

Ontario Cottages & Sewage System Nutrients

Part One of a Three-Part Mini-Series

Introduction to Sewage Concerns of Cottagers

Cottages with flush toilets require either the means to treat and dispose of sewage on-site using a treatment unit and leaching bed, or to haul the sewage off-site. The Ontario Building Code (OBC) governs sewage treatment-disposal (Sections 8.6., 8.7.) and holding tanks (Section 8.8.) for flush toilets, whereas the Ministry of Environment (MOE) governs multiple-cottage collection and treatment-disposal. A series of short articles will cover the operation and performance of sewage systems, the effect of phosphorus, carbon, nitrogen, and pathogens on natural soil and water, and available options for diversion, collection, treatment, and removal of these contaminants. The series will demonstrate that on-site sewage systems can be designed and operated to be 'permanent infrastructure' equivalent to professionally managed municipal collection and treatment facilities overseen by the MOE.

Sewage treatment and disposal relies solely on raising beneficial microbes to 'eat up' sewage constituents with water, methane and carbon dioxide as end products. A series of treatment steps is taken because different environments are needed to raise different microbes – anaerobic digestion and aerobic bio-filtration followed by polishing and disposal in the soil. The higher the treatment level, the less the impact on natural soil and water, and the lower the health and safety risk. Put another way, a septic tank and bio-filtration treatment units outside of the natural environment is permanent infrastructure when properly managed, but with additional nutrient removal Ontario cottagers can flush their toilets into permanent infrastructure that is also 'environmentally benign'. This goal is achievable with existing technology and is affordable from a viewpoint of improved water quality and preserved property values for cottagers.

Effects of Upcoming OBC Changes

Part 8 Sewage Systems

The Building Code is being updated this year for planned publication in 2011. The public comment period is over, but proposals relevant to water quality and property values of cottagers would include the following:

- conventional soil systems be designed for treatment rather than disposal only
- sewage filtration before soil disposal for waterfront property

- maintenance contracts for conventional soil systems as with filtration units
- higher quality bio-filtered effluent be credited with smaller disposal areas
- nitrogen removal technology be standard for groundwater supply areas
- phosphorus removal credit be introduced to the OBC
- re-test treatment units using BNQ Standard 3680 protocol with cold sewage
- introduce BNQ 3680 nitrogen, phosphorus & disinfection classifications for discretionary use



High-quality sewage treatment with Waterloo 'Flat Bed' to fine sand Area Bed disposal provides permanent infrastructure even in remote lakefront property”.

Waterfront Sewage Inspection Program

Cottagers are concerned about quality of life at their lakes, and the Ministry of Municipal Affairs and Housing is taking steps with proposed maintenance inspections of sewage systems in the context of the Lake Simcoe Protection Plan. The proposal is Registry Number 010-9557 of the Environmental Bill of Rights www.ebr.gov.on with public comments received until May 28 2010 and enactment by January 1 2011. The intent is to legalize physical entry to sewage system 'buildings' around Lake Simcoe and other watersheds by inspectors to ensure that they are being maintained and are functioning as required by the OBC. Mandatory inspections will be in identified priority areas, and the regulation also covers discretionary inspections in other identified areas.

Issues for cottagers include which areas will have inspections, what kinds of inspection activities should be carried out and by whom, what findings constitute a malfunction, and then what to do when repair or replacement is necessary. The regulation should provide for the means to improve upon existing conventional systems found to be malfunctioning, in an affordable manner.

This series will focus on available options for sewage systems, how each performs and benefits the environment, and options suitable for retrofitting into existing waterfront lots. It will identify sewage constituents of concern, and how these can be diverted or removed. Ontario has proven low-energy options that provide 'permanent infrastructure' certainly, and with co-operation of regulators and cottagers, these can be made affordable and more 'environmentally benign'.

Stayed tuned for the next FOCA newsletter for the next article in this series.

Craig Jowett, craig@waterloo-biofilter.com

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143 Dennis St., Rockwood, ON N0B 2K0
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