ONSITE
WASTEWATER NEWS
ONTARIO ON-SITE WASTEWATER ASSOCIATION NEWSLETTER

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Message from the President

A couple of items to pass along to let you know what your association is doing on your behalf. Firstly, we are hard at work with the Ontario Rural Wastewater Centre on the organization of the 2005 conference — see the notice in this newsletter. This year's venue is the Sheraton in Niagara Falls on March 7 and 8. A great place not only for the conference, but a wonderful place to bring the family as well. The Hotel has placed a block of rooms on reserve for our conference attendees at a lower rate but these are limited so be sure to sign up early. I hope to see you all there. Although the program is not set yet, I know from past experience it will be an interesting and highly informative couple of days. If you are interested in participating, either as a presenter, organizer or exhibitor, just drop me a line.

The directors of the association are hard at work in a number of areas. The expansion of our membership to its highest level ever (190, thanks to the excellent work of the membership committee) has begun to tax the time available of our directors. As such, we are pursuing the hiring of a staff person to help with the day-to-day operations of the newsletter, membership and other activities. We are in the processes of finalizing the job description and investigating assistance programs to help with the salary. One of our goals is that with this help we can increase our membership further still. A second initiative is the promotion of a compulsory operation and maintenance program for all on-site systems in the province. We have initiated a dialog with the Ministry and have struck a sub-committee to help develop options. These are only a few of the activities of the association, if you want to know more, call me or consult our website.

Doug Joy, President

CodeNews Item No. 142

On August 4, 2004, Minister's Ruling 04-BC-02 pursuant to Clause 29(1)(b) of the *Building Code Act*, 1992 was made to update certain standards referenced in the Building Code. These updated standards harmonize the *Ontario Building Code* references with the model *National Building Code* and *Plumbing Code*.

The Ruling comes into force on September 20, 2004. The Ruling contains a "grandfather clause" to allow the existing standards to be used for projects where a permit has been issued prior to September 20, 2004 as well as for projects where the working drawings and specification have been substantially completed by September 20, 2004 and a permit application has been made before December 20, 2004, provided that construction commences within six months of the time when the permit is issued.

Visit the Building Code website at www.obc.mah.gov.on.ca for more information or to view a copy of the Ruling.

Alek Antoniuk
Coordinator, Code Development Unit

CodeNews is a free internet-based newsletter issued by the OMAH's Building and Development Branch. Visit or subscribe at www.obc.mah.gov.on.ca. Concerns or technical questions can be sent to codeinfo@mah.gov.on.ca

Frequently Asked Questions

Taken from Branch Opinion, *OBC Article 8.2.2.2. and The Concrete Precasters Association of Ontario's Certification Program for Water and Wastewater Products*. Available at www.obc.mah.gov.on.ca/userfiles/HTML/nts_4_8703_1.html

The Building and Development Branch has received requests for clarification concerning the role of the above program in verifying compliance of septic tanks with the Canadian Standards Association's standard CSA B66-00, "Prefabricated Septic Tanks and Sewage Holding Tanks" (CSA B66-00).

As of August 4, 2002, the *Ontario Building Code* (OBC), as amended by Ontario Regulation 220/02 requires that septic tanks installed under Article 8.2.2.2. of the OBC must conform to CSA Standard B66 "Prefabricated Septic Tanks and Sewage Holding Tanks." Under this amendment, the marking on the septic tanks does not need to include the symbol or logo of the certifying agency. While the process employed by CSA-endorsed certification bodies is currently used to verify compliance, the amendment provides building officials the ability to consider other means to verify compliance.

The Concrete Precasters Association of Ontario (CPA) has been working for several years to establish a made-in-Ontario, septic tank certification program. The CPA certification program provides a useful tool for building officials in assessing compliance with these requirements. Branch staff have followed the development of this program, and have reviewed its key elements. These elements include:

- An open and accessible central registry containing specific information about septic tanks and their manufacturers;
- An administrator who manages the program;
- Core quality assurance elements including annual compliance reporting prepared by certifying engineer; requirements for product testing and quality control consistent with the CSA B55-00; and provision of product drawings and testing reports; and follow-up procedures for maintenance of product certification.

Information about the program is posted on the CPA website at www.cpaontario.com, and any inquires related to its components may be obtained directly from the CPA at (613) 472-6039.

David Brezer, Manager
Code Interpretation, Registration and Training

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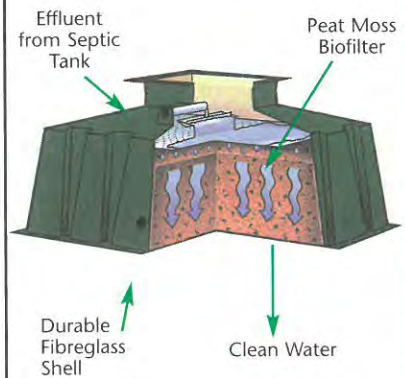

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Rob's World

By Robert A. Passmore, B.Eng.

MMAH: Why don't you care about the onsite wastewater industry?

While I was pondering what issue I would sink my teeth into this edition, I took notice of an interview being broadcast by a local news talk radio station. A reporter was grilling one of the local Members of Provincial Parliament (MPP) on several issues, including the ongoing fallout from the Walkerton Report. This MPP responded as a polished politician always does by stating that the Provincial Government was actively involved in spearheading a committee that had been struck to investigate the implementation of source water protection for the Province of Ontario. Perhaps it was the monotone nature of the response, or perhaps it was the casual manner in which the MPP dismissed the question — either way that MPP's response gave me my newest issue to chew on: Why does the Provincial Government, specifically the Ministry of Municipal Affairs and Housing, not care about the onsite wastewater industry enough to implement necessary changes to the Ontario Building Code (OBC) to ensure sewage systems are constructed properly?

I use the term "properly" for a reason. A person can construct a sewage system to meet the OBC but it does not mean that the sewage system has been properly constructed. Much of Part 8 of the OBC is subject to interpretation and, as such, leads to discrepancies in consistent enforcement of the regulations. For example, a person could construct a fully raised leaching bed on clay soils with a T-time of 30 minutes/cm, and install an imported sand mantle that ends in clay. The leaching bed may meet all aspects of the OBC, however, the leaching bed has not been constructed properly. In this example, the mantle will not drain and will lead to localized mounding in the leaching bed adversely affecting the treatment and ultimate service life of the system.

One of the arguments defending the movement of onsite sewage system approvals from the Ministry of the Environment to MMAH was that the OBC would offer a more standardized approval regiment as it has done for other buildings. However, this dream has not become a reality. Our industry is faced with more delivery agencies than ever before that are staffing their programs with personnel with less and less specialized training. Time has passed and the situation keeps getting worse. Installers complain that they have to remember what area they are working in as the regulators in different municipalities have different requirements. To top it all off, these same installers worry about which inspector will be inspecting the work as some are inexperienced while some others don't really care enough to do a thorough job.

I have personally experienced exactly what these installers are experiencing and it angers me to no end that MMAH allows this to continue. They continue to keep their head in the sand to the onsite wastewater industry by not implementing a proper training and auditing system for regulators. The regulators regulate the installers, designers and homeowners, but no one really regulates the regulators! Add to this the fact that many regulators have little understanding of the underlying theory of onsite wastewater systems to ensure leaching beds are properly constructed, and we have a recipe for catastrophe.

MMAH will defend their position by stating that Bill 124, the new "performance based code" will address these problems, but they are only partly correct. There may be some new training, but it is doubtful that it will include theory of treatment and hydraulics. Moreover, there will be more flexibility given to the regulator, namely the Chief Building Official, without a proper auditing mechanism to ensure the OBC is being properly administered. The MMAH had better get their heads out of the sand and become proactive by implementing a proper training and auditing system for regulators. The status quo is not acceptable, besides, after Walkerton, we all know what happens when you are not proactive with regulations and enforcement.

Two young boys drown in neighbor's septic tank

CNN.com/us posted: Saturday, March 15, 2003

WARNER ROBINS, Georgia (AP) — Authorities said Saturday they were investigating the deaths of two young boys who drowned in a neighbor's septic tank.

The boys' bodies were found submerged Friday in a partially uncovered tank filled with four feet to five feet of water.

Houston County Sheriff's Sgt. Bill Kast said it appeared that Tremaine James, four, and Tyrin James, three, had wandered into the neighbor's yard while their mother was asleep. Police began searching for the boys after the mother awoke and reported them missing.

The septic tank the bodies were found in had been in disrepair for about two weeks after a towing company pulling a car out of the yard broke the concrete top of the tank, officials said. The tank had been pumped out, but water had accumulated and it rained heavily the night before the boys drowned, authorities said.

Warner Robins is in central Georgia, 90 miles southeast of Atlanta.

Three Die After Falling into Septic Tank

Saturday 28 August 2004

ST-JEAN-BAPTISTE-DE-ROUVILLE, QUE. — Three people who fell into a campground's septic tank have died and a fourth man is in critical condition in hospital Saturday. The incident occurred late Friday evening when the owner of the campground, his son-in-law and another camper went down a four-metre hole near the tank to clear a blocked drain, reported Quebec provincial police.

The three men were overcome by fumes and fell unconscious. A fourth man who tried to save the trio was also overcome by fumes and sent to hospital.

Eight other people who tried to help and two firemen were treated for exposure to the toxic fumes.

The victims' names were not released.

An autopsy is planned this week to investigate whether the deaths were linked to the fumes or if the three men drowned in human waste, said police spokesman Const. Ronald McInnis, who warned that only professionals should fix septic tanks.

St-Jean-Baptiste-de-Rouville is about 30 kilometres east of Montreal.

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Garbage Grinders — How to Design for Them

Anna Howes and Doug Joy, ORWC

As designers and installers, most of us have been faced with the situation of a garbage grinder (also called a garborator) discharging to an on-site system. Although we all know in most cases this is not recommended, the question often arises, "if I was going to have a garbage grinder, how should I change the design of my system?" This short note is intended to consider how to deal with this design and other related questions.

The first question often is: are garbage grinders even allowed in Ontario with on-site systems? The answer is contained in 8.1.3.1.(4.1) of the *Building Code* which states:

"Wastewater from a kitchen equipped with a garbage grinder may be directed to the sewage system provided the system has been designed to accept such discharges."

Unfortunately no guidance is given in the Code as to what changes in the design may be required.

Next one might ask, why should there be any changes in the design at all? Two reasons. First, the use of a garbage grinder increases the water use as the ground up food particles are flushed down the system. Thus, water use and the total daily design sewage flows should increase. More importantly, the ground up food particles add to the organic load to the system. This requires a larger volume of storage in the tank for settling, sludge collection and digestion and secondly, a larger leaching bed to keep the organic loading to the soil at a level that the soil can accept it without clogging prematurely.

The last question then is: how do I incorporate this into my design? For guidance we looked at other jurisdictions which give specific design recommendations for the use of garbage grinders. The recommendations deal with three aspects of design: tank size, required pumping interval and leaching bed size.

South Dakota recommends a tank size increase with the use of garbage disposal units of 20 per cent whereas New Jersey recommends a 50 per cent increase. Colorado takes an alternative approach of recommending a design flow increase of 6.4 L/person/day. All recommend that an effluent filter be added as an extra precaution with the increased solids loads in the tank.

With regard to the size of the leaching bed, all jurisdictions recommend an increase in size to accommodate the added organic loading. In Colorado they recommend a 20 per cent increase, in New Jersey 25 per cent and in Massachusetts a whopping 50 per cent increase in leaching bed size.

Most jurisdictions recognize that with a garbage grinder the added particulate load will result in an increase in the frequency of required tank pumping. The Massachusetts code recommends, with no tank size change, that the frequency of tank pumping will need to be increased from once every three years without a garbage grinder to once every year with a garbage grinder.

The above is a quick summary of some of the recommended design changes if an on-site system is to be designed to accept a garbage grinder: larger tank size, larger leaching bed size and more frequent tank pumping. The added cost may not be warranted given the ease of composting the same waste, but if the customer asks for it, these numbers provide some guidance.

Want more details? A more extensive version of the above is available on the Ontario Rural Wastewater Centre website at www.orwc.uoguelph.ca

S-Files

The Truth is Out There

Ontario municipalities struggle with aging on-site wastewater systems. This sign just reinforces the need for septic re-inspection programs. It appears that OOWA is having an affect on some communities.

The Science Corner — High-strength flows — Not your Average Wastewater

PIPELINE – Summer 2003 (Volume 14, Number 3)

Defining High-Strength

When a wastewater engineer uses the term "high-strength" wastewater, it can mean it contains greater amounts of fats, oils, and greases (FOG) or other organic components than residential wastewater. It can also mean the effluent contains large quantities of suspended solids or high amounts of certain chemicals, such as disinfectants. Any or all of these components can interfere with the normal biological processes most onsite systems use. These characteristics vary from day to day, even hour to hour, and they can have a major impact on how a system performs.

The major concern of having high amounts of organic components (high organic loading) in wastewater is drainfield clogging. Physical clogging occurs when solid material, such as grit, organic material, and grease, flows beyond the septic tank to the soil absorption field, where it is deposited on the biomat. Biological clogging generally occurs when excessive organic elements flow into the biomat. Microbes, bacteria, etc. grow so fast that the effluent can't pass into the soil. Chemical clogging often occurs in clay-type soils when high concentrations of sodium ions (salt) cause the soil to lose its structure and not allow the effluent to flow through.

Treatment plants are generally designed for average peak flow rates and average wastewater characteristics. Designing a treatment plant based only on these average values will result in a treatment plant that may not be able to handle peak conditions. Conversely, if a plant is designed for peak conditions, it may be too big to function well the rest of the time.

System Design Elements

A first step in most system design is to consider the characteristics of the wastewater and make reliable estimates of wastewater flow. Most state regulations include a table of estimated sewage flow rates for different types of facilities.

When it comes to treatment plant design, traditionally the most important factors to consider are the five-day biochemical oxygen demand (BOD5) for a given flow, and the total suspended solids (TSS), which is a measure of the amount of waste particles suspended in the wastewater. BOD5 is a measure of the amount of oxygen that microorganisms need to consume and break down organic matter.

In addition, when dealing with commercial establishments, designers must consider the FOG levels in the waste flow. The public sewer industry uses three classifications for FOG based on waste strength, measured in milligrams per liter (mg/L): weak, medium and strong (50, 100 and 150 mg/L respectively). The average strength of residential wastewater is approximately 20 mg/L.

Fats and oils are triglycerides and fatty acids. At room temperature, oils are liquid and fats are solid. Obviously then, temperature plays a significant role in the treatment process. FOG can also be divided into two categories based upon origin: animal and vegetable based FOGs are considered to be edible, petroleum and coal-based FOGs (mineral) are inedible. The non-edible ones are especially slow to break down and, in some instances, are toxic. The range of values for FOG in a commercial system can vary according to source. For instance, a full-service restaurant could generate up to two tons per year. Most restaurants today use vegetable oils.

When grease reaches the soil absorption system, it can physically clog the soil pores preventing water and oxygen from moving freely. Bacteria need free moving water and oxygen to digest waste. The high BOD in grease also promotes excessive bacterial growth, causing a thick anaerobic biomat to form. This biomat has little ability to actually treat the waste.

Oil combines with water in three ways: as free oil, as an emulsion or as dissolved oil. Free oil will rise to the surface when the mixture is allowed to rest and, thus, is easy to separate. Most grease traps and grease recovery devices work by collecting this free oil. Emulsified oil has been broken up into very small droplets and occurs either by mechanical or chemical action. Mechanical emulsification frequently occurs when very hot water is briskly agitated with the oil. This type of emulsion will separate out again if given enough time.

Detergents produce a chemically emulsified mix of oil and water. Chemically emulsified oil will not rise to the top no matter how much time is allowed. Dissolved oil occurs when the oil is no longer present as discrete particles, generally caused by the use of degreasing compounds.

The most common form of treatment is gravity separation, typically through a grease trap or tank. But gravity separation cannot remove emulsified oils and greases. Mineral oils are not considered biodegradable in biological treatment systems.

Summary of OOWA Sub-Committee Meeting

July 20, 2004

Public Relations

- "Proud Member of OOWA" plaques will be made for manufacturers to put up in their booths during tradeshows.
- OOWA stickers are being updated for vehicle windows.

Membership

- Membership is dropping.
- There are 159 members now from a maximum of 175 members.
- We have printed advertisements in the last four issues of *Cottage Life* and are reviewing whether or not we should continue this.
- OOWA membership forms could be printed directly in the newsletter.
- To encourage students to join, we are considering free student memberships, and may advertise in student newsletters, or at certain universities.
- A full-time staff person could be hired to recruit new members.
- Members could be offered benefits (discounts with suppliers, installers, etc.)
- Non-members could be forced to pay $175 more if they want an exhibit at an OOWA conference.

Government Relations

- If a full-time OOWA staff person is hired, he/she will also be responsible for lobbying the government.

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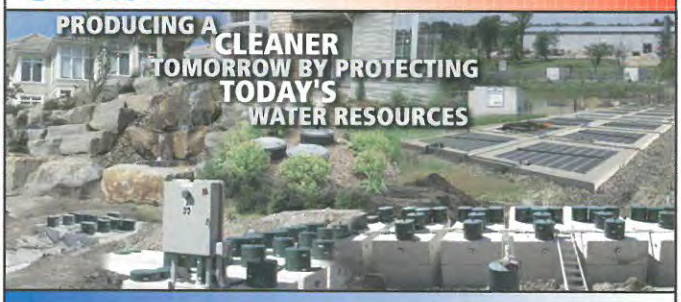

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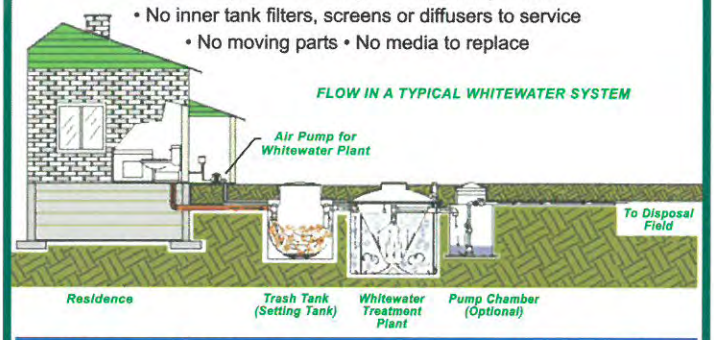

www.makeway.ca itech@makeway.ca

OOWA Profile — Judi Maier

Judi was born in Toronto and raised in Scarborough. After high school, she attended Centennial College to study Social Work.

Married in 1975 to Dieter Maier, who she met when he was working in her father's construction business, Judi and Dieter started a business selling and distributing septic tanks. They started making tanks in 1969 and built Orillia Precast Concrete Limited into the business it is today.

As the wastewater industry changed, precasters organized themselves and formed the Ontario Precasters Association in 1991. Judi soon became involved and became part of the executive in 1992. She was president of the association from 2003-2004 during which time they received certification as a self disciplined organization.

Judi's passion in life is helping others, and she works as a hospice volunteer in her community. She also works closely with the OPP as a VICARS worker (victim crisis service worker), supporting people in times of crisis. She attends fatal car accidents to support and provide counseling to the families involved.

Photos for Life Inc. was founded and developed by Judi through her work as a hospice volunteer. She wanted to do something special for her Hospice patient at Christmas and decided to provide a photo album for the family. Through her daughter Lindsey, a professional photographer, an album was created with her patient and presented to the family for Christmas. Since that time the word spread and interest in the concept of an album for others helped to solidify the idea for Photos for Life Inc. This is a non-profit organization founded by Judi Maier. The foundation was created in loving memory of Christopher Jackson, the original Photos for Life child.

Through Judi's volunteer work with Hospice and VICARS, and now through her foundation Photos for Life Inc., we see a person dedicated to community life and she brings these values to the industry we all work in. Judi is an example of someone doing tremendous work that often goes unrecognized.

Congratulations and thank-you Judi for all of your hard work.

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Ontario Rural Wastewater Centre

Upcoming Course Listings

Ottawa site:

1. On-Site Wastewater & Water Systems for Real Estate Professionals (February 2005)
2. Water in the Developing World (Winter 2004)
3. Part 8 *Ontario Building Code* — Installer/Inspector Certification (January 10 – 14, 2005)
4. Alternative Onsite Wastewater Treatment Systems (Winter 2005)
5. Pumps and Controls (Winter 2005)
6. Surveying Course — 100 (April 1, 2005)

Guelph site:

1. Inspection, Troubleshooting, and Remediation for Onsite Wastewater Systems (November 23, 2004)
2. Advanced Design of Onsite Wastewater Systems (November 25,2004)

Visit www.orwc.uoguelph.ca for more information.
To register, contact:
Ottawa — Sommer Robertson at (613) 692-3571 ext 1128
Guelph — Angela Mason at 519-824-4120 ext 54687

OOWA Graduate Scholarship 2005

The Ontario On-site Wastewater Association is pleased to continue in sponsoring its annual $1,000 scholarship to support the studies of a graduate student conducting research focusing on on-site wastewater systems. The deadline for this year's scholarship is January 30, 2005. Visit the OOWA website @ www.oowa.org for details on the scholarship and application requirements.

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Setting Pump Floats

Proper setting ensures that pumps and alarms operate at the right times and so ensure that onsite treatment systems function as designed. By Jim Anderson, Ph.D., and David Gustafson taken from *ONSITE INSTALLER*, August 2004 Issue. For subscriptions visit www.onsiteinstaller.com.

The onsite industry is moving away from treatment systems that rely on gravity to distribute effluent between parts of system, and toward alternative technologies that require pumps.

In these newer systems, one critical but often overlooked part of the installation is the need to set control floats properly. If the floats are not set at the proper elevations so that the pump turns on and off at the right time, an otherwise well designed and installed system will not operate properly.

What Floats Do

Floats are the on and off switches for the pump. Inside the float is a simple mechanism that controls when the pump turns on and off. Not to long ago, the switching was usually accomplished by mercury flowing in a tube. As the float rose or fell with the level of effluent in the pump tank, the connection would be made or broken, controlling electricity to the pump.

Because mercury had gained notoriety as a hazardous material, the industry has moved to mechanical switches. Most of these operate using small ball bearing that slide on a track as the float moves up and down again. It is these bearing that make or break the connection. The pump is often raised to a certain set point.

This is all very simple but installers need to recognize that depending on the desired application (for example, pumping to a drop box versus to a pressure distribution system), each situation requires a different and unique operating range. There is no "one size fits all" here. One of and installers major responsibility is to recognize the differences in systems and be able to determine the right operating range for each.

Kinds of Floats

Floats can be divided into town families. First is the pump or control float. These are designed with specific electrical capacity to handle the voltages requires to operate the pump. They are also designed to allow a wider range or angle or operation. This provides flexibility in turning the pump on and off, and assures the ability to set controls to provide the proper pump-out depth for the desired application.

Second are floats that operate alarm switches. These floats are designed specifically to control alarms that require much smaller voltages and have smaller range operation. They are set to turn the alarm on as soon as the effluent begins to move the float up. An all too common problem in pump station instillation is where installer uses these two types of floats interchangeably.

If you use an alarm float to operate a pump, one of two things will happen. First you might burn out the alarm switch because of the higher voltage required to operate the pump. This is the better of the two scenarios, because the switch will burn out before the pump damaged. One would hope that when the customer calls because the pump doesn't operate you will recognize the mistake and install the proper control floats.

The other scenario is worse because if the alarm switch doesn't burn out, you will cause premature pump failure. Because the alarm float has a small angle of operation, it will create a chattering effect, constantly turning the pump on and off. Start-ups are hard on pumps and repeated start-ups will burn the pump out. Also, in a pressure distribution System, such as in a mound or sand filter, a pump that is constantly turning on and off will not give the desired effluent distribution.

On the other hand if you use control floats for the alarm, then alarm will not turn on at the proper time because the pump floats have a wider angle of operation. Depending on the location of the pump tank, there is potential here to back up effluent in the system, and perhaps all the way into the house before the alarm triggers.

Modes of Operation

The next question is: what is the system mode of operation? The two choices here are on-demand, where the pump operates every time effluent reaches a desired level in the tank: or time, where the pump operates by timer settings.

An on-demand dose system means the system operates based on solely on how and when water is used in the home. The pump essentially waits for enough water to be used to raise the control float to the point where it turns the pump on. This is great for homeowners, since whenever there is enough water, the system operates. This is also the lower cost option of the two.

continued on next page . . .

Feature Installation

Albert Van Schie, Associate Paterson Group Inc.

Anderson Park is a life lease residential development for seniors located in rural Ottawa. The development consists of 54 residential units which is being constructed in two phases. The development is serviced by a private communal onsite sewage system and a municipal water supply.

The sewerage system for the collection of the domestic sewage from the residences consists of conventional gravity sewer construction. The gravity sewer discharges to a pump lift station which pumps the raw sewage to two large pretreatment tanks. The pretreatment tanks gravity drain to balancing tanks, which time-dose the sewage to the treatment plant.

The treatment plant consists of ten Model UC150FF Whitewater Aerobic Treatment Units, from Make Way Environmental Technologies Inc. which are capable of producing tertiary quality effluent. Nitrification and denitrification of the effluent will be carried out by the treatment plant utilizing the Nutri-Clear system.

The treated effluent discharges to two large fully-raised conventional absorption trench style leaching beds. Each bed consists of 756 linear metres of distribution pipe arranged in six cells. The cells are dosed in three zones by a duplex pumping system located at the end of the treatment system.

A storage shed has been constructed above the final pump chamber to house the electrical equipment and blower units. In addition, a contingency has been provided in the design of the system for the installation of an Aquamend treatment unit in the shed, if additional nitrate treatment is required.

The project is being developed by Denmore Developments Inc. of Ottawa. The sewage system installation was carried out by Case Construction Ltd. in conjunction with Honeywell Works Inc. The wastewater treatment system was designed by Paterson Group Inc.

Setting Pump Floats continued . . .

A disadvantage of an on-demand system is that because it operates based on use there is no control if the owner uses too much application, and that can result in premature system failure.

To properly set the floats for an on-demand system, an installer has to do three things:

- First, determine the effluent level in the pump tank where the pump needs to turn off
- Second, determine the elevation of effluent where the pump needs to turn on.
- Third, determine the elevations where the alarm float should be set to activate the alarm in case of a pump malfunction

Next Month we will specifically look at how to calculate pump-out depths to determine float elevations for on-demand systems.

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Lack of Continuity in On-site Sewage System Approvals — Is Bill 124 Going to Help This Situation or Cause more Confusion

By Terry Davidson and Ray Boyd

Between September 1, 2003 and July 1, 2005, all of the regulations outlined in Bill 124 will come into effect. The Bill was created in response to concerns from builders, building inspectors, and homeowners regarding the safety and quality of buildings in Ontario. The question is: will this Bill help regulate the installation of new septic systems, or will the Bill cause confusion about which systems should be approved?

On one hand, Bill 124 includes timelines for approvals and inspections, a code of ethics for CBO's, and a standard application form for basic building information.

On the other hand, one has to question what ethics have to do with interpretations of the code? Also, the Bill does not include specifics about updating training for installers. The status quo of paying a set fee every three years to take a course (which may be a repeat of a course taken up to seven years ago) will remain. Bill 124 does not change the long waiting period for approvals of new technology. The Bill may introduce standards for applications, but does not require standards for plans and details. There are no requirements for simple grades related to a temporary bench mark for the life of the project, and yet the MMAH training manual has a learning task devoted to elevations and grade shots. Is Bill 124 enough to correct the lack of continuity with on-site sewage system approvals?

The Final Flush

A young preacher was asked by the local funeral director to hold a grave-side burial service at a small local cemetery for someone with no family or friends.

The preacher started early but quickly got himself lost, making several wrong turns. Eventually, a half-hour late, he saw a backhoe and its crew, but the hearse was nowhere in sight, and the workmen were there.

The diligent young pastor went to the open grave and found the vault lid already in place. Taking out his book, he read the service. Feeling guilty because of his tardiness, he preached an impassioned and lengthy service, sending the deceased to the great beyond in style.

As he was returning to his car, he overheard one of the workmen say: "I've been putting in septic tanks for twenty years and I ain't never seen anything like that."

GROAN!!!

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