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## UTILITY LOCATION DESIGN

### 2.1 GENERAL

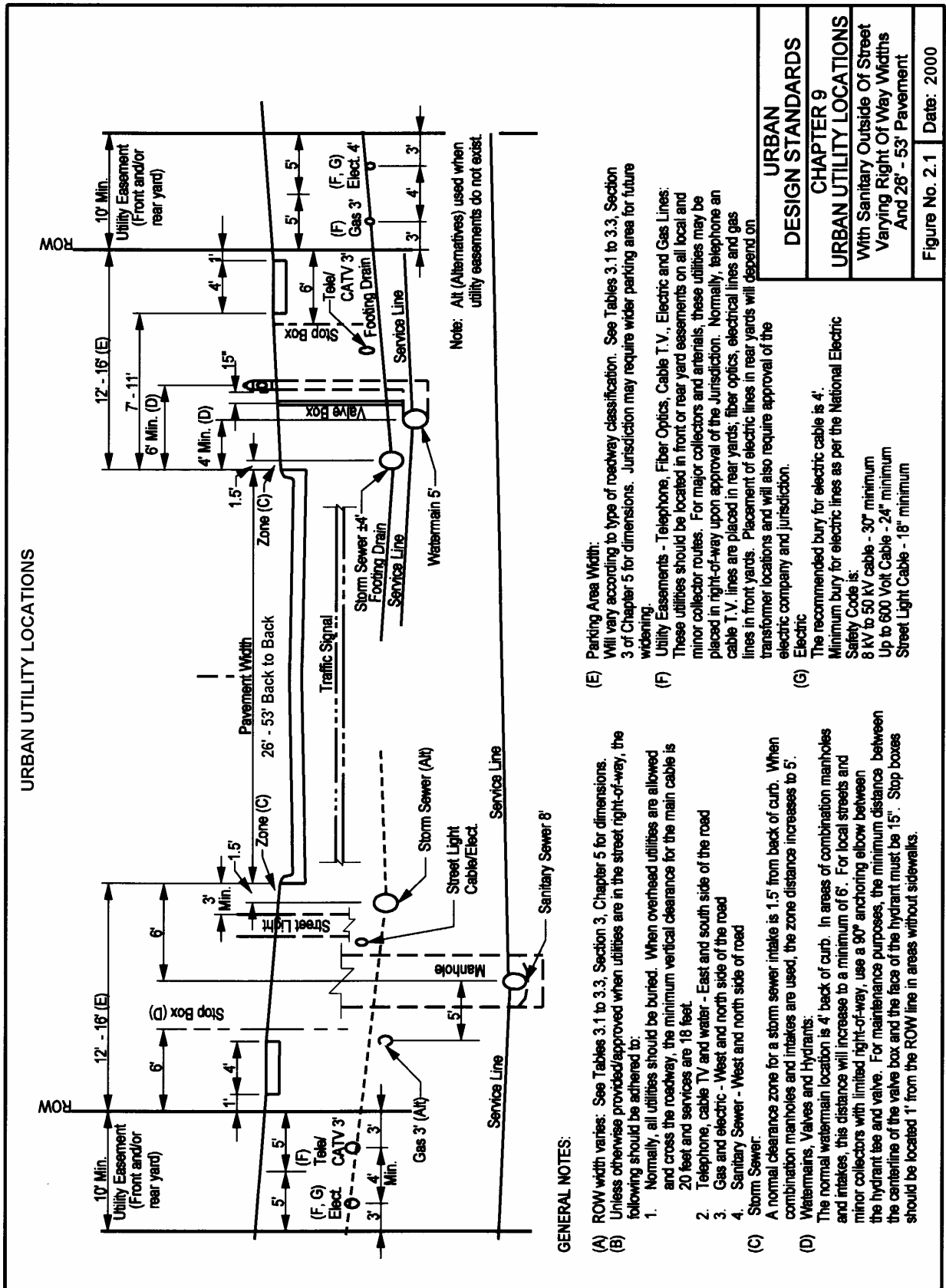
When street grades, alignments, or widths are changed, utilities are usually required to relocate. Often times standard locations are inapplicable and unobtainable in street areas where existing utilities are seriously crowded and where it would not be feasible to expect major or dramatic reorientation. The location criteria must be practical and applicable in new developments, in urban relocation work, and in cases where overhead facilities are being converted into underground structures and plans. Utilities are not expected to revise existing facilities as to location or depth solely or primarily for the purpose of creating uniformity. However, when new or relocation work is undertaken, uniformity should be sought in accordance with Figures 2.1 through 2.3.

### 2.2 DESIGN

1. Limited Right of Way Widths
  - A. Because of lack of space for utilities in most metropolitan areas, special consideration should be given in the initial highway design to the potential for joint usage of the right-of-way that would be consistent with the primary function of the highway or street.
  - B. When the sanitary sewer is located outside of the paved surface, the gas, electric, telephone, and/or cable TV may need to be located in special utility easements located in the front and/or rear yard. (See Figure 2.1)
  - C. Existing development and limited right-of-way widths may preclude location of the sanitary sewer outside the paved surface of the street or highway. Some cities may allow sanitary sewer within the roadway (See Figure 2.2). Location under the paved surface requires special consideration and treatment. Accommodation of these facilities under the paved surface should be accomplished in a manner that will ensure a minimum adverse effect on traffic as a result of future utility service and maintenance activities.
2. Utility poles, vent standpipes, and other above-ground utility appurtenances that would constitute hazards to errant vehicles should not be permitted within the highway clear zone. The only exceptions permitted would be where the appurtenance is breakaway or could be installed behind a traffic barrier erected to protect errant vehicles from some other hazard. The clear zone dimension to be maintained for a specific roadway use will be found in Chapter 5.
3. Attachments to bridge structures should be avoided where it is feasible and reasonable to locate utility lines elsewhere. Where there are no feasible alternate locations, such installations on bridge structures should be concealed from view. When attachments to bridges or structures are approved, refer to specific Jurisdiction standards for price of attachment, method of attachment and other requirements.

**2.2 DESIGN (Continued)**

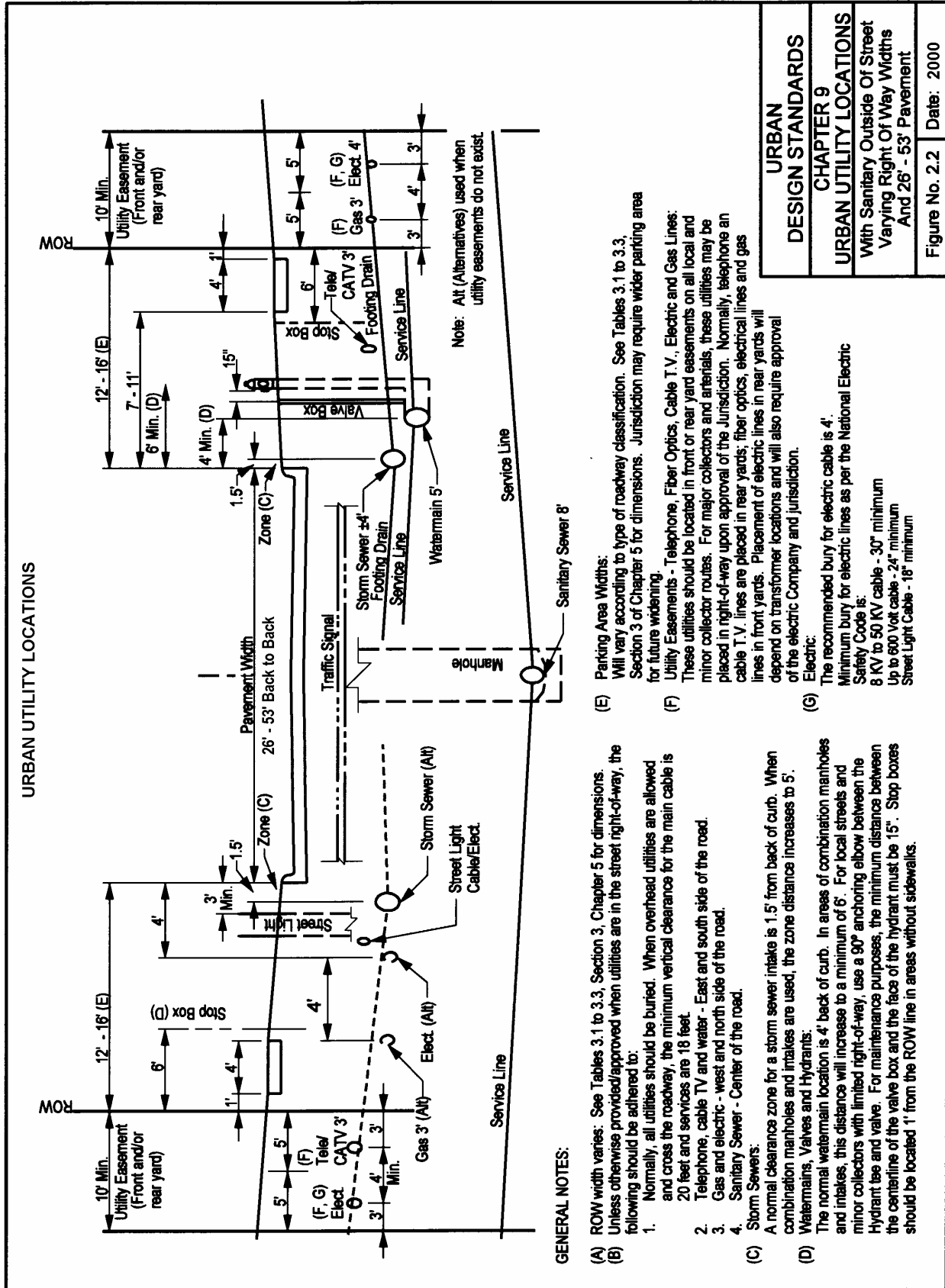
4. On new installations or adjustment to existing utility lines, provision should be made for known or planned expansion of the utility facilities, particularly those located underground or attached to bridges. It is important that the placement of the utility considers the future widening of the street or highway.
5. For roadway reconstruction projects, utilities already existing in non-standard locations may be replaced in the same location when permitted by the Jurisdictional Engineer.
6. All utilities located within the public right-of-way for new roadway construction should be in accordance with drawing based on width of right-of-way and pavement width. (See Figures 2.1 and 2.3)
7. The order of elevation priority for underground installation shall be as follows:
  - A. Sanitary Sewer
  - B. Storm Sewer
  - C. Watermain
  - D. Other Utilities



<b>URBAN DESIGN STANDARDS</b>
<b>CHAPTER 9</b>
<b>URBAN UTILITY LOCATIONS</b>
With Sanitary Outside Of Street Varying Right Of Way Widths And 26' - 53' Pavement
Figure No. 2.1 Date: 2000

**GENERAL NOTES:**

- (A) ROW width varies: See Tables 3.1 to 3.3, Section 3, Chapter 5 for dimensions.
- (B) Unless otherwise provided/approved when utilities are in the street right-of-way, the following should be adhered to:
  1. Normally, all utilities should be buried. When overhead utilities are allowed and cross the roadway, the minimum vertical clearance for the main cable is 20 feet and services are 18 feet.
  2. Telephone, cable TV and water - East and south side of the road
  3. Gas and electric - West and north side of the road
  4. Sanitary Sewer - West and north side of road
- (C) Storm Sewer.
  - A normal clearance zone for a storm sewer intake is 1.5' from back of curb. When combination manholes and intakes are used, the zone distance increases to 5'.
- (D) Watermains, Valves and Hydrants:
  - The normal watermain location is 4' back of curb. In areas of combination manholes and intakes, this distance will increase to a minimum of 6'. For local streets and minor collectors with limited right-of-way, use a 90° anchoring elbow between the hydrant tee and valve. For maintenance purposes, the minimum distance between the centerline of the valve box and the face of the hydrant must be 15'. Stop boxes should be located 1' from the ROW line in areas without sidewalks.
- (E) Parking Area Width:
  - Will vary according to type of roadway classification. See Tables 3.1 to 3.3, Section 3 of Chapter 5 for dimensions. Jurisdiction may require wider parking area for future widening.
- (F) Utility Easements - Telephone, Fiber Optics, Cable T.V., Electric and Gas Lines:
  - These utilities should be located in front or rear yard easements on all local and minor collector routes. For major collectors and arterials, these utilities may be placed in right-of-way upon approval of the Jurisdiction. Normally, telephone and cable T.V. lines are placed in rear yards; fiber optics, electrical lines and gas lines in front yards. Placement of electric lines in rear yards will depend on transformer locations and will also require approval of the electric company and jurisdiction.
- (G) Electric
  - The recommended bury for electric cable is 4'.
  - Minimum bury for electric lines as per the National Electric Safety Code is:
    - 8 KV to 50 KV cable - 30" minimum
    - Up to 600 Volt Cable - 24" minimum
    - Street Light Cable - 16" minimum



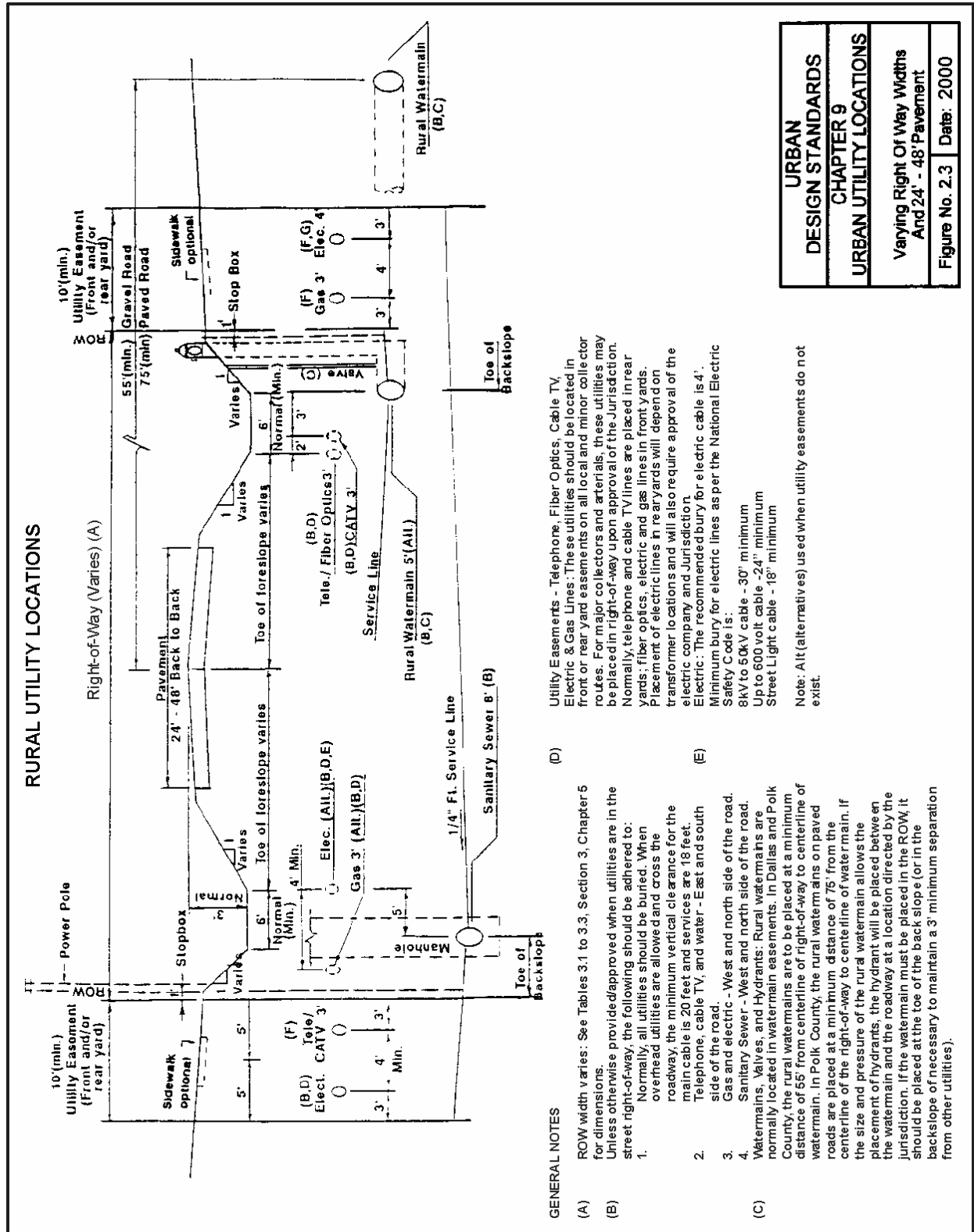
<b>URBAN DESIGN STANDARDS</b>	<b>CHAPTER 9</b>
<b>URBAN UTILITY LOCATIONS</b>	
With Sanitary Outside Of Street Varying Right Of Way Widths And 26' - 53' Pavement	
Figure No. 2.2	Date: 2000

**GENERAL NOTES:**

- (A) ROW width varies: See Tables 3.1 to 3.3, Section 3, Chapter 5 for dimensions.
- (B) Unless otherwise provided/approved when utilities are in the street right-of-way, the following should be adhered to:
  1. Normally, all utilities should be buried. When overhead utilities are allowed and cross the roadway, the minimum vertical clearance for the main cable is 20 feet and services are 18 feet.
  2. Telephone, cable TV and water - East and south side of the road.
  3. Gas and electric - west and north side of the road.
  4. Sanitary Sewer - Center of the road.
- (C) Storm Sewers:
  - A normal clearance zone for a storm sewer intake is 1.5' from back of curb. When combination manholes and intakes are used, the zone distance increases to 5'.
- (D) Watermains, Valves and Hydrants:
  - The normal watermain location is 4' back of curb. In areas of combination manholes and intakes, this distance will increase to a minimum of 6'. For local streets and minor collectors with limited right-of-way, use a 90° anchoring elbow between the Hydrant tee and valve. For maintenance purposes, the minimum distance between the centerline of the valve box and the face of the hydrant must be 15". Stop boxes should be located 1' from the ROW line in areas without sidewalks.

- (E) Parking Area Widths:
  - Will vary according to type of roadway classification. See Tables 3.1 to 3.3, Section 3 of Chapter 5 for dimensions. Jurisdiction may require wider parking area for future widening.
- (F) Utility Easements - Telephone, Fiber Optics, Cable T.V., Electric and Gas Lines:
  - These utilities should be located in front of rear yard easements on all local and minor collector routes. For major collectors and arterials, these utilities may be placed in right-of-way upon approval of the Jurisdiction. Normally, telephone and cable T.V. lines are placed in rear yards; fiber optics, electrical lines and gas lines in front yards. Placement of electric lines in rear yards will depend on transformer locations and will also require approval of the electric Company and jurisdiction.
- (G) Electric:
  - The recommended bury for electric cable is 4'.
  - Minimum bury for electric lines as per the National Electric Safety Code is:
    - 8 KV to 50 KV cable - 30" minimum
    - Up to 600 Volt cable - 24" minimum
    - Street Light Cable - 18" minimum

Note: Alt (Alternatives) used when utility easements do not exist.



**URBAN DESIGN STANDARDS**  
**CHAPTER 9**  
**URBAN UTILITY LOCATIONS**  
Varying Right Of Way Widths  
And 24' - 48' Pavement  
Figure No. 2.3 | Date: 2000

- GENERAL NOTES**
- (A) ROW width varies: See Tables 3.1 to 3.3, Section 3, Chapter 5 for dimensions.
  - (B) Unless otherwise provided/approved when utilities are in the street right-of-way, the following should be adhered to:
    1. Normally, all utilities should be buried. When overhead utilities are allowed and cross the roadway, the minimum vertical clearance for the main cable is 20 feet and services are 18 feet.
    2. Telephone, cable TV, and water - East and south side of the road.
    3. Gas and electric - West and north side of the road.
    4. Sanitary Sewer - West and north side of the road.
  - (C) Watermains, Valves, and Hydrants: Rural watermains are normally located in watermain easements. In Dallas and Polk County, the rural watermains are to be placed at a minimum distance of 55' from centerline of right-of-way to centerline of watermain. In Polk County, the rural watermains on paved roads are placed at a minimum distance of 75' from the centerline of the right-of-way to centerline of watermain. If the size and pressure of the rural watermain allows the placement of hydrants, the hydrant will be placed between the watermain and the roadway at a location directed by the jurisdiction. If the watermain must be placed in the ROW, it should be placed at the toe of the back slope (or in the back slope if necessary to maintain a 3' minimum separation from other utilities).
  - (D) Utility Easements - Telephone, Fiber Optics, Cable TV, Electric & Gas Lines: These utilities should be located in front or rear yard easements on all local and minor collector routes. For major collectors and arterials, these utilities may be placed in right-of-way upon approval of the Jurisdiction. Normally, telephone and cable TV lines are placed in rear yards; fiber optics, electric and gas lines in front yards. Placement of electric lines in rear yards will depend on transformer locations and will also require approval of the electric company and Jurisdiction.
  - (E) Electric: The recommended bury for electric cable is 4'. Minimum bury for electric lines as per the National Electric Safety Code is:
    - 8kV to 50kV cable - 30" minimum
    - Up to 600 volt cable - 24" minimum
    - Street Light cable - 18" minimum
- Note: All (alternatives) used when utility easements do not exist.