

**City of Houston**

**Design Manual**

**Chapter 6**

**UTILITY LOCATIONS**

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**UTILITY LOCATIONS**

6.01 CHAPTER INCLUDES

- A. Location of utilities in rights-of-way and easements.

6.02 REFERENCES

- A. Typical utility location in 10-foot-wide and 14-foot-wide easements in back-to-back lots and perimeter lots as detailed in the most current drawing prepared by the UCC.

6.03 DEFINITIONS

- A. Easements - Areas set aside for installation and maintenance of utilities by public and private utility companies.
- B. Water Lines - Closed conduits designed to distribute potable water for human consumption and to provide fire protection. Line size and fire protection accessory locations are dependent on distance from primary source and quantity demand.
- C. Wastewater Sewer Lines - Closed conduits designed to collect and transport wastewater from residential, commercial, and industrial sites to plants for treatment prior to discharge into open conduits. Wastewater lines may be designed as gravity (non-pressure) flow lines or force (pressure) mains. Gravity flow lines usually fall into three categories in ascending size from service line to lateral line to main line. Service lines (source of wastewater) may discharge into a lateral line or main line.
- D. Storm Sewer Lines - Closed gravity (non-pressure) conduits designed to collect and transport storm water from inlet locations to an open conduit outfall, ditch, creek, stream, bayou, river, holding pond, or bay. Inlets are surface mounted basins designed to collect and funnel storm water to the collection system. Storm sewers from the inlets to the collection system are usually defined as inlet leads.

6.04 DESIGN REQUIREMENTS

- A. Whenever practical, locate storm sewer, wastewater collection lines, water mains, and appurtenances within public rights-of-way in the manner described by this Chapter.
- B. Research and resolve known conflicts of proposed utilities with existing utilities.
- C. Locate back lot utilities in compliance with UCC recommendations.

- D. Identify water lines as to size, location, depth, and material on final design drawings. Also identify water line accessories, such as bends, valves, fittings, and fire hydrants as to type on the drawings.
- E. Identify wastewater sewer lines as to the size, location, depth, grade for gravity service, and material on final design drawings. Also identify wastewater sewer line accessories, such as manholes, cleanouts, and fittings, as to size and material on the drawings.
- F. Identify storm sewer lines as to size, location, depth, grade, and material on final design drawings. Also identify storm sewer line accessories, such as manholes, headwalls, and inlets as to size and material on the drawings.

#### 6.05 SUBMITTALS

- A. Easements and rights-of-way are clearly identified for location and width on recorded plats. Off-site easements and rights-of-way shall be described by metes-and-bounds descriptions with accompanying drawings to clearly identify location and width. Final design drawings shall identify easements and rights-of-way as shown on recorded plats or by recorded metes-and-bounds descriptions.
- B. Water lines shall be identified on final design drawings with specific graphics and dimensioned from edge of easements and rights-of-way. The primary source of potable water shall be identified.
- C. Wastewater sewer lines shall be identified on final design drawings with specific graphics and dimensioned from edge of easements and rights-of-way. The outfall or discharge location shall be identified.
- D. Storm sewer lines shall be identified on final design drawings with specific graphics and dimensioned from edge of easements and rights-of-way. The outfall or discharge location shall be identified.
- E. Where the criteria for location of the utility is the clear distance between the outside edge of the conduit to easement or right-of-way line, show this controlling dimension.

#### 6.06 QUALITY ASSURANCE

- A. Recorded metes-and-bounds descriptions and plats shall be prepared by or under the supervision of a Professional Surveyor. Recordable instruments shall be sealed, dated, and signed by the Professional Surveyor responsible for the preparation.
- B. Prepare calculations and final design drawings under the supervision of a Professional Engineer trained and licensed under the disciplines required by the scope of the project. The final construction drawings must be sealed, signed, and dated by the Professional Engineer responsible for the development of the drawings.

6.07 DESIGN ANALYSIS

- A. Back Lot Utilities: Identify type of electrical service and select the appropriate width of the easement. For mixed overhead and underground service select the 14-foot-wide easement to provide versatility.
- B. Water Lines.
  - 1. Water lines may be located within a public right-of-way, within a permanent access easement with overlapping public utility easements, within a dedicated easement adjacent to and contiguous with the right-of-way, or within separate dedicated water line easements, to meet the requirements of this manual. The location of the main shall be as specified in Chapter 7, Water Line Design Requirements.
  - 2. Water lines shall not be located in combination easements without approval of the City. Water line easements shall not be combined with wastewater sewer easements.
  - 3. Water main, with the exception of transmission lines, shall be located within the right-of-way between the property line and back of curb or in a dedicated easement adjacent to contiguous with the right-of-way.
- C. Wastewater Sewer Lines.
  - 1. Wastewater sewer lines shall be located in a public right-of-way, within a permanent access easement with overlapping public utility easements or within a dedicated easement adjacent to the public right-of-way. Side lot easements may be used when required. Backlot easements shall not be utilized except in cases of pre-existing conditions and with approval of the City.
  - 2. New developments will be required to comply with the requirement to locate wastewater sewer lines in compliance with Paragraph 6.07C.1.
  - 3. Wastewater sewer trunk or collector mains shall not be located in side lot easements without approval of the City.
  - 4. Wastewater sewer trunk or collector mains are usually located within the right-of-way between the property line and the back of curb or in a dedicated easement adjacent and contiguous with the right-of-way on the opposite side of the right-of-way from the water main.
- D. Storm Water Lines.
  - 1. Storm water lines shall be located within public rights-of-way, within a permanent access easements with overlapping public utility easements or approved easements.

Approval of the location for storm water lines should be obtained from the City prior to plan preparation.

2. Storm water lines are usually located within the right-of-way between the property line and back of curb on the opposite side of the right-of-way from the sanitary sewer. For boulevards streets with esplanades, the storm sewer may be located within the esplanade. Coordinate the proposed storm sewer alignment with water line location and future pavement widening.
3. New development projects by private participation will require the storm water trunk lines to be located outside the pavement section or in an approved easement. Any deviation of such requirements will require approval from the Office of the City Engineer.

#### 6.08 OPEN-CUT CONSTRUCTION IN STREET PAVEMENT

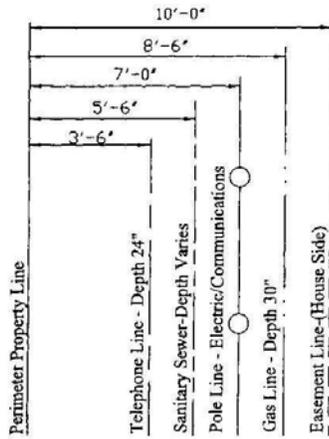
- A. Construction documents shall require that one lane of traffic be open at all times with a flagman at both ends of the construction unless otherwise provided on an approved traffic control plan.
- B. For open-cut construction in street pavement, the drawings shall call for steel plate covers to be placed over open-cut sections whenever the contractor is not working within the open-cut area so that traffic will have full use of the roadway.

#### 6.09 BACK LOT UTILITY LOCATIONS

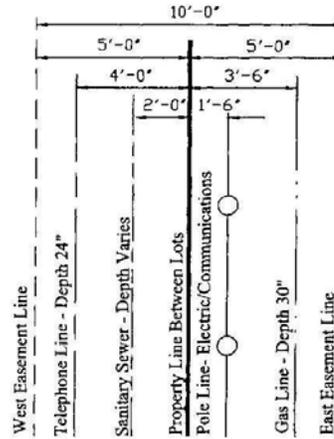
- A. The basic utility locations for a 10-foot-wide back lot easement are as shown in Figure 6.1, Typical Utility Location in 10-foot-wide Residential Easement, prepared by the UCC. A portion of the drawing is reproduced here for reference. The basic utility locations for 14-foot-wide back lot easement is as presented in the May 15, 1996, UCC Memo of Understanding, and is reproduced here for reference as Figure 6.1, Typical Utility Locations in 10-foot-wide Residential Easement, and 6.2, Typical Utility Locations in 14-foot-wide Residential Backlot Easement.

END OF CHAPTER

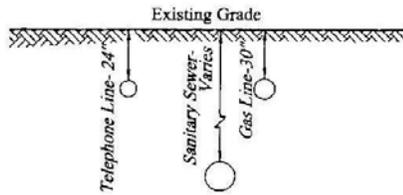
FIGURE 6.1  
 TYPICAL UTILITY LOCATIONS IN 10-FOOT-WIDE  
 RESIDENTIAL EASEMENT



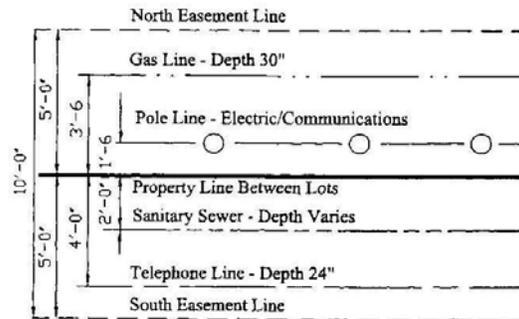
PERIMETER EASEMENT



BACK-TO-BACK EASEMENT



TYPICAL INSTALLATION  
 DEPTHS

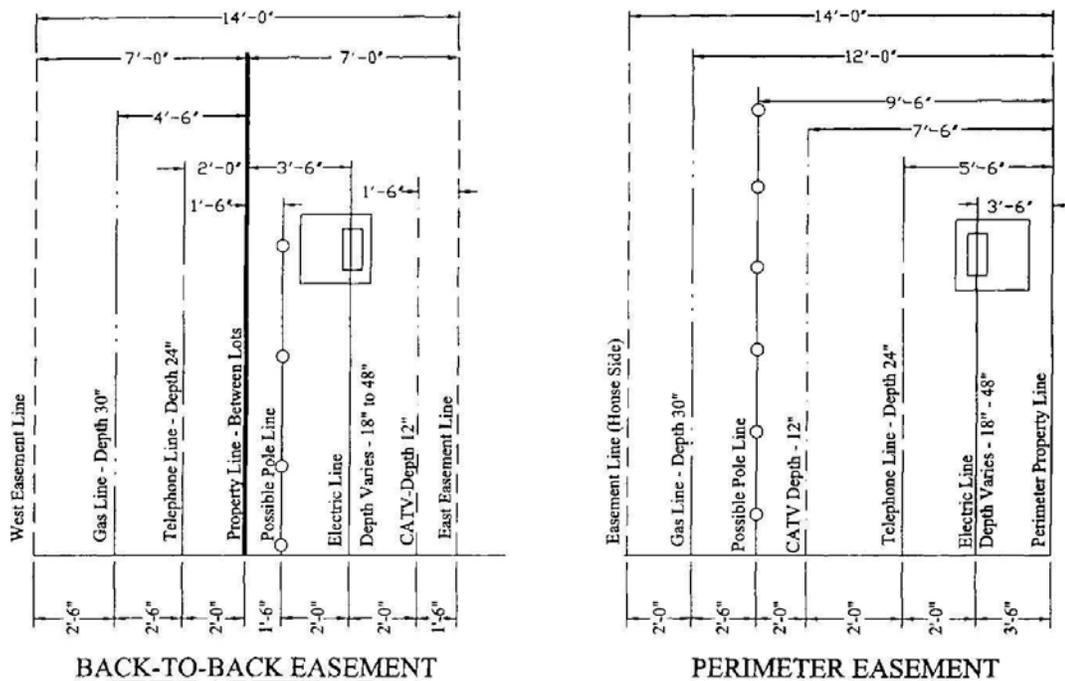


BACK TO BACK EASEMENT

NOTES:

- (1) Utilities are normally installed as shown but depth may vary due to fill or cut by others.
- (2) Maintain minimum 4" clearance between utility lines extending from easement to house/building.
- (3) Flexible base shall be 8" minimum hot mix asphaltic concrete (hmac).

FIGURE 6.2  
 TYPICAL UTILITY LOCATIONS IN 14-FOOT-WIDE  
 RESIDENTIAL BACKLOT EASEMENT  
 (NO BACKLOT SEWER)



- NOTES:**
- (1) Utilities are normally installed as shown, but depth may vary due to fill or cut by others.
  - (2) Maintain minimum 4" clearance between all utility lines extending from easement to house/building.
  - (3) Always exercise extreme caution when digging in utility easements and on or across customer's property, because service lines extend from easement to house.
  - (4) 10' Utility Easements may be granted if approved by the Utilities and City Council.

