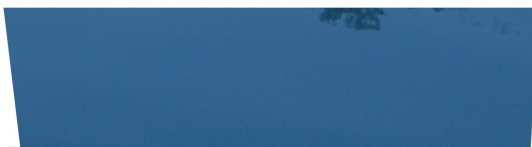




Waterloo

B I O F I L T E R

"Onsite Wastewater Treatment Experts since 1991"



Septic Systems in the Muskoka's

General septic in difficult areas – cottage country

Chris James

July 23rd, 2022

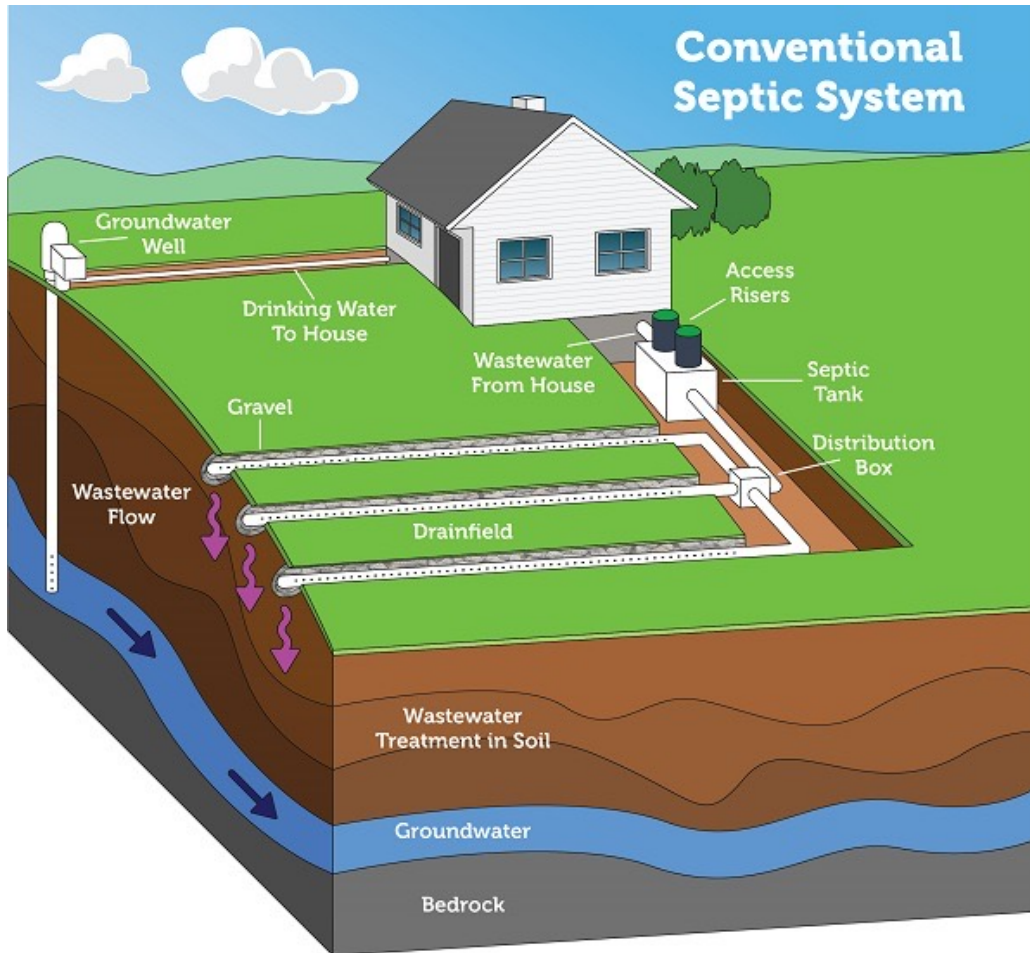


Chris James – Senior Technical Advisor

- Working at Waterloo Biofilter Systems for 16 years in Operations & Maintenance
- Sir Sandford Fleming Graduate



What is a Conventional Septic System?



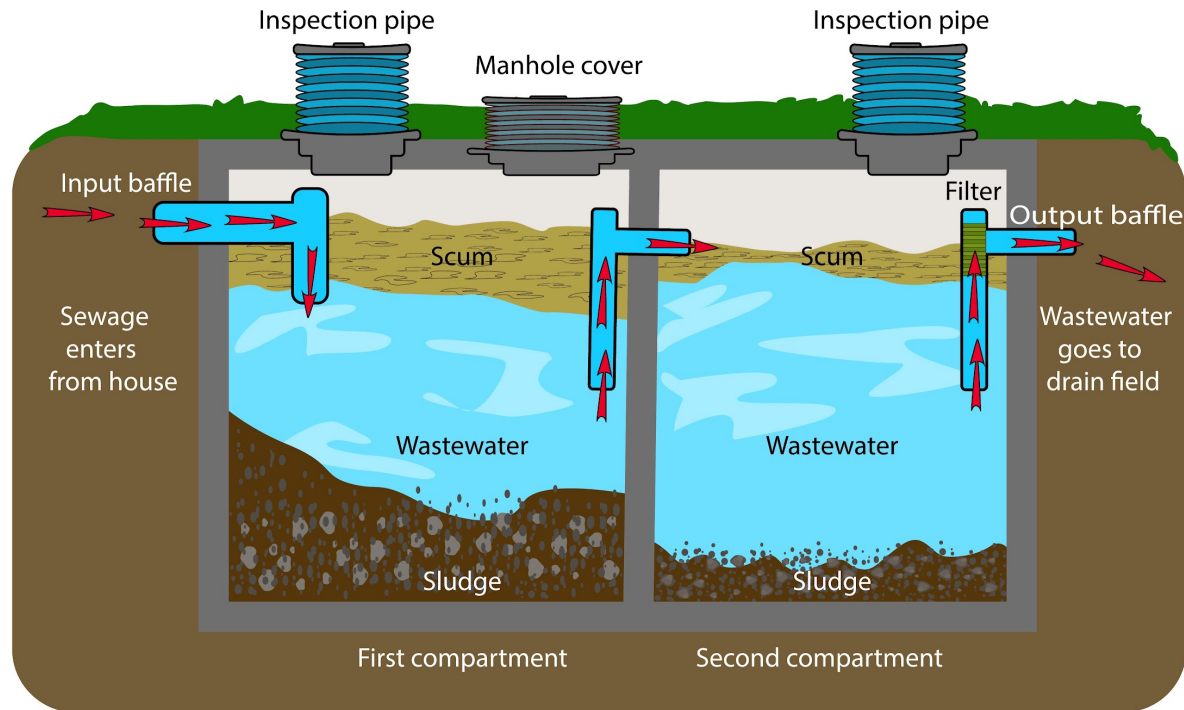
Please note: Septic systems vary. Diagram is not to scale.

- A sophisticated biological ecosystem is functioning right now under your property
- Nature does a pretty good job cleaning itself
- The system is made up of two main sections:
 - Septic Tank
 - Drainfield/Leaching Bed



The Septic Tank

- Up to 50% of the treatment, 2 compartment tank, sized appropriately
- Works to settle out wastewater into: Sludge, Effluent, and Scum
- When to pump out? What could go wrong? What is septic health?

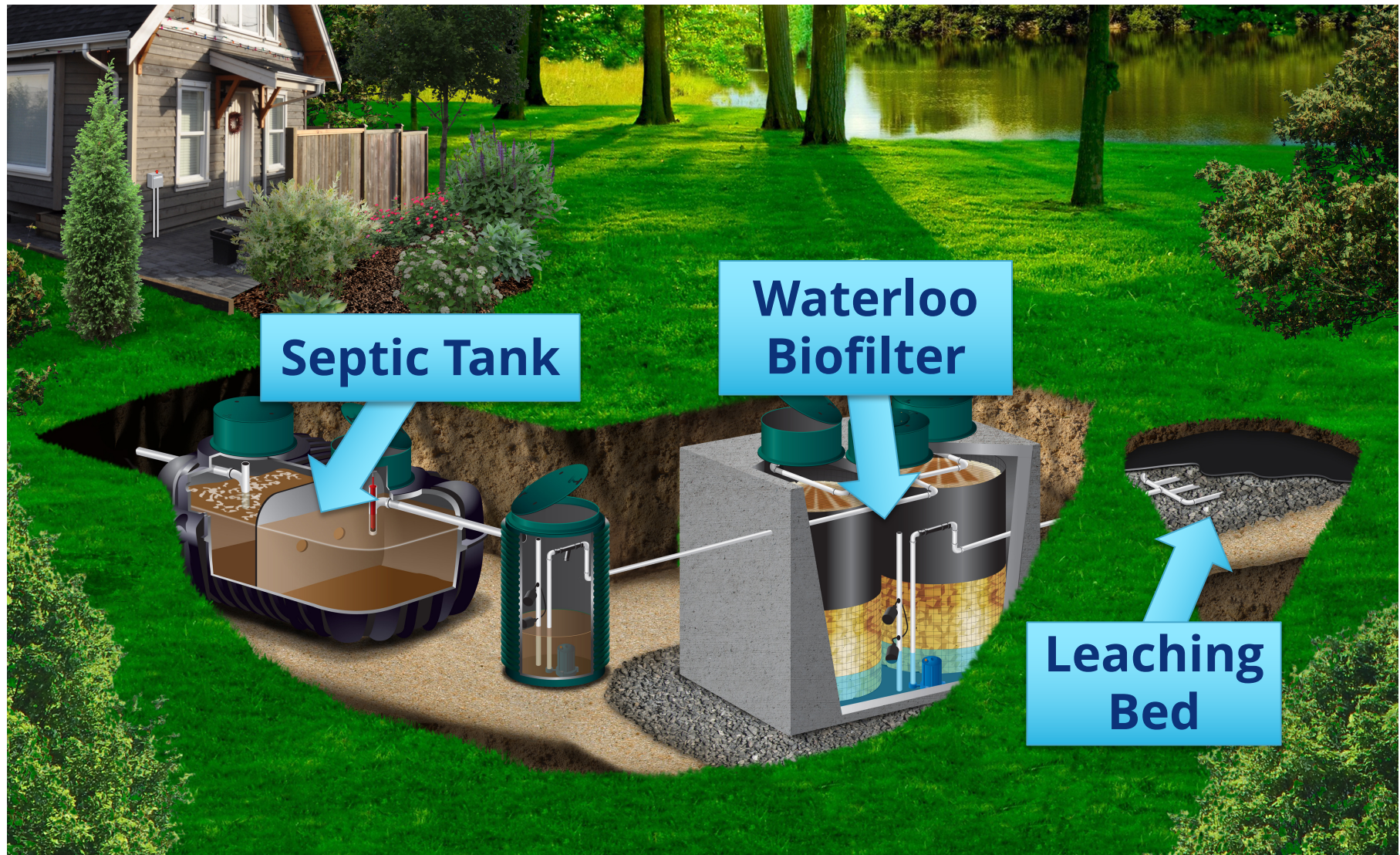


The Leaching Bed

- A leaching bed is made up of special-sized aggregate (sand and stone) that allows bacteria to flourish
- These bacteria clean the effluent by consuming the harmful pollutants and releasing gases



Advanced Wastewater Treatment



Why Advanced Wastewater Treatment?

- Some sites are unable to use a conventional septic system
- Extra stage of treatment is added in “advanced” wastewater treatment systems, biofilters clean wastewater beyond what a regular septic tank can do
- Necessary to reduce the footprint (size) of the system, advanced nutrient removal (N + P), high water tables, hard clay beds or bedrock



**High Water
Table**



**Small or
Remote Lots**



**Environmentally
Sensitive Areas**



**Bedrock or
Clay Beds**



Waterloo Biofilter System Configurations

Basket Biofilters



Flat Bed Biofilters

Shed Biofilters

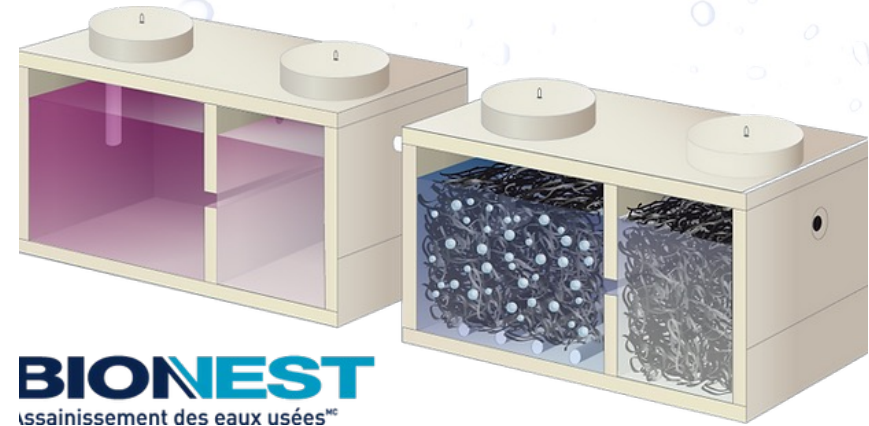


HDPE Biofilters

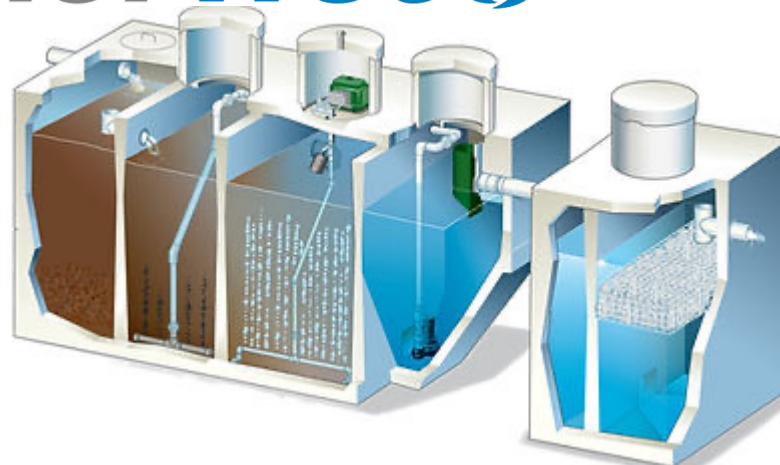


Other Technologies

Ecoflo® Septic System

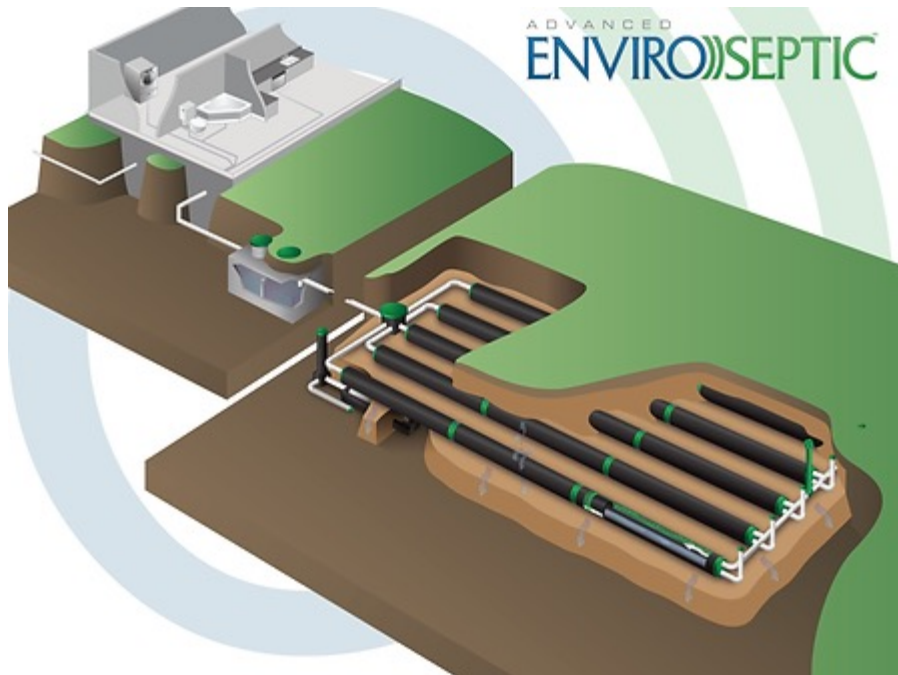


norweco®



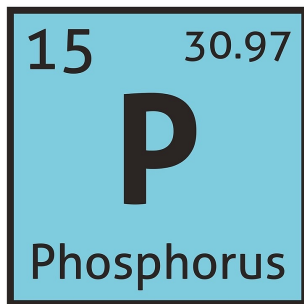
Other Technologies – Combined Treatment

Eljen GSF
Geotextile Sand Filter System



Lake Health – Excess Phosphorus

- This is a SIGNIFICANT issue with septic around freshwater lakes
- The science behind the impact has been known for decades, however, the frequency of “blue-green algae” has forced discussion
- Removing phosphorus is a complicated process





***Electrochemical Phosphorus
Removal Unit***

The Waterloo EC-P™

- Huge amounts of sand are needed to reduce phosphorus levels to acceptable rates, needs very large area bed – difficult and costly to bring in sand
- Easy to retrofit
- Creates insoluble phosphorus minerals that are unable to reenter the environment



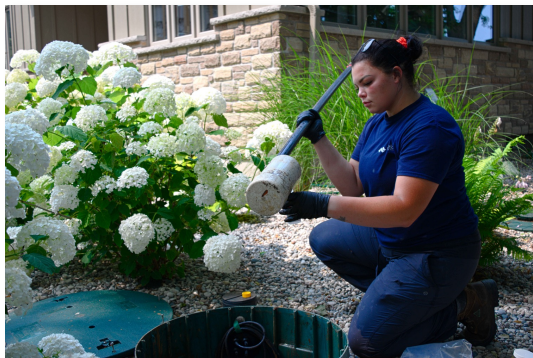
Septic System Maintenance

- All septic systems require regular maintenance and inspection
- Septic tanks are usually pumped out every 3-5 years
- Important for the protection of public health and the environment, and for your investment!
- Operation & Maintenance agreements are a regulatory requirement in Ontario, testing of water samples is required on tertiary treatment systems



Waterloo's Operation & Maintenance

- Experienced certified wastewater technicians
- Waterloo O&M services for over 15 years
- Advanced treatment systems need water sampling, not all maintenance companies do this
- Hard to reach sites in cottage country
- Check safety and condition of tanks, verify operations of pumps, floats, and control panel, cleaning of filters and nozzles, inspect filter media and leaching bed



Septic System Health

- A healthy, functional septic system should not smell!
- Be mindful of what is going into your system
 - Food scraps, oil & greases
 - Disinfectants, chemicals, and prescription medications
 - Feminine hygiene products and “disposable” wipes
 - Hydraulic overload (too much water flowing into the system at once)
 - Paints and solvents
 - Landscaping (heavy object on top of the system, impermeable bed cover, re-grading the bed)
 - Foreign objects (cigarette butts, condoms, bandages, cotton swabs, excess hair)



Thank you for your attention

Contact us:

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