

## **1.0 Construction and Inspection General Policies**

The objective of the Construction and Inspection General Policies is to:

- Establish standards for the inspection of municipal infrastructure works

## **2.0 General**

This document will be subject to revisions from time to time. The City of Quinte West reserves the right to make revisions having due regard for applications already in the review process. Individuals or groups affected accordingly will be notified by the City of Quinte West, and revisions will become effective on the date of notification.

**(Contents of this document are subject to change without further notice)**

## **3.0 References**

In addition to the standards specified in this manual, construction and inspection shall follow current standards and in conformance with the following standards, specifications or publications:

### Publications

See other sections of this manual for specific inspection and testing requirements.

### Permits/Approvals

- Lower Trent Conservation Authority
- Quinte Conservation Authority
- Hastings and Prince Edward Counties Health Unit
- Authority to pertaining appropriate utility

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## 5.0 Construction Approval/Inspection

### 5.1 Construction Prerequisites

The following shall be considered pre-requisites to the Commencement of Construction:

- Engineering plan approval including approval from all outside agencies having jurisdiction.
- All construction related permits / approvals in place.
- Acceptance of the owner's contract documents.
- Posting of the Certificate of Insurance and other as set forth in the Subdivider or Site Plan Agreement.
- Delivery of all forms of consent, securities and payments as provided for in the Subdivision or Site Plan Agreement.
- Execution and delivery by the Owner/Developer of the Subdivision Agreement and all deeds and easements for lands to be given to the Municipality and other public agencies.
- Delivery of 9 sets of all plans plus 2 copies of the Geotechnical report.
- A pre-construction meeting.

### 5.2 Pre-Construction Meeting

Having met all other pre-requisites for the Commencement of Construction, the owner's engineer shall request a pre-construction meeting to be arranged through the office of the Public Works and Environmental Services Department just prior to construction. The consultant shall contact the utility companies and any other agencies, which are perceived to have an interest in the construction. It is expected that the developer's engineer and contractor will attend, as well as a direct representative of the development firm. The owner will be required to provide an approximate schedule of construction, a list of subcontractors, and a list of materials, mix designs etc., to be used in the construction of the subdivision (materials must have Municipal approval). Minutes of the meeting will be taken by the owner's engineer and circulated to all in attendance upon a draft being reviewed and approved by the Public Works Department.

In addition to any other interested parties the following must be in attendance at the pre-construction meeting: the Owner's Engineer and their Site Inspector, the General Contractor's representative and City of Quinte West staff as required. At the City's discretion, other sub-consultants, as applicable. Notification of the pre-construction meeting will be sent by facsimile to other utility companies.

### 5.3 Inspection and Testing

All works to be constructed shall be inspected and tested under the direction of a Professional Engineer as approved or designated by the City's Director of Public Works and Environmental Services. The owner's engineer's designate inspector shall be approved by the Municipality before providing inspection for the approved development. The Municipality or a representative of the Municipality will provide periodic part time inspection at pertinent inspection intervals.

## 6.0 Duties of the Owner's Engineer During Construction

The owner's engineer shall ensure that an approved construction inspector is present on site for the purposes of ensuring quality control during construction. The following functions are considered mandatory:

### 6.1 Startup

- Attend pre-construction meeting
- Check all benchmarks on the plan for accuracy
- Check elevations of any receiving sanitary or storm sewers to ensure conformance with plan elevations
- Check for adequate control for layout i.e. survey bars
- Obtain asphalt curves, asphalt and concrete mix designs, sieve analysis, and aggregate sources - to be forwarded to the Municipality and the chosen Testing Company

### 6.2 Underground Works

- Record top of rock elevations
- Check horizontal and vertical alignment and grades of all works
- Verify acceptability of material on site
- Inspect bedding installation and confirm proper compaction
- Inspect coverage of sewer pipes and verify clearances
- Check to make sure sufficient cover on watermain
- Check manhole and catchbasins locations to ensure they meet plan dimensions
- Check tops of maintenance holes and catchbasins to ensure they are low enough to accommodate frames and grates plus at least one lift of moduloc and mortar bed for frame and grate
- Ensure all maintenance holes are properly benched and have sufficient rungs;
- Complete all necessary testing for sanitary sewer system (air test, mandrel, leakage, etc.) as well as for watermains (continuity of tracer wire, chlorination, etc.) and record information
- Record all "As-Built" information and complete lateral sheets for each lot
- Check final elevations for frame and grates of all maintenance holes, catchbasins and ditch inlets, which are not in the pavement

### 6.3 Roadworks

- Check sub base to make sure it is to grade; complete compaction testing
- Complete compaction testing and testing of granular materials
- Check curb grades, location and layout
- Ensure all storm inlets are in accordance with the approved design elevation
- Take air tests, slump tests, and cylinders on all concrete pours (curb and sidewalk)
- Check final road base elevations prior to base course asphalt to ensure proper crown and proper depth between top of base and top of gutter
- Ensure manhole frames and grates are constructed to the proper grade and cross fall at base course asphalt grade including all gate valve boxes
- Sample both surface and base course asphalt

- Prior to surface course asphalt, confirm and witness CCTV; CCTV reports and tapes to be reviewed and commented upon
- Prior to surface course paving, make sure all manhole and catchbasin frames are properly adjusted including all gate valve boxes
- Ensure all ditch inlet structure grates and storm outfall grates are properly secured
- Check sidewalk alignment and grades
- Check sidewalk base material and compaction, check sidewalk forms to ensure proper thickness

#### 6.4 Utility Trenches, Street Lights, Boulevards, and Street Trees

- Check locations and depth of utility trenches
- Check locations of ducts
- Check location and grade of transformer pads, pedestals, etc.
- Ensure road crossings and utility trenches are properly backfilled and compacted
- Check location of street lights and ensure they are vertical
- Sod and landscaping is checked at acceptance for compliance
- Confirm stakeout of street trees and confirm species planted

#### 6.5 Miscellaneous

- If required by the Municipality - complete weekly progress reports which are forwarded to the Municipality which details the work completed, identifies significant deficiencies, details progression of work versus the contractors schedule of work, appends all test results, etc.
- Certification from a Professional Engineer that the works have been installed in accordance with the approved engineering drawings; both at above and below ground stages of construction
- Complete deficiency inspections and reports
- Verify security reduction requests
- Check all rip rapped areas for dimensions, grade, size, and quality of rock and installation of filter cloth
- Check all storm water management facilities for grade and dimensions
- Check all major drainage swales and rear yard swales for grades and alignment
- Monitor construction of berms and noise attenuation fences
- Monitor construction in park areas
- Check construction of walkways and fencing
- At completion of all landscaping, check fire hydrant flange elevation to ensure the minimum 150 mm clearance
- Check all gate valves and curbstops for visibility and operation
- Tie in all maintenance holes and gate valves which are not in the pavement

**7.0 Inspection Frequency**

The owner’s engineer shall ensure that quality control and inspection frequency is carried out in accordance with the following criteria:

Inspection Frequency

<b>Type of Operation</b>	Owner's Engineer	City of Quinte West
Pre- Construction Meeting	A	A, M
Clearing and Grubbing	P	A
Stripping topsoil	P	A
<b>Below Ground Works</b>		
Check bench marks & Control Bars	A	A
Check Trenching, Bedding, and Backfilling Operations	F	A
Verify Acceptability of Materials	P	A
Check Layout & Monitor installation of below ground works	F	A
Monitor Testing of Watermain (leakage)	F	A, M
Monitor Chlorination (Water)	F	A, M
Monitor Testing of San. Sewer and maintenance holes	F	A, M
Utility trenching (Electric, Telephone, Cable, Gas)	P	A
Utility Trench Backfill	F	A
Compile Information and Prepare As-Built drawings	F	
<b>Above Ground Works</b>		
Checking grade and layout of all above ground works	F	A
Monitor Road sub excavation and placement of Granulars	F	A, M
Check Rough grading of boulevards	P	A
Check pre grading of lots /Swales/Parkland/ Storm Ponds	P	A
Check base asphalt	F	A, M
Check streetlight installation and wiring	F	A
Check curb and gutter installation	F	A, M
Check Sidewalk installation	F	A, M
Walkways	F	A
Fencing (Noise, Berms, Misc.)	P	A
CCTV sewers	F	A
Check top course asphalt	F	A, M
Boulevard Landscaping		A
Park Landscaping/ Street Trees	A	A
<b>Other</b>		
Prepare weekly progress reports	A	A, M
Security reduction requests	A	A, M
Administering deficiency inspections	A	A, M

F= Full time inspection

P= Part time inspection

A= As required to establish compliance

M= Indicates mandatory involvement by City of Quinte West – Public Works/Engineering Services staff

Testing Requirements

Area	Min. % Compaction	Minimum Frequency/Intervals*	Test Location/Identification
Mainline Sewer – Bedding, Cover and Trench Backfill	98	50 meters at random depths, 0.3 meters max. lift for first 150 m and every 100 m thereafter	Street, Distance from Downstream manhole
Mainline Water Main –Bedding, Cover and Trench Backfill	98	50 meters at random depths, 0.3 meters max. lift for first 150 m and every 100 m thereafter	Street, Station, and Offset
Road Subgrade Utility Crossings	100	50 meters at random depths, 0.3 meters max. lift for first 150 m and every 100 m thereafter	Street, Station, and Offset
Service Trenches (Water, Sanitary, Storm)	98	First 2 trenches and every trench thereafter	Lot Number
Curb & Gutter Sidewalk	100	50 meters at random depths, 0.15 meters max. lift	Street, Station, and Offset (left or right)
Granular Road Base	100	50 meters, 0.15 meters max. lift	Street, Station, and Offset (left or right)
Asphalt	100	50 meters, each lane	Street, Station, and Offset (left or right)
Existing Driveway Reinstatement	100	Random	Lot or House Number and distance

NOTE: All measurements are to be in metric units.

\* Testing shall be done at all changes of soil types and/or types of mechanical compaction.

**8.0 Consistency**

The owner’s engineer shall make every reasonable attempt to maintain consistency in regard to on site inspection. If an alternate inspector is to be assigned to the project the owner’s engineer shall notify the Public Works and Environmental Services Department and obtain his or her concurrence. If unforeseen circumstances require the immediate substitution of the designated inspector the Public Works Department shall be notified as soon thereafter as possible.

## 9.0 Progress Reports / Inspection Reports

Progress Reports and Inspection Reports may be requested by City Staff at any time throughout the duration of the project. The owner's engineer shall prepare bi-weekly reports indicating:

- Works completed
- Daily work log sheets
- Works in progress
- Any change orders and/or directions to the contractor involving issues of non-compliance
- Adherence to the construction schedule
- All records confirming satisfactory completion of the works. Records shall include;
  - ✓ Grading sheets
  - ✓ Flow ratings for each hydrant
  - ✓ Lot servicing details and locate cards
  - ✓ Leakage test results of both water and sanitary sewer systems as set forth in the OPSS
  - ✓ Mandrel test results of plastic sewer mains as set forth in the OPSS.
  - ✓ Water main disinfection test results as set out in the OPSS.
  - ✓ Compaction results
  - ✓ CCTV reports and videos
  - ✓ Portland cement concrete test results
  - ✓ Asphaltic concrete test rests (all lifts)

Upon completion, copies of the bi-weekly report are to be furnished to the City's Public Works and Environmental Services Department for internal distribution

## 10.0 Inspection by City of Quinte West Staff

The City of Quinte West staff will attend the site at periodic and random intervals to ensure that the level of inspection is adequate. Where inspection is being carried out by the owner's engineer, all costs incurred by the City in attending to the periodic and random inspections will be invoiced to the Owner in accordance with the subdivider's agreement. Payment shall be due as set out in the subdivision agreement. Any and all information regarding the work in progress shall be made available on request to the City's inspection personnel. Not limiting the generality of the forgoing the owners engineer shall notify the City of Quinte West at least 48 hours in advance of all key steps in the construction process. The owner will provide the Public Works and Environmental Services Department with a statement signed by a professional engineer certifying that all works were inspected and that they adhere to the plans and specifications approved by the City of Quinte West.

## 11.0 Site Meetings

Site meetings may be called by the Public Works and Environmental Services Department as required to monitor the work in progress and to discuss and resolve matters of mutual interest or to resolve any on site difficulties.

## 12.0 Plan Revisions

Engineering Drawing revisions are to be reviewed and approved by the Municipality prior to issuance. Requests for design alterations shall be coordinated by the owner's engineer who shall



submit copies of the proposed revision to the Planning and Development Department together with a covering letter outlining the nature of the change. The number of plan copies required for review will be determined by the City's Planner depending upon the nature of the proposed revision at which time he/she will determine the need to involve other Departments. Upon approval by the Director of Public Works and Environmental Services, other affected agencies may be contacted. Upon all necessary approvals being granted, eight (8) copies of the revised plan(s) shall be submitted to the Municipality for internal use and for distribution to inspection personnel on site.

### **13.0 Closed Circuit Television Examination of Sewers**

The video examination shall extend throughout the entire length of sanitary and storm sewer systems as identified and shall include the submission of a report both in video and written form.

Prior to any video examination the systems shall be flushed and cleared of all heavy silts, clays, sludge, and other foreign material.

The examination shall be carried out prior to the application of the first lift of asphalt. A schedule as to the timing of the examination shall be provided to the City one week in advance of the inspection-taking place.

The examination shall be carried out in the presence of the City's designated representative who shall assist in the co-ordination of the work.

The report format shall be unedited, DVD color format, together with a written report comprised of the following components:

- Size of pipe
- Type of pipe
- Length of pipe (run length to be from manhole to manhole or dead end);
- The City's manhole numbering system as identified and where possible a corresponding house number
- Size, type and condition of maintenance holes;
- Location of all problem areas referenced to the run's starting point;
- A colored picture of all problem areas;
- Location of all intermediate branch connections referenced to the run's starting point; and
- A key map indicating manhole numbers.

### **14.0 Blasting Policy**

The City of Quinte West does not issue or require permits to blast within the City's boundaries. Any blasting however is subject to the City of Quinte West "Noise Control Bylaw" 08-127 as amended. It is the City's policy however that prior to commencing any blasting permission is obtained from the City's Engineer.

Any blasting operation shall be supervised on site by a qualified person.

No blasting is to occur on Saturdays, Sundays or Holidays.

14.1 Requirements

As part of our review process, we ask that the submission and design requirements of OPSS 120 as well as the following items be submitted to the City:

- 1) Location and limits of blasting operation.
- 2) Time, date and duration of blasting.
- 3) Submission of the names of the blasters to be in charge of the blasting including a record of their experience and safety training and a letter of reference.
- 4) Submission of a certificate signed by an independent blasting specialist indicating that a pre blast survey has been conducted for those areas within a 100 meter radius of the proposed blast site.
- 5) Notification of the intent to blast of all properties within a 300 meter radius from the blasting site. The notification should indicate the timeline for the expected blasting, methods to be used to safeguard life and property, and the contact information for the blasting company representative available for responding to concerns and questions.
- 6) Submission of a Certificate of Insurance naming the City as additionally insured with a minimum coverage of Five Million Dollars (\$5,000,000) per occurrence for bodily injury, sickness, disease, death and damage to property including loss thereof.
- 7) Workers Compensation Clearance