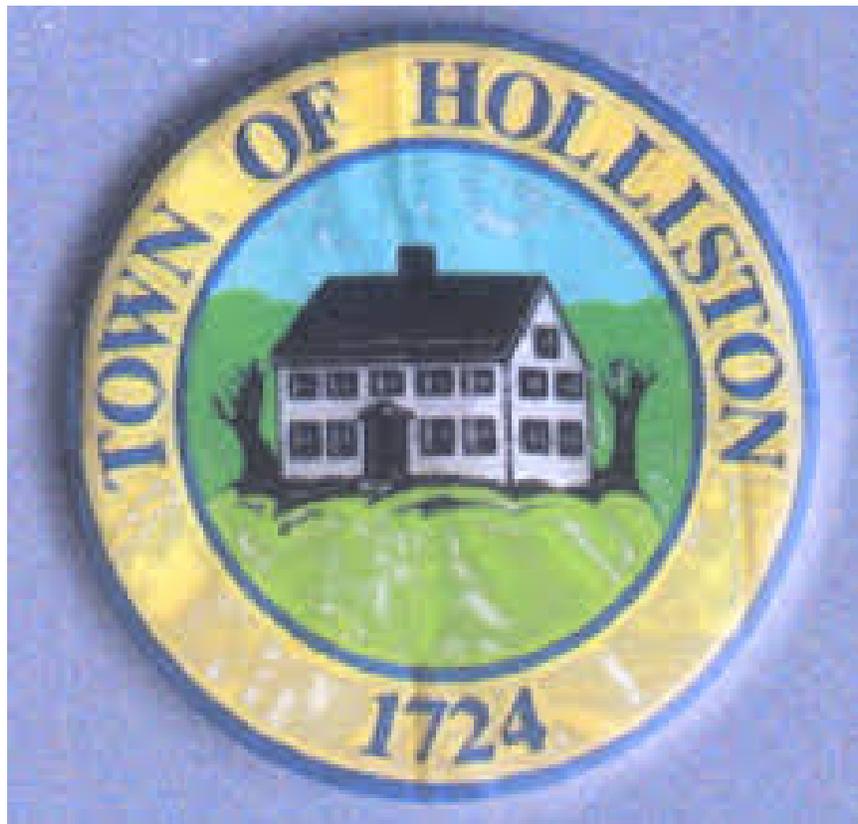


WATER RULES AND REGULATIONS



**HOLLISTON WATER DIVISION
DEPARTMENT OF PUBLIC WORKS
HOLLISTON, MASSACHUSETTS**

REVISED JULY 2018

Water Rules and Regulations

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DEFINITIONS

- A. The following terms and expressions, when used in these Water Rules and Regulations, shall have the indicated meanings:
- a) **Account:** The record kept by the Holliston Water Division (HWD) of the experience with a Customer including financial and physical data, service history, and/or consumption history.
 - b) **Applicant:** Person, firms, developers requesting the HWD to supply water service.
 - c) **Application:** Request to the HWD in person, on required written form(s) provided by the HWD for water service.
 - d) **Backflow Prevention Assembly:** To prevent a back flow of water into the potable water within an establishment or to the Town's water system.
 - e) **Bill:** Written or electronic demand for payment for services rendered to the Customer.
 - f) **Billing period:** The time interval between two consecutive meter readings that are taken for billing purposes.
 - g) **Customer:** Person in whose name service is last rendered as evidenced by signature on the application, or, in the absence of a signed instrument, by the receipt and payment of bills regularly issued in the Customer's name regardless of the identity of the actual user of the service, or by a person benefiting directly from the service.
 - h) **Customer's mailing address:** The address specified in a Customer's application, or any other address given in writing, by telephone, fax or internet to the HWD Staff by the Customer or Customer's authorized agent, to which any notice or other communication is to be mailed, sent, or delivered.
 - i) **Delivered:** Any notice or communication shall be considered delivered by the HWD when it is: 1) mailed, postage prepaid, to the Customer to whom the service is billed; 2) communicated via telephone conversation with the Customer or his/her authorized representative; 3) given in person or by posting in a conspicuous location at the premises served; 4) transmitted by electronic means including, but not limited to, facsimile (FAX) machine, computer e-mail; or 5) transmitted to a Customer's voice mail box.
 - j) **Facilities:** Equipment, in whole or part, owned and operated by the HWD for the purposes of providing water service up to and including the curb stop (shut off), and also the water meter.
 - k) **HWD office:** The HWD's office is located at Town Hall, 703 Washington Street, Holliston, Massachusetts 01746.
 - l) **Mail:** Any notice or other communication shall be considered mailed when it is enclosed in a sealed envelope, addressed to the Customer's mailing address, and deposited in a U.S. Postal Service box, postage prepaid by the HWD.

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- m) **Meter:** The equipment used for measuring water service delivered to the Customer.
- n) **Multi-family accommodation:** Multi-family consists of 4 or more residential units located upon a single premise, providing the residential units therein meet the requirements for a single-family accommodation.
- o) **Payment:** Any recognized tender provided in exchange for service, whether in person, by mail or in electronic form.
- p) **Person:** Any individual, partnership, corporation, public agency, or other organization operating as a single entity.
- q) **Premises:** All of the real property and apparatus employed in a single enterprise on a contiguous parcel of land undivided by a dedicated street, highway, or other public thoroughfare, or a railway.
- r) **Presentation:** The date which the HWD mails, sends, or delivers a bill to a Customer.
- s) **System Development Charges:** The charges established by the HWD for the equivalent portion of the cost of the existing system infrastructures for a particular size of service.
- t) **Service connection:** The pipeline extending from the HWD's water main to the property line of the Customer's premises, together with the valve and fittings necessary to connect to the Customer's private pipeline, and also the water meter and any enclosures.
- u) **Subdivision:** An area for dwellings which may be identified by filed subdivision plans or as an area in which a group of dwellings may be constructed about the same time, either by one builder or by several builders working on a coordinated basis.
- v) **Town:** Town of Holliston, Massachusetts.
- w) **Water Rates:** The rates published by the HWD for water consumption services.

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PART 1 GENERAL RULES AND REGULATIONS

1.1 GENERAL

- A. The following Water Rules and Regulations are a part of the contract with every person who takes water and govern the relations between the Holliston Water Division (HWD) and its Customers and Contractors / Developers who install water systems. Where applicable, 310 CMR 22 and Massachusetts Department of Environmental Protection (MassDEP) Guidelines for Public Water Systems must be observed.
- B. All prior and existing water rules and regulations are hereby rescinded and these rules and regulations substituted in place thereof.
- C. Water systems are subject to regulatory control by other governmental agencies including those of the Commonwealth of Massachusetts and the United States of America. Such agencies may mandate changes to water systems operations and practices. HWD reserves the right to implement such changes and or any other revisions on an interim basis until such time as Board of Selectmen acts by passing ordinances or resolutions which would change these Water Rules and Regulations, or on a permanent basis if it is determined that Board of Selectmen action is not required.
- D. In case of any conflicts between the Planning Board Rules and Regulations, MassDEP Guidelines and these Water Rules and Regulations, the more stringent rules and regulations apply.
- E. Conflicts among Water Rules and Regulations, in general, or for a particular situation or application, may be found to exist. In all such cases it shall be the responsibility of the Director of Public Works to impartially consider the facts and render a decision, including, if deemed appropriate, proposed changes to the Water Rules and Regulations.
- F. If any rule or regulation is held to be unlawful, the decision shall not affect any remaining portions of these Water Rules and Regulations.

1.2 DOCUMENT FORMAT AND AVAILABILITY

- A. The Water Rules and Regulations are presented in five (5) parts as follow:
 - Part 1: This first part addresses general and procedural topics related to the Water Rules and Regulations.
 - Part 2: Describes requirements related to the application process, fees and charges for connection to the HWD's system.
 - Part 3: Addresses acceptable standards for products and materials to be used in the HWD's system.
 - Part 4: Discusses installation and construction standards for work related to the HWD's system.
 - Part 5: Describes the flushing, chlorination and testing standard requirements.

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- B. Copies of these Water Rules and Regulations will be kept on file in the office of HWD at Town Hall and on the HWD's website, <http://www.townofholliston.us/water-department>. Reasonable effort will be made to keep these copies up to date.
- C. Changes may be made to these Water Rules and Regulations periodically. Applicants, Customers or others contemplating any expenditures or activities governed by these Water Rules and Regulations should assure themselves that they have correct information.
- D. Proposed changes to the Water Rules and Regulations should be addressed to Holliston Water Division, Town Hall, 703 Washington Street, Holliston, Massachusetts 01746.

1.3 COMMUNICATION

- A. Staff is available to Customers for consultation and guidance regarding interpretation of these Water Rules and Regulations. Oral consultation by Staff shall not be considered binding.
- B. Any notice or bill or other communication from the HWD to a Customer shall be made in writing or electronic format, and shall be given in person at the HWD's office, delivered, sent through the mail, or sent electronically.
- C. Any notice from a Customer may be given to the HWD in person at the HWD's office by the Customer, telephone, fax, e-mail, by the Customer's authorized agent, or mailed postage prepaid by the Customer.

1.4 PROVISIONS OF WATER SERVICE

- A. The HWD shall endeavor to render a dependable supply of potable water in quantities adequate to meet the reasonable needs of its Customers.
- B. The HWD shall endeavor to maintain minimum operating pressures of 20 pounds per square inch (psi) at the hydrants and no less than 35 psi at service connections. Pressures may be lower at times of maximum demand or because of unusual elevations or other special conditions.
- C. No construction requiring domestic and fire-fighting water services shall be allowed above elevation of 310 feet without the benefit of a booster pump or other pressure supporting devices purchased by the customer. Booster pumps are permitted in residences but must be purchased and maintained by the customer.
- D. The HWD shall furnish service only to the premises specified in the application. A service connection shall not be used to supply water service to any parcel of land other than the parcel for which the service connection is assigned.

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- E. When property provided with a service connection is subdivided, the service connection shall be considered as belonging to the lot or parcel of land which it directly enters.
- F. The HWD shall have the right to refuse to provide service to any premises and at any time to discontinue service if found necessary to do so in order to protect the Town against abuse or fraud.
- G. The Customer is advised that in order to protect public water supplies, certain acts are punishable by fines, including stealing water, as well as taking water after service has been disconnected and the meter sealed, including unauthorized connection to fire hydrants.
- H. Any unauthorized person found taking water service from or through any of the HWD's facilities will be assessed charges and/or prosecuted under the full extent of the law. Any unauthorized equipment or apparatus found connected to the HWD's facilities will be removed by the HWD personnel and stored at the HWD. The equipment or apparatus may be redeemed upon full payment of all penalties, fees or charges due. After 30 days, unclaimed equipment or apparatus will be disposed of at the HWD's discretion.
- I. If the HWD has knowledge that a Customer failed to comply with any of the Rules and Regulations, the HWD will notify Customer of such failure. If the Customer does not remedy same within a stated time, the HWD shall have the right to discontinue service to the Customer.
- J. The HWD will not furnish service to any premises where the use thereof may be detrimental to the HWD's facilities or to the service rendered by the HWD to other Customers.
- K. A Customer making any material change in the size, character or extent of the equipment, operations, or nature of land use at the Customer's premises shall immediately give the HWD written notice of the nature and extent of the change.
- L. For routine work, the HWD shall, at all reasonable hours, have access to service connections, meters and other property owned by it which may be located on Customer's premises for purposes of installation, maintenance, meter readings, operation or removal of the property at the time service is to be terminated. During an emergency HWD shall, at any time and with minimal notice, have access to the HWD's facilities.
- M. The HWD shall have the right to temporarily discontinue service to make repairs, changes or connections to its mains and other equipment. It will use reasonable effort to notify the customers in advance of such discontinuance of service, but it will not be liable for any damage or inconvenience suffered by the customer because of such discontinuance of service, quantity of supply, inadequate or changing pressure, quality of water, or because of failure to notify the customer in advance of its intention to discontinue service.

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- N. The Town shall not be liable for any damage or inconvenience suffered by the customer as a result of interruption of service, or any cause beyond its control.

1.5 PAYMENT FOR SERVICE

- A. Bills for service will be rendered periodically in accordance with each specific noted in Schedule of Other Charges and Service Rates in Appendix A of these Water Rules and Regulations.
- B. Bills for service will be rendered only to property owners of record and they will be responsible for the payment of the bill when due. Bills are due and payable at the HWD's Office, upon presentation.
- C. Customer must notify the HWD five (5) days prior to sale of their property so that the meter can be read and a final bill prepared. A Final Reading Fee will be charged in accordance with Schedule of Other Charges and Service Rates in Appendix A.
- D. If payment in full is not made within thirty (30) days after bill is rendered, the HWD reserves the right to charge a late fee and after ten (10) days written notice, to discontinue rendering service. Termination of water service may also occur due to disregard of Water Rules and Regulations including failure to allow access to the HWD to inspect, service or change the water meter and test backflow devices. Water service termination notices shall clearly state that reconnection will only occur during normal business hours (8:00AM-3:00PM), Monday through Friday. Water reconnections will only take place after hours in an emergency situation declared by HWD. Restoration of service during working hours will incur a Service Activation charge and after working hours will incur Service Activation (After Hours) charge in accordance with Schedule of Other Charges and Service Rates in Appendix A.
- E. Whenever the customer desires to have his/her service contract terminated or water service discontinued, he/she shall so notify the HWD in writing. Until the HWD receives such notice, the customer shall be responsible for the payment for all service rendered by the HWD, including charges for meter repairs caused by damage by hot water or freezing or other external causes. A reasonable time after the receipt of such notice shall be allowed the HWD to take a final reading of the meter or meters and to discontinue service.
- F. The presentation or non-presentation of a bill shall not be held to be a waiver of any of the rules.

1.6 UNMETERED WATER

- A. It is the policy of the HWD to not allow unmetered usage of water in Holliston except for special uses of the Town such as for extinguishing fires, storm drain flushing and street sweeping.

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1.7 METERED SERVICE

- A. An individual meter shall be required for each separate service connection.
- B. All meters will be furnished and installed by and remain the property of the HWD, which reserves the right to stipulate the size, type and make of meter to be used, as well as the location of the setting. The Applicant shall pay for the expense of original installation for service. The Applicant is responsible for all costs associated with the service and for all other work to have the facility ready in order to facilitate installation of the meter by the HWD.
- C. When possible, the meter shall be located in the basement in a convenient place to control the entire supply. Where this is impossible or impractical, it may be located at some other location approved by the HWD. All expense in connection with the proper housing for the meter shall be borne by the Customer. The Customer shall furnish a safe and convenient location for the meter and shall keep it accessible for reading. It shall be protected from freezing and other damage. The owner shall be responsible for any damage caused by failure to do so.
- D. The HWD shall have the right to access the customer's premises at all reasonable times under the Massachusetts General Laws, Chapter 165, Section 11D, for the purpose of examining or maintaining meters, removing or exchanging meters and meter transmitting devices, backflow prevention devices, pipes, fittings, and other work necessary to supply, monitor, and maintain the system devices and to ascertain the quality and quantity of the water.
- E. The HWD reserves the right to remove and to test any meter and to substitute another meter in its place. In the case of a question as to the accuracy of the meter, the meter will be tested by the HWD. The fee for testing meters will depend upon meter size and in accordance with Schedule of Other Charges and Service Rates in Appendix A, payable in advance of test. In the event that the meter is found to have an error in registration in excess of 2% at any rate of flow within normal test flow limits, to the detriment of the customer, the fee will be refunded and the current bill shall be corrected accordingly.
- F. No one shall remove, install, alter or interfere with a water meter except with the express authorization of the HWD. The customer shall promptly notify the HWD of any known damage or malfunction of the meter.

1.8 DISCONNECTION / RECONNECTION

- A. Service may be discontinued for any of the following reasons:
 - 1. Use of water for purposes other than described in the application.
 - 2. Misrepresentation in application.
 - 3. Willful waste of water.
 - 4. Tampering with Town property or seals on appliances.
 - 5. For vacancy.
 - 6. Non-payment of bills when due.

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7. For cross connecting the Town services pipe with any other supply source.
 8. Refusal of reasonable access to property.
 9. Use of an automatic underground sprinkler system except in full compliance with these Water Rules and Regulations.
- B. When water has been turned off from any premises for any of the above reasons, or for any other violation of the Town's rules, or upon order of the customer, a charge will be made for restoring service in the amount of the actual cost of turning on the water, except however, that the minimum for Service Activation shall be in accordance with Schedule of Other Charges and Service Rates in Appendix A.
- C. The Customer may request that the HWD turn-on or turn-off the water service at the Town valve (curb stop) for the purpose of making repairs or changes of Customer's plumbing. The Customer will be billed for the Service Activation (turn-on) or Service Shut Off according to the rate set in the Schedule of Other Charges and Service Rates in Appendix A.
- D. In case of vacancy of a customer's property, the customer must notify the HWD in writing of such vacancy. Owners of a premise should notify the HWD of the change in ownership; until the HWD is notified the owner of record shall be held responsible for all unpaid bills.
- E. In the interest of public health, the HWD will not permit its mains or services to be connected on any premises with any service pipe or piping that is connected with any other source of supply. There shall be no connection to any piping, tanks or other apparatus which contains liquids, chemicals or any other matter which may contaminate Town's service pipe or mains, and consequently endanger the water supply. Any willful violation of this provision is a criminal offense, which shall be prosecuted to the fullest extent of the law.

1.9 CONTINUITY OF SERVICE

- A. The HWD will exercise diligence and make all reasonable efforts to furnish and deliver a continuous and sufficient supply of water service to prevent interruptions to service. When such interruptions occur, the HWD will endeavor to re-establish service with the shortest possible delay consistent with the safety of its Staff, its Customers and the general public.
- B. Whenever the HWD finds it necessary to schedule an interruption of service, it will, where feasible, notify all Customers to be affected by the interruption, stating the approximate time and anticipated duration of the interruption, but shall not be liable for failure to do so. Scheduled interruptions will impose the least inconvenience to Customers, consistent with reasonable the HWD operations.

1.10 PROPERTY DAMAGE

- A. The Customer shall at his own risk and expense, furnish, install, and keep in good and safe condition all apparatus and appliances which may be required for

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receiving, controlling, applying and utilizing water furnished by the HWD. The HWD shall not be responsible for any loss or damage caused by the improper installation of such apparatus and appliances, negligence, or wrongful act of the Customer or any of his agents, employees or licensees on the part of the Customer in installing, maintaining, using, operating or interfering with any such apparatus or appliances.

- B. The HWD shall not be responsible for any damage occurring on the premises served, or elsewhere, by reason of open faucets, faulty fixtures, or broken pipes on such premises when service is turned on whether or not at that time there be any responsible person on the premises, nor for any damage resulting from the turning off of water service.
- C. Any damage occurring to meters, pipe or other equipment owned by the HWD caused by carelessness or neglect of the Customer, including any damage which may result from hot water or steam from any boiler or heater on the Customer's premises, shall be paid for by the Customer on presentation of a bill by the HWD.
- D. When any Customer or other person is determined to be the responsible party that has caused damage to a fire hydrant, fire service, blow off or other aboveground appurtenance, the HWD shall charge that party the cost of repair plus the cost of water loss computed on the basis of duration of flow and the flow rate based on the rate schedule at the time of the incident. Charges may be made to the current Customer or property owner and either billed separately or added to the next billing for collection.
- E. Customers will be charged for non-emergency after hours service calls as well as materials used. Customers will not be charged for emergency after hour's calls i.e. water escaping from pipes or fixtures causing damage by flooding are considered an emergency.

1.11 BILLING AND COLLECTION

- A. The charges billed by and payable to the HWD for water service will be according to rates legally adopted by the Board of Selectmen. Complete sets of rates will be kept in the HWD's office where they will be available for public inspection and on the HWD's website.
- B. Upon adoption by the Board of Selectmen of new schedules of rates, the HWD will publish them on the HWD's website.
- C. The HWD may establish and enforce charges for furnishing and supplying water service to any installation of a character not adequately provided for in these Water Rules and Regulations, provided that such charges shall be consistent with rates and charges prescribed herein.

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- D. Bills for water service will be rendered according to registration of the meter as stipulated by rate schedules at the time of reading. Meters will be read as nearly as possible at regular intervals, and at regular intervals at the discretion of the HWD.
- E. The HWD shall mail, deliver, fax, or send via email, bills for service to the Customer.
- F. Bills are due and payable upon presentation.
- G. If a bill is not received by a Customer at the anticipated interval, it shall be incumbent upon the Customer to inquire as to the whereabouts of the bill. Not receiving a bill does not alleviate a Customer's responsibility for prompt payment.
- H. Removal bills, bills rendered on vacation of premises, closing or final bills, or bills rendered to Customers discontinuing service are payable upon presentation.
- I. Any amount unpaid 30 days after presentation causes the entire amount to become delinquent. All delinquent amounts are subject to a late fee after 30 days.
- J. Upon receipt of a returned payment taken as remittance of water billing or other charges, the HWD will consider the account not paid. The HWD may charge a fee if an Applicant tenders a check which is returned to the HWD by its financial institution due to Applicant's insufficient funds. This fee may be waived if the returned check has been verified as a bank error.

1.12 DISPUTED BILLS

- A. Whenever the accuracy of any bill for service is questioned by the Customer within 30 days of presentation, the HWD will cause an investigation to be made. If this procedure does not result in a resolution deemed acceptable to the Customer, the Customer shall have the right to seek review by the office of the Director of Public Works. After such review, the Customer may request an appeal to the Town Administrator's office. The Customer complaint should be in writing and should be addressed to the Town Administrator.
- B. In the event that a Customer requests a meter test, the Applicant shall be required to make a payment to the HWD before it will perform the meter test. The payment for testing the accuracy of the meter shall be equal to the Meter Test fee as specified in Schedule of Other Charges and Service Rates included in Appendix A. If a water meter is found to register between 98 percent and 102 percent of correct values, the HWD considers the meter accurate by the standards of the water industry and no adjustment to billings shall be made and the payment will be processed. If the meter is found to register outside of the range, the payment will be refunded to the Customer and an adjustment made to the water bill.
- C. Inaccuracies of meter readings or bills reflecting clerical or meter errors shall be adjusted to a correct basis as determined by the HWD's investigation. The HWD may bill or credit the Customer, at its option, for the amount overbilled or

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undercharged based on corrected meter readings or clerical data for the period the meter was in use and determined to be incorrect, but not to exceed a period of one year.

- D. If the meter is found to be non-registering, the HWD may bill the Customer according to an estimate of consumption while the meter was not registering, but not to exceed a period of one year. The estimate will be based on the Customer's prior use during the same season of the previous year if conditions were unchanged during the year, or on a reasonable comparison of consumption of other similar Customers during the same period.
- E. In cases where meter readings, dates, or other required factors cannot be determined, the HWD shall establish such factors by tests, analyses, and investigations to determine the proper basis for making an adjustment, if any.

1.13 DELINQUENCY

- A. In the event any bill for service is not paid in accordance with the provisions of these Water Rules and Regulations, the amount of such unpaid bill may become a lien upon the property and be collected at the same time and in the same manner as all taxes on real property in the Town.
- B. If payment for a billing period is not made on or before the 30 days after presentation, the account is subject to collection activity.
- C. Minimum arrears must be paid on or before notice expiration date to avoid further collection action or service disconnection.
- D. The HWD will notify the Customer by mail, by telephone or e-mail of discontinuation of service due to a returned check or electronic payment. Service may be disconnected if the amount of the returned payment and returned payment charge are not paid by the expiration date as indicated on the notice. The HWD require all amounts paid to redeem a returned item be made in cash or certified funds.

1.14 WATER CONSERVATION PLAN AND USE RESTRICTIONS

- A. The HWD is required to follow strict Water Conservation Plan in accordance with the requirements of the MassDEP issued water withdrawal registrations and permits. The Water Conservation Plan includes measures such as metering, leak detection, public education, public information, home retrofit devices, landscape irrigation program, reuse program, rate structures, drought management plan, outdoor water use restrictions and other programs.
- B. During times of threatened or actual water shortages due to regional drought conditions and as required by MassDEP, the HWD will implement different levels of water use restrictions as necessary.

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- C. During times of threatened or actual water shortages due to natural disaster or other circumstances out of the HWD's control, the HWD will apportion its available supplies among its Customers through declaration of Emergency Water Use Restrictions. The HWD will make that final decision after consulting with MassDEP and other appropriate authorities. The HWD will decide in the manner that appears to be most equitable under circumstances then prevailing and with due regard to public health and safety. The water service customers are required to comply with requirements of Water Conservation Plan and Use Restriction as announced by the HWD.

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PART 2 APPLICATION REQUIREMENTS, FEES AND CHARGES

2.1 GENERAL

- A. Applications for service installation will be accepted subject to the availability and adequacy of water service in a street or right-of-way abutting on the premises to be served. Applications for water service for new residential and commercial developments will be accepted subject to the Applicant's acceptance of terms and conditions outlined in these Water Rules and Regulations, including to but not limited to extension and or replacement of water mains.
- B. All Applicants for water service shall have given implied consent to such conditions of pressure and service as may from time to time exist, and to hold HWD harmless from, or on account of, any damage caused by, or arising out of, low pressure or high pressure, fluctuations of pressure, or interruptions of service.
- C. It shall be the Applicant's responsibility to ascertain the pressure at his premises, install and maintain any pressure booster pumps, pressure regulators, and relief valves as required.
- D. The accepted application by the HWD shall constitute a contract between the HWD and the Applicant, obligating the Applicant to pay to the HWD its rates as established from time to time and to comply with its Water Rules and Regulations.
- E. When an application has been made for reinstatement of an existing service, it is assumed that all piping and fixtures are in good working order. The HWD will not be liable for any accident, breaks or leakage arising in connection with the supply of or failure to supply water, or the freezing of water pipes or fixtures of the customer.
- F. All materials used for the water system shall be in full conformance with the HWD's standard materials and products specified in Part 3, Materials and Products Standards of these Water Rules and Regulations.
- G. All work associated with the water system shall meet the requirements specified in Part 4, Installations and Construction Standards of these Water Rules and Regulations.
- H. Any new water mains shall be thoroughly flushed, hydrostatically tested, chlorinated, flushed again, and bacteriologically tested according to the requirements specified in Part 5, Chlorination and Testing Standards of these Water Rules and Regulations.
- I. The HWD may establish and enforce charges and conditions for furnishing and supplying water service to any property of a character not adequately provided for in these Water Rules and Regulations.

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- J. Water will not be turned on unless the Applicant has complied with the requirements for these Water Rules and Regulations, has paid all charges and fees and has met all other requirements specified.

2.2 APPLICATIONS, FEES AND CHARGES

- A. All requests for water service shall be made on an approved System Development Application included in Appendix A at the end of these Water Rules and Regulations.
- B. System Development Charges apply according to the size of service requested. The System Development Charges are for production, treatment, transmission, and storage system capacity that facilitates service connections. The Schedule for System Development Charges is included in Appendix A.
- C. The Applicant shall complete the application form that apply to its request and submit to the HWD with the applicable payment for System Development Charge. The property Owner must sign the application.
- D. The Applicant is responsible for all costs associated with labor, tools and materials to connect to the Holliston water system. The HWD personnel or its designated Agent must inspect all installations. The Applicant shall contact HWD's office at 508-429-0603 for inspection process and inspection requests.
- E. Once the service has been installed and the facility is ready for the water meter, the Applicant should notify the HWD and pay the following charges in accordance with the Schedule of Other Charges and Service Rates:
 - 1. Water meter and meter transmission unit (MTU);
 - 2. Meter and MTU installation; and
 - 3. Service activation (turn on).
- F. The Applicant is responsible for compliance and meeting the requirements of these Water Rules and regulations. The Applicant shall refer to the applicable Check List and Certification to Activate Service included in Appendix A for a summary list of requirements. The Check List and Certification to Activate Service can be used as guide for specific requirements associated with each application. The Applicant is encouraged to visit the Holliston Water Division's office for any questions and clarifications.

2.3 WATER SERVICE CONNECTIONS AND METERS

- A. When Application is made for service to premises to which a service connection has not already been installed, the Applicant shall submit a construction plan that show proposed plumbing fixtures and location of the new service. The plans must be submitted to HWD for review prior to permit approval.
- B. The HWD maintains all pipes, equipment, and materials for the water services up to and including the curb stop (shutoff), and the water meter and MTU.

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- C. Only duly authorized employees of the HWD are allowed to connect the Customer's meter or to disconnect meter.
- D. The HWD will not install or allow to remain installed a meter which in the HWD's opinion will not accurately measure normal water flows, or is not compatible with the HWD's standardized meters.
- E. Where static water pressure is in excess of eighty (80) pounds per square inch, an approved-type pressure regulator shall be installed by the Customer and the pressure reduced to eighty (80) pounds per square inch or less.
- F. All curb stops (shut offs) shall be for the exclusive use of the HWD and shall not be operated by anyone other than authorized employees of the HWD.
- G. Each Customer shall provide plumbing for installation of the meter that includes a suitable shut-off valve located within one foot of the meter and there shall be no tap or branch between this valve and the meter.
- H. The water meter shall be accessible at all times for inspection, reading and testing.
- I. When the location of a water meter is to be changed at the Customer's request, all related work shall be performed by the Applicant. However, the removal and reinstallation of the meter and MTU will be performed by the HWD for payment of fees in accordance with the Schedule of Other Charges and Service Rates included in Appendix A.
- J. Curb stops (shut offs) shall not be used by the customer or his agent for turning on or shutting off the water supply. The control of the water supply by the customer shall be by means of a shut off valve at the water meter. Curb stops (shut offs) are for the exclusive use of the HWD.
- K. When a water service is required for fire protection, the supply line shall be designed to carry adequate fire flows.
- L. A Customer may request that the water service and meter be changed to a larger or smaller size. The water service and meter must be sized in accordance with the most current UPC plumbing fixture count table. The minimum service size allowed by the HWD is one inch (1"). The construction plans must show both existing and new plumbing fixtures and the location of proposed service. The plans must be submitted to the HWD for review and approval.

2.4 MAINLINE EXTENSIONS / REPLACEMENTS

- A. An Applicant applying for a water service where no water distribution main exists, the Applicant shall be responsible for extending the existing water main to the area of the property. All costs of any mainline extensions required shall be borne entirely by the Applicant.
- B. The HWD reserves the right to require mainline replacement if a development or redevelopment improvement does not meet current standards or would demand more mainline capacity for consumption or fire suppression than existing

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facilities could adequately supply. The HWD shall have the sole authority for making the determination of existing mainline capacity and the demand for capacity imputed to the development or redevelopment. The cost of any mainline replacement required to serve the development or redevelopment shall be borne entirely by the Applicant.

- C. All new water mains constructed in a residential zone shall be 8-inches in diameter and larger as determined by the HWD.
- D. If the existing mainline is less than 8-inches in diameter in any residential zone in street rights-of-way, fronting on a proposed development or redevelopment requiring service, the mainline shall be replaced in such streets at the expense of the Applicant. The extent of mainline replacement will be from the point where the existing water main connects to a larger main.
- E. If the existing mainline is less than 12 inches in diameter in any Commercial, Manufacturing or Industrial Zone in street right-of-ways fronting the proposed development or redevelopment requiring service, the mainline shall be replaced in such streets at the expense of the Applicant. The minimum size shall be 12 inch diameter.

2.5 SUBDIVISIONS AND PROJECTS

- A. All submittals made to the Holliston Planning Board that proposes connection to the Town of Holliston's water system shall include a Water System Impact Study for review and approval by the HWD. The Applicant shall take into consideration these Water Rules and Regulations, Planning Board Rules & Regulations and MassDEP Guidelines for Public Water Systems. In case of a conflict, the most stringent requirements shall apply. The HWD establishes the following in order to ensure the safe and reliable operation of the water system:
 - 1. For all Subdivisions and Projects requiring review by the Holliston Planning Board and/or Zoning Board of Appeals, the Developer shall furnish and install, as specified by the HWD, all water pipes, gates, hydrants, service connections, and necessary fittings for a complete system.
 - 2. The Developer is responsible for performing evaluations to determine the feasibility of connecting to the HWD's system in terms of the anticipated domestic water and fire flow demands, available pressure, and water system's capacity to meet the specific demands of the proposed development.
 - 3. Three (3) sets of complete plans, specifications and Water System Impact Study shall be furnished to the HWD for review. If additional copies are required for submission to the MassDEP or other agencies, they must be submitted at this time.
 - 4. The Town of Holliston is bound with limitations of its water supply withdrawals permit that is issued by MassDEP. The permit requires the Town

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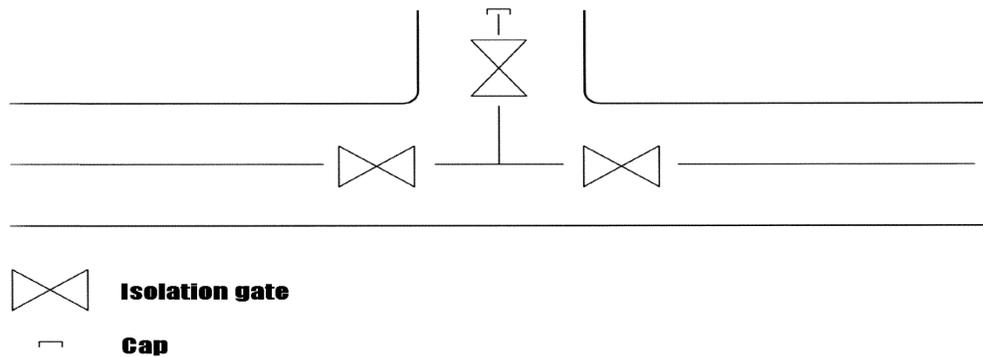
to limit water withdrawals and to implement mitigating measures to recharge the groundwater supply to offset withdrawals.

5. The proposed plans and design data provided by the Developer shall include sufficient information so that the HWD can perform a detailed review of the Water System Impact Study Report.
6. The Water System Impact Study Report is to be prepared by a qualified professional engineer, registered under the laws of the Commonwealth of Massachusetts. All costs associated with generating the Water System Impact Study Report shall be borne by the Developer. The Water System Impact Study should include but not be limited to evaluation of the following components:
 - Pressure;
 - Domestic flow and fire flow demands;
 - Fire flow availability;
 - Proposed improvements;
 - Potential impact on the town's current / future water demands, Water Management Act withdrawal permit, existing water system;
 - Proposed mitigation measures to offset demands; and
 - Proposed conditions that the Developer shall meet to mitigate the effects of any impact.
7. The HWD will review this report, aided if necessary by a consultant it may elect to employ to make a final decision based on its review of the above as to whether or not to grant permission for the proposed connection. The HWD shall require the Developer to submit a deposit to cover the cost of review of the Water System Impact Study. Any unexpended funds shall be returned to the Developer upon satisfactory completion of the Water System Impact Study.
8. After the proposed plans and results of the Water System Impact Study are submitted and reviewed, the HWD's requirements are submitted to the Holliston Planning Board and the Developer.
9. A revised plan that includes all the review comments and conditions associated with the water supply connection shall be prepared and submitted to HWD for review and final approval.
10. Before laying water pipe, the roadway must be brought up to the rough grade elevation.
11. Any water main extension must be extended, at a minimum, to the end of the lot frontage, and must have a means for flushing (hydrant). The hydrant shall be located at the property line.
12. Easements for water main extensions may be used at the HWD's discretion and approval.

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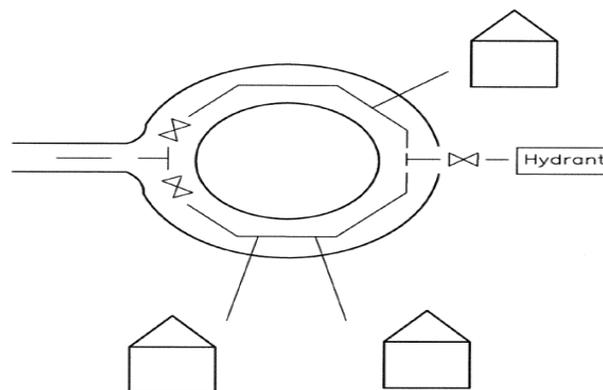
- For any Subdivision, Project or extension: when a water main is extended for water service, the Developer shall provide the labor and materials to furnish, install and test the water main. In addition, the Developer is responsible for service connection from the main to the property line.
- When a water main is extended, it is a requirement that provisions for future expansion are left at each intersection that is passed. For example, a three-way intersection will have three isolation gates, 23 feet of pipe and a restrained cap for the future use leg(s) as depicted in Figure 2-1.

Figure 2-1



- The water main extensions shall include an isolation valve at about every 800 to 1000 feet (or at every other hydrant) and a hydrant assembly at a maximum of 500 feet apart.
- Water line extensions are to be looped whenever possible, to avoid dead ends. Refer to Figure 2-2 for an example of water main installation in dead-end streets. There are to be two isolation gates at the connection point for flushing and isolation. There is to be a hydrant with a 6 inch isolation gate. At the discretion of the HWD, other projects may require an isolation gate approximately halfway through the project.

Figure 2-2



- Upon project completion, a digital submission of the as-built plan is required prior to receiving a signed Certificate of Completion from the HWD. As-Built

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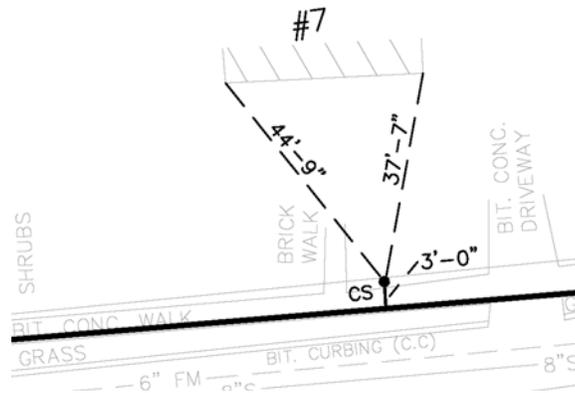
drawings shall be in accordance with the standards established by the HWD and shall show complete details of the installation of the water main and appurtenances as required by the HWD, including but not limited to:

- a. The location of the water main with respect to property lines,
 - b. The size, make, and location with respect to street corners of all valves and fire hydrants,
 - c. The limits and location of any and all special encasements or backfill materials including average depth of cover at such location,
 - d. A detailed diagram of all special installations at utility, drainage, and roadway crossings,
 - e. Location of other utilities encountered,
 - f. Flow line and rim elevation for all manholes, and
 - g. Size and material of water main and services.
18. The Developer shall provide the HWD with one full size, reduced, and digital copies of the final set of as-built plans. The digital copy of approved as-built plans must meet the following requirements listed below:
- a. All plans and specifications must be submitted on electronic media. Acceptable file formats include: AutoCAD *.dwg, AutoCAD *.dxf, ArcView *.shp, or ArcGIS Geodatabase *.mdb. A PDF must also be provided on electronic media (CD or DVD-ROM). The files must be identical to the printed plan and contain all information included on the written plan.
 - b. All digital mapping data must be delivered in the Massachusetts State Plane Coordinate system with a horizontal datum of NAD83 and vertical datum of NGVD88.
 - c. Each feature type must be organized in the CAD or GIS data structure as a separate layer using logical layer names. For example, there must be separate CAD layers for buildings, roads, parcel lines, and wetlands. Having all these features in a single CAD layer or GIS file will not be accepted.
 - d. Documentation of the data format must be provided with a description of the CAD layers and list of the types of features placed in each layer. Submission of multiple files must also include a list of the files and their purpose.
 - e. The data submitted must include documentation on the method used to gather the data, the name of the person(s) responsible for preparing the data, contact information, an estimation of the horizontal and vertical accuracy, and the date of data capture. All media shall be free from any and all defects and viruses, and labeled as to their contents.
19. The record drawings shall include ties to each gate valve, fitting (elbow, tee, cap/plug, coupling, etc.), corporation cock and curb stop (shut off). In addition, the Applicant shall submit one tie card for each service connection

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as shown on the example on Figure 2-3. The tie card shall include distances from each corporation cock and curb box to at least three permanent site features such as building corners and drainage structures. The information shall also include length and depth of service line. The blank tie cards should be obtained from the HWD's office at the time of submittal of System Development Application. A blank sample of Tie Card Form is included in Appendix B of these Rules and Regulations.

Figure 2-3 (Sample Tie Card)



2.6 AUTOMATIC SPRINKLER SYSTEMS

- A. All Automatic Underground Sprinkler Systems connected to the Town of Holliston water system must be registered with and certified by the HWD in accordance with the following provisions:
1. Definition: For the purposes of these Water Rules and Regulations, an "Automatic Underground Sprinkler System" is defined as any irrigation system comprised of one or more irrigation outlets (or "sprinkler heads") connected to a subterranean network of hoses or pipes, and capable of unsupervised, automatic or cycling operation, whether or not such system is activated manually or by operation of a timing device.
 2. Registration: Any resident owning an Automatic System ("Registrant") currently connected to the HWD's system must complete and submit an Underground Sprinkler System Registration Form ("Registration Form"), included in Appendix A. At that time, each Registrant will be given:
 - a. Written information regarding minimum system requirements for Town Certification of Automatic Systems;
 - b. A Certification Form to be filled out and signed by a Massachusetts Certified Backflow Device Inspector ("Inspector"),
 - c. Written information and guidelines concerning water efficient landscaping and efficient operation of Automatic Systems, and;
 - d. The HWD's Water Rules and Regulations which can be obtained on line.

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3. Certification: Registrants shall have from one year from the date of registration to arrange Certification of the Registered System(s), as follows:
 - a. Minimum System Requirements:
 - i. Backflow Prevention: All Systems must be properly connected to the Town water system via an independent plumbing connection incorporating a Massachusetts State Plumbing Code-approved backflow prevention device.
 - ii. Rain Sensor: All Systems must incorporate a functioning rain sensor, sufficient to automatically shut down the System in the event of rain.
 - b. Inspection: All backflow devices must be inspected by a Massachusetts State Certified and Licensed Backflow Prevention Device Inspector. Registrants will be responsible for payment of a reasonable Inspection Fee.
 - c. Certification Form: Each Registrant will be provided with a Certification Form, to be filled out and signed by the Inspector and the Registrant, and returned to the Office of the Water Department. A properly completed Certification Form must include:
 - i. Make and serial number of backflow prevention device(s);
 - ii. The Inspector's name, State license number, and contact information;
 - iii. The Inspector's signature, attesting to the fact that he/she has inspected the System in question, and determined that it does meet the Minimum System Requirements enumerated above; and
 - iv. The Registrant's signature, attesting that he/she has read and understands the written materials provided at Registration, including the guidelines concerning water efficient landscaping and efficient operation of Automatic Systems.
4. Inspection by HWD: Pursuant to these Water Rules and Regulations, authorized agents of the HWD shall have the right to inspect, for cause or at random, any Registered Automatic System, to confirm the information submitted in the Certification Form. The HWD reserves the right to withdraw the certification of any system determined to be in violation of this Paragraph.
5. Right to Reject: The HWD, reserves the right to reject any Certification Form, for cause to be stated with specificity at the time of such rejection, and/or to require an additional or alternate Inspection, by HWD's personnel or by an alternate Department-designated Inspector.
6. New Systems: Subject to and without altering or replacing any of the requirements of these Water Rules and Regulations, any Automatic System installed after September 1, 2004 must be registered and certified according to the provisions of this Paragraph prior to initial activation.

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7. Violations/Penalties: Any resident discovered to be using an Automatic System not properly registered and certified in accordance with the above provisions shall be:
 - a. On initial violation: advised of the requirements and given a six month period to comply with its provisions;
 - b. On second violation (following expiration of 6 month compliance period); there will be a fine;
 - c. On subsequent violations or failure to remit the second violation fine: subject to increasing fines in increments, and/or disconnection from the Town water system, at the sole discretion of the HWD.
 - d. The second violation fine and subsequent incremental fines will be assessed in accordance with Schedule of Other Charges and Services included in Appendix A.
8. Subsequent Inspections: Pursuant to 310 CMR 22.22(13), all Registrants will be responsible for arranging annual inspections every Spring, before use of Backflow Prevention devices by a Massachusetts State Certified and Licensed Backflow Prevention Device Inspector, and for payment of the associated inspection fee.
 - a. The HWD will send notice to all owners of Registered Systems annually with the Registrant's Water Bill in April.
- B. Applicability of Other Rules and Regulations: Unless stated explicitly herein, no provision of this Paragraph shall be construed to alter or affect the applicability of any State laws or other Paragraph of these Water Rules and Regulations to the use of Automatic Sprinkler Systems. Additionally, any and all temporary restrictions of or bans on irrigation as may from time to time be implemented by the HWD shall apply equally and with the same force to users of Automatic Sprinkler Systems as to users of any and all other means of residential irrigation. (Adopted May 20, 2004)

2.7 BACKFLOW PREVENTION

- A. The HWD is responsible to protect the public water supply from contamination by implementation of a cross-connection control program. The program includes, but shall not be limited to, the following elements:
 1. Operating rules as covered in this section of the Water Rules and Regulations for water service.
 2. Plan review for all proposed service connections to evaluate the premises for potential cross connection.
 3. Conducting surveys to identify water user premises where cross-connections are likely to occur.
 4. Provisions for backflow protection by the water user.
 5. Provision of trained staff to carry out the program.
 6. Procedures for testing backflow assemblies.

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7. Maintenance of records of locations, tests, repairs of backflow assemblies.
- B. Should State law change or should there be a conflict between the State law and these Water Rules and Regulations, the State law shall govern. Insofar as it is applicable to the protection of the water supply of the HWD is hereby incorporated herein as if set forth in full.
- C. No water service connection to any premises shall be installed or maintained by the HWD on which there exists or there is suspected to exist, any actual or potential cross-connection between the public water supply and any other piping, fixtures, appliances, equipment, drains, or any system which might cause contamination or pollution through backflow or back-siphonage unless the water service is protected as required by state law. All Applicants are subject to a cross-connection survey.

2.8 FIRE HYDRANTS

- A. The HWD requires hydrants to be spaced no more than 500 feet apart, in close proximity to intersections and at the end of the line. The Chief of the Fire Department and the HWD shall be consulted for specifics regarding location of all fire hydrants to be installed.
- B. Public fire hydrants shall be installed where required and shall be paid for by the Customer and shall remain the property of the HWD. Specifications and installation of fire hydrant assembly shall be in accordance with these Water Rules and Regulations.
- C. Fire hydrants shall be installed behind the existing and proposed sidewalks close to the street right-of-way (ROW) line.
- D. Water from fire hydrants or other fire protection systems shall be used only for fire protection purposes, except that water from public fire hydrants may be used in a reasonable amount and at such time as the HWD may permit, for the purpose of testing the hydrants and fire-fighting apparatus, such tests to be conducted only by the properly authorized agents or employees of the municipality served and after the consent of the Town has been obtained. Unauthorized use of a hydrant is assessed a fine in accordance with Schedule of Other Charges and Services included in Appendix A.
- E. Temporary connections requiring use of public fire hydrants shall be made in conformance with these Water Rules and Regulations. The Contractor shall complete the Hydrant Use Application included in Appendix A and submit to HWD with the applicable charges in accordance with Schedule of Other Charges and Services included in Appendix A. The HWD will review the application and issue permit for hydrant use. The Applicant shall notify then notify HWD prior to use and pay the applicable charges for Authorized Water Use from Hydrant in accordance with Schedule of Other Charges and Services included in Appendix A.

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- F. In all cases where the HWD grants a permit to take water from a fire hydrant, the permitted Customer shall use only the hydrant designated for such use at the Dopping Brook water treatment facility located off of Mayflower Landing. This hydrant has a valve, meter and backflow assembly to regulate flow, measure water and prevent cross connection. The fire hydrant valve shall be used only as a main supply valve. A special hydrant wrench shall be used to operate the hydrant valve. Use of the fire hydrant valve for functions of modulating will be sufficient cause to prohibit further use of the hydrants and the refusal to grant subsequent permits for the use of fire hydrants.
- G. A permit to take water from a fire hydrant will require that the volume of water used to be charged in accordance to the price noted for Authorized Water Use from Hydrant as outlined in Schedule of Other Charges and Services included in Appendix A.
- H. A fire hydrant flow test may be requested for sprinkler system design, insurance rating, preparation of Water System Impact Study, or other purposes. The HWD will provide manpower for opening and closing gate valves and hydrants to facilitate the flow tests upon payment of the appropriate fee as outlined in Schedule of Other Charges and Services included in Appendix A.

2.9 TEMPORARY CONNECTION

- A. Temporary connections to HWD's water system must be in accordance with these Water Rules and Regulations including the requirement for application and payment of fees.
- B. Temporary connections involving usage of existing meter services, such as for demolition projects, shall be made in conformance with these Rules and Regulations including the applicable fee schedules.
- C. HWD reserves the right to remove a Customer from use of a fire hydrant if the use is causing a disturbance to the water system. Damages to the hydrant meter shall be paid for by the Customer.

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PART 3 MATERIALS AND PRODUCTS STANDARDS

3.1 GENERAL

- A. All water system materials and products shall be in accordance with these Water Rules and Regulations, American Water Works Association (AWWA) standards, and MassDEP guidelines, where applicable. In case of any conflicts, the most stringent requirements apply. Standards may be modified for the convenience of HWD on a case by case basis.
- B. All materials shall be manufactured in USA and shall be installed in accordance with these Water Rules and Regulations.

3.2 PIPES AND FITTINGS

- A. All ductile iron pipes used in the distribution system shall be 8-inch and larger. Hydrant branches shall be 6-inch.
- B. All ductile iron water mains shall be rated for 350 psi working pressure. Pipe shall be designed for laying condition type 2 for eight feet of earth cover. All ductile iron pipe shall be designed and manufactured in accordance with AWWA A21.50 and A21.51.
- C. The interior of the pipe shall be cement lined to twice the thickness specified in AWWA A21.4 and asphalt seal coated with an asphaltic material in accordance with AWWA A21.50 and NSF Standard 61 for use in potable water. Outside of pipe shall be bituminous coated.
- D. Fittings shall be mechanical joint ductile iron Class 350 and UL approved. Branch of tees for hydrants or stubs shall be mechanical joint anchoring tees. All fittings shall be cement lined, and coated as specified for ductile iron pipe. Fittings shall conform to AWWA A21.10 and AWWA A21.11. Compact fittings shall conform to AWWA A21.53.
- E. All ductile iron pipe shall have either push-on or restrained joints. Restrained joint pipe shall be used at joints before and after any fittings for a minimum distance of 18 feet to resist the forces developed at fittings. Refer to the table below "Length of Pipe to be Restrained" for the length of restrained joint pipe that is required on each side of fittings. All other pipe shall have push-on joints.

Length of pipe to be Restrained
(Feet each side of fitting)

Nominal Pipe Size - Inches	Offset of bend in degrees				Dead End (Feet)
	90	45	22-1/2	11-1/4	
6	16	7	3	2	28
8	21	9	4	2	37
12	29	12	6	3	53

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- F. Restrained joint pipe shall be TR FLEX® as manufactured by the United States Pipe and Foundry Company. Restraint Joint gaskets FIELD LOK 350 as manufactured by US Pipe, Sure Stop 350 as manufactured by McWane or Fast-Grip as manufactured by American will be considered for use to form the required number of restraint joints before and after each mechanical joint fittings.

3.3 COUPLINGS

- A. Solids sleeves shall be long body type, ductile iron with mechanical joints. The minimum length shall be 12 inches. Solid sleeves shall be as manufactured by American Flow Control Corporation and shall be cement lined and seal coated as specified hereinbefore for ductile iron pipe. Solid sleeves shall be used when connecting new ductile iron pipe with an existing ductile iron pipe.
- B. Transition couplings shall be utilized for connecting a new ductile iron pipe with an existing pipe of different material. Transition and flexible couplings shall be long body type with minimum center sleeve of 15 inches with 100% fusion bonded epoxy coating meeting NSF-61. It shall be Hymax 2000 long body type by Krausz as standardized by HWD.

3.4 GATE VALVES

- A. Gate valves shall be iron body, resilient seated, bronze valve stem, wedge type with two inch operating nut, mechanical joint and shall conform in every respect to AWWA C509. Valves shall be designed for 200 psi working pressure and 400 psi test pressure. Gate valves shall **open left** and shall be as manufactured by American Flow Control, Kennedy, or Mueller.
- B. The design of the valve shall be such that the seal plate can be fitted with new "O" rings while the valve is under pressure in a fully open position.
- C. Valve interiors and exterior shall have a 100% solids thermoset or fusion bonded epoxy protective coatings, holiday-free in the waterway, which shall meet all requirements of AWWA C550. The coating shall be a product acceptable to the National Sanitation Foundation (NSF) for use in potable water.
- D. Gate valves buried below the minimum required five (5) feet depth are to have approved operating nut extension to allow for proper operation of gate valve with five (5) foot long gate key having a minimum of two (2) foot clearance between the key handle and the finish grade.

3.5 VALVE BOXES AND COVERS

- A. Valve boxes shall be cast iron, tar coated, two piece adjustable sliding type which include cast iron covers. Bell end of the lower sections shall in all cases be sufficiently large enough to fit over the stuffing boxes of the valves. The smallest inside dimension of the shaft shall not be less than 5-1/4 inches. Valve box sections shall have a minimum of 12-inches of overlap. Each valve box including cover shall weight at least 100 pounds. Valve box lid shall be drop type with "WATER" cast into the lid. A positive centering cap made of high strength plastics should be placed over the valve onto which the valve box will be centered.

3.6 HYDRANTS

- A. Hydrants shall be of the following type and manufacturer only.
Make and Model - Break Flange type Kennedy, Model K81D
Type of Thread - National Standard

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No. of Outlets - 2 2-1/2" hose connection
1 4-1/2" steamer connection
Diameter Valve Opening - 5-1/4 inches
Diameter of Barrel - 7 inches
Hub - mechanical joint
Direction of Opening - **open left**
Depth of bury - 5'-6"
Color - to match existing hydrants.

- B. HWD is standardized on hydrants with 5'-6" depth of bury. Where necessary, a hydrant extension of proper height shall be used. Hydrant barrel extension shall be as manufactured by the hydrant manufacturer and shall include all couplings, pins, flanges, gaskets, nuts and bolts, etc. to provide a complete installation.
- C. Hydrants shall be designed for 150 pounds per square inch working pressure. Hydrants shall be given two coats of quality paint after installation. The color system shall match HWD's existing hydrants.
- D. Hydrants shall be manufactured within the past 12 months as determined from the date stamped on each hydrant.
- E. Each hydrant shall be furnished with a hydrant marker. The markers shall be 60 inches top flange mount with fiberglass rod, stainless steel spring and a flag. The markers shall be Product No. 404-FT as manufactured by SPK Steel Fabrication, Fitchburg, MA or approved equal models by others. The flags shall be 4" x 5" Mini Flag with two reflective bands and shall be suitable for attachments to the markers. The flags shall be Product No. 404-MNF as manufactured by SPK or approved equal.

3.7 WATER SERVICES

- A. All water services shall include, but are not limited to, 1-inch corporation cocks, 1-inch copper tubing size (CTS) polyethylene tubing with tracer wire, stainless steel inserts, 1-inch curb stops with stainless steel rod, and curb box with cover. All service materials in contact with water shall meet the "No Lead" standards. A certificate of proof is required.
- B. Corporation cocks shall be ball valve style conforming to AWWA Standard C800, the inlet side to have AWWA taper with CC thread. The outlet thread to conform to AWWA Specification, the large pack joint nut compresses a Buna-N gasket to make a water tight joint around CTS polyethylene tubing. A split locking clamp with a stainless steel screw will lock tubing in place. The corporation stops shall be Ford Corporation Stop, or similar models as manufactured by A.Y. McDonald, or Mueller Company.
- C. Curb stops shall be of the ball valve type with 36 inches long stainless steel rods. Curb stops shall be cast red brass and shall be McDonald Ball Valve. Curb stops shall have no drain hole, shall **open left** and shall be of the compression type. One piece cap and stem is held in place with an internal brass retaining nut. The operating cap shall open and close with a standard wrench at a 90 degree rotation of the ball valve. The inlet and outlet coupling of the valve shall be of a compression system for 1-inch CTS polyethylene tubing with stainless steel insert.
- D. Service pipe shall be high density polyethylene (HDPE) copper tube size for use with compression fittings. The service pipe shall be SCR-9, pressure rating 250 psi and shall meet the requirements of AWWA C901, ASTM D2737. The pipe shall be PE4710, and shall be NSF 14/61 approved for use for drinking water. The pipe shall be American made and of a manufacturer approved by HWD. All connections with the plastic service tubing shall contain a stainless steel insert.

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- E. The service line between the corporation cock and curb stop shall be one piece with no joints or couplings. The service line between the curb stop and the water meter shall include a minimum of 12 inches of extra service pipe inside the building for plumber's use, and shall be one piece without any joints on the service line.
- F. Service boxes shall be tar coated, cast iron, sliding type with inlaid covers. Service boxes shall be 2-hole Erie with rod. Shaft shall be 2-1/2 inches inside diameter with extension rods, and be the extension type to accommodate any bury depth with 1'-0" adjustment height. In vehicular travelled areas, a gate valve top section and cover shall be installed over the service box. Covers shall have the word "WATER" cast in the top.
- G. There shall be no 3- part compression coupling between the curb stops and the meter.
- H. Tracer wire shall be #12 AWG high-strength copper-clad steel conductor (HS-CCS) insulated with a 30 mil, high density, high molecular weight polyethylene (HDPE) insulation. Tracer wire shall be rated for direct burial use at 30 volts and be RoHS compliant. Jacket shall be blue. Tracer wire shall be PRO-TRACE HF-CCS PE 30 as manufactured by Pro-Line Safety Products, or approved equal.
- I. Services lines for new homes shall extend into foundation for a minimum of 12 inches. The plumbing inside shall include a 1-inch compression by 3/4-inch meter angle stop valve and shall include straight run to facilitate a 7.5 inch long water meter.
- J. Any taps larger than 1-inch shall include a stainless steel saddle.

3.8 THRUST RESTRAINT GLANDS

- A. Thrust restraint glands shall be specifically designed for use with mechanical joint ductile iron pipe, fittings and valves. Glands shall be Series 1100 MEGALUG by EBBA Iron, East Land, Texas with a 350 psi working pressure, and be complete with bolts, nuts, and other related accessories to provide complete installation.
- B. Glands shall be manufactured of ductile iron conforming to ASTM A536. Gland dimensions shall be such that they can be used with standard mechanical joint bells and tee head bolts that conform to the latest revision of ANSI/AWWA A21.11/C111 and ANSI/AWWA A21.53/C153. Twist-off nuts, sized the same as tee-head bolts, shall be used to ensure proper actuating of restraining devices. The mechanical joint restraint shall have a working pressure of at least 150 psi with a minimum safety factor of 2:1.

3.9 WARNING TAPE

- A. Warning tape shall be detectable metallic lined plastic manufactured specifically for warning and identification of buried piping. Tape shall be detectable by an electronic instrument. It shall be 6 inches wide by 5 mil thick, solid blue in color with continuously printed caption in black letter, reading "Caution – Water Lined Buried Below".

3.10 POLYETHYLENE ENCASEMENT

- A. Polyethylene encasement or wrap shall be eight (8) mil thick tubes or sheets manufactured in accordance with AWWA C105 (ANSI A21.5). Polyethylene encasement shall be used at all gas main and gas service crossings and whenever the pipe is in contact with Controlled Density Fill (CDF), concrete mix, and where directed by HWD due to known soil conditions.

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3.11 TAPPING SLEEVE AND VALVE

- A. Tapping sleeve and valve shall conform to the AWWA specifications for tapping sleeve and valve. Tapping sleeve shall be mechanical joint, two (2) part ductile iron castings, flanged on the vertical centerline, and come complete with all joint accessories. The surface area of each flange shall be thoroughly machined, and the sleeve flanges shall be fitted with gaskets recommended by the manufacturer. Each gasket shall cover the entire surface area of each joint for the full length of the sleeve. Bolts used to assemble the sleeves shall pass directly through each flange and through each gasket. Bolts shall be properly spaced to ensure uniform gasket pressure and compression. Stainless steel tapping sleeves will not be accepted.
- B. Sleeve outlets shall have counter-bored flanges to ensure proper centering of the tapping valve.
- C. The tapping valve shall be flanged by mechanical joint and open left. Tapping sleeve valve shall be AWWA approved and shall meet all applicable requirements including test pressure and exterior coating as specified for resilient seated gate valves. The mechanical joint end shall include restraint glands and accessories as specified for mechanical joints.
- D. Prior to ordering the sleeve, Contractor shall check the outside diameter of the pipe on which the tapping sleeve is to be installed.

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PART 4 INSTALLATION AND CONSTRUCTION STANDARDS

4.1 GENERAL

- A. All water system installations and construction standards shall be in accordance with these Water Rules and Regulations, Planning Boards Rules and Regulations, Holliston Highway Department's requirements, American Water Works Association (AWWA) standards, and MassDEP guidelines, where applicable. In case of any conflicts, the most stringent requirements apply. Standards may be modified for the convenience of HWD on a case by case basis.
- B. All pavement restorations shall be in accordance with these Water Rules and Regulations, Planning Board Rules and Regulations and as specified by the Holliston Highway Division.
- C. Any constructions in roadways controlled by MassDOT shall be in full conformance with the requirements outlined in the MassDOT permit for that work, as applicable.
- D. Construction activities within paved roadways in the Town of Holliston require Roadway Opening Permit form the Holliston Highway Division.

4.2 PIPE, FITTINGS AND APPURTENANCES

- A. The requirements for pipe bedding and trench backfilling are described herein and are shown on the detail, entitled Typical Trench Section at the end of this section. Pipes shall be thoroughly cleaned before being installed and temporary watertight plugs shall be utilized at the end of each working day to prevent the intrusion of silt, debris and water into the pipes.
- B. Pipe shall not be laid with deflection of more than one-half (1/2) the maximum deflection as recommended by the manufacturer. The Contractor shall insert a minimum of two (2) wedges at each joint.
- C. Pipes shall be placed on dry, firm and suitable bedding materials. Backfill shall be placed on both sides of the pipe and compacted simultaneously with approved tamping bars for the full length of pipe. Bell holes shall be excavated to ensure that the pipes and not the pipe bells are bearing the weight of backfill and the traffic load.
- D. The water mains to be installed at a minimum of 5'-0" cover. Where required and with approval of the HWD, the Contractor shall adjust the location and elevation the water main to avoid conflicts. Installation of vertical bends on the new water mains should be avoided.

4.3 MECHANICAL JOINTS

- A. Mechanical Joints shall be installed with all required joint accessories. Torque wrenches shall be equipped with adjusting breakable tension gauge, set to break the tension at the tension loading recommended by the manufacturer.

4.4 CUTTING OF PIPE

- A. All field cuts of ductile iron pipe shall be made with a power saw with blades as recommended by the pipe manufacturer. The outside of the cut ends shall be tapered back about one-eighth (1/8) inch at an angle of thirty (30) degrees with the centerline of the pipe and as recommended by the manufacturer.

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4.5 COORDINATION FOR WATER SHUT DOWN

- A. The Contractor shall submit a detailed sequence for the requested shut down. The plan shall include the procedure and schedule for making connections to the existing water mains.
- B. All work shall be coordinated with the HWD and such connections that may be required shall be made at such times and in such a manner as to cause as little interference in water service within the existing system as is practicable.
- C. The Contractor shall not operate any HWD's existing valves and or hydrants. In cases where operation of valve is required for the Contractor to make connection, the Contractor shall provide a minimum of 7-day notice to the HWD.

4.6 TAPPING SLEEVES AND VALVES

- A. Pipe upon which a tapping sleeve is to be installed shall be thoroughly cleaned of all foreign matter, a minimum of six (6) inches each side of the sleeve. Clean the flanged surface of the sleeve to remove any excess bituminous coating or burrs.
- B. Ensure that the tapping machine is kept in leveled horizontal position and securely supported so as not to transmit any additional weight to the tapping valve. Sufficient blocking and wedges shall be used to secure the sleeve once it has been leveled and positioned.
- C. Sleeve bolts shall be alternatively tightened from the extreme end on one side to the extreme end of the opposite side, with approved torque wrenches, until all are securely tightened. Flange bolts shall be tightened in a similar manner, with care being taken not to disturb the gasket.

4.7 HYDRANTS

- A. The requirements for hydrant installation are shown on the detail entitled Hydrant Installation included in Appendix B of these Water Rules and Regulations. Each hydrant branch shall include a six (6) inch mechanical joint ductile iron nipple of the required length and thrust restraint glands on the hydrant, nipple, valve and all fittings.
- B. The base of the hydrants, valve anchoring tees and hydrant valves shall be set on concrete pads. Two threaded tie rods shall be installed between the valve and hydrant and thrust blocks shall be placed between the hydrant and the soil for additional thrust restraints.
- C. Construct hydrant drainage wells of one-half (1/2) cubic yard capacity of crushed stone placed in the excavated area below and around the hydrant bottom. Place filter fabric all around the crushed stone for the hydrant drainage well.
- D. Hydrant barrel extensions shall be furnished and installed where necessary to provide a hydrant elevation acceptable to the HWD. Hydrants shall be given two (2) coats of quality paint after installation of the same type and colors of the existing hydrants of the HWD. Hydrant not ready for use shall be clearly identified. Place a bag over the hydrant until such time the line is tested, chlorinated and approved.

4.8 VALVE BOXES

- A. Furnish and install valve boxes over each valve. Valve boxes shall be properly adjusted over the operating nuts of valves and adjusted to the proper height to correspond to the street or ground surface. Operating nuts shall be centered in the valve boxes using a valve centering ring.

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4.9 SERVICE CONNECTIONS

- A. The requirements for service connections are shown on the detail entitled Typical Polyethylene House Service Detail included in Appendix B. Install corporation cocks, polyethylene tubing, curb stops, service boxes and make all joints water tight. Water services shall be installed in such a manner as not to cross other utilities and have a minimum of ten feet between utilities, if possible.
- B. Services shall be laid to a minimum depth of five (5) feet and shall come off the main as close to a 90 degree angle as possible.
- C. Curb stops are not permitted in public right-of ways, in driveways, in driveway aprons or any other paved/concrete surfaces. Curb stops shall be installed at the edge of the property line outside of paved surfaces.
- D. All water service lines shall be buried in an envelope of 12 inches of sand from the corporation cock to curb stop.
- E. Tracer wire for new services shall be installed from the corporation cock to the cellar stop valve before the meter. Tracer wire shall be wound 3 times around corporation cock, curb stop and curb box up to the top of curb box cover.
- F. For new water mains, make only "wet taps" into the new mains after the main has been tested, chlorinated and approved for service.

4.10 POLYETHYLENE ENCASEMENT

- A. Polyethylene encasement shall be installed around the main and appurtenances to prevent contact between the water main and appurtenances whenever the new water main crosses the existing steel gas main and gas services, and or where Controlled Density Fill (CDF) is used as backfill material.
- B. The polyethylene encasement shall be extended over the water main at a minimum of five feet either side of each crossing. In trenches crossing a roadway where CDF is used, the new water mains and fittings shall be wrapped and taped with polyethylene sheets to form a barrier between the CDF and water main and appurtenances.
- C. Polyethylene tubes shall be two (2) feet longer than pipe sections and centered on the pipe prior to installation. After assembling the pipe, the polyethylene shall be lapped one (1) foot at the pipe joints and secured with tape. Where polyethylene joins an unwrapped pipe, extend the polyethylene two (2) feet onto the unwrapped pipe and secure with circumferential turns of the tape. The same backfill shall be used for polyethylene wrapped pipe as specified for unwrapped pipe, with care being taken to prevent damage to the polyethylene wrap.
- D. Installation of polyethylene encasement shall be in accordance with AWWA C105 Method A. Where sheet polyethylene is used, it shall be installed in accordance with AWWA C105 Method C.

4.11 PREPARATION

- A. Where excavations are to be made in paved surfaces, the pavement shall be zipped / grinded, or cut with a pavement saw cutter prior to excavation. In areas where the trench width is greater than the original cut, the pavement shall be re-cut straight prior to paving.
- B. Trench widths shall be kept to the minimum practicable but shall be at least three feet wide. The bottom of the trenches shall be firm and free of water and shall be

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accurately graded and shaped to allow placement of required bedding beneath the bottom of all barrels, bells or couplings. Existing soils, which are considered unsuitable foundation materials shall be removed.

4.12 PIPE BEDDING AND TRENCH BACKFILLING

- A. The requirements for pipe bedding and trench backfilling are described herein and are shown on the detail, entitled Typical Trench Section included in Appendix B. No bedding shall be placed on unstable subgrade with soft, soupy or spongy bottom. If an unstable condition exists, or develops during the excavation, the subgrade shall be excavated to the extent necessary to provide a firm stable foundation prior to placing bedding material for pipe.
- B. Pipelines shall be laid in the bedding material, from the bottom of the excavation to the mid-diameter of the pipe, for the full width of trench. Bedding material shall meet the requirements for gravel fill or crushed stone.
- C. Crushed stone shall be used for trench excavation below the groundwater level to provide a stable working surface. No more than 6-inches of crushed stone bedding shall be placed beneath the bottom of pipe. If crushed stone is used as bedding material, a 12-inch wide impermeable clay cutoff barrier (“control dam”) shall be constructed across the trench from the bottom of the excavation to the mid-diameter of the pipe every 300 feet.
- D. Backfill materials for above the mid diameter of pipe to 12 inches above the pipe, shall meet the requirements for Select Fill. Backfill materials placed from 12 inches above the pipe to the bottom of the roadway base course in paved areas or to the bottom of loam shall meet the requirements for Common backfill.
- E. The water service line shall be buried in an envelope of 12 inches of sand from the corporation cock to the structure.
- F. Bedding materials, select fill and common fill shall be compacted to a minimum density of 95 percent of the maximum density.

4.13 GRAVEL FILL

- A. Gravel fill used for pipe bedding shall have a maximum stone size of 2 inches. Gravel fill shall consist of hard, durable gravel and sand, free from trash, organic matter and clay, surface coatings, and other deleterious materials. That portion passing the 4-inch sieve shall meet the following gradation requirements:

U.S. Sieve Size	Percent Passing
4 inch	100
1/2 inch	50-85
No. 4	40-75
No. 50	8-28
No. 200	0-10

4.14 CRUSHED STONE

- A. Crushed stone used for pipe bedding shall consist of clean, crushed, non-porous rock, or crushed gravel, uniformly blended. Crushed stone shall meet the following gradation requirements:

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U.S. Sieve Size	Percent Passing
1 inch	100
3/4 inch	90-100
1/2 inch	20-55
3/8 inch	0-15
No. 4	0-5
No. 10	0-2

4.15 SELECT FILL

- A. Materials used as backfill over the pipe shall be select fill and shall consist of hard durable sand or sand and gravel, free from trash, organic matter, clay, surface coatings and other deleterious materials. Select fill placed between the mid-height of a pipe and 12 inches above a pipe shall have a maximum stone size of 4 inches. Select fill used for other purposes shall meet the following gradation requirements:

U.S. Sieve Size	Percent Passing
4 inch	100
No. 10	30-100
No. 40	0-70
No. 200	0-15

4.16 COMMON FILL

- A. Common fill shall be granular material, consisting of hard, sand and gravel with less than 35 percent passing the No. 200 sieve and shall be free of organic matter, trash, roots or other deleterious material. Common fill material shall contain no stone measuring greater in any dimension than 8 inches. Common fill material shall be capable of forming a firm, stable base when spread and compacted.

4.17 GRAVEL BORROW

- A. Gravel borrow for sub-base shall conform to the requirements of Subsection M1.03.0 (type b) of Division III, Materials of the State Standard Specifications. Gravel borrow shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coating and deleterious materials. Gradation requirements for gravel shall conform to the following:

U.S. Sieve Size	Percent Passing
1/2 inch	50-85
No. 4	40-75
No. 50	8-28
No. 200	0-10

Maximum size of stone in gravel shall be 3 inches, largest dimension.

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4.18 PROCESSED GRAVEL FOR SUBBASE

- A. Processed gravel for subbase shall conform to the requirements of Subsection M1.03.1 of the State Standard Specifications. Crusher run gravel shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings and deleterious materials. The coarse aggregate shall have a percentage of wear, by the Los Angeles Abrasion Test, of not more than 50. The gradation shall meet the following requirements:

U.S. Sieve Size	Percent Passing
3 inch	100
1 1/2 inch	70-100
3/4 inch	50-85
No. 4	30-60
No. 200	0-10

4.19 DENSE GRADED CRUSHED STONE

- A. Dense graded crushed stone shall conform to the requirements of Section M2.01.7 of the State Specifications. For work within roadways controlled by MassDOT, the MassDOT permit requires dense graded crushed stone as roadway subbase.

4.20 CONTROLLED DENSITY FILL - EXCAVATABLE

- A. Controlled Density Fill (CDF) – Excavatable (Type 2) shall conform to the requirements of the latest edition of the Massachusetts Department of Transportation – Highway Division Supplemental Specifications Subsection M4.08.0 – Controlled Density Fill.
- B. CDF shall be used for backfilling the trenches crossing and along the existing travelled ways. The CDF shall be used for backfill for the entire trench depth up to below the pavement.
- C. The Contractor shall wrap and tape the installed water main and appurtenances with polyethylene sheet to form a barrier between the CDF and water main and appurtenances.
- D. The Contractor shall make provisions to prevent floatation or movement of the pipe during installation and set-up of the CDF. The Contractor shall protect the trenches with placement of steel plates or other approved means that will allow safe passage of traffic.

4.21 COMPACTION

- A. Backfill materials shall be placed on 12 inch lifts. Each lift shall be compacted to achieve a minimum of 95 percent of the maximum density as defined by ASTM D1557 for Gravel Fill and 95 percent for Select Fill and Common Fill.
- B. Backfill materials shall be uniformly distributed at maximum lift thickness of 12 inches, and compacted to a minimum density of 95 percent of the maximum density. Puddling or jetting of the backfill materials shall not be utilized.

4.22 WARNING TAPE

- A. The Contractor shall install underground warning tape on all DI water mains and polyethylene services at about 2 to 3 feet below finished grade.

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4.23 BITUMINOUS CONCRETE SURFACE RESTORATION

- A. The requirements for bituminous concrete surface restoration are described herein and are shown on the detail, entitled Permanent Bituminous Concrete Trench Patch included in Appendix B. The Contractor shall carefully cut back existing pavement as specified herein. Backfill material shall be removed to such depth as required to receive the permanent bituminous concrete trench pavement.
- B. Permanent bituminous concrete trench pavement shall be furnished and placed after approved gravel or reclaimed material is fully compacted to a level and uniform depth. Each course shall be properly graded and rolled to provide a firm level base for succeeding courses.
- C. Material shall be Class I dense bituminous concrete, Type ST for binder, and Class I, Type I-1 for finish conforming to the requirements of Subsection M3.11.00 of the State Standard Specifications. The binder depth shall be 2½ inches for residential and 3½” inches for industrial roads. The depth for surface course shall be 1½ inch.
- D. For numbered roadways, the pavement restoration shall match the thickness of the existing pavement or a minimum thickness of 7 inches of mix, whichever is greater. This total thickness shall include 3 inches of base course. For roadways that require permits from MassDOT, the specific thicknesses for base, binder and top course required in the permit shall apply.
- E. Job-Mix Formula. The general composition limits of materials shall conform to columns entitled "Base Course", "Binder Course", "Top Course" and "Surface Treatment" as listed in Subsection M3.11.00 of the State Specifications. Job Mix Tolerances shall be as specified in Subsection M3.11.03.
- F. Tack Coat. Tack coat shall consist of rapid setting RS-1 emulsified asphalt. The Contractor shall apply tack coat to all saw cut edges before placement of mix and apply clean sand to the seam after paving operation.
- G. For trenches with CDF in the trenches, the CDF should have had sufficient time to cure. The Contractor shall remove any excess CDF to such depth as required to receive the permanent bituminous concrete trench pavement.

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PART 5 CHLORINATION AND TESTING STANDARDS

5.1 GENERAL

- A. All flushing, hydrostatic testing, leakage testing, chlorination and testing procedures shall be in accordance with these Water Rules and Regulations, and AWWA C651 standards. In case of any conflicts, the most stringent requirements apply.
- B. All flushing, testing, chlorinating and sampling shall be performed by independent qualified testing firms acceptable to HWD.
- C. Flushing, pressure testing, leakage testing, and chlorinating of the pipelines shall closely follow pipe laying Work. As the pipeline is installed, it shall be tested approximately every 1,000 feet, or between line valves, whichever is less. Mains shall be filled at least three (3) days before testing.
- D. Prior to filling the mains with water for flushing, hydrostatic testing, and chlorination, the Contractor shall have exercised preventative and corrective measures during construction to minimize the contamination. At least one week prior to commencing chlorination, the Contractor shall submit to HWD a proposed comprehensive plan for flushing, hydrostatic testing, and disinfecting (chlorinating) the main(s). The plan shall consist of a written narrative and appropriate sketches to completely describe the proposed procedures, hypochlorite materials, pumping and metering equipment, source(s) of water, and point(s) of discharge of initial flushing and chlorinated water. Flushing shall not commence until the proposed comprehensive plan has been reviewed by the Engineer.
- E. The Contractor will not be permitted to operate any existing valves and hydrants. The HWD will operate the necessary valves to supply water for flushing and testing. The HWD requires a minimum of 7-day advance notice.
- F. In cases where the water services will be turned off until later date when homes are ready for occupancy, the water mains can be chlorinated, tested and approved. However, the HWD will require a final flushing followed by a round of bacteriological samples before the new line can become active. In case of failed bacteriological results, the chlorination and testing process shall be repeated as many times as possible to obtain passing bacteriological results.

5.2 FLUSHING

- A. Flushing shall be accomplished by partially opening and closing valves, hydrants, and blow offs, several times, under expected line pressure, with flow velocities of not less than 2.5 feet per second, in the main(s). The Contractor shall consult with the HWD to identify acceptable location(s) for discharging the chlorinated water, which will result from the chlorination procedures.
- B. The size and number of hydrant outlets or main taps to provide the required flow (at 40 psi residual pressure) shall be determined. The length of time for flushing, at or above the minimum allowable velocity, shall be computed to allow a minimum of 3 times the total volume of water stored in the main(s) to be flushed to waste.

5.3 PRESSURE TESTING

- A. All new water mains, or any valved sections shall be subjected to a hydrostatic pressure of at least 1.5 times the working pressure that will exist at the point of testing, or 150 psi, whichever is greater. Test pressures shall meet the following requirements.

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1. Be of at least 2.5-hour duration.
 2. Be not less than 1.25 times the expected system working pressure at the highest point along the test section.
 3. Not exceed pipe or thrust-restraint design pressures.
 4. Not vary by more than plus or minus 5 psi for the duration of the test.
 5. Not exceed 2-times the rated pressure of the valves or hydrants when the pressure boundary includes closed gate valves or hydrants. Valves shall not be operated in either direction at differential pressure greater than the rated pressures.
 6. Not exceed 1-times the rated pressure of the valves when the pressure boundary of the test section includes closed butterfly valves or resilient seated gate valves.
- B. Air Removal. Following flushing, and before applying the specified test pressure, air shall be completely expelled from the pipeline segment being tested. After all air has been expelled, the test pressure shall be applied.
- C. Pressure Test. Each valved section of pipeline shall be slowly raised to the specified test pressure for two (2) separate periods. The first period shall be for 15 minutes, after which the pressure in the test section shall be allowed to drop slowly back to system pressure. The pressure shall then be slowly raised again to the specified test pressure and maintained for 2.5 hours. The test pressure shall be based on the elevation of the lowest point of the pipe, in the test section and shall be corrected to the elevation of the test gauge. The test pressure shall be applied by means of a pump connected to the pipeline, and which will prevent any backflow into the existing water system. Valves shall not be operated in either the closing or opening direction, at differential pressure greater than the rated pressure.

5.4 LEAKAGE TESTING

- A. Leakage testing shall be conducted concurrently with the pressure test.
- B. Leakage Defined. Leakage shall be defined as the quantity of water that must be pumped into the new main, or any valved section to maintain pressure within plus or minus 5 psi of the specified test pressure, after the main(s) have been filled with water and all air has been expelled. Leakage shall be recorded to the nearest one-tenth of a gallon, by means of a calibrated test meter. The Contractor shall employ qualified personnel throughout the testing. Leakage shall not be measured by a drop in pressure over a period of time.
- C. Allowable Leakage. No pipe installation will be accepted if the leakage is greater than the leakage shown at various pressures and for various pipe diameters.

**ALLOWABLE LEAKAGE PER 1000 FEET OF PIPELINE
NOMINAL PIPE DIAMETER - (INCHES)**

Average Test Pressure	6	8	10	12
200	0.6	0.85	1.06	1.28
175	0.5	0.80	0.99	1.19
150	0.5	0.74	0.92	1.10
125	0.5	0.67	0.84	1.01
100	0.4	0.60	0.75	0.90

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5.5 CHLORINATION

- A. The method of chlorination shall be the Continuous Feed Method consisting of the following steps:
1. Upon completion of construction, fill mains with potable water, and remove all air from high spots and/or pockets.
 2. Flush the completed main(s) in accordance with the requirements specified herein to remove particulates. Following the filling and flushing of the main(s), and before chlorination, complete all hydrostatic testing to the satisfaction of the HWD.
 3. Fill the main(s) with chlorinated potable water, having an initial concentration of 25 mg/L free chlorine residual. After a 24-hour period, there shall be a minimum of 10 mg/L free chlorine residual in the main(s). Water from the existing distribution system or other approved source of supply shall be made to flow at a constant measured rate, into the new main(s). In the absence of a meter, the rate may be approximated by methods such as placing a pitot gauge in the discharge or measuring the time to fill a container of known volume.
 4. At a point not more than 10 feet downstream from the beginning of the new main(s), water entering the new main shall receive a dose of hypochlorite solution fed at a constant rate such that the water in the main(s) will have not less than 25 mg/L free available chlorine. To assure that this concentration is achieved, the Contractor shall measure chlorine concentration at regular intervals along the main(s), using appropriate chlorine test kits.
- C. The amount of chlorine required to obtain a concentration of 25 mg/L per 100 feet of various diameter pipes shall be determined.
- D. During the application of chlorine, valves shall be closed to prevent strong chlorine solution in the new main(s) from flowing into the existing system. Chlorine application shall continue until the entire main(s) is filled with water having 25 mg/L of free available chlorine. The chlorinated water shall be retained in the main(s) for at least 24 hours, during which time all valves and hydrants in the section(s) being treated shall be operated, in order to disinfect the appurtenances. At the end of this 24 hour period, all portions of the main(s) and appurtenances being tested shall have a free available chlorine residual of at least 10 mg/L. If less than 10 mg/L free available chlorine residual is measured, the main shall be re-flushed and the entire disinfection procedure repeated.
- E. Hypochlorite solutions shall be applied to the water main(s) with chemical feed pump(s) designed for feeding chlorine solutions. Feed lines shall be of such material and strengths as to safely withstand corrosion caused by the concentrated chlorine solutions, and also the maximum pressures that may be created by the pumps. All connections shall be checked for tightness before the solution is applied to the main.

5.6 FINAL FLUSHING

- A. After the specified retention period, the heavily chlorinated water shall be flushed from the main until chlorine measurements show the concentration in water leaving the main is no higher than that generally prevailing in the system.
- B. The heavily chlorinated water shall be neutralized before discharge. Great care shall be exercised in the selection of the rate of flow and the discharge points, in order to minimize complaints, and damage to public or private property.

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- C. The environment to which the chlorinated water is to be discharged may be environmentally sensitive. A reducing agent shall be applied to the water to thoroughly neutralize the chlorine residual remaining in the water.

5.7 PROCEDURES FOR DISINFECTING TAPPING SLEEVES

- A. Before a tapping sleeve is installed, the exterior of the main to be tapped shall be thoroughly cleaned, and the interior surface of the sleeve and valve shall be washed with a one (1) percent hypochlorite solution.

5.8 BACTERIOLOGICAL TESTS

- A. Twenty-four (24) hours after final flushing and before the water main is placed in service, water samples shall be collected twice (24 hours apart) at each sampling point designated by the HWD and tested for bacteriological quality in accordance with “Standard Methods for the Examination of Water and Wastewater”. Water samples shall show the absence of coliform organisms and background bacteria. A standard heterotrophic plate count will be required.
- B. If, during construction, trench water has entered the main, or if excessive quantities of dirt or debris have entered the main, bacteriological samples shall be taken at intervals of approximately 200 feet and shall be identified as to location. Samples shall be taken of water that has stood in the main for at least 24 hours after final flushing has been completed.
- C. Samples for bacteriological analysis shall be collected, in the presence of the HWD’s Agent, in sterile bottles treated with sodium thiosulfate. No hose or fire hydrant shall be used in the collection of samples. A corporation cock shall be installed in the main with a copper tube gooseneck assembly. After samples have been collected, the gooseneck assembly shall be removed. The Contractor shall sample twice (24 hours apart) at each location designated by the HWD.
- D. An independent laboratory shall collect and deliver all samples to a MassDEP approved laboratory for bacterial analysis. Only after each consecutive sample is approved shall the mains be incorporated into the water system. In the event, that positive reports of contamination are received, the mains shall be flushed and chlorinated as many times as may be necessary to obtain passing results.

5.9 RE-CHLORINATION

- A. If the initial chlorination fails to produce satisfactory bacteriological samples, the main(s) shall be re-flushed and resampled. If check samples show the presence of coliform organisms, then the main shall be re-chlorinated by the continuous feed method of chlorination, until satisfactory results are obtained. High velocities in the existing system, resulting from flushing the new main, may disturb sediment that has accumulated in the existing mains. When check samples are taken, the Contractor shall sample water entering the new main.
- B. The water main that has been tested but has not been in use more than 30 days shall be flushed and tested to ensure that the main is clean prior to incorporating the water main into the water system. If check samples show the presence of coliform organisms, then the main shall be re-chlorinated by the continuous feed method of chlorination, until satisfactory results are obtained.

5.10 DISPOSAL OF CHLORINATED WATER

- A. Prior to disposal of water, the Contractor shall neutralize the heavily chlorinated water.

APPENDICES

APPENDIX "A"

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SYSTEM DEVELOPMENT APPLICATION

1. SERVICE NUMBER _____ DATE: _____

2. LOCATION _____ LOT NUMBER _____

3. TYPE OF DWELLING

Single Family Commercial Development

Multiple Dwelling / Development Industrial Development

4. Will the structure require sprinkler service? _____

5. Will the building require water other than for normal consumption? _____
(Example: water used for industrial process)

If yes, please describe:

6. Will the facility require a State approved backflow preventer? _____

7. Approximate distance from the street and property line to meter installation. _____

The size of service connection requested is _____ inch. Refer to the Schedule of System Development Charges for fees associated with the requested size connection. A system development charge of \$ _____ will be payable with this application.

The Applicant is responsible for all costs associated with connecting to the Town's water system and continuing to the property line to curb stop (shut off) and to the dwelling. The service installation shall conform to the Water Rules and Regulations and Planning Board Rules and Regulations. The Applicant is responsible to ensure that the installer notify the HWD for necessary inspections during construction. Applicant must obtain all necessary permits, including but may not be limited to roadway opening permit from Highway Division and plumbing permit.

All costs associated with placing temporary patch, removal of temporary patch, re-compaction and repaving of the road surface shall be the Applicant's responsibility. The bond issued to the Highway Division will be held until the repaving fee is paid.

I hereby make application for water service and agree to abide by these Water Rules and Regulations.

(Signed) (name of owner on deed)

(present address)

(telephone number)

Water Rules and Regulations

SCHEDULE OF SYSTEM DEVELOPMENT CHARGES

The purpose of a System Development Charge is to collect an equivalent portion of the cost of the present water system from new water customers or customers expanding service. A System Development Charge will be charged to any residential or non-residential customer that expands existing facilities, increases water usage, or increases the size of a meter or service line. Any property adding one or more new apartments or residential units, such as converting a two-apartment structure to more apartments will also be charged a System Development Charge for the new residential units or apartments.

Size	Fee
1-inch Service	\$2,200
1 1/2-inch Service	\$3,300
2-inch Service	\$4,400
6-inch Connection	\$13,200
8-inch Connection	\$17,600
12-inch Connection	\$26,400

A Customer requesting a change to a larger size meter shall pay the difference between the System Development Charge associated with the larger size and that of the existing size. There will be no credit/refund for customers requesting to a smaller size meter.

The Applicant is responsible for the construction and all related costs of connecting to the system including the cost of all labor, materials, excavating, backfilling, police details, road repairs and any other necessary work.

Refer to Schedule of Service Rates and Other Charges for fees over and above the System Development Charges noted above. The Applicant should consult with the HWD's office to identify the applicable fees and to get response to questions.

Water Rules and Regulations

SCHEDULE OF OTHER CHARGES AND SERVICE RATES

OTHER CHARGES	Rate
5/8" Water Meter and MTU Device	\$250
Meter and MTU Installation Labor	\$28.50
Service Activation/Turn On (Business Hours)	\$ 25
Service Activation/Turn On (After Normal Working Hours) ⁽²⁾	\$160 Per Occurrence
Service Shut Off ⁽²⁾	No Charge
Hydrant Flow Test	\$100 Per Hydrant (min 2)
Fire Pump Test	\$150 plus Usage at Current Water Rate
Transfer Fee	\$
Final Reading Fee	\$25.00
Backflow Device Initial Test	\$82.50
Violation for Unregistered Automatic Sprinkler System First Violation Second Violation Subsequent Violations	Warning / Notice \$200 \$100 Increments
Hydrant Use Application Fee	\$28.50
Hydrant Meter/Backflow Device Rental	\$5 / day
Authorized Water Use from Hydrant	\$0.018 /Gallon
Unauthorized Use of Hydrants	\$300
Meter Test (1" and Smaller) ⁽¹⁾	\$105 Plus labor

SERVICE RATES	Rate⁽³⁾
First Hour (Minimum Charge)	\$
Each ½ Hour Thereafter	\$
After Normal Working Hours Hourly Rate	\$
Equipment (Backhoe) per hour	\$

- (1) For larger meters, the HWD will charge according to the actual material cost and labor.
- (2) Customers will be charged for non-emergency after hours service calls as well as materials used.
- (3) Rates will be determined by HWD based on the day of the week and time of the day when the services were performed, and related factors as deemed necessary by HWD.

Water Rules and Regulations

FORM A - CHECK LIST AND CERTIFICATION TO ACTIVATE SERVICE RESIDENTIAL SERVICE – EXISTING WATER MAIN

1. SERVICE NUMBER _____ DATE: _____
2. LOCATION _____ LOT NUMBER _____
3. TYPE OF DWELLING
() Single Family
4. Size of the service meter installed: _____
- | | | |
|--|-----|----|
| 5. Is this a brand new service | Yes | No |
| 6. Completed application has been submitted to HWD. | Yes | No |
| 7. Will there be a sprinkler system associated with this service | Yes | No |
| 8. Is this a replacement of an existing service | Yes | No |
| 9. System Development Charge has been paid in full. | Yes | No |
| 10. Inspections have been performed and no outstanding issues. | Yes | No |
| 11. Water meter is in place and sealed. | Yes | No |
| 12. Has a sign off from the Holliston Highway Division for trench repair. | Yes | No |
| 13. Tie Card showing location of the curb box (shut off) is shown below.
Provide a schematic showing the Curb Stop (shut off) and at least two corners
of the house foundation. Measure the distances from the curb box
to each house corner and note them on the sketch. | Yes | No |

I hereby certify that the above statement is true and that all applicable charges and fees are paid for and the water service installation is in compliance with the Town of Holliston rules and regulations.

(Signed) (Name of Owner on deed)

(Present Address)

(Telephone Number)

The HWD sign off authorizing service activation

Water Division Authorized Representative

Water Rules and Regulations

FORM B - CHECK LIST AND CERTIFICATION TO ACTIVE SERVICE DEVELOPMENT – WATER MAIN INSTALLATION / REPLACEMENT

1. SERVICE NUMBER _____ DATE: _____
2. LOCATION _____ LOT NUMBER _____
3. TYPE OF DEVELOPMENT
 Residential Commercial / Industrial
- | | | |
|--|-----|----|
| 4. Does the service have building sprinkler system ⁽¹⁾ | Yes | No |
| a. If yes, has backflow device been installed, inspected and tested? | Yes | No |
| 5. Does the installation include lawn irrigation system ⁽¹⁾ | Yes | No |
| a. If yes, has backflow device been installed, inspected and tested? | Yes | No |
| 6. Completed application has been submitted to HWD | Yes | No |
| 7. Have plans and reports been submitted to HWD for review | Yes | No |
| 8. System Development Charge has been paid in full. | Yes | No |
| 9. Has the review charges been paid in full. | Yes | No |
| 10. Inspections have been performed and no outstanding issues | Yes | No |
| 11. Has the Planning Board approved the Development | Yes | No |
| 12. Satisfactory Pressure test report has been submitted | Yes | No |
| 13. Two Passing Bacteria test reports have been submitted | Yes | No |
| 14. Gate boxes are raised to grade | Yes | No |
| 15. Gate boxes are vacuumed and the operating nut is visible | Yes | No |
| 16. Operating nuts are centered in the gate boxes | Yes | No |
| 17. Two coats of finish paint have been applied to the hydrants | Yes | No |
| 18. Record drawings of the water works including ties to gates and curb stops (shut offs) have been submitted. | Yes | No |
| 19. Has the Highway Division signed off on trench pavement | Yes | No |

I hereby certify that the above statement is true and that all applicable charges and fees are paid for and the water service installation is in compliance with the Town of Holliston rules and regulations.

(Signed) (Name of Owner on deed)

(Present Address)

(Telephone Number)

The HWD sign off authorizing service activation _____
Water Division Authorized Representative

(1) If yes, the Applicant is required to complete Form C.

Water Rules and Regulations

FORM C - CHECK LIST AND CERTIFICATION TO ACTIVE SERVICE BUILDING FIRE SPRINKLER SYSTEM

1. SERVICE NUMBER _____ DATE: _____

2. LOCATION _____ LOT #: _____

3. TYPE OF DEVELOPMENT

Residential

Commercial / Industrial

4. Completed application has been submitted to HWD. Yes No

5. System Development Charge has been paid in full. Yes No

6. All other applicable charges have been paid in full. Yes No

7. Backflow preventer(s) have been installed, inspected and tested. Yes No

Inspector's Name: _____ License #: _____

8. Inspections have been performed and no outstanding issues. Yes No

9. Make and serial number of backflow preventer has been submitted. Yes No

Make: _____ Model: _____

10. Building has been surveyed for cross connections. Yes No

11. INIS test results have been submitted. Yes No

12. As-built plan of sprinkler system has been submitted and approved. Yes No

13. Has a sign off from the Building Inspection Services been obtained. Yes No

I hereby certify that the above statement is true and that all applicable charges and fees are paid for and the installation is in compliance with the State regulations.

(Signed) (Name of Owner on deed)

(Present Address)

(Telephone Number)

The HWD sign off authorizing service activation _____
Water Division Authorized Representative

Water Rules and Regulations

HOLLISTON WATER DEPARTMENT

703 Washington St – Holliston, MA. 01746 – PHONE: 508.429.0603 – FAX: 508.429.0642

Unauthorized use of a hydrant is a Three Hundred-Dollar (\$300.00) Fine

Hydrant Use Application

Date: _____ (One form per hydrant / non-transferable) Permit #: _____
MONDAY thru FRIDAY ONLY

Applicant/Company Name: _____

Billing Address: _____

Contact Person: _____ Contact Phone #: _____

Hydrant Location: _____ Hydrant Use Date(s): _____

Anticipated Water Use (Gallons) _____ Purpose of Hydrant Use: _____

Terms and Conditions:

1. It is understood that applicant will be responsible for any damage to the hydrant, loss, and theft of the equipment including repair or replacement costs.
2. Never separate the connected cross-connection device from the meter or disassemble any part of the metering device.
3. Water from a fire hydrant is NOT intended for human consumption.
4. TOWN will turn the hydrant on and off.
5. APPLICANT will regulate needed flow by the valves on the device set.
6. Always open and close the valves SLOWLY and COMPLETELY.
7. All water drawn from the fire hydrant shall pass through the issued metering assembly.
8. A copy of this Permit must be kept in the vehicle and must be presented upon request to department personnel.
9. It is the responsibility of the applicant to notify the Water Department when finished using the hydrant meter.
10. The User shall lock the hydrant connection whenever the hydrant is not in use, or not being monitored by the User.
11. **NO** hydrant will be used between November 1 and April 1
12. The fee is \$5.00 per day plus water consumption @ **0.018** per gallon.

This permit is for the date(s), specific hydrant and purpose applied for. Uses outside the bounds of this permit are subject to fines.

By signing below, you accept the terms and conditions for the permitted use of this hydrant as well as all charges for services provided by the Holliston Water Department.

The Holliston Water Department will install a meter on the hydrant located above

Applicant Signature: _____ Date: _____

For Staff Use Only:

Approved by: _____ Date: _____

Meter No. _____ Size: _____ Make: _____

Meter Reading Start: _____ End: _____ Total Use: _____

Days of use _____ @ \$5.00 per day \$ _____

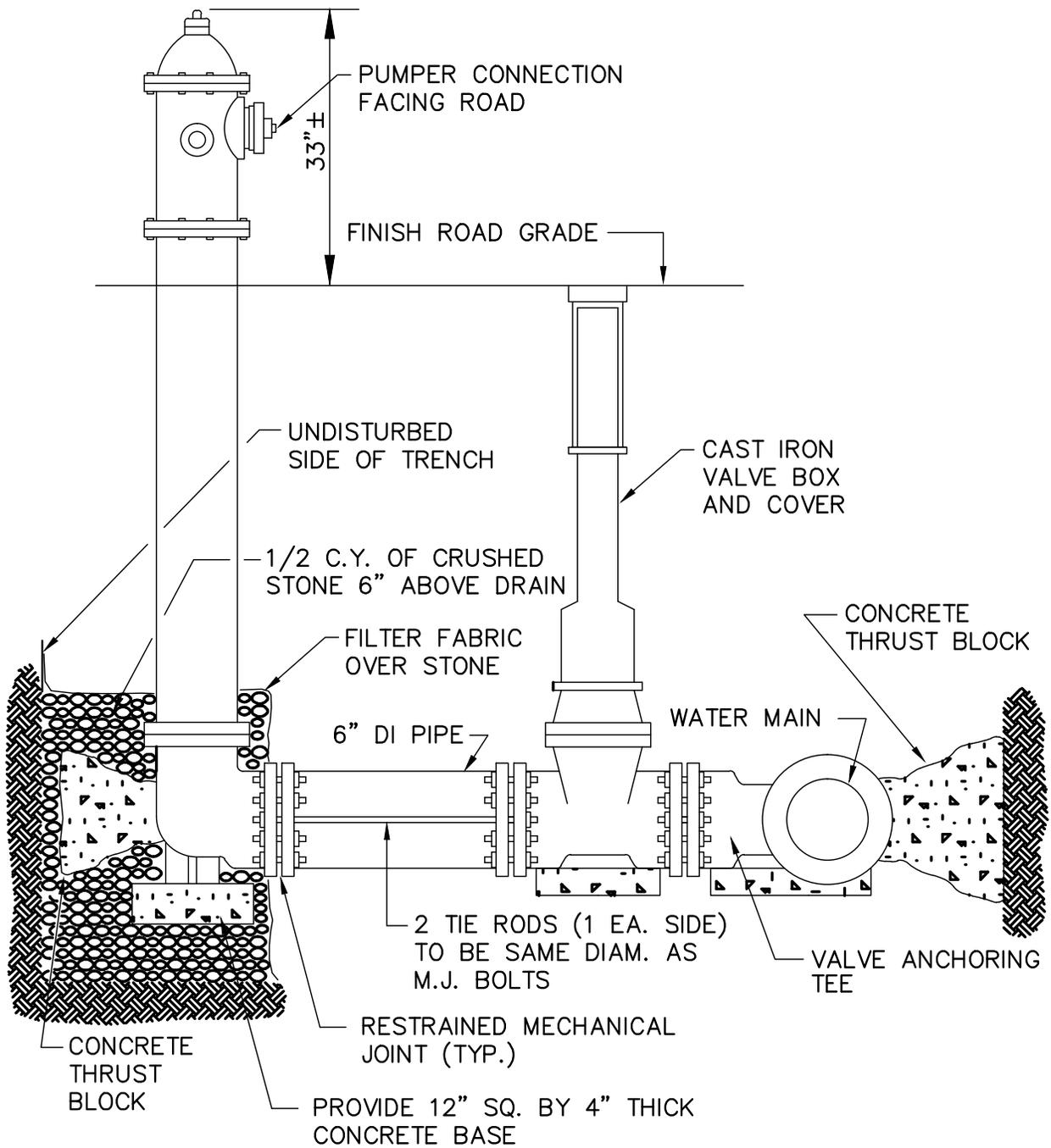
Water consumption @ \$ _____ per gallon \$ _____

Repairs/Replacement \$ _____

Administrative fee \$ _____

Total charges due \$ _____

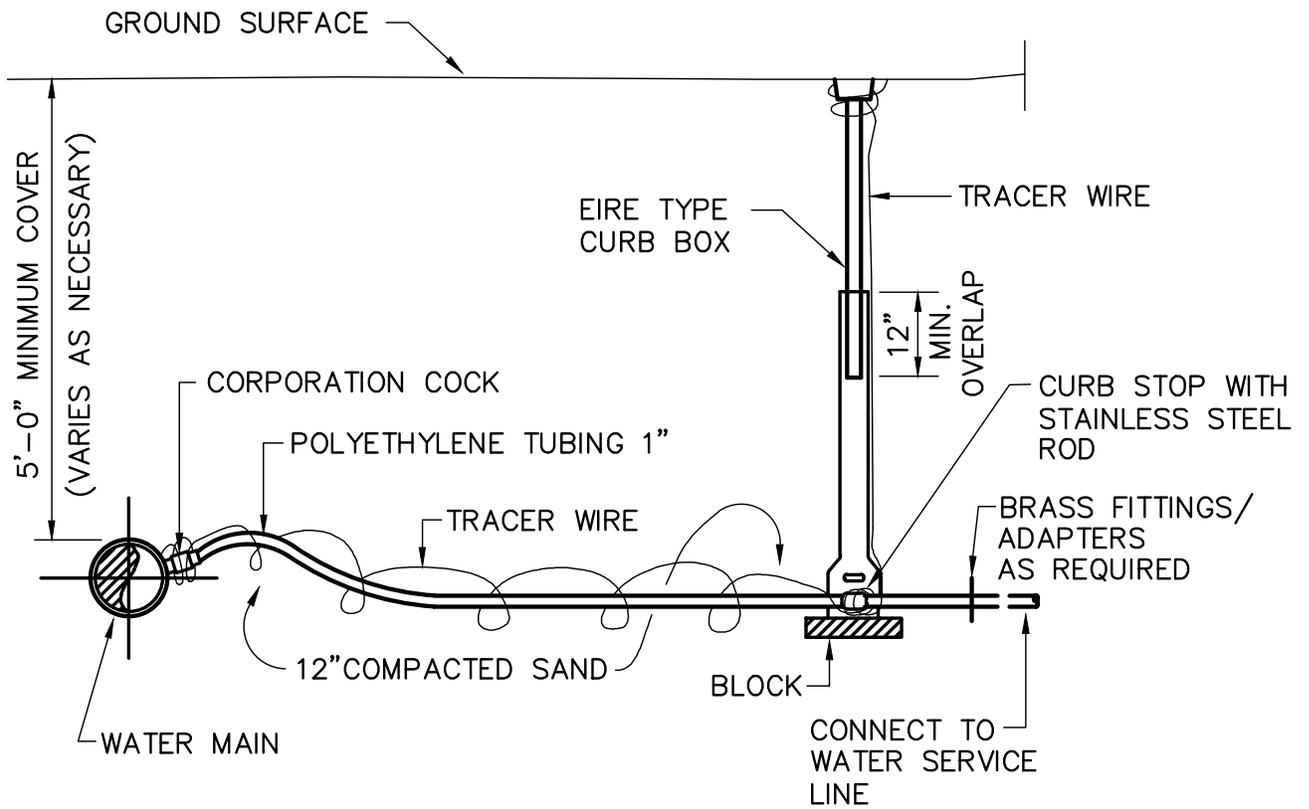
APPENDIX "B"



HYDRANT INSTALLATION

NOT TO SCALE

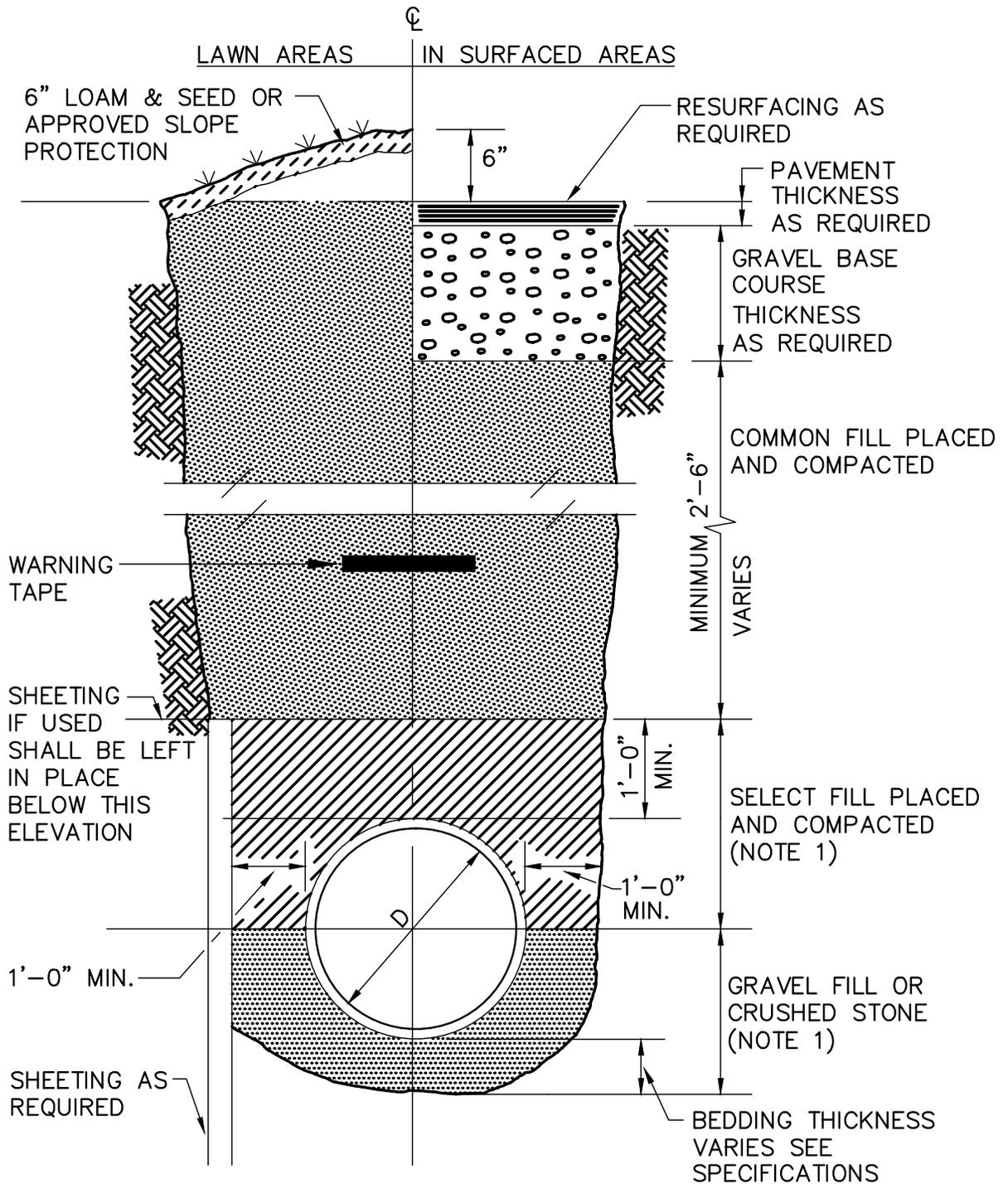
WATER SYSTEM STANDARDS
HOLLISTON, MASSACHUSETTS



TYPICAL WATER SERVICE DETAIL

NOT TO SCALE

WATER SYSTEM STANDARDS
HOLLISTON, MASSACHUSETTS



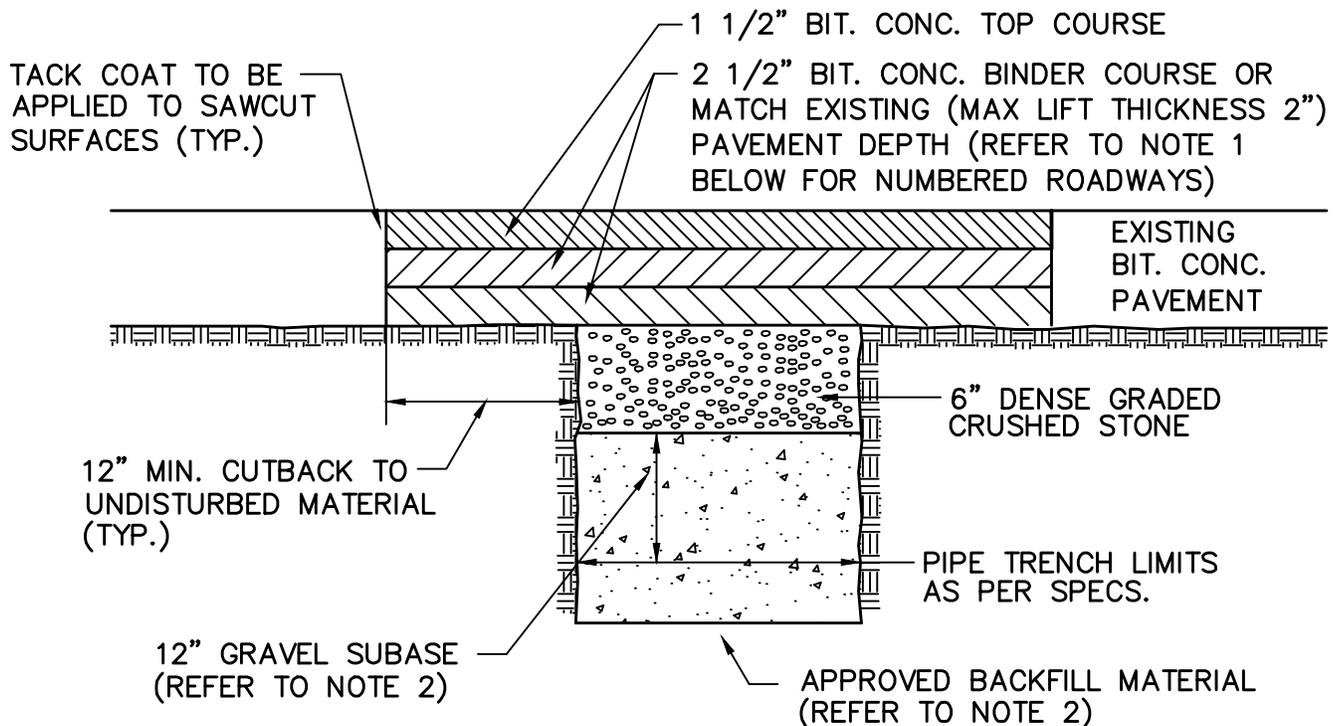
NOTE:

1. FILL USED FOR PIPE BEDDING AND OVER THE PIPE SHALL HAVE A MAXIMUM STONE SIZE OF 2 INCHES. COMPACTED SAND IS REQUIRED FOR BEDDING AND OVER SERVICE LINES.

TYPICAL TRENCH SECTION

NOT TO SCALE

WATER SYSTEM STANDARDS
HOLLISTON, MASSACHUSETTS



NOTE:

1. PERMANENT BITUMINOUS CONCRETE TRENCH PATCH SYSTEM FOR NUMBERED ROADWAYS SHALL BE A MINIMUM OF 7 INCHES THICK OR MATCH EXISTING DEPTH. THE TRENCH PATCH SHALL INCLUDE 3 1/2" BASE, 2" BINDER, AND 1 1/2" TOP COURSES.
2. CONTROLLED DENSITY FILL (CDF) SHALL BE PLACED IN NUMBERED ROADWAYS AND WHERE REQUIRED BY HOLLISTON HIGHWAY DEPARTMENT.

**PERMANENT BITUMINOUS
CONCRETE TRENCH PATCH**

NOT TO SCALE

**WATER SYSTEM STANDARDS
HOLLISTON, MASSACHUSETTS**

SAMPLE TIE CARD

STREET _____ LOT NO. _____

CODE NO. _____ SERVICE NO. _____

OWNER _____

DATE _____ SIZE _____

SERVICE _____ SERVICE _____

TYPE _____ RESIDENTIAL

SERVICE _____ COMMERCIAL

METER NUMBER _____ TYPE METER _____ SIZE _____

SEALED _____ DATE _____

TYPE MAIN IN STREET _____ SIZE _____

SERVICE SKETCH