

SCOTTS VALLEY WATER DISTRICT

SCOTTS VALLEY, CALIFORNIA

STANDARD MATERIAL SPECIFICATIONS

FOR

INSTALLATION OF WATER MAINS

AND

APPURTENANCES

REVISED – August 1994

RESOLUTION NO. 20 – 84

MATERIAL SPECIFICATIONS

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SCOTTS VALLEY WATER DISTRICT

STANDARD MATERIAL SPECIFICATIONS

1.0 Cast Iron Pipe. The pipe shall conform to the latest revision of AWWA Specification C106, Laying Condition B, psi Working Pressure as specified and 18/40 or 21/45 iron strength. Cast iron pipe may also be ductile cast iron and shall conform to the latest revision of AWWA Specification C151, Laying Condition B, psi Working Pressure as specified with the thickness, diameters, and weights in accordance with AWWA Specification C150. Minimum pipe length for all cast iron shall be eighteen feet (18').

The pipe shall be tar-coated with bituminous seal coat and cement mortar lining, conforming to AWWA Standard Specification C104, latest revision.

Restrained joints and rubber gasket joints shall conform to AWWA Standard Specifications C106 and C111. The rubber gasket joint shall be that know as "Tyton", or approved equal. Restrained joints shall be TR Flex or approved equal.

2.0 DELETED

3.0 DELETED

4.0 Welded Steel Pipe. Welded steel pipe and fitting shall conform to AWWA Specification C201, latest revision, for Fabricated, Electrically Welded Steel Water Pipe.

The particular diameter, thickness, lengths, type of end preparation, type of protective coating, and type of protective lining for each quantity of pipe shall be set forth in the project specifications and drawings.

4.1 End Preparation. End of section of pipe shall be prepared for the type joints, ends of pipe shall be plain. Welded beads on the outside of the pipe shall be trimmed down so that the weld metal does not project above the surface of the adjacent metal for a distance back from the ends of the pipe of six inches (6"), or as otherwise specified in the project specifications.

4.1.1 For Flexible Couplings. For flexible coupled field joints, ends of pipe shall be plain. Welded beads on the outside of the pipe shall be trimmed down so that the weld metal does not project above the surface of the adjacent metal for a distance back from the ends of the pipe of six inches (6"), or as otherwise specified in the project specifications.

4.1.2 For Lap-Welded Joints. For lap-welded field joints, at least one end of each section shall be belled to provide a tight-fitting socket which will allow a lap of approximately one inch (1") with the adjacent plain end of the next section of pipe.

4.1.3 For Rubber-Gasketed Bell and Spigot Joints. For rubber-gasketed bell and spigot joints, the spigot ends shall have a groove to accommodate a round rubber gasket of the proper diameter

and cross-section. The bell end shall be so shaped, that upon the insertion of a spigot into the ball, the gasket becomes deformed and completely fills the groove and, as the joint is closed, the gasket becomes completely enclosed by steel. The gasket shall be furnished with the pipe and shall provide the sole means of making the joint water tight.

4.1.4 For Flanged Joints. For flanged joints, a steel slip-on weld flange of the specified size shall be welded to the end of the bare pipe before any coatings are applied.

4.2 Protective Coatings. All welded steel pipe and fittings shall have the inside and outside surfaces protected by coatings. Coatings may be designated as “Cement Mortar Lined and Wrapped”, “Cement Mortar Lined and Concrete Coated”, “Cement Mortar Lined and Somatic Coated”, or by other designations as set forth in the project specifications and drawings.

4.2.1 Cement Mortar-Lined and Wrapped Pipe. Pipe and fittings shall be prepared as follows: After the pipe has been subjected to the hydrostatic tests, and after the pipe ends have received their final preparation, the pipe shall be thoroughly cleaned of all dirt, grease, oil, loose scale, or other foreign matter in preparation for inside and outside coatings.

4.2.1.1 Exterior Coating. Exterior protection shall consist of a coat of coal tar primer, a coat of coal tar enamel, a fibrous glass mat wrap, a coat of coal tar enamel, a bonded asbestos-felt wrap, and a wrap of kraft paper. Materials and application shall conform to Section A1.2 of the Appendix, AWWA Specification, C203, latest revision, for Coal Tar Enamel Protective Coatings for Steel Water Pipe.

4.2.1.2 Interior Lining. Interior protection shall consist of a cement mortar lining with materials, application, and thickness, in accordance with AWWA Specifications C205, latest revision, for Cement Mortar Protective Lining and Coating of Steel Water Pipe.

4.2.2 Cement Mortar-Lined and Concrete Coated Pipe. Pipe and fittings so specified shall be prepared as follows: After the pipe has been subjected to the hydrostatic test, and after the pipe ends have received their final protection, the pipe shall be thoroughly cleaned of all dirt, grease, oil, loose scale, or other foreign matter in preparation for inside and outside coatings.

4.2.2.1 Exterior Coating. Exterior protection shall consist of a spiral wire reinforced concrete coating with materials, application, and thickness in accordance with AWWA Specification C205, latest revision, for Cement Mortar Protective Lining and Coating of Steel Water Pipe.

4.2.2.2 Interior Lining. Interior protection shall consist of a cement mortar lining with materials, application, and thickness, in accordance with AWWA Specifications C205, latest revision, for Cement Mortar Protective Lining and Coating of Steel Water Pipe.

4.2.3 Cement Mortar-Lined and Somatic Coated Pipe. Pipe and fittings so specified shall be prepared as follows: After the pipe has been subjected to the hydrostatic test, and after the pipe ends have received their final protection, the pipe shall be thoroughly cleaned of all dirt, grease, oil, loose scale, or other foreign matter in preparation for inside and outside coatings.

4.2.3.1 Exterior Coating. Exterior coating shall be an asphaltic mastic which conforms to construction Specifications C-3, Grade I, of the Asphalt Institute and shall be Somastic Pipe Coating. Minimum coating thickness shall be 3/8-inch.

4.2.3.2 Interior Lining. Inside cement mortar coatings shall be applied as specified in Section 4.2.1.2.

4.3 Steel Fittings. Fittings shall be fabricated from steel plate or sheets, and shall be of equal strength to the adjoining pipe. Unless otherwise indicated in the project specifications or drawings, dimensions for fitting shall conform to AWWA Specification C208, latest revision, Table 2 and Table 3. In all cases, manufacturer's drawings shall be submitted for approval before fabrication.

5.0 Cast Iron Fittings. Cast iron fittings shall be used on all cast iron, poly vinyl chloride, and asbestos-cement pipelines and shall conform to AWWA Specification C110, latest revision, in material, body thickness, and radii or curvature. The fittings shall be tar-coated with a bituminous seal-coated cement mortar lining. IN accordance with AWWA Specification C104, latest revision.

Mechanical joint and flanged fittings shall conform with all application requirements of AWWA Specification C110, latest revision.

Rubber gasket joint fittings shall conform to all applicable requirements of AWWA Specification C110, latest revision, except for the laying length. Tees and bends may be forty percent (40%) shorter. Joints shall conform to Section 11-2.3 of AWWA Specification C110, can shall be designated to receive the particular type of pipe inserted.

6.0 Valves and Tapping Sleeves. Valves through 8" shall be resilient wedge gate valves and shall conform to AWWA Specification C500, latest revision. All gate valves shall OPEN LEFT and shall have four (4) sided square operating nuts, except two-inch (2") screw and valves which may be equipped with operating hand-wheels. Gate valves shall be Mueller, Iowa, M and H, Stockham, or equal.

Ten-inch and larger shall be butterfly valves and shall conform to AWWA Specification C504, latest revision. All butterfly vlaves shall OPEN LEFT and have four (4) sided square operation nuts. Butterfly valves shall be Dresser "450", Henry Pratt "Ground Hog", or equal.

All tapping sleeves shall be cast iron and shall accept a standard AWWA tapping valve. The sleeve shall have Flanged joint ends. The sleeves shall be Mueller, Rich, Kennedy, or equal.

7.0 Service Pipe. All 3/4", 1", 1-1/2", and 2" service pipe shall be copper-type "K" pipe and shall be copper tube size, in accordance with AWWA C800-66.

Service pipe shall be connected to fittings by use of brass flare for 3/4" and 1" and compressed type fittings for 1-1/2" and 2".

8.0 Brass Service Fittings. Corporation cock, angle meter stops, couplings and connection shall be Ford, or equal.

9.0 Service Clamps. Service clamps shall be supplies as shown on the Standard Drawings, and as manufactured by James Jones, Smith Blair, or equal.

10.0 Meter Boxes. Meter boxes shall be as manufactured by Christy Concrete Products, Inc., or equal, and shall be furnished according to the following schedule:

<u>SIZE</u>	<u>CHRISTY</u>
1", 5/8", 3/4"	B16 Box w/B16G lid
1-1/2", 2"	B30 Box w/B30E lid
1-1/2", 2" – traffic	B30 Box w/B30 GIG lid
3", 4"	B36 Box w/E70 lid/GIG70 traffic lid

11.0 Fire Hydrants. Fire hydrants shall be furnished with burys and inlets that are rubber ring type. All hydrants shall be painted two (2) coats of Gloss Greenberg Yellow (Mobile Socony/Valdura Paint Products #19Y12), and shall be supplied with hose cap chains. All hydrants shall be National Standard hose threads on outlets and shall conform to AWWA C503.

Hydrants shall be "6-inch Steamer Hydrant" and shall be Long Beach No. 430 wet barrel, or equal, with two (2) 2-1/2" hose outlets and one (1) 4-1/2" pumper outlet.

12.0 Valve Boxes. Valve boxes shall be a G-5 box as manufactured by Christy Concrete Products, or equal. Each valve box shall have a cast iron cover marked "WATER". Corp. Stop Valve Boxes (1-1/2" and 2" services) shall be Christy F-8 with ADS adaptor and extension-cover shall be cast iron marked "WATER".

13.0 Flexible Couplings. Flexible couplings shall be Ford or equal. Cast iron couplings shall be used with cast iron, asbestos-cement, P.V.C., and galvanized pipe. Steel couplings shall be used with steel pipe.

14.0 Galvanized Pipe and Fittings. Pipe shall be standard galvanized Schedule 40 steel pipe, in accordance with ASA Specification B36.10. Fittings for use with galvanized pipe shall be standard galvanized malleable iron fittings. All galvanized pipe and fittings shall be primed and wrapped with Protecto Tape, or equal, with half laps.

15.0 Portland Cement. Portland cement shall conform to the requirements of the latest revision of ASTM Specification C150, Type I or Type II cement.

16.0 Concrete. All concrete shall be Portland cement concrete and shall be composed of Portland cement, fine and coarse aggregates and water, proportioned and mixed as required to produce a smooth, workable mixture. It shall have a minimum ultimate compressive strength of 3,000 pounds per square inch at twenty-eight (28) days, as determined by testing 6" x 12" cylinder samples of concrete, in accordance with the requirements of the latest revision of ASTM Specification C39-61, Standard Method of testing for Compressive Strength of Molded Concrete

Cylinders. The maximum size of aggregate shall be that which passes a one-inch (1") mesh screen. It is anticipated that not less than five (5) sacks of cement per cubic yard must be used in order to obtain the above strength.

17.0 Reinforcement Bars. Reinforcement bars shall conform to the requirements of the latest revision of ASTM Specification A15, Standard Specifications for Concrete Reinforcement, Intermediate Grade. All bars shall be deformed. Deformations shall conform to the requirements of the latest revision of ASTM Specification A305, Specifications for Minimum Requirement for the Deformations of Deformed Steel Bars for Concrete Reinforcement.

18.0 Imported Structural Backfill Material. Imported backfill material shall be clean sand, free from organic matter. It shall have a sand equivalent of not less than 30, as measured by California Test Method No. 217.

Representative samples of all backfill material shall be submitted in advance of construction operations for testing and approval by the Engineer, and no material shall be used in the work until it has been so approved.

19.0 Skids. Skids for placement of pipes through casings shall be constructed of a material, size and design specifically manufactured for that purpose. Skids shall be non-corrosive, non-conductive and non-biodegradable. A sample of the proposed skid along with descriptive data shall be submitted to the Engineer for approval prior to construction.

20.0 Detector Check Valves. Detector check valves shall be Mueller or equal, U.L. listed for installation in fire mains. All valves shall be painted and shall have flanged fittings and be equipped with 1" bypass ports for a meter. Dissimilar metals shall be isolated from the main body ports by means of a non-conductive bushing.