



## SP 4.8-001 (2013)

# Standard Specifications for Construction City of Waco 2013 Special Provision to Section 4.8 Sanitary Sewers

October 6, 2022

The Standard Specifications for Construction City of Waco 2013  
Section 4.8 Sanitary Sewer  
Part 3: Execution  
C. Tests  
3. Deflection Testing

is hereby deleted and replaced in its entirety as follows effective for all City projects with bid opening date of December 1, 2022 and thereafter; Developer projects with preconstruction meeting date of December 1 and thereafter; and for right-of-way permits issued December 1 and thereafter to Permittees for work without a preconstruction meeting:

### **PART 3: EXECUTION**

#### **C. TESTS**

**3. Deflection Testing** – Upon completion of all flexible and semi-rigid sanitary sewer pipe installations, the Contractor shall pull a mandrel through the pipe to test for a maximum 5 percent deflection. The mandrel shall be sized and constructed as listed on the applicable mandrel deflection table. Deflection test for pipe will be performed not less than 30 days after all trench backfill is compacted and accepted by the City. No pipe shall exceed a deflection of 5%. Any pipeline or portion of line that will not allow easy passage of the test plug shall be replaced and retest performed not less than 30 days after all trench backfill is compacted and accepted by the City. The test shall be performed without mechanical pulling devices.

**5 Percent Deflection Mandrel for 8-inch through 15-inch  
PVC Pipe ASTM D3034 (Type PSM, SDR-26)**

Pipe Nominal Size (IN.)	Base Inside Diameter as Defined by ASTM Standards (IN.)	Minimum Mandrel O.D. (IN.)	Minimum Mandrel O.D. Rounded Up to Nearest 1/16 IN.	Minimum Length of Mandrel Barrel Section (IN.)	Minimum Odd Number of Nonremovable Mandrel Runners
8	7.488	7.11	7 2/16	6	9
10	9.342	8.87	8 14/16	7.5	9
12	11.102	10.55	10 9/16	9	9
15	13.575	12.90	12 15/16	11.25	9

Per Texas Administrative Code Title 30 Part 1 Chapter 217 Subchapter C Rule §217.57 Mandrel runners shall be nonremovable and nonadjustable. Each mandrel size must use a separate proving ring.

**5 Percent Deflection Mandrel for 18-inch through 60-inch  
PVC Pipe ASTM F679 (PS115)**

Pipe Nominal Size (IN.)	Base Inside Diameter as Defined by ASTM Standards (IN.)	Minimum Mandrel O.D. (IN.)	Minimum Mandrel O.D. Rounded Up to Nearest 1/16 IN.	Minimum Length of Mandrel Barrel Section (IN.)	Minimum Odd Number of Nonremovable Mandrel Runners
18	16.688	15.85	15 7/8	13.5	9
21	19.666	18.68	18 11/16	15.75	9
24	22.102	21.00	21	18	9
27	24.899	23.65	23 11/16	20.25	9
30	28.523	27.10	27 1/8	22.5	9
36	34.120	32.41	32 7/16	27	9
42	39.621	37.64	37 11/16	31.5	9
48	45.216	42.96	43	36	9
54	51.234	48.67	48 11/16	40.5	9
60	54.756	52.02	52 1/16	45	9

Per Texas Administrative Code Title 30 Part 1 Chapter 217 Subchapter C Rule §217.57 Mandrel runners shall be nonremovable and nonadjustable. Each mandrel size must use a separate proving ring.

*Thomas M. Dahl*  
Thomas M. Dahl, P.E.