surveys commercial, industrial and municipal facilities and tests DCVs and RPBPs installed at these facilities in accordance with Massachusetts regulations 310 CMR 22.22.

310 CMR 22.22 does not required cross connection survey to be conducted at residential facilities, therefore any testable backflow preventers found on residential facilities have been installed without the proper review and approval by a cross connection surveyor working for the Wilbraham Water Department, as much as possible testable backflow preventers must be avoid being installed on residential customers.

MassDEP is now requiring the Wilbraham Water Department to include DCVs and RPBPs installed at residences in the required annual testing program.

Residences with Pressure Vacuum Breakers (PVBs) are not required to be included in this program. However, Wilbraham Water Department is conducting public education to notify our customers of the dangers posed by cross connection. As described above, in order to identify residences with DCVs and RPBPs, the MassDEP has required that the Wilbraham Water Department develop a written policy work with the Building Department. As the Building Department reviews permit applications and the plumbing Inspector completes inspections, use of DCVs and RPBPs shall be reported to the Wilbraham Water Department.