

TOWN OF CARVER

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**GUIDELINES AND SPECIFICATIONS
FOR A**

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FIRE PROTECTION DISTRIBUTION SYSTEM (FPDS) CLERK CARVER MA.

1.0 Installation

- 1.1 All design standards and construction practices shall be in accordance with current standards and specifications of American Water Works Association (AWWA).
- 1.2 Proper safety devices and warning signs will be set up prior to any excavation by the Developer. This includes cones, horses, etc. A police officer shall be required if the Police department or other authorized official deems an officer to be necessary.
- 1.3 No pavement will be cut without permission of the Department of Public Works, or other authorized personnel. Any excavation work requiring pavement removal shall be cut only by an accepted method, acceptable by the Department of Public Works. No asphalt shall be removed without being properly cut first.
- 1.4 Proper excavation and safety procedures shall be followed regarding trenching for pipe installation as set fourth under applicable industry standards. Occupational Health and Safety Organization (OSHA) regulations will be required as applies to the law.
- 1.5 Any material excavated from the trench, which is deemed unsuitable by the Town of Carver's engineer or its designated authority, shall be removed and replaced with suitable materials under their authority. Suitability will be solely determined by the Town of Carver's engineer or its designated authority.
- 1.6 Proper back filling procedures in accordance with NFPA 24 will be used in refilling the trenches, both to ensure proper protection of the pipeline and for the compaction of the trench. Backfill shall be well tamped in layers under and around pipes to prevent settlement or lateral movement, and shall contain no ashes, cinders, refuse, organic matter or corrosive materials. Care will be taken to protect existing utilities, and any damage to existing facilities will be paid for by the proponent or applicant responsible for the project.
- 1.7 Fire Protection Distribution System installation variations presented by on-site conditions shall be at the discretion of the Town Engineer or its designated authority. Such conditions include driveways, on-site septic design, or natural geology, i.e., ledge, boulders, etc.
- 1.8 All pipes and fittings will be according to the specifications listed below and to AWWA specifications for water systems. No piping will be buried without inspection from an engineer representing the Town of Carver or its designated authority. Any piping buried without inspection may not be acceptable and may have to be uncovered for inspection.

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- 1.9 All Fire Protection Distribution System connections shall meet or exceed AWWA standards at the time and have compression type connections unless otherwise approved. Compression type connections will be required on all joints where the pipe is jointed to the fitting.
- 1.10 All subdivisions, condominium projects and multiple housing or other type projects shall supply everything needed to utilize available fire protection to said projects.
- 1.11 Prior to installation a complete set of plans (engineering the project) for the Fire Protection Distribution Systems shall be submitted and approved by the Carver Fire Department and the Town of Carver's engineer or its designated authority.
- a) These plans shall include the layout of the Fire Protection Distribution System mains, complete with all hydrants, valves, and other details, necessary to construct the water main.
 - b) A locus map showing the location of the project.
 - c) A construction detail plan showing hydrant details blocks and any other details the Carver Fire Department and Town of Carver engineer or its designated authority deems necessary.
 - d) A complete set of technical specification details will be printed on the plans, so as there is no question in additional details.
 - e) Five (5) complete set of as-built drawings for the Fire Protection Distribution System shall be provided to the Carver Planning Board following the project's completion.

The Town of Carver's engineer or its designated authority shall have the right to approve any necessary changes because of field conditions, provided that they meet or exceed industry standards at that time.

- 1.12 These specifications and guidelines have been set up to help the Town control projects and to assist project engineers, contractors, developers and builders in what is required for Fire Protection Distribution System installations. They are not meant to supersede street opening permits, plumbing code regulations or water regulations established by EPA or the State of Massachusetts regulations, which would supersede local regulations.

2.0 Technical Specifications

- 2.1 Testing: Two Fire Protection Distribution System tests will be required in accordance with AWWA C-600 by the applicant. The first test will be done after the system has been completely installed. The second, shall be done before the roadway is accepted as a Town road and the roadway sureties are released. Both tests shall consist of the following: after the fire hydrant installation the new water mains shall be flushed and filled under the direct supervision of the Town of Carver's Engineer or its designated authority. All air shall be expelled from the line prior to testing. Testing shall be in accordance with AWWA C-600. The test pressure shall be 150 PSI or 1.5 times the working pressure, whichever is greater. The test duration shall be 2 hours. Allowable leaking shall be based on section 4.1 of AWWA C-600.

- 2.2 Disinfection: At the time when connection to a town water supply becomes available, disinfection shall occur as required by the existing water authority at the time.
- 2.3 Pipe: Fire protection distribution mains shall be a minimum of 8 inch or greater diameter as dictated by industry standards, cement lined Ductile Iron Water Mains, with Bitumen coating inside and out. Pipe shall conform to the requirements of current ANSI A21-50, A21.51 and AWWA C-150, C-151. All pipes shall be Class 52 with push-on joints. All fire hydrant mains will be buried in the quarter point of the roadway.
- 2.4 Fittings: Fittings shall be cement lined Ductile Iron with Bitumen coating inside and out. Fittings shall conform to the requirements of current ANSI A21.53 and AWWA C-153. Fittings shall be mechanical joint conforming to current ANSI 21.11 and AWWA C-111. All fittings shall have solid not poured concrete thrust blocks as detailed in drawings. The thrust blocks shall be of a concrete mix, not leaner than one part cement, two and one half parts sand, and five parts stone. Thrust blocks shall be placed between undisturbed earth and the fitting to be restrained. Thrust blocks shall be so placed that the joints will be accessible for inspection and repair.
- 2.5 Valves: Gate valves shall be iron body, bronze mounted, double disc, side wedge type, non-rising stem with "O" Ring seals. Valves shall be New York Pattern, metropolitan type conforming to the requirements of AWWA C-500. Resilient seat gate valves conforming to current AWWA C-509 are acceptable. All the valves shall have mechanical joint ends and shall open right or clockwise.

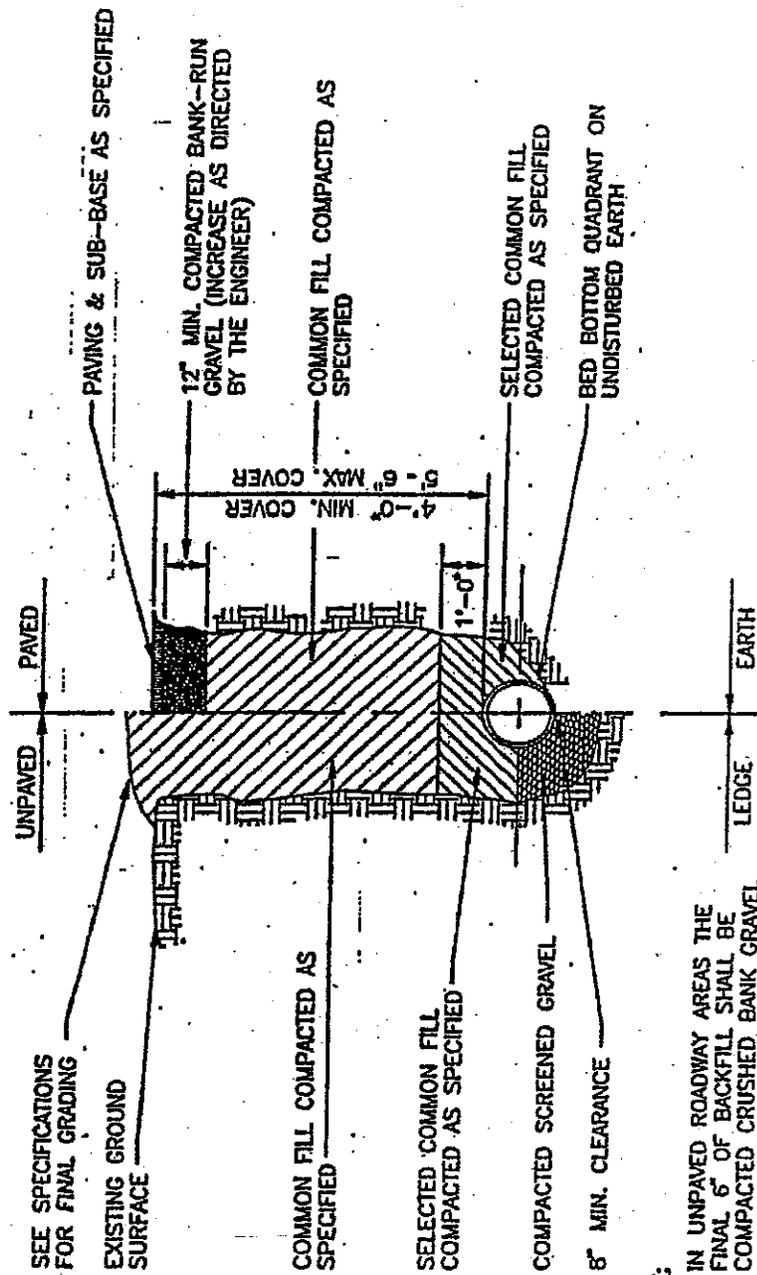
All gate boxes shall be accompanied by a heavy cast iron, adjustable slide type box; minimum 5-inch diameter barrel, cast iron cover with the word "Water" cast in the top. Boxes shall be designed and installed such that no pressure shall be exerted by the valve box on the water main or the valve itself.

- 2.6 Hydrants: Hydrants shall be American-Darling Model B-50-B Mueller Centurion 200 color Red, conforming to the current requirements of AWWA C-502. Hydrants will have a minimum 5 1/4 inch diameter valve opening and 7-inch diameter barrel. Hydrants shall be spaced at a maximum of 500 feet apart. Hydrants shall open left or counter clockwise and have 5 foot 6" depth of bury. Hydrant shall have two 2 1/2" nozzles and one 5" nozzle.
- 2.7 Granular Fill Materials: Materials shall conform to the Commonwealth of Massachusetts "Standard Specifications for Highway and Bridges" latest edition.
- a) Screened Gravel: Hard, durable, rounded particles, free from sand, loam, clay, excess fines and deleterious material. Uniformly graded such that not less than 95% will pass a 1/2-inch sieve and not more than 5% pass a No. 4 sieve.
 - b) Bank Run Gravel: Hard, durable stone and coarse sand free from frost, loam, clay and other deleterious material.

- 2.8 Concrete: Materials shall conform to the Commonwealth of Massachusetts "Standard Specifications for Highways and Bridges" latest edition. Cement: Type II Portland cement conforming to ASTM C-150.
- 2.9 Inspection and Acceptance: All materials and construction are subject to the approval of the town of Carver's Engineer or its designated authority. The contractor shall not cover any work prior to said approval. The contractor is responsible for correcting all deficiencies to the satisfaction of the Town of Carver Engineer or its designated authority. Approval shall in no way affect the obligation of the contractor to repair or renew subsequent deficiencies.
- 2.10 Construction: Trenches shall be excavated to the depth indicated on the drawings or as directed by the Town of Carver Engineer or its designated authority and in widths sufficient for laying of the mains and appurtenances. All pipes shall have a minimum of 4'6" and maximum of 5'6" cover. Variances in depth of cover shall only be accepted by the Town of Carver's Engineer or its designated authority.
- a) All fire hydrant mains shall be located within the quarter point of the roadway as detailed in the typical roadway layout.
 - b) If used, wood sheeting shall not be withdrawn if driven below the midpoint of the pipe. Sheeting shall be cut off no lower than 1 foot above the top of the pipe.
 - c) Blasting, if required, shall be conducted in full compliance with all the laws of the state and local by laws. The contractor is responsible for obtaining all permits and ensuring public safety.
 - d) All valves and hydrants shall be set plumb in true vertical alignment and all valve boxes shall be installed vertically, centered over the operating nut. The elevation of the top shall be set to finished grade.

3.0 Deed Restriction

Prior to release of the endorsement of the approved subdivision plan, the applicant shall provide evidence that a deed restriction has been recorded against the property that is the subject of subdivision approval in the form of a restrictive covenant that has been approved as to form and content by Town Counsel to the effect that all of the owners of the subject land covenant and agree that they and their successors in interest waive any and all right to connect to any future drinking water supply system installed in the future that abuts the closed Fire Protection Distribution System unless and until the drinking water supply system connection has been approved by the appropriate drinking water supply authorities.

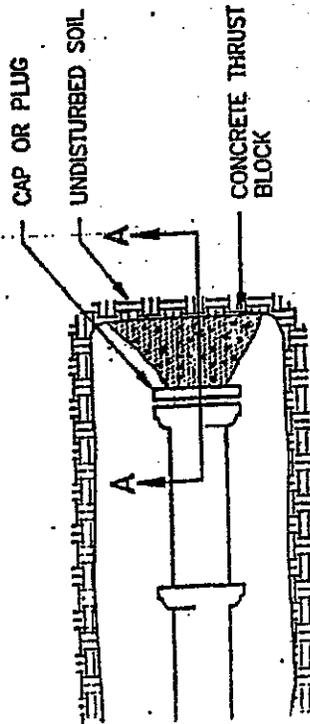
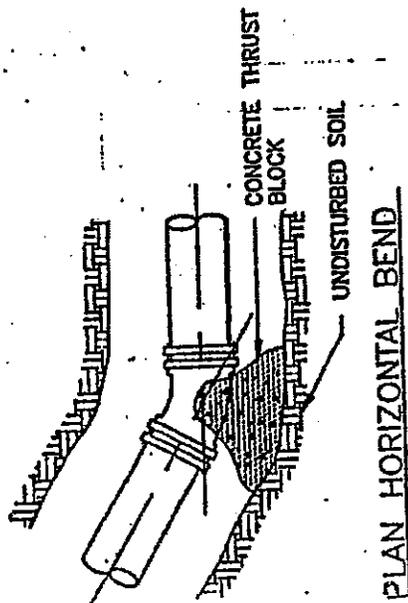
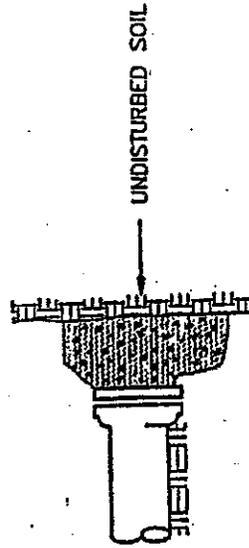
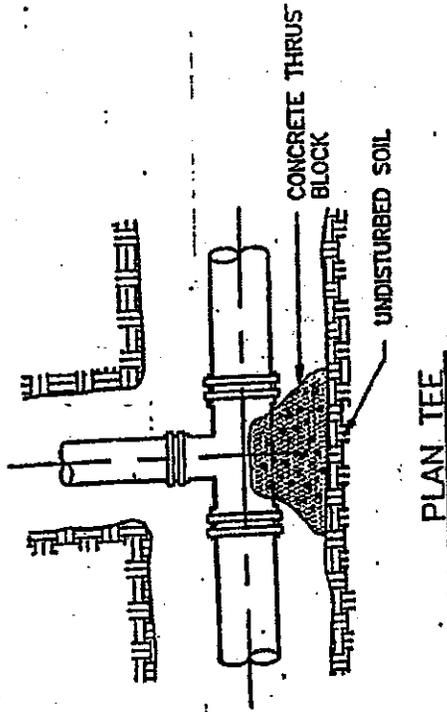


NOTE:

IN UNPAVED ROADWAY AREAS THE FINAL 6" OF BACKFILL SHALL BE COMPACTED CRUSHED BANK GRAVEL FINISH GRADED TO MATCH EXISTING GROUND.

TRENCH DETAIL

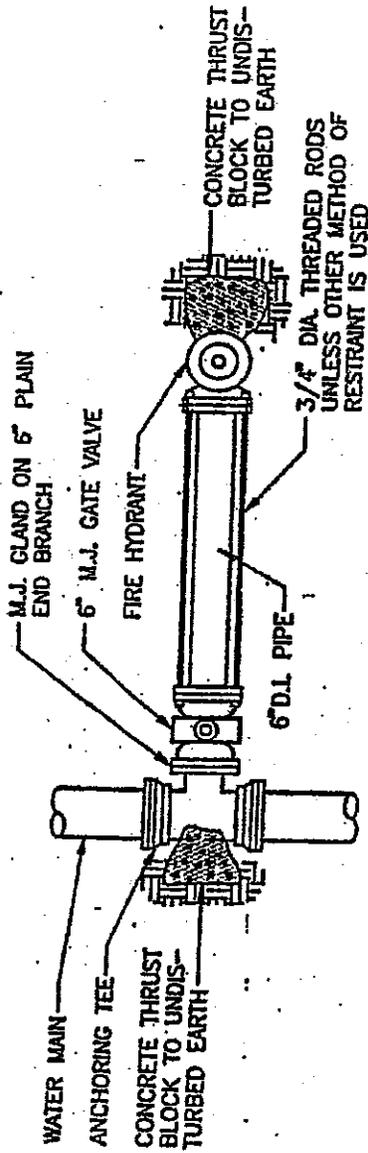
NOT TO SCALE



PLAN PLUG

THRUST BLOCK DETAILS

NOT TO SCALE



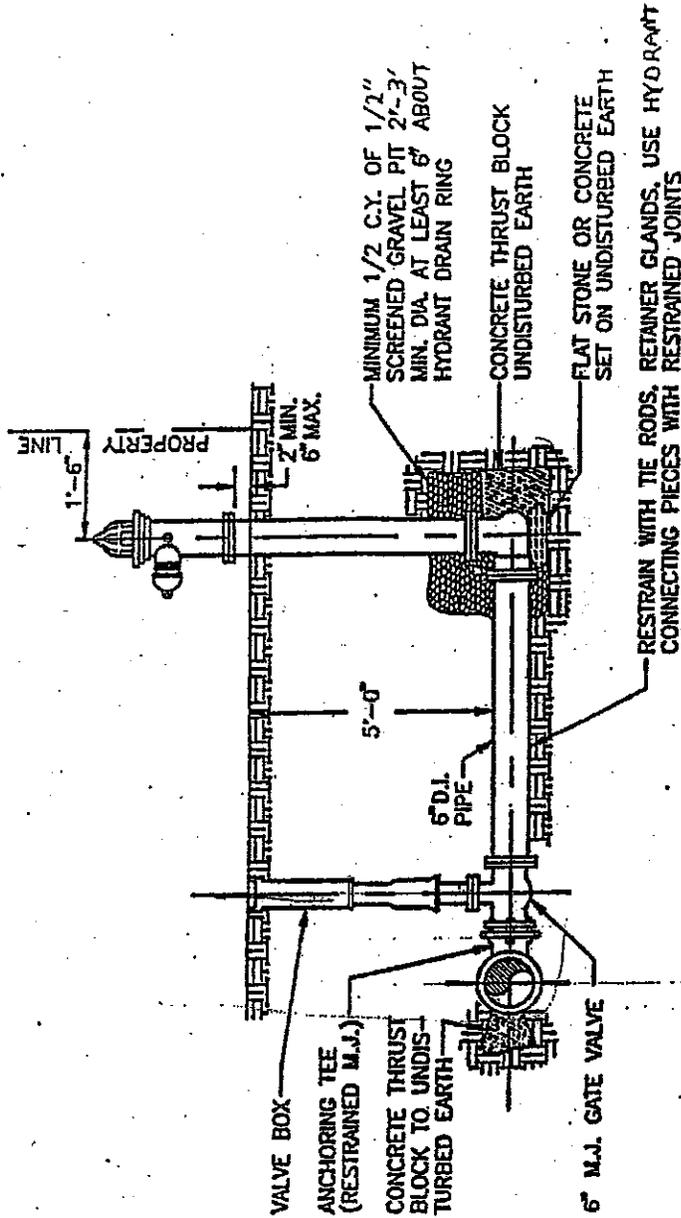
PLAN VIEW

NOTE: HYDRANT EXTENSIONS SHALL BE INSTALLED AT ALL LOCATIONS DESIGNATED BY THE ENGINEER.

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SECTION VIEW

HYDRANT DETAIL
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