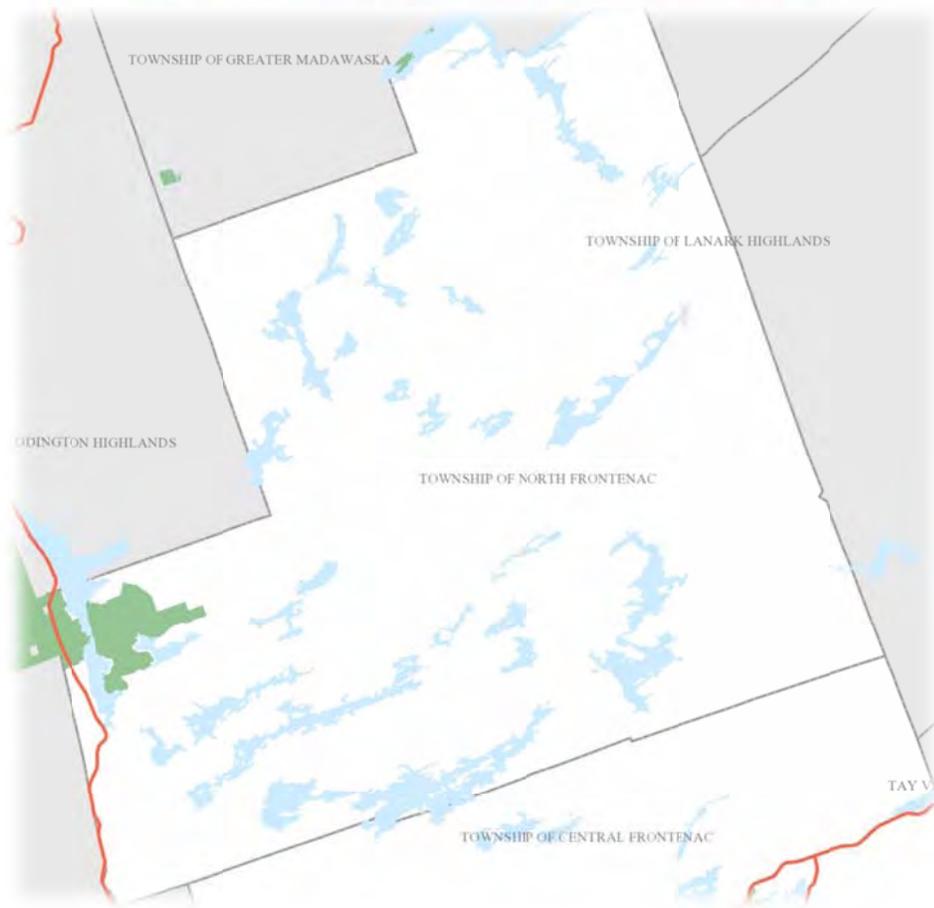


2015

Sewage System Re-inspection Program Report



Prepared For Township of North Frontenac
Prepared By Eric Kohlsmith
Mississippi Rideau Septic System Office
November 5, 2015


MississippiRideau
SEPTIC SYSTEM OFFICE

 Mississippi Valley
Conservation Authority  RIDEAU VALLEY
CONSERVATION AUTHORITY

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Executive Summary

During the 2015 sewage system re-inspection program 84 properties were inspected on 8 lakes – Canonto, Kashwakamak, Malcolm, Mosque, Pine, Shabomeka, Shawenegog and Sunday Lake. Three Hundred and sixty Property Owner Information packages were mailed. Two separate mailings were conducted.

The inspections began on May 19, and the last inspection was completed on September 25, 2015. For the 2015 program property owners were given the opportunity to book an appointment on one of four weekends through the summer. Most of the inspections were completed in June, July and August.

The table on the right is a breakdown of the number of inspections completed per Lake. As a result of the program 50 systems were identified as having no concern, 33 requiring remedial work, and 1 system replacements required.

Lakes	Number of Properties
Canonto	1
Kashwakamak	38
Malcolm	10
Mosque	7
Pine	4
Shabomeka	12
Shawenegog	8
Sunday	4
Total	84

The Mississippi Rideau Septic System Office (MRSSO) presented at the Canonto Lake Associations Annual General Meeting and attended the Lake Links Workshop to help bring awareness to the re-inspection program.

For the upcoming 2016 season, the MRSSO recommends the continuation of a re-inspection program that is focused on education, maintenance and operation of sewage systems.

In conclusion the MRSSO was able to:

- Inspect 84 properties
- Meet with 54 waterfront property owners regarding the maintenance and operation of their sewage system;
- Identified 1 sewage systems that system replacement was recommended.
- Provided weekend inspections.

1.0 Introduction

A working sewage system is an integral part of any home or cottage not serviced by the municipal sewer. As such, proper maintenance and operation of the sewage system is integral to the continued life of the system. A Sewage System Re-inspection Program provides:

1. Participants with information and advice regarding the proper operation and maintenance of their septic system;
2. A proactive approach to identifying risks to human health or the natural environment
3. A database of inspected existing septic systems that can be used as a planning tool for municipalities

Malfunctioning on-site sewage systems can have both human health and environmental impacts beyond the property on which it is located. Nutrient and bacteria rich effluent can travel through soil and rock fractures to surface water bodies, and ground water sources. Contamination of surface water can cause excess aquatic plant growth, depletion of oxygen in lakes, and alteration of the natural habitat of fish. Ground water contamination can cause drinking water to be boiled, sickness and even death. This makes it crucial that property owners be aware of the location and operation of the septic system. Under the Ontario Building Code it is the property owner's responsibility to ensure that their sewage system is working properly, not only for their health, but also that of the surrounding communities.

The current re-inspection program combines homeowner education about septic system operation and maintenance with an inspection component. An effective follow-up procedure is essential to ensure that the program effectively manages identified sewage system problems.

The authority for the Mississippi Valley Conservation and Rideau Valley Conservation Authority, and other enforcement agencies, to conduct inspections of potentially unsafe sewage systems is provided by BCA s.15.9(1). The program Authority can be found in Appendix D.

Recently the Ministry of Municipal Affairs and Housing have released amendments to the Building Code Act and the Ontario Building Code for a Sewage System Maintenance Inspection Program (Appendix E). The Maintenance program is developed to help protect drinking water, the natural environment and support the implementation of the Clean Water Act.

In 2015, property owners were contacted in May, requesting their participation in the sewage system re-inspection program. A site visit was made and a tank inspection and visual inspection of the leaching bed were completed if the property owner returned correspondence to the MRSSO. If the homeowner was insistent that their septic tank not be excavated, only a visual inspection of the

property was completed. In situations requiring further attention, KFL&A Public Health is mailed a copy of the sewage system re-inspection to provide enforcement accordingly. The results for the 84 inspections completed in 2015 were compiled and this report is the culmination of those efforts.

2.0 Program Initiation

2.1 Criteria for Selection of Properties

North Frontenac Township identified areas to be re-inspected in consultation with lake/cottage associations. Requirements for inclusion in the voluntary sewage system re-inspection program were determined to be waterfront properties with sewage systems that are 10 years and older. North Frontenac Township staff provides the MRSSO with the list of selected properties for participation after KFL&A Public Health has reviewed the list to remove systems that do not qualify.

2.2 Re-Inspection Protocol

After receiving the participant list, an information package is mailed out to each property owner informing them of the re-inspection program, what their participation would entail, a description of the inspection to take place and a two sided questionnaire to be completed by the homeowner and returned to our office (Appendix A).

Once a participant has contacted our office, either by returning the questionnaire, calling, faxing, emailing or filling out our online form, the information is recorded in the database under four different categories:

- Questionnaire returned with appointment
- Questionnaire returned without appointment
- No Questionnaire with appointment
- Removed from list (permit number or reason recorded)

As stated in our information package (Appendix A) appointments are first come first served basis. Once the appointments made by property owners are scheduled, returned questionnaires without appointments are scheduled and the property owner notified of the appointment approximately one week in advance. The MRSSO goal is to schedule 10 appointments per day. For 2015, the MRSSO provided property owners with the opportunity to schedule appointments on four weekends through the summer season. Only 13% of property owners that participated elected to schedule an inspection during one of the four weekends compared to 43% in 2014.

The tank inspection was deemed to be a highly invasive component of the re-inspection program, one which could potentially result in controversy if conducted without the permission of the homeowner. Permission was considered granted by receipt of a completed questionnaire. If explicit permission had not been granted then no inspection of the property was conducted. A detailed description of a visual and a tank inspection can be found in Appendix C. If any doubt remained about the location of the sewage system then more information was requested of the homeowner.

The re-inspection program in North Frontenac Township is a voluntary program with the goal of inspecting 100 waterfront properties each year. Three hundred and sixty Property Owner Packages (Appendix A) were mailed to perspective participants.

During the 2015 season two mail outs were performed:

- April 29, 2015 – Initial mail
- July 24, 2015 - Reminder

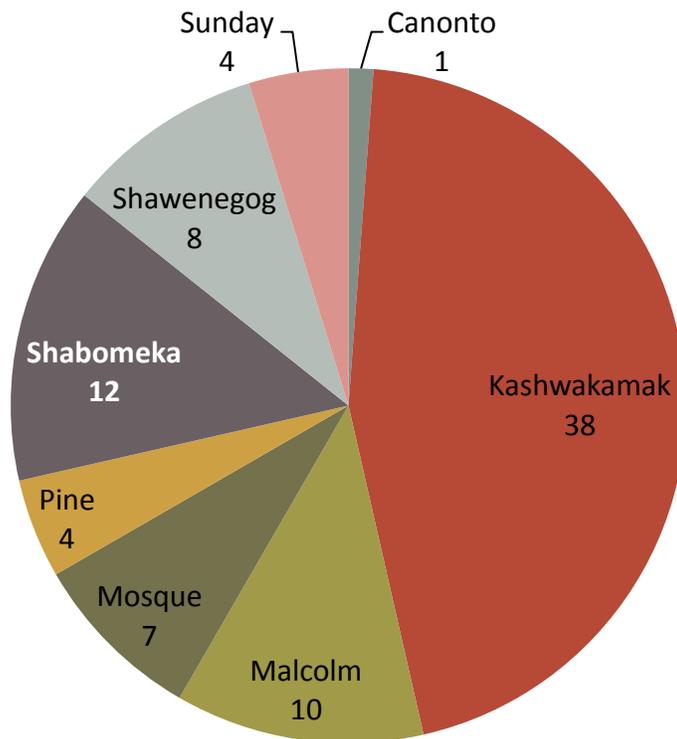
The intention of a reminder mail out is to encourage property owners to participate. If their property does not qualify for the program or they choose not to participate we also ask them to contact our office so the information can be recorded.

3.0 Results and Discussion

3.1 Distribution of Sewage System Re-Inspections

The sewage system re-inspection program completed 84 site visits in 2015. The lakes involved this year were Canonto, Kashwakamak, Malcolm, Mosque, Pine, Shabomeka, Shawenegog and Sunday Lake (figure 1).

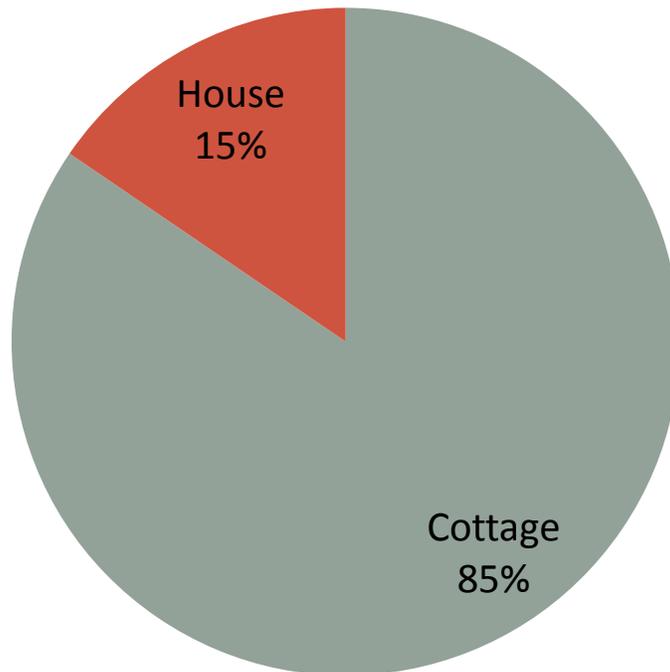
Figure 1 – Number of Inspections per Lake



3.2 Property use

As part of the questionnaire sent to property owners (Appendix A), it is requested that owners classify their property as either Cottage (seasonal), House (residential), Business (commercial) or Farm (Agricultural). Figure 2 illustrates type of use for properties involved in the program.

Figure 2 – Property Use

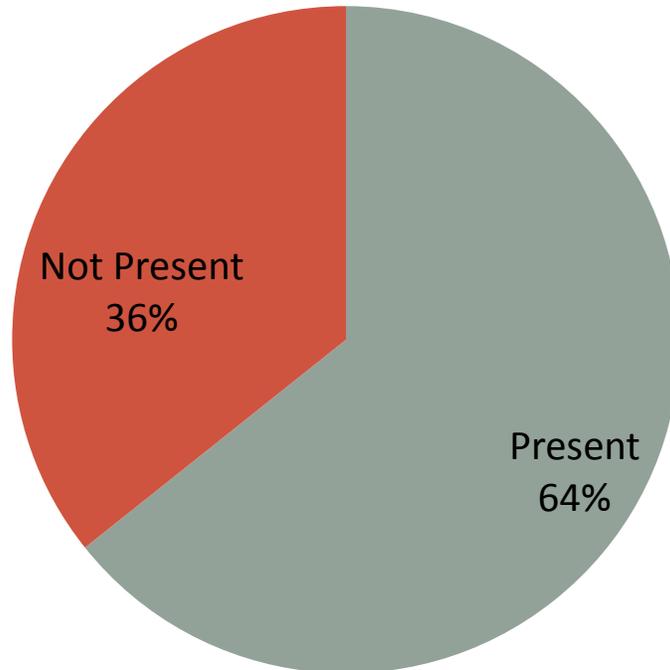


3.3 Property Owner Present

By interacting with property owners we can create awareness of the importance of properly functioning on-site wastewater treatment systems. In 2015 we continued to build upon our experience from previous seasons. Nearly all returned questionnaires that did not request an appointment, were scheduled an appointment and the property owner notified approximately one week in advance. It was noticed that most property owners were accommodating of this appointment and would be present.

During, approximately 25 days of field work, we encountered 54 Property owners during the 84 inspections (figure 3).

Figure 3 – Property Owner Present



3.4 Class of Sewage System

There are 5 classes of wastewater treatment systems identified in Part 8 of the OBC as outlined below.

Class 1 - Earth Pit, Vault, Pail and Portable Privies, Composting Toilets

Class 2 - Greywater Systems

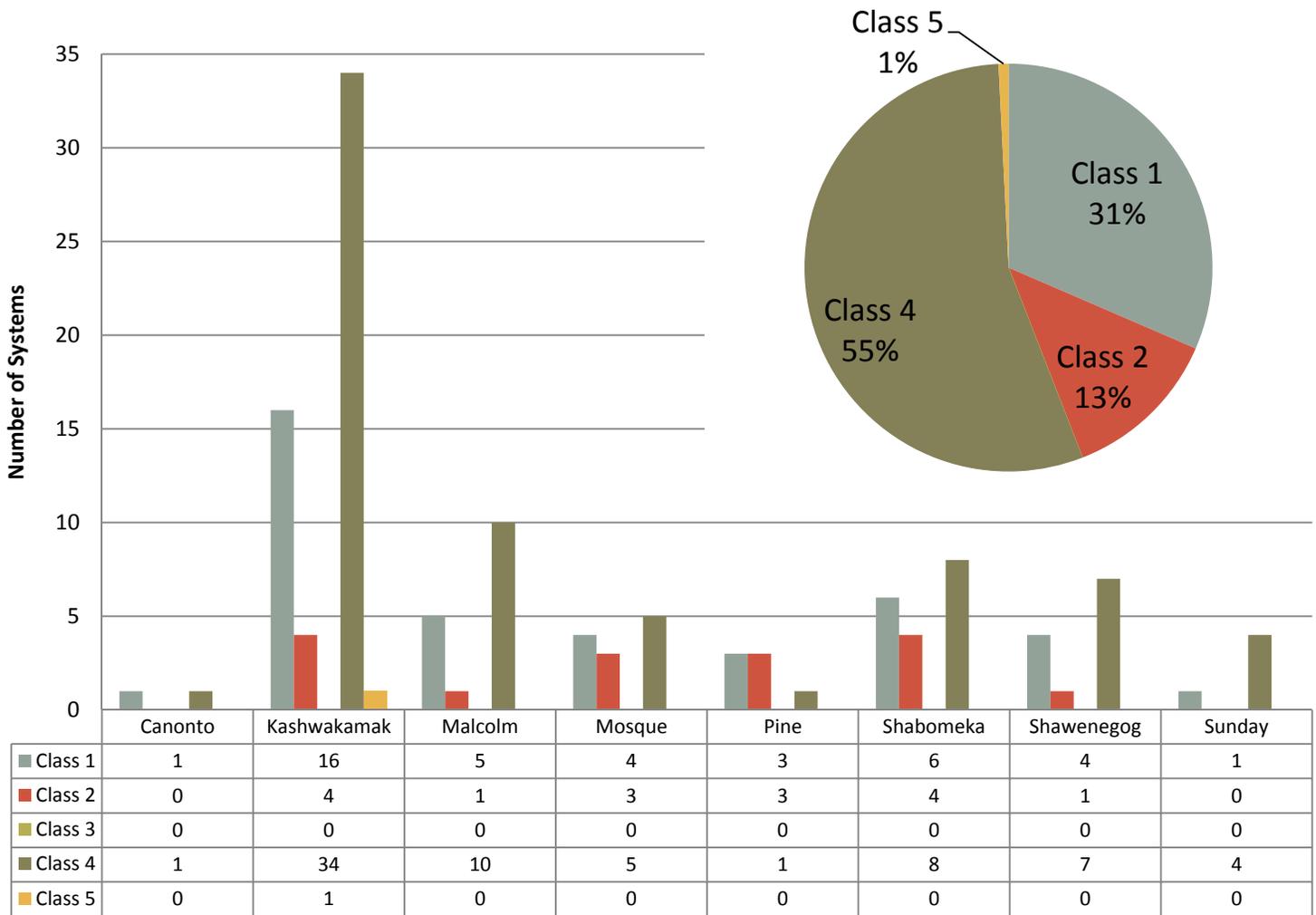
Class 3 - Cesspools

Class 4 - Septic Tank and Leaching bed

Class 5 - Holding Tanks

Figure 4 displays the sewage system class distribution for each property where it was known, either from the visual inspection, or from information provided by the homeowner. Due to the difficulty in determining the type of Class 4 sewage system in use, and the lack of homeowner certainty, we did not distinguish between the different types of Class 4 systems.

Figure 4 – Septic System Class



It is not uncommon, and many times necessary, for properties to have more than one class of system present on the property. For instance, if the primary class of system is a privy (Class 1) then generally a Class 2 system is required for greywater treatment. It is strongly recommended that property owners with a Class 4 or Class 5 system, direct all sources of greywater to that system; unless they have an approved Class 2 system – most are not.

3.5 Separation Distances

Horizontal separation distances are measured from the dwelling, lot line, well and shoreline to the sewage system components. Figure 5 represents the separation distance measured from septic/holding tanks to surface water. Figure 6 represents the separation distance measured from leaching bed to the surface water. The measurements were sorted into three categories:

- Less than 15m (<15m) – Does not meet OBC.
- Between 15m – 30m – Meets OBC but does not meet Zoning Bylaw requirements.
- Greater than 30m (>30m) – Meets OBC and Zoning Bylaw requirements.

Figure 5 – Tank to Water

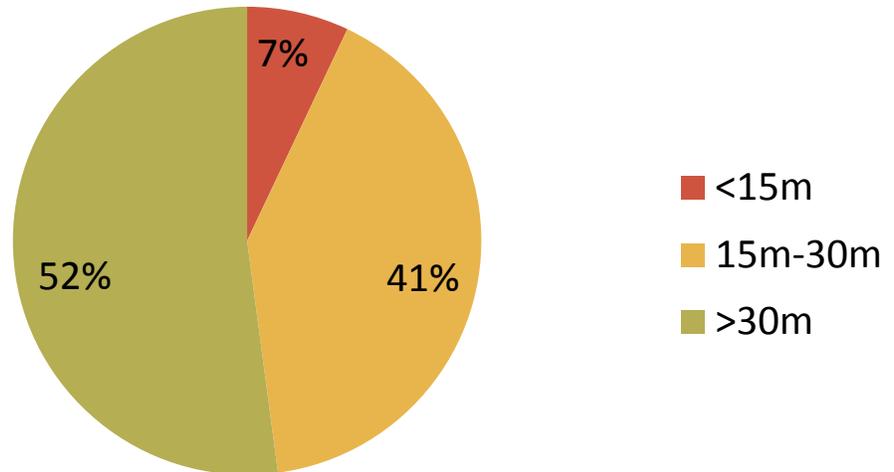
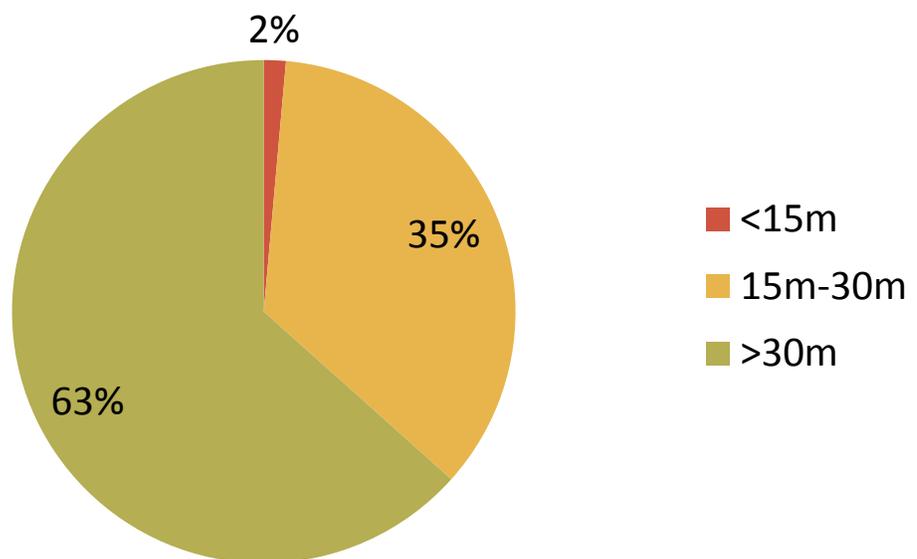


Figure 6 – Pipe to Water

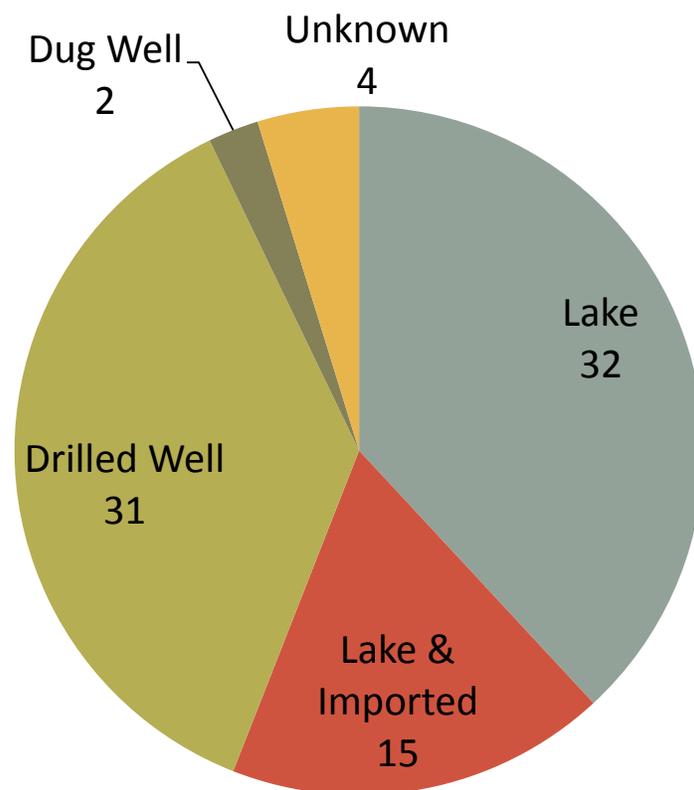


3.6 Wells and Drinking Water

Information was also collected during the field inspection on the drinking water source for the property (figure 7). During the visual inspection, if a pipe pumping water from the water body was visible, and no well was located then the water source was assumed to be the lake (or river) and recorded as such. If no pipe was visible and a well was located, then the water source was recorded as a drilled well. Information provided by the homeowner would be more accurate than that found during the visual inspection, and is preferable to identifying the water source on-site.

Many property owners indicated more than one water source. Most properties will utilize lake water for bathing, cooking or landscaping while drinking water was imported or taken from a drilled or dug well.

Figure 7 – Water Source per Lake

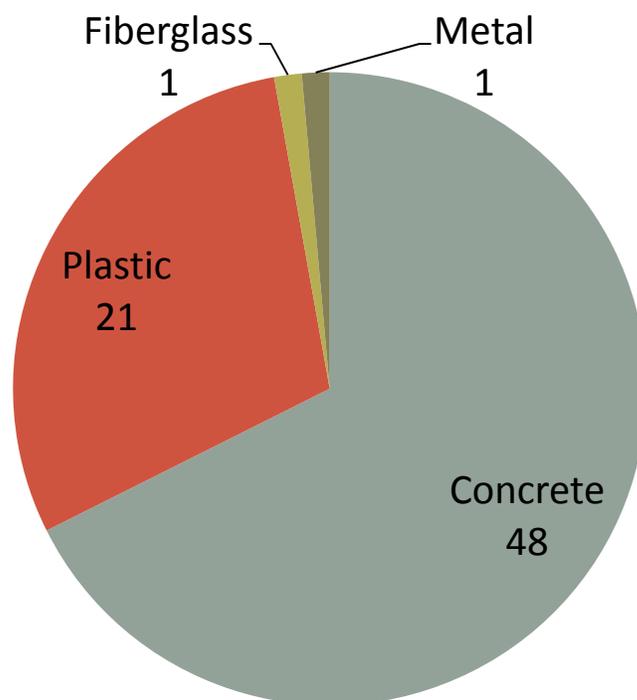


The KFL&A Public Health has free water testing available for residential properties, and water bottles are available for pick up at the satellite office in Cloyne. However, many people continue not to test their drinking water regularly.

3.7 Tank Inspection

The material of the tank was either provided by the property owner, determined when excavated or by using a soil probe to locate the tank and judge the material by the contact with the probe and the sound/feel it created. Tank information was available for all 71 properties with tanks and Figure 8 shows the breakdown for the common tank materials found: concrete, plastic, and metal. Several properties were identified where the septic tank had been cast in place. This situation is encountered in locations that are or have been only accessible by water.

Figure 8 – Tank Material



As a result of the re-inspection program it was noticed that **19%** of concrete tanks had signs for corrosion (Illustration 1). The corrosion is a function of the concrete reacting with the gases produced in the septic tank. The corrosion can cause baffles to fall off and effluent to escape around the outlet pipe.



Illustration 1 Concrete Corrosion around Outlet Baffle

3.8 Sewage System Status

When completing an inspection of the existing sewage system the MRSSO has developed the following terms to identify the overall septic system status or condition:

No Concern – At the time of inspection there were no operational and/or maintenance issues identified.

Remedial Work Required – At the time of inspection operational and/or maintenance issues were identified, but generally do not require a permit to remedy.

More Information Required – At the time of inspection one or more questions arose regarding the class of system, location of components, water source, pumping, maintenance and/or operation of the system

System Replacement Required – At the time of inspection if it was determined that the onsite system was not being maintained or operated properly and was posing or could pose a risk to human health or the environment.

Figure 9 – System Status per Lake

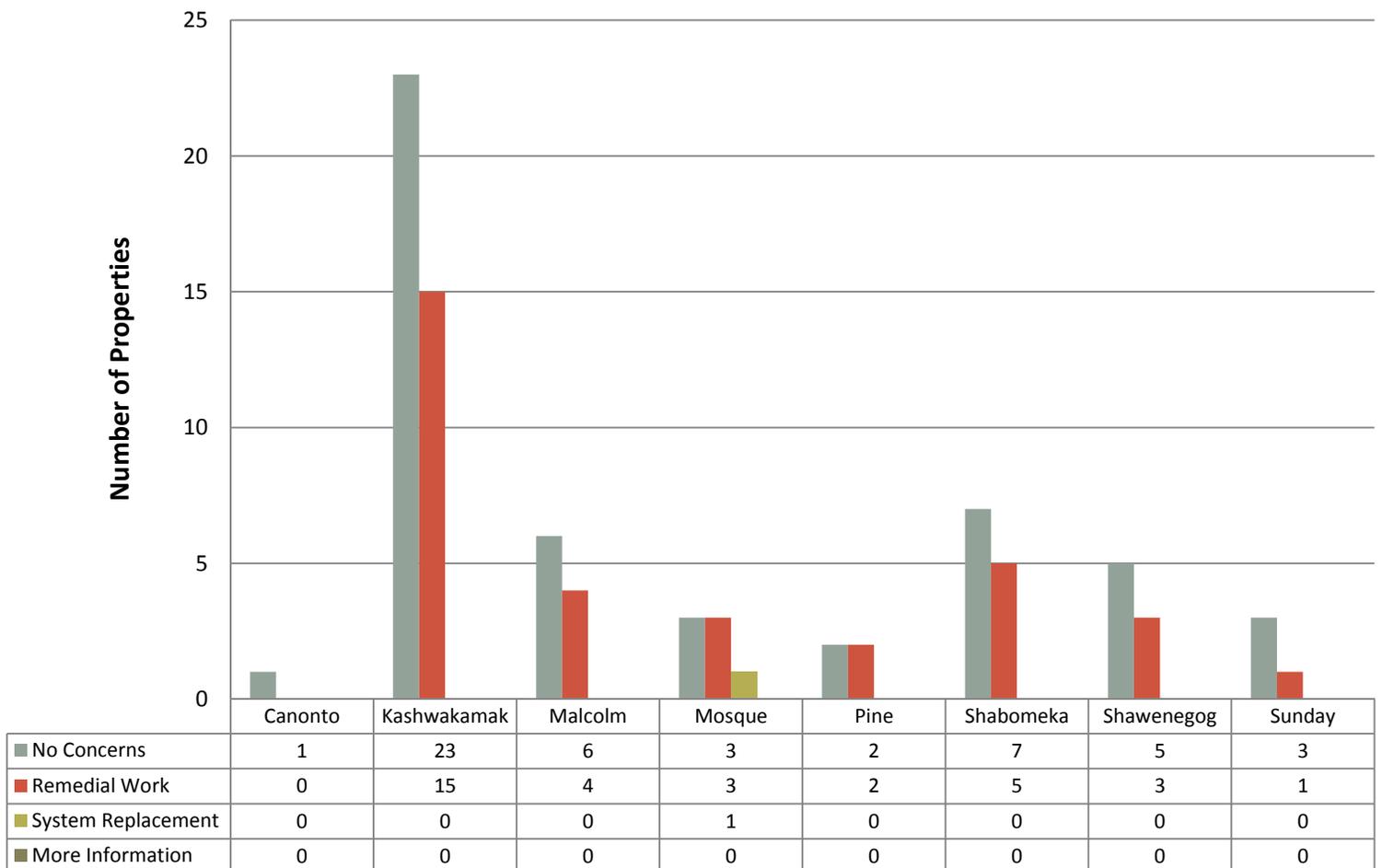


Figure 10 - Overall System Status

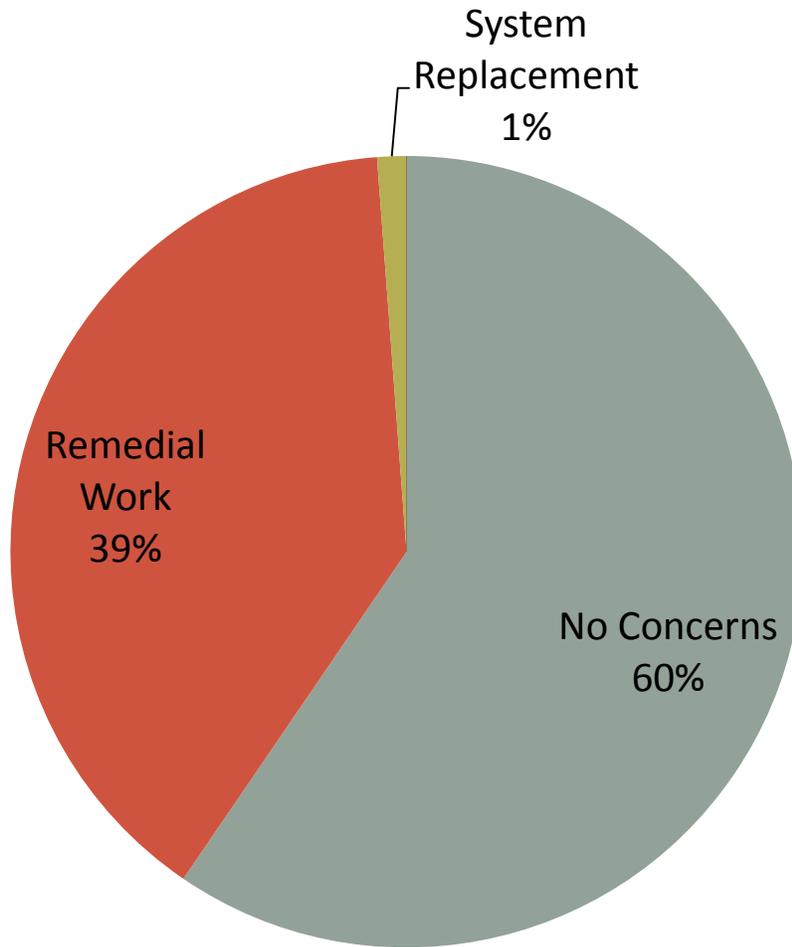


Table 1– Remedial Work Identified*

Pump Out	17
Concrete Corrosion	7
Greywater concern	6
Baffles require maintenance (broken/roots)	13
Privy concern	5
Vegetation (Trees within area of Tank/Leaching Bed)	3
Effluent Level high or low	5
High level alarm recommended	7
Total	63

*note, some systems have more than one maintenance issue.

3.9 Follow-up and Enforcement

Sewage systems that the Mississippi-Rideau Septic System Office have identified as a significant threat to the environment and/or public health have been forwarded to the KFL&A Public Health for enforcement.

Enforcement of violations on the properties identified by the re-inspection program will be at the discretion of KFL&A Public Health.

4.0 Recommendations

The following recommendations are a result of opportunities identified during the 2015 sewage system re-inspection program:

- Continue with a re-inspection program

5.0 Conclusions

The 2015 program completed full inspections on the majority of the properties that participated. Approximately 60% of systems inspected had no septic system concerns. It should be noted that age was not a significant factor in the system deficiencies identified. Of larger impact was the diligence on behalf of the property owner with regards to operation and maintenance of the septic system.

One property was identified as requiring system replacement. The system identified was an existing non-complying greywater. The property forms have been forwarded to the KFL&A Public Health for their review.

Interaction with property owners during the re-inspection program this year was very positive. 64% of property owners were able to be present during their re-inspection. Most of the homeowners encountered were very supportive of the re-inspection program.

Although 100 properties were not inspected the success of this year program is largely due to the efforts of the Townships property selection. Adding new lakes and new properties on existing lakes helps spread the word regarding the program and allows more ratepayers to benefit from the onsite visit with a Building Official.

Appendix A: Re-Inspection Protocol & Property Owner Information Package

North Frontenac Township staff decides on the properties to be inspected. Once selected, the MRSSO mails a package to each property owner informing them of the re-inspection program, what their participation would entail, and a description of the inspection to take place. Sent together with the information letter was a two page questionnaire to be completed by the homeowner and returned to our office.

When the questionnaire was returned to our office, the property was flagged for a full inspection. A full inspection consists of a visual inspection of the distribution field, property and an inspection of the contents and condition of the interior of the septic tank. This was assuming that the sewage system was a Class 4 system with a septic tank and distribution field. If the homeowner had not returned the questionnaire but was present and appeared interested in the sewage system re-inspection program, we would ask if they would agree to us completing an inspection of their on-site treatment system. If no questionnaire was returned and no one was on-site at the time of the re-inspection, we did not complete any inspection on the property.

The tank inspection was deemed to be a highly “invasive” component of the re-inspection program, one which could potentially result in controversy if conducted without the permission of the homeowner. Permission was considered granted by receipt of a completed questionnaire. If any doubt remained about the location of the sewage system then more information was requested of the homeowner. If the homeowner indicated that they did not want to be involved in the program then the Mississippi-Rideau Septic Office made note of this fact and proceeded to the next property.

NORTH FRONTENAC SUPPORTS A HEALTHY ENVIRONMENT FOR ALL TO ENJOY. THE SEWAGE SYSTEM RE-INSPECTION PROGRAM IS AN IMPORTANT PART OF COUNCIL'S ENVIRONMENTAL STRATEGY.

April 28, 2015

A properly functioning sewage system is an integral part of a healthy shoreline environment. Improperly maintained systems can be a significant contributor of nutrient and bacteriological contamination into an adjacent water body. The key to proper maintenance and operation of an on-site sewage system is education. The Septic Re-inspection Program is aimed at achieving a better understanding of system function, owner intervention and preventative measures. The costly implications of poor maintenance are significant to the owner and to the community. The success of the re-inspection program so far shows owners are committed to protecting their lake lifestyle, as is the Township. Information and advice has been welcomed, despite the fact that in a few instances remedial action may be required.

The Mississippi Rideau Septic System Office (MRSSO), on behalf of the Township of North Frontenac, will be conducting re-inspections in your area this summer. The MRSSO is a co-operation between the Mississippi Valley and the Rideau Valley Conservation Authorities, contracted to conduct the Sewage System Re-inspection Program. Re-inspections will be more rigorously scheduled to better accommodate property owners wishing to be on-site, including appointments on selected Saturday and Sundays throughout the summer – please see the Program Procedure (enclosed) for more information. If you wish to be present during the re-inspection of your property, appointments will be made on a first come, first served basis. In addition, we are asking that you have your septic tank located and the lids exposed (excavated) prior to the arrival of MRSSO staff. If you require MRSSO staff assistance to locate/excavate the tank a \$20/lid (usually 2 lids) to a maximum of \$40 total will be charged for this service. Invoices will be issued on-site.

Your active involvement in the Septic Re-Inspection Program is encouraged and begins with reading the attached Program description. Please fill in the accompanying questionnaire to the best of your ability. After the re-inspection is completed a report stating the status of the system and any deficiencies present will be left on-site. Advice on proper maintenance will be provided both on-site and in writing on the report. The MRSSO will forward all reports to KFL&A Public Health, the Principal Authority for North Frontenac. Public Health may initiate a dialogue and define an action plan with owners of systems deemed to be a concern. If you were previously involved in a re-inspection program or had a new sewage system installed in the last 10 years since 2005, please accept our apologies. We ask that you contact the MRSSO (phone, email, return mail or fax) and advise us of the new sewage system permit number and date of installation or re-inspection number. We will update our records and remove you from the re-inspection program for 2015.

Any comments about the Program in general or Council's strategy can be directed to Jim Phillips, P. Eng., PWM. at (613) 479-2231 or 1-800-234-3953. Program specifics or questions about your involvement in the Program should be directed to the MRSSO, (613) 253-0006. If you have questions regarding the issuance of sewage system permits or records please call KFL&A Public Health, Cloyne Office (613) 336-8989.

On behalf of Council, thank you in advance for your co-operation.

Sincerely,

Jim Phillips, P. Eng., PWM.

PROGRAM AUTHORITY

The Province of Ontario has delegated the responsibility to regulate on-site sewage systems (with total daily design flow of less than 10,000 litres per day) to municipalities. The authority to do so was transferred from the Environmental Protection Act to Part 8 of the Ontario Building Code which defines a sewage system as a "building". Implementation of Code requirements is meant to ensure proper installation, operation and maintenance of on-site sewage systems. A sewage system that is discharging effluent onto the surface of the ground, or that has not been maintained or operated in accordance with the Code is determined to be an unsafe "building". Any remedial action required will be addressed pursuant to the Ontario Building Code.

PERSONAL INFORMATION collected as part of the Septic Re-inspection Program will be used to facilitate communication between the Township, MRSSO and individual owners and will be protected in a confidential manner in accordance with the Municipal Freedom of Information and Protection of Privacy Act. A summary report, containing no owner names, will be prepared for public viewing. Questions about the collection of personal information should be directed to Jim Phillips, P. Eng., PWM.

Property Owner
Mailing Address

November 5, 2015

Voluntary Sewage System Re-Inspection Program Procedure

1. The first step in **your voluntary participation is completing and returning the questionnaire**. Please fill in, sign, and return the questionnaire by fax, mail, email or now online, as soon as possible, to the number or address provided. Do not feel as though the form must be fully completed to return it to us; every bit of information is useful.

The intention of the Questionnaire is to provide our office with basic information regarding your sewage system(s) and its location on your property. Unfortunately the township does not have this information for every property.

NEW for 2015 - the Questionnaire can be filled out and returned online at <http://mvc.on.ca/mrso-questionnaire-2015/> . The Questionnaire only needs to be sent in using one of the listed methods above.

2. **Appointments** are not required but can be made between 9 am – 4 pm on a first come, first served basis, by contacting the MRSSO. **WEEKEND APPOINTMENTS are available on the following dates:**
 - **June 6-7**
 - **June 27-28**
 - **July 18**
 - **August 15-16**

If an appointment is not arranged, the MRSSO will schedule the re-inspection and notify you one week in advance.

Classes of Sewage Systems Inspected:

- Class 1**-Earth Pit Privy, Composting Toilet...
- Class 2**-Greywater Pit
- Class 3**-Cesspool- Waste from a Class 1
- Class 4**-Septic Tank & Leaching Field
- Class 5**-Holding Tank

3. The MRSSO requests that you expose both lids on your septic tank (most tanks have 2). **There will be a \$40 (\$20/lid) maximum charge for the MRSSO to assist in locating and excavating the septic tank lids.** This fee will be invoiced upon completion of the re-inspection. **No cost will be incurred if excavation is not required.** The MRSSO will re-cover the tank when the inspection is completed (**at no cost**) unless it is determined that a pump-out is required. The tank inspection includes a visual inspection of the tank components and measurement of sludge and scum in the tank. **Please do not pump tank before the re-inspection.**
4. The septic re-inspection will include the following items:
 - Determining location of all systems
 - Measurement of separation distances to key lot features
 - Visual inspection of tank structure
 - Measurement of tank contents – **Please do not pump tank before inspection.**
 - Visual inspection of bed
 - Briefing the homeowner on proper system maintenance and operation.
5. A copy of the septic re-inspection report will be left on-site.

The primary role of the MRSSO, as the administrators of the re-inspection program, is to educate property owners about their onsite waste treatment system and any deficiencies with it. Our secondary role is to ensure that unsafe systems are reported to the appropriate Authority, based on the requirements of Part 8 of the Ontario Building Code. You, as the property owner, can expect the re-inspection, communication of results, and all inquiries to be dealt with in a professional manner.

Thank you in advance for your co-operation. We know you share the Township's desire to protect our water resources and ultimately the value of waterfront property around the lakes within the watersheds. Your participation in this program will assist in providing continued enjoyment of a clean, healthy waterfront environment for generations to come.

Yours Truly,



Eric Kohlsmith | Re-inspection Program Coordinator | 613-253-0006 ext. 256 | septic-inquiries@mvc.on.ca

Questionnaire

Please fill out as much information as possible, as best as you can, and return to the above address. Old septic or well records are excellent resources for the more technical questions. Mark any applicable boxes. If you select 'Other' please specify. Please use the space noted as '*Correction*' to correct any of the supplied information. On the reverse, please identify the location of your septic system and other property features. Please sign the form to verify the information that has been provided.

Property Owner	«Owners_First_Names» «Last_Name»	<i>Correction – New Property Owner, Spelling of Name...</i>					
Mailing Address	«Mailing_Address»	<i>Correction – New Mailing Address...</i>					
Telephone Number () ()	Alternate Number () ()	Email Address					
Re-Inspection Property Location	«Civic_Address»			Length of Ownership		Lake Name	
						«Lake»	
				Property Size	# Bedrooms	Floor Area	
Roll Number	«Roll_»						
Property Use	Residential <input type="checkbox"/>	Cottage/Seasonal <input type="checkbox"/>	Commercial <input type="checkbox"/>	Farm <input type="checkbox"/>	Other <input type="checkbox"/>		
Directions to Property				Do you require assistance locating/excavating your tank?*			
				Yes <input type="checkbox"/>		No <input type="checkbox"/>	
General Location of Tank				* There is a maximum charge of \$40 for this service			
Sewage System Type	Class 1 <input type="checkbox"/> Privy(Outhouse)	Class 2 <input type="checkbox"/> Greywater pit	Class 3 <input type="checkbox"/> Cesspool	Class 4 <input type="checkbox"/> Septic Tank & Leaching Field	Class 5 <input type="checkbox"/> Holding Tank		
Tank Information	Concrete <input type="checkbox"/>	Plastic <input type="checkbox"/>	Fiberglass <input type="checkbox"/>	Metal <input type="checkbox"/>	Sewage Pump		
					Is Pump in Septic Tank?		
Date of Last Pump out				Pump Out Frequency			
Greywater Pit Structure	Earth <input type="checkbox"/>	Rock <input type="checkbox"/>	Wood <input type="checkbox"/>	Other-			
Privy Pit Structure	Earth <input type="checkbox"/>	Rock <input type="checkbox"/>	Wood <input type="checkbox"/>	Other-			
Date System(s) Installed	«BUILT»			Sewage System Permit #			
Water Source	Drilled <input type="checkbox"/>	Dug <input type="checkbox"/>	Lake <input type="checkbox"/>	Imported <input type="checkbox"/>	Drinking Water Treatment	Yes <input type="checkbox"/> No <input type="checkbox"/>	Type of Treatment

Participant Signature: _____ Participant Name: _____
(Signature) (Please Print)

Appendix B: Septic Tank Pump-out Frequency Table &OBC Requirements

One of the most frequent questions a homeowner asks is “How often should I pump my tank?” Most government documents and extension publications suggest that a septic tank should be pumped out every 3-5 years.¹ The following table provides the theoretical pumping interval for permanent residential properties, assuming the number of people in the home, and the tank size. For a home with three people and a standard 3600 L (952 US gal) tank, the author recommends a pump out every 3.7 years. This table, however, does not provide direction for seasonal owners, who might only be using their cottage for three months of the year. Another resource is the OBC, which requires that a septic tank be pumped out when the sludge and scum occupy 1/3 of the working capacity of the tank (8.9.3.4.(1)). This will prevent the sewage from traveling too quickly through the septic tank, not allowing the solids and fats to properly separate from the effluent. To give the homeowner, on an individual basis, an estimation of the frequency for pumping out their septic tank, the depth of sludge and scum was measured during the tank inspection.

Estimated Septic Tank Pumping Interval in Years

Tank Size (L)	Household Size (Number of People)									
	1	2	3	4	5	6	7	8	9	10
1,890	5.8	2.6	1.5	1.0	0.7	0.4	0.3	0.2	0.1	
2,840 (\approx 2,700)	9.1	4.2	2.6	1.8	1.3	1.0	0.7	0.6	0.4	0.3
3,790 (\approx 3,600)	12.4	5.9	3.7	2.6	2.0	1.5	1.2	1.0	0.8	0.7
4,730	15.6	7.5	4.8	3.4	2.6	2.0	1.7	1.4	1.2	1.0
5,670	18.9	9.1	5.9	4.2	3.3	2.6	2.1	1.8	1.5	1.3
6,620	22.1	10.7	6.9	5.0	3.9	3.1	2.6	2.2	1.9	1.6
7,570	25.4	12.4	8.0	5.9	4.5	3.7	3.1	2.6	2.2	2.0
8,520	28.6	14.0	9.1	6.7	5.2	4.2	3.5	3.0	2.6	2.3
9,460	31.9	15.6	10.2	7.5	5.9	4.8	4.0	4.0	3.0	2.6

Appendix C: Ontario Building Code References

OBC 8.1.2.1. Classification of Systems

- Class 1 – all privies (portable, earth pit, vault, chemical, incinerating and composting).
 Class 2 – a greywater system
 Class 3 – a cesspool
 Class 4 – a leaching bed system
 Class 5 – a holding tank

OBC Table 8.2.1.5. Clearance Distances for Sewage Systems

8.2.1.5(1)	Horizontal distance (m) from a well with watertight casing to a depth of at least 6m	Horizontal distance (m) from a spring used as a source of portable water or well other than a well with watertight casing to a depth less than 6m	Horizontal distance (m) from lake, river, pond, stream, reservoir or spring not used as a source of portable water	Minimum horizontal distance to property line
<i>Earth Pit Privy</i>	15	30	15	3
<i>Privy Vault</i> <i>Pail Privy</i>	10	15	10	3
<i>Greywater System</i>	10	15	15	3
<i>Cesspool</i>	30	60	15	3

OBC 8.2.1.6. Minimum Clearances for Classes 4 and 5 Minimum Clearances for Treatment Units (m)

Structure	1.5
Well	15
Lake	15
Pond	15
Reservoir	15
River	15
Spring	15
Stream	15
Property Line	3

Minimum Clearances for Distributing Piping (m)

Structure	5
Well with a watertight casing to a depth of 6m	15
Any other well	30
Lake	15
Pond	15
Reservoir	15
River	15
A spring not used as a source of potable water	15
Stream	15
Property Line	3

Minimum Clearances for Holding Tanks (m)

Structure	1.5
Well with a watertight casing to a depth of 6m	15
Any other well	15
Spring	15
Property Line	3

Appendix D: Program Authority

The *Building Code Act* (BCA)(1992), and Part 8 of the Ontario Building Code (OBC) regulates the design, construction, operation and maintenance of sewage systems. The OBC however, has powers which only extend to those systems with a design flow of less than 10,000 Litres/day, serving no more than one lot. Systems which do not fall within these parameters are regulated by the Ministry of the Environment, under the *Ontario Water Resources Act*.

This act provides inspectors with the right of entry onto land “to determine whether a building is unsafe”, under part 1 of the OBC an on-site sewage system is treated as a building and BCA s.15.9(3) deems a sewage system to be “unsafe” if it is not maintained or operated in accordance with the BCA and the OBC. BCA s.18 outlines the powers that an inspector may exercise for the purposes of carrying out an inspection. If the inspector finds the system to be “unsafe”, he or she may make an order under BCA s.15.9(4) setting out the steps necessary to render the building safe, and may require that the steps be taken within a certain period of time. This enforcement for North Frontenac will be carried out by the Kingston, Frontenac and Lennox and Addington Public Health (KFL&A).

Further authority will be given with amendments proposed to the BCA under the *Clean Water Act, 2005*. This act was passed on October 18, 2006 and will help protect drinking water sources for all residents of Ontario.

A visual inspection of the sewage system can determine if the system is “unsafe”, defined in OBC 8.9.1.2 as a breakout of effluent onto the surface, contamination of a well or of a surface water source. Clearance distances to the well and surface water from the sewage system can also be verified by a visual inspection. To determine if the system is being maintained and operated in accordance with the OBC and the BCA, an “invasive” inspection of the tank is necessary.

Appendix E: Sewage System Maintenance Inspection Program

Source: <http://www.search.e-laws.gov.on.ca/>

Section 1.10. Sewage System Maintenance Inspection Programs

1.10.1. Discretionary Maintenance Inspection Programs

1.10.1.1. Scope

(1) This Subsection governs, for the purposes of subsection 34 (2.1) of the Act, maintenance inspection programs established under clause 7 (1) (b.1) of the Act in respect of *sewage systems*.

1.10.1.2. Application and Inspections

(1) A maintenance inspection program referred to in Sentence 1.10.1.1.(1) shall apply to all *sewage systems* in the area affected by the maintenance inspection program.

(2) A maintenance inspection program referred to in Sentence 1.10.1.1.(1) shall provide that, subject to Article 1.10.1.3., an *inspector* shall inspect all *sewage systems* affected by the maintenance inspection program for compliance with the standards prescribed under clause 34 (2) (b) of the Act in relation to *sewage systems* that are enforced by the program.

1.10.1.3. Certificate as Alternative to Maintenance Inspection

(1) A *principal authority* that establishes a maintenance inspection program in respect of *sewage systems* may, as an alternative to conducting an inspection of a *sewage system* required under Sentence 1.10.1.2.(2) accept a certificate described in Sentence (2) from the owner of the property on which the *sewage system* is located.

(2) The certificate referred to in Sentence (1) shall,

- (a) be in a form approved by the Minister,
- (b) be signed by a person described in Sentence (3), and
- (c) confirm that the person,

(i) has conducted an inspection of the *sewage system* to which the certificate relates, and

(ii) is satisfied on reasonable grounds that, on the date on which the certificate is signed, the *sewage system* to which the certificate relates is in compliance with the standards prescribed under clause 34 (2) (b) of the Act in relation to *sewage systems* that are enforced by the maintenance inspection program.

(3) Subject to Sentence (4), the following persons are authorized to sign a certificate referred to in Sentence (1):

- (a) a person registered under Article 3.2.4.2. in the class of registration set out in Column 2 of Row 10 of Table 3.5.2.1.,
- (b) a person registered under Article 3.3.3.2.,
- (c) an *architect*,
- (d) a *professional engineer*.

(4) A person shall not sign a certificate referred to in Sentence (1) if the person would be in a conflict of interest.

(5) For the purposes of Sentence (4), a person would be in a conflict of interest if the person, or an officer, director, partner or employee of the person (where the person is a corporation or partnership), or any person engaged by the person to perform functions for the person,

(a) has participated or participates, in any capacity, in *design activities* or *construction* relating to any part of the *sewage system* to which the certificate relates,

(b) is or has been employed within the previous 180 days by a person who carried out *design activities* or *construction* relating to any part of the *sewage system* to which the certificate relates,

(c) has a professional or financial interest in,

(i) the *construction* of the *sewage system* to which the certificate relates,

(ii) the *sewage system* to which the certificate relates, or

(iii) the person responsible for the design of the *sewage system* to which the certificate relates, or

(d) is an elected official, officer or employee of a *principal authority*.

1.10.2. Mandatory Maintenance Inspection Program

1.10.2.1. Scope

(1) This Subsection establishes and governs, for the purposes of subsection 34 (2.2) of the Act, a maintenance inspection program in respect of standards prescribed under clause 34 (2) (b) of the Act in relation to *sewage systems*.

1.10.2.2. Administration of Maintenance Inspection Program

(1) The *principal authority* that has jurisdiction in an area affected by the maintenance inspection program established under Sentence 1.10.2.3.(1) shall administer the program for that area and shall conduct inspections under the program in accordance with this Subsection.

1.10.2.3. Maintenance Inspection Program

(1) Subject to Article 1.10.2.5., an *inspector* shall inspect all *sewage systems* located in whole or in part in the areas set out in Sentence (2) for compliance with the requirements of Section 8.9. of Division B.

(2) The areas referred to in Sentence (1) are:

(a) the strip of land that is located along the *Lake Simcoe shoreline* and that is 100 m wide measured horizontally and perpendicular to and upland from the *Lake Simcoe shoreline*, except for the portions of the strip of land that are described in Sentence (3), and

Note: On January 1, 2016, Sentence (2) is amended by striking out "and" at the end of Clause (a) and by adding the following Clauses:

(a.1) portions of the strip of land along the *Lake Simcoe shoreline* described in Sentence (3),

(a.2) the strip of land that is located along each of the following rivers, streams, lakes or ponds and that is 100 m wide measured horizontally and perpendicular to and upland from the river, stream, lake or pond,

(i) any river or stream in the *Lake Simcoe watershed* that continually flows in an average year,

(ii) any lake or pond in the *Lake Simcoe watershed* that is connected on the surface to a river or stream described in Subclause (i), and

(iii) any other lake or pond in the *Lake Simcoe watershed* that has a surface area greater than 8 hectares, and

See: O. Reg. 315/10, ss. 3 (2), 7 (2).

(b) areas within a *vulnerable area* that are located in a *source protection area* and that are identified in the most recent of the following documents as the areas where an activity described in Sentence (4) is or would be a *significant drinking water threat*:

(i) the assessment report for the *source protection area*, as initially approved under the *Clean Water Act, 2006* or as most recently approved following any updating under that Act, or

(ii) the *source protection plan* for the *source protection area*, as initially approved under the *Clean Water Act, 2006* or as most recently approved following any amendments or reviews under that Act.

(3) The excepted portions of the strip of land along the *Lake Simcoe shoreline* referred to in Clause (2)(a) are:

(a) that portion of the strip of land in the geographic Township of Oro, now in the municipal Township of Oro-Medonte, in the County of Simcoe, and in the geographic Townships of Innisfil and Vespra, now in the City of Barrie, being bounded on the north by the east limit of Lot 1, Concession 1 East Penetanguishene Road of the said geographic Township of Oro and its southerly prolongation and on the south by the east limit of Lot 14, Concession 13 of the said geographic Township of Innisfil and its northerly prolongation,

(b) that portion of the strip of land in the geographic Townships of North Gwillimbury and Georgina, now in the Town of Georgina, and in the geographic Township of East Gwillimbury, now in the Town of East Gwillimbury, all in The Regional Municipality of York, being bounded on the west by the west limit of Lot 6, Concession 1 of the said geographic Township of North Gwillimbury and its northerly prolongation and on the east by the east limit of Lot 3, Concession 8 of the said geographic Township of Georgina and its northerly prolongation, and

(c) that portion of the strip of land in the geographic Township of Mara, now in the municipal Township of Ramara, in the County of Simcoe, and in the geographic Township of Thorah, now in the municipal Township of Brock, in The Regional Municipality of Durham, being bounded on the north by the west limit of Lot 13, Concession C of the said geographic Township of Mara and its southerly prolongation and on the south by the west limit of Lot 14, Concession 6 of the said geographic Township of Thorah and its northerly prolongation.

(4) The activity referred to in Clause (2)(b) is an activity that is subject to the Act and that is described in paragraph 2 of subsection 1.1 (1) of Ontario Regulation 287/07 (General) made under the *Clean Water Act, 2006*.

1.10.2.4. Time Periods for Maintenance Inspections

(1) An inspection required under Sentence 1.10.2.3.(1) shall be conducted in respect of a *sewage system* in an area described in Clause 1.10.2.3.(2)(a),

(a) initially, no later than,

(i) January 1, 2016, in the case of a *sewage system constructed* before January 1, 2015, or

(ii) five years after the *construction of the sewage system*, in the case of a *sewage system constructed* on or after January 1, 2015, and

(b) thereafter, every five years after the most recent inspection of the *sewage system* has been conducted.

Note: On January 1, 2016, Article 1.10.2.4. is amended by adding the following Sentence:

(1.1) An inspection required under Sentence 1.10.2.3.(1) shall be conducted in respect of a *sewage system* in an area described in Clause 1.10.2.3.(2)(a.1) or (a.2),

(a) initially, no later than,

(i) January 1, 2021, in the case of a *sewage system constructed* before January 1, 2016, or

(ii) five years after the *construction of the sewage system*, in the case of a *sewage system constructed* on or after January 1, 2016, and

(b) thereafter, every five years after the most recent inspection of the *sewage system* has been conducted.

See: O. Reg. 315/10, ss. 3 (3), 7 (2).

(2) An inspection required under Sentence 1.10.2.3.(1) shall be conducted in respect of a *sewage system* in an area affected by a *significant drinking water threat*,

(a) initially, no later than,

(i) five years after the date on which notice of the approval of one of the following documents is published on the environmental registry under the *Clean Water Act, 2006*, in the case of a *sewage system constructed* before the date of publication,

- (A) the assessment report for the *source protection area*, if the *source protection plan* is one prepared under section 22 of the *Clean Water Act, 2006*, or
- (B) the *source protection plan* for the *source protection area*, if the *source protection plan* is one prepared under section 26 or 33 of the *Clean Water Act, 2006*, or

(ii) five years after the *construction* of the *sewage system*, in the case of a *sewage system constructed* on or after the date of publication, and

(b) thereafter, every five years after the most recent inspection of the *sewage system* has been conducted.

(3) If additional *areas affected by a significant drinking water threat* are identified for a *source protection area* after the date of publication referred to in Clause (2)(a), an inspection required under Sentence 1.10.2.3.(1) shall be conducted in respect of a *sewage system* in those additional areas,

(a) initially, no later than,

(i) five years after the following date of approval or publication, as applicable, in the case of a *sewage system constructed* before that date,

(A) the date of approval under section 19 of the *Clean Water Act, 2006* of the updated assessment report in which the additional areas are identified, or

(B) the date of publication on the environmental registry under the *Clean Water Act, 2006* of notice of the approval of the amended or updated *source protection plan* in which the additional areas are identified, or

(ii) five years after the *construction* of the *sewage system*, in the case of a *sewage system constructed* on or after the date of approval or publication, as applicable, and

(b) thereafter, every five years after the most recent inspection of the *sewage system* has been conducted.

1.10.2.5. Certificate as Alternative to [Maintenance Inspection](#)

(1) The *principal authority* that administers the [maintenance inspection](#) program established under Sentence 1.10.2.3.(1), may, as an alternative to conducting an inspection of a *sewage system* required under Sentence 1.10.2.3.(1), accept a certificate described in Sentence (2) from the owner of the property on which the *sewage system* is located.

(2) The certificate required by Sentence (1) shall satisfy the requirements of Sentence 1.10.1.3.(2) and for these purposes Sentences 1.10.1.3.(3) to (5) apply with necessary modifications.

See: O. Reg. 315/10, ss. 3 (1), 7 (1).