

# Subdivision Agreement Clauses

## CLI-ECA SWM 018-S701



### General

#### Erosion & Sedimentation Control Measures

The Owner shall ensure that temporary erosion and sedimentation control (ESC) measures are installed in advance of and maintained during any construction activity of the Stormwater Works in accordance with the ESC Plan in the Stormwater Management Report/Brief prepared by the Owner's engineer to the satisfaction of the Municipality.

Inspections of ESC measures are to be conducted at the frequency specified per the ESC plan, and at a minimum:

- a) once every two (2) weeks for dry weather periods (active and inactive construction phases);
- b) after each significant storm event (a significant storm event is defined as a minimum of 25 mm of rain in any 24-hour period);
- c) after each significant snowmelt event (a significant snowmelt event is defined as melting of snow at a rate which adversely affects the performance and function of the *Stormwater Works*); and
- d) after any extreme weather events.

Any deficiencies shall be addressed, and any required maintenance actions(s) shall be undertaken as soon as practicable once they have been identified.

Temporary ESC measures shall remain in place until they are no longer required (i.e., site has been stabilized) at which point they should be removed along with any accumulated sediment.

The *Owner* shall maintain records of all inspections and maintenance of temporary ESC measures undertaken and shall make available the records for inspection by the Municipality upon request. The records shall include the following at a minimum:

- a) the name of the Stormwater Works;
- b) the name of the person who conducted the inspection and maintenance, or the name of the inspecting official, where applicable; and

- c) the date and results of each inspection and maintenance including visual observations, an estimate of the quantity of any materials removed, and any other remedial actions undertaken to maintain the temporary ESC measures.

## **Operations & Maintenance Manual**

The Owner shall prepare an Operations & Maintenance Manual to the satisfaction of the Municipality prior to the commencement of operation of the *Stormwater Works* that includes, but is not necessarily limited to, the following information:

- a) operating and maintenance procedures for routine operation of the *Stormwater Works*;
- b) inspection programs, including frequency of inspection, for the *Stormwater Works* and the methods or tests employed to detect when maintenance is necessary;
- c) repair and maintenance programs, including the frequency of repair and maintenance for the *Stormwater Works*;
- d) contingency plans and procedures for dealing with potential spills and any other abnormal situations and for notifying the *Municipality*; and
- e) procedures for receiving, responding and recording public complaints, including recording any follow-up actions taken.

The Owner shall maintain the Operations & Maintenance Manual current and provide a digital copy of the manual to Municipality staff once completed and after every update.

## **Start-Up Report**

One (1) week prior to the start-up of the operation of the *Stormwater Works*, the *Owner* shall notify the Municipality in writing of the pending start-up date. The *Owner* shall make all manuals, plans, records, data, procedures and supporting documentation available to Municipality staff.

## **Annual Performance Report**

The *Owner* shall prepare and submit an Annual Performance Report to the Municipality each year by March 31st following the end of the period being reported upon. The first such report shall cover the commencement of operation of the *Stormwater Works* to December 31st of that year and subsequent reports shall be submitted to cover annual periods following thereafter (January 1st to December 31st). The reports shall contain, but shall not be limited to, the following information:

- a) a description of any operating problems encountered and corrective actions taken;
- b) a summary of all inspection, maintenance, testing and corrective actions carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the *Stormwater Works*, including an estimate of the quantity of any materials removed from the *Stormwater Works*;
- c) Inspection & Maintenance Program records;
- d) Monitoring Program records;
- e) measurement of the mass of accumulated sediment removed when undertaking maintenance of the *Stormwater Works*;
- f) a summary of any complaints received during the reporting period and any steps taken to address the complaints;
- g) a summary of all spill or abnormal discharge events; and
- h) any other information the Municipality requires from time to time.

### **Emergency Reporting**

As it relates to the approved *Stormwater Works*, the *Owner* shall ensure that, upon the occurrence of any spill, bypass or loss of any product, by product, intermediate product, oils, solvents, waste material or any other polluting substance into the environment, such occurrence be immediately reported to the Municipality, and the Spills Action Centre for the Ministry (Telephone 1-800-268-6060).

Further, the *Owner* shall, within ten (10) working days of the occurrence, submit a full written report of the occurrence to the Municipality describing the cause and discovery of the spill or loss, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation.

# Stormwater Management Ponds

## Inspection & Maintenance Program

The *Owner* shall inspect the *Stormwater Works* at least once a year and after significant flooding events (a significant flooding event is defined as a wet weather event which results in an overflow of water onto normally dry land) and, if necessary, clean and maintain the *Stormwater Works* to ensure that sediment, debris and excessive decaying vegetation are removed from the *Stormwater Works* to prevent the excessive build-up of sediment, oil/grit, debris and/or decaying vegetation, to avoid reduction of the capacity and/or permeability of the *Stormwater Works*, as applicable. The *Owner* shall also regularly inspect and clean out the inlet to and outlet from the *Stormwater Works* to ensure that these are not obstructed. In addition, the *Owner* shall ensure that the design minimum liquid retention volume in the pond is maintained at all times and operate the *Stormwater Works* with the objective that the effluent from the *Stormwater Works* is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film, sheen, foam or discoloration on the receiving waters.

The *Owner* shall maintain records of the results of all inspections, cleaning and maintenance operations undertaken, and shall make available the records for inspection by the Municipality upon request.

The records shall include the following:

- a) the name of the *Stormwater Works*;
- b) the date and results of each inspection, maintenance and cleaning, including an estimate of the quantity of any materials removed and method of clean-out of the *Stormwater Works*;
- c) the name of the person who conducted the inspection, maintenance and cleaning, or the name of the inspecting official, where applicable;
- d) observations resulting from the inspection including, at a minimum:
- e) hydraulic operation of the *Stormwater Works* (e.g., length of occurrence since the last rainfall event, evidence or occurrence of overflows);
  - i. condition of vegetation in and around the *Stormwater Works*;
  - ii. occurrence of obstructions at the inlet and outlet of the *Stormwater Works*;
  - iii. evidence of spills or oil/grease contamination, and the date of each spill within the site, including follow-up actions / remedial measures undertaken; and

- iv. presence of trash build-up.
- f) a summary of any operating problems encountered and corrective actions taken;
- g) a summary of any complaints related to the *Stormwater Works* received during the reporting period and any steps taken to address the complaints;
- h) a summary of actions taken, including timelines, to improve or correct performance of any aspect of the *Stormwater Works*; and
- i) a summary of the status of actions for the previous reporting year.

The inspection and maintenance records shall be signed and sealed annually by the Owner's engineer (licensed to practice in Ontario) certifying the records are kept accurate and current and the facility is being properly maintained in compliance with the CLI-ECA SWM Permit and Municipality standards. The Owner's engineer must submit inspection and maintenance records to the Municipality each year as part of the Annual Performance Report.

## **Monitoring Program**

The *Owner* must carry out a monitoring program and evaluate the performance of the stormwater management pond commencing at the initial completion of construction of the facility and continuing for a minimum of two (2) years after 90% of the buildings within the subdivision have been constructed and 90% of the catchment area draining to the stormwater management pond has been stabilized.

The monitoring program must include obtaining grab samples at the outfall from the pipe discharging from the stormwater management pond for at least three (3) rainfall wet events per year; a wet event is defined as a minimum of 15 mm of rain in the previous 24 hours. Two (2) of the events must occur within the May to September period. Samples must be tested for Total Suspended Solids (mg/L), Phosphorus (ppm), and Temperature (°C) and results recorded. The *Owner* shall maintain records of the results of all monitoring operations undertaken and shall make available the records for inspection by the Municipality upon request.

The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following:

- a) the *Ministry's* Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Stormwater Works

(Liquid Waste Streams Only)", as amended from time to time by more recently published editions;

- b) the *Ministry's* publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" (January 1999), ISBN 0-7778-1880-9, as amended from time to time by more recently published editions;
- c) CCME publication "Protocols Manual for Water Quality Sampling in Canada" (2011), ISBN 978-1-896997-7-0, as amended from time to time by more recently published editions; and
- d) the publication "Standard Methods for the Examination of Water and Wastewater" (21<sup>st</sup> edition), as amended from time to time by more recently published editions.

The records shall include the following:

- a) the name of the *Stormwater Works*;
- b) the name of the person who conducted the monitoring, or the name of the inspecting official, where applicable;
- c) the date and results of each sample taken under the monitoring program (described above);
- d) a summary of all monitoring data along with an interpretation of the data and an overview of the condition and operational performance of the infrastructure and any Adverse Effects on the Natural Environment (Adverse Effect as defined in the *Environmental Protection Act, R.S.O. 1990, c. E.19*);
- e) includes a summary and interpretation of environmental trends based on all monitoring information and data for the previous years; and
- f) includes a summary of the calibration and maintenance carried out on all monitoring equipment.

The monitoring records shall be signed and sealed annually by the *Owner's* engineer (licensed to practice in Ontario) certifying the records are kept accurate and current and the facility is operating in compliance with the CLI-ECA SWM Permit and the Municipality's Sewer Use By-Law No. 2008-192. The *Owner's* engineer must submit monitoring records to the Municipality each year as part of the Annual Performance Report.

The *Owner* must make a request in writing and receive approval from the Municipality to conclude the monitoring program.

## **As-Built Information**

Prior to assuming ownership, the Municipality will require certification from the *Owner* that all excess sediment and debris have been cleaned out of the stormwater management pond. This certification must be supported with at least one (1) pond clean out (i.e., dredging and disposal of excess sediment) followed by at least one (1) bathymetric survey that demonstrates the pond beneath the permanent pool elevation has been constructed in conformance with the approved design to the satisfaction of the Municipality.

As-built drawings for the stormwater management pond must also include topographic survey information to verify that as-built conditions conform with the approved design. As-built drawings are to be provided in both a PDF version and an AutoCAD version depicting all as built features. Refer to Section 8.8 of the [Municipality of Kingston Subdivision Development Guidelines & Technical Standards](#) for additional as-built drawing specifications and requirements.

# Manufactured Treatment Devices

## Inspection & Maintenance Program

The *Owner* shall inspect Manufactured Treatment Devices (e.g., oil-grit separator units) at least once a year and, if necessary, after any major spills have occurred and clean and maintain the *Stormwater Works* to prevent the excessive build-up of sediments and oil/grit.

The *Owner* shall maintain records of the results of all inspections, cleaning and maintenance operations undertaken, and shall make available the records for inspection by the Municipality upon request.

The records shall include the following:

- a) the name of the *Stormwater Works*;
- b) the date and results of each inspection, maintenance and cleaning, including an estimate of the quantity of any materials removed;
- c) the name of the person who conducted the inspection, maintenance and cleaning, or the name of the inspecting official, where applicable;
- d) observations resulting from the inspection including, at a minimum:
  - i. occurrence of obstructions at the inlet and outlet of the *Stormwater Works*;
  - ii. evidence of spills or oil/grease contamination, and the date of each spill within the site, including follow-up actions / remedial measures undertaken; and
  - iii. presence of trash build-up.
- e) a summary of any operating problems encountered and corrective actions taken;
- f) a summary of any complaints related to the *Stormwater Works* received during the reporting period and any steps taken to address the complaints;
- g) a summary of actions taken, including timelines, to improve or correct performance of any aspect of the *Stormwater Works*; and
- h) a summary of the status of actions for the previous reporting year.

The manufactured treatment device can be cleaned using a vacuum pump inserted down the maintenance access ways – no entry into the unit is required for its operation. Cleaning should occur annually; whenever the accumulation reaches 15% of the



sediment storage; or after any major spills have occurred. Oil levels greater than 2.5cm should be removed immediately by a licensed waste management firm.

The sediment should be tested to determine the disposal options. The *Ministry* publishes [sediment disposal guidelines](#) which should be consulted for up-to-date information pertaining to the exact parameters and acceptable levels for the various disposal options. The preferred option is off site disposal arranged by a licensed waste management firm usually to a sanitary landfill site.

The inspection and maintenance records shall be signed and sealed annually by the *Owner's* engineer (licensed to practice in Ontario) certifying the records are kept accurate and current and the facility is being properly maintained in compliance with the CLI-ECA SWM Permit and Municipality standards. The *Owner's* engineer must submit inspection and maintenance records to the Municipality each year as part of the Annual Performance Report.

## **Monitoring Program**

The *Owner* must carry out a monitoring program and evaluate the performance of the manufactured treatment device commencing at the initial completion of construction of the treatment facility and continuing for a minimum of two (2) years after 90% of the buildings within the subdivision have been constructed and 90% of the catchment area draining to the manufactured treatment device has been stabilized.

The monitoring program must include obtaining grab samples at the manufactured treatment device once during three (3) representative storm events in both the autumn and spring seasons (annually six samples per unit); a wet event is defined as a minimum of 15 mm of rain in the previous 24 hours. Two (2) of the events must occur within the May to September period. Samples must be tested for oil & grease and results recorded. The *Owner* shall maintain records of the results of all monitoring operations undertaken and shall make available the records for inspection by the Municipality upon request.

The records shall include the following:

- a) the name of the *Stormwater Works*;
- b) the name of the person who conducted the monitoring, or the name of the inspecting official, where applicable;
- c) the date and results of each sample taken under the monitoring program (described above);

- d) quantity and frequency of slop oil disposal from the manufactured treatment device, including a copy of the disposal manifest;
- e) a summary of all monitoring data along with an interpretation of the data and an overview of the condition and operational performance of the infrastructure and any Adverse Effects on the Natural Environment (Adverse Effect as defined in the *Environmental Protection Act, R.S.O. 1990, c. E.19*);
- f) includes a summary and interpretation of environmental trends based on all monitoring information and data for the previous years; and
- g) includes a summary of the calibration and maintenance carried out on all monitoring equipment.

The monitoring records shall be signed and sealed annually by the *Owner's* engineer (licensed to practice in Ontario) certifying the records are kept accurate and current and the facility is operating in compliance with the CLI-ECA SWM Permit and the Municipality's Sewer Use By-Law No. 2008-192. The *Owner's* engineer must submit monitoring records to the Municipality each year as part of the Annual Performance Report.

The *Owner* must make a request in writing and receive approval from the Municipality to conclude the monitoring program.

# Storm Sewers

## General Requirements

All new and replaced storm sewers, maintenance holes, connections and appurtenances shall be inspected and tested to ensure integrity of the installed material for water tightness prior to placing into service. A single testing plan can be used for similar tests on the same project; however, each test shall be recorded separately.

Inspection and testing plans including procedure, equipment, schedule, safety requirements, and emergency response plan shall be submitted to the Municipality at least two (2) weeks prior to the inspection or testing. Plans must be accepted by the Municipality prior to proceeding with the inspection or testing. Seasonal variation (e.g., spring freshet) on groundwater conditions shall be considered on selecting appropriate testing method.

## CCTV Inspections

A camera inspection shall be conducted throughout the entire length of the storm sewer system in accordance OPSS.MUNI 409 and supplemental conditions outlined in Appendix 2A of the [Municipality of Kingston Subdivision Development Guidelines & Technical Standards](#). The inspection shall be carried out prior to the application of the final lift of asphalt but not within the first ten (10) months following the completion of base asphalt. The CCTV inspection shall be carried out in the presence of the Municipality's designated representative who shall assist in the co-ordination of the work. All new storm sewers including connections and associated appurtenances shall be inspected to confirm alignment and to ensure that the *Stormwater Works* are free from obstructions, debris, and defects. All storm maintenance holes/access structures shall be inspected for any defects, leaks, debris, and to ensure proper benching.

If a CCTV inspection is not possible, other acceptable inspection methods for storm sewers and structures are included in Section 8.0 of the *Ministry's* "Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains for Alterations Authorized under Environmental Compliance Approval", and are summarized below:

- a) visual inspections as per OPSS.MUNI 433;
- b) zoom camera inspections as per OPSS.MUNI 432;
- c) sonar inspections as per OPSS.MUNI 435 (under submerged
- d) or partially submerged conditions); and

e) laser inspections as per OPSS.MUNI 434.

The *Owner's* engineer shall speak to any defects with respect to the sewer installations and recommend the method of remedial work where warranted. Any issues identified in the inspections shall be corrected at the *Owner's* expense and the respective pipe segments and maintenance holes shall be re-inspected.

### **Deflection Testing**

A deflection test shall be completed for all new flexible storm sewers at least thirty (30) calendar days after backfilling but prior to paving. Pipe segments failing the deflection test shall be removed and replaced. Mandrel testing and laser profiling performed in accordance with OPSS.MUNI 438 and OPSS.MUNI 434, respectively, are acceptable tests for pipe deflection testing. Equipment used to perform mandrel tests shall be specifically designed for the pipe material being tested.

The *Owner's* engineer shall speak to any defects with respect to the sewer installations and recommend the method of remedial work where warranted. Any issues identified in the testing shall be corrected at the *Owner's* expense and the respective pipe segments shall be re-inspected.