

Chapter 4. PUBLIC INFRASTRUCTURE ACCEPTANCE PROCEDURES & WARRANTY REQUIREMENTS

4.1 Applicability

Before the City will assume ownership and maintenance responsibility for newly constructed public improvements, the public improvements shall be formally accepted by the Engineering Division. The Developer (Development Projects) and/or the Contractor (Capital Improvement Projects) is responsible for the proper installation of all improvements.

Failure by the City's representatives to detect improper installations or defects during the construction of improvements or during subsequent inspections does not relieve the Developer or Contractor of the responsibility to correct such defects at a later date. There shall be no partial acceptances of public improvements within new developments. The Developer and/or Contractor is fully responsible for maintenance and operation of any constructed public facilities until such time as the City formally accepts the public improvements. The Developer and/or Contractor is responsible for a two-year warranty of the public improvements constructed. The two-year warranty starts with Initial Acceptance.

4.1.1 Acceptance Process for Public Improvements

The Developer/Contractor shall be required to meet the following process prior to the City's final acceptance of the public improvements and any operations or maintenance.

Completion of Work

Completion of all Public Improvements required in the Public Improvements Construction Plans, Specifications and Agreements in accordance with these STANDARDS AND SPECIFICATIONS. The Engineering Division shall approve plans in accordance with the checklist in **Appendix A**.

Written Request

The Developer and/or Contractor shall notify the City Engineering Division, in writing, of the completion of the Public Infrastructure for the specific Project. The Developer/Contractor shall only make this request after all work is completed on the Project. If the work is not completed when request is submitted, the City shall reject the request for acceptance until all work is completed.

Inspection & Creation of Deficiencies List

Water, sewer and storm drainage utilities shall be inspected throughout installation and upon completion of installation and prior to paving operations, a deficiencies list shall be generated stating all discrepancies that relate to water, storm drainage and sewer utilities. After the completion of the utilities punch list and the remaining improvements can be completed.

Once a written request for acceptance, the certification of storm drainage detention and record drawings have been received, the Engineering Division will instruct the Engineering Construction Inspector to schedule an inspection of all required improvements. The Developer/Contractor will be invited to accompany the City's representative on all such inspections. The construction of public improvements will be inspected for conformance with the approved Public Improvement Construction plans, the Official Development Plan (if applicable), the Public Improvements Agreement (if applicable), Project specifications, these STANDARDS AND SPECIFICATIONS and Municipal Code. If, due to excessive dirt or snow on streets, poor weather conditions, inaccessibility, or other reasons the inspection cannot be performed, the Developer/Contractor will be notified of the need to postpone these activities until the cause of the delay can be

rectified. Deficiencies noted during the inspection will be compiled in a corrections list to be emailed or mailed to the Developer and/or Contractor for repair, replacement, or correction.

Correction of Deficiencies

Deficiencies list items shall be corrected within sixty (60) days of the date this list is sent to the Developer/Contractor. If all noted deficiencies are not corrected within this time, the public improvements may be re-inspected, and any new defects may be added to the deficiencies list. Public improvements will not be accepted until all noted deficiencies are corrected within the proper time frame. The Engineering Construction Inspector shall be notified before any corrective work commences and immediately upon the completion of the repairs.

Record Drawings

A complete set of “as-constructed” drawings of the public improvements shall accompany the request for acceptance. Upon acceptance by the City, the Developer/Designer will be required to submit a certified set of electronic “as-constructed” drawings on a thumb drive or through email. The submittal shall include a PDF set and AutoCAD .dwg files. These drawings shall be prepared on twenty-four-inch by thirty-six-inch (24" x 36") sheets, and lettering should be no smaller than one-eighth inch (1/8"). The City may request printed drawings at 11" x 17". The text must be readable. At a minimum, Record Drawings shall indicate the horizontal or vertical layout of all underground water, sanitary sewer, and storm drainage facilities (including distances between valves, fittings, manholes, etc.), profiles of streets, sanitary sewer mains and storm drainage mains, details of special or unusual installations and detention pond volumes. The Designer shall GPS all points including Manholes, Valves, inlets, and other pertinent infrastructure and provide the GPS data on Record drawings. If significant corrections to the improvements are noted during the acceptance inspection, the Record Drawings may be returned to the Developer or Designer for revisions. The final submittal of Record Drawings shall have each sheet of the signed and sealed by the Professional Engineer registered in the State of Colorado who is responsible for the preparation of the Record Drawings.

Certification of Storm Drainage Detention

A land surveyor registered in the State of Colorado shall affirm the as-built detention pond volumes and surface areas at the design depths, outlet structure sizes and elevations, storm drainage sizes and invert elevations at inlets, manholes, discharge location, representative open channel cross-sections and dimensions of all the drainage structures. Refer to **Appendix D** for the Certification form.

All storm detention and all permanent stormwater quality Control Measures (BMP's) facilities must be certified after final landscaping is implemented. This certification is required before a certificate of occupancy will be issued for any private development or redevelopment, or prior to final payment on any public improvement project. A Colorado licensed Professional Engineer shall certify the following:

- The detention pond and all permanent stormwater quality Control Measures (BMP's) are built according to the approved plans and specifications.
- The required detention volume, including the WQCV, when used, are met by the completed facilities.
- The surveyed elevations of critical design components, including inverts, of outlet structures geometry, overflow spillways or weirs and freeboard reflect the final constructed values, the finished pond depths, storage volumes and release rates are in substantial conformance with the approved design, and actual release rates conform to applicable regulatory agency rules and regulations and section 37-92-602(8), Colorado Revised Statutes (C.R.S.). - The certification shall include a copy of the City's plan acceptance letter to assist City staff in their review of the certificate. Detention ponds used as sedimentation basins through a phased construction development shall also be required to have the detention facilities recertified prior to each phase of the development's final certificate of occupancy.

The following note shall appear next to each detention pond plan and permanent stormwater quality BMP on the construction drawings:

"The developer shall have a licensed Professional Engineer certify each stormwater detention pond and/or water quality Control Measure is built according to the approved plans and specifications and the required detention volume, including the WQCV when used, is met. The certification shall also verify all pertinent dimensions, elevations, required outlet orifice plates for detention and WQCV and other permanent Control Measure requirements are installed per the approved plans and specifications, and shall show the as-built volumes for the 100-year and 10-year storm events, and for the WQCV and other pertinent dimensions, elevations and capacity requirements associated with the water quality control measure used. The certification shall be provided to the City of Northglenn before a certificate of occupancy will be issued, or before final payment on public improvement projects."

- **Registered Professional Engineer.** The responsible Designer shall state that "I have inspected the drainage facilities and to the best of my knowledge, belief and opinion, the drainage facilities were constructed in accordance with the design intent of the approved drainage report and construction drawings."

Written Notice of Initial Acceptance

Upon the completion of all items on the Deficiencies list and payment of all outstanding fees, reimbursements and other items owed to the City, the Engineering Division will issue a written Initial Acceptance of the Public Improvements and start the Warranty Period.

Warranty Period

The Developer/Contractor shall post a warranty surety for the two-year warranty period prior to the issuance of the Initial Acceptance Letter.

Inspection Prior to End of Warranty Period

After the Developer/Contractor has submitted a written request for final acceptance. A new deficiency list shall be developed and provided to the Developer/Contractor for appropriate replacement or repair.

Written Notification of Release and Final Acceptance

When the Warranty Period is completed and all defects in workmanship or material is completed, the City will issue a Final Acceptance Letter to the Developer or Contractor.

Release of Surety and Contractor Responsibilities

With the completion of all deficiency lists, appropriate notifications and inspections, the surety will be released signifying all responsibility of the Developer/Contractor for repairs and maintenance is completed.

4.1.2 Initial Acceptance

Recommendation for Initial Acceptance

The Engineering Construction Inspector shall recommend granting or denial of Initial Acceptance based on re-inspection for compliance to the written deficiency list, previously provided to the Developer/Contractor.

Initial Acceptance Letter

The Engineering Division shall issue a letter to the Developer/Contractor within ten (10) days of acceptance re-inspection. The Initial Acceptance Letter shall specify the date on which the Contractor is eligible to request Final Acceptance. The City will not release building permits until the Developer/Contractor has achieved Initial Acceptance.

Adjustment of Collateral

Upon written notification of Initial Acceptance, the collateral for Public Improvements in Development projects may be reduced to the percentage required by the City during the warranty period of the total required collateral for the project as defined in **Chapter 3 - Permits**.

Adjustment of Retainage for Contractor

Upon written notification of Substantial Completion, the retainage for the Capital Improvement Project may be reduced to the percentage acceptable to the City and in accordance with the specific contract.

4.1.3 Warranty Period

Duration

All public improvements shall be subject to a warranty period of at least two (2) years after the date of the letter of Initial Acceptance (Substantial Completion) from the Engineering Division. It starts at Initial Acceptance and ends with the Final Acceptance of the Public Improvements. If the Developer/Contractor requests and is granted an extension to repair deficiencies, the surety and deficiencies list will remain in place for that additional period of time.

Maintenance Responsibility

The Developer/Contractor shall be responsible for the maintenance of all public improvements during the warranty period. The Engineering Division will notify the Developer/Contractor of any maintenance that may be necessary during this time. Routine maintenance normally performed by the Developer/Contractor includes, but shall not be limited to, the cleaning of streets, patching of potholes and removal of blockages from water, storm, and sanitary sewer facilities. The cost of any routine maintenance not performed by the Developer that must be performed by the City will be billed to the Developer at cost plus fifteen percent (15%). If the Developer does not pay for these costs in sixty (60) days, the City may pull the surety to recover costs.

Emergency Repairs

In the event of a water main break, sanitary sewer main blockage, street or bridge failure, or other emergency that may occur during the warranty period, it may become necessary for the City to undertake immediate repairs to the facilities and/or make the area safe to residents, pedestrians, or motorists. The City will attempt to contact the Developer or Contractor in the event of such emergency. However, if the Developer or his representative cannot be contacted quickly or if the Developer or Contractor is unable to take immediate action to relieve the urgent situation, the City may proceed with such action as deemed necessary by the Engineering Division, and the Developer/Contractor will be billed for all costs of these actions at cost plus fifteen percent (15%).

4.1.4 Final Acceptance of Public Improvements

Preparation of Corrections List

At approximately one (1) year and nine (9) months into the warranty period, the Engineering Construction Inspector will schedule and perform an inspection of the public improvements within the development/Capital Project limits. The Developer or his representative and/or Contractor will be invited to accompany the City's representative on all such inspections. The City shall develop the punch list of repairs and deficiencies and deliver to the Developer and/or Contractor. The City will provide an opportunity for an optional meeting to discuss issues. The condition of the public improvements will be inspected for conformance with the accepted plans, the Official Development Plan (if applicable), the Public Improvements Agreement (if applicable), these STANDARDS AND SPECIFICATIONS and Municipal Code. If due to excessive dirt or snow on streets, poor weather conditions, inaccessibility, or other reasons the inspection cannot be performed, the Developer/Contractor will be notified of the need to postpone these activities until the cause of the delay can be rectified. Deficiencies noted during the warranty inspection will be compiled in a corrections list to be emailed to the Developer/Contractor.

Correction of Deficiencies

Warranty correction list items should be corrected within two (2) months of the date of the warranty correction list, unless authorized by the Engineering Division and all corrections must be completed no later than ten (10) working days prior to the scheduled end of the warranty period. If all of the noted deficiencies are not corrected within this time, the public improvements may be re-inspected, a revised correction list may be issued, and the end of the warranty period may be adjusted at the discretion of the Engineering Division to allow ample time for the completion of the corrections. The end of the warranty period will not be acknowledged until all noted deficiencies are corrected within the proper time frame. The appropriate Engineering Construction Inspector shall be notified before any corrective work commences and immediately upon the completion of the repairs.

Written Acknowledgment of End of Warranty

Upon completion of the correction of all deficiencies noted in the warranty correction list, the Engineering Division will issue a written acknowledgment of the end of the warranty period for the public improvements. Surety or Warranty Bond for public improvements may be released in its entirety at this time.

4.2 Acceptance/Warranty Inspection Criteria

4.2.1 General

All public and private improvements shall be installed in conformance with the approved Public Improvements Construction plans, the Official Development Plan (if applicable), the Public Improvements Agreement (if applicable), construction agreement (if applicable), and these STANDARDS AND SPECIFICATIONS. The Engineering Division shall be the final authority in the determination of defects and required corrections to public and private improvements. The following lists of items is not necessarily the entire list of items to be checked in the inspection process.

Grading & Seeding

Finished grades shall be in conformance with the approved plans and the Official Development Plan. Detention pond grading shall provide, at a minimum, the required volume as defined in the approved final drainage study. Unless otherwise approved, no slopes shall exceed a grade of four (horizontal) to one (vertical) (4:1). Approved seed mix shall be applied (unless other landscape improvement materials are approved) and grass shall be established in conformance with **Chapter 6 – Earthwork & Erosion Control** and **Chapter 17– Revegetation & Seeding** of these STANDARDS AND SPECIFICATIONS.

Water Systems

The required inspection and testing of water mains and appurtenances that shall be performed before systems can be released for service is outlined in **Chapter 8 – Water System** of these STANDARDS AND SPECIFICATIONS. At the time of acceptance and warranty inspections of all public and private improvements, additional aspects of water system construction that shall be inspected include, but shall not be limited to, the following:

- **Water Appurtenances.** All valves, blow-off installations and fire hydrants shall be operable.
- **Valve Box Risers.** Valve box risers shall be vertical and shall be adjusted to within one-eighth inch (1/8") below grade in paved areas or one inch (1") above grade in landscaped areas.
- **Valve Operating Nuts.** Valve operating nuts shall be accessible with a six-foot (6') valve key with between eighteen inches (18") and four feet (4') of clearance between the handle of the key and finished grade.
- Fire hydrants shall be vertical and shall be adjusted to a minimum of eighteen inches (18") from the center of the nozzle to finished grade.

- A minimum of five feet (5') of clearance for operation shall be provided around all fire hydrants and water valve risers.
- Manhole rims and covers for water valve vaults shall be adjusted to within one-eighth inch (1/8") below grade in paved areas or one inch (1") above grade in landscaped areas.
- The construction and operation of any required pumping systems shall be in conformance with the specifications issued and approved for that specific installation.
- All mains and manholes shall be free of construction debris, dirt, trash, and other foreign material.

Sanitary Sewer System

The required inspection and testing of sanitary sewer mains and appurtenances that shall be performed before systems can be released is outlined in **Chapter 7- Sanitary Sewer System** of these STANDARDS AND SPECIFICATIONS. At the time of acceptance and warranty inspections of all public improvements, additional aspects of sanitary sewer system construction that shall be inspected include, but shall not be limited to, the following:

- All mains and manholes shall be free of construction debris, dirt, trash, and other foreign material.
- The Contactor's TV inspection of all sanitary sewer mains shall be completed prior to the acceptance of public and private improvements.
- Manhole rims and covers shall be adjusted to within one-eighth inch (1/8") below grade in paved areas or one inch (1") above grade in landscaped areas.
- Manhole steps shall be properly spaced and aligned.
- The construction and operation of any required sewage lift systems shall be in conformance with the specifications issued and approved for that specific installation.

Storm Drainage System

The required inspection and testing of storm drainage mains and appurtenances that shall be performed are outlined in **Chapter 9 - Storm Drainage & Other Concrete Facilities** of these STANDARDS AND SPECIFICATIONS. At the times of acceptance and warranty inspections of all public improvements, additional aspects of storm drainage system construction that shall be inspected include, but shall not be limited to, the following:

- All pipes and manholes shall be free of construction debris, dirt, trash, and other foreign material.
- The Contractor's video inspection of all storm drainage mains shall be completed prior to the acceptance of public and private improvements.
- Manhole rims and covers shall be adjusted to within one-fourth inch (1/4") below grade in paved areas or one inch (1") above grade in landscaped areas.
- Manhole steps shall be properly spaced and aligned.
- Inlets shall be properly aligned to within one-eighth inch (1/8") below grade next to sidewalk or curb and gutter.



Concrete

The required inspection and testing of concrete that shall be performed are outlined in **Chapter 15– Street Construction Standards** of these STANDARDS AND SPECIFICATIONS. At the time of acceptance and warranty inspection of all public improvements the aspects of concrete construction that shall be inspected include, but shall not be limited to the following:

- Breakage or cracking greater than 1/32” at other than construction joints.
- Ponding of any size.
- Settlement affecting drainage, pedestrian, or traffic safety.
- Surface spalling or deterioration.
- Longitudinal cracking

Roadway

The required inspection and testing of roadways that shall be performed are outlined in **Chapter 15 – Street Construction Standards** of these STANDARDS AND SPECIFICATIONS. At the time of acceptance and warranty inspection of all public improvements, the aspects of roadway construction that shall be inspected include, but shall not be limited to, the following:

- Breakage or cracking greater than 1/8”
- Ponding of any size
- Settlement affecting drainage, pedestrian or traffic safety
- Surface segregation of fines or aggregate
- Hazardous conditions
- Alligatoring
- Improper grade or inverted crown