

**City of Brandon**

# Engineering Design Standards



# City of Brandon Engineering Design Standards for Public Improvements

**Preface:** The Design Standards presented in this document modify the City of Sioux Falls Engineering and Design Standards for Public Improvements. Consequently, it is acknowledged that all tables and figures were prepared by and reference City of Sioux Falls but apply to the City of Brandon as if prepared specifically for the City of Brandon. Copies of the City of Sioux Falls Engineering Design Standards can be downloaded online at [www.siouxfall.org](http://www.siouxfall.org). The following supplemental standards take precedence over the items that may conflict.

## Supplemental standards to the City of Sioux Falls Engineering and Design Standards for Public Improvements.

Refer to the following modifications and supplement as instructed hereinafter.

### Chapter 1 General Provisions:

- Delete Section 1.4 in its entirety and replace with the following:

#### 1.4 Engineer's Authority

These design standards represent minimum regulations for the design of public infrastructure. If deemed necessary by the City Engineer, more stringent or a higher degree of standard may be required to further protect the health and safety of the general public.

**Chapter 2 ~~Submittal Procedures:~~ Reserved:** Delete section in its entirety. Procedures for submitting engineering documents are included in Chapter 13.

**Chapter 3 Permit Procedures and Requirements:** No modifications

### Chapter 4 Utility Locations and City Utility Easements:

- Delete Section 4.5 in its entirety and replace with the following:

#### 4.5 Easements

- 4.5.1 General: Permanent easements shall be provided for all facilities located outside of public right of way that require access or

maintenance by public entities. Easements shall be wide enough to ensure proper access for maintenance equipment. A description of different types of easements and design constraints are provided in the paragraphs that follow.

- 4.5.2 **Underground Utilities:** Easements for underground utilities shall be centered on the alignment of the underground pipe. Table 4.1 lists the minimum easement widths for utilities with a pipe diameter of 30-inches or less. Easements for utilities larger than 30-inches shall be evaluated and approved by the City Engineer. Easements widths may be required to be wider depending upon specific site conditions.

**Table 4.1**

**Minimum Required Easement Widths for Underground Utilities**

| Depth of Pipe<br>(feet) | Minimum<br>Width<br>Required<br>(feet) |
|-------------------------|--|
| 4                       | 15                                     |
| 6                       | 15                                     |
| 8                       | 20                                     |
| 9                       | 20                                     |
| 10                      | 20                                     |
| 11                      | 22                                     |
| 12                      | 24                                     |
| 13                      | 28                                     |
| 14                      | 30                                     |
| 15                      | 34                                     |
| 16                      | 36                                     |
| 17                      | 40                                     |
| 18                      | 42                                     |
| 19                      | 46                                     |
| 20                      | 48                                     |
| 21                      | 52                                     |
| 22                      | 54                                     |
| 23                      | 58                                     |
| 24                      | 60                                     |
| 25                      | 64                                     |
| 26                      | 66                                     |
| 27                      | 70                                     |
| 28                      | 72                                     |
| 29                      | 76                                     |
| 30                      | 78                                     |

4.5.3 Drainage Easements: Drainage easements shall be required along all drainage ways that convey storm water discharged from upstream properties. Drainage easements shall be a minimum of 20 feet wide and shall encompass the anticipated spread as calculated by the major storm event. Drainage facilities and appurtenances such as earthen

berms, swales, open channels, detention ponds or structures that are required to establish or direct drainage shall be included within an easement.

- 4.5.4 Access Easements: Access easements shall be provided to allow the public access across private property and shall address the type of access granted. Widths of access easements shall be dependent upon the expected use and approved by the City Engineer. Minimum widths for pedestrian access shall be 20 feet.

**Chapter 5 Street Access and Parking Lot Criteria:**

- Modify Table 5.1 as follows: The maximum driveway width for residential lots along local or collector streets shall be 36-Feet.

**Chapter 6 Geotechnical Exploration and Report:** No modifications

**Chapter 7 Grading:** No modifications

**Chapter 8 Street Design and Pavement Thickness:**

- Modify paragraph 8.2.3.7-H as follows: Right of way is ~~60 feet~~ **66 feet or less**
- Delete Table 8.1 in its entirety and replace with the following Table 8.1:

**Table 8.1**  
**Minimum Street Design Criteria**

| Design Elements               | Local         |                                     | Collector   |          | Arterial         |                       |
|-------------------------------|---------------|-------------------------------------|-------------|----------|------------------|-----------------------|
|                               | Single Family | Commercial, Industrial, Multifamily | Minor       | Major    | Minor            | Regional or Principal |
| 24-hour Volumes (vpd)         | 2000 or less  | 2500 or less                        | <5000       | >5000    | 10,000           | 15,000                |
| Design Speed (mph)            | —             | —                                   | 35          | 40       | 45               | 50                    |
| Driving Lanes                 | —             | 2                                   | 2           | 2-4      | 4                | 4 or more             |
| Right-of-Way (ft.)            | 66            | 66                                  | 66          | 80       | 100 +            | 120 +                 |
| Roadway Width (ft.) (1)       | 37            | 39                                  | 41          | 41 or 49 | 41-53            | 65 or more            |
| Lane Width (ft.)              | —             | 11                                  | 12          | 12       | 12               | 12                    |
| Sidewalk (2)                  | 4' detached   | 5' detached                         | 5' detached |          | 5' detached      |                       |
| Curb & Gutter                 | 6" vertical   | 6" vertical                         | 6" vertical |          | 6" vertical      |                       |
| Min.-Max. Grade (%)           | 0.5-8.0       | 0.5-8.0                             | 0.5-7.0     |          | 0.5-6.0          |                       |
| Curb Return Radii (ft.)       |               |                                     |             |          |                  |                       |
| - intersect local             | 13.5          | 13.5                                | 20          |          | --               |                       |
| - intersect collector         | 20            | 20                                  | 25          |          | 30               |                       |
| - intersect arterial          |               |                                     | 30          |          | 35               |                       |
| Horizontal Curve Radius (ft.) | 150           | 300                                 | —           |          | AASHTO Standards |                       |
| Vertical Alignment Control    |               |                                     |             |          |                  |                       |
| Grade at Intersection (%)     |               |                                     |             |          |                  |                       |
| - intersect local             | 3             | 3                                   | —           |          | —                |                       |
| - intersect collector         | 2             | 2                                   | 2           |          | —                |                       |
| - intersect arterial          |               |                                     | 2           |          | 2                |                       |

(1) All dimensions are measured to back of curb.

(2) Where sidewalk is attached to curb, sidewalk shall be one foot wider.

- Modify section 8.4.1 as follows: Generally, the sidewalks shall be located ~~two (2) feet~~ **one (1) foot** from the property line within the street right-of-way.
- Add-
  - 8.7.9 Spacing of Direct and Indirect Access, Angle of Intersection, and Offsets
    - 8.7.9.1 Four way directional intersections will normally be spaced at least 300 feet apart.
    - 8.7.9.2 Proposed streets and driveways shall intersect one another at 90°
    - 8.7.9.3 At locations of offset or “T” intersections, the minimum offset allowed shall be 150 feet for local streets and 300 feet for all other street types.
- Modify section 8.8.4 as follows: Minimum fall around curb returns shall be ~~one-half of one (0.5)~~ **one (1.0)** percent.
- Add-
  - 8.15 Curb and Gutter
    - 8.15.1 Curb and gutter shall be a standard thirty inches wide with a six inch wide curb top and six inch depth from the top of the curb to the flow line of the gutter. Curb and gutter on roads under the jurisdiction of the SDDOT shall meet the requirements set forth in the SDDOT Standard Specifications.

**Chapter 9 Sanitary Sewers:**

- Add the following to section 9.4.8.7: Access routes shall be benched as necessary to shed water and, at a minimum, include a gravel surface for adequate access.
- Delete section 9.5 in its entirety including table 9.5. All easements for public utilities shall meet the requirements set forth in Chapter 4.

**Chapter 10 Water Mains:**

- Delete paragraph 5 of section 10.1.12 and replace with the following: Private Fire Hydrants: Inspection annually and after each operation; flow test and maintenance annually. The owner shall have hydrants inspected and flushed by a private utility contactor licensed by the State of South Dakota.

- Delete paragraph 10.7.8 in its entirety and replace with the following: Water services 2-inches and smaller extending from the main to the curb stop shall be constructed of polyethylene (PE) pressure pipe or copper. Services larger than 2-inches shall be made of PVC.
- Delete section 10.8 in its entirety. Material specifications are included in the City of Brandon Standard Specifications for Public Improvements.

**Chapter 11 Drainage Improvements:**

- Delete sections 11.1.4, 11.1.5, and 11.1.6 in their entirety. Requirements for plan submittals are included in Chapter 13.
- Delete section 11.2.3-1-b in its entirety. Requirements for easements are included in Chapter 4
- Delete paragraph 11.6.7-1 and replace with the following: Sump pump collection systems or underdrain systems shall be required for all proposed subdivisions.

**Chapter 12 Erosion and Sediment Control:** No modifications

**Chapter 13 Construction Plans: Submittals:** Delete section in its entirety and replace with the attached Chapter 13.

**Chapter 14 ~~Acceptance Procedures and Requirements for Private Construction of Public Improvements:~~ Reserved:** Delete section in its entirety. Acceptance procedures for private construction are included in the City’s subdivision regulations.

**Chapter 15 ~~Street Lighting:~~ Reserved:** Delete section in its entirety. Street lighting shall be coordinated between the City of Brandon and the area provider for power.

**Chapter 16 Inspection and Testing:** Add the attached Chapter 16

**Appendix**

**Section 100** – Standard Specifications for Sanitary Sewer Construction

**Section 200** – Standard Specifications for Storm Sewer Construction

**Section 300** – Standard Specifications for Water Main Construction

**Section 400** – Reserved

**Section 500** – Standard Specifications for Construction Warranty