

DESIGN GUIDELINES FOR WATER FACILITIES

This section is to provide guidelines for the design and/or construction of additions or improvements to the Martinez Water System. Specifications for materials, testing and construction are found in the Standard Drawings and Standard Specifications and Special Provisions.

- I. Water pipe shall be polyvinyl chloride or ductile iron pressure pipe unless otherwise required or approved and shall conform to AWWA standards.
 - A. Pipe Size:
 1. Minimum size to be 6-inch.
 - a. Ductile iron mains require cathodic protection.
 - b. Maximum allowable PVC size to be 12-inch.
 2. Pipe to be sized to meet ultimate City water system needs, including minimum fire flow demand and domestic usage.
 - a. Fire District to specify fire flow required.
 - b. Submit design calculations for flow, with first submittal of plans for review.
 - B. Installation:
 1. Location of main
 - a. Public right-of-way in paved area, 9 feet from and parallel to face of curb unless otherwise approved by the City.
 - b. Ten feet minimum horizontal separation from parallel utilities, five feet with City approval.
 - c. Easement
 - 1) Centered in easement
 - 2) Dedicate exclusive water line easement
 - i) Easement to be 10 feet minimum width through dedicated open space.

- ii) Easement to be 20 feet minimum width if located between buildings and/or structures and/or edge of slopes. Easements may be 10 feet wide if there is and adjacent paralleling 10 foot wide easement for other utilities and the City is granted access rights across the adjacent easement.
 - d. Mains shall not be located longitudinally within slope areas.
 - e. Other underground utilities:
 - 1) Maintain 10 foot minimum horizontal clearance with parallel underground utilities. (refer to location of main, above.)
 - 2) Maintain 12 inch minimum vertical clearance when crossing underground utilities (6 inch if specifically approve by the City).
 - f. The maximum trench depth for a water main shall be 5 feet unless otherwise approved by the City.
 - 2. Blow-off assembly shall be installed at end of dead-end lines and sags in main lines.
 - 3. Air and vacuum relief assembly shall be installed at high points in main lines.
 - 4. Pipe on curved alignment:
 - a. Maximum deflection per joint at pipe shall be half of the maximum deflection recommended by the pipe manufacturer.
 - b. Minimum radius for laying pipe shall be twice the minimum radius recommended by the pipe manufacturer.
- II. Blocks and anchors (refer to City Standard Details)
- A. All valves shall be blocked.
 - B. Concrete blocking shall be installed at all fittings having deviations in pipe alignment of 1 1/2 degrees or greater.
- III. Valves shall be of a size no smaller than the line they are to control.
- A. Valve location:
 - 1. At all fire hydrant and 4 inch or greater laterals, locate valve at fitting and attach with flange.

2. At all intersecting lines;
 - a. Minimum 3 per tee in line.
 - b. Minimum 4 per cross in line.
 - c. Maximum 400 feet apart on main lines.
3. At each end of water line easement.
4. At additional locations for special conditions as required by the City.

B. Valve Installation:

1. Shall be attached to fittings with flanges.
2. May be attached to main pipe line with approved rubber gasket joints.
3. Install marker post at edge of easement area for valves and angle points.

IV. Water service shall be of a size no smaller than the water meter. Water service lines shall be 1 inch minimum size and shall be one of the following sizes: 1", 2", 4", 6", 8", or 10". 1" and 2" lines shall be copper.

A. Location of water service shall be indicated on the plans and marked with "W" in the curb.

B. Installation:

1. Service lines are to be run perpendicular to main. Smaller lines are normally tapped. Only tapping saddles as approved by the City shall be used for service connections.
2. Service line shall not be installed in a trench common with other utilities' services.
3. Dielectric Bushing shall be used with any tap onto a metallic main.

C. Meter (Refer to City Standard Drawings)

1. Size to be determined by design engineer or architect (see Uniform Plumbing Code). Size must also be approved by the City.
2. Standard single family residential meter to be 5/8".

3. Unless otherwise specified, meters to be installed by City forces.

D. Backflow Prevention Device

1. A backflow prevention device shall be installed on all service lines except for residential service and fire service lines.
2. A list of currently approved backflow prevention devices may be obtained from the Water Superintendent's Office.

V. Fire Hydrant locations and numbers shall be as specified by the Fire District and at other locations directed by the City. All hydrant locations are subject to approval by the City.

- A. Location of fire hydrants shall be at curb returns of intersection and at mid-block at side property lines.
- B. Submit copy of letter from Fire District regarding fire protection with first submittal of plans for checking.

VI. Plans

A. Plans shall be on 24" x 36" size mylar sheets.

1. Scale of plans
 - a. Multiple of tens
 - b. Scale shall be noted and also shown as bar scale.
2. Plan check
 - a. Checking fee per current fee schedule.
 - b. Submit three sets of plans for review.
3. Final Review and Signature
 - a. Submit originals and one set of prints for final check and signature.
 - b. Originals to become property of City upon signatory execution by City.
 - 1) Design engineer desiring copies of signed plans shall arrange for outside blueprint business to make copies.