KC Water
Rules and Regulations
For Water Main Extensions and Relocations

May 2018

Contents

Process Outline

When it is determined by KC Water that a development or redevelopment project requires a water main extension or relocation (or any work on a public water main or appurtenance) the following process is required:

In accordance with the City Code of Ordinances (Chapter 78) the Applicant for a water main extension or relocation is required to hire a registered Professional Engineer to prepare drawings for the proposed work. The drawings should be prepared in accordance with these Rules and Regulations and the Standards and Specifications for Water Main Extensions and Relocations. The drawings should be submitted to KC Water accompanied by a Checklist for Plans Submittal. The checklist and other documents are available on the internet at www.kcmo.gov. Click on Departments, then Water Services, then www.kcwaterservices.org, then Customer Service, then Resources and then Rules and Regulations for Water Main Extensions or Water Main Extension and Relocation Project.

When drawings receive final approval from KC Water, KC Water will prepare contracts and related forms for execution by the Applicant and the City. KC Water reserves the right to refuse contracts that are not executed within 90 days from the date they are offered by KC Water.

The Applicant will be required to provide a payment bond for approval by KC Water prior to beginning work. The Applicant will be required to hire a Contractor to perform the work. The Applicant's Contractor who actually performs the work must provide a three year Performance & Maintenance Bond and Certificate of Insurance for approval by KC Water, prior to beginning work. The Applicant will be required to pay a fee to KC Water equal to 5% of the estimated cost of the work, as determined by KC Water, before the Applicant's Contractor can begin work.

All design and other work costs are to be paid by the Applicant. After all work has been completed the Applicant will be required to provide to KC Water paid bills from the Applicant's Engineer and Contractor, along with a notarized affidavit form provided by KC Water, indicating all costs have been paid in full. The work must be installed in platted public right-of way or recorded easements as required by KC Water. When these requirements have been satisfied KC Water will accept ownership of the water mains, and the Applicant or others may hire a licensed Plumber to take out permits for private water service connections in accordance with the Rules and Regulations for Water Service Lines.

If you have any questions please contact:

Nimesha Senanayake, Manager, Water Main Extensions
KC Water
4800 E 63rd St.
Kansas City, Missouri 64130
(816) 513-0460
Nimesha.Senanayake@kcmo.org

Purpose

These Rules and Regulations are intended to provide minimum standards for uniform style and content of detailed engineering drawings submitted in an application for water main extensions or relocations in the service area of KC Water (the Kansas City, Missouri, Water Services Department).

All drawings submitted should conform to these minimum guidelines and include other information required to convey simple, clear and complete instructions to properly layout and construct or relocate water mains in accordance with all rules and regulations of KC Water.

Please contact associates of the Water Main Extension and Relocation Program to discuss special circumstances or seek clarification about rules and regulations for design of water main extensions or relocations not addressed by this guide.

Professional Engineer Responsibilities

Drawing Preparation

Drawings for water main extensions or relocations must be submitted by a Professional Engineer who is registered in the State of Missouri and has demonstrated experience in the design of water lines.

The Professional Engineer shall investigate existing water mains and all other utilities to help KC Water determine how the new or relocated water mains will be sized and connected to adequately serve the proposed use, and maintain the integrity of a well-planned distribution and grid system. KC Water encourages contact with associates of the Water Main Extension and Relocation Program to assist in this preliminary phase. The Professional Engineer may be required to submit preliminary development plans for the adjacent areas in cases where the information is deemed necessary by KC Water to assist in determining proper sizing and location of new and proposed water mains. KC Water maintains the right to require final sizing and connections in accordance with KC Water's long-range goals.

The Professional Engineer shall submit two (2) plain paper copies of the preliminary design for new or relocated water mains to the Water Main Extension and Relocation Program for review. Drawings must conform to the requirements of this guide or they will be returned for resubmission. Materials and methods detailed on the drawings must conform to the latest edition of KC Water Standards and Specifications for Water Main Extensions and Relocations. A certified Checklist for Plans Submittal must be included with the original submission (see page 21). Each sheet of the drawings shall include the seal or stamp, and signature of the Professional Engineer, and the date as required by the Rules of Missouri Board for Architects, Professional Engineers and Land Surveyors. The seal should be placed in the space provided in the standard title block as shown on page sixteen (16) of this guide.

Properly submitted drawings will be reviewed by associates of the Water Main Extension and Relocation Program and one (1) copy with comments and revisions marked in colored pen will be returned to the Professional Engineer for use in preparation of revised drawings to be submitted for final approval. If drawings fail a Quality Control Review for minimum submission requirements they may be returned without further comment or if substantial revisions are required, KC Water may require submission of another set of preliminary drawings for further review. KC Water will establish work order, project and drawing numbers to be used to track the project. These numbers shall be included on the drawings and all correspondence or other documents related to the project.

Drawings submitted for final approval shall include all revisions and additions required by KC Water. The drawings must be on translucent film (Mylar® or vellum) that provides a permanent public record for KC Water and allows copies to be easily reproduced. The Professional Engineer shall also send a computer disc including the most

recently revised drawings in the latest version of Microstation® or AutoCAD®. The disc shall include all information necessary to edit and plot the drawings, and shall be labeled with the Project Name, KC Water Project Number, KC Water Work Order Number, KC Water Drawing Number, and date of publication.

Right of Way and Easements

The Professional Engineer shall verify that dedicated public right-of-way (or exclusive water line easements if required by KC Water) exists for all areas of work shown on the drawings for a water main extension or relocation. New right-of-way or easements shall be provided by platting. Easements that cannot be platted may be provided by separate documents when necessary. Exclusive easements shall be required at the discretion of KC Water. Water mains in areas not in or adjacent to public right-of-way will not normally be allowed.

Right-of-way and easement widths must provide for a minimum of 25 feet of separation between any water main and any building or other permanent structure, with greater separations required for larger diameter mains or mains with more than minimum depth of cover. Permanent easement widths shall be as required by KC Water with the following **minimum** guidelines:

6-inch and 8-inch water mains require a 15-foot minimum easement width
12-inch water mains require a 25-foot minimum easement width
24-inch and larger water mains require a 30-foot minimum easement width

Construction Staking

The Professional Engineer shall provide the Contractor both horizontal and vertical survey control information necessary for proper layout of the work as detailed in the Standards and Specifications for Water Main Extensions and Relocations.

Certification of Payment

The Professional Engineer shall provide a letter, with authorized signature, to the Applicant for delivery to KC Water to certify when the Engineer has been paid in full for their work on the project.

KC Water Responsibilities

After drawings for a water main extension or relocation are approved, KC Water will prepare a cost estimate for the work, to be used as the basis of the contract between the City and Applicant. KC Water will provide contract forms, payment bond forms, performance and maintenance bond forms, and insurance specifications for the Applicant to process.

After an approved contract with the Applicant, approved payment bond forms, approved performance and maintenance bonds, approved insurance certificates and the required inspection fee are received, KC Water will issue approved for construction drawings and inspect the work on the water main extension or relocation. KC Water will review for approval final Record Documents submitted by the Contractor for the permanent public record.

General Design Guidelines

Mains

Water mains shall be designed to extend to the boundary lines and corners of each subdivision of land, and to provide access for water service to every lot in a subdivision, along public street right-of-way. Lots not fronting public street right-of-way will be served by private branch service piping installed in accordance with the Rules and Regulations for Water Service Lines.

Water mains shall normally be sized 12-inch, 8-inch, or 6-inch, diameter ductile iron pipe (D.I.P.) to properly meet the needs of the intended service area and as required by KC Water.

KC Water may require larger diameter water mains if deemed necessary to provide proper fire protection and meet the needs of a well-planned distribution system. KC Water in most cases will reimburse the Applicant for the difference in cost for installing water mains required to be larger than 12-inch in diameter, and only if the larger water main is not deemed necessary for the proposed development.

Water mains should be located four feet back of the curb on the west or south side of a street when possible. Normally this places the water main in the grassy area between the curb and sidewalk. KC Water requires that streets and parking areas be graded and curbs in place prior to construction of all water mains. If this is not possible due to deferral of construction of a public street, authorized by another City Department, the water main shall be designed to be in an **exclusive** easement immediately adjacent to the public right-of-way at a horizontal and vertical location that will avoid the need for future relocation due to eventual street construction.

All water mains shall be located with a minimum of 25 feet of separation from any building or other permanent structure.

All water mains shall be located with a minimum of 5 feet of separation from the edge of the water main to the right-of-way.

All water mains shall be located with a minimum of 10 feet of separation from underground electrical lines or fixtures such as street lights. Normally this places the water main on the opposite side of the street from street lights or other underground electrical lines or fixtures.

All water mains shall be installed a minimum of 42 inches (to the top of pipe) below finished grade. Water mains 16 inches and larger shall be installed a minimum of 60 inches of below finished grade.

Rules of the Missouri Department of Natural Resources (MDNR) regarding water mains near sewers shall be complied with fully (Title10, Division 60, Chapter 10). All sewers shall be designed to cross under water mains and to limit any crossing of water mains as much as possible. See Section 01016 of the Standards and Specifications for Water Main Extensions and Relocations for additional requirements.

Design of water mains shall minimize the need for bends and other fittings that may adversely affect efficient flow of water through the system.

A properly restrained hydrant assembly or flushing assembly shall be installed at all terminal points. A hydrant is preferred when practical, and when it will fit within a normal hydrant spacing pattern. A flushing assembly including a gate valve sized the same as the main shall be used at other dead ends.

Design of water mains shall include provisions for undisturbed earth, concrete blocking and approved joint restraining devices necessary to bear possible horizontal and vertical thrusts. Concrete blocking and joint restraining devices should be called out on water main drawings. It is the responsibility of the Professional Engineer to verify soil conditions and specify proper thrust restraint in accordance with the Rules and Regulations for Water Main Extensions and Relocations.

Concrete backing blocks may be used on horizontal bends or other fittings unless there is a possibility of insufficient undisturbed earth bearing surface; in which case, approved joint restraining devices and concrete straddle blocks installed against undisturbed earth will be required in lieu of backing blocks. Use of approved joint restraining devices in lieu of backing blocks is required on cul-de-sacs or other areas where multiple bends may be necessary. For larger diameter water mains, lengths of restrained joint piping shall be used in lieu of large concrete blocks. Methods and values used to determine required length of restrained joints shall be included on the drawings.

Vertical deflection of bends or other fittings shall be restrained by use of approved joint restraining devices and concrete straddle blocks installed against undisturbed earth. Design should maintain 42-inch minimum ground cover, and 18 inches minimum clearance from all sewers or other structures. Design of vertical alignment shall limit the possibility of air entrapment in all water lines, and shall include slopes that limit the number of air release valves required. Vertical alignment of water mains near proposed streets shall be consistent with established street grade criteria.

Design of connections to existing water mains shall include provisions to meet KC Water's long-range goal of maintaining a grid system, and shall include construction materials and means necessary to provide limited disruption of water service to consumers. Use of full size tees is required in lieu of tapping sleeves, and valves should normally be anchored to each side of any tee or cross. The Professional Engineer shall cause an investigation of the existing water mains to be conducted to insure that all of the Work will be in compliance with KC Water Standards, including type, horizontal, and vertical location of existing pipe and fittings.

Outlets or connections for private service lines are allowed as part of main extension drawings, only at points approved by the KC Water Permit Desk for installation of large diameter service lines. A hard copy of the drawings for the water service line, signed approved by the KC Water Permit Desk, must be submitted as an attachment to the checklist for plans submittal for the water main extension.

Valves

Valves shall be the same nominal size as the water main in which they are installed.

Design of valve locations shall provide the ability to isolate small blocks or sections of water mains while maintaining service to adjacent areas.

Location of valves shall normally include a valve in every direction at every water main intersection, and valves should normally be anchored to each side of any tee or cross.

Fire Hydrants

Fire hydrants at street intersections shall be placed a minimum of 10 feet beyond the end of the radius return of the curb, and at least five feet from stormwater catch basins.

Fire hydrants not at street intersections shall be placed at a property line, or a minimum of five feet from a stormwater catch basin.

Fire hydrants shall be placed at least two feet back of the curb or at least four feet back from the edge of pavement where there is no curb. Fire hydrants shall not be placed within five feet of any above ground or below ground structure. Fire hydrants shall not be placed in sidewalks or drainage ditches.

Stationing for fire hydrant assemblies on drawings shall be the location of the center of the fire hydrant. Other appurtenances shall be placed in accordance with standard detail drawings for fire hydrants in the Standards and Specifications for Water Main Extensions and Relocations. Type A fire hydrant assemblies are preferred.

Design of fire hydrant locations shall provide fire protection in accordance with requirements of local authorities. Fire hydrants are required to be spaced every 600 feet in residentially zoned areas and 300 feet in commercially or mixed zoned (residential and commercial) areas and multi-family residential units larger than duplexes. The spacing in both instances is as measured along the baseline. Radial distance shall not be used for hydrant spacing.

All fire hydrant assemblies shall include anchor fittings or other approved joint restraining devices.

Drawing Layout and Content

Media

Drawings for water main extensions and relocations submitted to KC Water for final approval shall be made on 36 inches wide by 24 inches high translucent film (Mylar® or vellum) sheets that provide a permanent public record and allows them to be easily reproduced. The drawings shall not be folded, creased or rolled tightly. The Professional Engineer shall also submit a computer disc containing a file of the drawing in the latest version of Microstation® or AutoCAD. The disc shall include all information required to edit and plot the drawings, and shall be labeled with the Project Name, KC Water Project Number, KC Water Work Order Number, KC Water Drawing Number, and date of publication.

Title block

A complete 8-inch x 6-inch title block, as shown on page 16 of this guide, shall be placed in the lower right hand corner of all sheets.

Cover sheet

KC Water can provide a template of the standard cover sheet for use on water main extensions. The cover sheet for each set of drawings shall include the following information:

Immediately above the title block on the cover sheet:

Approved: _____
Terry Leeds, Director, KC Water Date

Centered at the top of the cover sheet shall be an appropriate title such as:

Water Main Extension
Project Name
Section xxx Township xxx Range xxx
Kansas City, xxx County, Missouri

A location map shall be included on the cover sheet to indicate the project area in relation to major streets, highways, and surrounding neighborhoods. North shall be at the top of the location map.

Information on the cover sheet about the Applicant shall include:

Applicant:	Name (as it will appear on contract forms)
	Address
	Phone and fax number
Contact Person:	Name

Information on the cover sheet about the Professional Engineer shall include:

Name of Professional Engineer
Address of Professional Engineer
Phone and fax number of Professional Engineer
Contact Person: Name

The following information shall either be included on the cover sheet or on a sheet immediately following the cover sheet:

A standard legend of symbols used by KC Water as shown on page 17 of this guide.

A general layout drawn to scale (normally 1 inch = 100 feet) of the *entire* development, showing all new water mains, valves, and fire hydrants, and their relationship to existing water mains, valves, and fire hydrants. North shall be at the top of the general layout drawing. The general layout shall include information necessary to establish the relationship of existing and proposed adjacent developments, and identify property ownership on all sides. The general layout shall reference each section of main as to size and the sheet of drawings with the detailed plan and profile for that main.

Standard general notes used by KC Water, as shown beginning on page 18 of this guide. If the Professional Engineer needs to use additional notes, they may be submitted at the *end* of the standard list.

The drawings shall include detailed information about survey benchmarks and other reference or control points necessary to layout the work. Statewide Missouri Geographic Reference System monuments, Kansas City Metro Control Project monuments, Certified Land Corners, and other monuments used as references to determine State Plane Coordinates must be shown on the drawings along with reference ties.
No table of quantities shall be included.

Orientation

All sheets shall include an arrow to indicate the direction of North. North should be toward the top of each drawing. On multi sheet drawings, the sheets shall be oriented so they are read continuously from left to right and in succession of sheet number from front to back.

Scales

All drawings shall be accurately drawn to scale. Scales shall be indicated on each sheet with a numerically labeled bar graph. Plan views shall be drawn to 1-inch = 50 feet and profile views shall be drawn to 1 inch = 10 feet. A larger horizontal scale (typically 1 inch=20 feet) shall be used for drawings in high density (urban) areas or of very small water main extensions or relocations, or for details.

Stationing

Survey stationing must be used to dimension the water main and appurtenances. The stationing should progress from left to right on each sheet. On multi sheet drawings of continuous mains the stationing should progress in succession with sheet numbers from front to back. The stationing should begin at the connection point to the existing water main and be exclusively for the water main. In addition to water line stationing, all beginning and ending points, bends, hydrants, valves, tees, fittings, and beginning and ending points of deflection of water mains shall be indicated in State Plane Coordinates in U.S. feet (expressed in feet and decimals of a foot). The coordinates must conform to the Missouri Coordinate System of 1983, West Zone, with the date of adjustment. The conversion from Meters to U.S. Survey feet is: 1 meter = 3.28083333 U. S. Survey Feet, and shall be shown on drawings in the proximity of the control point references.

Plan View

All drawings shall include an accurately detailed plan view of the water main extension or relocation and appurtenances, and any feature of the surrounding topography that could affect the water main or related construction activities. In general this includes any feature of the topography that crosses the water main or is within ten feet of the water main in any direction. Special attention shall be given to sewers and other underground utilities.

The plan view shall also include the following:

Labeled and dimensioned public right-of-way lines
City approved street names
Labeled and dimensioned easement lines
Labeled boundary and lot lines of subdivisions or other property lines
Lot or tract numbers in subdivisions
Detailed description of main sizes and stationing along the water main
Detailed description of required fittings or other appurtenances and their stationing along the water main

Profile View

All drawings shall include an accurately detailed profile view of the water main extension or relocation and any feature that could affect the water main or related construction activities. The profile view shall be on the lower portion of the same sheet as the related plan view. The profile view shall include elevations of all underground features. Special attention shall be given to size and location of sewers and other underground utilities or structures. The drawings shall also include elevations of the finished grade or improvements and the top of pipe of the water main at every fitting and Station at maximum spacing of 50 feet along the water main. All elevations shall be indicated in NAVD 88 Datum (in feet and decimals of a foot), with the date of adjustment. The conversion from KC Datum to NAVD 88 Datum is +722.57 feet and shall be shown on the drawings in the proximity of the control point references.

The profile view shall also include the following:

- Existing grades over the water main.
- Proposed grades over the water main.
- Detailed description of all fittings or other appurtenances required for vertical deflections and their stationing along the water main. (Fittings for horizontal deflection should not normally be shown in the profile view.)
- Detailed description of main sizes, pipe class, and reference to polyethylene encasement.
- Reference note indicating 42-inch or 60-inch minimum cover requirement.
- Reference notes indicating 18-inch minimum separation from other utilities.
- Percent of grade and points of intersection of vertical curves.
- Percent of slope and PIs for all 16 inch and larger diameter water mains.
- Limits of restrained joints.

Match Lines

Match lines shall be used to show identical points on drawings for continuous mains shown on separate sheets or in separate drawings on the same sheet. Match lines shall be perpendicular to the water line and should be placed at a survey station. Match lines should be labeled and include a reference to the related sheet of the drawings.

Line Weights

Water mains and appurtenances shall be indicated with heavier lines than other features such as curbs, pavement, trees, right of way lines, easement lines, other utilities, etc.

Check List

The following checklist is intended to assist reviewers preparing water main extension or relocation drawings for submission in accordance with these Rules.

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- ❑ All sheets are properly sealed or stamped by a Professional Engineer
- ❑ Cover sheet includes Applicant's name, address, phone #, fax # and contact person
- ❑ Cover sheet includes Consultant P.E.'s company name, address, phone #. and fax #
- ❑ A general layout of entire project is included. The layout sheet shows all existing and proposed fire hydrants, valves, etc. and label them as such.
- ❑ All sheets include a complete KC Water title block on lower right hand corner
- ❑ The standard KC Water legend of symbols is included and those symbols are used
- ❑ The standard KC Water general notes are included
- ❑ Plan view includes labeled and dimensioned public right-of-way lines
- ❑ Plan view includes street names approved by the City Street Naming Committee
- ❑ Plan view includes labeled and dimensioned easement lines
- ❑ Plan view includes labeled property lines
- ❑ Plan view includes labeled subdivision boundary and lot lines
- ❑ Plan view includes subdivision names and lot numbers
- ❑ Plan view includes all topography affecting water main design and construction
- ❑ Plan view includes label, location and size of all utilities, including street lights
- ❑ Profile of new mains is included on same sheet as plan view
- ❑ Profile view includes both existing and proposed grades over water main
- ❑ All sheets include north direction arrows and scales
- ❑ Cover sheet includes KC Water Director's approval line immediately above title block
- ❑ Cover sheet includes the appropriate title and project name
- ❑ Cover sheet includes a project location map
- ❑ Benchmarks and other survey controls are shown
- ❑ Plan view includes match lines where appropriate
- ❑ Plan view includes, location, and size of existing and new water lines with stationing
- ❑ Plan view indicates water mains are to be installed 4 feet back of curb
- ❑ Plan includes appropriate valve and hydrant spacing with stationing
- ❑ Plan includes appropriate water line fittings and appurtenances with stationing
- ❑ Plan provides access for water service to all lots
- ❑ Plan indicates details of connections to existing water mains
- ❑ Plan indicates placement of concrete backing blocks or other restraining devices
- ❑ Plan and profile complies with KC Water rules regarding water mains near sewers
- ❑ Profile view of new mains shown on same sheet as plan view
- ❑ Profile view includes both existing and proposed grades over water main
- ❑ Profile view specifies vertical deflections, fittings, and required restraining devices
- ❑ Profile includes detailed reference to pipe size, class, and polyethylene encasement
- ❑ Profile includes reference to 42 inch or 60 inch minimum cover requirement
- ❑ Profile view includes reference to 18-inch minimum separation from other utilities
- ❑ Are permits required from Parks Department or MODOT?

Title Block

A title block as shown below shall be included on all sheets of every drawing for water main extensions or relocations. The complete full size (8 inches wide by 6 inches high) title block shall be placed on the lower right hand corner of all sheets.

See next page.

LEAVE BLANK AREA OF 1½" ABOVE THIS BLOCK ON COVER SHEET FOR DIRECTOR'S APPROVAL AND SIGNATURE BLOCK SHOWN ON PAGE 8 OF THIS GUIDE

PROFESSIONAL ENGINEER SEAL

FOR WSD USE:

WSD APPROVAL STAMPS WILL BE PLACED HERE

KANSAS CITY, MISSOURI, WATER SERVICES DEPARTMENT

WATER MAIN EXTENSION

OR OTHER APPROPRIATE TITLE

"DESCRIPTION OF WORK INCLUDING MAIN SIZES, STREET NAMES, SUBDIVISION NAME, CITY, COUNTY, AND STATE."

DRAWN BY:	CHECKED BY:	DATE SUBMITTED	RANGE	TOWNSHIP	SECTION

CONTRACTOR	DATE COMPLETED

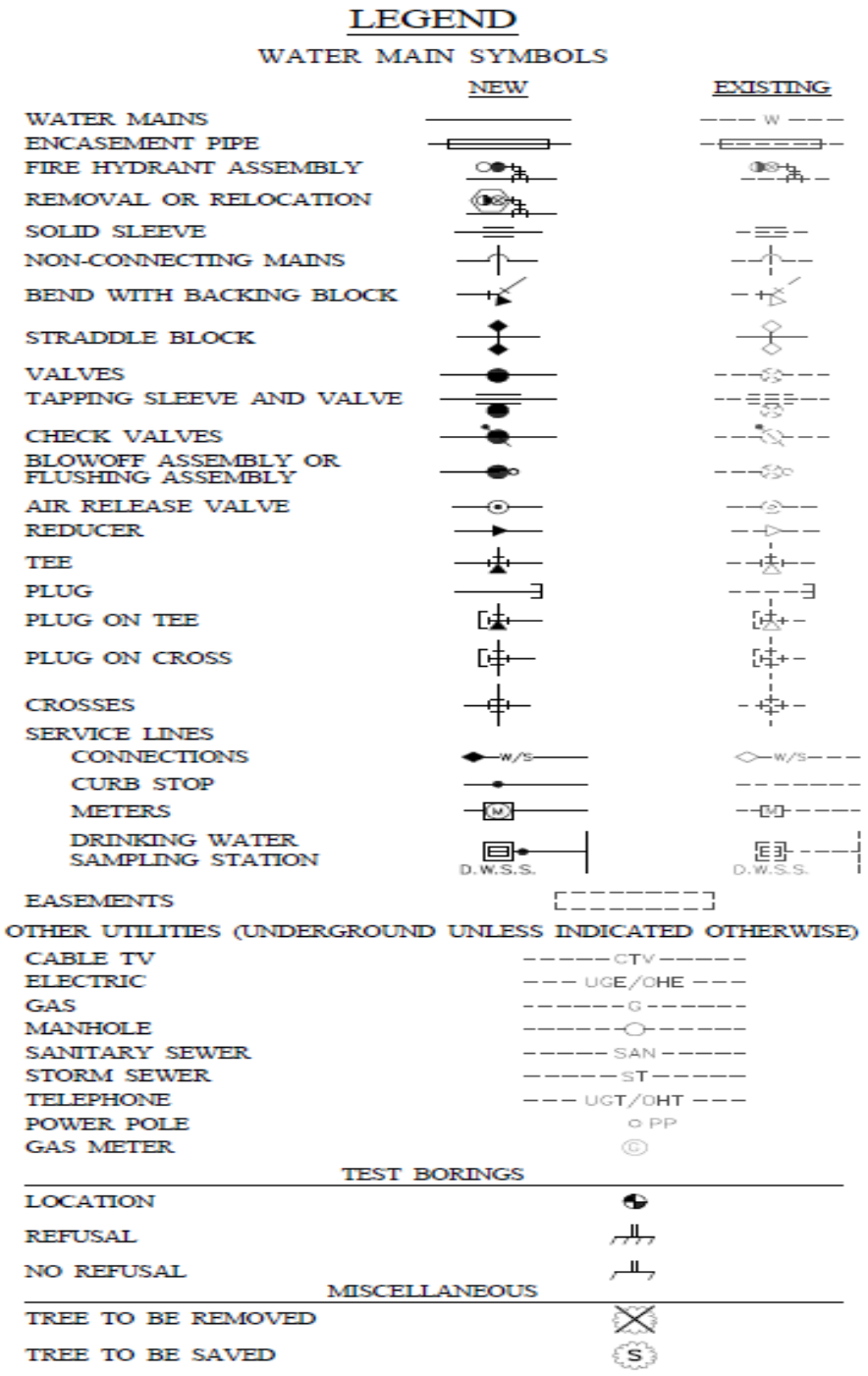
CONTRACT NO.	CONTRACT DATE	MAP NO.	WORK ORDER NO.	DRAWING NO.

PROJECT NO.	SHEET OF

LOWER RIGHT HAND CORNER OF ALL SHEETS

Standard Legend

The legend shown shall be included on all drawings for water main extensions or relocations submitted to KC Water. These symbols are the standard symbols used by KC Water on all drawings and maps. In some instances these symbols are different from national standards.



Standard Notes

The following general notes shall be included on all drawings:

General Notes

1. All work shall be done in accordance with the most recent version of the Standards and Specifications for Water Main Extensions and Relocations of KC Water.

2. The Contractor shall pothole and expose all tie-in and crossing locations. The Contractor shall furnish and install all fittings required to provide proper horizontal and vertical alignment for new water mains, connections to existing water mains and installation of fire hydrants at the proper location and elevation, whether or not the proper fittings, location or elevations are called out on the drawings, including modification of existing infrastructure required to make **all** of the work conform to the current Standards and Specifications for Water Main Extensions and Relocations of KC Water.

3. The Contractor shall furnish and install all temporary blow-off assemblies, fittings, thrust blocking, and restraining devices required for temporary connections for flushing, pressure testing, chlorination, and de-chlorination of the new water mains. Prior to placing new mains in service the Contractor shall remove any corporation cocks used for testing or chlorination and replace them with tapered brass plugs.

4. The Contractor shall install polyethylene encasement on all water mains, valves, fittings, and other appurtenances for the full length of the project in accordance with the Standards and Specifications for Water Main Extensions and Relocations of KC Water.

5. Scheduling of water main shuts and connection to existing mains shall be at the discretion of KC Water.

6. All fire hydrant branches shall be restrained using approved restraining devices. Hydrants shall be installed so that the centerline of the outlet nozzle is between eighteen and twenty-one inches (18 inches – 21 inches) above finished grade, and so that there is a minimum clear area of 5 feet in each direction to allow operation of the hydrant.

7. Sections of water main requiring multiple bends, such as cul-de-sacs, shall be restrained with approved joint restraining devices and straddle blocks in lieu of backing blocks.

8. The locations of existing utilities, as shown, are approximate. It shall be the responsibility of the Contractor to verify the locations and elevations of all

existing utilities. Contractors shall pothole and expose all utilities (indicated on the drawings, located at grade by a utility locating service, or evident from utility company information) at least 500 feet in advance of water main construction, determining the depth, size, and material of the utilities in proximity to the proposed water main alignment. Deflect pipe to maintain minimum 5 feet horizontal and 18 inch vertical clearances between proposed water main and all existing utilities.

9. The Contractor shall comply with state law requiring any person or firm doing excavation on the public right-of-way do so only after giving notice to and obtaining information from utility companies.

10. Streets and parking areas are to be to grade and curbs in place prior to construction of water mains. Water mains shall be installed with a minimum ground cover of 42 inches below finished grade. Sixteen (16)-inch and larger water mains shall be installed with a minimum ground cover of 60 inches below finished grade.

11. Water mains shall be laid at least 10 feet, horizontally from any sewer. When local conditions prevent a horizontal separation of 10 feet, a water main may be laid closer than 10 feet to a sewer, provided that the water main is laid in a separate trench, or on an undisturbed earth shelf located on one side of the sewer, at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer. Water mains shall be laid such that there is a minimum of 18 inches clearance between the pipe wall and the exterior of any manhole and/or inlet on the sewer line.

    Whenever a water main must cross above a sewer, a vertical separation of 18 inches between the bottom of the water main and the top of the sewer shall be maintained. Whenever a water main must cross under a sewer, a vertical separation of 18 inches between the bottom of the sewer and the top of the water main shall be maintained. A full length of water main pipe shall be centered on the sewer to be crossed so that the joints will be equally distant from the sewer and as far away as possible. The 18-inch vertical separation shall be maintained for that portion of the water main located within 10 feet, horizontally, of any sewer it crosses.

    When it is impossible to obtain proper horizontal separation as stipulated above, or when a water main must cross under a sewer, the sewer must be reconstructed of ductile iron pipe meeting the requirements of Section 02618 of the Standards and Specifications for Water Main Extensions and Relocations; pre-stressed concrete cylinder pipe meeting the requirements of Section 02619; or PVC pressure pipe conforming to AWWA C-900 or C-905, and shall be pressure tested to assure water tightness before backfilling. The required length of sewer to be replaced or constructed of pressure pipe will be the length necessary to achieve 10 feet horizontal separation.

Where these conditions cannot be met, KC Water shall be consulted as to the precautions to be taken to protect the public water supply.

For all sanitary and storm sewer crossings refer to Standards and Specifications for Water Main Extensions and Relocations: Standard details #01016-1, #01016-2, #01016-3, #01016-6-4, and #01016-5 as required.

12. An excavation permit must be obtained from the City Engineer prior to commencing construction within the public right-of way. Contact the Public Works Department permit counter at City Hall.

13. A street closure permit may be required for this work. Contact the Street and Traffic Division at City Hall.

14. All work shall conform to the latest revision of the Kansas City, Missouri Erosion and Sediment Control Specifications, which are made a part hereof by reference. Erosion Control Plans shall be submitted to the City Engineer, Public Works Department for review and approval prior to the start of this project.

The following notes shall be added to all water main *relocation* drawings:

15. The end of all abandoned water mains shall be plugged with concrete.

16. Covers, lids, and standpipes on all abandoned valves shall be removed to at least two (2) feet below grade and the area shall be properly backfilled. In paved areas removal of valve lid and filling of valve box with concrete may be allowed at KC Water's discretion.

17. Existing fire hydrants that are removed shall be returned to the KC Water store yard at 2409 E. 18th St.

18. Water service lines connected to mains being abandoned shall be reconnected to new mains in accordance with the Rules and Regulations for Water Services Lines of KC Water, unless shown otherwise. Existing water service lines being transferred to new mains will be upgraded to meet current regulations.

19. The Contractor shall verify the outside diameter (O.D.) of the existing water main prior to scheduling connection. Provide solid sleeves as required.

Contractors shall protect existing power poles and light poles from damage and shall provide bracing, shoring, or other work necessary for such protection. Any structures removed during construction operations shall be replaced.

Checklist for Plans Submittal

Please print.

Project Name _____

Project Address _____

Scope of Project Water Main Extension or Relocation Contract _____

Number of Submitted Plans _____

Additional information submitted _____

_____

Applicant's Company Name_____

Contact Person _____ Position: _____

Address _____

City, State, ZIP _____

Phone Number _____ Fax _____ E-mail: _____

Design Professional in Responsible Charge _____

Company Name _____

Company Address _____

City, State, ZIP _____

Phone Number: _____ FAX: _____ E-mail: _____

PLEASE INDICATE WHICH ONE SHOULD BE RECIPIENT OF KC WATER PLAN REVIEW COMMENTS:

□ **Applicant** □ **Design Professional**

Design Certification

I hereby certify that the construction documents submitted for the identified work have been prepared in conformance with the latest version of the appropriate standard as shown below:

Water Main Extension or Relocation Contract: Standards and Specifications for Water Main Extensions and Relocations, and Rule and Regulations for Water Main Extensions and Relocations, issued by KC Water in accordance with the Code of Ordinances Sec. 78-91 through Sec. 78-141.

Name (print) _____

State Registration Number _____

Signed _____

Telephone Number: _____

Other

Name (print) _____

State Registration Number _____

Signed _____

Telephone Number: _____

KC Water Contacts

Water Main Extension or Relocation Contract Applications

Nykesha Senanayake, Manger, Water Main Extensions
KC Water
4800 E 63rd St.
Kansas City, MO 64130
(816) 513-0460 or Nimesha.Senanayake@kcmo.org

Applicable Ordinances and rules: Code of Ordinances Sec. 78-91 through Sec. 78-141 and Standards and Specifications for Water Main Extensions and Relocations, and Rules and Regulations for Water Main Extensions and Relocations

General: Plans for water main extension or relocations should be submitted separately and directly to KC Water, for plan review and contract approval.

Introduction: The Checklist below is furnished for the purpose of Quality Control Review in expediting the City's review of plans and specifications submitted for Water Main Extension or Relocation contract applications with KC Water. Plans that do not meet the requirements of this checklist will be returned without detailed review comments. The Checklist does not constitute a complete list of all items that may be required for approval during the plans review process. The Applicant and the Applicant's Professional Engineer are responsible for compliance with the requirements of the Code of Ordinances of Kansas City, Missouri, and related administrative rules.

Please be advised that the estimated plan review turnaround times stated reflect the time required to complete a first review or a resubmittal review and does not indicate the time required for final approval of the plans. Approval of the plans depends upon the accuracy and completeness of the submitted plans by the Applicant's Professional Engineer. The Applicant is further advised that additional permits may be required from other City departments outside of this plan review submittal.

Development Assistance Team: The Development Assistance Team (DAT) is comprised of representatives from all of the City departments involved in the development process and provides meetings designed to give you all of the preliminary information about the development of your specific site and a complete schedule of applications and approvals required to develop your site. This is an optional service available to you free of charge before or during the development process. Contact KC BizCare, Kansas City's Business Customer Service Center, 1118 Oak St., Kansas City, MO 64106; phone 816-513-2492 or kcbizcare@kcmo.org.

Required plans and submittal location: A completed Checklist and two plain paper copies of the drawings should be submitted:
Let the Checklist guide you in preparing your project drawings for plan review. This will help to expedite the City's review of your submittal.

Resubmittal of Plans: Resubmittal of plans in response to plan review comments must be made directly to the KC Water Main Extension Desk at the above address. Resubmittals shall include a cover letter, signed by the Professional Engineer; identifying the project name, KC Water project number, and KC Water drawing number. You are encouraged to contact the above plans examiner in order to clarify the requirements of the review, but no approvals may be received without resubmitting plans or required information through the Applicants Professional Engineer.

Review Comment Resolution: In order to expedite the final approval of plans and clearly communicate requirements of KC Water, the above plans examiner will be available to discuss review comment resolution in person or via telephone when it is determined that a resubmittal to previous plan review comments is not approved. The plans examiner will work to ensure that the Applicant or Professional Engineer fully understands the requirements of the plan review comments and resolve any questions there may be concerning achieving compliance with KC Water requirements. This discussion will be documented and upon resubmittal of your plans a two (2) week plan review turnaround time will be assigned to the resubmittal.

Estimated Plans Review Turnaround Time

100% of Quality Control Reviews in 1 week or less
90% of first submittal plans reviewed in 2 weeks or less.
90% of resubmittals reviewed in 2 weeks or less.
Review comment resolution resubmittals reviewed in 2 weeks or less.

Required information on plans for Quality Control Review

- ❑ All sheets are properly sealed or stamped by a Professional Engineer
- ❑ Cover sheet includes Applicant's name, address, phone number, fax number and contact person
- ❑ Cover sheet includes Consultant P.E.'s company name, address, phone number and fax number
- ❑ A general layout of entire project is included
- ❑ All sheets include a complete KC Water title block on lower right hand corner
- ❑ The standard KC Water legend of symbols is included and those symbols are used on plans
- ❑ The standard KC Water general notes are included
- ❑ Plan view includes labeled and dimensioned public right-of-way lines
- ❑ Plan view includes street names approved by the City street naming committee
- ❑ Plan view includes labeled and dimensioned easement lines
- ❑ Plan view includes labeled property lines

- Plan view included labeled subdivision boundary and lot lines
- Plan view includes subdivision names and lot numbers
- Plan view includes all topography affecting water main design and construction
- Plan view includes label, location and size of all utilities, including street lights
- Profile of new mains in included on same sheet as plan view
- Profile view includes both existing and proposed grades over water main.
- Proposed street lights shown
- Cover sheet is the new format