

January 2018

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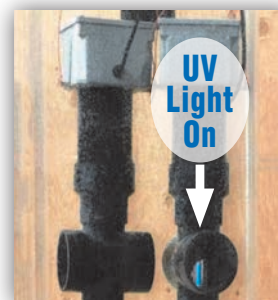
SEWAGE PLANT, AK Little Diomed Island

Salcor Unit with
Lifewater Engineering
Discharges into Bering Strait.



MUD RIVER PROJECT, WV

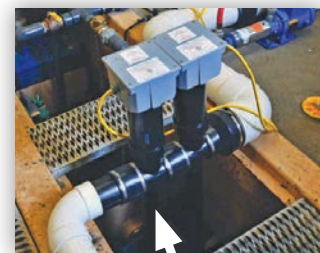
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INSTALLER PROFILE:

Challenge Accepted By Scottie Dayton

ON THE COVER:

Maguire Backhoe was helped immensely by a 2014 revision of the Illinois septic code mandating subsurface discharge, maintenance contracts and continuing education for technicians. Owner Rick Maguire's main installer Doug Bennett is shown carrying a Quick4 chamber from Infiltrator Water Technologies on a job site. (Photo by Bradley Leeb)

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ISSUE FOCUS: WWETT Show issue

Contractor Profile: Digging in North Dakota

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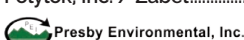
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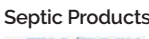
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Established in 2004, *Onsite Installer*™ fosters higher professionalism and profitability for those who design and install septic systems and other onsite wastewater treatment systems.





Smart Growth and Septic System Innovation Go Hand in Hand

When communities on the edge of growing urban centers discuss community septic systems, installers should join the conversation

Community septic systems — or cluster systems — can provide one good answer to ongoing issues of suburban sprawl in America. But a battle being waged between forces promoting more population density and those who cling to the age-old model of widely spread estates show why innovative shared onsite systems have not become more prevalent in the world of installers.

In a recent story out of Milton, Georgia, members of the City Council fought over whether to spend planning dollars to explore the concept of community septic systems. The city of Milton was formed from an unincorporated area north of Atlanta in 2006, a prototypical exurban community where people move to get away from the city, then often drive back downtown every day to work.

At issue is a dwindling amount of developable land and how it should be parceled. As explained in local *Forsyth Herald* coverage, one group of city leaders wants to consider promoting smaller residential lots and maintaining conservancy areas to preserve some rural landscape. Those plans would necessarily involve homeowners sharing onsite wastewater systems.

"The whole essence of what we are doing here is planning for the future, and if we deny that concept, I don't think we are doing our jobs completely," says council member Bill Lusk.

Community leaders need to be made to understand the value of diverse development and the role onsite systems can play in building sustainable communities where people will want to live through all stages of life.

Other members of the City Council prefer to stick with larger lot sizes utilizing individual systems and oppose \$20,000 to study the viability of community septic systems.

"I would rather see \$20,000 spent on some kind of tax-incentive program so that people who do have larger parcels will keep the larger parcels or develop 3- to 5-acre lot subdivisions," argues council member Karen Thurman.

Funding the study failed on a 4-3 vote.

SMART GROWTH

As the cost of remaining land around cities rises — and many communities lose an appetite to keep extending expensive sewer lines farther away from treatment plants — you will probably see more promotion of community septic systems in your world. Maybe you already have. Shared systems can make sense in many areas, and it seems this will only become a more popular idea as onsite technologies continue to improve, giving homeowners more economical and long-lasting wastewater options.

This plays into the concept of "smart growth," something, by the way, that government leaders around Atlanta know nothing about or just plain don't agree with. Why do I say that? Because Atlanta has long been considered an urban planning disaster. If you've ever driven through the city, you know it's a tangled mess of highways that bottleneck downtown.

Smart growth, as defined by the American Planning Association, promotes "efficient and sustainable land development, incorporates redevelopment patterns that optimize prior infrastructure investments and consumes less land that is otherwise available for agriculture, open space, natural systems and rural lifestyle. ... Smart growth is about tailoring choices for individual settings; it may well mean offering smaller detached homes on smaller lots within walking distance of schools and amenities. ... This approach to growth and planning cannot only deliver dynamic, attractive communities with greater choices for consumers, but can be a powerful tool for farmland, open space and habitat preservation."

NEED HOUSING OPTIONS

The good people of Milton reflect Atlanta's history of wariness over the idea of smart growth. The city makes several worst urban design lists, including one from www.escapehere.com:

"Traffic doesn't get much worse than this city, and in fact, the traffic here is legendary. In the 1980s and 1990s, there was a boom in Atlanta that caused a massive urban sprawl, and along with poorly situated highways, there seems to be no hope in terms of it getting any better. Unless something drastic happens in this city, expect that the poor design will continue for decades."

So it seems that this booming southern metropolis has been shortsighted in its planning for years. That said, I have nothing against large single-family homes occupying 5-acre lots. If that's what people want, they should be able to have it (as long as they can afford the cost). However, I do feel it's important to offer a variety of housing choices that fit various lifestyles. This should include new homes on small lots as well

as condominiums or apartments located in outlying areas and served by onsite wastewater systems.

Those who want the 5,000-square-foot home on an estate property in the country should remember that people go through different phases in their lives and they may choose to downsize at some point. Kids move away, health problems restrict their ability to do yardwork, or they simply can't afford the big house in retirement. Without many options for living arrangements, they may not be able to stay in the community they love.

TIME TO EDUCATE

Onsite installers have a vested interest and community responsibility when it comes to these urban planning issues. First, you recognize that in many cases extension of the big pipe is only feasible to some distance from city centers. Beyond that, septic systems are going to continue to be an important element of the planning process. You want to be a part of that decision-making process.

Also, you know how outside-the-box system design and new decentralized wastewater treatment technologies are improving in dynamic ways. Quite simply, the treatment capabilities we see today are not your grandfather's septic systems. It benefits you and the industry to spread the word about clean and efficient wastewater treatment.

As an educated installer or designer, you can demystify modern septic systems for the laymen and women who serve on City Councils like the one in Milton and make them more comfortable with concepts like community septic. Together with smart growth advocates, you can explain how today's onsite systems — whether they serve an individual house or 150 homes in a subdivision — can be a suitable, permanent and effective wastewater solution.

Community leaders need to be made to understand the value of diverse development and the role onsite systems can play in building sustainable communities where people will want to live through all stages of life. This is an important message that we can and must share when smart growth issues are discussed. □

Send your comments, questions or opinions to Jim Kneiszel at editor@onsiteinstaller.com.



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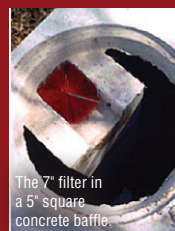


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CREATIVE SOLUTIONS

Rising to Challenges

Dealing with challenging onsite installations is nothing new for Rick Maguire, owner of Maguire Backhoe Company, featured in this month's issue. Besides the usual bad soils and tight spaces, pleasing homeowners occasionally involves solutions requiring more creativity than science. Read about some of his recent projects in this exclusive online article.

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PATHOGEN PROBLEMS

Critical Treatment

The removal of pathogens through the soil treatment process is a key design factor for onsite systems. Learn about testing for indicator organisms like coliforms in this exclusive online story from expert Sara Heger.

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Overheard Online

"It is important to try to contain FOG early in the system because it can accumulate inside pipes and lead to clogging of downstream components."

— An Installer's Guide to FOG
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BEGINNER'S GUIDE

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INSTALLER PROFILE



CHALLENGE ACCEPTED

As a backlog of demanding and varied onsite work will attest, the folks at Maguire Backhoe never back down from a tough job

By **Scottie Dayton**

Catching up with work and deciding what's next for his company are the biggest challenges Rick Maguire faces today. It's a far cry from when a customer reneging on a \$200 payment meant the difference between Maguire's family eating bologna sandwiches or macaroni and cheese.

Maguire opened Maguire Backhoe in Virden, Illinois, in January 1996 at age 32. That year, he accepted any project suitable for a rubber-tired backhoe

and installed a total of 20 conventional and sand filter onsite systems. "I borrowed \$80,000 to buy the machine and a dump truck and mortgaged everything to the hilt," he says.

Driven by fear of failure, Maguire stayed aggressive and always prepared for unexpected opportunities. In 1998, he saw the advantage of soil classifications over percolation tests and has worked with soil scientist Charles "Chuck" Frazee,

Ph.D., from Frazee Soil Consulting ever since. Then, Maguire built a vacuum truck on a GMC chassis to facilitate septic repairs and was soon running it nights and weekends to meet demand.

By 2016, the company's service branch had a foreman, four technicians and three vacuum trucks. Three of the six employees in Maguire's construction branch installed only onsite systems. (The other three also install house laterals and waterlines.) Last year, 78 of 120 onsite installations



▲ Maguire Backhoe pumps 500,000 gallons of septage annually. Technician Nick Watson is shown pulling hose from an International vacuum truck carrying a tank from Progress Tank and Challenger 607 pump from National Vacuum Equipment. The rig was built out by Advance Pump & Equipment. (Photos by Bradley Leeb)

◀◀ The Maguire Backhoe team includes (from left) John Orris, Scott Connolly, Austin Harvey, Rick Maguire, Steve Matli, Nick Watson and Jarret Summers. On the truck bed are Tyler Mullin (left) and Doug Bennett.

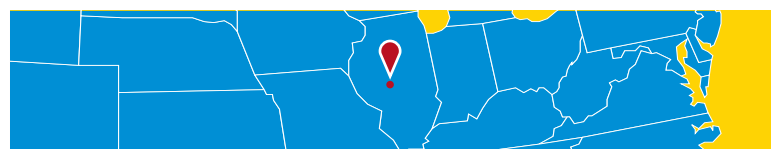
were new-home constructions. When possible, crews worked through winter setting tanks to shorten the backlog of 40 unfinished projects.

In August 2016, Maguire's 18-year-old-son, Luke, joined the installation crews during summer vacation as part of his high school senior work-study program. "Watching him grow is huge for me, and I'm very proud of his success," Maguire says.

LIGHTING THE FUSE

Maguire gained experience in his father-in-law's bulldozing and excavating company, installing or repairing onsite systems or house laterals. Moving on, he worked two years for a local plumber and four years as a state drug investigator and part-time Virden police officer before becoming an excavation partner of a petroleum contractor in Springfield. Extensive travel and days away from home motivated Maguire to fly solo.

As his company's pumping and installation accounts grew, Maguire added three laborers. In 2006, he hired Steve Matli as his service manager and work took off. By 2008, they were pumping about 200,000 gallons of septage. That year, Matli landed the contract to haul water and remove slurry as coal



Maguire Backhoe

Location: Virden, Illinois

Owners: Rick and Jane Maguire

Years in business: 21

Employees: 11

Services: Onsite design, installation, maintenance, inspections and excavation


Market area: 50-mile radius

Associations: Illinois Land Improvement Contractors Association; Onsite Wastewater Professionals of Illinois

Website: www.maguirebackhoecompany.com

mines drilled test pits to determine the depth of the coal layer and map the underground veins.

Needing a second vacuum truck, Maguire bought an International 4700 with a 2,500-gallon steel tank (LMT) and PN33 Jurop/Chandler pump. He added a 4,000 psi/4 gpm homemade jetter for pressure washing the tank before and after visiting the mines, where Matli drew water from an on-site pond and filled storage pits. A drilling rig mixed the water with polymer to stabilize the test pit walls, then discharged the slurry into other pits. Matli vacuumed it and off-loaded into an on-site impoundment in which solids settled out and water returned to the pond.

A man in an orange shirt and khaki pants is working in a deep, muddy trench. He is leaning over a large, green, cylindrical plastic riser that is being installed into a concrete foundation. The riser has a grid-like pattern and a circular access point. In the background, there is another similar riser and some construction equipment. The trench walls are made of reddish-brown soil.

➤ Austin Harvey works on installing a Consolidated Treatment Systems lift station utilizing a TUF-TITE riser at a residential job.

"A safety insurance agent does a walk-around three times a year. He gives a brief safety refresher course on simple things everybody knows but doesn't think about. It's my way of telling the guys to work safer without harping on them."

Rick Maguire

By 2011, the volume of pumping required another vacuum truck and technician. Maguire bought a Freightliner chassis, then stripped the 2,000-gallon steel tank, PN33 Jurop/Chandler pump, and his first homemade 4,000 psi/4 gpm jetter from the old GMC truck. A third truck and technician followed in 2014. Maguire purchased an International with a 2,500-gallon stainless steel tank (Progress Tank) and Challenger 607 pump (National Vacuum Equipment) built by Advance Pump & Equipment.

In 2015, Maguire hired Jarrett Summers to service the mines. "Today, we pump 500,000 gallons of septage and haul 1.5 million gallons of mine water," Maguire says. Mines account for a quarter of the company's annual vacuum revenue.

WINDS OF CHANGE

Another pivotal factor in the company's growth was implementation of the 2014 revised Illinois septic code. It switched from surface to subsurface discharge, mandated continuous maintenance contracts for private onsite systems, and required continuing education courses for septic and pumping licensure. "Many older guys went out of business rather than keep up with the changes," Maguire says. "Their departure created a vacuum, and we were ready for it."

As the 2008-10 president of the Onsite Wastewater Professionals of Illinois and a member of the Department of Public Health Advisory Commission, Maguire had worked with regulators on changes to the code. Instead of waiting for the hammer to drop, he researched new technologies to treat effluent for very deep, poorly drained soils, mostly heavy clay and glacial till.

In 2012 and 2013, his crews installed 60 systems annually, and Maguire received distributorships for Multi-Flo, Nayadic and EnviroGUARD aerobic treatment units (Consolidated Treatment Systems) and Sybr-Aer sequential batch reactors (SBR Wastewater Technologies). By 2014, his technicians were familiar with the

technologies, and installations jumped to more than 100 per year.

Maguire's pumping, pipe jetting and installation crews added educating homeowners to their service calls. Matli and service employee John Orris excelled in selling contracts by explaining the technology, biology, and the customer's role in keeping systems healthy. "Our contracts also included pumpouts for no additional charge," Maguire says. "That was a major turning point for the service branch." Today, the company holds 500 contracts and enjoys a 90 percent renewal rate.

Each fall, Maguire notes which contracts are due for pumping. Instead of sending a service truck to inspect those systems in spring, he routes a vacuum truck already in the area via a Google routing application. "Because all my pumpers are licensed installers and vice versa, they clean the tank and complete the inspection in one visit."

FUELING GROWTH

Simultaneously, the construction branch expanded by working with developers. As of 2014,

➤ Installer Doug Bennett operates a Caterpillar excavator as he digs a trench at a residential job.



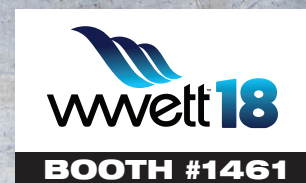
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➤ Rick Maguire is shown with a service vehicle in his shop in Virden, Illinois.

BALANCING WORK AND FAMILY

Rick Maguire often spent six or seven days a week running Maguire Backhoe in Virden, Illinois. He fretted about making money while raising five children with his wife, Jane. Then their world changed.

Daughter Brett Ann, a Virden High School sophomore, died in an auto accident in April 2004. The previous year, school officials had consulted Maguire about the cost of building a new softball field. "Brett loved the game, so we built the field and donated it," Maguire says. Maguire's father died a few days before Brett Ann Maguire Memorial Field was dedicated in April 2005.

The volunteer effort led the Maguire family and employees to caring for municipal athletic fields in Virden and Girard. Several years ago, they rebuilt the Dave Bruna Athletic Field for the North Mac School District. "My guys help financially and physically," Maguire says. "We enjoy seeing kids playing sports instead of sitting in front of computers or on their phones."

The tragedy also changed Maguire's attitude toward money. "After we lost Brett, we took Luke and his sisters, Skyler and Lexy, wherever they wanted to compete with their horses in high school rodeo," Maguire says. "Getting away to Wyoming, Texas or Oklahoma gave me time to reflect on my life. I decided the money I made Monday through Friday would suffice; the weekends were for family. It's been a true blessing and has made a considerable difference in our kids."

Luke, a freshman at Ranger (Texas) College, received a full-ride scholarship as a team roper. Skyler, a junior at Tarleton State University in Stephenville, Texas, is studying physical therapy and competes in breakaway calf roping on the school's rodeo team. Lexy is a registered nurse.

one county required septic permits before issuing building permits. Developers outside the county were often caught unaware of the change and were ready to dig basements upon filing their building permits.

"We aggressively stayed on top of who needed septic permits," Maguire says. "To expedite the process, we would pick up Chuck and do the soil borings for him. That gave us the option to find better areas if the first choice had terrible soils. Developers noticed how fast we moved, and the word spread quickly."

The revised code also allowed installers to design any system, provided discharge was subsurface. One of the toughest recent repairs Maguire designed was for a custom slaughtering and meat processing plant in Arthur. "We had a seasonal high water table at 18 inches, high-strength waste, only 90 square feet for the 2,500 gpd system, and we couldn't interrupt production," he says. His design included:

- Existing 1,000-gallon septic tank
- 1,000-gallon, single-compartment concrete tank (Rex Vault Service)
- 1,500 gpd and 1,000 gpd Nayadic ATU in series (Consolidated Treatment Systems)
- 2,000-gallon concrete pump tank with duplex alternating 1/2 hp pumps (Zoeller Pump)
- Two-zone drainfield totaling 14 lines of EZflow aggregate pipe (Infiltrator Water Technologies) on 5-foot centers in 8-inch-deep trenches
- Installer Friendly Series programmable duplex control panel (SJE-Rhombus)

"Our contracts also included pumpouts for no additional charge. That was a major turning point for the service branch."

Rick Maguire

"Because we were pumping the existing tank to keep the plant running, I planned to send two crews and install the system in two days," Maguire says. "Then, my main installer, Doug Bennett, lost his dad and was off a week. We completed the install in four days with one crew, but then the other shoe dropped."

That Sunday, Bennett competed in a demolition derby, broke his wrist, and couldn't do physical labor for four months. He and Maguire switched jobs. "Going back into the field after several years gave me a new perspective of what I needed to do to make Doug's work easier through scheduling and calling for inspections," Maguire says. "Doug learned how to use a computer to generate permits and system designs. Scott Connolly, a main operator, and Austin Harvey, a young laborer, also stepped up to the plate. It ended extremely well."

PROFESSIONAL ADVICE

Another event with a positive result began in 2014 when Maguire found the right workers' compensation and general liability insurance company through the Illinois Land Improvement Contractors Association. Companies in the United Fire Group insurance consortium must establish safety policies and business procedures to ensure low rates. If everyone has a safe year, they receive a partial premium refund.

continued ➤

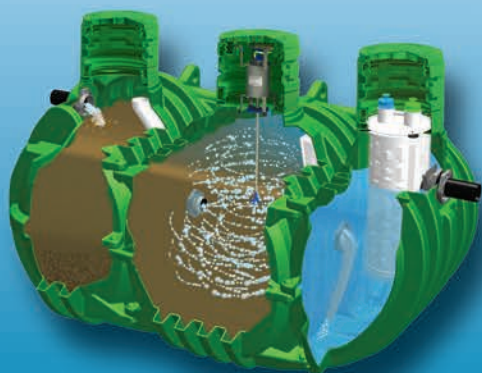
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➤ Doug Bennett (left) and Austin Harvey (right) work on installing a lift station manufactured by Consolidated Treatment Systems with a TUF-TITE riser.

“A safety insurance agent does a walk-around three times a year,” Maguire says. “He gives a brief safety refresher course on simple things everybody knows but doesn’t think about. It’s my way of telling the guys to work safer without harping on them.”

In 2015, Maguire met the right banker to complement his trusted accountant. The banker explained cash flow, how paying accounts early and taking discounts led to a more affordable working line of credit, and how to make money work by focusing payments around tough months versus good months.

“Our excavation branch is slow in February, so the banker moved the service contracts to that month to improve cash flow,” Maguire says. “He gave us options and strategies on how to achieve where we want to be in four years. The tax returns he prepares emphasize assets and put us in a solid position to ask the bank what it can do for us.”

One goal came true in 2016 when Maguire purchased a 7,500-square-foot cement plant on 12 city lots and converted it into his shop. The three vacuum trucks stay inside and a lean-to protects the other equipment. Office manager Colean Smith and Matli have their own offices, as do Maguire and his wife, Jane, who handles their personal and business finances. Maguire’s equipment includes:

- Caterpillar 304E mini-excavator with laser receiver
- Caterpillar 305D mini-excavator
- Caterpillar 420E IT loader backhoe
- Caterpillar 259B3 skid-steer with laser receiver
- Vermeer RT450 trencher/backhoe
- Two Spectra Precision/Trimble GL412 grade lasers
- Spectra Precision/Trimble LL300N laser level and LR30 laser receiver
- Apache Technologies Bullseye laser receiver



- Aquatech 2500 psi/65 gpm jetter (Hi-Vac) mounted on a 2005 Ford F-550 chassis with Warthog sewer nozzle (StoneAge), culvert cleaning head, various other tips
- Bullfrog Industries sink jetter
- Spartan Tool Model 2001 and 300 drain cleaning machines
- UEMSI - HTV U-Vue color push camera
- RYCOM Instruments 8878 Pathfinder locating system

With 2017 came the possibility of major company changes. Rather than turn away excavation work, Maguire envisions hiring more employees and expanding.

“Finding good workers is difficult for the usual reasons and because they must be compatible with my great staff,” he says. “Personally, I want to return to what put me in business — doing little excavation jobs here and there when I wasn’t installing systems. I’d move Doug into my position, advance Scott to oversee the excavation branch, and maybe even add another install crew. As long as we satisfy customers and the demand is there, the sky is the limit.” ■

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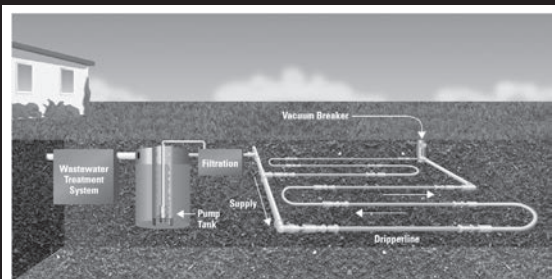


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Watch Where You're Rolling With That Heavy Equipment

Long-term impacts of soil compaction can render a promising building site useless for wastewater treatment options

By Jim Anderson and David Gustafson

Any of you who have read this column over any extended period of time know that we talk about several underlying principles related to proper installation. One of those principles is the acronym KINN, which is Keep it Natural ... and you are left to supply the final word, such as Keep it Natural Newt! This has been a way to inject a little humor into a serious discussion.

Recently, we saw an article in a professional journal related to the Soil Science Society of America that, even though it was focused on long-term compaction related to crop production and crop yields, has relevance to our industry as well.

Two major results of the study were that the impacts of compaction from a single pass extended to approximately 20 inches of depth and that the effects on soil structure can last for years or decades.

PATHWAYS FOR DRAINAGE

Deformation or destruction of soil structure increased soil bulk density, slowed fluid transport and increased mechanical impedance. Soil structure — by definition — is the aggregation of individual soil particles (sand, silt and clay) into larger units called peds. These peds have distinct shapes: granular, blocky, prismatic or platy. Granular, blocky and prismatic have vertical cracks and planes that are pathways for water to move through soil. When the structure is destroyed or deformed, water is forced to move only through the pore spaces between individual soil particles.

In our industry, this translates to slower infiltration of wastewater into and through the soil and impedes the movement of oxygen to depth. So, compacting soil provides us with a double whammy so to speak. It reduces the long-term soil ability to accept effluent, resulting in a lower long-term acceptance rate. This can lead to system failure and reduces the amount of oxygen at depth, which is necessary for the aerobic organisms in the soil to help break down the organic material in the effluent. Also, a more resistant biomat is a result, further reducing the long-term acceptance ability of the soil and leading to system failure.

A question we always get when we have discussions about soil compaction is: "How long does it take for the soil to recover and what can I do about it?" The answer is still that it depends, but the study verifies that the effects are long lasting and not easily fixed. Relying on natural processes such as wetting/drying, freeze/thawing, and plant root growth to fix the problem indicates that the range in time to recover is years to decades. When the area in question is the only one or two locations on the lot that

are suitable for the soil treatment area, this is not the answer an installer or customer wants to hear, but it is apparently accurate.

One other thought to bear in mind as an installer is that the effects monitored are the result of a single pass. Other studies have indicated that with multiple passes, the damage can go even deeper into the soil profile and be even more long lasting. For an installer, one pass is bad enough. Think of the times systems have been installed in areas where multiple passes have been made over the treatment area by heavy equipment, either by the installer or others working on the site. Once compaction has occurred, the soil is no longer "natural" from our perspective and will respond differently to the application of sewage effluent; those responses will be hard to predict.

Once compaction has occurred the soil is no longer "natural" from our perspective and will respond differently to the application of sewage effluent; those responses will be hard to predict.

AVOID TRAFFIC

This study highlights the need to protect soil treatment areas from construction and other related activities. We always recommend that the site be flagged, staked and otherwise protected from unwanted traffic. All it takes is one errant heavy equipment operator to do significant damage to the site, making it unusable.

One other way a site can be compacted is by the installer excavating and installing the soil treatment unit when the soil is too wet. Hopefully everyone remembers the simple field test to determine if the soil is subject to compaction or smearing: Take a golf ball size amount of soil and roll it in the palms of your hands, and if you can form it into a 1/8-inch ribbon, the soil is at its plastic limit and too wet to work. Installation of this part of the system must be delayed for a day or two until it is safe enough to work without causing compaction or smearing. This is our KIDD principle; "Keep it Dry ...".

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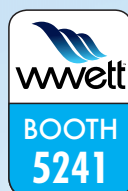


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For those thinking, “Well, I will just excavate below the compaction level in the soil,” remember: the deeper you excavate, usually the lower the permeability of the soil and the less oxygen available for treatment. So, the size of the soil treatment area will likely need to be increased, and going deeper may not be possible due to other limiting conditions, such as a high water table, seasonally saturated soil, or bedrock.

The bottom line for an installer is not to let the compaction happen in first place; in this case, avoidance is preferable to any type of mitigation effort. □



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California Moves Toward Toilet-to-Tap Wastewater Recycling

By David Steinkraus

Because it contains 12 percent of the country's people, California sets standards in many ways. Now, it will work on a standard for potable use of recycled water. Gov. Jerry Brown has signed AB 574, which directs state agencies to develop regulations for direct potable reuse of recycled water by blending it with raw water in the pipes leading into a water filtration plant.

Under the new law, by 2021, the California State Water Resources Control Board must adopt uniform criteria for augmenting raw water with recycled water, and it requires the board to establish a framework for the regulation of potable reuse projects by June 1. The law builds on a previous one that directed the water board to establish rules for recharging groundwater and adding recycled water to a reservoir. At the same time, the law prohibits the board from adopting criteria if its expert advisory panel determines there would be a threat to public health.

Supporters of the law pointed out the need for California to develop alternative sources of water to serve its population in the face of recurring droughts.

"California is a world leader in potable reuse, using highly purified recycled water for drinking-water purposes. The use of recycled water for nonpotable uses, such as agricultural and landscape irrigation, is already well-established and has been regulated for decades in California," says Rep. Bill Quirk, D-Hayward, who introduced the bill in the Assembly.

This year, the city of San Diego announced plans for a multiyear and multibillion-dollar project to add recycled water to its reservoirs. The first phase is now being designed. When completed in 2021, it will produce 30 mgd. The second and third phases are projected to be in place by 2035 and will produce an additional 53 mgd. The total 83 mgd will be about one-third of the city's water supply. Currently, the city imports about 85 percent of its water supply from the Colorado River and the river delta that feeds San Francisco Bay.

Some San Diego wastewater will be recycled for nonpotable uses such as irrigation. The rest will be sent to reservoirs but first will go through another water purification plant using ozone, biological activated carbon, membranes, reverse osmosis and UV equipment.

South Dakota

After two years and a five-hour trial, a county official was found guilty of violating county zoning rules for operating an onsite wastewater system without an operating permit. The ordinance requires systems to be regularly pumped, inspected and issued permits. When the trial was over, the judge ordered Pennington County Commissioner George Ferebee to pay a \$200

fine. The prosecution says Ferebee was in violation because his system was on a lot smaller than 40 acres. Lots of that size and larger are exempt from the ordinance. Ferebee claimed his land totals 250 acres and that he hasn't subdivided it since buying it 30 years ago. But, prosecutors say the land is legally comprised of four lots and say Ferebee's system is on a lot of 12.22 acres.

Indiana

Although it will be more expensive, the Fort Wayne Plan Commission insisted that a new Dollar General store connect to municipal sewer. During a public hearing in September a representative of the Zaremba Group, an Ohio-based development company, said the cost of extending the municipal sewer by 370 feet to reach the property would exceed the cost of an onsite system by 150 percent. The company asked for a waiver from the requirement for municipal sewer, according to the *Journal Gazette*. The planning staff rejected the suggestion of a waiver. It said the city's zoning ordinances and comprehensive plan say municipal sewer is the preferred option and that allowing this exemption could set a precedent for future commercial projects. The zoning commission agreed with the staff report and denied the waiver.

Minnesota

After a lengthy examination of onsite systems, it appears they are not to blame for pollution in about 25 lakes in Todd County in central Minnesota. The county is about 124 miles northwest of the Minneapolis-St. Paul area and has 118 lakes. The septic system inventory cost almost \$812,000 and included five grants from the Minnesota Board of Water and Soil Resources, says information from that agency and printed in *The Osakis Review* of Alexandria, Minnesota.

Inventories targeted phosphorus-sensitive lakes. Less than 5 percent of systems on 2,329 properties were out of compliance during the examination that lasted from 2011 through 2016. Test results on another 12 percent of properties were still pending while 83 percent were in compliance. "Lake Osakis is polluted — 7,000 acres of pea soup," says Chris Arens, Todd County land use planner. "The thought was that one of the large contributors to that was the septic systems around the lake because it's highly developed."

But, the inventory showed otherwise, and in one case, it killed an idea to build a large wastewater-collection pipe around one lake. In Todd County, an onsite system inspection is triggered by a property sale or a building permit, but the inventory convinced some people to willingly upgrade their onsite systems.

Maryland

For a second time in a year, the Harford County Council is considering legislation to relax rules on what can be built near onsite wastewater systems. The county is about 36 miles northeast of Baltimore and includes shoreline along Chesapeake Bay. The legislation would remove a ban on the construction of swimming pools, outbuildings, driveways or additions that intrude into the area designated for the onsite system. This could mean the drainfield or land reserved for a replacement, reports *The Baltimore Sun*. The county health department would be empowered to grant waivers to the rule at its discretion, and the department supports the legislation.

"We have looked at the impact to public health, the environment, and in certain situations we feel that it would be OK for a waiver to be given and to allow paving over a system and their future repair areas," Julie Mackert, director of environmental health, said during a public hearing in September.

In the 1970s, the county tightened regulations for onsite systems, but in recent years, a succession of administrations and county councils have relaxed those rules, saying they infringed on property rights.

Michigan

Support is building for point-of-sale inspections of onsite systems in central Michigan. It's part of a plan to reduce bacteria levels in the Chipewewa River, which flows for about 90 miles and joins other rivers that drain into Lake Huron. Most recently, the city of Mount Pleasant agreed to the point-of-sale inspection rule proposed by the Central Michigan District Health Department. The rule must be approved by commissions governing all six counties in the health department district and would impact a small number of properties. A transaction tax of \$300 to \$500 would be imposed at the time of the inspection. A local real estate agent calls this a money grab by the health department. He says real estate agents always recommend an inspection at the time of sale and says the rule would do nothing to improve the water quality of the river.

In Leelanau County in northwestern Michigan there is no rule specifying when a septic system must be inspected, and with county commissioners opposed to one, the responsibility has fallen to citizens. So, the county's League of Women Voters scheduled a panel to inform citizens about onsite wastewater systems and how they should be maintained. County commissioners voted down an attempt to form a committee that would have looked at onsite system issues with the possibility of enacting a point-of-sale rule. Tom Fountain, director of the Benzie-Leelanau District Health Department, says he is worried about vacation rental homes that are often occupied by more people than the onsite system is designed to handle. One commissioner says real estate agents, not the county, should take on the responsibility of ensuring inspections.

Washington

The county that voted to repeal a fee for onsite wastewater systems has backtracked a bit. Thurston County, which surrounds the capital city of Olympia and borders the southern end of Puget Sound, had enacted a \$10 fee to fund management of onsite systems. The fee became a campaign issue, and last year two county commissioners were seated who opposed the fee. It would have affected about 42,000 property owners.

Now the fee is back, but not all the way. The county commission unanimously approved fees for onsite systems in the Henderson Inlet Shellfish Protection District. Revenue will fund the district's work plan for onsite systems. From 1984 to 2005, the state health department restricted shellfish harvests in the inlet because of contamination by fecal coliform bacteria. There will be a \$10 charge for each additional residential onsite system on a property, and there are higher rates for larger, nonresidential systems. On average, most property owners will pay \$40, although some will pay \$100 or more, reports *The Olympian*. About 6,700 onsite systems will be affected by the ordinance. ■



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Denitrification and Drip Irrigation Offer Onsite Solution

Creative drainfield layout and packaged meals to reduce water usage allow a Florida school to build a suitable replacement system

By Scottie Dayton

▲ A massive Geoflow dripfield serves the system at Collier Charter Academy.

▼ Hone Industries removed a total of 5 feet of soil from the 9,375-square-foot absorption bed area.



Stormwater and permitting issues postponed the construction of Collier Charter Academy in Naples, Florida, for a year. As the Red Apple Development design for the K-8 school advanced, the expanding size of the stormwater detention ponds ruled out a conventional septic system with drainfield.

Ryan Cos., the general contractor, hired Greg Mayfield, president of Southern Water and Soil in Zephyrhills, Florida, to design the onsite system. Mayfield proposed a decentralized wastewater denitrification system with drip irrigation — the latter installed under the soccer field. “Package plants have been designed before,” he says. “Our problem was nothing in the code allowed us to use the variance rule to show different flow categories.”

Mayfield’s challenge was convincing the Florida Variance Review and Advisory Committee that a school with 1,145 students would not generate flows greater than 10,000 gpd. “Typical water usage is 15 gpd per student

or 17,175 gpd total flow for this system,” he says. “However, Red Apple has designed six comparative schools with low-flow water fixtures and no cafeteria, which reduces water usage to 6 gpd per student or 6,870 gpd total flow for Collier.”

Red Apple’s secret is using Preferred Meals, a company that manufactures preplate frozen meals and distributes them in freezer trucks to be heated and served in individual classrooms. Single-service containers and utensils are discarded. There is nothing to wash up. The committee approved Mayfield’s project 7-0, saving the school \$100,000. Obtaining the permit took six months.

Site conditions

Soils are 50 inches of Holopaw fine sand with a loading rate of 0.80 gpd per square foot, and the seasonal high water table is 5 inches below grade. The site is in flatwoods.

System Profile

Location: Naples, Florida

Facility served: Collier Charter Academy

Designer: Greg Mayfield, Southern Water and Soil, Zephyrhills, Florida

Installer: Honc Industries, St. James City, Florida

Type of system: Denitrification with drip irrigation

Site conditions: Fine sand, loading rate of 0.80 gpd per square foot, seasonal high water table 5 inches below grade

Hydraulic capacity: 9,000 gpd

System components

Mayfield designed the system to handle 9,000 gpd, but it averages 3,600 gpd. Major components are:

- 5,000-gallon, dual-compartment concrete septic tank (Florida Septic)
- 5,000-gallon surge tank
- Two Biotube pump vaults with PF5005 high-head effluent pumps (Orenco Systems)
- TCOM remote telemetry control panel with drip controllers for four zones (Orenco Systems)
- Three 3,000-gallon 3.0 MicroFAST aerobic treatment units (Bio-Microbics)
- 5,000-gallon dose tank with two PF3007 high-head effluent pumps (Orenco Systems)
- 4,687.5 feet of dripline with ultra headworks (Geoflow)
- TCOM control panel (Orenco Systems)
- Peristaltic metering liquid-chlorine injection pump (Stenner Pump)



▲ Workers from Honc Industries work on the installation of the Bio-Microbics aerobic treatment units.

▼ The three MicroFAST units (Bio-Microbics) installed by Florida Septic at their Hawthorne facility before delivery.



SYSTEM PROFILE



▼ A worker from Honc Industries assembles 1.5-inch PVC pipe.

"Incorporating the reduction would have given us a 5,700 gpd system. **Instead, we wanted more retention time in the FAST units for greater nitrification.**"

Greg Mayfield

System operation

Wastewater flows 30 feet through a 6-inch PVC lateral to the septic tank, then into the surge tank. The tanks are plumbed with 1.5-inch PVC piping. Alternating pumps in the surge tank run for one minute every 20 minutes, sending 50 gallons through a 1-inch ball valve that equalizes the flow to the aerobic treatment units. Liquid chlorine is injected in the treated effluent just before it flows into the dose tank.

Alternating pumps in the dose tank run for 41.5 minutes six times per day, sending 417 gallons to the headworks. Alternating solenoid valves in the headworks direct liquid to one of four zones in the 117-by-83-foot-wide irrigation dripfield. Then 20 percent of dose recirculates to the front of the dose tank since chlorinated water cannot recirculate to the surge tank without killing microorganisms in the FAST units. "We included chlorination to protect students from disease should a dripline break under the soccer field," Mayfield says.

Installation

Ryan Cos. required all workers to take its 20-minute safety class before going on site. Subcontractor Honc Industries began construction in March 2017.

Honc crews used a Komatsu America PC200LC excavator to dig a 50-by-16-by-14-foot-deep hole for the six tanks set side by side. Drought had lowered the seasonal high water table to 10 feet below grade, resulting in little sloughing during excavation. Nevertheless, when Florida Septic arrived to set the tanks, each placement was done inside a double-wall, steel trench shield from Efficiency Shoring and Supply. "Florida Septic had installed the MicroFAST units at their Hawthorne facility before delivery," Mayfield says. "All Honc had to do were the excavation and plumbing."

Sometime after Honc rooted out the saw palmetto shrubs in the 9,375-square-foot area for the absorption bed, the building contractor dumped 2 feet of organic spoil across it. Honc removed the material plus 36 inches of native organic soil, then trucked in 24 inches of washed septic sand. The building contractor used the 50,000 cubic feet of spoil to build berms at the rear of the property. "Honc had huge equipment that moved dump-truck-sized loads of soil at a time," Mayfield says. "They were highly efficient."

Since nitrogen is a major concern in Florida, Mayfield elected not to take the 25 percent reduction in drainfield size afforded by secondary treatment. "Incorporating the reduction would have given us a 5,700 gpd system," he says. "Instead, we wanted more retention time in the FAST units for greater nitrification. That way, we achieve a 60 to 70 percent reduction in nitrogen uptake over leach-through systems during irrigation." Southern Florida's climate is mild enough to enable grass to grow year-round.

Maintenance technician Derrick Priset from Southern Water and Soil assisted Honc workers as they installed the 40 driplines, valves and assemblies. Two people cut the tubing exactly 117 feet long, then pulled the length taut at 25 inches on edge. A third person clamped down the line with U-stakes every 10 feet.

Priset also supervised connecting the headworks with its 2-inch vortex filter, automatic filter and field flush valves, return pressure gauge, pressure gauges across the filter, supply flowmeter, and air vent. In the event the state demands higher nitrification achieved only via UV disinfection, Mayfield ran a 1.5-inch PVC pipe from the dose tank to a magnetic flowmeter

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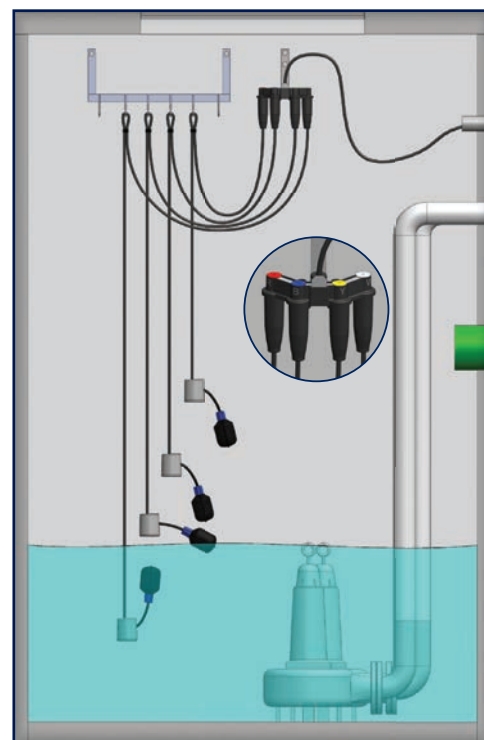


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«The onsite installation nears completion. Risers and lids from Orenco Systems are seen atop the series of tanks.

installed on an outside school wall along with an electrical junction box. "Now we can determine how much water runs through the system, size our UV cabinet accordingly, and tap into the box," Mayfield says. "Then we take the chlorine offline and return the UV-disinfected water to the surge tank."

The installation took two weeks and came in under budget because of Honc's efficiency. The system went online in June 2017.

Maintenance

The Florida Department of Health requires Class D wastewater operators for systems greater than 1,500 gpd. Consequently, the school hired Crews

Environmental as the maintenance provider. A technician visits once or twice a week and pulls an effluent sample monthly to test TSS, BOD, and fecal coliform bacteria levels.

Mayfield is required to check the system twice a year but feels more comfortable with monthly visits because it is a school. □

featured products

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From Heavy Clay to Bedrock, Every Onsite System Is a Challenge

The crew at All Clear Pumping & Sewer have their hands full pumping septic tanks and installing new systems in Jefferson City, Missouri

Compiled by Betty Dageforde

In States Snapshot, we visit with a member of a state, provincial or national trade association in the decentralized wastewater industry. This time, we learn about a member of the Missouri Smallflows Organization.



Shawn & Tracy Chilton,
owners

Business:
All Clear Pumping
& Sewer,
Jefferson City, Missouri
Shawn Age: 39
Years in the industry:
12



Jason Jones,
project manager

Business:
All Clear Pumping
& Sewer,
Jefferson City, Missouri
Age: 44
Years in the industry:
23

Association involvement:

The company has been a member of the Missouri Smallflows Organization for eight years. Jason has been on the board for 1 1/2 years.

Benefits of belonging to the association:

Jason: The continuing education training we offer. We have some new online training that's going to be coming out, which will help installers all over the state. Then, we have an annual conference with keynote speakers and multiple trainings in all the areas — soils, engineering and installation.

Biggest issue facing the association right now:

Jason: There's two parts. One is growth of new membership — you're always trying to gain new members. The other one is the education, both in having enough instructors and having enough new education for people instead of being redundant — keeping people interested so they keep coming back to learn.

Our crew includes:

Shawn Chilton, owner
Tracy Chilton, owner, office
Coley Peters, office
Jason Jones, project manager
Robert Sterling, service technician
Seth Hampson, installer/vacuum truck driver
Gary Buscher, plumber
Kelvin Lee, installer
Brad Tagg, service technician, equipment operator
Phil Bailey, equipment operator

Typical day on the job:

Shawn: Checking on job sites to ensure everything is up to par and following up with the customers to make sure they are satisfied with the work completed. I also meet with customers regularly to evaluate their situation and give them estimates to meet their needs.

Jason: Meeting with the customer and then laying the job out and getting the crews headed in the right direction, directing them for a safe and professional installation.



▲ All Clear Pumping & Sewer's pumping rig is a vinyl-wrapped 2010 International with a 3,000-gallon steel tank and Jurop/Chandler pump from Transport Truck Sales. (Photos courtesy of All Clear Pumping & Sewer)

Helping hands - indispensable crew member:

Shawn: We could not do any of this without each and every one of our crew members. They all bring a level of talent that is unique. You can train anyone to do a job, but it takes a certain type of person who wants to do it consistently well. And when we find them, we invite them to be part of the family. In return, we are able to leave on vacation and know that we have the best of the best to give our customers a professional, finished product or service and not have to worry about what we might come back to.

Explain your pumping side and its challenges:

Shawn: About 30 percent of our business is pumping. Some of the issues we deal with are how far away the tank is from our truck for us to be able to pump, educating the customer on how to maintain his or her system, and the rising cost of disposal at the treatment facility.

My favorite piece of equipment:

Shawn: Our Case tractor with a Bradco vibrating plow. The plow is an attachment for plowing in leach lines for advanced septic systems for drip systems. It makes the yard look clean when we're done, like we haven't been there.

Most challenging site I've worked on:

Jason: The thing is, it never ends. I think I meet the most challenging site, and then I meet another one. Every site has its challenges that you have to overcome. We deal with everything from 4b (stiff) clay to bedrock here. Soils are our big issue. You might go down only 6 inches to 2 feet and hit bedrock. In our area, advanced systems are more predominant.

The craziest question I've been asked by a customer:

Shawn: I get a lot of people who say something like, "I don't know how you do this. I guess it must smell like money."

If I could change one industry regulation, it would be:

Jason: For time of transfer inspections, I'd like a regulation that all outdated systems have to be brought up to code. Right now it's not required. It's just between the two parties. The banks are pushing for (this change), too.

Best piece of small business advice I've heard:

Shawn: You can be part of the problem, or you can be part of the solution. It's your choice.

If I wasn't working in the wastewater industry, I would:

Shawn: I'd probably be a detective. I've always wanted to do that. My friends say I'm crazy because when they come over, I'll stop what I'm doing and go watch Snapped, Murder Among Friends or something like that.

Jason: I took a break from this industry for seven years and worked as a police officer. That's what I'd be doing if I wasn't doing this. □

Would you like to see someone in your state or provincial wastewater trade association profiled in Snapshot?

Send your suggestions to Jim Kneiszel at editor@onsiteinstaller.com.

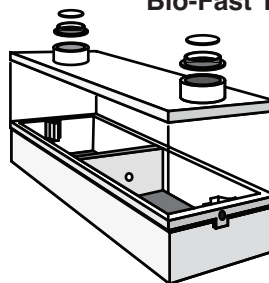
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Drainfield Media and Design

By Craig Mandli

DRAINFIELD COMPONENTS

Bio-Microbics SaniTEE

SaniTEE wastewater screens from Bio-Microbics are available in 4-, 8- and 16-inch sizes and are designed to provide consistent retention of wastewater solids for applications up to 20,000 gpd. The unit fits inside a standard septic tank outlet tee. No tools are required. To clean, simply move the swab handle up and down to pass the swab through the center screen. Swabbing action will dislodge debris trapped in the angled slots. Additionally, keyhole weirs help to attenuate surge flows, delivering a more consistent flow for further treatment or dispersal and helping extend drainfield life, reduce the clogging of orifices in effluent disposal systems, and allow use of different types of effluent pumps. If inspection is required, it can be removed by lifting the screen out of the outlet tee. 800-753-3278; www.biomicrobics.com.



Clarus Environmental WW4

The WW4 effluent filter from Clarus Environmental is mounted in the outflow of the septic tank to provide protection from solids moving out of the tank into the dispersal area. A secondary screen provides continued protection during servicing. When the primary cartridge is removed to be cleaned, the secondary screen blocks solids from sloughing off and traveling to the dispersal area. After the primary cartridge is cleaned, the secondary screen can be removed and cleaned. It can handle up to 4,000 gpd and can be assembled on site in a multifilter configuration for larger flows. 800-928-7867; www.clarusenvironmental.com.



Eljen GSF

The GSF, or Geotextile Sand Filter, advanced wastewater treatment and dispersal system from Eljen is designed to provide treatment and dispersal in the same footprint while keeping installations easy and maintenance minimal. Utilizing a two-stage pretreatment process, the geotextile modules apply filtered septic tank effluent to the soil, increasing the soil's ability to accept the effluent and increase the long-term acceptance rate. Its design



provides increased surface area for biological treatment that greatly exceeds the module's absorption area. Open-air channels within the module support aerobic bacterial growth on the module's geotextile fabric interface, surpassing the surface area required for traditional absorption systems. The result is simple installations in a smaller soil absorption area. The system is tested and certified by NSF to NSF/ANSI Standard 40. 800-444-1359; www.eljen.com.

Fergus Power Pump Duel Power Lid

Duel Power Lids for septic tank installations or restorations from Fergus Power Pump are designed for new installation or to complete a restoration project by replacing a concrete lid. It is designed like the rafters in a house to give structure durability and support heavy wheel load without added weight to the lid. The top is slightly domed to meet compliance throughout the U.S. Lids can be insulated with R-value of 6 and are available in 18-, 24-, 30- and 36-inch sizes. 218-736-6772; www.ferguspump.com.



Polylok Inc. / Zabel 20-inch Drainage/Distribution Box

The 20-inch Drainage/Distribution Box from Polylok Inc. / Zabel is ideal for large applications such as golf courses, but is also a suitable size for home. There's no need to worry about different-colored fittings or plugs to inventory because as well as accepting 2-, 3- and 4-inch pipe, the units also accept 6-inch pipe. They will also accept Polylok's 20-inch risers to easily bring the unit to grade. 877-765-9565; www.polylok.com.



Sim/Tech Filter orifice shields

Orifice shields from Sim/Tech Filter are designed to prevent drain media, such as drain stone, from blocking discharge holes, helping to keep pressurized systems distributing effluent evenly. The shields have a sturdy design that keeps them firmly in place after snapping them on the laterals. The large amount of open area between the pipe and shield allows for easy placement over the holes and reduces media clogging by debris. The enclosed design has a large amount of open area, but all openings are small enough to prevent media from entering the shield. Two styles are available: one for top-discharge distribution holes and one for bottom-discharge holes. Shields are available to fit 3/4-, 1-, 1 1/4-, 1 1/2-, 2- or 3-inch pipe. 888-999-3290; www.simtechfilter.com.



continued >>

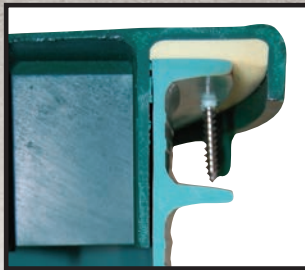
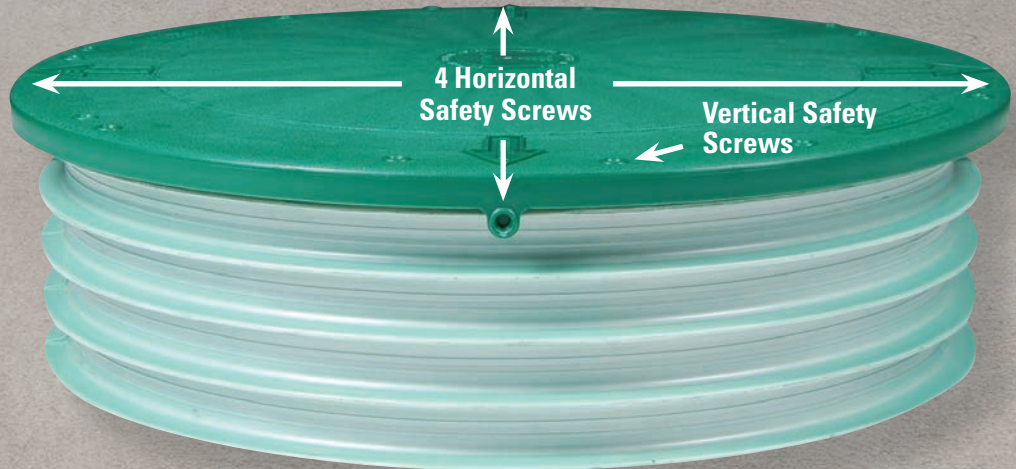
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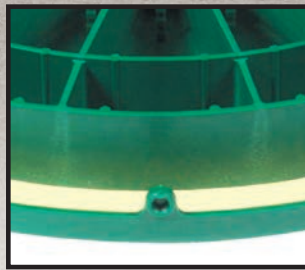
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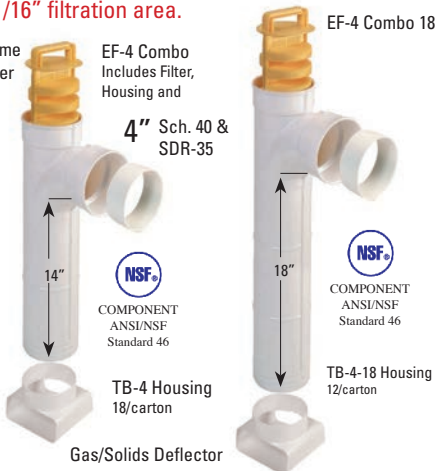


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- May also be used as Inlet & Outlet Tee

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6" Effluent Filter EF-6

One-piece effluent filter fits in 6" T-Baffle™.

- Injection molded PolyPro
- Simple to install
- Easy to clean

6" Sanitary T-Baffle™

- Injection molded
- Fits 4" Sch. 40 and SDR-35 pipe
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Riser Safety Pans from TUF-TITE allow a concrete safety plug to be cast in a plastic pan for the riser system. The riser pan can be placed on the inner core to be cast into a tank. It can also be placed anywhere in the riser column or at ground/surface level. Its plastic internal safety lid for child protection can be bolted down, screwed down or filled with concrete for additional safety. Inner safety lids are available to fit 12-, 16-, 20- and 24-inch-diameter risers. They come with all the screws needed, including lid safety screws. Just make sure you replace and attach the internal safety lid and screw the lid to the riser using all the screws and the side safety screws. 800-382-7009; www.tuf-tite.com.



FILTER MEDIA

Advanced Drainage Systems Septic Stack



The Septic Stack system from Advanced Drainage Systems is available in configurations of 9, 11 and 13 pipes. The units allow for exceptional soil contact without the use of gravel, functioning as a trickle filter to disperse effluent into the voids in and around specially banded ADS pipe. This

pipe is engineered with holes and slots, allowing it to collect and disperse effluent as it passes over the corrugations in the pipe. Systems are available for use in both residential and commercial applications in trench, bed and mound configurations, as well as pressure dosing. 800-821-6710; www.ads-pipe.com.

Infiltrator Water Technologies EZflow

EZflow engineered geosynthetic aggregate from Infiltrator Water Technologies is a lightweight, modular, easy-to-install drainfield alternative. The system is engineered for optimal storage and absorption efficiencies and improves drainfield performance by eliminating the fines and reducing compaction associated with stone. Modular construction allows configurations to match trench dimensions for most system shapes and sizes and enables contouring along sloped sites and around trees or landscaping. The lightweight system can be used for repairs and tight job sites and is easily hand carried into position, reducing time, labor and machine expense. Manufactured from recycled materials, the preassembled units include a 3- or 4-inch perforated pipe surrounded by aggregate and held in place with durable, high-strength netting. Approved in many areas with an increased efficiency rating and reduced drainfield size requirements, it is available in 7-, 8-, 10-, 12- and 14-inch-diameter bundles. 800-221-4436; www.infiltratorwater.com.



VENT PIPE FILTERS

Pagoda Vent septic vents

Septic vents from Pagoda Vent are designed to help enhance system function with landscape appeal and homeowner approval. The premade units are designed to provide the necessary ventilation to the drainfield and have a durable, lightweight exterior that won't fade or rust. The units encourage a healthy subsurface environment, mitigate harmful gases, and preserve concrete component integrity by diminishing the opportunity for microbial-induced corrosion. Optional odor filter cartridges are available and fit concealed in the vent unit. 888-864-1468; www.pagodavent.com.



Presby Environmental Ornavent

The Ornavent from Presby Environmental is designed to disguise septic vents. It is easy to install and comes in different colors and designs fitting on Schedule 35 and 40 PVC. It is designed to replace the aesthetics of the candy-cane vent while providing sufficient ventilation to the aerobic bacteria in a septic system leachfield and allowing for gas exchange within the system. 800-473-5298; www.presbyeco.com.



Simple Solutions Distributing Super Wolverine

The solar-powered Super Wolverine vent filter from Simple Solutions Distributing is designed to eliminate odorous airflows up to 10 cfm, and the solar fan vents the tank, reducing accumulation of sewer gas. It holds between 8 and 10 pounds of activated carbon and is available with inlet sizes between 3 and 6 inches. It can be used for larger aerobic systems found at restaurants or on small commercial buildings. It has an optional saturation indicator for monitoring the life of the carbon bed and uses a 2-inch drain plug for media replacement. 866-667-8465; www.industrialodorcontrol.com.

The Dirty Birds septic vent

The Dirty Bird provides an alternative to the standard septic vent required by many municipalities for new residential and commercial construction. It is a septic vent shaped like a birdbath. Meeting U.S. Environmental Protection Agency septic venting regulations, it controls odors through a replaceable charcoal filter and vents gases through holes at the bottom of the pedestal so nothing enters the septic system. It installs in five minutes. Fade-resistant (UV stabilized), lightweight and recyclable, it is available in granite, sandstone and terra cotta colors. It is constructed of 100 percent low-density polyethylene and stainless hardware. It is 32 inches high with a basin width of 23 inches and footprint of 12 1/4 inches. 866-968-9668; www.thedirtybird.com. □





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INDUSTRY NEWS

SJE-Rhombus announces new manufacturers rep

SJE-Rhombus added FTI Sales of Elgin, Illinois, as the new manufacturer representative for its standard control product line in northern Illinois.


New regional manager for Presby Environmental announced

Charles Ray joined Presby Environmental as regional manager for the Midwest. His responsibilities include distribution development, training and market support that provides impetus toward clean water. Additionally, Ray is responsible for communications between Presby Environmental and all regulatory agencies to maintain consistency and compliancy. He earned his Bachelor of Science degree in 1990 from Ball State University, specializing in marketing and telecommunications.



Charles Ray

John Deere expands hurricane relief support

Deere and Co. will make a \$1 million cash donation to support Habitat Hammers Back, a long-term recovery initiative organized by Habitat for Humanity International to help repair and rebuild communities ravaged by hurricanes Harvey, Irma and Maria. Habitat for Humanity International's three-phase disaster response focuses on immediate relief, community stabilization and long-term recovery. 


PRODUCT NEWS



Franklin Electric Inline Controls

Inline Controls from Franklin Electric are compatible with both Franklin Electric and Little Giant pumps, and they include five pump starting and control devices that pair with a variety of submersible or surface pumps, up to 20 amps, to provide or boost the system's overall water pressure. The product family offers various forms of system protection, including dry run, deadhead pumping, over amperage, locked system and over pressurization. They also offer a daily motor rotation start, which starts the motor at least once every 24 hours to prevent system locking, as well as an automatic restart feature in case of an unexpected trip or fault. 260-824-2900; www.franklinwater.com.

Imperial Industries Baseline Series truck-mounted tanks

The Baseline Series of truck-mounted tanks from Imperial Industries are available on Ford, Ram, Freightliner and International chassis and include aluminum and steel models in capacities of 980 to 6,500 gallons. The series offers a straightforward, stock pump truck, eliminating customizations and enhancements, and concentrating on heavy-duty performance. 800-558-2945; www.imperialind.com. 



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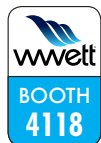
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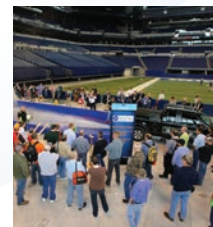
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Recycling Association;
www.azowra.org; 928/443-0333

ARKANSAS

Arkansas Onsite
Wastewater Association;
www.arkowa.com

CALIFORNIA

California Onsite
Wastewater Association;
www.cowa.org; 530/513-6658

COLORADO

Colorado Professionals
in Onsite Wastewater;
www.cpow.net; 720/626-8989

CONNECTICUT

Connecticut Onsite Wastewater
Recycling Association;
www.cowra-online.org;
860/267-1057

DELAWARE

Delaware On-Site Wastewater
Recycling Association;
www.dowra.org

FLORIDA

Florida Onsite
Wastewater Association;
www.fowaonsite.com;
321/363-1590

GEORGIA

Georgia Onsite
Wastewater Association;
www.onsitewastewater.org;
678/646-0379

Georgia F.O.G. Alliance;
www.georgiafog.com

IDAHO

Onsite Wastewater
Association of Idaho;
www.owaidaho.org;
208/664-2133

ILLINOIS

Onsite Wastewater
Professionals of Illinois;
www.owpi.org

INDIANA

Indiana Onsite Waste Water
Professionals Association;
www.iowpa.org; 317/889-2382

IOWA

Iowa Onsite Waste
Water Association;
www.iowwa.com; 515/225-1051

KANSAS

Kansas Small Flows
Association;
www.ksfa.org; 913/594-1472

KENTUCKY

Kentucky Onsite Wastewater
Association;
www.kentuckyonsite.org;
855/818-5692

MAINE

Maine Association
of Site Evaluators;
www.maineese.com

Maine Association of
Professional Soil Scientists;
www.mapss.org

MARYLAND

Maryland Onsite Wastewater
Professionals Association;
www.mowpa.org; 443/570-2029

MASSACHUSETTS

Yankee Onsite
Wastewater Association;
www.maowp.org; 781/939-5710

MICHIGAN

Michigan Onsite Wastewater
Recycling Association;
www.mowra.org

Michigan Septic
Tank Association;
www.msta.biz; 989/808-8648

MINNESOTA

Minnesota Onsite
Wastewater Association;
www.mowa-mn.com;
888/810-4178

MISSOURI

Missouri Smallflows
Organization;
www.mosmallflows.org;
417/631-4027

NEBRASKA

Nebraska On-site
Waste Water Association;
www.nowwa.org; 402/476-0162

NEW HAMPSHIRE

New Hampshire Association
of Septage Haulers;
www.nhash.com; 603/831-8670

Granite State Designers and
Installers Association;
www.gsdia.org; 603/228-1231

NEW MEXICO

Professional Onsite Wastewater
Reuse Association of
New Mexico;
www.powranm.org;
505/989-7676

NEW YORK

Long Island Liquid Waste
Association, Inc.;
www.lilwa.org; 631/585-0448

NORTH CAROLINA

North Carolina Septic
Tank Association;
www.ncsta.net; 336/416-3564

North Carolina Portable
Toilet Group;
www.ncportabletoiletgroup.org;
252/249-1097

North Carolina Pumper Group;
www.ncpumpergroup.org;
252/249-1097

OHIO

Ohio Onsite
Wastewater Association;
www.ohioonsite.org;
888/294-0084

OREGON

Oregon Onsite
Wastewater Association;
www.o2wa.org; 541/389-6692

PENNSYLVANIA

Pennsylvania Association of
Sewage Enforcement Officers;
www.pa-seo.org; 717/761-8648

Pennsylvania Onsite Wastewater Recycling Association;
www.powra.org

Pennsylvania Septage Management Association;
www.psmra.net; 717/763-7762

TENNESSEE

Tennessee Onsite Wastewater Association;
www.tnonsite.org

TEXAS

Texas On-Site Wastewater Association;
www.txowa.org; 888/398-7188

Education 4 Onsite Wastewater Management;
www.e4owm.com; 713/774-6694

VIRGINIA

Virginia Onsite Wastewater Recycling Association;
www.vowra.org; 540/377-9830

WASHINGTON

Washington On-Site Sewage Association;
www.wossa.org; 253/770-6594

WISCONSIN

Wisconsin Onsite Water Recycling Association;
www.wowra.com; 888/782-6815

Wisconsin Liquid Waste Carriers Association;
www.wlwca.com; 888/782-6815

NATIONAL

Water Environment Federation;
www.wef.org; 800/666-0206

National Onsite Wastewater Recycling Association;
www.nowra.org; 800/966-2942

National Association of Wastewater Technicians;
www.nawt.org; 800/236-6298

CANADA ALBERTA

Alberta Onsite Wastewater Management Association;
www.aowma.com; 877/489-7471

BRITISH COLUMBIA

British Columbia Onsite Wastewater Association;
www.bcosa.org; 778/432-2120

WCOWMA Onsite Wastewater Management of B.C.;
www.wcowma-bc.com;
877/489-7471

MANITOBA

Manitoba Onsite Wastewater Management Association;
www.mowma.org; 877/489-7471

Onsite Wastewater Systems Installers of Manitoba, Inc.;
www.owsim.com; 204/771-0455

NEW BRUNSWICK

New Brunswick Association of Onsite Wastewater Professionals;
www.nbaowp.ca; 506/455-5477

NOVA SCOTIA

Waste Water Nova Scotia;
www.wwns.ca; 902/246-2131

ONTARIO

Ontario Onsite Wastewater Association;
www.oowa.org; 855/905-6692

Ontario Association of Sewage Industry Services;
www.oasisontario.on.ca;
877/202-0082

SASKATCHEWAN

Saskatchewan Onsite Wastewater Management Association;
www.sowma.ca; 877/489-7471

CANADIAN REGIONAL

Western Canada Onsite Wastewater Management Association;
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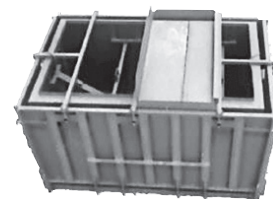
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