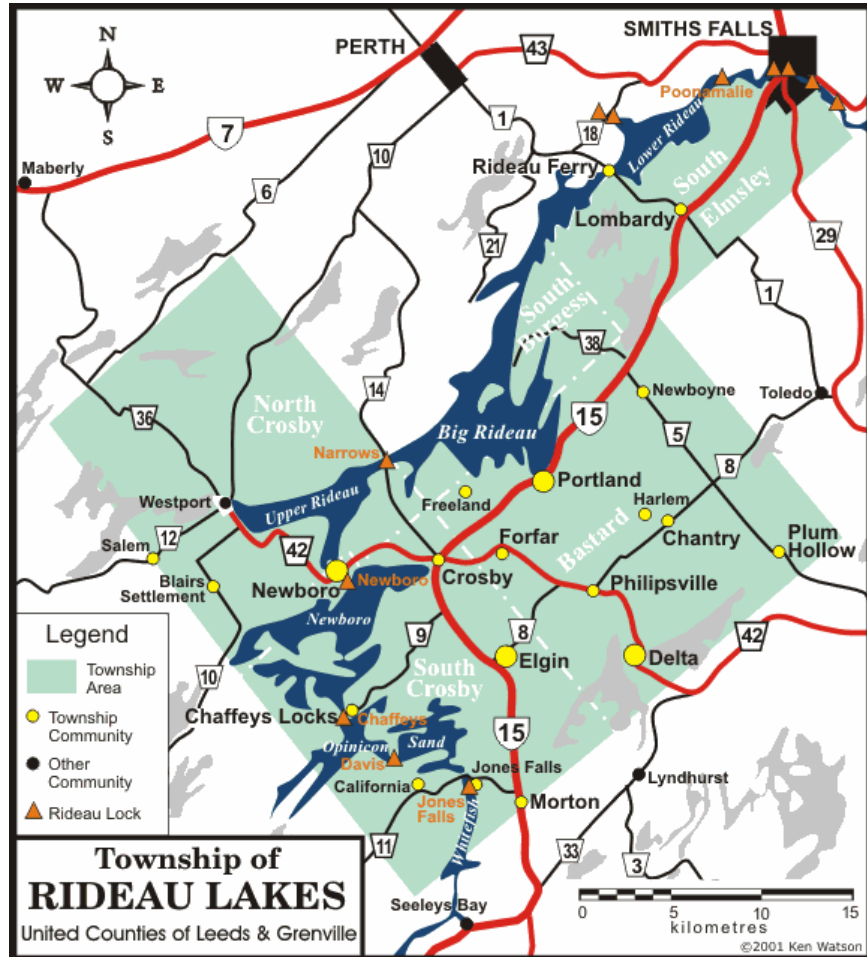


# 2008

## Township of Rideau Lakes On-site Wastewater Disposal System Re-Inspection Program



**Prepared For:** Township of Rideau Lakes

**Prepared By:** Jamie Saunders, B.Sc. (Eng.)

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## **Table of Contents**

1.0	Introduction	3
2.0	Program Initiation	5
	2.1 Criteria for Selection of Properties	5
	2.2 Re-inspection Protocol	5
3.0	Results and Discussion	7
	3.1 Distribution of Sewage System Inspections	7
	3.2 Age and Class of Sewage System	8
	3.3 Class 1 and Class 2 Systems	9
	3.4 Wells and Drinking Water	10
	3.5 Tank Inspection	11
	3.6 Visual Problems	13
	3.7 Follow-up and Enforcement	14
	3.8 Education Seminars	14
	3.9 Program Implementation	15
4.0	Recommendations	17
5.0	Conclusions	20
6.0	References	22

## **Tables and Figures**

Figure 1	– Primary Sewage System Class	9
Figure 2	– Water Source	10
Figure 3	– Construction Material of Septic Tank	12
Table 1	– Re-inspection Results	13
Table 2	– System Deficiencies	14

## **Appendices**

Appendix A	– Homeowner mail-out package
Appendix B	– Septic Tank Pump-out Frequency Table
Appendix C	– Ontario Building Code References

## 1.0 Introduction

A working sewage system is an integral part of any functioning home or cottage not serviced by a municipal sewer. As such, proper maintenance of the sewage system is integral to the continued life of the system. An on-site wastewater disposal system re-inspection program ensures that the community is aware of how to maintain their system, and holds people accountable for ensuring that their system is not a health or environmental risk to the community.

The improper operation of on-site sewage systems can have both 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. High nutrient levels can cause excess plant growth, eutrophication and alteration of the natural habitat of fish. This places a responsibility on the homeowner to ensure that their sewage system is working properly, not only for their own health, but also that of the communities.

This year the Township of Rideau Lakes joined Tay Valley and Rideau Lakes Townships by initiating a septic system re-inspection program managed and operated by the Mississippi-Rideau Septic System Office (MRSSO). 2007, the inaugural year involved the voluntary re-inspection of 100 shoreline properties. Programs such as the septic re-inspection program are excellent initiatives that help to protect and improve shorelines, surface water and groundwater. The program continued in 2008 performing an additional 100 re-inspections within the township.

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 insure that the program effectively manages identified sewage system problems.

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*.

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). 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 the Township of Rideau Lakes will be carried out by their Chief Building Official (CBO) or his/her appointed representative.

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 Ontarians.

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, a thorough inspection of the tank is necessary.

In 2008, 280 homeowners were contacted in the spring with a request to participate in a septic system re-inspection program for 100 volunteers. 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 should not be excavated only a visual inspection of the property was completed and the septic tank not disturbed. In situations requiring further attention the CBO will be mailed a copy of the notification to the homeowner and will provide enforcement accordingly. The results for the 100 inspections completed in 2008 were compiled and this report is the culmination of those efforts.

## **2.0 Program Initiation**

### **2.1 *Criteria for Selection of Properties***

In spring 2007, Township of Rideau Lakes approached the Rideau Valley Conservation Authority and requested a proposal for conducting a 100 re-inspection pilot program for the township. The proposal was accepted by the Township of Rideau Lakes and the initial voluntary re-inspection program was started.

In 2008 a change was made to the mail-out for the Township of Rideau Lakes. In the 2007 re-inspection program it was made very apparent that the re-inspection initiative was a voluntary program. In 2008, the program is still voluntary but changes to the wording of the mail-out were made to improve the response rate from the Township.

Areas selected for re-inspection were based on Rideau Valley Conservation Authority data, township identified areas of heavy development pressure and consultation with lake/cottage associations. Township of Rideau Lakes staff ultimately decided on the properties which would receive a re-inspection program questionnaire.

Adopting a systematic approach to identifying areas for re-inspection within Township of Rideau Lakes, combined with putting less focus on the voluntary nature of the program helped to decrease the number of mail-outs required and increase the return percentage. This helped to reduce staff time and mailing costs required for the program.

### **2.2 *Re-Inspection Protocol***

Once selected, a letter is mailed out 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 sided 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 bed and property and an inspection of the contents of the septic tank. This was assuming that the sewage system was a Class 4 system with a septic tank and bed. No properties were entered or inspected which had not first granted the MRSSO permission by way of returning the questionnaire. It was very important for the township of Rideau Lakes that no properties be entered without prior consent from the property owner.

A change for 2008 was the increased focus by the MRSSO office on scheduling appointments with homeowners. This was a very important aspect of the re-inspection program this year and will be detailed later in this report.

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 what a visual inspection and a tank inspection is comprised of 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. 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 which had returned the questionnaire.

The inspections in Rideau lakes were conducted primarily during the weeks of July 28-August 1, 2008 and August 11-15, 2008.

## 3.0 Results and Discussion

### 3.1 *Distribution of Sewage System Re-Inspections*

The septic re-inspection program completed 100 site visits in 2008. The areas of Bellamy Lake, Crosby Lake, Indian Lake and Rideau Lake were involved in the program.

At each site visit, GPS readings are taken where a well, bed or tank is identified. These GPS co-ordinates are entered into a database and will be accessible through the MRSSO if system components need to be located in the future. An additional benefit, which was not anticipated, was that by having more than one site visit on a road, it generated talk among the cottagers and residents on the road, and word of the program spread. People did not feel as though they had been singled out, and couldn't talk about having been selected when many people on one road were selected.

From information collected through site visitations, records of mailing addresses, and observations at the time of the inspection, the 100 properties were designated to be either seasonal, residential, farm or residential/commercial. While residential properties generate more wastewater, and have the potential to contribute more nutrients to surface water bodies, seasonal properties often have older sewage systems, more likely to be contributing nutrients. Therefore a mix of both seasonal and residential properties is desirable. The 2008 program generated responses from primarily cottage properties. **83%** of the properties inspected were designated cottage (seasonal) and **17%** were designated residential. A property was deemed cottage (seasonal) if the mailing address for the owner was different from the property address.

During the four months of field work we encountered 79 homeowners in 100 inspections. This is an integral part of the program and a major on-site improvement from 2007. Appointments were arranged with homeowners at their request. During an appointment there is a great deal of time to promote awareness and education of on-site wastewater treatment issues and alternatives. A large percentage of property owners would prefer to be present during the septic re-inspection. The system of making appointments worked quite effectively in 2007, minor changes will be made to reduce the increased administrative strain on the MRSSO staff. We received a very positive response from the majority of property owners we encountered. This is a very encouraging sign and highlights that an increasing number of cottagers and shoreline property owners are learning more about water quality and are interested in the wastewater systems on their properties.

### **3.2 Age & Class of Sewage System**

There are 4 primary classes of wastewater treatment systems identified in Part 8 of the OBC as outlined below.

**Class 1** - Earth Pit, Vault, Pail and Portable Privies

**Class 2** - Greywater Systems

**Class 3** - Cesspools

**Class 4** - Trench Beds, Filter Media Beds and Shallow Buried Trenches

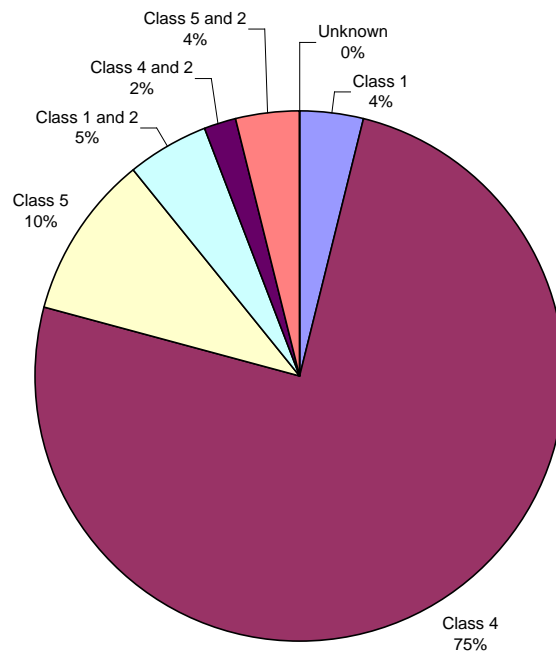
**Class 5** – Holding tanks

Figure 1 displays the primary type of on-site wastewater system for each property where it was known, either from the visual inspection, or from information provided by the homeowner. A Class 4 sewage system was most prevalent; found in 78 of the properties inspected. 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 in this year's analysis. It is hoped that with assistance from the Development Services Department at the Township of Rideau Lakes, in future years, statistics on the number of filter beds versus trench/conventional beds will become available.

There are very stringent requirements in the OBC for allowing the installation of a Class 5 system (holding tank). One of those requirements is that it can be installed only when no other type of Class 4 system, meeting the OBC requirements, can be placed on the property. **Fourteen holding tanks were identified by the re-inspection program in 2008.** It is promising that in the first years of the program very few holding tanks were identified, however given the number of systems inspected it is likely not representative of the Township as a whole.

In 2008, 9 dwellings were serviced by a privy and/or a greywater pit (Class 1 and 2 systems) as their primary means of sewage disposal. These situations can be a risk to the health of the lake. Typically these systems are older and in worse repair and are coupled with greywater sources discharging to the surface or to a greywater pit of undetermined size.

**Figure 1: Primary Sewage System Class**



### **3.3 Class 1 & Class 2 Systems**

92% of the properties inspected in Township of Rideau Lakes were found to have a privy on the property. The majority of the privies were earth pit privies, where the waste is received by a pit dug into the soil. Composting toilets, vault privies, pail privies or portable privies are also classified as Class 1 systems.

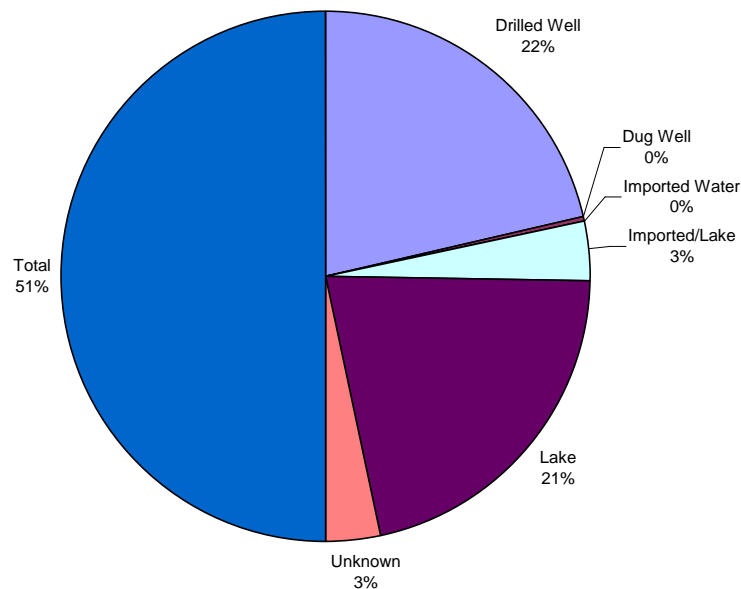
There were fewer greywater pits found during the site visits than privies, and some of the pits, like the privies, were located on a property with a class 4 wastewater system. This greywater waste does not need to be separated from the class 4 waste, and is more likely to receive a higher level of treatment if directed to the class 4 system. Greywater should be directed to a class 4 system wherever possible. It is also very likely that the inspected Class 5 systems also have greywater pits that were not identified. If these pits are located within 15 meters of the shoreline they should be directed into the holding tank on site.

Class 1 and 2 systems are not the best options for protecting lake water quality. Typically these classes of system do very little to treat wastewater, they primarily provide a storage location until the wastewater trickles away. If these systems are located too close to a water body they can have a significant impact on water quality during seasons of peak use.

### 3.4 Wells and Drinking Water

Information was also collected during the field inspection on the water source, and water testing practices of the homeowners. 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. Figure 2 shows the number of systems for each category of water source. Information was asked for regarding the level of treatment of the water before consumption (water softener, UV filter, reverse osmosis, iron filter, etc.) if the property owner was present on site.

**Figure 2: Water Source**



The Leeds, Grenville and Lanark Health Unit has free water testing available for residential properties, and water bottles are available for pick up at the office in Smiths Falls. However, even with all of these resources available, many people continue not to test their drinking water regularly.

The Health Unit recommends that a residential property test their water three times a year, each time submitting three separate samples one week apart. For a seasonal property, only two tests are recommended, each time submitting three separate samples. In practice it was found that many people do not test

their water even annually, and some have not had it tested since they had their well installed.

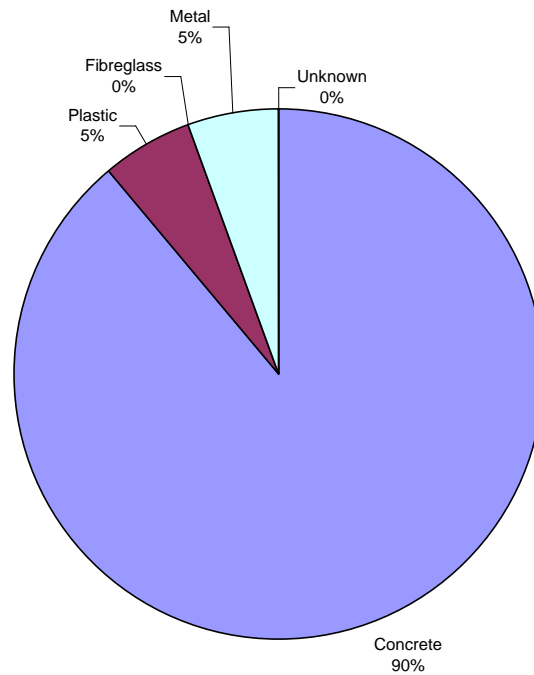
### **3.5 Tank Inspection**

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.<sup>1</sup> Appendix C has a table which 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.

Of the 76 Class 4 systems inspected, **25%** required a tank pump-out. One of the unforeseen problems with inspecting the tanks is that some people will wait to respond with their questionnaire until they have had their tank pumped. This made it essentially impossible for us to provide the homeowner with any information regarding how frequently they should pump. A side benefit though was that it created an incentive for people to have their tanks maintained, knowing that someone was coming to inspect it.

The material of the tank was determined 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 class 4 or 5 systems inspected in the township. Figure 3 shows the breakdown for the common tank materials found: concrete, plastic, fiberglass, and steel.

**Figure 3: Construction Material of Septic Tank**



Information was also collected on the condition of the inlet and outlet baffles in the septic tanks. Roots around the baffle can block the sewage or effluent from entering or exiting the tank. This can cause a sewage back-up in the home, or can lead to a bed failure if the roots find their way to the distribution bed. Missing baffles are also noted, as they serve an important function in the septic tank, and are required by the OBC. Baffles prevent the re-suspension of solids in the tank, which can lead to premature bed failure. A poor baffle typically resulted in a recommendation to the homeowner to watch the condition of the baffle at subsequent pump-outs for failure. Generally the baffles that were inspected were in good condition, with a few exceptions. Typical exceptions included corroded concrete and root intrusion.

Effluent filters are a plastic screen which allows the effluent to pass through large slots that reduce the turbulence as the sewage exits the tank. The reduction in turbulence allows additional solids to settle, reducing the amount of solids entering the bed, and therefore increasing the life of the septic bed. The Ontario Building Code requires an effluent filter in every new system installed, many septic installers will retrofit one into an old tank upon request. These relatively inexpensive additions (~\$150) to your septic tank can prolong the life of a septic bed, which is an expensive component of a septic system to replace (~\$6,000 - \$15,000). Effluent filters were seen in **3** of the inspected septic tanks.

### **3.6 Visual Problems and Separation Distances**

The inspection of a property also involves a visual component identifying any problems such as pipes discharging to the surface or trees growing on the septic bed. Horizontal separation distances are also measured from the well and shoreline, to the sewage system components. There is very little that can be done to remedy existing non-compliant separation distances. It is important that the OBC separation distances are respected on all new installations.

A visual inspection cannot accurately assess the functionality or remaining lifespan of an existing septic system. It can only serve to provide a rough approximation of the infiltrative effectiveness of the wastewater distribution system (drain field).

It is also very difficult to assess the separation distance from the distribution pipes to the water level, bedrock or other confining layer without excavating a hole in the distribution field. Rough approximations can be made using a soil probe but this technique has limitations. The current Ontario Building Code (OBC) requires a minimum of 0.9 meters of fill material (sand typically) between the distribution pipes and the water level, bedrock or other confining layer. Any less material than this can result in inadequate wastewater treatment and contribute to degradation of environmental water quality.

Another crucial element contributing to septic system function is the amount of cover material over top of the distribution pipes. The OBC requires between 0.30 meters and 0.6 meters of cover over the pipes. The purpose of this material is to provide a barrier between the wastewater and the surface. This layer also facilitates the transfer of oxygen down into the distribution pipes. Oxygen is a key component of the treatment of wastewater from septic systems. Too little cover material can result in the premature escape of wastewater to the ground surface while too much cover can lead to premature clogging of the distribution pipes due to the inefficient transfer of oxygen to facilitate wastewater treatment.

Table 1 is an overview of the overall program findings.

Table 2 identifies the system deficiencies found in 2007.

Appendix A shows some pictures typical of septic system deficiencies identified in septic re-inspection programs.

**Table 1 – Re-inspection Results**

No concerns	57
System Replacement Required	5
Remedial Work Required	36
More Information Required	3
Total	100

**Table 2 - System Deficiencies\***

Pump out required	25
Non-compliant septic tank	8
Non-compliant GW disposal	6
Baffles require maintenance (broken/roots)	3
Improper operating level of tank	4
Unattached/Exposed/Leaking Distribution pipes	1
Final Grading (erosion/too much/not enough cover)	2
Non-compliant privy	1
Other	4
Total	54

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

### ***3.7 Follow-up and Enforcement***

The Tay Valley Septic Office will provide a package to all homeowners whose properties were involved in the 2008 Township of Rideau Lakes Re-Inspection program. This package for this year will include the following:

- Copy of individual property specific re-inspection report for 2008
- Executive Summary of Rideau Lakes Re-inspection Report

Properties that the Tay Valley Septic Office feels are of significant threat to the environment and public health have been forwarded to the Rideau Lakes Building Department for enforcement.

Enforcement of violations on the properties identified by the re-inspection report will be at the discretion of the Rideau Lakes Building Department.

### ***3.8 Education Seminars***

In 2008 The Mississippi-Rideau Septic Office attended 2 Lake Association AGMS, presented at a township planning meeting and gave multiple presentations at the Art of Being Green festival. We are also available to attend any meetings for lake management plan development to help in a technical advisory role. The purpose of these events was to educate the general public on septic systems and the purpose of the septic re-inspection program in Rideau Lakes.

Presenting septic system information to lake association meetings is a much more effective method of getting information across to shoreline property owners than presenting educational seminars. In 2008 the MRSSO presented information to the Upper Rideau Lake Association and the Charleston Lake Association we also attended a Lake Management Planning meeting for Otter Lake.

The importance of an education component is significant. Continual education combined with a consistent re-inspection program will result in improvements to the management of septic systems within the Township of Rideau Lakes. Homeowner education went very well in 2008. The increased provision for making appointments is very helpful in improving homeowner education. The current system appears to be working quite effectively.

### **3.9 Program Implementation**

The fourth year of the re-inspection program in Rideau Lakes was very successful. Property selection was accomplished without incident and a tremendous response was received from property owners in the area. A total of 41% of all questionnaires mailed to property owners were returned. This resulted in 91 complete tank inspections (visual and invasive). The return rate for questionnaires was up significantly from 23% in 2007 to 41% in 2008. This could be as a result of the changed wording in the initial mail-out package.

The biggest change to the re-inspection program in 2008 was an increased effort by the MRSSO to facilitate on-site meetings with homeowners. It was felt that by meeting more homeowners on-site a greater educational component would be present in the re-inspection program. This provision resulted in a significant increase in the administrative workload faced by the MRSSO staff. The volume of telephone calls and email correspondence was significantly increased resulting in a large amount of time being dedicated to answering public inquiries and scheduling appointments. In 2008, organization and scheduling of appointments was a limitation to the efficiency of the re-inspection program. Several changes will be suggested to this process for 2009.

A second change that was very beneficial for the 2008 re-inspection program was the requirement for property owners to have their septic tanks exposed prior to a site visit by the MRSSO. Failure to have the tank lids exposed for septic re-inspection, resulting in the requirement of MRSSO staff to excavate the lids, would result in a fee of \$20 per lid. This requirement worked out very well with the majority of homeowners exposing the tank lids prior to re-inspection. Only 1% of re-inspection program participants required the MRSSO to excavate their tank lids.

During the 2008 re-inspection program approximately 57 percent of the properties inspected had no on-site wastewater concerns. The rest of the

properties had concerns of some manner. These concerns were detailed earlier on in the report. The majority of these concerns are with the operation and maintenance of existing septic systems. Concerns of this nature are not necessarily of immediate threat to environmental and public health. Failure to address them can result in premature failure of existing septic systems. Premature failure of these systems can result in significant environmental damage & costly system replacement or repair. The OBC does not provide an easy way of following up/enforcing compliance with these maintenance concerns but it should be suggested that some sort of follow-up on the homeowners behalf should be reported to the Rideau Lakes township. Continual education is a big help in making property owners aware of the importance of septic system operation and maintenance. Hopefully this will motivate them to address the issues outlined in the individual re-inspection reports that will be mailed to the homeowner. Care should be taken to ensure that any further development on shoreline properties respects OBC and township setback requirements from the high water mark and that renovations to cottages are required to undergo a review under OBC parts 10 and 11 to determine whether system performance will be negatively impacted by the proposed renovations.

It is very important that follow-up inspection becomes an integral part of the re-inspection program for the small percentage of properties that require immediate attention. Of the 78 properties inspected in 2008 only 2 systems require immediate attention. These properties have been forwarded to the Township of Rideau Lakes building department for enforcement. With the full-co-operation of the Lanark, Leeds & Grenville Health Unit in following up with properties of concern the re-inspection program can operate as intended. The real benefit of this program is as a public relations and education exercise. If implemented properly the re-inspection program can be a valuable tool for real changes to shoreline development and freshwater protection. Follow-up enforcement should be performed during the late spring/early summer season and results of the inspections should be forwarded to the Rideau Lakes Township.

The MRSSO also would like to suggest an early summer kick-off meeting and wastewater workshop offered to homeowners and cottagers in the township. This would provide an excellent opportunity to explain the program before it begins and increase awareness of water and wastewater issues in the area.

It is hoped that with some changes, the program can become more effective in locating the systems most in need of being found; those causing harm to our water and the environment.

## 4.0 Recommendations

Owners were present 79% of the time in 2008. The increased emphasis on scheduling played the biggest role in the increase in the number of homeowners present during the inspection. Continuing to strive towards better scheduling and homeowner participation will continue in 2009.

In order to facilitate this change to the program and to increase overall public service a stricter scheduling regiment will be applied to the re-inspection program next year. The 2008 requirement for homeowners to excavate their septic tanks for the MRSSO was a resounding success. By requiring that tanks be accessible prior to inspection the re-inspection team was able to move more quickly from site to site and be more efficient in their work. It is recommended that charging for tank excavation continue in 2009. Property owners in the Township of Rideau Lakes were very good about leaving safe excavations for MRSSO staff to work around. By eliminating the excavation component of the re-inspection program it becomes much easier for a properly trained individual to perform re-inspections as opposed to the 2-person re-inspection teams used in the past. It is recommended for 2009 that the MRSSO summer student resource be utilized in the office for administrative assistance related to scheduling of re-inspections and data entry instead of being used for field assistance.

The MRSSO is becoming recognized as a source of information on re-inspection programs as well as for on-site wastewater treatment systems. The MRSSO should strive to continue to fill this role. Increasing the education of property owners has the inherent value of improving the maintenance and operation of on-site wastewater systems in the Township. The MRSSO also would like to suggest an early summer kick-off meeting and wastewater workshop offered to homeowners and cottagers in the Township. This would provide an excellent opportunity to explain the program before it begins and increase awareness of water and wastewater issues in the area. Meetings should be arranged early in the season (April/May) with the associations representing the water bodies selected for the re-inspection program. After the completion of the re-inspection program for the year a copy of the re-inspection program annual report should be provided to the president of the water body association. A small insert should also be provided with a Township standard mail-out (taxes?) providing an overview of the re-inspection program and identifying areas selected for 2008.

Not everyone who owns waterfront properties have the ability to quickly come up with the money to pay for fixing a sewage system, if theirs is found to require repairs or replacement. The Township of Rideau Lakes should endeavor to work towards the creation of a program geared towards providing financial assistance for waterfront property improvements.

One concern that is consistently mentioned by property owners on-site in the re-inspection program is the necessity of inspecting island properties on the lakes.

These properties have the potential to cause significant impact on the environment due to very restrictive site conditions. It is difficult to service island properties with septic systems. The costs associated with septic system construction on water-access sites can be very restrictive. Because of these challenges it is anticipated that many island properties have insufficient septic systems and should be inspected and then brought up to OBC standards. This also presents challenges to the re-inspection program with regards to transportation to the site. Remaining cost-effective, while spending increased time and money traveling from site to site, will be very difficult. Partnerships with Lake Association members or barge services should be fostered to facilitate transportation to these critical properties. Forging relationships with “islanders” can help greatly in the perception of the re-inspection program AND help to dispel the notion that islands and water-access properties have a greater percentage of failing septic systems.

The regulation of commercial establishments and rental properties are of extreme importance to the lake environment. These properties tend to have much more traffic and much more out-of-sight, out-of-mind perspective on wastewater treatment and water quality issues. Identification of these properties can be difficult because the only difference between a cottage and a commercial property is the revolving door of tenants moving in throughout the summer. Typically owners of these properties tend to understate the usage of the property and argue for the minimal acceptable solution for these often problematic sites. Efforts should be made by all stakeholders to identify these high risk properties and any impacts they are making on the lakes in the Township of Rideau Lakes. Given the rising popularity of cottage and recreational properties within the Township, now is the time to address these issues before they expand into larger problems. A good working relationship with the Ministry of the Environment would be necessary before considering inspections of on-site wastewater systems with a design flow of greater than 10,000 L/d however, as the enforcement of these systems is completed by them.

Many other re-inspection programs in the province require that property owners excavate their own tanks for re-inspection purposes. By requiring that tanks be accessible prior to inspection the re-inspection team could move more quickly from site to site and be more efficient in their work. A system where a surcharge is applied to a re-inspection if Mississippi-Rideau Septic Office staff must excavate the tank should be explored by the township and the MRSSO.

In order to facilitate this change to the program and to increase overall public service a stricter scheduling regiment will be applied to the re-inspection program next year. The weeks that the MRSSO will be inspecting in Rideau Lakes will be identified in the initial mail-out to property owners. By doing this it will enable early scheduling of re-inspection appointments and give property owners the ability to have their tanks prepared for re-inspection before staff arrives on site.

Not everyone who owns waterfront properties have the ability to quickly come up with the money to pay for fixing a sewage system, if theirs is found to require repairs or replacement. Increased awareness of the Rural Clean Water Program offered by the Rideau Valley Conservation Authority would be of great benefit to the residents of Rideau Lakes Township.

It is suggested that starting in 2009 properties who did not respond to questionnaires from 2008 be re-issued a questionnaire and hopefully scheduled for re-inspection. These systems were identified as the oldest systems in the township or are located in areas of heightened density or concern and as such should be subject to a rigorous re-inspection.

One final recommendation would be implementing a 3 strikes rule. If a property owners does not return a questionnaire the first year, they are re-mailed one for a second year in a row. If still no response is received that is a trigger that there is a possibility of an unsafe situation on the site and a MANDATORY re-inspection is required for that property.

## 5.0 Conclusions

The 2008 on-site wastewater disposal system inspection program was a success. All aspects of the program have so far proceeded according to plans.

The 2008 program completed a full inspection on the majority of the systems selected. Approximately 57% of these systems 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.

5 properties were identified with major concerns and these properties are currently undergoing enforcement proceedings or will be in the immediate future.

Interaction with property owners during the re-inspection program this year was very positive. Almost 80% of all property owners were able to be present during the re-inspection. Most of the homeowners encountered were very supportive of the re-inspection program. Some effort needs to be made to bring local residents, particularly campgrounds and cottage rental locations, on board with the re-inspection program. Further education will hopefully remedy this.

Having homeowners excavate their tanks will be continued in the 2009 re-inspection season. This enabled a much more efficient re-inspection process and will hopefully allow for one-man re-inspection teams for the 2009 re-inspection season.

Continued emphasis will be placed on attending Lake Association functions as opposed to offering dedicated seminars within the Township. By attending the AGMs of these groups the MRSSO is more likely to reach a larger percentage of our target audience.

We would like to take this opportunity to thank those who helped make this years program a success. Sheldon Laidman and Carolyn Mulville at the Township of Rideau Lakes have provided municipal support and were very supportive when dealing with the challenges encountered during this years re-inspection program.

We look forward to being involved in the program in 2009. If we can continue to perform septic inspections every year, we will begin to have a more complete idea of the status of on-site wastewater treatment in Rideau Lakes Township. It is anticipated that by implementing the recommendations made, and taking the lessons learned in 2007-2008, that the program will only become more effective in the future. We hope that the momentum of the on-site wastewater disposal system inspection program continues in the coming years, as we believe it is a valuable asset to the health of the environment for our community.

## 6.0 References

- 1     Bounds, T.R. Management of Decentralized and Onsite Wastewater Systems *In* ADAE Proceedings of the 9<sup>th</sup> National Symposium on Individual and Small Community Sewage Systems. March 11-14, Fort Worth, Texas. Pp.435-450, 2001.
  
- 2     R.J. Burnside & Associates, City of Ottawa Rural Wastewater Management Study (Document 1) Final Report

## **Appendix A: Mail-out Letters**



1439 County Road 8, Chantry, Ontario K0E 1G0

**PLEASE BE ADVISED THAT THE TOWNSHIP OF RIDEAU LAKES WILL BE CONDUCTING INSPECTIONS OF EXISTING SEWAGE SYSTEMS IN YOUR AREA THIS SUMMER.**

It is the responsibility of the Township of Rideau Lakes to regulate on-site sewage systems with a total daily design flow of less than 10,000 litres per day. Part 8 of the Ontario Building Code is a direct transfer of responsibilities from the Environmental Protection Act, this section of the Building Code is meant to ensure proper installation, operation and maintenance of on-site sewage (septic) systems. The Building Code Act defines a sewage system equivalent to a "building", and as such, a sewage system that is discharging effluent onto the surface of the ground, or has not been maintained or operated in accordance with the Ontario Building Code, is determined to be an unsafe "building".

The Mississippi/Rideau Septic Office (MRSSO), on behalf of the Township of Rideau Lakes, will be conducting inspections of existing septic systems in your area beginning the summer of 2008. The MRSSO is a co-operation between the Rideau Valley and the Mississippi Valley Conservation Authorities, contracted to conduct the re-inspection program. These inspections are being conducted to help ensure proper operation and maintenance of the septic systems in your area. A properly functioning septic system is an integral part of a healthy shoreline environment. Improperly maintained systems can be a significant contributor of nutrient and bacteriological pollution into an adjacent water body.

Several subtle changes have been made to the septic re-inspection program for 2008. Re-inspections will be more rigorously scheduled to accommodate more property owners on-site and it is requested that you have your septic tank located and the lids excavated prior to the arrival of MRSSO staff. If you wish to be present during the re-inspection of your property, appointments will be made on a first come, first served basis during the weeks outlined in the accompanying program description. If MRSSO staff is required to locate/excavate the tank then a moderate fee will be charged for this service.

Please read the provided program description and fill in the accompanying questionnaire to the best of your ability. After the re-inspection is completed, a letter stating the status of the system and any deficiencies present will be sent to you and the local OBC Part 8 regulations office.

Any questions or comments can be directed to me, Jamie Saunders at the above numbers, or to Terry Davidson at 1-800-459-5975 x1107. We would like to thank you in advance for your co-operation.

Summer 2008

(PROPERTY OWNER/ADDRESS)

Dear (ENTER FIELD HERE):

Welcome to the Township of Rideau Lakes Sewage System Re-inspection Program. Your property, (ENTER FIELD HERE), has been selected for participation.

Property selection begins with the selection of lakes to be re-inspected for the season. **The Lakes involved in the 2008 program are: ENTER LAKES HERE.** Roads and properties are selected based on several factors including; lot density/size, water quality results obtained from the Conservation Authority and age of development. The selection process, as in past years, has been conducted by the Township of Rideau Lakes employees.

A property should be re-inspected approximately every 8-10 yrs. If we have re-inspected your property within the last year or if a new system has been installed within that time please inform the Mississippi-Rideau Septic System Office (MRSSO) providing no outstanding issues are present we will remove your property from the list.

The following is a list of the steps involved to ensure an efficient, accurate and unobtrusive septic system re-inspection for your property.

1. Included in this package is a Sewage System Questionnaire. While the Township may have some information about your septic system, this information requires updating. The first step in your participation is completing and returning the questionnaire. Please fax, email or mail the form, as soon as possible, to the number or addresses above. Do not feel as though the form must be fully completed to return it to us, every bit of information is useful.
2. Arrange a mutually beneficial time for re-inspection. The following weeks are available for re-inspection in the Township of Rideau Lakes. Appointments are not required but can be made between 8 am – 5 pm on a first come, first served basis by contacting the MRSSO.  
**July 21-25, 28-Aug.1**  
**August 11-15**
3. Before a re-inspection can occur the MRSSO requests that you expose both septic tank lids on your property (most tanks have 2). There will be a \$20 charge per lid which requires locating/excavation. This fee will be invoiced upon completion of the re-inspection program and included with the report for your property IF YOUR SEPTIC TANK LIDS ARE NOT

EXPOSED. No cost will be incurred if excavation is not required. The MRSSO will cover the tank and re-seed the disturbed earth before leaving the site.

4. The septic tank system inspection will include the following items:
  - visual inspection of tank structure
  - measurement of tank contents/requirement for pumping
  - visual inspection of bed
  - measurement of separation distances to key lot features
  - determining location of privies/greywater pits
  - briefing the homeowner on proper system maintenance and operation
  
5. The final step in the re-inspection program will be a report to you on our findings and invoice for tank excavation (if required).

Historically, a majority of the systems inspected were deemed to be fine, with only minor remedial work required. Should a system be found to be unsafe, the property owner must take the necessary steps to render the sewage system safe. The Building Code Act defines a sewage system as a “building”, and as such, a sewage system that is discharging effluent onto the surface of the ground, or has not been maintained or operated in accordance with the Ontario Building Code, is determined to be an unsafe “building”.

The primary role of the MRSSO, as the administrators of the re-inspection program, is to educate property owners of their onsite waste water treatment system and any deficiencies with it. Our secondary role is to enforce Part 8 of the Ontario Building Code when required. You, as the property owner, can expect the re-inspection, communication of results, and all inquiries to be dealt with in a timely manner.

If you have any questions about the Sewage System Re-inspection Program, do not hesitate to contact me, Jamie Saunders using the information provided below.

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 co-operation in this program will assist in providing continued enjoyment of a clean, healthy waterfront environment for generations to come.

Yours Truly,  
Jamie Saunders BSc.(Eng)  
Re-inspection Program Co-ordinator  
613-259-2421 ext. 254  
jsaunders@mvc.on.ca

## Appendix B: Septic Tank Pump-out Frequency Table

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 (≈2,700)	9.1	4.2	2.6	1.8	1.3	1.0	0.7	0.6	0.4	0.3
3,790 (≈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