

## ENGINEERING DIVISOIN

### POLICY LETTER

**Policy Number:** 2019-01

**Title:** Minimum Testing Requirement's for Public Improvements

**Purpose:** This policy shall establish uniform testing guidelines for all public improvements installed under the supervision of the City of Norfolk (CIP projects, developments, etc.).

**Effective date:** August 15, 2019

**Current Revision date:** May 18, 2020

**Expiration date:** N.A.

**Policy Division:** Construction Administration

**Supersedes Policy Dated:** February 26, 2020

**Approved:**



Steven Rames, P.E. Public Works Director/City Engineer

On:

May 18, 2020

## **MINIMUM TESTING REQUIREMENTS FOR PUBLIC IMPROVEMENTS**

This policy shall establish uniform testing guidelines for all public improvements installed under the supervision of the City of Norfolk. This policy shall replace any previously established Minimum Testing Requirements.

The City Engineer Division's policy on test procedures and requirements for all public improvements shall be as follows:

1. Testing performed by a private engineer on a private testing company for the City Engineer shall be done under the supervision of a registered professional engineer and certified by the same. Only City approved engineers and testing companies will be allowed. Field testing done by the inspector need not be certified but shall be done under the supervision of the registered professional engineer in charge of inspection.
2. The City Engineer and the testing company shall work together to determine the expected number of tests prior to construction. The testing company may make recommendations on increasing or decreasing the testing frequency based on expected conditions and test results. The City Engineer shall determine whether a change in frequency is warranted as allowed by these requirements and may, at any time, order additional testing above and beyond the minimum required. Additional testing shall be performed as detailed in these requirements. The City Engineer also reserves the right to reduce or eliminate testing if it is determined to be in the best interest of the City.
3. Results of all field tests shall be recorded on a test report. Copies of all tests reports shall be submitted electronically in PDF format to the City Engineer for City records. The following information shall be included on each test report as applicable:
  - a. Project/Subdivision name, phase, project number, CIP number, and prime contractor/developer.
  - b. Date and time of sample.
  - c. Date and time of test.
  - d. Name of person performing the test and signature.
  - e. Description of test performed.
  - f. Street name, station, offset, depth lift, etc. of the test or sample location.
  - g. Test results along with the materials specifications.
  - h. Summary statement stating whether test passed or failed. For a failing test, the failure should be highlighted.
4. Tests shall be performed as detailed in the current version of the Nebraska Department of Transportation's Materials Manual which is available on the NDOT's website or the current ASTM standards. The city encourages all testers to become certified under the NDOT's Materials Testing and Inspection Certification Program.

5. The contractor/developer and supplier are encouraged to perform testing as needed to monitor their own quality control. However, this testing will not be used in determining acceptance of the installed material. If this testing will be destructive to the final product, such as coring asphalt pavement, approval must be obtained from the City Engineer prior to testing.
6. Failing tests need to be reported in a timely fashion to facilitate corrective action. The tester shall notify the City Engineer verbally of the failure immediately, with documentation to follow as soon as possible. As applicable, the City Engineer shall notify the developer, contractor, inspector, and project manager.
7. The City of Norfolk will pay for all City-required tests. Corrective action tests required due to failing materials shall be the responsibility of the contractor/developer.
8. The City Engineer shall verify that all materials used meet City specifications and requirements. Material tickets for each load shall be available for inspection and collection. The tickets shall clearly define the materials being supplied and if applicable, the mix proportions.
9. The City Engineer and/or the testing company shall be given sufficient notice when there is a need for a test. Notification of less than 24 hours may result in a testing delay. The developer, contractor, and supplier understand that certain tests take longer than others and the need for extended planning. Tests such as standard density and optimum moisture determination may take several days to complete.
10. The following is an outline of the minimum testing requirements, as well as special conditions:

	<u>Capital Improvement Projects</u>	<u>Subdivisions</u>
<u>Asphalt Paving</u>	Density tests shall be performed at the frequency of 1 per 450 lane feet per lift. Density tests shall be performed using the cut out (core) or nuclear gauge method. The nuclear gauge 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.	Density tests shall be performed at the frequency of 1 per 350 lane feet per lift but no less than 2 per day. Density tests shall be performed using the cut out (core) or nuclear gauge method. The nuclear gauge 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 subdivision and when there is a change in the mix.
<u>PCC Streets</u>	An air content test shall be performed on the first truck. 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. See Paving Specifications Article IV for additional requirements.	

	<u>Capital Improvement Projects</u>	<u>Subdivisions</u>
<u>Sidewalks, Curb &amp; Gutter, Fillets, Valley Gutters, Inlets and Other Miscellaneous Concrete</u>	An air test, slump test, and a strength test shall be performed for every 100 cubic yards of pouring. Additional strength tests, no less than 1 each per day, should be run when needed to determine when concrete is ready to carry traffic	An air test, slump test, and a strength test shall be performed for every 100 cubic yards of pouring but no less than 1 each per day. Additional strength tests should be run when needed to determine when concrete is ready to carry traffic.
<u>Structural Concrete</u>	Air tests, slump tests, and strength tests shall be run at the frequency specified by the current version of the NDOT Materials Manual in the Minimum Sampling and Testing Requirements section.	
<u>Subgrade</u>	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 400 feet, whichever is less, per one (1) foot of depth. A minimum of one (1) standard density and optimum moisture determination shall be made for each project/subdivision and one (1) additional test of each change in the soil type.	
<u>Utility Trenches</u>	A minimum of one density test and moisture content shall be made for every 350 lineal feet of trench per two (2) feet of depth, plus one test in the upper one (1) foot of fill. A minimum of one (1) standard density and optimum moisture determination shall be made for each project/subdivision and one (1) additional test of each change in the backfill.	
<u>Utility Service Trenches</u>	A minimum of 50 percent of services trenches shall be tested for compaction. The total number of tests shall generally be evenly distributed at one foot below finish grade, halfway between finish grade and top of service and 18 inches above the service. Example: A 20 Lot subdivision would require a total of twenty (20) tests, ten for sewer and ten for water, roughly six test 1 ft. below grade, six at mid depth, and six at 18 inches above the service. Plus two test at any one of those depths.	
<u>Base Course, Select Granular Backfill, Aggregates, and other Granular Materials</u>	A minimum of one (1) gradation shall be run per project/subdivision 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.	
<u>Additional Subgrade, Utility Trench, and Granular Material Requirements</u>	In addition to the moisture and density test requirements, the contractor shall be responsible for providing a firm and unyielding surface. This requirement shall be checked by proof rolling the subgrade, trenches and granular materials using a fully loaded tandem axle truck or the requirement as approved by the City Engineer. A representative from City Engineering will complete this inspection.	