



EXHIBIT D
LACONIA WATER DEPARTMENT
SPECIFICATIONS ON MATERIALS AND REGULATIONS
PERTAINING TO WATER MAIN AND WATER SERVICE INSTALLATION

REGULATIONS

DEFINITIONS: Utility or Water Department shall mean Laconia Water Department. Commission shall mean Laconia Water Department Board of Commissioners. Person shall include subdivider, partnership, firms, association or corporation. Contractor is the one who bargains to do certain work at a specified rate. Superintendent is the one who supervises and carries out the policies of the commission. Inspector is a full time employee of the utility who oversees construction, installation, etc. Developer or Subdivider is the person or persons who subdivides property to sell or develop. The developer will be responsible for all actions that take place in the subdivision or development.

TARIFF: The Laconia Water Department Tariff states on page 11, section XXXI, Item 3, under "Main Extensions" that the "main pipe" shall be laid by and will be the property of the Utility. The Commission will make exception to this rule only to the extent that a person may hire their own contractor to do this work if he meets with the following standards and abides by the following rules:

APPLICATION: The person who wants a water main extension must first make a request to the Superintendent of the Water Department and must submit an approved preliminary plan of the development or extension showing the street layout, finished grades, water mains and services, sewer mains, and other utilities. If the Superintendent finds it feasible to supply this area, a cost estimate will be made up at this time and a formal application will be drawn up. This will be acted upon by the Commission. If it is approved, the person or the contractor must deposit 100% of estimated costs through a letter of credit or cash passbook, which will be in the name of Laconia Water Department. An engineering analysis must be done on all property, by the utilities engineering firm, at the cost of the Applicant.

This project must have final approval from the Laconia Planning Board, and meet Laconia Water Department "Water Main Extension Requirements" (Exhibit K available in office), before it goes to construction.

The Contractor doing the job must strictly abide by the following regulations and specifications:

CONTRACTOR: The contractor hired must qualify as a Water Department contractor with a certain degree of previous experience and capable of meeting the approval of the Commission.

DEVELOPER OR SUBDIVIDER: This person will be personally responsible for the action of the contractor he hires. The person will be charged an hourly rate for inspectors and time and a half, before 7:00 A.M. and after 3:30 P.M. or weekends and holidays, etcetera, payable in advance according to the estimated time schedule. If the cost is more than the estimated amount, the person will be charged accordingly. If the cost is less, it will be refunded. The inspector will inspect all materials and see that the contractor does his work according to the specifications. He will not assist, advise or direct the construction. He will have the authority to stop the job if the installation is not being performed according to specifications. Any dispute resulting will be settled by the Superintendent of the Water Department. The inspector will be on site during all installations, crossings etcetera, unless said inspector deems it unnecessary. If the inspector is needed for a utility emergency or it is not in the best interest of the utility to have the installation continue, then construction shall cease until an inspector is available.

SAFETY: The contractor will be expected to acquire proper permits to excavate on the city street or state roads and will be responsible for locating other utilities such as; sewer mains, house sewer connections, surface drains, culverts, gas mains, gas services, underground telephone cables, electric mains, existing water mains and services, etcetera and repair the same at his or the subdivider's expense if damaged. The contractor must have proper warning signs, barricades, electric flashers, trench shoring etcetera and will be held responsible for the safety and control of pedestrian and mobile traffic. The contractor shall comply with all local, state and federal safety regulations.

INSURANCE: The contractor agrees to obtain and maintain Broad Form General Liability Insurance and Broad Form Property Damage coverage for the benefit of the utility against all claims for Bodily Injury or Property Damage arising from and pertaining to, or in any way connected with, the construction of a water main or water service, at it's expense, during the term of this agreement with minimum limits of One Million (\$1,000,000.00) Dollars per occurrence and a Two Million (\$2,000,000.00) Dollar aggregate. In addition said contractor must have an Umbrella Policy of One Million (\$1,000,000.00) Dollars or more. Within ten (10) days after the date of this agreement, or prior to construction the contractor shall deliver to the utility certificates of insurance certifying that such insurance is in full force and effect. Failure to provide the insurance required does not diminish the contractor's responsibilities contained in this paragraph or in the preceding paragraph.

GENERAL: All costs involved in a water main extension, water services from the water main to the building, water meter and associated fees, brass fittings, etc., will be borne by the person requesting water service. All specifications covering materials and construction must be strictly adhered to. If any changes are made from approved plans, a new set of plans must be submitted to the Superintendent and Commission for approval. If there are a number of modifications or changes made to the plan, it then must be sent back to the Planning Board for approval.

METERS: In keeping with the Laconia Water Department standards, Sensus radio read meters, in cubic feet, will be used except in special application. Anything else must be first approved by the Superintendent of the Laconia Water Department. All meters must be set inside of the building, in an accessible

and warm location close to the point of entrance and set in at the least, a meter horn with a double check valve on the discharge side and a ball valve on the influent side. All meter horns not purchased from Laconia Water Department must be approved before installation. If a pressure reducing valve is required, the valve will be positioned before the meter and the meter horn. Outside pits are allowed under certain conditions. Meters and meter horns are to be set only on Type K soft copper. Meters larger than 2" shall not be allowed without prior written approval of the superintendent. 2" meters in a manifold arrangement shall be used for large flows when possible. All meters that are not purchased from Laconia Water Department must be first tested at the Laconia Water Department before being installed. Costs for these tests will be paid for by the individual that brings them to be tested, and the Construction and Maintenance Assessment (CMA) and radio read fees are to be paid on all meters not bought from the Laconia Water Department.

DOMESTIC SERVICE PIPE: An application must be filled out first and is available in the office. Type K, heavy underground soft copper tubing can be used in sizes of 3/4" to 2", from the water main to the building. DR 9, Copper Tube Size, High Density Polyethylene (HDPE) pipe may be used on 1 1/2" and 2" services from the water main to the building. DR 9, Copper Tube Size, High Density Polyethylene pipe may be used on 3/4" and 1", from the curb stop to the building. Tracer wire for locating purposes, and stainless-steel stiffeners must be installed if using HDPE. No 1 1/4" services are allowed. Any services that are longer than 100 feet from the main to the meter will require the size of the pipe to be a minimum of 1" diameter. Ford, McDonald or Mueller brass with quick joint ends are used underground and quick joint or flared inside of the building. Ford, McDonald or Mueller ball corporation stops, iron pipe thread by quick joint is tapped into the main by machine. On non-ductile iron pipe, all services shall be saddled. On ductile iron pipe, 1 1/2" and 2" services shall be saddled. Saddles may also be required depending on size of tap, type and size of water main, etcetera. The curb stop shall be set at the property line, or within 10' of a right of way, a minimum of 10 feet from the structure, decks, stairs etcetera. On curb stops 1 1/2" or larger service box foot pieces shall be used. Type of rod used shall be 1/2" stainless steel 30-36" in length. Services boxes and curb stops should be approximately 90 degrees from the main and proceed in a straight line towards the structure. All services, main to structure, must be inspected by the Laconia Water Department before being backfilled. A meter horn consisting of a ball valve and a double check valve on the discharge side of the meter must be picked up at the Water Department. Backflow prevention devices are required for all multiunit structures and other uses that are considered by the Laconia Water Department to be a possible hazard to the public health. Refer to our Cross-Connection Control Policy for specific requirements. No other utility is to be in the same trench as the water pipe. All state and local standards must be met. All Services must be between 6 to 8 feet in depth after finish grade. A minimum of 5' in horizontal separation is required.

PIPE LAYING: Trench must be excavated six feet (6') below finish grade, plus the outside diameter of the pipe, plus 12" for a cushion of fine material. The bottom of the trench shall be firm and free from water. Dewatering, bagging etcetera may be required, if deemed necessary. All Water Mains must be between 6 to 8 feet in depth after finish grade. Water main is to be laid in a straight line between curves or contours in the roadway usually about 1/3 of the width of the road in from the property line. If allowable deflection per joint is not sufficient to maintain this distance between property line and center of the main, fittings must be used to accomplish this. Deflection of joints will only be allowed, if pipe is installed in a straight line and then deflected. The degree of deflection is to be determined by the inspector but never greater

than half the manufacturers maximum allowable deflection. Crisscrossing from one side of the road to the other is not allowed. Water mains are to be laid within a right of way or easement area. There must be access year round to the water main (minimums would be a graveled roadway along the easement area). Grade over the pipe to be laid must not exceed 15%. No landscaping, walls, fences, decks etc. are to be placed within the easement area or over the main. A Laconia Water Department inspector must be present at all times while laying water pipe or excavating over an existing water main, backfilling or any crossing of or by other utilities.

Care must be taken when crossing a sewer line. Clearance of 18" is to be maintained between the two. If a push on joint comes to within 10' of either side of a main sewer line, a joint clamp or sleeve must be used. There must be 10' (horizontal distance) between the water main and the sewer main.

After the pipe is laid in the trench, the ditch is backfilled to 3/4 of the height of the pipe with selected materials, tamping the material under the pipe for proper support. A 1' cover of sand may be required by the inspector based on the quality of on-site fill. Continue in 12" to 18" lifts, tamping each lift. The material shall be selected earth, free from frozen lumps or stones larger than 6". The filling shall be carried up evenly in 12" to 18" lifts, and compacted with a mechanical tamper. In any proposed or existing city street the ditch must be backfilled, compacted and asphalted according to the specifications of the City Engineer. The Public Works Department's requirement will apply.

All gates, fittings, and hydrants must have proper horizontal backing and retaining glands. High points on water mains are to be vented; this requires a 3/4" copper tube properly valved to be extended to the surface of the road from the main, housing inside a valve box in such a position as to allow easy operation of the control valve. Mains are not to be closer than 10' to any structures. Other utilities are not to be in the same trench or over the water mains. All pipe laying must be inspected by the Laconia Water Department before backfilling. All pipe laying is to meet A.W.W.A. specifications. All mains are to be 6' to 8' in depth after finish grade.

VALVE BOXES: Valve boxes shall be installed with a cushion of dirt between the valve and valve box. If a finish grade is greater than 6'6" then a longer bottom shall be used. No risers shall be allowed on new installations. Valve boxes shall be raised flushed during final paving. A minimum 6" overlap between the top and bottom shall remain after finish paving.

TESTING OF THE MAIN: The entire main extension and services to the service box must be thoroughly flushed and bled of all air. A pressure of 150 lbs. or 1.5 times working pressure, if operating pressure is greater than 100 lbs. must be held for 2 hours with proper allowance for leakage which will be determined by the inspector.

CHLORINATION OF MAIN: Chlorine solution will be fed under pressure with a proportioner by the inspector just beyond the gate through a 3/4" or 1" C.T. standpipe especially arranged for this purpose as the pipe was laid. A residual of 50 P.P.M. must be obtained at the end of the extension and remain for 24 hours. The water main can then be flushed out until the chlorine residual is down to below 1 P.P.M.

BACTERIA SAMPLE: Two (2) water samples drawn by the inspector must be taken at the end of the water main and submitted to the Laconia Water Department

certified laboratory. If found to be satisfactory, and if there are not any outstanding obligations, the main can then be put into service.

ACCEPTANCE: The utility will accept this section of the main at the date of completion providing it has been put in according to plans and specifications. However, the Laconia Water Department will not maintain, repair or replace any part of this extension until such time as all requirements of the contracts have been fulfilled. Certain water mains and services will remain private and therefore remain the responsibility of the developer/association, etc. Acceptance by the department will be determined prior to construction.

SPECIFICATIONS ON MATERIALS

PIPE SPECIFICATION: Pipe used in extending a water main will be class 52 ductile iron only, 6" in diameter or greater, nothing else, and must meet A.W.W.A. standards for conditions under which the pipe is to be used. Joints can be either mechanical or push on, 18 to 20 feet in length, cement lined, asphalt coated outside.

FITTING SPECIFICATIONS: Ductile fittings; all mechanical joint with retaining glands. Cement lined, asphalt or epoxy coated outside; either long or short pattern may be used. All fittings are to have a working pressure of 350 PSI. All fittings shall be American made. Grip rings are not acceptable as retaining glands.

VALVES: Valves on transmission mains 12" or less, except for tapping sleeves, are to be American Flow Control 2500, U.S. Pipe A-USP1, Mueller A2361 Resilient Seated Gate Valves, all mechanical joint, right to open, epoxy coated with stainless steel bolts. Valves larger than 12" can be Henry Pratt Co. (Ground Hog) (MJ), Clow CL15 (MJ), or Mueller Line Seal III (MJ). All valves retained.

** Valves must meet applicable American Water Works Association standards including C-504, C-509 and C-515,

VALVE BOXES: Valve boxes shall be cast iron, two piece slide type 48" or 60" flared base, 24" or 36" top flange top, with a minimum inside diameter of 5 1/4". There must be a minimum of 6" overlap between the base and top when at finish grade. The word "water" shall be clearly cast into the cover. All valve boxes and covers must be North American made.

DOMESTIC SERVICE: Type K, heavy underground soft copper tubing can be used in sizes of 3/4" to 2", from the water main to the building. DR 9, Copper Tube Size, High Density Polyethylene (HDPE) pipe may be used on 1 1/2" and 2" services from the water main to the building. DR 11, Copper Tube Size, High Density Polyethylene pipe may be used on 3/4" and 1", from the curb stop to the building. Tracer wire for locating purposes, and stainless-steel stiffeners must be installed if using HDPE. Ford, McDonald or Mueller brass, with quick joint ends underground and quick joint or flared inside of the building. Ball corporations to be iron pipe thread by quick joint. Curb stops to be the ball valve type, without drains with quick joint ends. Service boxes are to be 6 to 7 feet, adjustable, schedule 40 steel pipe with brass pentagon rope thread plugs. Service box rods are to be 30-36" stainless steel, 1/2" in diameter. All cotter pins are to be heavy-duty stainless steel.

HYDRANTS: To be Eddy F2641 hydrant in keeping with the Laconia Water Department standards on hydrants. Must meet AWWA STANDARDS C509-0185. Rated working pressure 200 lbs. as well as the following specifications.

1. 5 1/4 inch valve opening
2. Open right hydrant valve
3. 6" Mechanical joint shoe with retaining gland
4. 6'-6" Trench buried
5. Break flange or traffic hydrant
6. National standard, 5 sided 63/64 operating nut
7. 2-2 1/2" Nozzles-National Standard Thread
1-4 1/2" Steamer Nozzle-National Standard Thread
8. No drain hydrant
9. Color - silver and red - body of hydrant is red. Caps, chains and operating nut are silver
10. Every Hydrant must have two hydrant posts (see below)
11. Every hydrant must have a gate valve on hydrant branch
12. Epoxy coated shoes
13. Stainless steel bolts below grade
14. Every hydrant will need to have an asphalt apron around the hydrant and extending to the road/sidewalk area. Area to be determined by Laconia Water Department

HYDRANT POSTS

1. Minimum of 2 Hydrant posts per hydrant
2. 6" ductile iron minimum diameter-concrete filled
3. Depth below grade minimum 3'
4. Height above grade minimum 4'
5. Minimum of 36" clearance from operating nut
6. Minimum 6" in front of side of hydrant
7. Free and clear of all nozzle areas
8. Painted red
9. Equal in height and size

****NOTE:** Specifications can be modified on a site-specific basis if determined by the superintendent to be in the best interest of Laconia Water Department

If the person wishes to proceed with the construction through a contractor, please sign below to indicate that you and your contractor have read and agree to all specifications stated in our Specifications on Materials and Regulations Pertaining to Water Main and Water Service Installation.

_____ Project Name/Location	_____ Date
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_____ Developer	_____ Witness	_____ Date
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_____ Contractor	_____ Witness	_____ Date
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_____ Laconia Water Department Chairman	_____ Witness	_____ Date
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_____ Laconia Water Department Superintendent	_____ Witness	_____ Date
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