

SECTION 2900 – WATER LINES

CITY OF BELTON, MISSOURI

STANDARD SPECIFICATIONS

The City of Belton hereby adopts Section 2900 of the Kansas City Metropolitan Chapter of APWA Construction and Material Specifications, current edition. The following additions, deletions and/or revisions are adopted as a part of Section 2900 for use within the City of Belton.

SECTION 2901 MATERIALS

2901.1 Scope:

Revise this section to read:

This section governs materials for water mains having a diameter of two inches or larger.

2901.2 Pipe and Fittings:

Delete existing section A. and **Replace** with A. Ductile-Iron Pipe:

Unless indicated otherwise on the construction plans, all twelve inch pipe and larger shall be Class 52 ductile-iron only; all water lines ten inches or smaller shall be ductile iron pipe Class 52 or C900 PVC; complete with all accessories and conforming to ANSI A21.51, AWWA C151, ASTM A536, and Grade 60-42-10.

Joints, unless otherwise specified, shall be of the push-on type conforming to ANSI A21.11 /AWWA C111, except gaskets shall be synthetic rubber. Natural rubber will not be acceptable. The pipe shall be cement mortar lined, conforming to ANSI A21.4/AWWA C104 and shall be coated inside and out with a bituminous coating. Polyethylene encasement (polywrap) shall be installed on all ductile iron pipe 12 inches and larger and associated fittings. Polywrap shall be 8 mil thick and blue in color.

Delete entire Section C. Cast-Iron Fittings

Revise title of D. Poly(vinyl chloride) Pipe - 12, 10, 8, 6 and 4 Inch (300, 250, 200, 150 and 100 mm) to read D. PVC

Add the following sentence to the beginning of D. PVC:

Unless indicated otherwise on the construction plans, all twelve inch pipe and larger shall be Class 52 ductile-iron only; all water lines ten inches or smaller shall be ductile iron pipe Class 52 or C900 PVC, complete with all accessories and conforming to ANSI A21.51, AWWA C151, ASTM A536, and Grade 60-42-10.

Delete entire Section E. Poly(vinyl chloride) Pipe – 2 Inch

2901.3 Valves and Valve Boxes:

Add the following to Section A. Gate Valves:

The following approved list of gate valve manufacturers shall be used: Mueller, Clow, Waterous, American Flow Control (AFC), M&H, Kennedy, and Pratt.

Delete Section D. Tapping Valves and replace with D. Connections:

D. Connections. Connections to existing mains shall use cut-in tees and solid sleeves. The use of tapping sleeves will not be permitted unless specifically approved in writing by the City Engineer. The connections shall be coordinated with the Water Services Manager and may require work to be performed at night (typically between 10:00 p.m. and 5:00 a.m. depending on the affected area and is under the sole discretion of the Water Services Division). Only the City of Belton may operate the existing valves.

Replace Section G. Extension Stems with the following:

All valves shall be equipped with valve extensions to bring operating nut within 12" below finished grade.

Revise Section H. Valve Boxes, Bases, Lids and Covers to read:

Boxes shall be 6 inch, Class 160, PVC pipe or 6 inch, Class 200, PVC pipe approved equal by the City Engineer. Valve boxes shall include a six-inch thick by 18-inch square (minimum) concrete pad, formed and finished, at the finished ground elevation.

2901.4 Fire hydrants:

Add the following to Section A. General:

The following approved list of fire hydrant models shall be used; Waterous Pacer, Clow-Medallion, and Mueller Centurion. This approved list shall apply for all public and all private hydrants. Fire hydrant barrel size shall be 5 ¼". Public fire hydrants shall be painted red. Private fire hydrants shall be painted yellow.

Delete Section A.3.

2901.5 Specials:

Modify Section A. General:

The following approved list of air release and meter vaults shall be used; Hancor or approved equal.

Delete the last sentence in Section A

Add the following to the end of Section A:

Refer to the City of Belton's Standard Details for dimensions and material requirements.

Delete Section D. Tapping Sleeves and **replace** with the following:

Connections to existing mains shall use cut-in tees and solid sleeves wherever possible. The use of tapping sleeves will not be permitted unless specifically approved in writing by the city engineer or approved designee. The connections shall be coordinated with the water superintendent and may require work to be performed at night (typically between 10:00 p.m. and 5:00 a.m. depending on the affected area and is under the sole discretion of the water division). Only the City of Belton may operate the existing valves.

2901.6 Bedding Material:

Delete Section C. Buckshot

2901.7 Location Wire and Tape:

Replace Section A. Location Wire with the following:

All water line installations shall include the installation of a single 10 gauge, insulated copper tracing wire taped to the top of the pipe in increments not to exceed ten (10) feet. The tracing wire shall be one piece and installed in a continuous run between valves. Each end of the tracing wire shall be brought to the surface in an anode box next to the fire hydrant or as applicable by the valve box. The tracer wire shall be tested by a Water Services Division representative for continuity prior to acceptance.

Delete Section B. Detection Marking Tape

SECTION 2902 CONSTRUCTION DETAILS

2902.1 Grading and Excavation:

Add the following language to Section J:

All pipe twelve (12) inches or larger shall have a minimum cover of sixty (60) inches.

2902.2 Installation:

Modify Section A.2 to read:

Unless otherwise specified or shown on the plans, the water mains less than twelve (12) inches shall be laid to have a minimum cover of 42 inches (1.07 m), measured from the finished grade or from established street grades shown on the plans. All pipe twelve (12) inches or

larger shall have a minimum cover of sixty (60) inches measured from the finished grade or from established street grades shown on the plans.

Modify Section A.3 to read:

Where the pipe is to be installed inside a casing pipe or tunnel liner, plastic casing spacers manufactured by Ranger II or approved equal shall be attached to each pipe before it is placed in the casing pipe or tunnel liner in accordance with these specifications and as shown on the plans. Sand fill shall be used when shown on the plans or required by the Special Provisions. The ends of each casing pipe or tunnel liner shall be closed with a dry brick wall or as shown on the plans. The closures for each casing pipe or tunnel liner shall not be constructed until all testing of the line has been completed and accepted.

2902.4 Connection to Existing Mains:

Modify Section to read:

The owning authority shall be given at least 48 hours' notice prior to turning off any water supply mains. The Contractor shall coordinate tie-ins with the owning authority to minimize down time.

2902.5 Polyethylene Encasements:

Modify Section A to read:

Polyethylene encasement (polywrap) shall be installed on all ductile iron pipe 12 inches and larger and associated fittings. Polywrap shall be 8 mil thick and blue in color.

2902.8 Embedment and Backfilling:

Replace Section B.4 with the following:

All backfill underneath pavement including streets, driveways, and sidewalks shall be as follows:

- a. Type A flowable fill for trenches \leq 24 inches wide.
- b. Type A flowable fill or dense, well-graded aggregate meeting the requirements for KDOT AB-3 or MoDOT Type 5 in wider trenches.

Modify Section C.2 as follows:

Granular bedding aggregate used for backfill shall be placed in uniform layers not exceeding 12 inches (15 cm) and compacted by vibrating.

Modify Section C.4 with the following:

- a. A minimum of one Proctor test shall be required for each type of material used on a project. Proctor tests must be completed and test results submitted to a representative of the owner prior to beginning backfill operations.
- b. A minimum of one compaction test shall be taken for each lift of backfill for each road crossing or each 50 feet of trench length under pavement. Testing shall be performed by a qualified testing lab hired by the contractor.

- c. Test reports shall be submitted to the representative of the owner. The reports shall clearly indicate the location of all tests by street name, station and/or lot number, type of backfill material, utility type, and depth of test. The reports shall include the results of all tests (pass or fail) and all retests. Failure to submit reports in a timely manner may result in the representative of the owner delaying subgrade approval for curb and/or pavement placement until reports are provided.

SECTION 2904 MEASUREMENTS AND PAYMENTS

2904.4 Methods of Measurement:

Modify the last sentence of Section 2904.4.A.1 to read:

Retainer glands, thrust blocks, location wire and tape, and other subsidiary items to the pipe will not be measured separately. Concrete encasement shall be measured and paid for separately.

Modify Section B to include measurement of valve concrete pad.

END OF SECTION