AUG 24 2026 AM10:36

RULE NO. R161-26.16

NOTICE OF PROPOSED RULE **POSTING DATE: August 24, 2026**

The Director of Austin Water proposes to adopt the following rule on October 1, 2026.

EFFECTIVE DATE OF PROPOSED RULE

A rule proposed in this notice may not become effective before the effective date established by a separate notice of rule adoption. A notice of rule adoption may not be posted before September 25, 2026, or after November 2, 2026 (the 70th day after the date of this notice).

If a proposed rule is not adopted on or before November 2, 2026, it is automatically withdrawn and cannot be adopted without first posting a new notice of a proposed rule.

REQUEST FOR COMMENTS ON PROPOSED RULES

The City requests comments from the public with respect to the proposed rule included in this Notice. Comments must be submitted in writing to the contact person below no later than September 24, 2026. A summary of the written comments received will be included in the notice of rule adoption that must be posted for the rule to become effective.

Contact Person:

Eric Langhout
Austin Water Department
eric.langhout@austintexas.gov
512-972-0073

TEXT OF PROPOSED RULE

The text of the proposed rule indicating changes from the current text is attached to this notice.

BRIEF EXPLANATION OF PROPOSED RULE

R161-26.16: Proposed revision to UCM Sections 2.5, 2.9.1, 2.9.2, 2.9.3 & 2.9.4

Rule 1 – Revisions to Utility Criteria Manual Sections 2.5, 2.9.1, 2.9.2, 2.9.3 & 2.9.4

1. SECTION 2.5 – Construction Plan Information and Submittal Requirements – **Section 2.5.3.A.15** – Add the requirement to show the elevation of the wastewater service line if over 6' deep at the property line.

2. SECTION 2.9.1 – General Criteria for Water, Reclaimed Water, And Wastewater Systems – **Section 2.9.1.H** – Add information about access to AW infrastructure.

3. SECTION 2.9.2 – Water System – **Section 2.9.2.B.5** – Add language to distinguish when to use a fire hydrant or drain valve for draining out water out of mains.

4. SECTION 2.9.2 – Water System – **Section 2.9.2.B.11** – Change "PE" to "HDPE" for consistency.

5. SECTION 2.9.2 – Water System – **Section 2.9.2.B.16.a** – Change "pipe to pipe" to "pipe-to-pipe" to correct the grammar and "Whichver" to "Whichever" to correct the spelling.

6. SECTION 2.9.2 – Water System – **Section 2.9.2.B.22** – Remove the access language here and replace it in Section 2.9.1.H.

7. SECTION 2.9.2 – Water System – **Section 2.9.2.C.13** – Add the words "and perpendicular to" after "under" in the first sentence to clarify that an encasement pipe is only required when the water line crosses perpendicular and not parallel a TxDOT ROW, railroad ROW, or any flowing or intermittent stream, creek, river or semi-permanent body of water (water crossing). Add language to distinguish when to use a fire hydrant or drain valve for draining out water out of mains.

8. SECTION 2.9.2 – Water System – **Section 2.9.2.C.15** – Remove the access language here and replace it in Section 2.9.1.H.

9. SECTION 2.9.2 – Water System – **Section 2.9.2.D.12** – Remove the access language here and replace it in Section 2.9.1.H.

10. SECTION 2.9.3 – Reclaimed Water Systems – **Section 2.9.3.B.5** – Add language about requiring blowoff valves to be located new a wastewater manhole for draining.

11. SECTION 2.9.3 – Reclaimed Water Systems – **Section 2.9.3.B.7** – Add language to reference UCM Section 2.9.3.B.5 for blow-off valves.

12. SECTION 2.9.3 – Reclaimed Water Systems – **Section 2.9.3.B.8** – Move this language to UCM Section 2.9.3.B.5 and adding blow-off valves for the flushing device. Also requiring the blow-off valve to be at the at the low point of the main instead of the high point.

13. SECTION 2.9.3 – Reclaimed Water Systems – **Section 2.9.3.B.15** – Remove the access language here and replace it in Section 2.9.1.H.

14. SECTION 2.9.3 – Reclaimed Water Systems – **Section 2.9.3.C.13** – Add the words "and perpendicular to" after "under" in the first sentence to clarify that an encasement pipe is only required when the reclaimed water line crosses perpendicular and not parallel a TxDOT ROW, railroad ROW, or any flowing or intermittent stream, creek, river or semi-permanent body of water (water crossing). Change the language to blow-off valve instead of a drain valve assembly in crossing designs.

15. SECTION 2.9.3 – Reclaimed Water Systems – **Section 2.9.3.C.15** – Remove the access language here and replace it in Section 2.9.1.H.

16. SECTION 2.9.4 – Wastewater Systems – **Section 2.9.4.G.02** – Change "cumulative" to "The maximum bend (cumulative total) for wastewater service lines is 45-degrees." to avoid confusion.

An affordability impact statement regarding the proposed rule is available by contacting Eric Langhout, eric.langhout@austintexas.gov or 512-972-0073.

AUTHORITY FOR ADOPTION OF PROPOSED RULE

The authority and procedure for adoption of a rule to assist in the implementation, administration, or enforcement of a provision of the City Code is provided in City Code Chapter 1-2 (*Adoption of Rules*). The authority to adopt this rule is established in City Code Section 15-9-9 (*Criteria Manuals*).

CERTIFICATION BY CITY ATTORNEY

By signing this Notice of Proposed Rule R16l-26.16, the City Attorney certifies the City Attorney has reviewed the rule and finds that adoption of the rule is a valid exercise of the Director's administrative authority.

REVIEWED AND APPROVED:

Shay Ralls Roalson

Date: 8/7/2026

Shay Ralls Roalson, P.E., Director
Austin Water

Deborah Thomas

Date: 8/11/2026

Deborah Thomas
City Attorney

2.5.3 Wastewater System Plans

A. All plan view drawings shall include all applicable items listed in the General Requirements mentioned above plus the following items:

1. Station numbers at all proposed service connections to existing or proposed wastewater mains if the service line is not perpendicular from the main to the property line.
2. Design for required Service Extension Request (SER) wastewater improvements shall be included within plan set. With AW approval, required SER improvements may be reviewed under separate concurrent review. For proposed connections to mains or facilities to be constructed by others, identify the project-by-project name, AW project number, and SER number.
3. The location, alignment and structural features of the wastewater main, including manholes and concrete retards, if applicable.
4. Station numbers and GIS numbers for beginning points, ending points, manholes, clean-outs and other appurtenances.
5. Details of all required appurtenances.
6. Location of all existing and proposed wastewater services, mains and manholes.
7. One hundred year flood plain limits.
8. Retaining walls, including geogrid, straps, tiebacks and all other components.
9. Culverts, bridges and other drainage structures.
10. Locations of geotechnical borings (required for City funded projects only).
11. Locations of bolted manhole covers.
12. A plan view detail of the invert of each manhole or junction box having three or more pipes connecting to it, regardless of the pipe sizes, or when two pipes connect to a manhole at an angle other than 180 degrees from each other.
13. Station numbers shall be identified for the mains where they cross any other utility.
14. The location and dimensions of longitudinal thrust anchors that are required where a run of PE force main pipe with fused joints discontinues and connects to a manhole or a gravity wastewater pipe having gasketed joints or to any similar feature.
15. Depth of wastewater service line at the property line if over 6 feet deep.

B. A profile view shall be provided for all wastewater mains and shall include all applicable items listed in the general requirements above plus the following items:

1. The existing ground profile and proposed street finish grade or subgrade or finished grade if not under pavement.
2. Station numbers and elevations of all utility crossings.
3. Station numbers and soil geology information at stream crossings to evaluate the need for special surface restoration.

4. Identify the pipe size, percent grade and pipe material to be used including ASTM and/or AWWA designation. If an alternate material is to be allowed, both should be listed (example "DI or PVC"). Lines must be included to indicate pipe flowline and crown.
5. Station numbers and elevations for starting points, ending points, manholes, clean-outs and at intermediate points every 100 feet.
6. Elevations shall be indicated on the profile showing the finish floor elevations of all existing structures. If the structure has an active septic tank or other disposal system, the flow line elevation of the plumbing where it exits from the structure is to be indicated. If a lot or tract is vacant, side shots may be required from the middle of each lot to ensure gravity service is possible from the lot to the main.
7. Peak dry weather flow and peak wet weather flow, as well as the associated velocities in each pipe.
8. Retaining walls, including geogrid, straps, tiebacks and all other components.
9. Culverts, bridges and other drainage structures.
10. Rim elevations for manholes.
11. Flow line elevations for all pipe connections at manholes and junction boxes.
12. Geotechnical boring graphic symbols showing subsurface materials (required for City funded projects only).
13. Beginning and ending stations for encasement pipe (per UCM 2.9.1.D.).

Source: Rule No. R161-17.06, 5-31-2017; ordbank" web="yes">Rule No. R161-21.15, 5-14-2021; Rule No. R161-21.25, 11-10-2021; Rule No. R161-22.03, 2-14-2022; Rule No. R161-22.09, 8-8-2022; Rule No. R161-25.16, 9-15-2025.

2.9.1 General Criteria for Water, Reclaimed Water, and Wastewater Systems

G. Location of New Mains in Proposed Intersections

AW utilities shall be located under street paving in intersections connecting to street levels 2-5 to avoid conflicts with proposed or future traffic signal pole installations.

H. Access

Within COA ROW and easements, AW must maintain 24-hour, unimpeded access to its infrastructure to respond quickly to any interruption of service or potential environmental hazard. Large equipment such as backhoes, excavators, dump trucks, vacuum trucks, and other heavy equipment needed to provide customer relief, operate, conduct preventive maintenance, or replace mains, services, or appurtenances must have access to the site. Water/Wastewater mains, valves, fire hydrants, manholes and other appurtenances shall be located so that they will be readily accessible for operations and maintenance personnel and equipment during their design service life.

Source: Rule No. R161-20.11, 8-14-2020; ordbank" web="yes">Rule No. R161-21.15, 5-14-2021; Rule No. R161-22.09, 8-8-2022; Rule No. R161-23.09, 5-11-2023; Rule No. R161-23.13, 8-10-2023; Rule No. R161-24.07, 9-11-2024; Rule No. R161-25.16, 9-15-2025.

2.9.2 Water Systems

B. Mains

1. While looped systems are required, it is recognized that in certain situations, installation of dead-end pipe may be necessary. When a dead-end section of water main is approved for installation, the following requirements must be met:

    a. A gate valve shall be installed near the end of the main followed by an appropriate length of one joint of restrained pipe and a plug with a 1 inch or larger tap. Thrust blocking shall not be used as restraint at the end of the main. The engineer shall determine the necessary length of restraint on each side of the valve that will keep the main in place for future extension when the plug is removed. No services may be installed between the valve and the plug.

    b. Adequate water circulation must be provided to achieve turn-over of water in the dead end main every 72 hours. Until such time as water demand from active services on the dead-end section of main results in the 72-hour turn over, an approved automatic flushing device must be installed and programmed such that the 72-hour criterion is met.

2. Water mains should normally be located on the high side of the street. When required to satisfy 2.9.2.D.9, 2.9.2.E.8, or 2.9.3.D.10, water mains shall be installed on both sides of divided roads or highways. Divided roads or highways are where opposing lanes of vehicular traffic are currently or planned to be separated by a median, railroad tracks, or other vehicle obstruction.

3. Piping materials and appurtenances shall conform to COA Standard Specifications and AW's Standard Products List (SPL).

4. Minimum depth of cover over the uppermost projection of pipe shall be at least 48 inches below proposed ground elevation. If fill or embankment placed over existing water mains or services exceeds 4 feet or results in a final depth exceeding two times the easement width if applicable, AW review and approval is required. If a cut over the existing mains or services results in less than minimum cover, AW approval is required. If manholes, valves, fire hydrants (herein also "hydrants"), meters, cleanouts, etc. are located within the cut or fill area(s), adjustment must be made to match final grade and plans must be reviewed and approved by AW and the construction inspected by the City. If the fill is located on top of an existing easement, see Section 2.9.1.A.1.

5. For mains 16 inches in diameter and larger and on smaller mains where appropriate, either hydrants or drain valves shall be placed at low points and on the up-slope side of all valve locations, based on the criteria herein. Hydrants are preferred over drain valves and hydrants shall be used except where drain valves are best suited, which are at low points where accessibility by maintenance crews is limited or in a location where a hydrant will be submerged within a 100-year floodplain.

6. All fire lines shall be DI pipe from the main to the property line and have a gate valve on the line at the connection to the main line and a backflow preventer inside the property line, but accessible for inspection by City personnel. All unmetered fire lines shall have an AW approved flow detection device. This flow detection service shall be located such that no more than 100 gallons of water is contained between the device and the point where the fire line is connected to the City's main.

7. Proposed crosses to existing infrastructure are not allowed. The use of multiple tees instead of crosses is required when connecting to existing infrastructure. Crosses may be allowed on new infrastructure on a case by case basis.

8. Joint restraint for DI pipes larger than 24 inches diameter shall be by use of integral, factory joint restraint systems. Joint restraint for DI pipes 24 inches and smaller may be by joint restraint gaskets. External mechanical joint restraint devices are allowed at all sizes of MJ valves and fittings connecting to DI or PVC pipe. Connections of HDPE pipe to MJ valves and fittings shall be done using approved HDPE MJ Adapters per applicable AW SPLs.

9. Joint restraint shall be provided for all pipe bends and where necessary when joint deflection is utilized. A minimum safety factor of 1.5 shall be used when calculating restrained water pipe length. When joint restraint is required in intersections, extend the joint restraint, at a minimum, to the point of curvature (PC) of the curb line. Notes shall be placed in both plan and profile views and shall include at a minimum the type of restraint to be utilized and the beginning and ending stations of the restraint. Cast Iron and Asbestos Concrete Pipes cannot be mechanically restrained and shall be removed and replaced with DI Pipe or PVC C-900 pipe to ensure adequate restraint. Concrete thrust blocking may be approved on a case-by-case basis. In cases where concrete thrust blocks are utilized, at a minimum the Engineer shall include block dimensions and locations on the plans. The proximity of other utilities and structures must be taken into account when specifying the use of thrust blocking. The use of thrust blocks will be prohibited in the downtown area (Loop 1 to I35 and Lady Bird Lake to 30th Street). All pipes, valves, and fittings, greater than 2 inches in size, installed in the TxDOT Right-of-Way (ROW), Austin Bergstrom International Airport (ABIA) property and University of Texas property shall be restrained DI pipe.

10. Allowable pipe sizes. The following sizes will be the only sizes allowed for new watermains: 4 inches (see Section 2.9.2.A.4.a), 6 inches (fire-hydrant leads and services only), 8 inches, 10 inches (HDPE only), 12 inches, 16 inches, 20 inches (HDPE only), 24 inches, 30 inches, 36 inches, and 42 inches. Larger sizes may be approved on a case-by-case basis.

11. Connections 4 inches and larger of new mains to existing mains shall be made by cutting in a tee. For HDPE pipe the branch connection shall be closed by electrofusion coupler per SPL WW-706C. On ductile iron and PVC pipe, tapping sleeves may be allowed in lieu of cutting in a tee on a case-by-case basis. Full-body tapping sleeves shall be used. A tapping sleeve will not be allowed if the materials and conditions of the existing main preclude tapping. ~~"Size-on-size"~~ “Size-on-size” taps will not be permitted. Reconnection to existing tapping sleeves is prohibited.

12. Wyes are not allowed on waterlines.

13. The maximum bend for waterlines is 45 degrees.

14. All potable water mains shall be constructed of DI, PVC, or HDPE pipe. Alternative pipe materials may be considered on a project-by-project basis.

15. All potable water pipe within utility easements on private property shall be DI, Pressure Class 350 minimum for pipe 12-inch diameter and smaller and Pressure Class 250 minimum for pipes greater than 12-inch diameter. AWWA C-900 pressure class 305 (DR14) potable water line pipe may be considered to be installed within utility easements on private property only when it meets the following criteria:

    a. The finished surface of the water line easement over the potable water line must be paved. Where the water pipe is under HMAC or Portland cement concrete pavement designed

structurally for automobile and truck traffic per the Geotechnical report, PVC pipe may be allowed just in those paved areas, provided it can be demonstrated that the pipe will not be damaged by construction traffic if it does not maintain a minimum of 48 inches of cover.

b. The potable water line must maintain a minimum 48 inches of cover over the uppermost projection of pipe to the finished grade.

c. The plan and profile must clearly identify the potable water line size, material type and class as well as the paved finished grade.

16. Changes in alignment in water lines.

a. For ~~pipe to pipe~~ pipe-to-pipe connections of DI and PVC pipe, changes in both horizontal and vertical deflection shall be achieved by deflection of joints or by use of fittings. Deflection of pipe at fittings is only allowed on DI pipes, not on PVC pipes. Longitudinal bending of pipe is not allowed. Deflection of joints in DI pipe shall not exceed manufacturer's maximum allowable deflection. For PVC pipe, the deflection at pipe joints shall not exceed 1°, or the manufacturer's maximum allowed deflection, ~~whichver~~ whichever is less.

b. For HDPE pipe, changes in horizontal and vertical alignment by Cold (Field) Bending is allowed. The minimum cold bending radius shall not be less than 25× the pipe O.D. for DR11 pipe or 20× the pipe O.D. for DR9 pipe. No fittings (DI or HDPE) or mechanical water service clamps are allowed within a bent section of HDPE pipe. Electrofusion saddles may be allowed in bends on a case-by-case basis. DI MJ fittings may be used to accommodate bends for HDPE pipe by using an MJ Adapter to connect the HDPE pipe to the MJ fitting.

17. Utility crossings constructed under water lines by trenchless methods are allowed only if the distance between the outside surface of the water line and the top, crown, or roof of the excavation made for the crossing utility is at least two times the diameter or horizontal span of the trenchless excavation below the water line, or 36 inches, whichever is larger. The trenchless method shall support the advancing face and roof or crown of the excavation at all times when within a horizontal distance of 10 feet of the water line.

18. Utility crossings constructed under water mains by open cut methods are not allowed if the water main consists of asbestos cement pipe or cast-iron pipe with lead caulk joints. In those instances, the main must be removed and replaced to accommodate construction of the subject utility. Replacement will be with new pipe of the type currently used in the AW system for comparable size pipe. In lieu of replacing the main, the Engineer may provide a design detail showing how the main shall be supported during the open cut method when the trench under the water main is 3 feet or less in width.

19. Bedding and backfill for that portion of a utility installed by open cut construction under and within 5 feet horizontally of a water main shall be made using controlled low strength material from the bottom of the subject utility to the bottom of the bedding envelope of the water line even if that water line is removed and replaced as described above.

20. Connections to Concrete Steel Cylinder Pipe.

a. Special Details are required to show materials and method of connecting proposed water mains to existing Concrete Steel Cylinder, or CSC, water mains.

b. Connections to Bar-Wrapped CSC Pipe shall be made by cutting and removing an appropriate pipe segment, and replacing with DI fittings, valves, or pipe, using appropriate CSC to DI steel transition adapters and steel butt straps.

c. Connections to Prestressed Concrete Cylinder Pipe shall be by removing entire pipe segments, joint to joint, and replacing with DI pipe or welded steel pipe, as designated by AW, using appropriate bell-to-Mechanical Joint Plain End (MJPE) and spigot-to-MJPE transition adaptors.

21. Where mains transition from HDPE pipe to a different pipe material (DI pipe, PVC pipe, etc.), the HDPE pipe segments shall be designed to undergo hydrostatic testing separately from the segments of different pipe material by way of isolation valves or other means.

~~22. Mains shall be located so that isolation valves, air valves, and hydrants will be readily accessible during their service life for maintenance and operations personnel and equipment.~~

2~~3~~2. Shutout Periods for Water Transmission Mains

If a shutout is required for a connection to or relocation of an existing water transmission main (typically 24-inch and larger in diameter), the Engineer shall make provisions within the construction Contract Documents (including drawings) to notify the contractor that these shutouts will generally only be allowed from October 1 to March 31. Prior to submittal of final plans, the Engineer shall coordinate with the AW Project Sponsor and/or AW UDS Plan Reviewer to discuss the shutout procedure and to determine if any additional requirements need to be incorporated into the Contract Documents. The plans shall include maps highlighting the shutout limits and include a list of all valves to be closed. Double-valve shutout limits should be shown if the shutout involves butterfly valves. If necessary, waterlines should be color coded to indicate different pressure zones. Drawings shall also contain the following notes for the contractor to adhere to during construction:

a. Shutout of Waterline {fill in blank} will require prior approval via the AW Concurrence process prior to shutting off water. Isolation of this waterline may not be feasible between March 31 and October 1.

b. COA inspector shall contact AWValveExercising@austintexas.gov three or more weeks before desired schedule for the subject shutout.

c. No shutout will proceed until the contractor is fully prepared to perform work related to the shutout, i.e., all required material, equipment, and labor are on site.

d. Reference sheets {fill in blank} for shutout limits.

C. Valves (gate valves for isolation purposes)

1. There shall be a valve on each fire hydrant lead restrained to the main using bolt-through types of connections between the valve and the branch outlet from the main. These and all valves 24 inches and smaller shall be resilient seated gate valves.

2. Valves shall be located at the intersection of two or more mains and shall be spaced so that no more than thirty customers will be without water during a shutout. Water mains designated by Systems Planning for distribution, up to and including 24 inches in diameter, shall be valved at intervals not to exceed 500 feet in high-density areas and 1,200 feet in residential areas. Water mains 24 inches and larger designated by Systems Planning for transmission shall be valved at intervals not to exceed 2,000 feet or at a branched water main connection, whichever is less.

High density areas shall consist of inside the Downtown Area Project Coordination Zone, commercial areas CBD, DMU, W/LO, CS, and CH or residential areas mixed with multifamily (MF) zoning designations MF-4, MF-5, and MF-6 as defined and described in the Land Development Code.

3. For valves at the end of dead-end mains, see Section 2.9.2.B.1.a.
4. Branch piping (both new and future branches) shall be separated from the main with gate valves.
5. For all mains, valves at intersections shall be placed at point of curvature (p.c.) of the curb line.
6. Valves shall be located so that isolating any segment of water main requires closing of no more than three valves.
7. The operating nut or extension of any valve shall be between 12 inches and 24 inches below finished grade.
8. Valves with valve extensions and those at pressure zone boundaries shall be equipped with a locking type debris cap.
9. Each valve that is 16 inches and smaller in diameter shall be supported by a pre-cast or cast-in-place concrete pad conforming to details in COA valve installation Standards. Each valve that is 24 inches and larger in diameter shall be supported by a monolithic, cast-in-place reinforced concrete foundation conforming to project-specific detailed structural drawings. Cast-in-place supports shall not interfere with access to any nuts or bolts at the connecting pipes.
10. Valves having "push on" joints are not permitted for fire hydrant leads and laterals.
11. Butterfly valves shall not be allowed.
12. Water mains shall be designed so that valves can be installed vertically unless conditions dictate otherwise. Water mains at a valve shall have a minimum depth of cover from the top of main to the proposed finished grade of 48 inches for mains 16 inches and smaller. For mains larger than 16 inches, the mimimum depth requirements will be as follows to accommodate valve installation:

Pipe Size (in.)	**Minimum Depth (top of main to finished grade) (ft.)**
24	6.5
30	7.5
36	8.0
42	9.5
48	9.5
54	9.5
60	10.5
66	10.5

13. Water mains installed under and perpendicular to TxDOT ROW, railroad ROW, or any flowing or intermittent stream, creek, river or semi-permanent body of water (water crossing), shall be installed within an encasement pipe. A crossing design shall include the installation of a hydrant or drain valve at the low point(s) in the crossing (except when installed by tunnelling or horizontal directional drilling (HDD)), an isolation valve on each side of the crossing, and a CAV at the high point(s) installed on the downslope side of each isolation valve. ~~The crossing design shall~~

~~include the installation of a drain valve assembly at the lowest point in the crossing (except when installed by horizontal directional drilling (HDD)), and an isolation valve at the high point on each side of the crossing with a CAV installed on the downslope side of each valve.~~

Water crossings shall conform to current COA Erosion Hazard Zone (EHZ) crossing criteria.

14. Valve operators shall be located a minimum of 24 inches from an existing property line.

~~15. Valves, regardless of their intended purpose, shall be located so that during their design service life they will be readily accessible for maintenance and operations personnel and equipment.~~

D. Fire Hydrants

1. Hydrants shall be installed at the intersection of two streets and between intersections where necessary, at distances not in excess of 300 feet between hydrants in commercial or other high-density areas and not more than 600 feet in residential areas.
2. Hydrants shall be installed on both sides of all divided roads or highways (as defined by 2.9.2.B.2) if required to provide adequate firefighting coverage.
3. The entire fire hydrant assembly shall have restrained joints.
4. Fire hydrants shall not be designed to be within 9 feet in any direction of any wastewater main, lateral, or service regardless of material of construction.
5. Fire hydrants shall be designed so as not to interfere with sidewalk ramps, trash receptacles, and street light and signal pole foundations.
6. To avoid sidewalks, ramps, and other features, fire hydrants placed near a street corner should in general be located outside the curve radius and a minimum of 4 feet from ramps. Exceptions may apply in existing neighborhoods or long (>5 feet) radius curb return.
7. Placement of fire hydrants should take into consideration above ground improvements, landscaping, critical root zones, grades and other utilities.
8. In existing neighborhoods, new fire hydrants should be placed as close as possible to the existing fire hydrant locations with the exception of new hydrants needed to meet minimum spacing requirements.
9. Fire hydrants should be placed on the short side of the street where possible unless there are site constraints. Fire hydrant lead lines shall not cross a divided road or highway (as defined by 2.9.2.B.2) or exceed 55 feet in length.
10. When new water lines are installed along with new fire hydrant leads, the drawings shall indicate existing fire hydrants are to be replaced with a new one, if the existing fire hydrant is older than 10 years old.
11. Fire Hydrants shall not be designed in such a manner as to provide fire flow for developments served by other water utility service providers.
12. ~~Fire hydrants shall be located so that during their design service life they will be readily accessible for maintenance and operations personnel and equipment.~~

2.9.3 Reclaimed Water Systems

B. Mains

1. All reclaimed water mains shall be constructed of ductile iron (DI), PVC, or high-density polyethylene (HDPE) pipe. Alternative pipe materials may be considered on a project-by-project basis. Plans shall indicate that all mains and appurtenances be manufactured, factory painted, or striped Pantone 522 purple. All buried metallic pipe and fittings shall be encased in polyethylene per SPL WW-27D.

2. Sizing of Mains - Computer modeling shall be used for sizing reclaimed water mains when required by AW. Upon request, computer modeling shall be submitted to AW for review. When HDPE is proposed for mains 12-inches and larger (in lieu of DI or PVC) the reclaimed water main size shall be increased to the next allowable larger nominal diameter pipe. The use of 8-inch HDPE pipe may require that modeling be reviewed and approved by AW prior to acceptance. Allowable pipe sizes are: 8 inches, 10 inches (HDPE only), 12 inches, 16 inches, 20 inches (HDPE only), 24 inches, 30 inches, 36 inches, 42 inches, and 48 inches.

3. Piping materials and appurtenances shall conform to City of Austin (COA) Standard Specifications, Standard Details, and AW Standard Products List (SPL).

4. Minimum depth of cover over the uppermost projection of pipe shall be at least 48 inches below proposed ground elevation. Maximum depth will be approved by AW for the specific materials, application and conditions. If fill or embankment placed over existing reclaimed water mains or services increases by more than 4 feet or results in a final depth exceeding two times the easement width if applicable, AW review and approval is required. If a cut over the existing reclaimed water mains or services results in less than the minimum cover required by COA Standard Details, AW approval is required.

5. For reclaimed mains ~~of 16 inches and larger~~, ~~drain~~ blow-off valves shall be placed at low points. Where feasible, blow-off valves shall be located near a wastewater manhole.

6. Proposed crosses to existing infrastructure are not allowed. The use of multiple tees instead of crosses is required when connecting to existing infrastructure. Crosses may be allowed on new infrastructure on a case-by-case basis.

7. Dead-end mains shall terminate with a blow-off valve, see Section 2.9.3.B.5. ~~flushing device and flushing devices shall be installed as necessary to facilitate flushing of the system.~~

~~8. Mains shall have an approved flushing device located at the high point between main intersections.~~

8~~9~~. Joint restraint for ductile iron pipes larger than 24 inches in diameter shall be by use of integral, factory joint restraint systems. Joint restraint for ductile iron pipes 24 inches and smaller may be by integral, factory joint restraint systems, or by joint restraint gaskets. External mechanical joint restraint devices are allowed on all sizes of MJ valves and fittings connecting to ductile iron or PVC pipe. Connections of HDPE pipe to MJ valves and fittings shall be accomplished using approved MJ Adapters per applicable AW SPLs.

9~~10~~. Joint restraint shall be provided for all pipe bends, reducers, and tees. When joint restraints are required in intersections, the joint restraints shall extend, at a minimum, to the point of curvature (PC) of the curb line. Notes shall be placed in both plan and profile views and shall

include at a minimum the type of restraint to be utilized and the beginning and ending stations of the restraint.

10~~11~~. The proximity of other utilities and structures must be taken into account when specifying the use of thrust blocking. The use of thrust blocks will be prohibited in the downtown area (Loop 1 to I35 and Lady Bird Lake to 30th Street) due to the congestion of utilities, structures and excavations in the right-of-way. Concrete thrust blocking may be approved on a case-by-case basis.

11~~12~~. Connections 4 inches and larger of new reclaimed mains to existing reclaimed mains shall be made by cutting in a tee. For HDPE pipe the branch connection shall be closed by electrofusion coupler per SPL WW-706C. On ductile iron and PVC pipe, tapping sleeves may be allowed in lieu of cutting in a tee on a case-by-case basis. Full-body tapping sleeves shall be used. A tapping sleeve will not be allowed if the materials and conditions of the existing main preclude tapping. "Size on size" taps will not be permitted.

12~~13~~. Changes in alignment in reclaimed water lines.

a. For pipe to pipe connections of ductile iron and PVC pipe, changes in both horizontal and vertical alignment shall be achieved by deflection of joints or by use of fittings. Deflection of pipe at fittings is only allowed on ductile iron pipes, not on PVC pipes. Longitudinal bending of pipe is not allowed. Deflection of joints in ductile iron pipe shall not exceed manufacturer's maximum allowable deflection. For PVC pipe, the deflection at pipe joints shall not exceed 1°, or the manufacturer's maximum allowed deflection, whichever is less.

b. For HDPE pipe, changes in horizontal and vertical alignment by Cold (Field) Bending is allowed. The minimum cold bending radius shall not be less than 25× the pipe O.D. for DR11 pipe or 20× the pipe O.D. for DR9 pipe. No fittings (ductile iron or HDPE) or mechanical water service clamps are allowed within a bent section of pipe. Electrofusion saddles may be allowed in bends on a case-by-case basis. Ductile iron MJ fittings may be used to accommodate bends for HDPE pipe by using an MJ Adapter to connect the HDPE pipe to the fitting.

13~~14~~. Where mains transition from HDPE pipe to a different pipe material (ductile iron pipe, PVC pipe, etc.), the HDPE pipe segments shall be designed to undergo hydrostatic testing separately from the segments of different pipe material by way of isolation valves or other means.

~~15. Mains shall be located so that isolation valves, air valves, and flushing devices will be readily accessible during their service life for maintenance and operations personnel and equipment.~~

14~~16~~. Shutout Periods for Reclaimed Water Transmission Mains

If a shutout is required for a connection to or relocation of an existing reclaimed water transmission main, the Engineer shall make provisions within the construction Contract Documents (including drawings) to notify the contractor that these shutouts will generally only be allowed from October 1 to March 31. Prior to submittal of final plans, the Engineer shall coordinate with the AW Project Sponsor and/or AW UDS Plan Reviewer to discuss the shutout procedure and to determine if any additional requirements need to be incorporated into the Contract Documents. The plans shall include maps highlighting the shutout limits and include a list of all valves to be closed. If necessary, reclaimed waterlines should be color coded to indicate different pressure zones. Drawings shall also contain the following notes for the contractor to adhere to during construction:

a. Shutout of Reclaimed Waterline {fill in blank} will require prior approval via the AW Concurrence process prior to shutting off reclaimed water. Isolation of this reclaimed waterline may not be feasible between March 31 and October 1.

b. COA inspector shall contact AWValveExercising@austintexas.gov three or more weeks before desired schedule for the subject shutout.

c. No shutout will proceed until the contractor is fully prepared to perform work related to the shutout, i.e., all required material, equipment, and labor are on site.

d. Reference sheets {fill in blank} for shutout limits.

C. Valves (gate valves for isolation purposes)

1. All valves 24 inches and smaller, shall be resilient seated gate valves.

2. Valves shall be located at the intersection of two or more mains. Reclaimed Water mains designated by AW for distribution, up to and including 24 inches in diameter, shall be valved at intervals not to exceed 500 feet in high-density areas and 1,200 feet in residential areas. Reclaimed Water mains 24 inches and larger designated by AW for transmission shall be valved at intervals not to exceed 2,000 feet or at a branched water reclaimed water main connection, whichever is less.

3. At dead ends, gate valves shall be located one pipe length 10-ft. minimum from the end points of the main. The Engineer shall provide - and show drawings - complete restraint for all such valves, pipe extensions and end caps.

4. Branch piping (both new and future branches) shall be separated from the main with gate valves.

5. For all reclaimed mains, valves at intersections shall be placed at point of curvature (p.c.) of the curb line.

6. Valves shall be located so that isolating any main intersection requires closing of no more than three valves.

7. The operating nut or extension of any valve shall be between 12 inches and 24 inches below finished grade.

8. Valves with valve extensions and those at pressure zone boundaries shall be equipped with a locking type debris cap.

9. Each valve that is 16 inches and smaller in diameter shall be supported by a pre-cast or cast-in-place concrete pad conforming to details in COA valve installation Standards. Each valve that is 24 inches and larger in diameter shall be supported by a monolithic, cast-in-place reinforced concrete foundation conforming to project-specific detailed structural drawings. Cast-in-place supports shall not interfere with access to any nuts or bolts at the connecting pipes.

10. Butterfly valves shall not be allowed.

11. Valve boxes and lids shall be square, with "Reclaimed Water" indicated on the lid.

12. Reclaimed water mains shall be designed so that valves can be installed vertically unless conditions dictate otherwise. Reclaimed water mains at a valve shall have a minimum depth of cover from the top of main to the proposed finished grade of 48 inches for mains 16 inches and smaller. For mains larger than 16 inches, the minimum depth requirements will be as follows to accommodate valve installation:

Pipe Size (in.)	Minimum Depth (top of main to finished grade) (ft.)
24	6.5
30	7.5
36	8.0
42	9.5
48	9.5
54	9.5
60	10.5
66	10.5

13. Reclaimed water mains installed under and perpendicular to TxDOT ROW, railroad ROW, or any flowing or intermittent stream, creek, river or semi-permanent body of water (water crossing), shall be installed within an encasement pipe. A crossing design shall include the installation of a blow-off valve at the low point(s) in the crossing (except when installed by tunnelling or horizontal directional drilling (HDD)), an isolation valve on each side of the crossing, and a CAV at the high point(s) installed on the downslope side of each isolation valve. ~~The crossing design shall include the installation of a drain valve assembly at the lowest point in the crossing (except when installed by horizontal directional drilling (HDD)), and an isolation valve at the high point on each side of the crossing with a CAV installed on the downslope side of each valve.~~

    Reclaimed water crossings shall conform to current COA Erosion Hazard Zone (EHZ) crossing criteria.

14. Valve operators shall be located a minimum of 24 inches from an existing property line.

~~15. Valves, regardless of their intended purpose, shall be located so that during their design service life they will be readily accessible for maintenance and operations personnel and equipment.~~

2.9.4 Wastewater Systems

G. Service Lines.

1. Wastewater services shall be in accordance with COA Standard Details.
2. Wastewater service lines, between the main and property line, shall have an inside diameter not less than 6 inches. The minimum grade allowed for service lines is 1 percent. In all new systems, grade breaks exceeding allowable joint deflection must be made with approved fittings and the maximum bend (cumulative total) for wastewater service lines is 45-degrees ~~shall not exceed a cumulative total of 45 degrees~~.
3. No service connections shall be made to mains larger than 15 inches in diameter.
4. Service connections to force mains that are 2 inches in diameter and smaller may be allowed on a case-by-case basis. Service connections to force mains that are larger than 2 inches in diameter shall not be allowed.
5. Potable water and wastewater service lines shall be a minimum of 9 feet apart unless the potable and wastewater service lines are located on a common lot line and constructed in accordance with COA Standard Details per TCEQ rules. Services to lots without a water/wastewater easement shall terminate at the property line with either a standard two-way cleanout or a large diameter cleanout, depending on the service line pipe diameter. Service to lots having a 5 feet by 5 feet water/wastewater easement shall terminate within the easement with either a standard two-way cleanout or large diameter cleanout, depending on the service line pipe diameter. A two-way cleanout shall be installed for service lines 4 inches to 6 inches in diameter, and a large diameter cleanout shall be installed for service lines 8 inches to 12 inches in diameter. Large diameter cleanout structures are limited to a maximum depth of 14 feet. For service lines larger than 12 inches in diameter, contact Industrial Waste for design requirements. For details, see the COA Standard Details.
6. Wastewater clean-outs are not allowed in sidewalks, paved areas, load bearing pavement, or driveways.
7. Sample and inspection ports are required for service lines when industrial waste monitoring is required. They shall be located at the property line within the public right-of-way (ROW) or utility easement line to indicate the line of responsibility of the utility. They shall not be located in traffic areas, paved parking areas or sidewalks.