

§ 170-28. Water utility.

Intent: Ensure that adequate Lewes Board of Public Works water system facilities are provided for the proposed subdivision and land development project, including necessary protection to the Board of Public Works wellhead protection area, as stated in the City of Lewes Comprehensive Plan. Also ensure, via analysis by the Board of Public Works water distribution system model, that the proposed water system facilities are adequate to serve the proposed subdivision and adjacent Board of Public Works water service areas. Additionally, if the subdivision parcel is part of a larger tract of land, the Board of Public Works shall require the capacity of facilities to be adequate to serve the entire tract to the extent that the capacity is matched to that of the lines that are extended to the parcel proposed for development.

Standards:

1. In addition to Board of Public Works review and approval, water system facilities for proposed subdivisions must receive approval to construct, and approval to operate, from the State of Delaware Health and Social Services Office of Drinking Water, State of Delaware Fire Marshal, and all other necessary review agency approvals.
2. No subdivision will be approved unless connection with a Board of Public Works water main is assured by a service connection line to each lot.
3. Utility easements shall be provided and shall normally be located adjacent to the front, side, and rear property lines of each individual lot. All easements shall be at least ten (10) feet in width.
4. Consideration shall be given for providing future water service to any or all potential lots created by a possible subdivision in any pre-existing approved subdivision before any entire street rehabilitation occurs. Additionally, consideration shall be given for providing future connection to the subdivision's water distribution system from either existing or future users of the BPW water system.
5. The installation of water mains shall be governed by the following regulations:
 - a. All water mains and all service connections and mains, pipes and conduits and the like shall be installed before paving of the road except with the express permission of the City and Board of Public Works.
 - b. For a period of five (5) years after acceptance of streets by the City, no utility mains and/or service connections shall be installed in any paved streets except with the express permission of the City.
 - c. Construction and details of utilities are governed by appropriate sections of this Chapter.
 - d. Plans:
 - i. The Developer shall prepare detailed plans for the water system in strict accordance with provisions of this Chapter and in accordance with the Board of Public Works standard details and specifications. The improvement construction plan must be approved by the Board of Public Works and the City Engineer before any work shall be started.
 - e. Installation procedure – the developer has the choice of two methods of constructing the water system:
 - i. The Developer performs work under contract or by his own work crew. This work must be reviewed and approved by the City Engineer in advance of installation, designed and installed per the specifications and standard details of the Board of Public Works, and installed under City/BPW supervision.
 - ii. The Developer can request the Board of Public Works to construct lines:
 1. The Board of Public Works puts work out on contract, and the Developer will pay for installation costs plus engineering services and administrative fees.
 2. The work is performed by Board of Public Works crews on a force-account basis. The Developer will pay for costs of materials, labor and engineering services, and administrative fees.

- f. All water mains, service connections, valves and boxes, hydrants, meters, backflow prevention devices, corporation stops, curb stop shut-off valves and boxes, fire service curb stop shut-off valves and boxes, and other water system appurtenances, shall be installed and inspected according to Board of Public Works standard details and specifications. Water mains must be pressure tested according to Board of Public Works regulations before any lateral connections can be made.
- g. Location:
 - i. The location of water mains, valves, service connections, fire hydrants, blow-offs, meters, backflow prevention devices, and appurtenances shall be approved by the Board of Public Works. All water mains shall be looped if economically feasible in the opinion of the City Engineer. All looped lines are totally at the expense of the owner or developer.
- h. Size:
 - i. Water mains. The required size of the water main will vary with the character and size of the development. The minimum diameter for a water main is eight (8) inches. If any of the water mains in any subdivision become a portion of the primary distribution system, the Board of Public Works may specify that a larger main be installed than is required for the subdivision alone. In such case, the additional expense incurred by increasing the size of the main will be assumed by the Board of Public Works.
 - ii. Service connections. The minimum diameter of service connections is one (1) inch. All service connections shall have a curb stop shut-off valve located where approved by the Board of Public Works. The diameter of service connections to apartment, commercial or industrial buildings shall be designated by or approved by the Board of Public Works General Manager. Each individual dwelling unit, except for apartment houses and multiple dwellings, shall have the individual service connection installed to the house.
 - iii. Minimum Depth. The minimum depth of water main and water laterals shall be 3'-6" to the top of pipe.
 - iv. Horizontal Separation. Water mains shall be installed at least 10-feet horizontally from any existing or proposed sewer mains. The distance shall be measured outside edge to outside edge.
 - v. Vertical Separation. Water crossing sewer mains shall be installed to provide a minimum vertical distance of 18-inches between the outside of the water main and outside of the sewer. The crossing shall be installed such that the sewer pipe joints will be equidistant from the water main pipe joints.
 - vi. When it is impossible to obtain proper horizontal and vertical separation as required above, concrete encasement shall be required to be installed a minimum of 5-feet each side of the crossing point on the lowest utility.
- i. Valves:
 - i. Sectionalizing valves shall be installed at all water main branch connections and at points designated by the Board of Public Works to sectionalize long continuous runs. At a minimum, valves shall be located at no more than 500-foot intervals in commercial and industrial zoned areas of the City, and 800-foot intervals in other zoning districts. Valves shall be placed on the pipe extending from water mains to all fire hydrants – in front of the hydrant.
- j. Fire hydrants:
 - i. Fire hydrants shall be installed at points designated by the Board of Public Works. The maximum spacing of fire hydrants shall be such that no portion of any lot is more than 500 feet from a hydrant. The Board of Public Works may designate additional hydrants be installed if a need for additional protection is apparent. The minimum pipe size from the water main to hydrant shall be six (6) inches.

- k. Water meters:
- i. Each dwelling unit in a multiple-family dwelling shall have its own water meter. The cost of all meters (domestic use and irrigation use) shall be borne by the dwelling owner or Developer. All meter installations shall be approved by the General Manager of the Board of Public Works or his designated representative. The costs of any inspection shall be borne by the Developer. Each dwelling unit in a multiple family, as well as a single-family, dwelling shall have its own water meter.
 - ii. Water meter installations for commercial, industrial, and institutional buildings shall be approved by the Board of Public Works. The cost of all meters shall be borne by the owner or Developer. The cost of any inspection shall be borne by the building owner or Developer.

l. Irrigation:

- i. Irrigation systems shall include backflow prevention as described below:
 1. If the irrigation pipe is two (2) inches or less, backflow prevention shall be installed with Watts 4000B Reduced Pressure Zone Assemblies consisting of bronze body construction, two (2) in-line independent check valves, replaceable check seats with an intermediate relief valve, and ball valve test cocks.
 2. If the pipe is 2-1/2 inch or greater, backflow prevention shall be installed with Watts 2000SS double check valve assembly backflow prevention, consisting of two (2) independently operated spring-loaded cam-check valves, required test cocks, and inlet and outlet resilient seated shutoff valves.

m. Fire Protection:

- i. To the extent available, the BPW shall provide the Developer with existing nearby water distribution system flows and pressures for use in designing the fire protection system.
- ii. In addition to BPW review and approval, water system facilities for proposed subdivisions must receive all necessary site plan approvals, and a fire protection plan approval for each residence, from the City of Lewes Building Department and/or State of Delaware Office of the State Fire Marshal.
- iii. Connections and Valves:
 1. There shall be a single fire service to each residence (single-family home, townhouse, duplex unit, etc.). Fire service pipe size shall be determined by the Developer's fire suppression engineer dependent upon the fire flow and pressure in the adjacent water distribution system.
 - a. Connections to apartment complex, commercial, and industrial, facilities shall be reviewed and addressed on a case-by-case basis.
 - b. Garages with living spaces above the garage are required to be sprinklered. The entire garage must be sprinklered.
 2. Fire service connection points for residential structures shall branch off the service line from the water main prior to the domestic service curb stop valve and box, and shall have its own curb stop shut-off valve, box and lid (painted red and stamped "FIRE"), and shall include backflow prevention as described below and per BPW standard specifications and details (current edition). Final fire service piping connection, valving, and backflow prevention shall be reviewed and approved by the BPW.

3. There shall be a curb stop shut-off valve on the domestic service piping on the street side of the water meter, and the residence side of the fire service branch, to allow for domestic piping winterization.
- iv. Backflow prevention for fire protection systems can be inside the proposed building requiring that protection.
 1. If the sprinkler system is wet and utilizes anti-freeze, the backflow preventer shall be a reduced pressure zone assembly equal to a Colt Series 400 N type.
 2. If the sprinkler system is wet without using anti-freeze, the backflow preventer shall be:
 - a. If the pipe is two (2) inches or smaller in diameter, backflow prevention shall be provided with Watts 4000B Reduced Pressure Zone Assembly consisting of bronze body construction, two (2) in-line independent check valves, replaceable check seats with an intermediate relief valve, and ball valve test cocks.
 - b. If the pipe is 2-1/2 inches or greater, backflow prevention shall be provided with Watts 4000SS Reduced Pressure Zone Assembly consisting of 300 series stainless steel body construction, pressure differential relief valve located between two (2) positive seating cam-check valve assemblies of thermoplastic construction with stainless steel hinge pins, cam arm, and cam bearing. The assembly shall include two (2) resilient seated shutoff valves and four (4) ball-type test cocks.
- n. Materials:
 - i. All materials used for water mains, service connections, valves, hydrants, meters, backflow prevention devices, fittings, pipe identifications, and all other appurtenances, must be equal to or better than the minimum standards and specifications established by the Board of Public Works General Manager for waterlines. Copies of these standards and specifications are on file at the Board of Public Works office.

Guidelines:

1. Consideration shall be given to the use of sustainable construction materials and installation methods. Materials shall be reviewed by the Lewes Board of Public Works.