

Inspections Scheduling/Responsibility

- The Developer shall provide for inspections of street improvements during construction. The inspections shall be accomplished under the supervision of the Engineer of Record.
- The Engineer of Record shall provide certification that all materials and construction conform to the approved plans and specifications and with these minimum street standards.
- All field tests required for a project shall be witnessed by the City, the Engineer of Record, and the Contractor, or their authorized representatives.
- A 24-hour notice is required on all tests. Calls to the City for the purpose of setting test times shall be made to the City Engineer's office by 3:00 p.m. for tests on the following day.
- Tests are not considered scheduled without confirmation from the City Engineer. Tests requested by text, email, or voicemail without a response from the City Engineer will have their results voided. The City reserves the right to reject any public improvement placed, installed, or constructed without approval.
- Tests delayed by weather or other factors will be rescheduled on the same basis.
- If a representative of the City cannot be present, the City Engineer may authorize the Engineer of Record to witness the test and certify to the City the results.
- It is the responsibility of the Engineer of Record to coordinate the scheduling of such tests with the City.
- Tests that cannot start within 15 minutes of their scheduled start time will be rescheduled following the above procedures.
- Approval following tests or inspections will be provided in writing by the City, any deficiencies or conditions will be noted at that time. The City may require a follow-up inspection prior to approval based on the extent of the deficiency.

Subgrade

- The City reserves the right to reject any subgrade placed on in-situ soils that have not been approved, or has been rained on or frozen after the previous inspection prior to being covered with subgrade.
- The subgrade, also referred to as engineer-select fill, shall be compacted to the depth shown on the plans and to a minimum density of 95% Standard Proctor as determined by AASHTO T99 and +/- 3% of optimum moisture content.
- Inspections:
 - o Each lift shall first pass a tandem-axle dump truck (25 ton min.) proof roll.
 - o Each lift shall then have density and moisture tests (AASHTO T99, Density) taken at every 300 feet of roadway or portion thereof except that each cul-de-sac shall have a minimum of two tests taken regardless of its length. Additional testing shall be required when deemed necessary by the Engineer.
- Any subgrade that has been rained on or frozen after inspection, but prior to being covered with base, will be required to have another proof roll prior to placement of base.
- Partial approvals of subgrade improvements will not be provided unless stakes with station values are visible on site.

Base Course

- The City reserves the right to reject any base course placed on subgrade that has not been approved, or has been rained on or frozen after the previous inspection prior to being covered with base.
- The base course shall be compacted to the depth shown on the plans and to a minimum density of 95% Modified Proctor as determined by AASHTO T99 and +/- 3% of optimum moisture content.
- Inspections:
 - o Each lift shall first pass a tandem-axle dump truck (25 ton min.) proof roll.
 - o Each lift shall then have density and moisture tests (AASHTO T180, Density) taken at every 300 foot of roadway or portion thereof except that each cul-de-sac shall have a minimum of two tests taken regardless of its length. Additional testing shall be required when deemed necessary by the Engineer.
 - o Base course placed under curb and gutter that is 4 inches or less in thickness will not require density tests but will require a proof roll.
- Any base course that has been rained on or frozen after inspection, but prior to construction of curb and gutter, will be required to have another proof roll prior to construction of curb and gutter.
- Any base course that has been rained on or frozen after inspection, but prior to being covered with asphalt, will be required to have another proof roll prior to placement of asphalt.
- Partial approvals of base course improvements will not be provided unless stakes with station values are visible on site.

Curb and Gutter

- The City reserves the right to reject any curb and gutter placed on base course that has not been approved, or has been rained on or frozen after the previous inspection prior to construction of curb and gutter.
- All curb and gutters shall be six (6") inch by twenty-four (24") inch Portland Cement Concrete with six (6") inch vertical Type "A" curb. All curb and gutters shall be thirty-five hundred (3500 psi) pounds per square inch Portland Cement Concrete at twenty-eight (28) days.
- A minimum set of three (3) concrete test cylinders shall be made at the beginning of every pour and for every additional one hundred (100) cubic yards of concrete placed in the construction of curb and gutter. Any test cylinders not meeting the minimum twenty-eight (28) day compressive strength of thirty-five hundred (3500 psi) pounds per square inch shall constitute the failure of the concrete placed between the stations of the passing test cylinders adjoining the failed concrete test cylinders. Contractor shall remove said failed section of curb and gutter at his expense and replace the same at his expense.
- Additional care shall be taken to avoid cracking when concrete is placed by slip-form when traveling in the downhill direction.
- Concrete shall be protected from freezing for no less than three (3) days following its placement.

Storm Boxes

- A rebar inspection shall be scheduled and approved prior to the placement of any concrete. The City reserves the right to reject any storm structure where the rebar was not approved prior to being covered.

- A minimum set of three (3) concrete test cylinders shall be made at the beginning of every pour and for every additional one hundred (100) cubic yards of concrete placed in the construction of storm boxes. Any test cylinders not meeting the minimum twenty-eight (28) day compressive strength of thirty-five hundred (3500 psi) pounds per square inch shall constitute the failure of the storm boxes placed on that day. Contractor shall remove said failed storm boxes at his expense and replace the same at his expense.
- Sediment and debris shall be removed from the storm sewer system prior to acceptance by the City. The City reserves the right to require additional cleaning when deemed necessary by the City Engineer prior to release of Certificates of Occupancy within the affected area.

Sidewalks

- A sidewalk inspection shall be scheduled and approved prior to placement of any concrete. At the time of inspection, the base and forms shall be in place. Staff will check the cross slope of the forms to ensure that they meet ADA requirements. However, a form inspection does not relieve the contractor of any responsibility if the forms are moved during the placement of concrete or for panels that are not floated evenly. In that scenario, if the necessary ADA slopes are not met with the final concrete surface, the Contractor shall be required to remove the failing panels and replace the same at his expense.

Concrete Pavement

- The City reserves the right to reject any concrete pavement placed on base course that has not been approved, or has been rained on or frozen after the previous inspection prior to placement of concrete pavement.
- The City shall inspect all forms, rebar, dowels, etc. for concrete pavement within City Right-of-Way. The City reserves the right to reject any concrete pavement where the forms and structures were not approved prior to placement.
- Rebar and wire must be spaced evenly and supported by chairs or broken concrete of similar compressive strength. Steel reinforcement may not be set by hand.
- Dowels must be spaced evenly and maintain level during construction, either by being drilled into set concrete or cast-in-place through concrete forms. Dowel rods may not be set by hand.
- A minimum set of three (3) concrete test cylinders shall be made at the beginning of every pour and for every additional one hundred (100) cubic yards of concrete placed in the construction of concrete pavement. Any test cylinders not meeting the minimum twenty-eight (28) day compressive strength of thirty-five hundred (3500 psi) pounds per square inch shall constitute the failure of the storm boxes placed on that day. Contractor shall remove said failed storm boxes at his expense and replace the same at his expense.

Asphalt Pavement

- The City reserves the right to reject any asphalt placed on base course that has not been approved, or has been rained on or frozen after the previous inspection prior to placement of asphalt.
- A prime coat shall be applied to the base course and allowed to cure before the surface course is applied. Prime coat shall not be applied when the air temperature is below fifty degrees (50°)

Fahrenheit, nor shall it be applied to a surface having excess moisture, nor when general weather conditions in the opinion of the engineer, are not suitable.

- Hot mix bituminous material shall not be mixed or placed when the air temperature in the shade is below forty degrees (40°) Fahrenheit, or when there is frost in the base or subgrade, or at any other time when weather conditions are unsuitable for the type of material being placed.
- When more than one course is called for on the plans, the succeeding course shall follow not later than seventy-two (72) hours unless the preceding course is given a tack coat. If proper bond is not obtained between two courses, a tack coat shall be used even though the lapsed time has been less than seventy-two (72) hours.
- Testing:
 - o Cores will be taken up to one (1) core per three hundred (300) feet of road except that each cul-de-sac street shall have a minimum of two cores taken regardless of its length. The cuts made in taking such samples shall be repaired by the Contractor with non-shrink grout flush with the final surface and dyed black at no expense to the City.
- Asphalt densities for binder and surface courses shall be between 92.0% and 96.0% of the maximum theoretical density.
- Asphalt densities that fall between 90% to 92% and 96% to 98% shall be left in place and an extended warranty of five (5) years at 150% of construction cost based on the estimate provided by the Engineer of Record will be required on the deficient asphalt pavement. The failed area will consist of the area falling within the limits of the passing cores. No isolation cores shall be taken for densities that fall between 90% to 92% and 96% to 98%.
- Where densities are less than 90% or greater than 98%, the limits of the deficient asphalt pavement shall be determined by the “isolation method”. To “isolate”, the Contractor, at no expense to the city, shall first cut two cores within 2 feet each side of the failing core, then add the results of the density to the original core and the two additional core densities. Divide by three and if the average of the three core densities falls within the acceptable ranges as specified above, then that section will be accepted per the aforementioned requirements. If the average of the original and the two re-cores fall below acceptable range, then additional cores will be cut first going 25 feet longitudinally in each direction from the original core and determining the densities of each. A resulting failing core from that point will require an additional core being cut 50 feet from that previous core and will continue in 50-foot increments until a passing core density is obtained. The failed area will consist of the area falling within the limits of the passing re-cores and shall be removed and replaced.
- Core samples shall also be tested for thickness and, in no case, shall be more than 1/4 inch less than the specified thickness.
- For cores that indicate thickness 1/4 inch to 1/2 inch less than that specified, “isolation” cores will be required. To “isolate”, the Contractor, at no expense to the City, shall cut cores 10 feet either side of the initial core. If both of the cores are in acceptable tolerance, the section will be accepted. If one or both cores fail, then additional cores will be cut 25 feet away from the initial core in the failing directions. Subsequent cores will be cut at 50 foot intervals in the direction of failure until a core that passes tolerance is obtained. The isolated area will be that which falls within the limits of acceptable thickness. The areas that fall within the 1/4 inch to 1/2 inch less than specified thickness may be removed and replaced or warranted for five (5) years at 150% of construction cost based on the estimate provided by the Engineer of Record. Areas that are

determined to exceed the 1/2 inch less than specified thickness shall be removed and replaced within the limits of the acceptable thickness determined by the isolation method.

Pavement – Water Test

- Where running slopes are designed below a 1% grade a water test will be required to ensure proper surface drainage of pavement and the curb and gutter. A water truck shall be used to apply water to qualifying areas, and the results witnessed by the Engineer of Record, the Contractor, and the City Engineer. Additional testing shall be required when deemed necessary by the City Engineer.
- The water test shall be ended when the pavement surface no longer maintains positive drainage to surface-drain the water applied during the test. Once water no longer has the grade required to surface-drain, the extents of the ponding water shall be marked and measured by the following criteria:
 - o Test areas resulting in standing water less than 1/2 square yard in surface area and less than 1/8" in depth shall be accepted on a case-by-case basis by the City Engineer.
 - o Test areas resulting in standing water exceeding 1/2 square yard in surface area or greater than 1/8" in depth shall be remedied as seen fit by the City Engineer.
 - o In no case shall standing water of any span or depth reside over a seam in the pavement, whether concrete or asphalt, or over the joint between pavement and the adjacent curb and gutter.

Final Inspections

- An as-built survey of all public improvements must be conducted, and record drawings produced, prior to scheduling the final inspection. Record drawings shall be provided to the City as both PDF and DWG files.
- Final inspections for all public improvements shall be scheduled through the City Engineer no less than two (2) weeks prior to the requested date.
- The Engineer of Record shall certify to the City that all public improvements are accessible for staff to inspect and have been installed conforming to the approved plans and specifications.
 - o If a punch list has already been provided, the Engineer of Record shall certify that the previous items have been resolved within their request that city staff return to inspect the site.
- The City Engineer shall provide a punch list containing all items noted during staff inspections. Punch lists are not final unless explicitly stated in writing.
- Staff will present the Engineer of Record with critical items as they are discovered, whether prior to or during a final inspection.
- Items will be labeled as "Critical" based on the criteria below:
 - o if they are severe enough to deny a building permit, or
 - o if they prevent a public improvement from being operational, or
 - o if they prevent staff from conducting the necessary inspections to accept a public improvement on behalf of the City.
- Remaining items not marked as "Critical" must be completed prior to Certificate of Occupancy.
- A temporary Certificate of Occupancy may be issued at the City's discretion on a case-by-case basis.