VOLUME 15 | ISSUE 1

Onsite

ONTARIO ONSITE WASTEWATER ASSOCIATION NEWSLETTER

treatment | technology | innovation | reuse | recycle

CONFERENCE EDITION 2015

INSIDE

A CULTURE OF MANAGEMENT

Rick Esselment, President, OOWA

Onsite wastewater treatment is a key rural infrastructure asset. It has sustainably and reliably been meeting the sewage servicing needs of Ontario's rural population and communities. Like all infrastructure assets of any scale, onsite systems need ongoing maintenance, inspection, repairs and eventual replacement. The ongoing functional need for infrastructure renewal and management helps ensure public safety and prevent catastrophic system failures that harm our natural environment and public health.

Ontario needs improved policy support for ongoing maintenance, and maybe equally important, a regulatory culture that supports the administrative responsibilities of these changes as an opportunity and necessary improvement, irrespective of the burden to their budget. We can innovate and educate, we can create jobs and business opportunities, we can protect the environment and public health, but we cannot maintain the status quo on maintenance requirements. It is harming our community interests and we must support change.

The regulatory structure under the Ontario Building Code (Code) provides a sound framework for the design and construction of onsite systems. As it currently stands however, the Code requires some clarity and support for ongoing maintenance and inspection practices. We must verify that all systems are operated and maintained so that they function and perform in their intended manner. This is crucial to protect our water resources, public health, and to manage our watersheds proactively.

Presently, the Code specifies that septic tanks must be pumped out when solids accumulation occupies more than one third the working capacity of the tank. Primary treatment requires appropriate retention time for sewage in the tank to settle and for digestion to occur. This helps ensure the septic tank effluent meets the criteria that predicated the leaching field design. *continued on page 32*

Ontario Onsite Wastewater Association

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PRESIDENT'S MESSAGE

I would like to welcome everyone to our 16th Annual Education Conference, Trade Show and Annual General Meeting. Particular appreciation is extended to our Conference Sponsors and Trade Show vendors alike. Their support and leadership is vital to the continuing success of this event and the growth of OOWA. This annual conference has become a focal point for our community of professionals to come together for networking, professional and business development, and to be inspired by new ideas that help solve our challenges.

Our staff and volunteers have coordinated an exceptional speaker series, panel discussions and networking events to compliment the Trade Show vendors representing the best products, innovation, technology and services available in our industry.

OOWA has continued to develop as the leader for decentralized wastewater management through our advocacy, professional development, events, media outreach and member support. We have tremendous potential to make a difference with policy development and best practices to inform and support our community of professionals. I encourage all of our members to attend our events and to consider committee participation as a valuable professional development mechanism and networking opportunity. You do make a difference and we appreciate all the views and perspectives that inform our ongoing strategic direction.

OOWA's registered professional program has undergone an important restructuring and is now more accessible and achievable for the professional development goals of our members. We have new collaboration with established education and training groups to provide more options and more training opportunities across the province. We encourage you to find out more about the program and how it will be beneficial to your individual development goals.

Our decentralized community solutions are going to be critical to the success of Ontario's changing infrastructure needs and our economic sustainability. As the world deals with climate change, Ontario is in a leadership position to implement innovative technology and management solutions to create a low carbon economy. Decentralized wastewater management is part of the solution to deal with infrastructure challenges and protect our water resources. We need to assume our leadership role with pride, determination and a renewed emphasis on innovation and professional growth.

Please enjoy the Conference and thank you for participating in your professional community.

Rick Esselment
President

Onsite
Ontario Onsite Wastewater Association Newsletter

To submit an article or place an advertisement contact the editor at **info@oowa.org.** *The opinions expressed in this newsletter by contributing authors are not necessarily the opinions of OOWA's Board of Directors or the Association.*

OOWA AGM NOTICE

The Ontario Onsite Wastewater Association's Annual General Meeting will take place at 4:30pm on Monday March 23, 2015 in Great Room 'C' at the Sheraton on The Falls in Niagara, Ontario.

There are six board positions that will be coming available for 2015's board. Nominate someone you know who will make a difference in advance or from the floor of the AGM. Join us to find out how your industry voice has been working for you this past year and what we have planned for 2015.

CONFERENCE WELCOME

Events Committee – Conference Task Group

Our Events Committee and Conference Task Group would like to extend a very warm welcome to all of our participants for the 2015 Annual Education Conference, Trade Show, and Annual General Meeting. This event continues to bring together the best of our industry for networking, education, business development, and innovative ideas while celebrating our past and future.

We are very proud and appreciative of our event sponsor contributions, and of their time and resources to make all of this possible for our valued members. Our trade show is a unique opportunity in Canada to see and learn about our industry's products, technology, equipment and services available specifically to our growing decentralized wastewater market needs. Our vendors loyally support our association and we are grateful for their dedication and participation.

As decentralized and onsite regulations and needs change, new opportunities will arise, and the value of relationships and knowledge will become critical to success. We thank all of our conference speakers for contributing their dynamism and sharing their knowledge to benefit our event. The Events Committee is especially thankful for the extraordinary work of OOWA's staff Mike Gibbs and Rachel Robichaud, who have contributed tremendous energy over the past months, and for their coordination and creativity.

We look forward to yet another incredible event – we hope to see you there!

CONFERENCE SCHEDULE - DAY 1

SUNDAY MARCH 22, 2015		LOCATION
11:00 am to 7:00 pm	Registration Opens	3rd Floor Foyer
11:30 am to 1:00 pm	Board Meeting	Board Room
12:00 pm to 6:00 pm	Exhibitor Set-up	Exhibit Hall
2:00 pm to 4:00 pm	Sponsored World Water Day Mixer Series*	Crowne Plaza
6:00 pm to 7:00 pm	Welcome Reception	Exhibit Hall
7:00 pm to 9:00 pm	Town Hall Meeting	Great Room C

**pre-registration required*

OOWA IS A PROUD SUPPORTER & PARTNER OF:

OASIS – Ontario Association of Sewage Industry Services

Proud Member ONEIA – Ontario's Environment Industry

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CONFERENCE SCHEDULE - DAY 2

MONDAY MARCH 23, 2015

		LOCATION
7:45 am to 8:45 am	Morning Coffee & Registration	Exhibit Hall
8:00 am to 4:30 pm	Tradeshow Hours	Exhibit Hall
9:00 am to 9:45 am	**Keynote: Global Importance of Onsite Sanitation** *Jessica Kaminsky, University of Colorado*	Great Room C
9:45 am to 10:00 am	Association Collaboration	Great Room C
10:00 am to 10:30 am	Tradeshow Break Exhibit Hall	Exhibit Hall
10:30 am to 11:20 am	**Decentralized Lagoon System Case Study: A Hidden Opportunity** *Anne Egan, RJ Burnside & Associates Ltd. & Jane Zima, ESSE*	Great Room C
	Onsite Test Pit Investigation & Site Assessment *Eric Gunnell, Gunnell Engineering Ltd.*	Strategy Room 3
11:20 am to 11:30 am	Balancing Break	
11:30 am to 12:00 pm	**Cost Analysis, Cost Effectiveness & Performance Advantages of Decentralized** *Joe Witlox, Newterra*	Great Room C
	Septic Tank Installation in High Groundwater Table *Don Krauss, Infiltrator Systems Inc.*	Strategy Room 3
12:00 pm to 12:45 pm	**Rural Ontario Needs More Options: Decentralized Systems** *OOWA Panel Discussion*	Great Room C
	Science of Locating Infrastructure: **Best Practices & Proper Use of Tracer Wire** *Doug Niles, Trenchless Utility Equipment Inc*	Strategy Room 3
12:45 pm to 2:00 pm	Networking Lunch	Exhibit Hall
2:00 pm to 2:30 pm	**Real Estate Inspections Case Studies** *Jay Berry, ESSE Canada*	Great Room C
	Investigation of the Nutrients within a Septic Tank *Al Hazleton & Thomas Bain, Great Lakes Water Partnership*	Strategy Room 3
2:30 pm to 2:50 pm	**Ask a Regulator** *OOWA Panel Discussion*	Great Room C
	Wastewater Treatment Optimization with Micronutrients *Derk Maat, Maat Environmental Engineering*	Strategy Room 3
2:50 pm to 3:00 pm	Balancing Break	
3:00 pm to 4:00 pm	**Shallow Buried Trench: Best Practice in Design, Installation & Maintenance** *Rob Passmore, Fieldstone Engineering Inc.*	Great Room C
3:00 pm to 4:00 pm	**Best Practices and Results from a County-Wide Re-inspection Program** *Mike Varty, WSP*	Strategy Room 3
4:00 pm to 4:30 pm	Networking Tradeshow Break	Great Room C
4:30 pm to 5:45 pm	Annual General Meeting	Great Room C
6:30 pm to 7:30 pm	Pre-Banquet Reception & Silent Auction	Great Room C
7:30 pm to 9:30 pm	Banquet Awards Dinner **Speaker: Jessica Kautz,** *The Onsite Wastewater Industry and Our Carbon Footprint*	Great Room C
9:30 onwards	OOWA Hospitality Sponsored Event	TDD

CONFERENCE SCHEDULE - DAY 3

TUESDAY MARCH 24, 2015

		LOCATION
7:45 am to 8:45 am	Morning Coffee & Registration	Exhibit Hall
8:00 am to 9:00 am	Opening Remarks	Great Room C
9:00 am to 9:45 am	**Keynote: Creation of Customized Homeowner's Guides** *Sara Heger, University of Minnesota*	Great Room C
9:45 am to 10:15 am	Networking Tradeshow Break	Exhibit Hall
10:15 am to 11:15 am	**Best Practices in Performance Tests and Technology Certification** *Marie-Christine Bélanger, Premiere Tech Aqua & Jim Ferraro, BNQ*	Great Room C
10:15 am to 10:45 am	**WaterTAP Strategies** *Brent Wootton, WaterTAP*	Strategy Room 3
10:45 am to 11:15 am	**Applying Innovation to Onsite Wastewater Treatment** *Patick Kiely, Clearpod*	Strategy Room 3
11:15 am to 11:30 am	Balancing Break	
11:30 am to 12:00 pm	**Best Practices in Small Business Management** *Chad Donnelly, Peak Benefits*	Great Room C
	Insight into Innovative Decentralized Wastewater Technologies *Barbara Siembida-Losch, CAWT*	Strategy Room 3
12:00 pm to 12:30 pm	**Maintenance Contracts Best Practices** *OOWA Panel Discussion*	Great Room C
	Best Practice Considerations for Phosphorus Removal Systems *Anne Egan, RJ Burnside & Associates Ltd.*	Strategy Room 3
12:45 pm to 2:00 pm	Networking Lunch	Exhibit Hall
2:00 pm to 2:30 pm	**Effluent Sampling for Residential Treatment Systems** *Bill Miller, Norweco*	Great Room C
	Treatment Capabilities of Leaching Bed System *Katherine Rentsch & Doug Joy, ORWC*	Strategy Room 3
2:30 pm to 3:00 pm	**Regional Septage Strategies** *OASIS Panel Discussion*	Great Room C
	Pretreatment of High Strength Winery Wastewater *Andrew Hellebust, Rivercourt Engineering*	Strategy Room 3
3:00 pm to 3:15 pm	Balancing Break	
3:15 pm to 3:45 pm	**Geotube Dewatering Technology: Managing High Strength Wastes** *Kevin Bossy, Bishop Water Technologies*	Great Room C
	Nitrogen Reduction for Decentralized Wastewater Treatment *David Lepre, Orenco Systems Inc*	Strategy Room 3
3:45 pm to 4:15 pm	**Innovative Alternative Wins Big Over Conventional; Geotubes** *Trish Johnson, RV Anderson Associates Limited*	Great Room C
	Remote Monitoring and Smart Control Systems *Scott Robinson, RH2On*	Strategy Room 3
4:15 pm to 4:30 pm	Closing Remarks	Great Room C

CONFERENCE SPEAKERS

KEY NOTE SPEAKERS

Dr. Jessica Kaminsky

Dr. Jessica Kaminsky is an assistant professor in Civil and Environmental Engineering at the University of Washington. She holds a PhD in civil engineering from the University of Colorado, Boulder. Prior to earning her PhD, Dr. Kaminsky worked in industry for 6 years. She is deeply interested in factors that make onsite sanitation systems work over the long haul, ranging from technical issues to maintenance behaviors of users. This interest is globally focused due to the extreme importance of onsite sanitation for human health and the large number of people without access to sanitation worldwide.

Jessica L. Kautz

Jessica recently joined Infiltrator Systems as a Project Engineer after graduating with her M.S. in Civil and Environmental Engineering from the Colorado School of Mines and her B.S. in Civil Engineering with and Environmental Concentration from the University of Hartford. Her studies included a year abroad, including 6 months in India where she researched and published a paper on wastewater recycling and an internship in Hartford, CT to aid in its sewer separation initiative. Jessica has spent her time at Infiltrator working closely with both the Research & Development and Science & Government Affairs Departments to research, develop, and gain approval for new products.
jkautz@infiltratorsystems.net

Sara Heger

Since 1998, as an engineer in the Onsite Sewage Treatment Program at the University of Minnesota, Sara Heger has been providing education and technical assistance to homeowners, small communities, onsite professionals and local units of government regarding onsite wastewater treatment.

Sara also coordinates the research program at the UMN. Currently, Sara serves as the principle investigator on grants to create online owner's guides and evaluate rest stops served by septic systems. She presents at many local and national training events regarding the design, installation and management of septic systems and related research. Sara is Education Chair of the Minnesota Onsite Wastewater Association (MOWA) and the National Onsite Wastewater Recycling Association (NOWRA). She is also the chair of the Minnesota State Advisory Committee on Decentralized Systems. She has a MS in Water Resource Science (WRS) and a BS in Biosystems & Agricultural Engineering and is near completion of a PhD also in Water Resource Science.

Thomas Bain

Tom is an electrical engineer from Queen's University and worked for many years in architectural acoustics, noise reduction and vibration, and communication systems. In 1993 while working on a collaborative investigation into recreational water quality on Georgian Bay with the University of Toronto, he became interested in the treatment of onsite wastewater on geographically, geologically, and topographically challenged sites. This resulted in the development of the WATERCLEAN™ system for onsite wastewater treatment using advanced oxidation technology for both livaboard boats and residences. Tom is a former Chair of Professional Practice – Professional Engineers of Ontario (PEO). GLCW-LP holds four U.S. and Canada patents for the WATERCLEAN™ technology and has numerous U.S., Canada, and PTO applications pending. He is currently working with the Centre for Alternative Wastewater Treatment at Fleming College in partnership with the Université de Montréal under a FedDev Applied Research Collaboration (ARC) for the reduction of micropollutants in onsite wastewater.

Jason Berry

Jason completed his Bachelor of Science with honors in Earth Surface Science from the University of Guelph. Jason joined the team at ESSE Canada in 2009 has been actively helping to develop the Property Services division as a technologist and senior inspector. He currently manages the Inspection and Design Services program, working hard to develop training programs and developing the team's skill sets.

Jason has obtained and actively maintained his certifications as an Onsite Sewage Systems Inspector, Installer and Designer, and is committed to constantly furthering his knowledge and qualifications on an ongoing basis.

Kevin Bossy

Kevin Bossy joined Bishop Water Technologies in October of 2008 as CEO of the business which was spun out of Bishop Aquatic Technologies. He has built on the success of the Bonnechere Valley Nutrient Processing Facility which utilizes Geotube® dewatering technology. Since Kevin's arrival, Bishop Water Technologies has grown exponentially, with projects and installations across Ontario.

Kevin worked at RBC Capital Markets for 13 years, he then moved to the commercial and personal side of banking, as a Commercial Account Manager. In his role he offered financial advice and products to a variety of businesses - from small home based operations to companies with multi-million dollar sales.

Kevin was born in Malta and lived in England before making career moves within Canada, Singapore and Australia. In 2000 he and his family moved to the Ottawa Valley, where they enjoy a busy and active lifestyle. Kevin is a volunteer in the community, an avid skier and loves to golf.

Marie-Christine Bélanger

Marie-Christine Bélanger is the current Products Director at Premier Tech Aqua (PTA), a Canadian company and world leader in the Onsite Wastewater Treatment industry.

Ms. Bélanger holds a Physics Engineering degree from Laval University and a Master's degree in Chemical Engineering from L'École Polytechnique de Montreal. She accumulated over five years of professional experience as a project manager for the development of onsite wastewater treatment systems before pursuing a career as Project Development Director at Group Celdex, a firm specializing in the development of integrated Waste Management programs in emerging countries.

In the last 14 years, Ms. Bélanger has focused her interest and expertise primarily on decentralized wastewater treatment. Her role and function within PTA have brought her to play key roles on several steering and advisory committees throughout North America where she has taken part in the development and advancement of industry-wide regulations and standards leading to better protection of the environment and the public's health.

Since 2010, Ms. Bélanger has been particularly active as a member of the Ontario Onsite Wastewater Association (OOWA) Board of Directors, notably as co-chair of the Government Relations and chair Onsite Technical Committees.

Chad Donnelly

Chad began his career as an Account Manager in the Employee Benefits industry in 1998 with Great-West Life. In 2002 he became Vice President, Eastern Canada for Benefits By Design Inc. – a position he held until setting up his own business under the Bell Financial banner in 2005.

In December 2008 Chad and his partner created Peak Benefit Solutions Inc. based in Peterborough ON. Peak services clients across Canada.

The focus of Peak is designing plans and policies that maximize their value and efficiency for both employer and employee. Chad's focus is educating employers on how to ensure their benefits are priced properly and set up in the most tax effective manner while maintaining the value for their employees.

Anne Egan

Anne is a Professional Engineer and Onsite Wastewater Specialist with R.J. Burnside & Associates Limited, and is involved primarily in wastewater system design for Burnside's private sector, public sector, and First Nations clients. Her experience includes all aspects of sewage system design, including collection and conveyance, various types of treatment, nutrient removal, and disposal systems for subsurface and surface discharge of treated effluent. Ms. Egan is involved in all project phases, from planning level studies to conceptual design, detail design, procurement of approvals, and construction, for residential, institutional, commercial and recreational land uses. Anne is an active member of OOWA and currently serves on the Board of Directors.

CONFERENCE SPEAKERS

J.P. (Jim) Ferrero

Since 2001, Jim Ferrero is a Standards Development Coordinator at the BNQ (Bureau de normalisation du Québec), one of the four Canadian standard development organizations, accredited by the Standards Council of Canada. He is responsible for development of provincial, national and international standards.

Jim studied Mechanical Engineering at University of Alberta and worked for many years in manufacturing of electrical distribution equipment for the European company ABB, where he held various engineering and management positions, prior to joining BNQ.

Jim has been involved in the development of standards for electrical equipment, services, hockey equipment, onsite residential wastewater treatment technologies, psychological health in the workplace and hydrogen technologies. He is involved in the international work on the quality of services for drinking water supply and wastewater systems (ISO/TC 224). Since 2005, he is responsible for the Québec (NQ 3680-910) and the National Standard of Canada for onsite residential wastewater treatment technologies (CAN/BNQ 3680-600). In 2012, he became the Secretary of ISO/TC 197, the international committee for hydrogen technologies.

Recently, he lead the project for the revision and transfer to the BNQ of the Québec Government programs for the approval of technologies used for treatment of drinking water and wastewater. This project includes the harmonization of the Québec programs with the Canadian Environmental Technology Verification Program (ETV) and the development of an international standard for ETV programs (ISO TC 207/SC 4/WG5).

Allan Hazelton

Allan is a graduate of the University of Western Ontario with a BA in Science. He has been an active member of resident associations in the Georgian Bay area championing environmental matters for over 30 years. He is a sales profession in the high tech solutions marketplace selling Customer Service and Customer Experience solutions to large enterprises. His passion for water quality and environmental matters has led to him joining GLCW-LP to help to bring the WATERCLEAN™ system to the marketplace.

In his role of Business Development he has led discussion with many of the organization that impact approvals for new technologies like this, including: MOE, Federal Ministry of Environment, MMAH, OCETA, ETV, LSRCA, municipal governments. Allan has been a member of OOWA since 2011 and a board member since 2013.

Eric Gunnell

Eric Gunnell is a professional engineer, specializing in the design of on-site wastewater systems. Eric is the president of Gunnell Engineering Ltd., which provides a range of rural engineering services. Gunnell Engineering Ltd. is actively involved in the design of both conventional septic systems and various tertiary treatment systems, all of which are assessed to meet specific requirements of individual clients and their objectives for the property.

Eric has extensive design experience with both Part 8 Ontario Building Code on-site sewage systems, as well as Ministry of Environment & Climate Change Environmental Compliance Approvals for Sewage Works. His area of expertise includes the design of new and replacement septic systems, site investigations, troubleshooting new and existing systems, investigation of failed systems, and assessment and upgrading of distressed or undersized systems. Eric has represented many of the treatment system manufacturers to obtain their Ontario approvals. In addition, Eric has acted as an expert witness on behalf of clients in Ontario Court of Justice, Ontario Municipal Board (OMB) and Environmental Tribunal hearings.

Eric is currently a sitting member of the Ontario Building Code Commission (BCC) Part 8; a Board Member and a Past President of the Ontario Onsite Wastewater Association; and a member of Professional Engineers Ontario.

Andrew Hellebust

Andrew Hellebust, P.Eng., received training in chemical engineering at University of Toronto and Princeton University and has been working on biological wastewater treatment systems since 1994. His work has ranged from alternative wastewater treatment systems for individual residences (including greywater, dry toilets, rainwater harvesting, and wetlands) to large on-site industrial and leachate treatment systems using constructed wetlands and other technologies with subsurface and surface discharge and reuse.
He has designed extensively for Aqua Treatment Technologies, a Niagara based wetland installer, and is Senior Engineer at Canadian Shield Consultants, a company active in Northern Ontario in water, wastewater and hazardous materials projects. As a research associate with Fleming College's Centre for Alternative Wastewater Treatment he developed a novel hybrid horizontal and vertical flow wetland. He is President at Rivercourt Engineering, designing on-site potable and non-potable water systems. He is a member of the CSA B128 committee on non-potable water systems, the IAPMO technical subcommittee on Reclaimed Water Conservation Systems and the Ontario MMAH Building Materials Evaluation Commission. His Toronto office is shared with Sustainable EDGE, which designs integrated mechanical systems for buildings.

Doug Joy

Doug Joy is the Director of the Ontario Rural Wastewater Centre located in Guelph, Alfred and Baxter, Ontario. The Centre began in March 1998 as a joint effort between members of the University of Guelph and the Rideau Valley Conservation Authority and conducts research and workshops on on-site systems across the province. With over 60 workshop days per year and approximately 500 participants per year, the ORWC provides training across a wide spectrum of the onsite industry. He is currently a faculty member and Associate Director, Graduate studies in the School of Engineering where he teaches water resources and environmental engineering courses. His research focus in recent years has been the performance of on-site systems and their impact on the environment. He has served on, and chaired, both provincial and national committees developing standards for onsite systems and is a founding member of OOWA and former president.

Patrick D. Kiely

Patrick Kiely is an environmental microbiologist with over 15 years experience in the fields of molecular microbiology, microbial ecology and next generation wastewater and bio-energy applications. Academic\ research focused primarily on the study of microbe-surface interactions with key discoveries related to the identification of novel genes and processes associated with the colonization of the plant rhizosphere and human epithelial cell lines and characterizing the diverse communities present in next generation wastewater systems.

In a previous role as VP of R&D at Cambrian Innovation created a multi-million dollar research program while developing research collaborations with various academic institutions incl. Penn State University, University of Nebraska, Massachusetts Institute of Technology, West Point Military Academy. He has developed unique processes for reducing resources required to take complex technologies from bench to market by incorporating key aspects of business development, IP landscaping, economic / technology modelling and bench to pilot prototyping. He has developed water solutions for a variety of private and public partners in the U.S. and Canada. Some past clients have included NASA, U.S. EPA, U.S. Army as well as partners in the winery and aquaculture industries.

As co-founder and CEO of Clear Pod Inc. and Island Water Technologies he is developing companies that function as catalysts for water technology innovation. In this role he has developed partnerships with key academic and industry partners to identify and validate next generation solutions in the water space.

Trish Johnson

Trish Johnson is the Senior Environmental Consultant and Small Solutions Strategic Advisor for RVA. She has worked for over 30 years in public, private and non-profit environmental management focusing on water and wastewater issues. Her specialties include land use impacts on water quality and 'value for money' environmental policies. She does environmental program development and new program implementation for all levels of government.

Based in Ottawa, She currently serves as a Senior Advisor for two small municipalities and has also works extensively for Aboriginal Affairs and Northern Development Canada (AANDC) assessing water and wastewater needs for Canada's First Nations. She is a passionate promoter and advocate for onsite & decentralized servicing solutions and alternative water & wastewater technologies. Trish is seasoned and energizing public speaker and has made over 40 professional presentations on environmental topics in Canada and the US.

Don Krauss

Don is the Area Sales Manager for Infiltrator Systems, Inc. responsible for sales and distribution of alternative drainfield products, septic tanks, and risers as well as other product segments. Don's territory includes Ontario, Quebec and the 4 Atlantic provinces and is well versed in sales and marketing, government relations, new business development, strategic planning, and consulting. Don has helped grow existing markets and pioneer new ones over his 11 years with Infiltrator Systems.

Don is Past President and Board of Director for the Ontario Onsite Wastewater Association. Don also is an active member of Waste Water Nova Scotia (WWNS) and has delivered educational workshops in that province as well as New Brunswick, P.E.I. and Newfoundland. For the past 6 years he has sat on the Technical Advisory
Comity for CSA B65 standard.

Don travels through all provinces and has a vast understanding of each provincial septic market and regulation. His work includes in the field product and procedural training working hands on with the installer community in all the provinces he represents.

David Lepre

David Lepre joined Orenco's Engineered Systems department in 2007 and currently serves as an application engineer for the International Region. In this role he manages commercial and municipal wastewater projects and provides engineering assistance to designers and engineers. David has a Bachelor of Science degree in civil engineering from Oregon Institute of Technology and he is licensed as a Professional Engineer in Oregon. David came to Orenco with a strong background as a consulting engineer in the design of wastewater and stormwater systems for Otak, a multidisciplinary engineering firm. He has designed and helped to design many secondary treatment systems and effluent sewers.

When David's not at work, he likes spending time with his family and coaching his five sons in football and baseball.

CONFERENCE SPEAKERS

Derk Z. Maat

President & Chief Executive Officer of MAAT Environmental Engineering Corp and environmental engineering and consulting company and SCICORP International Corp. a company producing environmentally sustainable products to enhance wastewater treatment plant performance and reduce the carbon foot print and environmental impact of a wide variety of biological treatment technologies used in the treatment of wastewater.

Mr. Maat has over 40 years of professional experience in the environmental field where he has been involved in research and development, consulting, design, construction engineering, technology development, and marketing in wastewater treatment, contaminated sites, remediation and soil waste management.

Mr. Maat has developed high-rate anaerobic treatment technology for application to agricultural, food processing, and industrial organic wastes. Mr. Maat is a recognized expert in the field of biological anaerobic and aerobic treatment of industrial effluents.

Robert Passmore

Robert Passmore is a practicing Professional Engineer of Ontario in the field of Environmental Engineering. Robert obtained his undergraduate degree in Engineering from Carleton University in 1997. Robert has been involved with the Ontario Onsite Wastewater Association since 2000 and served as a Board of Director Member for over 10 years. Robert's experience in the onsite wastewater industry extends from individual residential sewage system design to large subdivision designs on individual or communal sewage systems. He brings a solid background in soil science and groundwater mechanics to extensive design and regulatory experience to his many presentations over the past 12 years at the OOWA conference.

Scott Robinson

Scott Robinson is Managing Director of RH2O North America in Ontario, Canada. RH2O is a manufacturer and supplier of decentralized wastewater, rainwater harvesting and control systems.

Scott started early in this industry working as a teen with the family precast concrete business making septic tanks. Graduating from the University of Guelph with a Bachelor of Commerce Degree, Scott came back into the family business and has spearheaded a focused effort into providing industry leading wastewater treatment systems. In identifying that service is key to successful decentralized systems management, Scott has overseen the development of a line of control panels that use advanced remote monitoring technology to assure Property Owners, Designers, Installers and Building Officials that installed technologies are operating as intended. Scott is a member of the CSA B128 Non-potable Water Reuse Committee, NPCA Water/ Wastewater Committee and NPCA MIC Task Force.

Bill Miller

Bill Miller is the senior sales team member at Norweco, Inc., and is responsible for Norweco's residential system sales in Ontario. Bill participates in wastewater education seminars throughout North America,and speaks regularly on a wide variety of wastewater treatment topics.

Doug Niles

Involved in sales, support , training - education and a huge array of locate technicians from nuclear gen plants to roofers and waste water septic /plumbers for past 20+ years.

It will be a pleasure to discuss the issues and best practices of tracer wire installation placement, set up and protection then finally why and how the locate happens at this years conference.

Katherine Rentcsh

Katherine joined the Ontario Rural Wastewater Centre at the University of Guelph in 2005 after working with R.J. Burnside & Associates for four years. As project coordinator at the ORWC, Katherine is responsible for coordinating, developing and delivering workshops, courses, and information sessions to various groups within the on-site wastewater community. She is also involved in research projects partnering with various government agencies and the School of Engineering and is responsible for the day to day operations at the Centre. She is a course facilitator for most of the courses delivered in the Guelph centre and has taught over 50 workshops over the past 10 years.

Dr. Siembida-Lösch

Dr. Siembida-Lösch is currently employed by Centre for Alternative Wastewater Treatment (Fleming College). She brings 9 years of experience from both the private and academic sector, having worked as an R&D engineer and as a researcher in the field of water and wastewater treatment. Dr. Siembida-Lösch earned her B.Sc. and M.Sc. in Environmental Engineering from the Cracow University of Technology, Poland. Her graduate work was accomplished at the KTH Royal Institute of Technology, Sweden. In 2011, Dr. Siembida-Lösch completed her Ph.D. at the Technische Universität Darmstadt, Germany with a focus on mechanical membrane cleaning using granulates; afterwards she joined the NSERC Chair group in Water Treatment at the University of Waterloo as a Postdoctoral Fellow, investigating biofiltration pre-treatment for membrane fouling control.

Mr. Michael Varty

Mr. Michael Varty, P.Eng., has worked in the field of environmental engineering since 2003. His consulting career has included managing projects in the areas of rural development approvals, on-site wastewater, and hydrogeological studies for clients from the private, industrial, commercial, and municipal sectors.

Mr. Varty's on-site wastewater expertise includes design, construction supervision, inspection, and monitoring of large and small on-site treatment and disposal systems; completion of rural servicing studies for proposed rural subdivision developments; peer review of external rural development studies; lake capacity assessments; compliance reporting; and municipal re-inspection programs.

Mr. Varty is an active member within the Ontario On-Site Wastewater Association (OOWA). He is a registered designer of on-site sewage disposal systems under the Ontario Building Code. Mr. Varty has also been recognized as an expert witness relating to sewage system design by the Ontario Municipal Board.

Brent Wootton, Ph.D.

Prior to joining WaterTAP as Vice President of Policy and Exports, Dr. Brent Wootton was Director and Senior Scientist at the Centre for Alternative Wastewater Treatment at Fleming College. As an International Polar Year researcher, he has been conducting research on sanitation in Northern communities for the last nine years and has engaged in research and demonstration projects across Canada and internationally in the People's Republic of China, India, and Kenya. Dr. Wootton was an advisor to the Ontario Government on the Water Opportunities Act and has served on the UN-Water Wastewater Task Force. He holds a Ph.D. in Aquatic Ecology from Trent University and has served as an Adjunct Professor in the Department of Civil Engineering and also in the School of Planning at the University of Waterloo, and in the Department of Biology at Wilfrid Laurier University. From 2012-2015 he served as Chair of WaterTAP.

Joe Witlox

Joe compliments newterra's seasoned water and sewage treatment team with a unique combination of experience in the land development sector – from field service to engineering to project and operations management. Since joining the company in 2013, Joe's technical background and problem-solving acumen have allowed him to advance newterra's focus on robust, operator-friendly treatment solutions. He is also applying his significant expertise in plant optimization and process refinement to our sustainable communal and decentralized treatment offerings.

Jane Zima

Jane began her career in environmental and water resource management shortly after having graduated from Public Health at Ryerson University, which followed studies at the University of Guelph in Nutrition and Psychology. Having completed a practicum at the Simcoe Muskoka District Health Unit, she worked in onsite and decentralized wastewater policy and compliance management for ESSE Canada. Having seen the tremendous opportunity to help advance the onsite and decentralized community, she founded SimbiH2O, an innovative drinking water and wastewater management platform designed for service providers, technology manufacturers and rural homeowners. Jane is a dedicated OOWA volunteer, participating and co-chairing on several committees. She is a driven young professional with lofty entrepreneurial goals. In addition to be being a passionate promoter for sustainable onsite and decentralized solutions and responsible community growth, she is an advocate for combating climate change and local water and energy resource management.

EVENT NOTICE

The Ontario Building Officials Association Muskoka/Parry Sound chapter and OOWA are proud to deliver:

SEWAGE SYSTEM INSTALLER & CONTRACTOR INFORMATION MEETING

9:00am to 3:00pm on April 16th, 2015 at the Port Carling Community Centre.

AGENDA

- Review of application process, site plans and common mistakes
- For aggregate producers: a review of OBC approved clear stone and filter sand
- Dispersal beds vs. area beds under the BMEC
- Maintenance contracts and effluent filters
- Manufacturer session

Fee is $20.00 in advance, $25.00 at the door.
Fee includes lunch and information sessions.

FOR MORE INFORMATION CONTACT:
Sandy Bos, *Building Inspector, Township of Muskoka Lakes*
phone: 705-765-3156 email: sbos@muskokalakes.ca

ADVANTAGES OF SEWER INSPECTION CAMERAS DURING ONSITE SYSTEM INSPECTIONS

By Jason Berry , ESSE Canada

The use of sewer inspection cameras during onsite system inspections is growing, and for good reason. Although a camera is a considerable investment for any scale of business operation, the benefits and advantages far outweigh the costs.

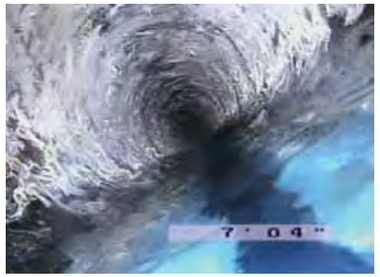
In the event that the location of the onsite system components are difficult to determine and the system owner is unaware of the locations, a sewer inspection camera can first be used to determine the tank's position. Inspection of the sewer line connecting the house to the septic tank can be simply conducted by feeding the camera's head through the cleanout line from inside the building. The sewer camera can also be used in this manner to identify any blockages, breaks or low points (or "bellies") within the sewer line, which may be vulnerable to freezing or reducing flow velocity.

A second advantage is the ease with which the location of the leaching field is quickly identified or verified. Depending on the property's characteristics, a lack of system owner knowledge or history of changes, such a large and obvious component may just be not so obvious. By feeding the sewer inspection camera through the outlet baffle of the septic tank, the location and condition of the header and available distribution laterals can be visually inspected and recorded, in real time. This in turn helps to more accurately determine the number of laterals and their location. This informs measurements and estimates of relevant separation distances and to help identify potential encroachments that could impact the system.

Component materials used in the distribution lines or piping can be verified, and their estimated age and history of repair could also be deduced. Liquid and solids accumulation, root infiltration, tile displacements or fractures in the distribution system can easily be identified.

As the majority of system components are located under ground and have few above grade visual markers, the locations may be difficult and time consuming to identify. Use of the sewer inspection camera is invaluable when used to identify system components such as distribution boxes, siphon tanks, additional septic tanks and buried pump chambers. It may surprise people to know that a site plan drawing depreciates in value as the property matures, is landscaped, changed, upgraded and repaired without permit approvals. A professional inspector must deal with this reality for resale properties and be informed, skeptical, and prepared with the right knowledge and equipment. Excitingly, the technologies used in sewer inspection cameras are still developing. That is not to say however that a few limitations do need to be considered. The cameras are not always suited to the conditions found on site for access, in particular when a small diameter pump discharge line is encountered inside a pump chamber with several 90 degree elbows.

Sewer inspection cameras help in identifying deficiencies of all sizes and magnitudes, helping to proactively protect your client, the environment and your business. The professionalism, accuracy and insight are indispensible advantages if you are looking to bring the next level of services and value to your clients during inspections and site investigations.



FINDING A BALANCE: DESIGNING ON A CONSTRAINED SITE

By Caitlin Larwa, EIT, R.J. Burnside & Associates Ltd.

Lakefront properties can often be a challenge to service with onsite sewage treatment, due to compact or narrow lot sizes and clearance distances to the water. In the fall of 2013, R.J. Burnside & Associates was retained for the design of an onsite sewage system for a new cottage on waterfront property in Ontario's cottage country.

The site involved a number of significant site constraints including a small lot size (0.17 ha or 0.4 acres), large proposed cottage and required clearance distance from the lake and the existing wells. In total, over 60% of the 0.4 acres was unavailable for the sewage system, either because of the proposed development or due to clearance distances. As a result, there was extremely limited space available for the sewage system. Burnside staff determined that the only location suitable for the sewage system was immediately in front of the dwelling, adjacent to the front walkway and entrance to the cottage.

The proposed cottage was a 4 bedroom, 3.5 bathroom home with a total area of 330 square metres (3,550 square feet). Based on Ontario Building Code (OBC) requirements, the daily design sewage flow for the cottage was 3,300 L/ day. Soils information, including a soil sample, was provided to Burnside by the general contractor. Based on a grain size analysis the soils were determined to be well-draining, sandy soils with a design percolation time (T-time) of 10 min/cm.

The owners expressed concern over the visibility and potential odour of the system due to the proximity to the front entrance of the cottage. Our design team took extra care during design to put as many design features as possible to make the system suitable for the front of the house. Burnside staff explored several options and specified a Waterloo Biofilter cedar shed treatment system with underlying area bed, due to its compact size and treatment capability.

The pump chamber was designed using a flush-mount electrical splice box for the pump chamber as opposed to mounting a junction box on a wooden post or on the external wall of the house. Risers with venting and carbon filters were also specified.

During installation, the septic system installer encountered lower permeability soils than the sample that had been provided , and on which the design drawings had been based. The soils encountered were clay and would require a much larger loading area for the bed according to OBC requirements. As the sewage system was already constrained in a tight space, Burnside, in consultation with the contractor and the municipality, came up with a well-balanced solution to service the proposed cottage. The daily design flows were adjusted based on a refinement of the square footage calculations, and the area bed footprint at the front of the house was maximized in the available space in order to meet OBC requirements.

The sewage system installed is a Waterloo Biolfiter treatment system, comprised of a septic tank, pump chamber, HDPE tank from Waterloo Biofilter and area bed. The system meets the requirements of the OBC, is well-disguised for the homeowners and satisfies the designing Engineer.

Industrial Area Considers Cost and Value of Decentralized Servicing

By Roddy Bolivar, P.Eng., Bolivar≈Phillips (Executive Director Carp Road Corridor BIA) and Bill Touzel, Senior Advisor - Strategic Development, BluMetric

The Carp Road Corridor Rural Employment Area is Ottawa's largest designated industrial economic zone. Located in Ottawa's rural area, the economic zone been under development since 1979 and currently includes over 300 businesses and a large stock of vacant land. Wastewater service to businesses is provided by private onsite septic systems and the average lot size in the area is just over one acre.

For some time area business and vacant property owners have expressed an opinion that municipal services in the economic zone would promote economic development. Considering that the area is remote from Ottawa's central wastewater system, the local business association retained BluMetric (formerly WESA) – a wastewater treatment design firm located in the Corridor for more than 20 years – to prepare a cost estimate for a decentralized wastewater facility to service a portion of the Corridor development area.

Match Facilities to Geography: The Carp Road Corridor stretches along Carp Road for over ten km in five historic industrial subdivisions. One advantage of a decentralized solution is the ability to match facility locations to both the existing development pattern and new opportunities for growth. A review of the existing development, surrounding lands and the slope of land in the area (generally west to east towards the Carp River) suggested six distinct service areas and with facility location opportunities which would minimize or eliminate wastewater pumping requirements. The service areas ranged in size from 200 to 400 acres.

Wastewater Generation: In an industrial area the design values and the characteristics of wastewater generation are very dependent on types of industry. Given the nature of existing businesses in the area for the purpose of this study it was assumed that wastewater generation would be at the very low end of typical design values – 2000 L/ha/day. Considering permissible build out under the industrial zoning of the area, it was estimated that a fully developed 200 acre parcel would generate 360 m3/day of wastewater.

Wastewater Treatment: BluMetric prepared a detailed analysis of the capital and life cycle costs (50 years) of three wastewater technologies serving a representative 200 acre new development parcel:

- Rotating Biological Contactor: The RBC process uses a series of plastic discs on a horizontal shaft. The discs are partially submerged in sewage and rotate slowly.
- Extended Aeration: EA is a variation of the activated sludge process used by mos traditional municipal sewage treatment plants. Over the years the EA process has been the most widely used process in land development applications, due to its ease of operation.
- Membrane Bioreactor: The MBR process is similar to the EA process except that the microorganisms are removed by passing the treated liquid through a membrane filter instead of allowing settling in a tank.

The core of each treatment process is the RBC, EA, or MBR process, but these technologies must also include some common elements:

- **Equalization:** Equalization volume is required to balance the daily variation in flow generation. The RBC alternative used a separate equalization tank, while the equalization volume was added to the volume of the aeration tanks in both the EA and MBR designs.
- **Filtration:** The RBC and EA configurations require the addition of filters, but the MBR design incorporates a sophisticated membrane for the rejection of solids in excess of the sub-micron pore size.
- **Nutrient Removal:** All three technologies will require a de-nitrification step to reduce the total nitrogen going into the discharge works.

- **Disinfection:** All three systems will require a disinfection module. The most widely used method for disinfection for a high quality effluent, which is low in TSS and turbidity, is ultra-violet light.

Cost Estimates: Capital cost estimates were prepared for each of the three alternatives and operating costs were considered through a 50 year life cycle including intermittent major replacement costs. The results of the cost estimating process for three technologies found that while capital costs varied by 25% with the MBR facility being least costly, the alternatives varied by only 3% when life cycle costs were taken into account. The capital cost of the MBR plant was estimated at $1,300,000 (360 m3/day).

Additional costs accounted for land, construction of the effluent dispersal bed and for engineering and contingencies. In order to provide information to area owners, the cost of providing the MBR facility along with local sewer frontage costs was estimated at $44,000 to service a 1.5 acre lot.

Next Steps: The local business association has discussed these costs with economic development professionals. Servicing adds value to land – increased range of uses, more attractive to new development, higher sale price. That increased value may balance or exceed the cost of servicing. The business association will present this information to area land owners.

IMPLEMENTING AND MAINTAINING AN EFFECTIVE EMPLOYEE BENEFITS PLAN

Chad Donnelly, President Peak Benefit Solutions Inc.

It has become increasingly difficult for employers in Ontario to attract and retain quality employees. It will become even more challenging with the ever shrinking workforce. As a result more and more employers feel obligated to implement employee benefit plans to remain competitive when looking to hire quality employees.

An employee benefits plan may contain but is not limited to Life Insurance, Accidental Death & Dismemberment, Critical Illness Insurance, Disability/ Income Replacement Insurance, Health Drug & Dental coverage, Wellness initiatives and /or a Retirement Plan. A comprehensive benefit plan can be expensive for an employer but there are a number of advantages that can be gained by offering a plan as well. Some of these advantages include:

- Recruiting and retaining employees
- The ability to deliver non-taxable income to employees
- Premiums are tax deductible
- Improved productivity of employees by providing protection, financial security and peace of mind for themselves and their family members

Fortunately for small and medium sized employers the myriad of options available only to large employers in the past have now been made available to businesses of all sizes. As a result, with proper research and planning a balance can be struck between an employer's objectives and their budget. When designing a plan for the first time or reviewing an existing plan an employer should consider the following:

What are the short and long term objectives of the plan?
• Knowing your objective is the first step in designing a plan. You should evaluate whether your objective is being met each year and adjust accordingly.

What is your budget? Have you factored in anticipated increases in the future?

- An employer must anticipate increased premiums down the road due to increased claims and inflation. There are many options available to minimize your risk.

Will the employees be contributing to the monthly costs?

- An employer can choose to have employees pay a portion of the premium. The employee contribution may be a flat amount or a percentage of specific benefits. There are distinct tax advantages for both the employer and employee to directing those contributions toward specific benefits.

What are the needs of the current employees and/or the demographic you hope to recruit? What are your competitors offering?

- There are benchmark reports available by industry and/or geographic region

If you are reviewing an existing plan are you utilizing the detailed claims and usage reports available to ensure you are maximizing your plans effectiveness?

- Are there areas being under/over utilized that should be addressed?

How will the plan be rolled out to the employees? How will the information be delivered to new employees in the future?

- Many employers feel the investment they make in a benefits plan is under appreciated. Too often the lack of appreciation can be attributed to a lack of information.
- Employee meetings and electronic communications are essential in getting the message to employees.
- Ongoing communications must be maintained to ensure new employees aren't lost in the shuffle.
- Employee benefits are a form of compensation and the employer's investment should be clearly communicated to existing and potential employees as such.

Benefit plans have become essential for many employers to sustain an effective workforce and will continue to be for the foreseeable future. Implementing and maintaining an employee benefits plan can be a challenge for businesses of any size. With the proper advice and strategy they can be a positive influence for an employer and also an opportunity to have a profound impact on his/her employees.

A MISSED OPPORTUNITY!

By Marie-Christine Bélanger, Roger Lacasse, Philippe Masuy, Premier Tech Aqua

Recently, the Ontario Building Code (OBC) (2012 edition) has been amended (Clause 8.9.2.4.(3)) in a clumsy attempt to rectify a lack of clarity relative to sampling results interpretation and compliance. Indeed, how does the testing result from a single grab sample taken during the first year of operation, and then once every 48 months thereafter (as requested for shallow buried trenches in the previous version of the OBC and BMEC authorizations), confirms compliance with the levels of concentration of Column 3 of table 8.6.2.2.A, when those same levels are deemed to be achieved when based on 30-day averages? Ontario performance standards were stated as maximum concentration based on a 30-day average for TSS and BOD5 which differs from a "not to exceed standard" applied on a single grab sampling result which is statistically inappropriate and meaningless.

The new Code (OBC 2012), which has been enforced since January 2014, now allows a certain variance when a grab sample is taken to up to 20 mg/L for CBOD5 and TSS for compliance (Clause 8.9.2.4.(3)). The addition of this variance into the Code recognizes that previous requirements were not logical in terms of compliance. A single sample is clearly ineffective as an enforcement tool. At best it simply represents a blurred snapshot of the efficiency of the system at that particular moment under those specific and limited conditions.

Frequency of sampling requirements have also been revisited. Annual sampling is now required (Clause 8.9.2.4(2)). But again, is this the best approach to determine site compliance?

The new Code also mandates the certification of treatment units under the CAN/BNQ 3680-600 after January 1st, 2017.

A certification program is composed of two integral, complementary and indissociable parts: the Standard and the Protocol (Policies). To be certified under CAN/BNQ 3680-600 and maintain a valid certification, all treatment units shall, in addition of the certification Standard, comply with the Protocol (Policies) BNQ 3680-900 defining all the terms and conditions required to maintain a product's certification. Among these terms, the CAN/BNQ Protocol (Policies) cover marks and labelling of a certified product, audit of manufacturing facilities and follow up of QA/QC programs, and more importantly a comprehensive field performance audits program.

THE FEATURES OF BNQ FIELD PERFORMANCE AUDIT PROCESS

- Once a year, the BNQ will refer to the manufacturer's database to select randomly a number of 10 sites to be inspected and sampled. The entire process is managed by the BNQ.
- 24h composite sampling will be performed by a local accredited laboratory. The manufacturer should be free to choose a representative of his choice to accompany the laboratory technician and the independent assessor.
- During the visit, the independent assessor shall first ensure that the system is functioning correctly and is receiving design flows and loads. If so, he shall draw 24-hour flow proportional composite samples for all parameters covered under the Ontario Building Code.
- If the system is not functioning correctly and the device or component responsible for the malfunction is not manufactured by the manufacturer, the assessor shall advise in writing only the owner of the malfunction. In all other cases, the assessor shall advise in writing both the owner and the manufacturer
- Effluent from 80% of the sites inspected shall comply with the performance standard applicable for the said system. If not, a resampling is performed for the non-complying results. If the 80% of compliance is still not reached, another series of samples from systems that obtained substandard results shall be drawn. If the results of these new analyses confirm initial results obtained and more than 20% of the systems remain substandard, another set of new site inspection/sample equal to twice as many sites as initially will have to be carried out. In this case, it is mandatory that 80% of the sites be compliant. All costs are entirely at the manufacturer's expense.
- Manufacturer shall be kept informed of all results coming out of this process and, when applicable, informed in writing of any non-conformities and corrective measures required to assure the compliance of the systems under investigation. Manufacturer shall introduce appropriate changes and advise certification and regulatory entities in writing. Some cases of non-conformity may require an additional audit visit and testing. In cases where the non-conformity is caused by occupant overloading or abusing the system and that the owner does not agree to a modification to the design, the manufacturer shall notify the regulatory agency that shall be responsible to require compliance.

Tests are conducted according to the procedures specified in the Certification Requirements for CAN/BNQ 3680-600 and compliance to the requirements (80%) is part of the conditions for certificate renewal every 2 years.

Failure to successfully pass the field performance audit process could lead to certification revocation and consequently automatic de-listing of the product from BNQ official public listing.
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THE LARGEST SCALABLE DECENTRALIZED WASTE WATER TREATMENT SYSTEM IN ONTARIO

By Marshal Dean, ASI Water

Carp, a rural community located in the northwestern region of the City of Ottawa, is embarking on an innovative new project that could pave the way and provide new opportunities for other rural communities. The 969 acre site is currently home to the Carp Airport which occupies less than half of the existing land. The plan is to re-develop the land surrounding the existing Carp Airport to include a mixed use community and business park.

Sheldon Creek Developments (Sheldon Creek) along with their partnering companies; ASI Water, newterra and Novatech have been assigned the task of developing the new project.

Novatech has estimated the residential population will be approximately 1,090 while the business park will include approximately 800,000 ft2 of commercial/ industrial space. To accommodate this new development, Novatech, lead consultants of this project, were tasked with finding solutions for site servicing, storm water management and road structures. With respect to wastewater treatment, Novatech worked in conjunction with ASI Water, who were tasked with using the Environmental Assessment process to recommend a wastewater treatment system suitable for the project, as well as overseeing the design and undertaking operations of the wastewater treatment facility.

The average daily flow rate for the proposed full build-out of the development is estimated to be 910 m3 / day. To accommodate the estimated requirements, ASI Water spearheaded the Environmental Assessment process, which was used to determine the best solution. In this case, a membrane biological reactor (MBR) system which utilizes an aeration tank with an effluent membrane filter for the wastewater treatment process was selected and recommended to the owner. The newterra MBR system is a pre-packaged treatment plant with modular design features for simplified installation and commissioning.

The first phase will include screening equipment, equalization capacity, and sludge management. The biological and membrane equipment for Phase 1 will be sized to meet an average daily flow of 186 m3 /day and maximum flow of 372m3 /day. The first phase will serve as a 'pilot' to confirm expected wastewater quality characteristics and flows so that the subsequent phasing can be adjusted as required. Each additional phase (2 to 5) will provide equipment and enclosures to increase the capacity of the system by an average daily flow up to 186 m3 /day and maximum flow of 372m3 /day.

This modular design allows the treatment process to be built in a 5 phase approach allowing for flexibility in the build process. Each phase will be added to meet the needs of the development as demand increases, saving property owners construction time and up-front costs. Building infrastructure that matches the demand provides a treatment system that can meet the operational requirements inclusive of both cost and performance. Other benefits of this project include mitigating risk to all parties involved including the Developer, Municipality, and Operator.

As with any new venture, the proponents worked closely with the City of Ottawa to address their concerns with the concept for the proposed new communal waste water system. As the City of Ottawa requires a Municipal Responsibility Agreement with the developer to ensure the long term viability of the system and its operations, input from the City was key to the final design concept.

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DID YOU KNOW?
ONTARIO'S CLIMATE CHANGE FACTS

- A 1°C change to the annual average temperature is roughly equivalent to moving northwards 200-300 kilometers in the climate of eastern North America

- Between 1948 and 2008, the average annual temperature in Ontario has increased by up to 1.4°C. The greatest warming has been in the western part of the province

- Warmer temperatures have already begun to allow the appearance and spread of mosquito and tickborne diseases, such as Lyme disease and West Nile Virus, and the potential spread of malaria.

- Impacts on infrastructure and personal property range from impacts of weather on buildings, roads, bridges, hydro-transmission lines, storm-water drainage, drinking water and water treatment services, natural gas and communication lines. Impacts are known to range from the softening of tarmac during summer heat waves and cracking of concrete during freeze-thaw cycles, to catastrophic flooding, road washouts, ice and windstorm damage.

- In the Great Lakes, a changing climate is expected to cause lower water levels, exacerbate other stresses such as habitat loss and pollution, and increase problems with excess algae growth and invasive species infestations.

*SOURCES:
1) www.climateontario.ca/doc/factsheets/Ecosystems%20Factsheet-FINAL.pdf

2) www.abca.on.ca/downloads/MOE_Climate_Ready_ENG.pdf?phpMyAdmin

INTUITIVE SAFETY AND PREVENTION: ACCESS RISER SAFETY SCREENS

By Jane Zima, simbiH2O

As employers, vehicle operators and drivers, property owners, site managers, parents, guardians and community participants, we take many precautions daily to ensure the safety of those around us. The future of onsite management now includes requirements to install and retrofit tanks and chambers with secured access risers to grade for inspection and maintenance. This creates a new and important responsibility for our industry through precaution to ensure the safety of our clients and workers. A safety screen located within the access riser acts as a redundant safety feature to prevent accidents and tragedies. These safety components are readily available, low-cost and their installation in every access riser should be a sign of professional integrity for our industry.

For most, as the age-old saying goes, "out of sight and out of mind" applies to most things just beyond our periphery. The unpaid parking tickets, expired passports and empties left at the cottage last fall will all come back to cause some degree of inconvenience (or annoyance depending on how your spouse is feeling on the day they discover them). It is a saying that is used often within our industry for a variety of reasons. In respect to septic tank access risers however, it applies to the potential hazard and threat to safety that lies in many properties and backyards when forgotten about, and is no laughing matter. The physical integrity of our access risers to system components, in particular the septic tank itself, is crucial to preventing unnecessary hazards, accidents and tragedies. The invaluable redundancy provided by engineered safety screens already available in the market place should be viewed as a necessary component (and not an option) to protect and serve our communities and clients.

Falling into a septic tank occurs because of more than just a series of unfortunate circumstances – it is completely preventable. It is also much more than unpleasant and messy, but potentially fatal. Falling in may itself be the cause of serious injury or illness. The real threat however lies in exposure to the methane gas that accumulates as a result of the microbial processes we rely on for treatment. If exposed to large quantities of methane gas, loss of consciousness may result, especially in young children and animals. Highly publicized tragedies happen yearly, and devastatingly they are completely avoidable.

Given our often harsh and extreme weather and temperature conditions, recreational uses of our properties, the general wear and tear of access risers is inevitable. Cracked or improperly fastened riser lids are seldom considered a serious aesthetic concern, a minor detail, and as such may often be difficult to justify as a priority repair. Therein lies the threat and potential danger for home and property owners, children and pets if precautions aren't actively taken.

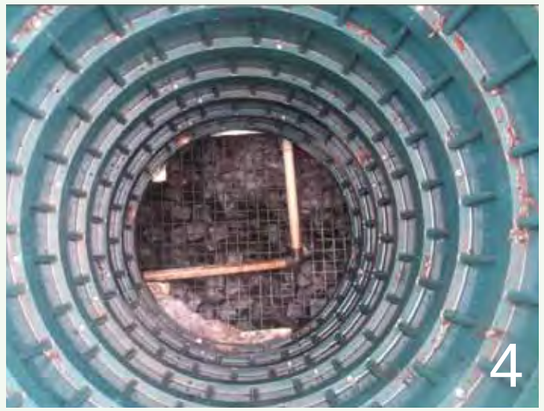
The redundant security provided by a safety screen helps to mitigate the dangers of damaged access risers and ports, but also improves the safety conditions for maintenance and service workers when the lids are removed during their work onsite.

As the onsite industry transitions to a culture of maintenance and management, we must also consider our responsibility for ensuring the safety and security of onsite wastewater treatment systems. This is easily accomplished, and requires just a little foresight and an even smaller investment.

WHAT IS WRONG WITH THIS PICTURE

Think you know? Let us know what you think it is by writing to us at info@oowa.org. Send us all four correct answers and be entered to win OOWA Shirts and Hats!

There is something very wrong with each of these photos. Let us know what is wrong with each of these photos with a sentence or two,and submit your answer via e-mail by April 1st, 2015 for your chance to win!



Pathogen Contamination, Nutrient Enrichment, and Onsite Wastewater Systems in Southeastern Georgian Bay

By Thomas W. Bain, P.Eng. and Allan Hazelton, Eastern Georgian Bay Protective Society Inc.

Georgian Bay was formed after the Ice Age when receding glaciers revealed igneous rock and left little overburden. The geography, topography, and geology characterized by granite rock and shallow soil depth, has resulted in very little natural environment to allow an onsite wastewater system to be effective.

For many years (decades) property owners utilizing septic systems have been taught, by governments, to use less water. This was achieved not only by water conservation, but by water diversion whereby grey water from the kitchen, showers, and clothes washing was diverted to an approved leaching pit. Outdoor showers were also encouraged. Mainly the black water from toilets was directed to the septic tank. The rationale for this approach was to allow for more detention/retention time in the septic tank to both allow solids to settle out of suspension and the biological activity to be more affective. The result was a much more concentrated mixture in the tank, commonly referred to as septage.

The Government of Ontario Ministry of Municipal Affairs and Housing does not regulate the discharge of pathogens or the nutrients (phosphorus and nitrogen) in Onsite Wastewater Treatment Systems by Part 8 of the Ontario Building Code. While phosphorus and nitrogen contribute to biochemical oxygen demand, they are not specifically regulated.

So we have septic systems built on top of granite rock with a direct conduit to the natural water, highly concentrated effluent, and no controls for the mitigation of the effects of pathogens or the nutrients phosphorus and nitrogen. While this is not a unique set of circumstances, it would appear to be the perfect storm for water quality concerns in southeastern Georgian Bay. As a result, the Eastern Georgian Bay Protective Society Inc., together with the Honey Harbour Association Inc., McMaster University, the Severn Sound Environmental Association, and Bluewater BioSciences, have undertaken an extensive program of observation, sampling, and testing of the natural water in southeastern Georgian Bay over the last ten (10) years.

The Honey Harbour Association Inc. has observed:

1) Increased weed growth in bays with high density cottage development.

2) Blue/green algae deposits on rocky shorelines where there is high density cottage development.

3) Filimous algae growth along shorelines where there is high density cottage development.

4) Increased suspended material in the water column in bays where there is high density cottage development.

5) Liquid draining over rock surfaces on dry days from raised leaching beds with underlying granite.

The Honey Harbour Association Inc. has measured:

1) Higher Ecoli concentrations along shorelines in bays where there is high density cottage development, as compared to open water.

2) Higher enterococci concentrations along shorelines in bays where there is high density cottage development, as compared to open water.

3) Higher total phosphorus (TP) and soluble reactive phosphorus (OPO4) concentrations along shorelines in bays where there is high density cottage development, as compared to open water.

LOCATION	PARAMETER	
	TP	OPO4
Open Water	10-15 Qg/L	0 Qg/L
Near Shore	20-40 Qg/L	11 Qg/L

TABLE 1

McMaster University (Chow-Fraser, Sommer) measured coliform bacteria in the subsurface water at thirty (30) sites in the Honey Harbour Community in the summer of 2012. Enterococci counts averaged 216 cfu/100ml with a range of <10 to 660 cfu/100ml. While enterococci are normally associated with marine waters, their use as indicators of the presence of fecal waste is equally applicable to fresh water. Health Canada – Guidelines for Canadian Recreational Water Quality states, "Of all the microorganisms considered as suitable recreational water quality indicators, the enterococci most closely satisfy the desirable characteristics presented. Enterococci are exclusively associated with fecal wastes. They survive much longer than the other indicators in water and sediment." The Maximum Acceptable Concentration (MAC) for enterococci in recreational water is 35 cfu/100ml. So the average of thirty (30) test sites at 216cfu/100ml was more than six (6) times the MAC.

McMaster University (Chow-Fraser, Sommer) also measured the limnology in two (2) bays (North Bay 1 & 2, and South Bay) with high density cottage development, and one (1) bay (Tadenac Bay) with no cottage development, in the summer of 2012.

FIGURE 1 (Source: K. Schiefer, Bluewater Biosciences)

FIGURE 2 (Source: K. Schiefer, Bluewater Biosciences)

FIGURE 3 (Source: K. Schiefer, Bluewater Biosciences)

Specifically, the rate of loss of hypolimnetic oxygen related to nutrient enrichment was measured.

You will note after reviewing the graphical presentations of TABLE 2 for North Bay 1, North Bay 2, and South Bay with high density developments, that dissolved oxygen concentration (mg/L) decreases in the deeper water below the thermocline, as the summer season progresses to the point that it is anoxic by August. You will also note after reviewing the graphical presentation of TABLE 2 for Tadenac Bay, a bay with no cottage development, that there is virtually no dissolved oxygen depletion throughout the summer. One could speculate that this is related to human presence, but there is no research data to support this. Some suggest that the dissolved oxygen depletion is caused by the anoxic release of phosphorus from decaying biomat, but again, there is no research data to support this. The question is, how did the water become anoxic in the first place to allow the anoxic release of phosphorus?

Severn Sound Environmental Association (K. Sherman, et al) has measured spring total phosphorus (µgm/L) concentrations in the open surface water in the Honey Harbour community each year since 1980. These concentrations have been between 10 and 15 µg/L as noted in TABLE 1. Dr. Sherman has also measured spring total phosphorus (µg/L) concentrations in the surface water of North Bay for many of the years (not all) since 1980. These concentrations have been between 12 and 20 µg/L.

Severn Sound Environmental Association (K. Sherman, et al) has measured both dissolved oxygen concentration (mg/L) and total phosphorus (µg/L) in North Bay at one (1) metre off the bottom in 2011 and 2012.

While sub-surface total phosphorus (euphotic zone) remained between 10 and 15 µg/L all summer, near bottom total phosphorus rose from 10-15 µg/L in spring to >350 µg/L in late fall. An inspection of the data in TABLE 3 reveals an inverse relationship between dissolved oxygen concentration (mg/L) and total phosphorus (µg/L) one (1) metre off the bottom. Again, one could speculate

that this is related to human presence and again there is no research data to support this. Some suggest that the total phosphorus buildup is due to air borne phosphorus from the farms of the U.S. Midwest, but this source has been in steady decline and has been shown in the studies around Lake Simcoe to be of minimal impact.

Data collected from the waters of North and South Bays in the Honey Harbour Community by Bluewater BioSciences (K. Schiefer) and York University (L. Malot)) are consistent with the data collected by both McMaster University (P. Chow-Fraser) and Severn Sound Environmental Association (K. Sherman). During the summer of 2013 and 2014, Environment Canada placed monitoring stations in the deep waters of North Bay 1 and 2, and South Bay. That data has yet to be published.

The observations and data above, leave one asking questions about the relationships between humans and the quality of the water in Southeastern Georgian Bay. Unfortunately, these questions are without answers and without answers, it is very tough to propose solutions. The following two studies were proposed to gather needed data to try to answer these questions:

1) Lakehead University (N. Kanavillil, S. Kurissery – Orillia Campus) made application to the Ontario Ministry of the Environment, Great Lakes Guardian Community Fund 2013, for funding for a project entitled – "An Estimate of the Contributions of Pathogens and Nutrients to Waterbodies from Onsite Wastewater Treatment Systems Using Speciation Testing and Anthropogenic Markers."

2) Guelph University (J. Ackerman, L. Boegman, M. Nishizaki, V. Hiriart-Baer) made application to Environment Canada Lake Simcoe Southeastern Georgian Bay Clean-Up Fund 2014, for funding for a project entitled – "Project to Measure P and O2 Flux between Benthic Sediments and Open Water Column."

Neither of these applications were funded. Generally the rationale provided for the refusals were that while the science was sound, there was very little public interest in the subject matter and that funding was not supportable.
In summary, the data shows high levels of pathogens in the sub-surface water, in bays with high density waterfront cottage development. These high levels of pathogens have not been found in the sub-surface water in bays with little or no waterfront cottage development. We have measured high total phosphorus concentrations on the shoreline sub-surface water and deep water in bays with high density waterfront cottage development. The same high results have not been founds in bays with little or no waterfront cottage a development.
The observations and measurements for bays with high density development are therefore very different from those with low density or no development.

In conclusion, while the concerns of pathogen contamination and nutrient enrichment appear to be present in the high density waters of Honey Harbour in Eastern Georgian Bay, the studies to prove the direct connection have not yet been done. One could also conclude that since the propertied in this geography, all based on onsite wastewater systems, that organizations like the Ontario Onsite Wastewater Association should support the academic community. Projects should be designed to either confirm that onsite septic systems are not a contributor to these contamination and enrichment observations or encourage the design of new solutions that will prevent these conditions.

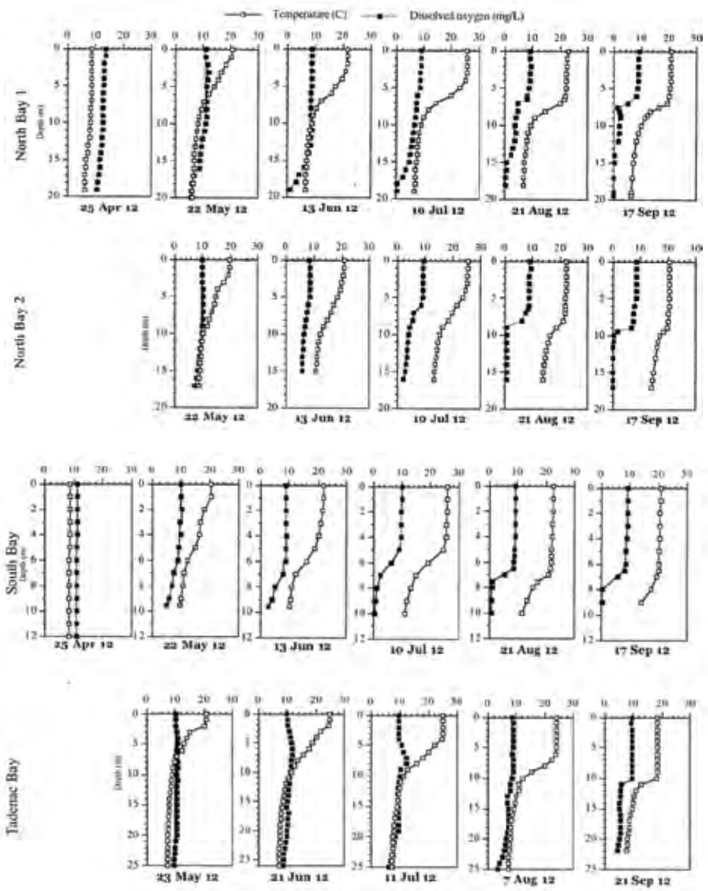
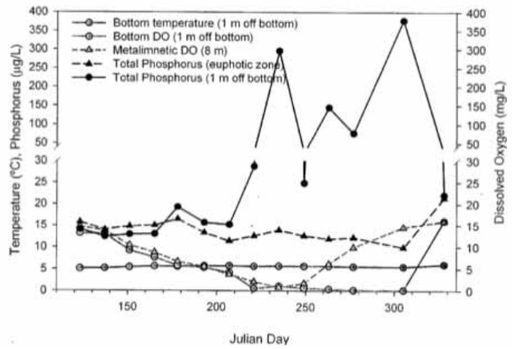


TABLE 2



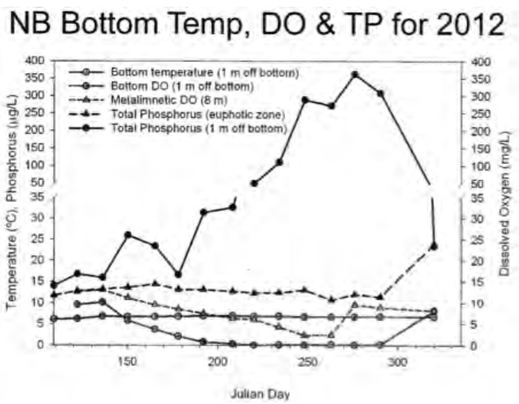


TABLE 3

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DECENTRALIZED TREATMENT IS BREAKING DOWN BARRIERS

By Grant Beamish and John Matsui, newterra

A year-round trailer park that replaced its failed communal septic system with a decentralized sewage treatment system exemplifies the tremendous potential of modular technology to developers and municipalities. Today's advanced decentralized systems provide the flexibility to overcome extreme environmental challenges as well as lower the cost barrier of infrastructure for sewage treatment and collection.

Decentralized systems offer advanced treatment technologies in a very compact footprint. This modular MBR system at an Ontario RV park treats 83 m3 of sewage per day yet requires only 16' x 40' of space.

In the case of Bay Meadows, a year-round RV park located along the shores of Lake Ontario, the facility had relied on subsurface treatment. However, current regulatory requirements eliminated the option of continuing with that approach. In addition to high bedrock, the lack of available area due to design flow values meant a more sophisticated sewage treatment solution would be necessary.

A challenge facing the Bay Meadows RV park is its adjacency to Pleasant Bay – a lagoon that's separated from Lake Ontario by a narrow strip of land. That physical barrier prevents the waters of Pleasant Bay and Lake Ontario from mixing on a regular basis. Without the dilution effect of the lake, Pleasant Bay has little capacity to assimilate the park's discharge. That reality was confirmed by a Surface Water Assessment.

According to Brock Cross, a project manager at Gunnell Engineering, the Surface Water Assessment concluded some of the most restrictive requirements he'd ever seen. For example, total suspended solids (TSS) and carbonaceous biochemical oxygen demand (CBOD5) were set at less than 5.0 milligrams per litre. According to Cross, the standards imposed for treatment were at least twice as stringent as those of other situations he'd dealt with.

"Phosphorus was an especially difficult standard," said Cross. "We had to meet 0.1 milligrams per litre. We've had to do 1.0 or 2.0 before. This is an order of magnitude better."

After evaluating several treatment solutions, Cross recommended a self-contained, membrane bioreactor (MBR) system proposed by newterra – a Canadian-based company with a reputation for meeting tough environmental standards and tight deadlines. For this project, both would be required.

The initial order for the turnkey MBR solution was placed in mid-August 2014, and within 20 weeks, newterra had engineered, built, installed and commissioned a modular, self-contained system treating 83 m3/day to the stringent specifications required.

"Bay Meadows is just one of a growing number of developments where advanced wastewater treatment technologies are helping meet and exceed the most demanding quality requirements for discharge. That means a lot more flexibility with effluent receivers," said Joe Witlox, Business Development Manager at newterra, "And they're doing it with compact, economical and sustainable systems."

The system used for Bay Meadows is based on the same MBR process used by large municipal treatment facilities for more than twenty years. It's proven technology that has been modularized and scaled down to provide a cost-effective option for smaller treatment capacities.

According to Witlox, the genesis of newterra's systems for the development market is the company's history of providing treatment solutions for remote work camps serving the global resource industry. It's a market in which the company has become a world leader. "We cut our teeth developing rugged MBR systems for use in some of the most extreme conditions on the planet – often in environmentally sensitive areas where direct discharge was the only option."

With full automation and remote system monitoring and control, modern decentralized systems operate with minimal maintenance or operator involvement.

Not only did the systems have to be extremely reliable, easy to operate and deliver very high quality permeate – they needed to be scalable in order to respond the large population fluctuations at remote work camps.
"Our systems are engineered using a treatment train model that allows us to deploy, integrate and commission additional treatment modules very quickly as the number of people at a remote site increases," said Witlox.

Those same advantages translate to the needs of land developers and municipalities. Modular, decentralized treatment systems can be phased up as capacity is required, thus helping to eliminate some significant financial barriers of development projects. For example, deferring the capital costs of treatment infrastructure played an important role in Sheldon Creek Property Developments' selection of such a system for their five-phase, gated community and business park near Ottawa.

Another barrier that decentralized systems help overcome is the opportunity cost of devoting land to treatment facilities. Traditional processes require four times the physical footprint of advanced, MBR-based systems. In the case of Bay Meadows, the trailer park was able to consolidate its new treatment system into two modular units requiring only 16' x 40' of space. Going forward, land where the old septic bed was located can serve additional RV sites.

As with all paradigm shifts, the move to decentralized treatment of potable water and sewage has required the progressive mind set of early adopters to demonstrate its advantages. Combined with the regulatory and fiscal pressures faced by municipalities and developers, those abundant benefits are creating a tipping point in the direction of this cost-effective and sustainable approach.

For more information on the projects outlined in this article, contact Joe Witlox at jwitlox@newterra.com.

DID YOU KNOW?
Ontario's Fresh Water Facts

- Ontario's more than 250,000 lakes contain about one-third of the world's fresh water
- The Great Lakes Basin covers an area of 750,000 square kilometres: This includes 8 US states, most of southern Ontario and extends into northern Ontario
- More than 98% of Ontario residents live within the Great Lakes and St. Lawrence River Basin
- More than 80% of Ontarians get their drinking water from the lakes
- Manitoulin Island in Georgian Bay is the world's largest freshwater island, covering 2,766 square kilometres (1,068 square miles)

*SOURCE
www.ontario.ca/government/about-ontario

A CULTURE OF MANAGEMENT

Continued from page 1

Ostensibly, solids accumulation measurement and removal replaces any need for routine sampling of the primary treatment (septic) tank to ensure its performance prior to discharge to the leaching field. The Code however does not prescribe that solids must be measured at any particular interval, and there exists a gap that needs to be closed.

OOWA has proposed an amendment to the existing operation and maintenance section (8.9 of the Building Code), clarifying responsibility for a measurement of septic tank solids at a 2-year frequency. This amendment will provide structure and guidance in the Code so that all system owners and operators are aware of their responsibilities.

The requirements for septic tank maintenance measurements for all systems will have inherent benefits to existing discretionary and mandatory re-inspection programs. It will ensure that more system owners are actively maintaining their systems, monitoring performance, and potentially will have conducted any repairs or upgrades prior to the municipal inspection. To summarize, requesting a record for a Code required septic tank inspection from the system owner, would ensure that the tank has been located, made accessible and inspected under their responsibility. The records from the owner's maintenance activities can be used to inform inspection programs, allowing municipal staff to verify and investigate reports to supplement existing visual inspection procedures or haulage reports.

The benefits of a "Culture of Management" strategy includes the creation of skilled jobs in rural and northern Ontario to meet the demand from new active management activities of inspection, repairs, replacements and data management for onsite systems. This will create an increased demand for knowledgeable professionals. This value cannot be overstated; the onsite wastewater industry can grow sustainably in rural and northern Ontario with proactive maintenance and management.

Our rural and northern communities in Ontario deserve support to implement sewage servicing that is customized to their needs for community growth and sustainability. A culture of management underpinned with a supporting Code structure requiring ongoing system maintenance will protect existing investments and encourage new investment. It will also ensure that new and replacement decentralized systems are supported with the public knowledge of their function, value and ongoing responsibilities. A prosperous, greener and healthier Ontario is possible by combining pragmatic, scalable and sustainable sewage servicing solutions. A culture of management will help us get there and we will all have to do our part.

THE LARGEST SCALABLE DECENTRALIZED WASTE WATER TREATMENT SYSTEM IN ONTARIO

Continued from page 22

Their concerns included having to take on operations under the Municipal Responsibility Agreement (MRA), which holds the developer, and operations team accountable to maintaining the system and allocating the required funds to ensure the financial stability of the project. ASI as the designer and operator, and newterra the plant manufacturer were present in these meetings and were able to show the City that the technology was proven and reliable, with Eastern Ontario based manufacturing with technical support. ASI as a reputable operations firm had the experience and expertise to warrant the design to be operator friendly, allowing the City confidence to move forward with the project. It is important to the success of this project to have the City on board with the treatment strategy, and ultimately the overall long term performance and accountability of the project team.

This isn't the first time however, that decentralized wastewater treatment has been utilized for development. There have been many industries across Ontario which have adopted this type of servicing strategy, including resorts, commercial, and residential developments. The Aragon Group is one example.

When the Aragon Group was looking to develop a 177 home residential development in the heart of Orangeville, they found that although municipal water and wastewater servicing was available at the property, the treatment facility was at nearing capacity and would not be able to accept the wastewater generated from the new development. Utilizing a communal wastewater treatment facility allowed the development to move forward. As a result, the residential community now is now built out to full capacity and the decentralized wastewater treatment system is able to fully meet the wastewater capacity.

The Carp project is unique in that it will be the largest scalable decentralized wastewater treatment system in Ontario utilizing the phasing strategy and prepackaged treatment units. It will be the future model for other interested developers moving forward, providing the blueprint of responsible and sustainable development.

The build to suit strategy is continuing to help private development projects obtain municipal approval across Ontario. This strategy to procure and deliver water and wastewater infrastructure effectively and at a lower risk level will be an opportunity for other communities to maintain economic growth with expansion of residential and business opportunities.

For more information on the Carp project, visit westkanbusinesspark.com.

For servicing inquiries on this project, please contact Marshal Deane, mdeane@asi-group.com.

PROVINCIAL PULSE

By OOWA's Government Relations Committee

In February of 2015, the Ministry of the Environment and Climate Change released its Climate Change Strategy in the form of a climate change discussion paper. This new and important strategy calls upon the citizens of Ontario, our businesses and communities to help successfully fight climate change. This must be done while supporting economic growth and keeping our business and technology markets competitive.

Rural, northern and remote areas of the province have been highlighted as being vital to the successful growth and economic development of Ontario, and as such will need to be leaders in sustainable, responsible and replicable living solutions for the growth of all communities. Onsite and decentralized infrastructure design, implementation and maintenance will support climate change objectives while enabling impact-reduction strategies and contributing to this greater mission.

As identified in the discussion paper, as rural citizens we are stewards of many of the province's natural systems and resources. It is up to us to help guide government in the forming and implementation of local rural solutions while allowing our economies to evolve and grow. Our roles as rural communities and as Ontario's onsite and decentralized community have never been more important as these pieces come together, interact and support each other.

A MISSED OPPORTUNITY

Continued from page 21

UNDERLYING PRINCIPLE

The primary principle underlying the certification of a technology such as the CAN/BNQ approach, is that there is no need for ongoing sampling and testing after the performance of a given system has been established. Once a product is certified and obtained through a rigorous field audit program data supporting the bench test results, the performance of that system as a whole is considered a known quantity and will be deemed to comply unless and until an element changes, such as a design change or a change in the manufacturing process, which suggests that the existing data is no longer representative. For instance, dry walls that are certified being fire proof, nobody go on a yearly basis in homes and building to test with a torch if they still resist to fire ! In this cases random tests are performed at the manufacturing facility by an auditor.

Furthermore, once the performance of a system has been certified and is supported by field audit data, the focus for site compliance should de facto be placed on effective regular periodic maintenance and inspection rather than additional systematic field sampling of each and every systems installed.

Indeed, in order to not put in jeopardy its certification manufacturer will de facto put in place a comprehensive maintenance and management program since it has been amply proven that improper, inadequate or lack of maintenance has been noted by regulators and consultants as the likely cause for most of the performance problems found in the field.

Thus, an annual thorough inspection and maintenance of onsite systems will directly result into the finding of any abnormal situations resulting from system malfunction, inadequate use/ operation of the system, component deficiency, or other that directly affect the performance of a system on a specific site. This is proving to be a much more efficient method for individual site compliance and follow up than a grab sample once every year as prescribed by the new edition of the OBC.

BENEFITS

There are many advantages to proceed to and adopt an annual audit program:

- **More representative.** With the annual audit approach, the sampling is performed by a completely independent third party entity and composited samples are collected over a 24 h period.

  Currently, grab samples collected only represent a snapshot of the performance and, in most instances, sampling is not necessarily performed by a fully independent third party, which undermines the validity and credibility of the process.

  The annual field performance audit is also a window on how the manufacturers manage the maintenance of its systems

- **More efficient.** A single sample is clearly ineffective as an enforcement tool. Several factors will influence the representativeness of a sample, the occupancy level of the house, the water usage, if it is a seasonal or permanent home, etc. It is also recognized that one bad sampling result is not by any mean an indication of system failure and it will only lead to further additional sampling, which had demonstrated to be costly and potentially lead to further investigation of the system and site conditions, in the event of inconclusive resampling results. By applying the annual audit approach, verification is performed by the auditor, via a questionnaire, before the sampling campaign to make sure that systems randomly selected are functional and operated and maintained according to the manufacturer's specifications. These questionnaires are an integral part of the audit process and could conduct to further investigation or implementation of corrective actions too when applicable.

- **Cost effective for the homeowners.** The cost of a single sample event could be significant to the homeowner and it does not ensure an adequate maintenance and operation of the system, which are more critical to ensure the performance of a system.

- **Cost effective for the municipalities.** The annual random field audit of the performance of the technologies is performed by a fully independent third party entirely at the manufacturer's expenses.

A POLICY WITH TEETH

Product certification is an expensive process and field audit program cost also money to the manufacturer. Once a product has successfully completed the certification it is listed on the BNQ website. Thus once obtained, the certification will have for effect to force the manufacturers to put in place all necessary measures to maintain it and keep its product listed. A responsible manufacturer will do everything to "keep" its certification valid and not put it in jeopardy and threaten the audit process. More responsible manufacturers will be forced to adopt tools and processes to properly manage the maintenance of their systems. The effectiveness of this annual audit approach has been proven in the last 8 years in the province of Quebec.

CONCLUSION

Considering all the above, the sampling requirements become not anymore relevant upon adoption of the CAN/BNQ as it includes an annual random field audit of the performance of the technologies, which, as mentioned, is performed entirely at the manufacturer's expenses and by a fully independent third party. Combined with an ongoing maintenance and responsible management program, the CAN/BNQ field performance audit program addresses the needs of all stakeholders at an affordable cost to homeowners and the municipalities.

Therefore one can hope that the MMAH will see the full benefit of adopting the CAN/BNQ certification Protocol (Policies) BNQ 3680-900 with its field performance audit process and will amend soon the OBC to that effect and abandon once for all the current unsustainable sampling requirements.

Time is of the essence since all treatment systems have to be certified prior to January 1st 2017!

A missed opportunity indeed can be avoided ...

GOLD
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From obtaining regulatory approvals, to design, build and ongoing operation, we provide a single-point of accountability and cost certainty for our clients. For nearly three decades we've made water our core business, so you can focus on what you do best.

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