

**Chapter 16**  
**Inspection and Testing**

# Chapter 16

## Inspection and Testing

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# Chapter 16

## Inspection and Testing

### 16.1 General

In order to insure satisfactory completion and conformance with city standards, the city shall conduct inspections and require testing during construction. It is the responsibility of the contractor to abide by the proposed testing and inspection schedules set forth in this section and to notify the City Engineer when work is ready for inspection. In the event that the proposed schedules are not met, construction on the project shall cease until the items that are out of compliance are resolved.

### 16.2 Inspection and Testing Schedule

Listed below is a summary of inspections and testing that shall require written documentation of approval from the City Engineer. The developer shall schedule all inspections with the City Engineer. Geotechnical services shall be contracted through the city with results forwarded to the developer. Tests shall be performed as detailed in the city's Standard Specifications and the current version of the SDDOT Materials Manual or current ASTM Standards.

16.2.1 Sanitary Sewer: Newly constructed sanitary sewer systems shall be tested in accordance with the city's Standard Specifications for Sanitary Sewer Construction.

1. Visual Inspection by Owner
2. Pipe Leakage Inspection
3. Manhole Leakage Inspection
4. Cleaning
5. Pipe Deflection Inspection
6. Television Inspection

16.2.2 Water: Newly constructed water main systems shall be tested in accordance with the city's Standard Specifications for Water Main Construction.

1. Visual Inspection by Owner
2. Disinfection and Bacteriological Testing
3. Hydrostatic Pressure Inspection

16.2.3 Drainage: Newly constructed storm sewer systems shall be tested in accordance with the city's Standard Specifications for Storm Sewer Construction.

1. Visual Inspection by Owner
2. Cleaning
3. Pipe Deflection Inspection
4. Television Inspection

16.2.4 Streets: Newly constructed street systems shall be tested in accordance with the SDDOT Materials Manual and in compliance with the minimum testing requirements listed under Section 16.3 of this Chapter.

1. Utility Trench Density Test
2. Subgrade Density Test
3. Subgrade Stability Inspection
4. Base Course Gradation and Density Tests
5. Base Course Stability Inspection
6. Concrete Air Slump and Strength Tests
7. Bottom Lift Asphalt Inspection
8. Asphalt Density Tests

### **16.3 Minimum Testing Requirements**

The engineer may at any time order additional testing above and beyond the minimum required. The contractor and supplier are encouraged to perform testing as needed to monitor their own quality control. This testing, however, will not be used in determining acceptance of the installed material. When testing will be destructive to the final product, such as coring asphalt pavement, approval must be obtained from the engineer prior to testing.

#### **16.3.1 Utility Trenches**

1. Density tests on trench backfill shall be performed in accordance with the City's Standard Specifications for Construction. In general, a minimum of one density test and moisture content shall be made for every 500 lineal feet of trench per four (4) feet of depth. A minimum of one (1) standard density and optimum moisture determination shall be made for the project and one (1) additional test for each change in the backfill.

### 16.3.2 Subgrade

1. Soil density and moisture content tests shall be performed on all pavement subgrade and roadway fills a minimum of one (1) per city block or every 600 feet, whichever is less, per four (4) feet of depth. A minimum of one (1) standard density and optimum moisture determination shall be made for the project and one (1) additional test for each change in the soil type.
2. Subgrade Stability: The contractor shall schedule an inspection with the City Engineer to inspect the subgrade stability. The inspection shall be completed once the subgrade has been compacted into place and prior to placing the base course. The contractor will be required to proof roll the subgrade with equipment approved by the engineer. Unstable areas shall be repaired by the contractor.

### 16.3.3 Base Course, Select Granular Backfill, Aggregates, and other Granular Materials

1. A minimum of one (1) gradation shall be run per project per type of material. Density tests shall be run on base course for roadways a minimum of one (1) per city block or every 600 feet, whichever is less. Testing may be waived by the engineer when the total project quantity for each type of material is less than 500 tons.
2. Base Course Stability: The contractor shall schedule an inspection with the City Engineer to inspect the base course stability. The inspection shall be completed once the base course has been compacted into place and prior to placing surfacing. The contractor will be required to proof roll the base course with equipment approved by the Engineer. Unstable areas shall be repaired by the contractor.

### 16.3.4 Sidewalks, Curb & Gutter, Concrete Fillets, Valley Gutters, Inlets, and other Miscellaneous Concrete

1. An air test, slump test and a strength test shall be performed for every 100 cubic yards of pouring. Additional strength tests shall be run when needed to determine when concrete is ready to carry traffic.

### 16.3.5 Asphalt Paving

1. Density tests shall be performed at the frequency of 1 per 900 lane feet per lift. Density tests shall be performed using the cut out (core) or nuclear gauge method. The nuclear gage method shall only be used for acceptance testing if it is calibrated with cores as detailed in the Materials Manual. A standard density (Rice) test shall be performed once per project and when there is a change in the mix. Testing may be waived by the engineer when the total project quantity for asphalt is less than 500 tons.

2. Bottom Lift Asphalt Stability: The contractor shall schedule an inspection with the City Engineer to inspect the stability of the bottom lift of asphalt. The inspection shall be completed prior to placement of the second lift. The Engineer shall visually inspect the bottom lift for any failures or depressions. In areas of failure and excessive depression the existing asphalt shall be removed, the underlying grade stabilized and new asphalt patched back into place. In areas of moderate depression, a leveling course shall be installed prior to placement of the second lift.

#### 16.3.6 PCC Concrete Streets

1. An air content test shall be performed on the first truck before placement begins. An air test, slump test, and at least four concrete cylinders (1 for an early break, 2 for 28 day breaks, and one backup) shall be made for every 150 cubic yards of pouring.

#### 16.3.7 Structural Concrete

1. Air tests, slump tests, and strength tests shall be run at the frequency specified by the current version of the SDDOT Materials Manual in the Minimum Sampling and Testing Requirements section.