

CITY OF FAIRFAX, IOWA



GENERAL SUPPLEMENT TO SUDAS DESIGN MANUAL

2020 EDITION

**CITY OF FAIRFAX
300 80TH STREET COURT
PO BOX 337
FAIRFAX, IA 52228**

TABLE OF CONTENTS

CHAPTER 1 – GENERAL PROVISIONS

1C-1 Submittal Procedures

1D-1 Detailed Plans for Construction of Public Improvements

1H Design Survey Standards (New)

CHAPTER 2 – STORMWATER

2A-1 General Information

CHAPTER 4 – Water Mains

4B-1 Size Determination

4C-1 Facility Design

CHAPTER 5 – Roadway Design

5C-1 Geometric Design Tables

5F-1 Pavement Thickness Design

CHAPTER 6 – Geotechnical

6B-1 Subsurface Exploration Program

6B-3 Geotechnical Report

CHAPTER 7 – Erosion and Sediment Control

7B-1 Regulatory Requirements

CHAPTER 9 – Utilities

9A-1 General Information

CHAPTER 10 – Street Tree Criteria

10A-1 General Information

CHAPTER 12 – Street Tree Criteria

12A-2 Accessible Sidewalk Requirements

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This general supplement amends or supplements the Statewide Urban Design and Specifications (SUDAS) Design Manual and other provisions of the Contract Documents as indicated below. All provisions which are not so amended and supplemented remain in full force and effect.

The terms used in this general supplement will have the meanings indicated in SUDAS.

Chapter 1 – General Provisions

1C-1 Submittal Procedures

A. Construction Plans and Specifications Submittal Procedure:

1. General:

Add the following:

“Refer to the Code of Ordinances of the City of Fairfax, Iowa and the Fairfax Building Department for additional information on submittal procedures, applications, checklists, fee schedules, and submittal schedules.”

6. Revision of Engineering Plans and Reports:

Add the following:

“Additional submittal fees may apply if deficient submittals require multiple reviews by City staff.”

8. Approved Plans:

Delete the following:

“on stable plastic film”

Replace with the following:

“on paper and PDF file”

10. Order of Processing:

Add the following:

“When adequate information is finally provided, the submittal schedule will be reviewed for a new timeline if necessary. The City Engineer and Fairfax Building Department provide checklists outlining the items required in each type of submittal to help ensure a complete package is submitted. The checklists shall be filled out by the designer and included in the submittal package.”

C. Submittal Checklist:

Add the following:

“In addition to the items listed in this section, the City Engineer and Fairfax Building Department provide more detailed checklists for each type of submittal. The checklists obtained from the City Engineer or Building Department shall be filled out by the designer and included in the submittal package.”

D. Final Acceptance:

Add the following to Item 11:

“As-Built plans shall be provided in hard-copy and CAD or GIS Shapefile form.”

1D-1 Detailed Plans for Construction of Public Improvements

A. Public Improvement Plan Sheet Requirements

2. Plan Sheet Material:

Delete and replace with the following:

“**2. Plan Sheet Material:** Plans filed with the Jurisdiction shall be on white paper. A PDF version of the plans shall also be submitted to the Jurisdiction per Section 1C-1A.8.”

4. Title Sheet

Add the following to Item j:

“and the Fairfax Supplements to the SUDAS Standard Specifications and Design Manual.”

C. Public Improvement Plan Sheet Requirements

Delete the following from Item 7:

“Reference stub locations to lot corners.”

Replace with the following:

“Reference stub locations to the nearest manhole.”

Add Section 1H – Design Survey Standards as follows:

A. Design Survey Standards

These standards are established to ensure correct and sufficient field information is utilized by designers and to standardize basic information presented on construction drawings for public improvement projects and private developments with facilities that will be accepted by the City. These specifications are considered minimum standards for design survey information.

All design survey shall be performed directly by or under responsible charge of a Professional Engineer or Professional Land Surveyor licensed in the State of Iowa.

B. References

Cedar Rapids Coordinate System:

Name: US State Plane 1983

Datum: NAD 1983 (NA2011)

Zone: Iowa North 1401

Geoid: GEOID12A (Conus)

Vertical Datum: NAVD88

Linn County, Iowa Control Network

2013 Adjustment

Geoid 12A

All vertical control shall be based on the Linn County, Iowa Control Network (2013

Adjustment) or United States Public Land Survey Corner Certificates, (which reference the Linn County, Iowa Control Network (2013 Adjustment)) available from the Linn County, Iowa Recorder's office. Include a list of all horizontal and vertical control points used for the project design in the construction drawings per SUDAS Design Manual Section 1D-1.B.

Acceptable methods for establishing coordinates and elevations of horizontal and vertical control monuments include, but are not limited to, traditional traversing, differential leveling, and adjustment of these measurements utilizing a minimum of two area ground control monuments. Real Time Kinematic (RTK) GPS survey methods utilizing one or more of the area ground control monuments as a base station, may be used, provided an independent check of the resulting information using traditional methods between all vertical and horizontal control points set in this manner is made. All records of these procedures shall become property of the City.

C. Accuracy

Accuracy for establishing horizontal and vertical control monuments shall meet standards set by the Federal Geodetic Control Committee (FGCC) for Third Order Surveys (1:10,000).

D. Data Collection for Design Surveys

Sufficient topographic and underground data shall be collected to make standard design practices possible. All data collected must meet requirements of the specific project. Project Engineer shall determine limits of the areas to be surveyed. Special attention shall be given to the project design limits to obtain horizontal and vertical information to ensure a clean and smooth transition from the existing features to the new project features.

Most data collected will be in the form of coordinates including a northing, easting, and a vertical elevation. It will be necessary to reference existing coordinate systems, such a stationing or another coordinate system. Sufficient data must be obtained from these existing systems to utilize them during design.

1. Horizontal Control Monuments

Permanent horizontal control monuments (traverse points) shall be, but are not limited to, landscape spikes, rebar or pipe of substantial length and diameter securely embedded in undisturbed ground. Crosses cut into concrete pavement or structures, or nails set in asphalt pavement may be used for horizontal and control monuments. Hubs, nails in ground, inked marks on concrete or similar are not considered permanent, but may be used as temporary control points during data collection.

All permanent horizontal control monuments shall be referenced to local physical features by horizontal measurements or description to allow for future recovery. Such references shall be included in the construction drawings.

A network of horizontal control monuments encompassing the entire project limits shall be provided. A minimum of two permanent

horizontal control monuments, within sight of each other and no greater than 600 feet apart, shall be provided for each construction site.

Each horizontal control point shall be described with a north and east coordinate and may include an elevation. However, some horizontal control monuments may not be acceptable as benchmarks, as described in c. Vertical Control Monuments.

2. Vertical Control Monuments

Permanent vertical control monuments (benchmarks) shall be local physical features that are permanent and not at a risk of change in elevation due to frost, normal wear and tear, or any vertical movement. Permanent vertical control monuments may include, but are not limited to, braced nails or double nails in bases of power poles and trees, fire hydrants, abutment walls, and concrete structures that extend below the frost line. Markings on concrete structures such as sidewalks, curbs, concrete pads, or other fixtures that do not extend below the frost line are not considered permanent, but may be used as temporary control points during data collection.

A network of vertical control monuments encompassing the entire project limits, shall be provided. A minimum of two permanent vertical control monuments (benchmarks) no greater than 600 feet apart, shall be provided for each construction site. More may be required based on the land topography.

All permanent vertical control monuments (benchmarks) shall be referenced and described using local physical features to allow for future recovery. Such references shall be included in the construction drawings.

3. Underground Utility Locations

All surveys shall include written and electronic record information provided by local utility companies for underground features, along with field information on visible utility markings located at the site by means of the Iowa One-Call service (1-800-292-8989) in accordance with requirements identified in the design contract document.

Existing utility location information shall be collected based on ASCE Document CI/ASCE 38-02 Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data. The quality of the utility location shall be identified per the appropriate quality level classification.

4. Ownership of Data

All information collected by the designer and/or surveyor for City improvement projects shall become property of the City.

Chapter 2 – Stormwater

2A-1 General Information

C. Conditions:

Add the following to Item 3:

“Refer to Chapter 100 – Stormwater Management of the Fairfax Code of Ordinances for further information on maintenance responsibilities of stormwater management facilities.”

Delete Item 17 and replace with the following:

“17. Construction should comply with the most recent edition of the SUDAS Specifications and the Fairfax Supplemental Specifications. All details, materials, and storm sewer appurtenances should comply with these specifications and supplemental specifications.”

Add Item 19 as a general note as follows:

“19. Refer to the Fairfax Code of Ordinances for further information on stormwater management requirements in the City of Fairfax.”

D. Unified Sizing Criteria:

1. General Information:

Delete the second paragraph and replace with following:

Stormwater quality requirements shall be addressed in the design of the stormwater management per the criteria in Table FAIRFAX - 2A-1.01.

Delete content of Table 2A-1.01 and replace with the following:
Table FAIRFAX - 2A-1.01 Summary of the Recommended Unified Stormwater Sizing Criteria for Management of Stormwater Quality and Quantity

Sizing Criteria	Required Method
Water Quality Volume (WQv)	<p>Runoff that is generated from a 1.25 inch rainfall event shall be captured and treated using appropriate stormwater Best Management Practices (BMPs). The WQv shall be calculated in accordance with Chapter 2 of the current Iowa Stormwater Management Manual (ISWMM) and calculations provided in the Engineer's drainage report.</p> <p>For new development projects, the WQv shall be calculated based on the entire site, not just impervious areas.</p> <p>For redevelopment projects that result in 0.5 acre or more of land disturbance, the WQv shall be calculated as follows:</p> <p style="padding-left: 40px;">If less than 50 % of the site is disturbed, WQv shall be based on the increase of the impervious area, not the entire site.</p> <p style="padding-left: 40px;">If 50% or more of the site is disturbed, WQv shall be based on the area of the entire site.</p> <p>The BMP practice selected by the applicant/owner, to capture and treat the WQv shall be selected and designed in accordance with the ISWMM. Where favorable soil conditions are present, infiltration based practices are highly encouraged. The submitted report shall show a map of the site area upon which the WQv is based.</p>
Recharge Volume (Rev).	<p>Infiltrate a fraction of the WQv based on the annual recharge rate of the hydrologic soil group existing on the site. The Rev shall be calculated in accordance with Chapter 2 of the Iowa Stormwater Management Manual.</p>
Channel Protection Storage Volume (Cpv)	<p>Provide extended detention for the post-development runoff generated in a 1-year, 24 hour storm per NOAA Atlas 14 such that the volume is released over 24 hours.</p> <p>The Cpv shall be calculated in accordance with Chapter 2 of the Iowa Stormwater Management Manual.</p>
Overbank Flood Protection: (Qp)	<p>Provide peak discharge control of the runoff generated in 2-year through 5-year, 24 hour storm per NOAA Atlas 14 such that the post-development discharge does not exceed pre-development discharge rates.</p>
Extreme Flood Protection (Qf)	<p>Provide peak discharge control for runoff generated from all storms larger than the 5-year, 24 hour storm up to the 100-year, 24 hour storm such that post-development discharge does not exceed the peak discharge rate for the 5-year, 24 hour storm.</p>

All components of the Unified Sizing Criteria shall apply in the design of Stormwater Management facilities. Deviations from the Unified Sizing Criteria requires approval of the Jurisdictional Engineer.

Chapter 4 – Water Mains

4B-1 Size Determination

D. Minimum Criteria:

3. Pressure Requirements:

Delete and replace with the following:

“3. **Pressure Requirements:** The recommended minimum operating pressure of the distribution system should be no less than 45 psi. The residual pressure required under fire flow conditions should not drop below 20 psi at any hydrant of any point in the system. When operating pressure exceeds 100psi, individual or system pressure reducing devices may be required.”

4C-1 Facility Design

B. Water Mains:

Delete Item 3 and replace with the following:

“3. New main installation should be located in the parking area (between the curb and the property line) of the right-of-way and a distance of 9-10 feet from the right-of-way line.”

Delete Item 5 and replace with the following:

“5. Water mains should be designed with a minimum cover of 5.5 feet for 8-inch diameter mains. Greater depth of cover, surface loading conditions, or unusual trench conditions may require a stronger class of pipe according to the AWWA Standard regarding the type of pipe being installed. Where a dip must be placed in a main in order to pass under another utility, the length of the deeper main should be kept to a minimum, and bends should be considered to affect the desired offset.”

Chapter 5 – Roadway Design

5C-1 Geometric Design Tables

C. Roadway Design Tables:

Add the following:

“Minimum urban-section street width shall be 28 feet measured back-of-curb to back-of-curb. All urban-section streets shall be constructed with 6-inch standard curb. The use of other curb types shall be subject to review and approval by the City Engineer and Fairfax Streets Department.”

5F-1 Pavement Thickness Design

D. Determining Pavement Thickness:

Add the following:

“Minimum pavement section for rigid pavements is 7-inch PCC with 6-inch granular subbase and subbase preparation per SUDAS Standard Specifications Section 2010.”

Chapter 6 – Geotechnical

6B-1 Subsurface Exploration Program

A. General Information:

Add the following:

“Subsurface exploration is required for design of sewers and utilities greater than 6 feet below ground surface. The purpose of the exploration for utility design is to describe the disposition of the material within the proposed utility envelope and to determine the relevant engineering characteristics of the materials.”

C. Site Characterization:

1. Frequency and Depth of Borings:

Add Items g. and h. as follows:

g. Utilities (Trenched): Maximum of 400 feet spacing along the utility. Depth shall be to a minimum of 5 feet below the design flow line.

h. Utilities (Bored): Minimum of 3 borings along length of utility run; one at each end of the proposed installation and one midpoint along the proposed length. Depth shall be to a minimum of 5 feet below the design flow line.”

6B-3 Geotechnical Report

A. Geotechnical Report:

Add the following:

“As a minimum, information determined from utility borings shall include: soil type, soil properties, soil moisture content, groundwater conditions and the presence of rock or other obstacles. A discussion regarding suitability of existing soil for backfill and compaction requirements should be included in the report.

If the presence of contaminated soils and/or groundwater is suspected, the Engineer should be consulted for direction regarding sampling and evaluation.”

Chapter 7 – Erosion and Sediment Control

7B-1 Regulatory Requirements

Add the following as a general note:

“Refer to Chapter 152 – Grading, Erosion and Sediment Control of the Fairfax Code of Ordinances for further information.”

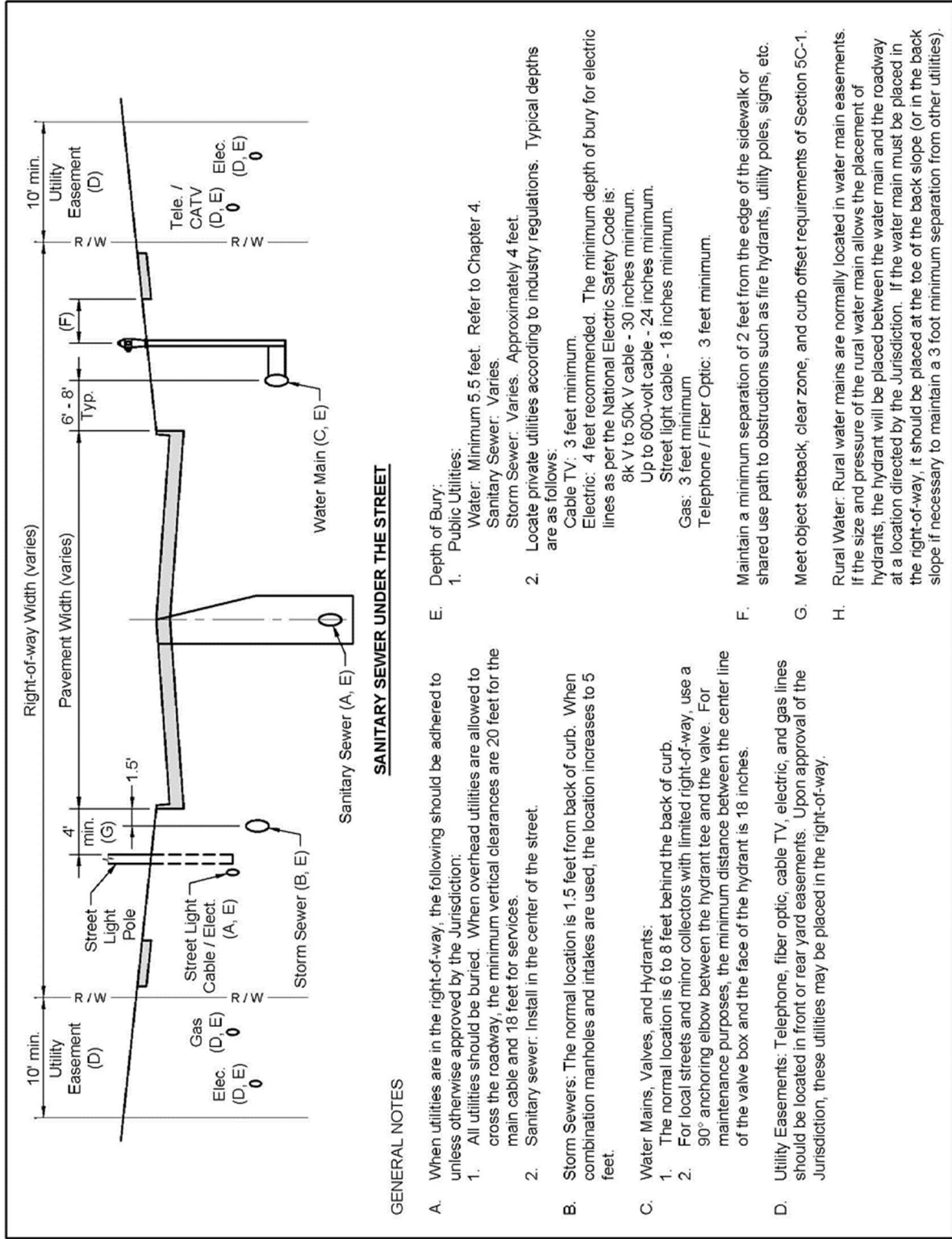
Chapter 9 – Utilities

9A-1 General Information

C. Design:

Delete Figure 9A-1.01 Typical Urban Utility Locations and replace with Figure FAIRFAX-9A- 1.01:

Figure FAIRFAX-9A-1.01: Typical Urban Utility Locations

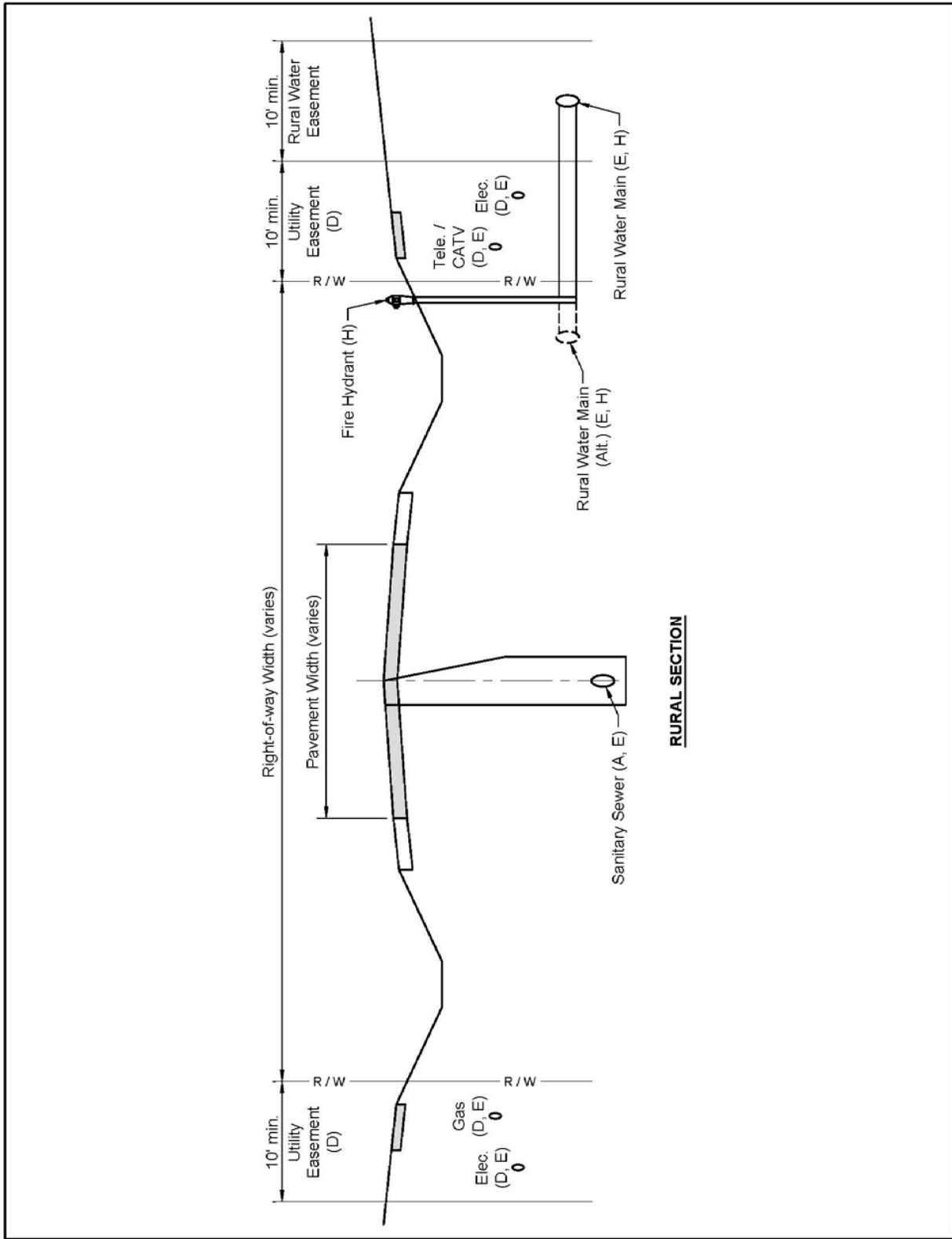


SANITARY SEWER UNDER THE STREET

GENERAL NOTES

- A. When utilities are in the right-of-way, the following should be adhered to unless otherwise approved by the Jurisdiction:
- All utilities should be buried. When overhead utilities are allowed to cross the roadway, the minimum vertical clearances are 20 feet for the main cable and 18 feet for services.
 - Sanitary sewer: Install in the center of the street.
- B. Storm Sewers: The normal location is 1.5 feet from back of curb. When combination manholes and intakes are used, the location increases to 5 feet.
- C. Water Mains, Valves, and Hydrants:
 - The normal location is 6 to 8 feet behind the back of curb.
 - For local streets and minor collectors with limited right-of-way, use a 90° anchoring elbow between the hydrant tee and the valve. For maintenance purposes, the minimum distance between the center line of the valve box and the face of the hydrant is 18 inches.
- D. Utility Easements: Telephone, fiber optic, cable TV, electric, and gas lines should be located in front or rear yard easements. Upon approval of the Jurisdiction, these utilities may be placed in the right-of-way.
- E. Depth of Bury:
 - Public Utilities:
 - Water: Minimum 5.5 feet. Refer to Chapter 4.
 - Sanitary Sewer: Varies.
 - Storm Sewer: Varies. Approximately 4 feet.
 - Locate private utilities according to industry regulations. Typical depths are as follows:
 - Cable TV: 3 feet minimum.
 - Electric: 4 feet recommended. The minimum depth of bury for electric lines as per the National Electric Safety Code is:
 - 8k V to 50k V cable - 30 inches minimum.
 - Up to 600-volt cable - 24 inches minimum.
 - Street light cable - 18 inches minimum.
 - Gas: 3 feet minimum
 - Telephone / Fiber Optic: 3 feet minimum.
- F. Maintain a minimum separation of 2 feet from the edge of the sidewalk or shared use path to obstructions such as fire hydrants, utility poles, signs, etc.
- G. Meet object setback, clear zone, and curb offset requirements of Section 5C-1.
- H. Rural Water: Rural water mains are normally located in water main easements. If the size and pressure of the rural water main allows the placement of hydrants, the hydrant will be placed between the water main and the roadway at a location directed by the Jurisdiction. If the water main must be placed in the right-of-way, it should be placed at the toe of the back slope (or in the back slope if necessary to maintain a 3 foot minimum separation from other utilities).

Figure FAIRFAX-9A-1.01 (Continued): Typical Urban Utility Locations



Chapter 10 – Street Tree Criteria

10A-1 General Information:

Add the following as a general note:

“Trees shall not be planted within the street right-of-way unless prior approval is given by the Engineer and City of Fairfax officials. If approval is given by the Engineer and City of Fairfax officials, plantings shall comply with this section and all planting locations shall be subject to review by the Engineer. Refer to Ordinance 132 of the Fairfax Zoning Code for allowable plant species in the City of Fairfax.”

Chapter 12 – Sidewalks and Bicycle Facilities

12A-2 Accessible Sidewalk Requirements

E. Standards for Accessibility:

2. Standard Sidewalk:

c. Width:

Add the following:

“Sidewalks shall be 5 feet wide within a driveway crossing.”

**End of Section
Adopted 02/18/2020
City of Fairfax Ordinance #34**