

SITE PLAN CERTIFICATION REQUIREMENTS

Rev 2 – May 25, 2017

I. CONSTRUCTION PREREQUISITES

1.1. Pre-construction Survey

A preconstruction survey of all existing infrastructure within the right of way (ROW) affected by the work must be submitted to the City prior to construction activity within the ROW. The survey must include photos and clearly identify and locate all pre-existing conditions.

The developer should also confirm that all existing topographic and as-built information presented on the approved design drawings accurately reflects the existing field condition.

II. CERTIFICATION PACKAGE REQUIREMENTS

The following support documentation will constitute the minimum requirements for acceptance of the works:

1.1. Letter of General Conformance for services onsite and works within the right of way

Provide a General Conformance letter signed and sealed by a Professional Engineer verifying that all servicing works within the site have been installed in general conformance with the approved project drawings and specifications.

For works within the Municipal Right of Way, the letter must certify that the servicing and road works completed in the municipal right of way have been installed under full time supervision and were constructed in accordance with City Standards and Specifications.

1.2. Watermain/service Certification

1.2.1. Bedding Gradation Analysis (R.O.W. works only)

A bedding gradation analysis from a certified lab must be provided to verify the bedding conforms to the minimum gradation requirements defined in Table 2A of GSSS 1010.

1.2.2. Bedding Compaction(R.O.W. works only)

Bedding compaction results are not required to form part of the certification package.

1.2.3. CGS – Watermain Test Report / Procedures (for watermains/services $\geq 100\text{mm}$)

A City of Greater Sudbury Watermain Test Report / Procedures form must be completed in full and submitted to both the Manager of Construction Services and the Chief Field Inspector prior to connection to the existing main.

1.2.4. Water Quality Test Results (for watermains/services $\geq 100\text{mm}$)

The certification package must include results of the water quality tests performed in conjunction with the CGS – Watermain Test Report/Procedures. These tests must indicate that the minimum requirements of the Ministry of the Environment – Ontario Drinking Water Objectives have been met. These results are to be forwarded to the Manager of Construction Services and the Chief Field Inspector.

1.2.5. Tracer Wire Field Inspection Report (R.O.W. works only; however, tracer wire should also be installed throughout the site.)

For all non-metallic water services and mains, submit the City's "Tracer Wire Field Inspection Report" which shall be completed by a third party.

1.3. Sanitary/Storm Sewer and Subdrain Certification

1.3.1. Bedding Gradation Analysis (R.O.W. works only)

A bedding gradation analysis must be provided from a certified lab to verify the bedding conforms to the minimum gradation requirements defined in Table 2A of GSSS 1010.

1.3.2. CCTV Camera Inspection (R.O.W. Sewer mains only, unless the pressure leakage test cannot be completed for the service)

Results of the CCTV camera inspection must indicate that the sanitary sewer, storm sewer and subdrain was placed on the proper alignment without damage, sags or debris.

Close circuit television (CCTV) camera inspections requirements (of sewer mains) are as follows:

- All digital data are to be coded following the WRc Manual of Sewer Condition Classification, WRc 4th edition, American Society of Civil Engineers or a comparable manual.
- All videos are to be coded utilizing WRc codes, and provided in .wmv format along with the database.mdb (or other approved .mxd) files.
- All photos are to be provided in .jpg and reports in .pdf.

All digital image recordings shall be of quality that all minor defects (hairline cracks, etc.) be clearly visible, and in the main sewers, the colour of the pipe inspected be true to the actual conditions.

Video files shall commence with a minimum 10 second data information screen including: data and time of inspection, location description, contractor and operator name.

Technicians assigned to data gathering shall have a minimum of three (3) years related experience in sewer inspection, using Closed Circuit Television Equipment and Data Collection and shall be capable of report all conditions using WRc defect codes.

The Engineer shall confirm they have reviewed the CCTV reports and will provide their comments. Comments will verify the pipes are satisfactory and/or identify areas of damage, sags, debris etc. that should be discussed with City representatives prior to City acceptance.

1.3.3. Pressure Leakage Tests

Infiltration or exfiltration testing shall be completed and meet the requirements of OPSS 410. Where exfiltration testing is required, sanitary sewer test results shall be submitted. Where infiltration testing is required, storm and sanitary test results shall be submitted. Where infiltration or exfiltration testing cannot be conducted on service connections a CCTV camera inspection may be accepted upon approval of the Supervisor of Development Engineering.

1.4. Roads / Curbs Certification (R.O.W. works only)

1.4.1. Backfill Material

A letter must be provided from the engineer stating that the backfill material conforms to City requirements and the site specific geotechnical report. This letter must also state that sufficient compaction was obtained on this material.

1.4.2. Base Material – Granular “B” (Greater than 9m2)

a. Gradation Analysis

A gradation analysis must be provided from a certified lab to verify the Granular “B” conforms to the minimum gradation requirements defined in Table 2A of GSSS 1010.

b. Compaction Tests

Provide a certification letter signed and sealed by a Professional Engineer to verify that compaction conforms to OPSS 501 and GSSS 501.

The letter must also confirm that the Granular B, Type II has been compacted using single drum, vibratory, smooth steel drum rollers, with a minimum static drum weight of 8 tonnes (8000 kilograms) and minimum operating dynamic force of 150 kilonewtons. One hundred percent roller pass coverage with a minimum number of four passes shall be provided. Each roller pass shall overlap the coverage of the preceding pass by a minimum of 0.5 m.

Note that the material specified on the City approved construction drawings must be used. If an alternate type of Granular 'B' material is to be contemplated, this must be done as part of the construction drawing review process.

1.4.3. Base Material – Granular “A” (Greater than 9m2)

a. Gradation Analysis

A gradation analysis must be provided from a certified lab to verify the Granular “A” conforms to the minimum gradation requirements defined in Table 2A of GSSS 1010.

b. Compaction Tests

Results of the compaction testing must indicate that the Granular “A” material has been compacted according to the requirements set out in GSSS 501 and Method A of OPSS 501.

Compaction testing must be performed at 15 metre intervals along the roadway in a 3-point cross-section and all test results must be supplied to the City.

1.4.4. Asphalt Works(Greater than 9m2)

a. Materials Analysis

The analysis of the asphalt material in accordance with GSSS 310 and OPSS 310 must be provided from a certified lab to show that this material conforms to the minimum requirements defined in OPSS 1150 and the job mix formula reviewed and approved by the Developers Engineer prior to placement.

If a field adjustment of the Job mix formula is required, after placement, this must be provided to the Developers Engineer 24hrs after QA test results have been completed. The Developers Engineer is responsible for approving the Job Mix Formula changes. Field adjustments to the JMF shall be limited as per GSSD 310 and OPSS 1150. Any borderline results in the field adjusted Job Mix Formula will be considered rejectable.

b. Compaction Tests

Results of the compaction testing must indicate that the asphalt material has been compacted according to the requirements set out in GSSS 310 and OPSS 310.

Compaction testing must be performed at 15 meter intervals along the roadway in a 3-point cross-section for each lift of material and all test results must be supplied to the City.

1.4.5. Concrete works(Greater than 3 cu.m)

a. Concrete Mix Design

Provide a copy of the concrete mix design and the applicable performance requirements as required to verify compliance with OPSS.MUNI 1350.

b. Slump, Air and Compressive Strength of Concrete

- i. For concrete curb and gutter systems, concrete testing must indicate that the concrete used meets the requirements set out in OPSS 353 and GSSS 353.
- ii. For sidewalk installations, concrete testing must indicate that the concrete used meets the requirements set out in OPSS 351 and GSSS 351.
- iii. For any other concrete works, materials, construction, and testing must comply with the relevant GSSS, OPSS, GSSD, OPSD, and any additional requirements set forth on the City approved construction drawings.

The submitted compressive strength test results from a certified lab must meet the requirements set out within the relevant GSSS and OPSS (for example, if 28 day test results are the standard, the submitted results must meet this requirement).

1.5. Stormwater Management Facilities

The certification package for stormwater management facilities (where applicable) must be in the form of a letter signed and sealed by a Professional Engineer stating that the storm water management facilities have been constructed in compliance with the approved construction drawings and Stormwater Management Report.

1.6. Additional Requirements

In addition to the above noted requirements, the following will form part of the certification package:

1.6.1. Inspection Photos (R.O.W. Work only)

Digital photographs of the installation of each major appurtenance installed (maintenance holes, catchbasins, valves, hydrants) must be provided. These photographs must be clearly labeled and provide sufficient as-constructed information (number of grade adjustment rings, height of hydrant above grade, etc.).

1.6.2. As-built Drawings

As-built drawing requirements are as follows:

- City as-built files in CAD or TIFF must be updated with the current as-constructed information to the City's as-built standards (see links below), including but not limited to all new or modified pipe sizes, lengths, material, inverts, structures, municipal and private fire hydrants, curbs, driveway entrances, sidewalks, property lines, easements, building footprints, etc.

- Where new property lines or easements are created as part of the proposed work, the Property Fabric must be labeled as per CGS standards including but not limited to Pin Blocks & PINs, property plans including M-Plans, S-Plans, 53R-Plans, easements, including easement number and dimensions and type of easement.
- All drafting for as-constructed information must conform to CGS standards. See Drafting Standards Manual / Drafting procedures (links below) for naming conventions, text styles & fonts, hatching, scales, blocks, colour & pen codes, linetypes and layering conventions.

Links to City Standards for As-constructed Drawings:

- (<https://www.greatersudbury.ca/business/engineering-standards/example-drawings/>)
- (<https://www.greatersudbury.ca/business/engineering-standards/drafting-procedures/>)
- (<https://www.greatersudbury.ca/business/engineering-standards/surveying-for-contractors/>)

In addition to the above requirements, if there are significant as-constructed changes from the approved site plan drawings, as built drawings for the site in PDF format must be provided.

1.6.3. Certification Letter for rock faces

A certification letter for all new rock faces shall be provided and must be sealed by a Professional Engineer with a minimum of 5 years experience related to blasting. The letter must also certify that all pedestrian and vehicle guards/fencing required for the new rock face have been installed.

1.6.4. CCTV camera inspection of existing sewer mains and services

Where rock blasting has occurred for the installation of sewer mains or services, or where the main has been crossed below, a CCTV inspection of the existing adjacent mains and services must be completed as per Item 1.3.2 above. It is advisable that these mains and services be CCTV camera inspected as part of the pre-construction survey.

III. CONSTRUCTION APPROVAL AND INSPECTION

Upon the City's acceptance of the Certification Package, the developer will request an inspection for release of deposits once all work identified in the site plan control agreement has been completed. The City will conduct their inspection within 3 months (During the months of May through October). *Note this time period is under review.* All Deficiencies identified in this inspection must be corrected prior to the release of any deposits. Partial deposit releases may be considered depending on the deficiencies identified.

The City will provide only one inspection at no charge. A fee will be assessed, in accordance with City Council's Policy, for any subsequent inspections required to determine if the deficiencies have been rectified.

Rev 1 – 2016.05.31

- Clarify general conformance letter requirements
- Clarify certification requirements for R.O.W. work and for site work.
- Revised Granular B compaction requirements

Rev 2 – 2017-05-25

- Update as-built requirements
- Update CCTV requirements
- Update general conformance letter requirements
- Asphalt analysis