

TAHLEQUAH PUBLIC WORKS AUTHORITY WATER & SEWER
CONSTRUCTION POLICY GUIDELINES

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SECTION 1: INTENT AND OVERVIEW

1.1 These policy guidelines are set forth to assist the implementation of the Tahlequah Public Works Authority's purpose to provide, furnish and supply to the citizens of the City of Tahlequah and the territory in proximity thereto, and to protect the health and safety, and general welfare of the general public within the Authority's jurisdiction to serve and maintain water and sanitary sewer facilities.

1.2 LET IT BE KNOWN, that the Tahlequah Public Works Authority, to implement these policies, shall continue to revise and replace existing policies and to establish new standards and policies so that the needs and demands of new growth and expansion to the City of Tahlequah will not burden the existing facilities but provide the necessary increased level of service and funding expected to continue service and maintenance of water and sanitary sewer facilities as part of the Authority's current plans for the future growth of the City of Tahlequah.

1.3 All of the TPWA water and sewer facilities will benefit all new development that depends on these services and it is therefore appropriate to treat each development independently within each basin or distribution grid for the purposes of calculating, collecting, and spending the funds collected for the construction of these facilities.

1.4 A three tier method for new development shall be used to finance, defray, or reimburse all or a portion of the costs incurred by the TPWA to construct the improvements for water and sewer facilities.

SECTION 2: DEFINITIONS

The following abbreviations and words shall have the designated meanings:

Board: The Tahlequah Public Works Authority Board of Trustees, the Governing Board of the Authority.

City: City of Tahlequah, Oklahoma, a municipal corporation acting through the City's duly authorized officers or agents.

Development: Any construction or expansion of a building, structure, or use, any change in use of a building or structure, or any change in the use of land, which creates additional demand for water and sewer facilities.

Inspector: The authorized representative of the TPWA who is assigned to a specific project site or any part thereof.

ODEQ: Oklahoma Department of Environmental Quality, the State regulatory authority under which the State Construction Standards are promulgated.

Sanitary Sewer: A pipe that conveys sewage or wastewater, and into which storm, surface and ground waters or unpolluted industrial wastes are not admitted intentionally.

TPWA: Tahlequah Public Works Authority, a State of Oklahoma Public Trust acting through the Authority's duly authorized officers or agents.

Water Line: A water conveyance pipe that supplies pressurized drinkable water to connections for public use.

SECTION 3: PERMITS, PLANS & REVIEW FEES

3.1. All municipal water and sewer system, facilities, and connections shall be constructed in compliance with the Oklahoma Administrative Code, Title 252, Chapter 625 titled “Public Water Supply Construction Standards” and Chapter 656 titled “Water Pollution Control Facility Construction Standards” established by the ODEQ or ordinances, regulations, rules and requirements set forth by the City or TPWA standards, whichever is more stringent.

3.2. No municipal water and sewer systems, collectors or distribution lines shall be constructed until plans and specifications meeting the above criteria are reviewed, approved, and signed by a licensed professional engineer in responsible charge of the project.

3.3. All water and sewer line plans for the connection to the municipal system shall have TPWA Board approval prior to actual construction except plans on small extensions less than 500 feet that can be approved by the General Manager prior to actual construction. Approval shall be withheld if the water or sewer systems to which the proposed lines are connecting to have reached or, with the addition of the proposed lines, would reach treatment or hydraulic capacities (See Section Five (5) Capacity Guidelines). Further, approval shall also be withheld if the proposed lines do not meet or exceed the standards of the ODEQ and the TPWA, or may be withheld for any other valid reason.

3.4. All plans approved by the TPWA Board and General Manager shall have an application for a “Permit to Construct” sent, with a minimum of five (5) sets of plans and an Engineers Design Reports and application fee, to the ODEQ for review and approval for the Permit

3.5. The General Manager or his designated representative shall inspect each approved project and shall prohibit commencement of any construction or connection: (1) prior to the scheduled date of a pre-work conference, (2) during construction that is not in accordance with the approved plans, and (3) any deviation that does not meet with these policies and regulations.

3.6. All ODEQ Permit Fees and TPWA Plan Review Fees shall be paid to the TPWA office when submitting the ODEQ Permit Application for “Permit to Construct”, Engineer approved plans, specification, and Engineering Reports. The ODEQ Permit Fee will be forwarded on to the ODEQ Water Quality Division for review. The amount is determined by the ODEQ Fee schedule for construction projects and can be obtained through the project engineer. The TPWA Plan Review Fee shall be set by the TPWA General Manager and is presently set at \$100.00 for each water project, \$100.00 for each sewer project and \$175.00 for each combined water and sewer projects.

SECTION 4: CONSTRUCTION GUIDELINES & SPECIFICATIONS

TECHNICAL SPECIFICATIONS

I. WATER LINES

1.1 GENERAL:

The intent of this specification is to delineate materials and methods of construction for potable water lines and subsidiary systems as shown on the plans, complete in place and ready for operation by the OWNER. The work consists of all clearing, trench excavation, backfill land cleanup; furnishing and installing all pipe, casings, valves, fittings, concrete thrust blocks, and appurtenant items, testing and disinfection of system; and replacing fences, driveways, road surfaces, and all other improvements disturbed during the construction. All pipe shall be of the type and size shown on the drawings and all materials and work shall conform to the provisions of these specification unless specifically exempted in other portions of the CONTRACT DOCUMENTS.

1.2 MATERIALS:

1.2.1 Ductile Iron Pipe: All pipe shall conform to ANSI Specification A21.51; AWWA Specification C151, and cement lining in accordance with ANSI Specification A21.4 and AWWA Specification C104. Pipe shall be pressure rated at 350psi with surge allowance of 100psi, with pipe thickness to conform with depth of cover and laying conditions.

1.2.2 PVC Pressure Pipe: Materials used to produce the pipe, couplings, and fittings shall be manufactured in accordance with ASATM D-2241, ASTM D-3139, Commercial Standard CS 256, and approved by the National Sanitation Foundation (NSF). The pipe shall be made from clean, virgin, **class 12454-B** PVC compound conforming to ASTM Resin Specification D-1784 Type 1, Grade 1. Standard joint length shall be twenty (20) feet. The pipe shall have a minimum Standard Dimension ratio (SDR) of 21 for class 200psi. The pipe shall be marked continuously along the length with: Manufacturer's name, nominal size, class pressure rating, PVC 1120, NSF, and identification code. Pipe certification sheet shall be submitted by the manufacturer to show compliance with these specifications as requested by the Engineer.

1.2.3 Fittings: Fittings for all pipe 4" or larger shall be standard mechanical joint ductile iron unless otherwise indicated on the plans or noted by details. Ductile Iron Fittings shall conform to ANSI Specifications A21.10 and A21.11 and AWWA Specification C110. Fittings shall be manufactured in accordance with ANSI Specification A21.4 and AWW Specification C104, and shall be furnished with a complete set of joint materials for each socket opening.

1.2.4 Joints: Mechanical joints shall conform to and be tested in accordance with ANSI Specifications A21.11 and AWWA Specification C111. Restrained joints, when necessitated by the conditions of construction as determined by the Engineer, shall be used with or without thrust blocking for pipe joints adjacent to fittings, bend and terminal points as well as fitting joints or where utilized in ANSI Specification A21.10 and with A21.11. Joint restraints at

Fire Hydrants shall conform to ASTM A307. Specified restraints shall be MIDCO's PERMA-GRIP Mechanical restrained fittings for Class 200, SDR-21 PVC pipe or Model 1300 Uniflange Pipe restraints by Standard International and MEGALUG joint restraint by EBAA Iron Sales. Flanged joints shall be used if indicated and shall conform to ANSI Specification A21.15 and AWWA Specification C115 for 125 pounds flange with appropriate bolts per standard ASA specifications for each flange size.

1.2.5 PVC Pipe Couplings: Couplings including bell ends, shall be Ring-Tite, Bell Ring, or Push Joint connected, with fittings furnished by the pipe manufacturer and certified to be suitable for use with the pipe furnished. They shall have a minimum pressure rating of 200psi, and be constructed with deep sockets.

1.2.6 Gate Valves: Specified gate valves shall be manufactured by AVK. All Gate Valves shall conform to, and be tested in accordance with, the AWWA Standard for Resilient Seated Gate Valves, for water and sewage systems, ANSI/AWWA Specification C509. Valves shall be bubble tight from either direction at a rated design working pressure of 200psi. Valves shall have a single disc with synthetic rubber seat bonded or mechanically attached to the disc; a non-rising stem with 2" AWWA. Operating nut; opening counter clockwise with "O" ring stem seals. Valve interiors shall have a corrosion resistant coating acceptable for potable water and end connection to fit the pipe or connection to which it is attached to the operating nut as part of the valve component. Each valve shall have the maker's name or initials, pressure rating and year of manufacture cast on the body and shall be furnished complete with set of joint materials for each socket.

1.2.7 Tapping Sleeves & Valves: Tapping sleeves and valves shall be furnished and installed in sizes indicated on connections to existing lines. Tapping sleeves manufactured by SMITH BLAIR or FORD are acceptable. The valves shall be Flange by Mechanical Joint Resilient Seat conforming with applicable provisions of AWWA C509.

1.2.8 Valve Boxes: Valve boxes shall be of the cast iron extension type with screw or slide adjustment and flared base. The minimum thickness of the metal shall be 3/16 inch. The word WATER shall be cast in the cover. The boxes shall be of such length as will be adapted to the depth of cover over the pipe at the valve locations, with bottom section, extension pieces, and top section as needed. **All installed valve boxes shall have a minimum 24"x24"x6" thick concrete pad set in place around the valve box for location and protection of the box.**

1.2.9 Valve & Line Markers: Identification markers shall be of metal fabrication with baked enamel finish noting the OWNER, and type of facility identified. Marker must be at least 80 square inches in area and shall have attachments to be firmly secured to a galvanized rod or post five (5) feet in length for erection at the location needed.

1.2.10 Steel Pipe Casing: All steel pipe casing shall be new or used smooth walled, welding steel pipe. The pipe shall be straight, round, and sound with no dents or splits and shall have a standard wall thickness as noted:

18" Pipe.....	0.375" Minimum Thickness
12" Pipe.....	0.330" Minimum Thickness
10" Pipe.....	0.307" Minimum Thickness
8" Pipe.....	0.277" Minimum Thickness

Pipe shall be delivered in lengths that will best fit the crossings as noted in the plans with a minimum number of joints to be welded. Pipe shall be subject to adequate inspection before, during and after unloading of pipe at the job site and owner reserves the right to reject any and all pipe not in satisfactory conformance with this specification.

Spacers used between casing and pipe shall be as shown on the plans or as manufactured by RACI Spacers, Inc., Tulsa; M-2 THINsulator by T.D. Williamson, Inc., Tulsa; or APS Casing Spacers by Advance Prod. & Systems, Inc., Lafayette, LA.

1.2.11 Fire & Flushing Hydrants: Fire Hydrants shall be AVK and shall conform to, and be tested in accordance with the AWWA Standard for Dry-Barrel Fire Hydrants, AWWA C502. Fire Hydrants shall have a 5 1/4 inch compression main valve; 6-inch inlet connection; mechanical joint hub; bury length as specified on the plans; two 2 1/2 inch hose nozzles with TAHLEQUAH (e.g. Mueller 301 threads are Tahlequah threads) THREADS; one 4 1/2 inch pumper nozzle with National Standard threads (CHECK WITH FIRE DEPARTMENT); and Safety Red finish paint above ground line. Flushing Hydrant shall have a 2 1/4 inch main valve opening with one 2 1/2 inch hose nozzle with TAHLEQUAH THREADS and Safety Red finish paint above ground line. All other specifications shall meet the model requirements and sizes including a 10 year guarantee.

1.2.12 Air Release Valve: Air Release Valves shall be installed at the locations shown on the plans, or as directed by the Engineer. Valve shall be heavy-duty air release type for 150psi working pressure, test to 300psi, size shown on plans. Body, cover and baffle shall be cast iron. All internal parts to be stainless steel and/or bronze, and the inside valve coated with rust inhibitor as manufactured by Valve-Matic, or an approved equal. Tapping saddle shall be CLOW, twin seal brass saddle and corporation stop with IP threads on outlet piping connection. Valve and piping connection shall be offset from the main line and properly supported to avoid stresses on piping connections. The valve discharge will have open end piping extended with a screened downward facing elbow. Valve to be placed in a 24" meter box and lid with keyed locking mechanism and lettering as approved by the Engineer. Use tapping sleeve Spec.

1.2.13 Tracer Wire: 12 gauge TRACER WIRE for the location of PVC water line shall be required in all trenched areas of construction. The wire shall be attached to the water line and shall be brought to the surface and attached at all valve and meter boxes and any other appurtenance where the wire can be accessed.

1.2.14 Cast-in-Place Concrete: Concrete used for capping channel crossings, road crossings, and thrust blocking shall use as and included by reference herein ACI 301 Concrete Standard Specifications for Concrete for Building in its entirety. All concrete shall be mixed and proportioned as a six sack per yard mix to give good workability with a maximum slump of 4 inches. Concrete shall show a compressive strength of 3500psi at 28 days when tested. All crossing pours shall be vibrated to reduce voids, honeycombing, or defects. Concrete shall not be placed when the outside air temperature is 40 degrees Fahrenheit or under and falling, except with the approval of the Engineer. All concrete will be placed against undisturbed earth or compacted bedding with all exposed concrete leveled and broomed to achieve a smooth brushed finish and all blocking placed so that pipe and fittings will be accessible for repair or Polyethylene wrapped. Concrete thrust blocking for all pipe fittings shall be in accordance with the table on the following page:

1.2.15 Submittals: The CONTRACTOR shall submit to the Engineer, three (3) copies of the material submittals for all material he proposes to use. Construction shall not begin until the submittals have been approved by the Engineer. Submittals for pipe shall consist of notarized certifications from the manufacturer that the pipe was manufactured and tested in accordance with the applicable specifications. The certifications shall indicate the pipe diameter, the pressure rating, resin classification, and the batch number from which the pipe was manufactured. Submittals for material other than pipe shall consist of manufacturer's product literature or shop drawings, indicating dimensions and material specifications. Submittals shall include reference to compliance with ANSI, AWWA, ASTM, NSF, and other applicable standards.

1.3 INSTALLATION:

1.3.1 Protection of Service & Lateral Lines: The location of utility service lines and sewer system lateral lines serving individual properties or other utilities may or may not be shown on the plans. The CONTRACTOR shall assume that such service lines exist whether or not they are shown on the plans, and it shall be the responsibility of the Contractor to make any necessary changes in the line and/or grade of such services, or to secure the necessary changes therein to be made by the