

CITY OF NEWTON, KANSAS

DESIGN STANDARDS

FOR WATERLINE IMPROVEMENTS

NOVEMBER 2025



THE CITY OF
NEWTON, KANSAS

STANDARD ENGINEERING DESIGN CRITERIA AND
GENERAL IMPROVEMENT POLICY

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GENERAL

Purpose

- A. The City of Newton is striving to provide uniformity in construction efforts involving public works. To accomplish this, it is important that initial design comply with established standards and specifications approved by the City. In addition to initial design, there are many construction activities that will be performed which will not require design and construction documents, which must also comply with uniform City standards. The following document will serve as the standard guideline for all waterline design.

Scope

- A. This document includes design criteria for Water Systems. City standard specifications and standard details for waterlines must also be referenced and utilized for all work.

Variation from Design Criteria

- A. Variations will be permitted from the Standard Engineering Design Criteria and General Improvement Policy when a formal request is made to the City. The request will involve the following:
 - 1. List any and all variations being requested.
 - 2. Provide justification for each variation in writing. In the case of a detail, provide a sketch or an engineered drawing indicating the modification requested.
 - 3. Request a formal meeting with the City to discuss the suggested variation.
 - 4. Obtain in writing an approval of the modification.
 - 5. Special circumstances may be encountered where a specific item is not included in the Standard Engineering Design Criteria and General Improvement Policy. If this occurs, a formal request shall be made to the City and shall meet the requirements as shown above for a variation.

Compliance with Applicable Statutory Requirements

- A. Compliance with all Federal, State and Local Laws will be required. Where permits are required by Federal, State and Local Agencies, the Project Owner will be required to complete all filing, pay all fees, and obtain an approved permit. All information including maps, plans, specifications, etc., required to obtain an approved permit shall be provided to the City. Traffic control for all projects shall be established and shall conform to the latest version Manual on Uniform Traffic Control (MUTCD).

Amendment to Standard Engineering Design Criteria

- A. Amendments to the Standard Engineering Design Criteria and General Improvement Policy will be approved by the City. The Amendments will be made available by the City for insertion into this document. It is the responsibility of the holder of this document to assure themselves that they have all the amendments or a current document.

General Development Plan or Plat

- A. Any development plan or proposed plat shall be submitted to the City with utilities and pavement generally located within the boundary of the plan or plat. For plats the utilities will be located within dedicated easements and right-of- ways. The general development plan or plat shall show preliminary elevations for all sanitary sewers, streets, and storm drainage conveyance systems. In addition, the project owner for a plat shall submit a four-corner lot grading plan indicating elevations at each corner for the subdivision that is being developed. The four corner lot grading plans will be placed on file with the City and will be reviewed during requests for building permit.

WATER SYSTEM CRITERIA

General

- A. Design of water systems shall meet the Policies, General Considerations, and Design Requirements for Public Water Systems in Kansas, Latest Edition, as established by the Kansas Department of Health and Environment (KDHE) and shall also meet the requirements of the City of Newton Standard Specifications, Standard Drawings and the Design Standards as herein outlined. Prior to submittal to KDHE, the designer shall provide the City with two sets of Office Copy plans for review and comment. The designer shall submit a Public Water Supply Permit Application as required along with plans and supplemental specifications to KDHE and must obtain approval prior to the bid letting.

Water Line Design

- A. Profile Design Considerations
 - 1. The minimum depth of cover for all water lines shall be 42". Minor deflections of PVC pipe shall be made through the use of couplings. The maximum deflection shall not exceed 4°. High points in the profile of water lines shall be minimized. For waterlines 12" or smaller, a fire hydrant, flushing hydrant, or blowoff can be utilized at the high point to allow for manual release of air. An automatic air release can be utilized as well. All high points on waterlines larger than 12" shall include an automatic air release. There shall be no uncontrolled high points on any size of line without a method of air release. The designer shall size the air release lines for the waterline.
- B. Water Line Sizing
 - 1. Water lines shall be sized based on peak demands from the service area. Minimum diameter of public water lines will be 4". Water lines serving fire hydrants or fire protection systems shall be a minimum of 8" in diameter.
- C. Water Line Alignment Considerations
 - 1. Water lines shall typically have an 8' offset off property lines and shall be located within public street right-of-way. If required, easements shall be obtained for installation and maintenance purposes. Any water line locations which are not in public streets, right of way shall be approved by the City. In no case shall a waterline be placed less than 4' from the right-of-way/easement line. Water lines shall typically be located on the north and east portions of right of ways and easements.

Trench and Backfill Requirements

- A. Protective Fill

1. Protective fill shall be provided during construction where the cover over the proposed water line is less than 2 feet. Protective fill shall be placed and compacted in place prior to construction of the water line. The completed waterline shall have a minimum cover of 42”.

Fire Hydrants, Valves and Appurtenances

- A. Water line fire hydrants, valves, appurtenances shall meet all requirements as established by AWWA, and as set forth in the City of Newton Standard Specifications and Drawings.
- B. Fire Hydrants Locations
 1. Fire hydrant spacing shall be a maximum of 400'. Fire hydrants shall be located near intersections and within 3-8 ft from existing or proposed curbs/edge of road.
 2. Fire hydrant locations and fire lines shall meet one of the scenarios presented in the Typical Fire Scenarios. Final scenario selection and approval shall be provided by the City Engineer.
- C. Valves
 1. Resilient Seat Gate Valves shall be furnished for use on 12" water lines and smaller. Valves greater than 12" shall be Butterfly valves.
- D. Blow-Off Assembly
 1. Blow off assemblies shall be provided at the end of water lines only with prior approval from the City. The designer shall minimize the use of blow off assemblies by installation of fire hydrants in locations that will require air release or flushing of the water lines in lieu of blow off assemblies. A flushing hydrant may also be utilized with City Engineer approval.

Protection of Water Supplies

- A. Separation of waterline and sanitary sewers (and other sources of contamination) shall be per the requirements noted in the Standard Specifications and per KDHE requirements.

Thrust Blocks

- A. All plugs, caps, tees, and bends deflecting 1 1/4° or more shall be provided with thrust restraint. The approved method for thrust restraint will be through the use of concrete reaction backing. The concrete reaction backing shall be placed between undisturbed earth and the fitting to be restrained. The thrust restraint shall be designed to overcome the resultant force at the fitting at the test pressure of the pipe or the surge pressure, whichever is greater. As an alternate, other restraint methods may be used with prior approval from the City.

Erosion Control

- A. All projects shall incorporate the use of best management practices to reduce erosion on the project and eliminate discharges of pollutants from the project site. Erosion control measures shall include the use of silt fences and temporary seeding and mulching. Temporary seeding shall include the use of rye grass and shall be applied within 14 days after the area was disturbed unless permanent seeding is performed within this time frame. All applicable requirements for the NPDES storm water pollution prevention Shall be met. This will include a pollution prevention plan and storm water permit be prepared and submitted to the Kansas Department of Health and Environment if the disturbed construction area exceeds the requirements.

GIS Files

- A. Consultant shall provide a GIS file of the proposed infrastructure (MHs, pipe, etc.) That the city can utilize to update their GIS database.