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tackles challenging sites
with new treatment technologies

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Onsite Septic equipment operator Mac McGill transports a biofilter enclosure along the east shore of Georgian Bay. From left, Kirk Hastings, Andy Reid from Brooklin Concrete Products, and Brian French ensure safe passage.



Bold Steps

Onsite Septic Solutions takes the lead in its area by tackling challenging sites with the latest in treatment technologies

By **Scottie Dayton**

Onsite Septic Solutions, Wyevale, Ont.

OWNER: Kirk Hastings

FOUNDED: 2001

EMPLOYEES: 6

SPECIALTIES: Tertiary treatment and limited-access installations

AFFILIATIONS: Ontario Onsite Wastewater Association, NOWRA, Midland Builders Association, Canadian Standards Association

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No matter the technology, one installer must be first in a locale to jump out of the comfort zone. In Wyevale, Ont., that installer is Kirk Hastings, 35, owner of Onsite Septic Solutions.

Since its inception in 2001, the company has gained a reputation for accomplishing installations that other contractors write off as impossible because of small or inaccessible sites. Many jobs arrive by word-of-mouth, but business initially was driven by the good reputation of Ross Hastings Construction, a small gravel and topsoil business that Hastings runs with his father.

“Dad laid a solid, ethical foundation, and it was up to me to carry on his standard of quality work and upholding our word,” says Hastings, who also owns Hastings Construction and Excavating.

The defining moment in the development of Hastings Construction came in 1999, when Hastings turned to alternative technology and tertiary treatment systems instead of installing just conventional stone and pipe drainfields. Two years later, he stepped farther away from the excavation world

and started Onsite Septic Solutions. “Focusing directly on the wastewater industry was the turning point in my career,” he says.

It’s new to us

Hastings, a member of the Ontario Onsite Wastewater Association (OOWA) and NOWRA, was the first and only contractor in his area to install effluent filters and access risers to grade until Ontario’s building code made them mandatory on Jan. 1, 2007. He says installers of conventional systems avoided effluent filters because they require follow-up maintenance.

Normally, conventional systems in his area receive service only if homeowners call for a pump-out or have a problem. Hastings, however, started a database that informs conventional system owners when their effluent filter should be cleaned and the tank pumped.

In 2000, Hastings became the first local installer to use chambers from Infiltrator Systems Inc. and Advanced Drainage Systems Inc. “Our McCloskey 512 screening plant produces acceptable sand and gravel for installations, but not

“I have four licensed practitioners who can legally assume the supervisor role, but because I own the company, I feel most comfortable onsite. And this is the work I enjoy the most.”

— **Kirk Hastings**

washed material,” he says. “The area’s supply of pre-washed stone is limited and hard to get. Chambers are an excellent substitute and don’t require heavy equipment to transport them.”

Besides using aggregate and sand mined in the family’s quarry, Hastings blends and screens his own soil for backfill.

Hastings’ construction background fed his interest in advanced treatment units. He wondered, since new houses are expected to last more than 60 years, why he was installing wastewater systems that lasted only 20 years.

Another spark was environmental awareness. Hastings lives on the southeast shore of Georgian



Upper photo: Mac McGill (left) installs a time-dosed pump system as Kirk Hastings assists. At right, a 3-inch polyethylene sewer line is installed behind a high-pressure horizontal drilling head.

Bay, home to one of the world's largest freshwater beaches, stretching 48 miles. Georgian Bay is part of Lake Huron, and that closeness to the Great Lakes combined with the area's high water table make every installation an environmental issue.

Moving far ahead of the competition, Hastings decided to install pretreatment systems, then size the drainfield to the treatment tank's capacity. Most installers, following the building code, use a system's minimum flow to size the drainfield.



Proper combination

Hastings was the first to install foam-based biofilters from Waterloo Biofilter Systems Inc.; peat-based Ecoflo biofilters from Premier Tech Environment Ltd.; and Singulair aerobic treatment units from Norweco. Systems containing



Mac McGill transports a 1,800-gallon polyethylene septic tank through natural shoreline surrounding a work site.

Where No Others Dare

Kirk Hastings, owner of Onsite Septic Solutions, gets installations other contractors write off as impossible. A recent example was a home on Gull Island in Georgian Bay. The house was perched on a hill 35 feet above the beach.

Hastings contemplated using helium balloons to ferry the plastic septic tank from shore to shore, but a MythBusters episode proved that the idea wasn't plausible. "We had a dry summer, and by fall the water in the bay was down several feet," he says. "Gradually, a small, 300-foot long sandbar emerged, connecting the island to the mainland."

A rubber-tracked mini-excavator

crawled over the sandbar — glacial till topped with a massive rock garden — to the base of the hill. "The bright side was that the boulders had no sharp edges, so they didn't damage the tracks," says Hastings. "However, we couldn't use the sandbar as a road. It was just too hard on the equipment."

Using the excavators, they constructed a 6-foot-wide road up the hill to the site. Meanwhile, Hastings donned hip waders and pushed the 1,800-gallon plastic septic tank across the bay. The water was 3 feet deep. "Gull Island was definitely one site in which no other installers were interested," says Hastings.



mechanical components always receive backup alarms, sometimes with telemetry. (Hastings also is the only area installer using telemetry.)

Although manufacturers train new installers on their systems and send a representative to assist with the first installation, few installers have followed his lead. "The majority are excavating contractors who want to provide turnkey services," Hastings explains. "They do the site prep, excavation, and add the wastewater system to complete the circle.

Al Lalonde (back left) and Mac McGill construct a force main, while Kirk Hastings (in excavator) consults with property owner.

"The problem is that construction contractors are always trying to meet erratic trade schedules and can't devote the necessary time to wastewater systems," he adds. "In the installation business, however, the scheduling usually wraps around the installer. I find it much easier to manage my time and, as an efficient planner, I am reaping the benefits, as are my customers." Ninety percent of his installations are residential, and 10 percent are commercial.

While advanced treatment units and low-profile septic tanks that require shallower excavations have enabled Hastings to install systems on compact lots or those with high water tables, getting to them is

often the greatest challenge.

Near Georgian Bay, most soils are sandy. To increase traction and reduce the odds of bogging down in the sand, he ordered a John Deere 544, 4-wheel-drive front-end loader with extra-wide tires. Other company vehicles have tracks instead of wheels.

"Tracks also minimize the impact on the owner's property," Hastings says. "Because lots are usually narrow and cramped, we switched our excavation equipment to compact zero-tail swing. Even our 34,000-pound excavator has it."

Onsite Septic has three John Deere excavators, one 4-axle and one 3-axle Freightliner dump truck with pup trailer, a Ford F-350 Super Duty pickup truck, two Ford F-150 pickup trucks, and a John Deere 450 bulldozer.

Making life easier

An integral part of Onsite Septic's success is Cathy Marcellus, whom Hastings hired as his part-time bookkeeper in 1997. As the business grew, she stepped into the role of office manager, too.

Marcellus shared Hastings' enthusiasm for the wastewater industry and became a licensed onsite system inspector certified with the province. She also learned to design systems from practical applications within the business and through a provincial accreditation testing facility. (Ontario does not require an engineering license to design systems or sign the designs of someone who is not an engineer.)

Hastings, who is trained as a heavy-equipment diesel mechanic, and his lead man, Allan "Bubbles" Lalonde, maintain all the equipment and do about 30 percent of the repair work in a new 60-by-100-foot building. It contains offices, a training area, lockers for six full-time employees, a wash stall, maintenance area with heated floor, and space to park equipment.

Hastings, however, has a hard time foreseeing expanding beyond his present capabilities. "We install about 100 systems a year, which is enough work to keep one crew busy," he says. "I have no interest in going beyond that because I like to be involved in the installations. I have four licensed practitioners



From left, Mac McGill, Al Lalonde, and Kirk Hastings install a drainfield.

who can legally assume the supervisor role, but because I own the company, I feel most comfortable onsite. And this is the work I enjoy the most."

Since onsite education is in its infancy in Ontario, an even bigger obstacle to expanding Onsite Septic is hiring competent help. Hastings' solution is to sit on OOWA's board of directors and work on training programs. He also sits on the technical committee of the Canadian Standards Association for testing the performance equivalency of septic tanks.

Meanwhile, he and Lalonde seek out easier, more productive ways to install systems. In one instance, Hastings took advantage of the land's natural 6-foot drop to install a 3-inch PVC pipe. Access to the site was limited, so he hired a utility contractor to horizontal directional drill 200 feet from the road to the homeowner's back yard.

The boring rig, from Hapamp Ltd. of Elmvale, Ont., had an electronic eye that maintained a precise 2 percent grade from the septic tank down to the drainfield. The innovative approach left the landscaping untouched and added another first to Onsite Septic's record.

Beating the cold

Inspiration for another first came from Hastings' next-door neighbor, a spray foam insulating contractor, who built an ice-fishing igloo by spraying urethane foam



A conventional septic system is installed using chambers on a limited-access site.

over a wood frame. Hastings figured that if the foam kept the ice fishermen warm, it would work on microorganisms, too.

"Bacteria going dormant in biofilters is a major issue, especially where systems are exposed to winter's northwest wind coming off the bay," he says. "I must provide the bugs with a blanket." Instead of the standard Styrofoam board, which doesn't create a perfect seal, Hastings sprayed 3 inches of foam over the septic tank and biofilter, sealing all the crevices and narrow spots. The system is in its first winter.

Hastings has believed in alter-

nating drainfields ever since he learned about the concept at a NOWRA training seminar. "I'm having a hard time implementing the idea because our building code has size and length requirements for leachfields," he says. "Maybe, working through OOWA, we can change that." Already, the local municipalities enforcing the building



Mike Pauze, Kirk Hastings, and Andy Reid from Brooklin Concrete Products guide a biofilter enclosure into place.

code consult regularly with Hastings and Marcellus, and ask their opinions about other installations.

Being one of the only tertiary treatment installers in the area, Onsite Septic gets the contracts for new subdivisions requiring such treatment. Hastings also is a partner in Westridge Development Corp. The company is three-quarters of the way through developing a 42-lot subdivision approved for individual conventional onsite systems.

By leaving his comfort zone, Kirk Hastings has found his calling, and in the process, is lifting up the entire wastewater industry in his part of Ontario. ■

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