

Section IX

GRAVITY SANITARY SEWER SYSTEM

DESIGN GUIDELINES

A. GENERAL

1. The following sanitary sewer system design guidelines are based on Federal, State and local health requirements and the Hilton Head No. 1 Public Service District engineering design criteria.
2. These design guidelines are applicable to all developments including but not limited to residential, commercial and industrial developments, subdivisions and/or parks requiring sanitary sewer service from the Hilton Head No.1 Public Service District.

B. GRAVITY SEWER SYSTEM DESIGN CRITERIA

1. Minimum main line size: 8".
2. Service lines:
 - a. Minimum size: 4".
 - b. 6" service line may be provided, but for no more than two residential units and only upon specific approval from the District.
3. Cleanouts:
 - a. Same size diameter as the line in which they are installed.
 - b. Maximum size: 6".
 - c. Minimum size: 4".

4. Minimum pipe slope:
 - a. Main lines:
 - 1) 8-inch: 0.34%
 - 2) 10-inch: 0.26%
 - 3) 12-inch: 0.20%
 - 4) 15-inch: 0.15%
 - 5) 18-inch: 0.12%
 - 6) 21-inch: 0.10%
 - 7) 24-inch: 0.11%
 - b. Service lines:
 - 1) 4-inch: 1.0%
 - 2) 6-inch: 0.5%

C. CAPACITY DESIGN

1. Minimum flow for residential or apartment unit: 300 gallons per day per unit.
2. All other flows: comply with the unit contributory loading criteria, Appendix A of the South Carolina Department of Health and Environmental Control Standards for Wastewater Facility Construction: R.61-67.

D. INFILTRATION

1. Maximum infiltration: 100 gallons per inch of pipe diameter per mile per day.

E. SEWER PIPES

1. Straight alignment.
2. Depth adequate to receive wastewater from the lowest service and prevent freezing.
3. Slopes greater than 20%.
 - a. Anchor using concrete anchors.
4. Where a smaller sewer joins a larger one, match the crowns of each.

5. Service laterals: Locate five (5) feet from property pin from opposite corner of water service lateral.

F. SEPARATION OF WATER MAINS AND SEWERS

1. Where possible, locate sewer pipe at least ten (10) feet away, horizontally, from water lines.
2. Should ten (10) feet separation not be practical, then the sewer pipe may be located closer provided:
 - a. It is laid in a separate trench.
 - b. It is laid in the same trench with the water main located at one side on a bench of undisturbed earth.
 - c. In either of the above cases, the sewer pipe must be a minimum of 18" below the water pipe measured outside to outside.
3. Where sewer pipes cross over or under water lines, maintain 18" minimum clearance between outside edges of the two pipes.

G. COVER

1. Provide suitable cover on all lines. Minimal cover depth as follows:
 - a. Less than 8" diameter: 36".
 - b. 10" and 12" diameter: 36".
 - c. 14" diameter and larger: 48".
 - d. All piping located within the right-of-way of the South Carolina Department of Transportation shall have a cover as indicated above or 36" below the elevation of the road, whichever is greater.
 - e. Special conditions other than those listed above may be approved if requested in writing from the Hilton Head No. 1 Public Service District.

H. DUCTILE IRON PIPE LOCATIONS

1. Use ductile iron pipe where sanitary sewer:
 - a. Crosses over a water line.
 - b. Crosses beneath storm drainage pipe with less than three (3) feet of clearance.
 - c. Crosses above a storm drainage or other pipe with less than two (2) feet of clearance.
 - d. Crosses creeks, rivers and other water bodies.
 - e. Installed in casing.
 - f. Cover is less than minimum prescribed in Part G above.

I. MANHOLES

1. Maximum manhole spacing: 400 feet.
2. Minimum angle between manholes: 90°.
3. Manhole top elevations:
 - a. One (1) foot above the fifty year flood elevation.
 - b. If located in pavement and lower than fifty-year flood elevation, use water tight ring and cover.
4. Use outside drop manholes where the difference in incoming and outgoing pipe elevation is two (2) feet or greater.