SECTION 7 – SEPARATION OF WATER MAINS AND SANITARY SEWERS

To prevent the contamination of the public water supplies from nearby sanitary sewers, the following Department of Health Services (DOHS) criteria shall be required.

7-01 BASIC SEPARATION STANDARDS

The "California Waterworks Standards" sets forth the minimum separation requirements for water mains and sewer lines. These Standards, contained in Section 64630, Title 22, California Administrative Code, specify:

- A. Parallel Construction: The horizontal distances between pressure water mains and sewer lines shall be at least 10 feet.
- B. Perpendicular Construction (Crossing): Pressure water mains shall be at least one foot above sanitary sewer lines where these lines must cross.
- C. Separation distances specified in A and B shall be measured from the nearest edges of the facilities (i.e., dimensions are from outside of water main to outside of sewer line or manhole).
- D. Common trench: Water mains and sewer lines must not be installed in the same trench.

When water mains and sanitary sewers are not adequately separated, the potential for contamination of the water supply increases. Therefore, when adequate physical separation cannot be attained an increase in the factor of safety should be provided by increasing the structural integrity of both the pipe materials and joints as required herein.

7-02 EXCEPTIONS TO BASIC SEPARATION STANDARDS

Local conditions, such as available space, limited slope, existing structures, etc., may create a situation where there is **no alternative** but to install water mains or sewer lines at a distance less than that required by the Basic Separation Standards. In such cases, Alternative Construction Criteria as specified in Section 7-04 should be followed, subject to the Special Restrictions in Section 7-03.

Water mains and sewers of 24 inches diameter or greater may create special circumstances because of the large volumes of flow. Therefore, installations of water mains and sewer lines 24 inches diameter or larger should be reviewed and approved by the health agency prior to construction.

7-03 SPECIAL RESTRICTIONS

1. The Basic Separation Standards are applicable under normal conditions for sewage collection lines and water distribution mains. More stringent requirements may be necessary in conditions, such as, high groundwater exists.

- 2. Sewer lines shall not be installed within 25 feet horizontally of a low head (5 psi or less pressure) water main.
- 3. New water mains and sewers shall be pressure tested where the conduits are located ten feet apart or less.
- 4. In the installation of water mains or sewer lines, measures should be taken to prevent or minimize disturbances of the existing line. Disturbance of the supporting base of this line could eventually result in failure of this existing pipeline.
- 5. Special consideration shall be given to the selection of pipe materials if corrosive conditions are likely to exist. These conditions may be due to soil type and/or the nature of the fluid conveyed in the conduit, such as a septic sewage that produces corrosive hydrogen sulfide.

Sewer Force Mains

- a) Sewer force mains shall not be installed within ten feet (horizontally) of a water main.
- b) When a sewer force main must cross a water line, the crossing should be as close as possible to the perpendicular. The sewer force main should be at least one foot below the water line.
- c) When a new sewer force main crosses under an existing water main, all portions of the sewer force main within ten feet (horizontally) of the water main shall be enclosed in a continuous sleeve.
- d) When a new water main crosses over an existing sewer force main, the water main shall be constructed of pipe materials with a minimum rated working pressure of 200 psi or equivalent pressure rating.

7-04 ALTERNATE CONSTRUCTION CRITERIA

The construction criteria for sewer lines or water mains where the Basic Separation Standards cannot be attained are shown in Figures 1 and 2 herein. There are two situations encountered:

Section 7-05 Case 1 – New sewer line – new or existing water main.

Section 7-06 Case 2 – New water main – existing sewer line.

For Case 1, the Alternate Construction Criteria apply to the sewer line.

For Case 2, the Alternate Construction Criteria may apply to either or both the water main and sewer line.

This construction criteria applies to house laterals that cross above a pressure water main but not to house laterals that cross below a pressure water main.

7-05 CASE 1: NEW SEWER BEING INSTALLED (Figures 1 and 2)

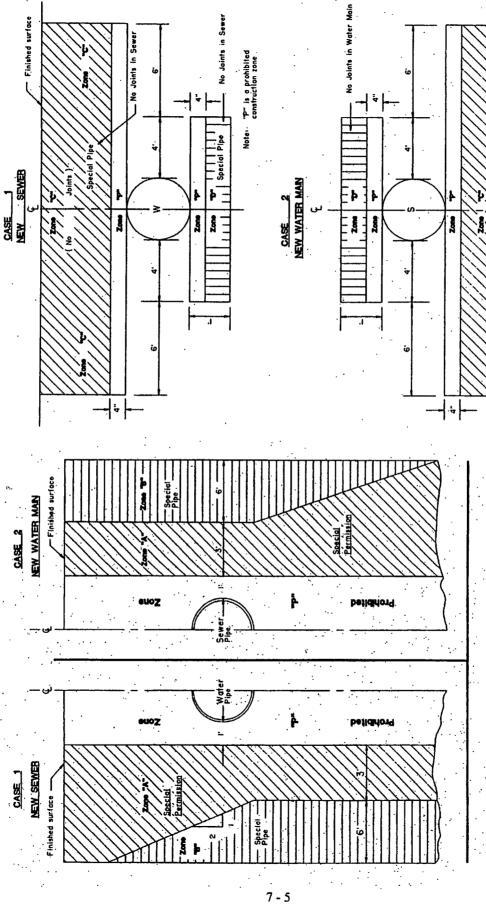
Zone Special Construction Required for Sewer

- A Sewer lines parallel to water mains shall not be permitted in this zone without approval from the responsible health agency and water supplier.
- B A sewer line placed parallel to a water line shall be constructed of:
 - 1. Extra strength vitrified clay pipe with compression joints.
 - 2. Class 4000, Type II, asbestos-cement pipe with rubber gasket joints.
 - 3. Plastic sewer pipe with rubber ring joints (per ASTM D3034) or equal.
 - 4. Cast or ductile iron pipe with compression joints.
 - 5. Reinforced concrete pressure pipe with compression joints (per AWWA C302).
- C A sewer line crossing a water main shall be constructed of:
 - 1. Ductile iron pipe with hot dip bituminous coating and mechanical joints.
 - 2. A continuous section of Class 200 (DR 14 per AWWA C900) plastic pipe or equal, centered over the pipe being crossed.
 - 3. A continuous section of reinforced concrete pressure pipe (per AWWA C302) centered over the pipe being crossed.
 - 4. Any sewer pipe within a continuous sleeve.
- D A sewer line crossing a water main shall be constructed of:
 - 1. A continuous section of ductile iron pipe with hot dip bituminous coating.
 - 2. A continuous section of Class 200 (DR 14 per AWWA C900) plastic pipe or equal, centered on the pipe being crossed.
 - 3. A continuous section of reinforced concrete pressure pipe (per AWWA C302) centered on the pipe being crossed.
 - 4. Any sewer pipe within a continuous sleeve.
 - 5. Any sewer pipe separated by a ten-foot by ten-foot, four-inch-thick reinforced concrete slab.

7-06 CASE 2: NEW WATER MAINS BEING INSTALLED (Figures 1 and 2)

Zone

- A No water mains parallel to sewers shall be constructed without approval from the health agency.
- B If the sewer paralleling the water main does not meet the Case 1, Zone B, requirements, the water main shall be constructed of:
 - 1. Ductile iron pipe with hot dip bituminous coating.
 - 2. Dipped and wrapped one-fourth-inch-thick welded steel pipe.
 - 3. Class 200, Type II, asbestos-cement pressure pipe.
 - 4. Class 200 pressure rated plastic water pipe (DR 14 per AWWA C900) or equal.
 - 5. Reinforced concrete pressure pipe, steel cylinder type, per AWWA (C300 or C301 or C303).
- C If the sewer crossing the water main does not meet the Case 1, Zone C, requirements, the water main shall have no joints in Zone C and be constructed of:
 - 1. Ductile iron pipe with hot dip bituminous coating.
 - 2. Dipped and wrapped one-fourth-inch-thick welded steel pipe.
 - 3. Class 200 pressure rated plastic water pipe (DR 14 AWWA C900) or equal.
 - 4. Reinforced concrete pressure pipe, steel cylinder type, per AWWA (C300 or C301 or C303).
- D If the sewer crossing the water main does not meet the requirements for Zone D, Case 1, the water main shall have no joints within four feet from either side of the sewer and shall be constructed of:
 - 1. Ductile iron pipe with hot dip bituminous coating.
 - 2. Dipped and wrapped one-fourth-inch-thick welded steel pipe.
 - 3. Class 200 pressure rated plastic water pipe (DR 14 AWWA C900) or equal.
 - 4. Reinforced concrete pressure pipe, steel cylinder type, per AWWA C300 or C301 or C303).



Administrative Code, Title 22

Zone "P" is a prohibited zone, Section 64630 (e) (2) California

Zones identical on either side of center lines.

No Joints in Water Main

Figure 2 - CROSSINGS

Figure 1 - PARALLEL CONSTRUCTION