

The Septic Solution

A GUIDE TO CARING FOR YOUR SEPTIC SYSTEM



**IF YOU LIVE IN THE COUNTRY,
YOU HAVE A SEPTIC TANK.
IF THAT'S A SURPRISE, THEN
THIS BOOK IS FOR YOU.**

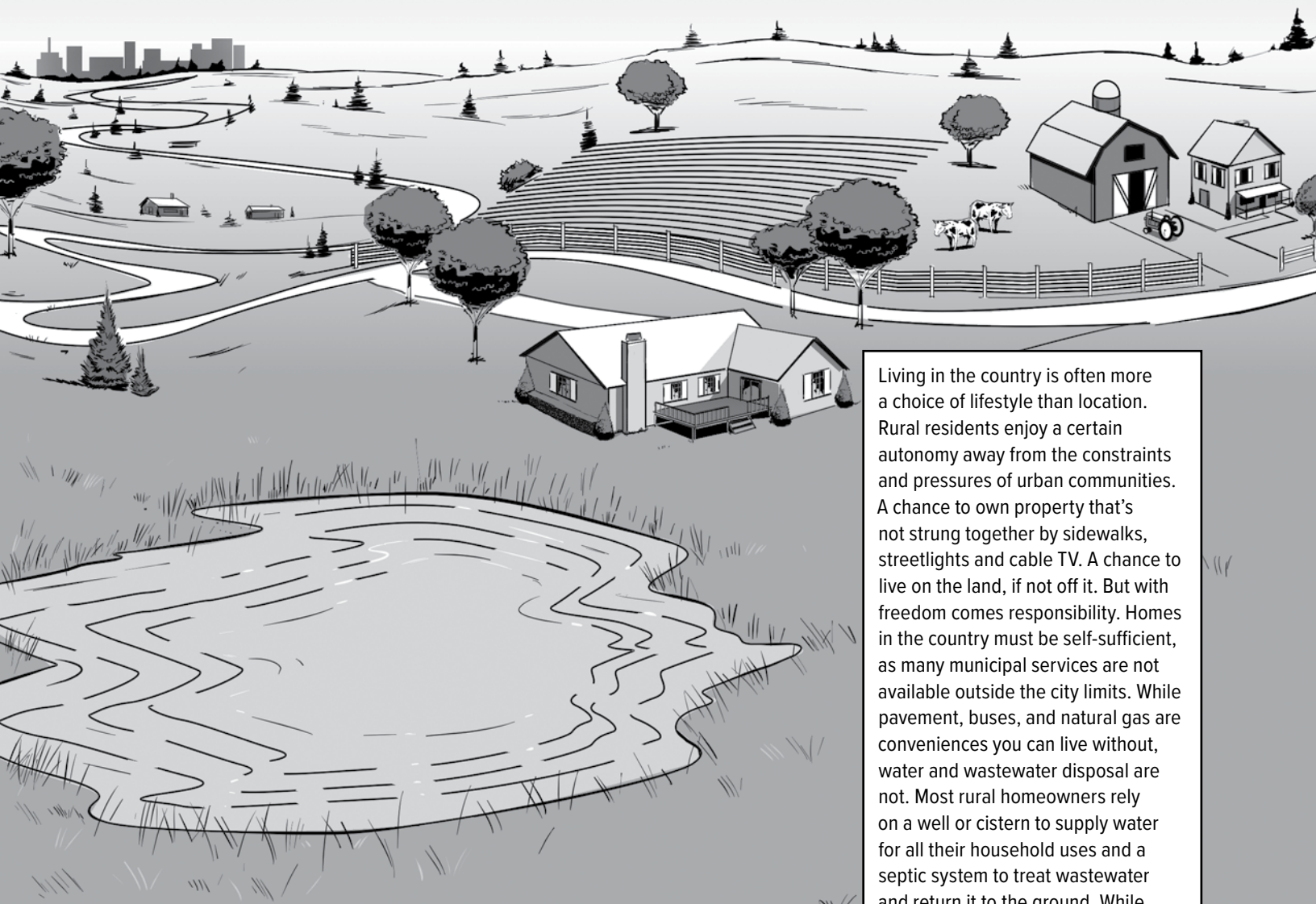
This manual is designed to inform homeowners about the proper use and maintenance of their septic system. It's published by the Concrete Precasters Association of Ontario. Our members have manufactured most of the septic tanks in the province and there's well over a million in service.



*WE KNOW
SEPTIC SYSTEMS AND WE
CARE THAT THEY'RE USED PROPERLY.
IT'S GOOD FOR OUR INDUSTRY, BUT
MORE IMPORTANTLY, IT'S GOOD
FOR OUR CUSTOMERS AND THE
ENVIRONMENT.*

*PLEASE
CHECK OUT OUR LITTLE
BOOK. IT'LL NEVER BE A BEST
SELLER, BUT IT MIGHT BE THE
MOST VALUABLE READ YOU'VE
HAD IN A WHILE.*

The Septic Solution



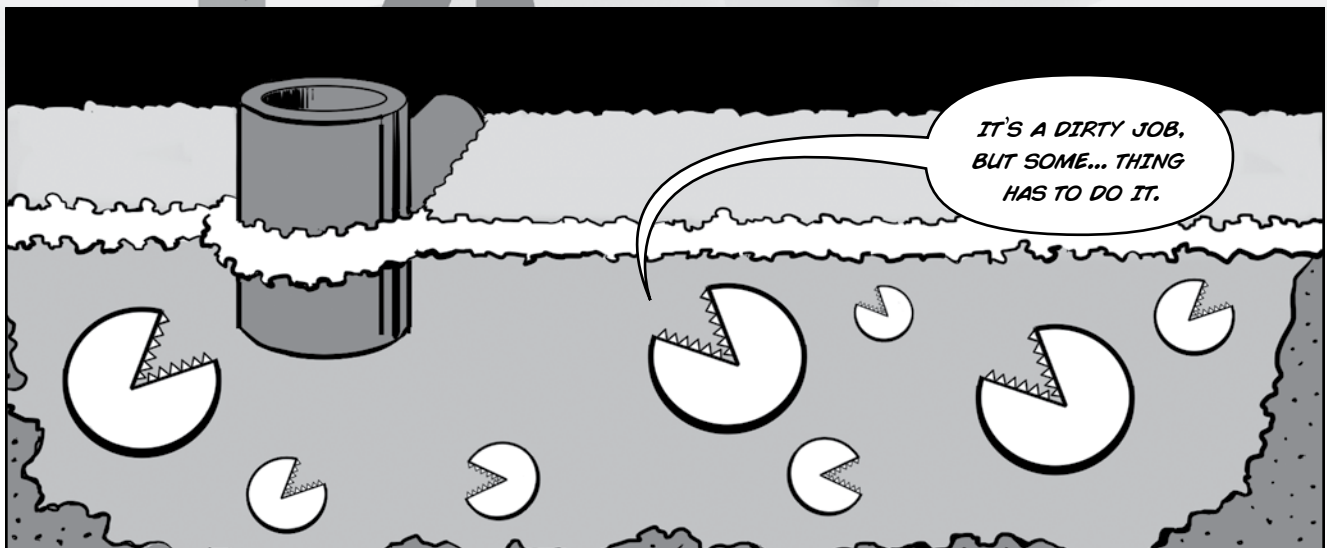
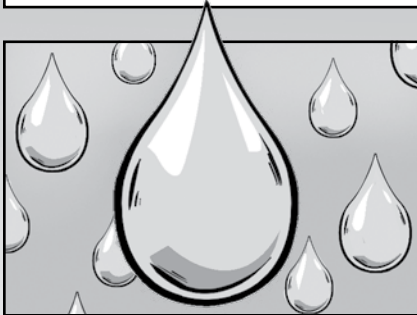
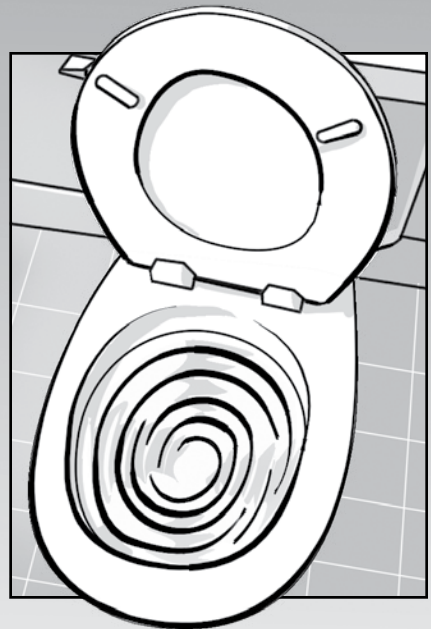
Living in the country is often more a choice of lifestyle than location. Rural residents enjoy a certain autonomy away from the constraints and pressures of urban communities. A chance to own property that's not strung together by sidewalks, streetlights and cable TV. A chance to live on the land, if not off it. But with freedom comes responsibility. Homes in the country must be self-sufficient, as many municipal services are not available outside the city limits. While pavement, buses, and natural gas are conveniences you can live without, water and wastewater disposal are not. Most rural homeowners rely on a well or cistern to supply water for all their household uses and a septic system to treat wastewater and return it to the ground. While these systems are generally simple to use and economical to maintain, understanding their use, function, and limitations is key to ensuring years of trouble-free service. It will also help to protect the earth within your fences and the environment that you share with your neighbours.

WHERE DOES IT ALL GO?

Buried in your yard and built to last, your home's septic system may be easily overlooked. But for something that performs such a vital task, out of sight should not be out of mind.

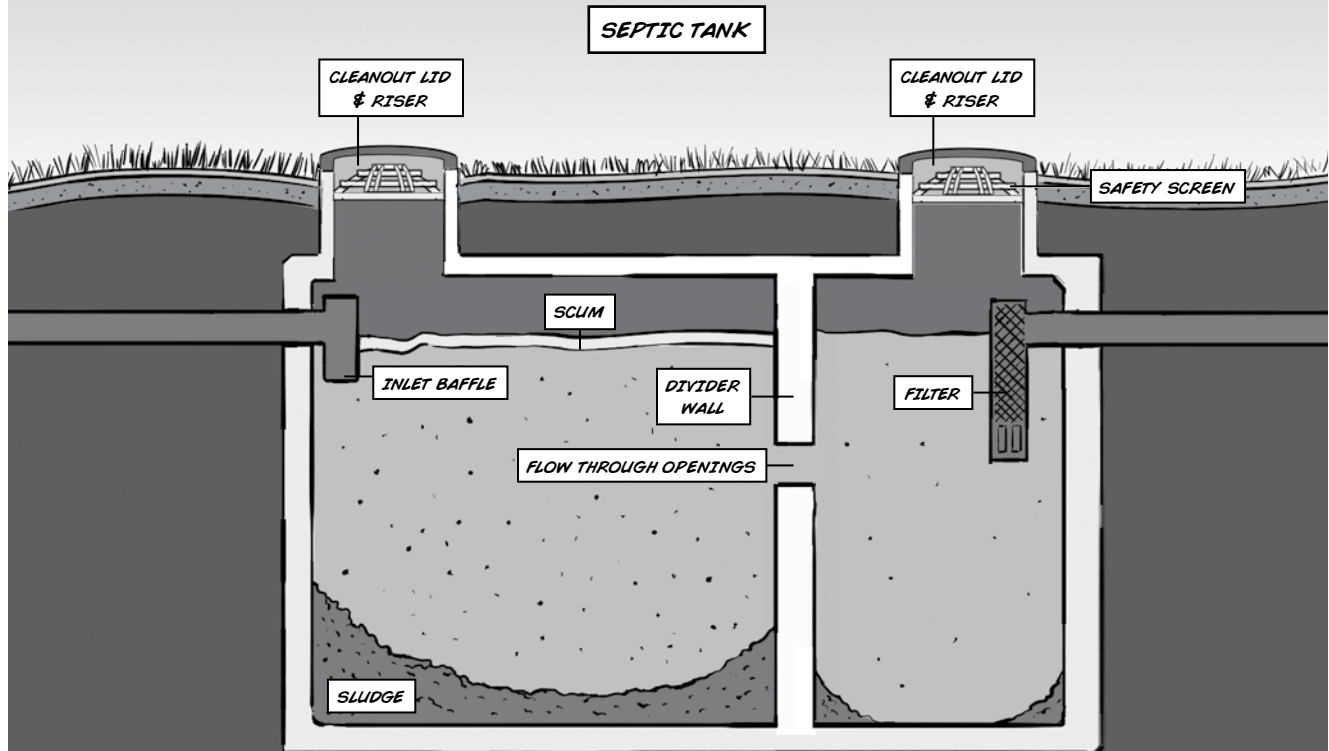


Every drop of water, every flush, everything that goes down the drain, ends up in the septic tank. There, it's greeted by billions of microscopic bacteria, waiting to consume what they can, and separate the rest.



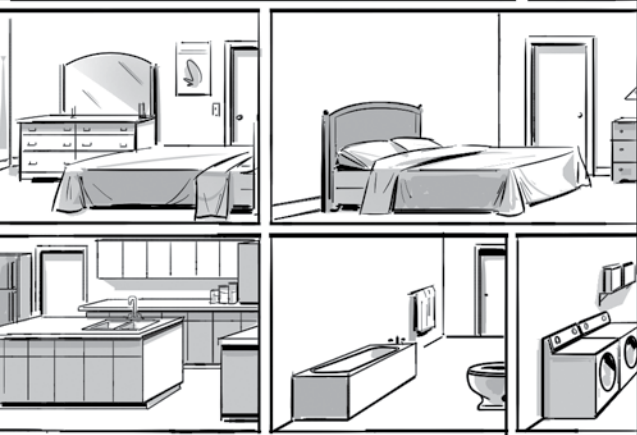
THE SEPTIC TANK

Most rural homeowners know the septic tank is hooked to the other end of their toilet and think it's the end of the line for household waste. But it's really just the beginning of a fairly sophisticated system designed to separate, treat, and reintroduce the water back into the ground.



All liquid waste from the home enters the tank through an inlet baffle, to calm the flow. Bacteria slowly work to break down most of the solid waste. The rest must be removed through regular maintenance.

Heavy sludge settles to the bottom, while lighter particles float to the top forming a scum layer. Liquid in the middle flows into a second chamber for further separation, then passes through an effluent filter, which removes suspended particles, before moving out of the septic tank and into the secondary treatment area.



SECONDARY TREATMENT

Secondary treatment is provided in an increasing number of ways. The traditional and still most common method is the leaching bed. Effluent is distributed into the ground through a network of perforated drainage pipes.

LEACHING BED

The soil beneath the bed filters out particulate, and develops bacteria, which helps to clean the effluent before it reaches the water table.

CONVENTIONAL SEPTIC BED

TOP SOIL

CRUSHED STONE

PVC PIPE

CONTACT AREA

EFFLUENT

WATER TABLE

RAISED SAND FILTER BED

TOP SOIL

PVC PIPE

FILTER SAND

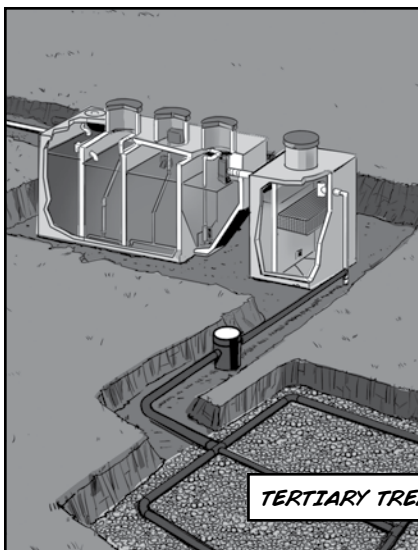
EXISTING SOIL

WATER TABLE

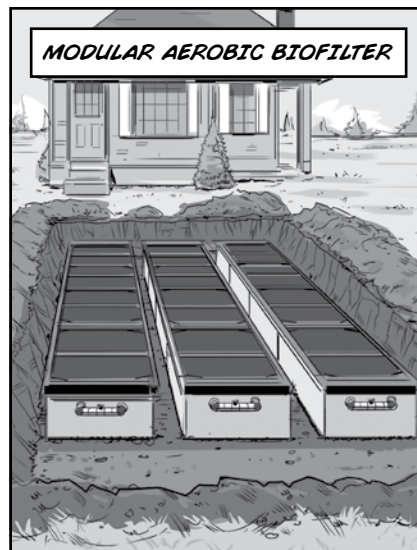
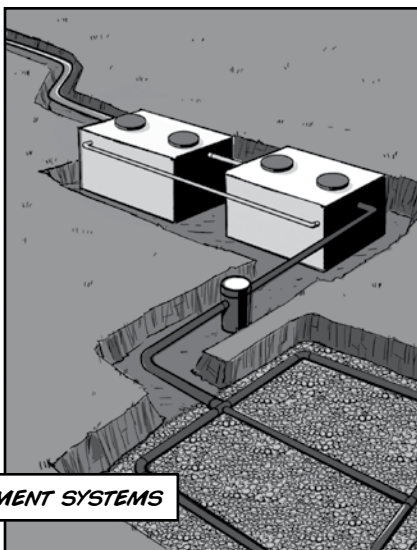
GRAVELLESS TRENCH CHAMBERS

Variations of this design such as the Raised Sand Filter, the Shallow Buried Trench and Gravelless Trench Chambers, incorporate the same basic principles.

ADVANCED PASSIVE TREATMENT



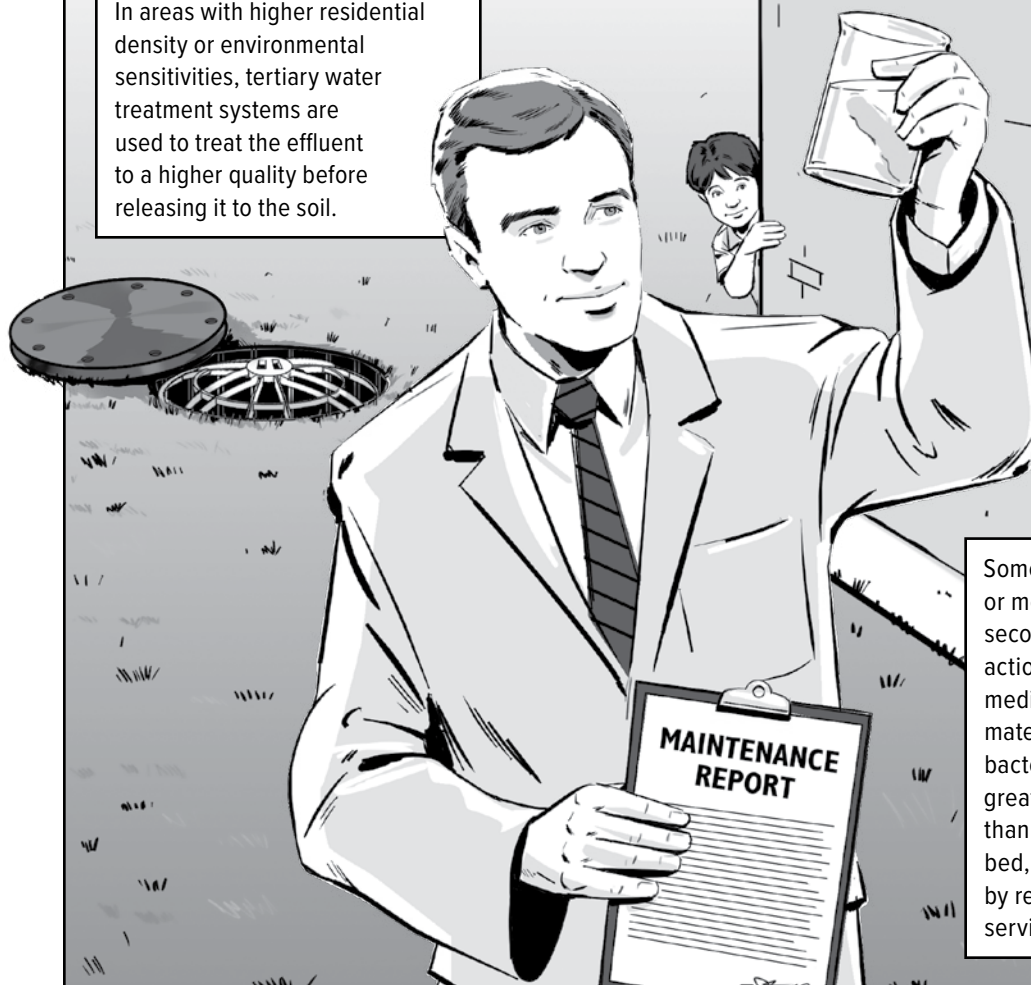
TERTIARY TREATMENT SYSTEMS



MODULAR AEROBIC BIOFILTER

HIGH TECH IN LOW PLACES

In areas with higher residential density or environmental sensitivities, tertiary water treatment systems are used to treat the effluent to a higher quality before releasing it to the soil.



Some use pumps, bubblers or mechanical agitators, in a second tank to excite bacterial action. Others employ a solid media of plastic, foam or organic material, designed to promote bacterial growth. All require a greater degree of maintenance than a conventional leaching bed, and owners are compelled by regulation to purchase a service contract.

PROTECTING YOUR SEPTIC TANK

Your septic tank is built to standards set out by CSA and designed to remain underground and watertight for decades, despite the harsh Canadian climate. It is not, however, designed to support cars or heavy equipment (lawnmowers are fine).



***DRIVING ON YOUR TANK
CAN CAUSE IMMEDIATE DAMAGE TO
THE TANK, OR UNSEEN CRACKING THAT
WILL LEAD TO EVENTUAL COLLAPSE.
KNOW WHERE YOUR TANK IS AND
KEEP VEHICLES OFF.***



SAFE AND SECURE

Your tank's cleanout lids are important for maintenance, but also present a potential hazard. Septic tanks are deep and filled with dangerous liquids and gases. Servicing should be done by a trained professional. Most lids are secured by multiple screws, and secondary "Safety Screens" are a regulatory requirement. You should check your lids periodically to ensure the screws are tight, and that there is no damage from lawnmowers or vehicles. While accidents involving septic tanks are rare, the result can be catastrophic.

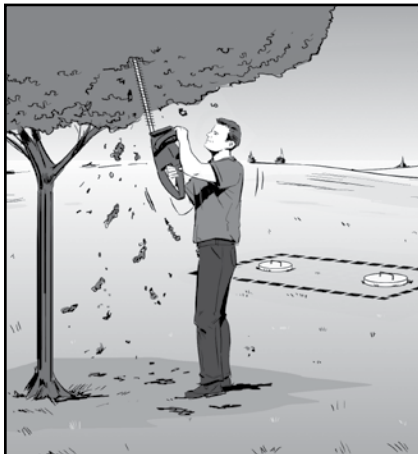


KEEP OFF THE BED!

Your leaching bed needs protection too. Vehicles can crush the pipes and compact the soil so that it will no longer absorb effluent. Snowmobiles can compress the snow cover over the leaching bed, reducing its natural insulating effect and increasing the risk of freezing. Trees and shrubs planted near the bed can plug the pipes with their roots. Poplar and willow trees are particularly problematic as their roots can travel significant distances to seek out water.



Surface water should also be kept away from the bed whenever possible. The system relies on the grass and light, dry surface soil to draw off moisture from the bed. Landscaping should be done to prevent runoff from pooling on the bed. Downspouts and building sumps must be directed away. Even lawn watering in this area should be minimized. Above ground pools and garden sheds should be erected elsewhere.



MAINTAINING YOUR SEPTIC TANK

Your septic tank is designed to collect the solid waste, so that bacteria can slowly transform it into a liquid or gas. The liquid passes through the tank into the leaching bed, while the gases are released out the plumbing vent stack. While most of the solids are completely broken down, some are indigestible and remain in the tank as sludge. An effluent filter, located on the outlet of the tank, keeps the sludge from exiting and plugging the leaching bed. This filter should be cleaned annually to prevent backup into the home. Not for the “do-it-yourselfer”, this task is best left to a licensed pumping contractor or service provider.

The tank itself needs to be serviced every 2 – 3 years, by the same contractor, who will empty the septic tank with a vacuum truck, and inspect it for deterioration or damage. This process takes less than an hour, and ensures many years of worry-free service. If you neglect this basic maintenance, sludge can plug the tank and the leaching bed, requiring a complete system replacement. The costs can run 100 times that of a preventative pump out.

SERVICING YOUR TANK IS EASY.

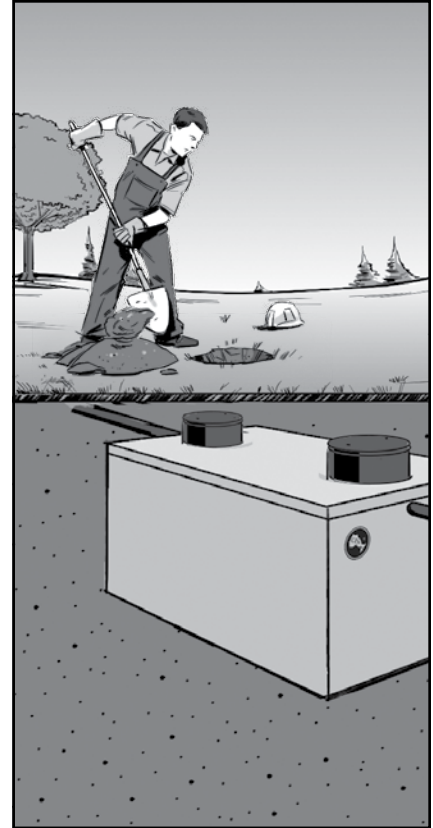


***ALL IT TAKES IS
A TELEPHONE AND
YOUR WALLET.***



CARE WHEN PUMPING

Septic tank pumping is best scheduled for the late Spring to early Fall months, when the ground is drier. Tanks pumped in the winter can freeze before the anaerobic action in the tank begins to generate heat. Particular care should be taken when pumping septic tanks made of plastic or composite materials. Their lightweight construction use the contents of the tank for ballast and removing it can allow them to become misshapen in soft soils, or forced out of the earth by high ground water levels. These types of tanks should be serviced only when the soil is at its driest.



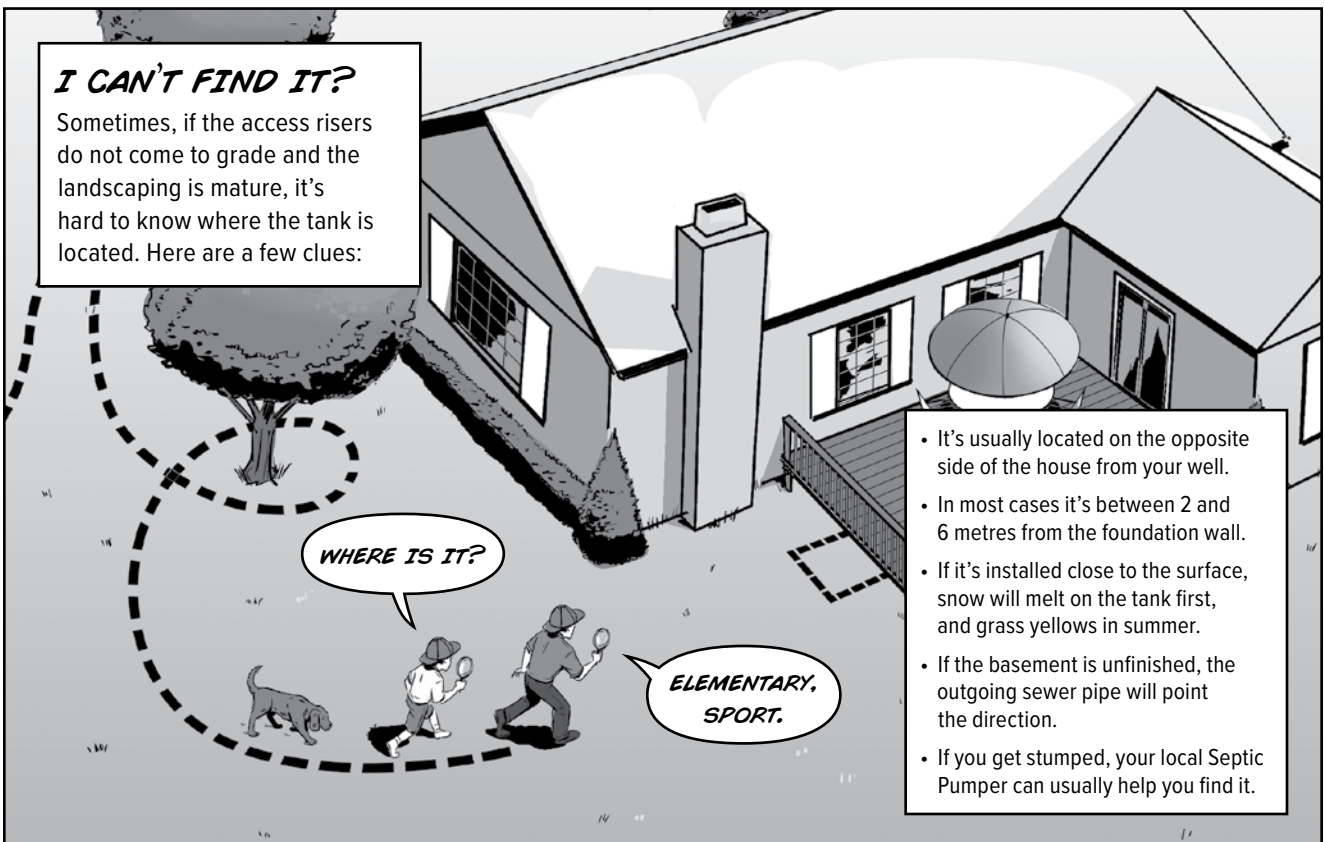
NO ONE LIKES TO DIG!

Since your tank needs to be regularly serviced, tank openings should be extended up to grade and easily accessible. Patios, decks and porches over the access holes make it hard for

the Septic Pumper to properly clean your tank. Difficulty for them usually means increased cost for you. And yes, both compartments of the tank need to be cleaned.

I CAN'T FIND IT?

Sometimes, if the access risers do not come to grade and the landscaping is mature, it's hard to know where the tank is located. Here are a few clues:



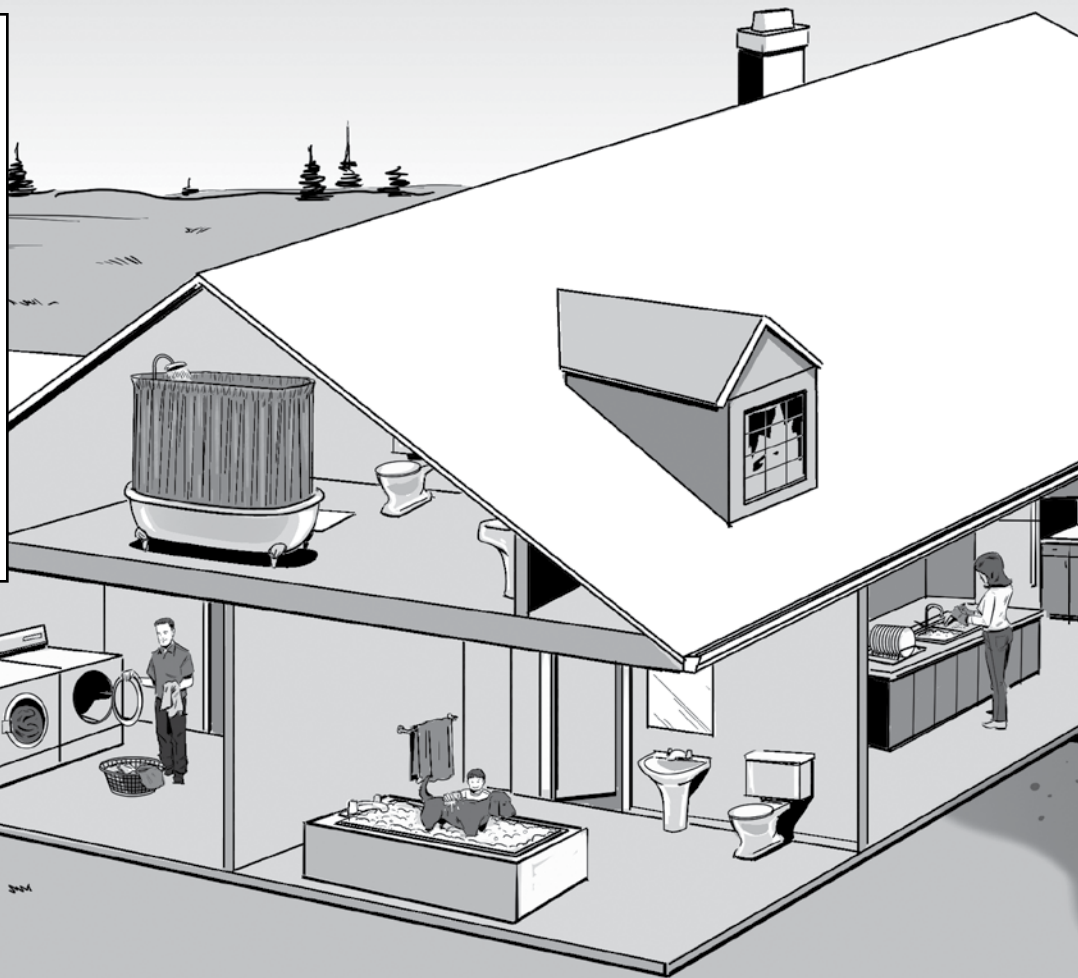
WHERE IS IT?

ELEMENTARY, SPORT.

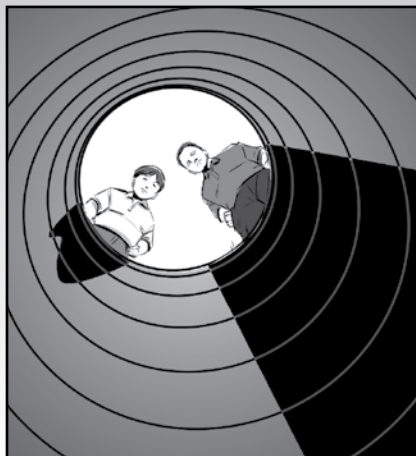
- It's usually located on the opposite side of the house from your well.
- In most cases it's between 2 and 6 metres from the foundation wall.
- If it's installed close to the surface, snow will melt on the tank first, and grass yellows in summer.
- If the basement is unfinished, the outgoing sewer pipe will point the direction.
- If you get stumped, your local Septic Pumper can usually help you find it.

WATER, WATER, EVERYWHERE

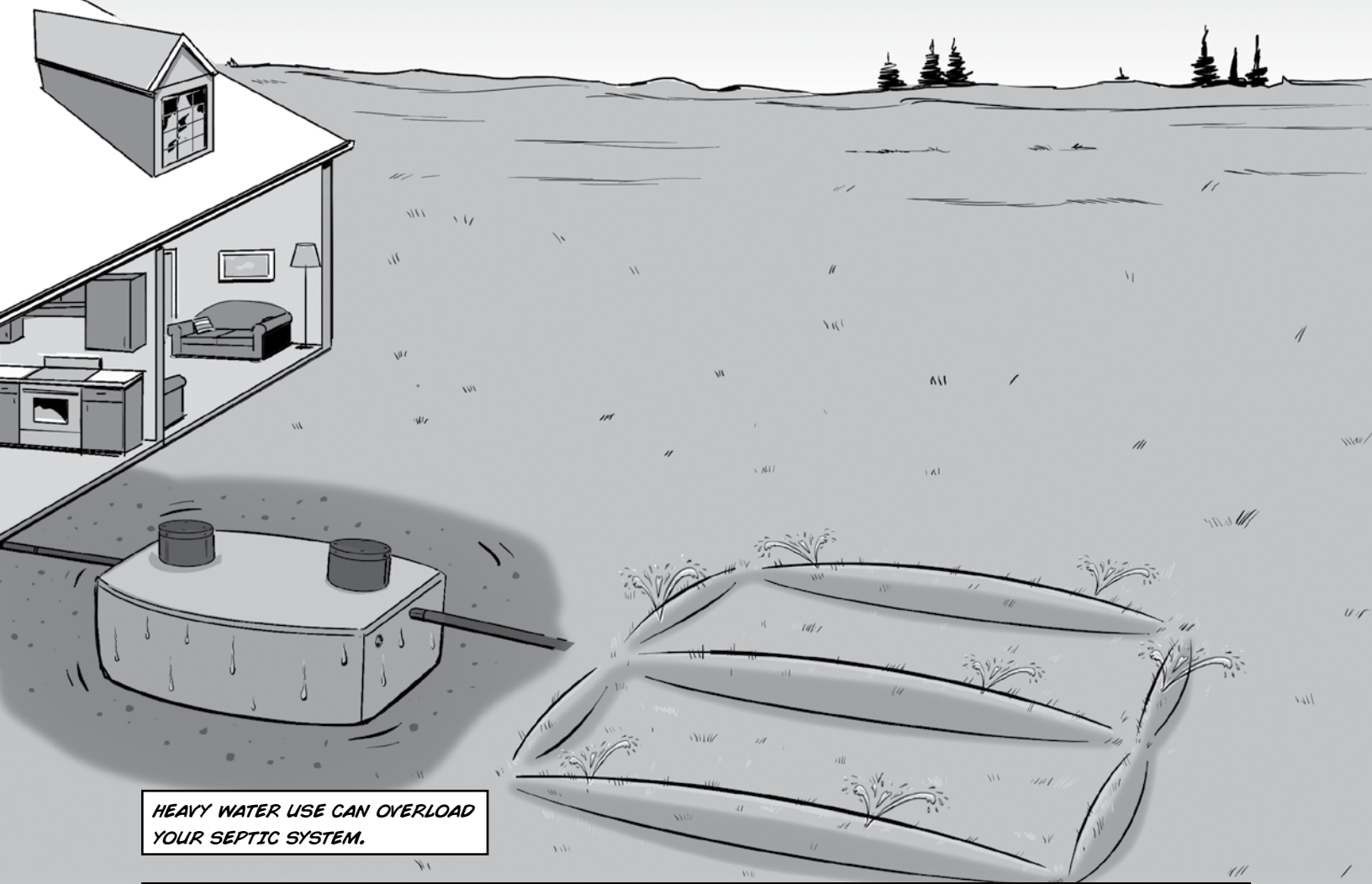
Every drop of water that passes through your house is processed by the septic system. Every flush, every shower, every load of laundry, every rinsed dish, every Jacuzzi bath. While septic tanks like things slow and steady, our daily schedules rarely afford such a leisurely pace. It is important, however, to realize that high flows and peak loads reduce the treatment quality and any steps you can take to accommodate your system's laid-back routine, will benefit your system and the environment.



In most cases, if you have a septic tank, you get your water from an on-site well. Here in Canada, we have a plentiful supply of cool, clean drinking water located in aquifers beneath the ground. Your well is your tap into this precious resource and should be treated with the same care you afford the rest of the fresh water supply in your home. Just as you wouldn't drink from a dirty glass, it's important to ensure that your well is kept clean and sealed



from external contaminants. "Drilled" wells, the kind with a black steel pipe, need to be above grade and checked to see that the top cap is tight and the vent is clear. "Bored" or "dug" wells, the kind with concrete tiles and cap, require a little more attention. The concrete lid should be removed periodically and checked for deterioration or damage. Confirm that the top four joints are sealed with grout and that there are no signs of infiltration of surface water or earth.



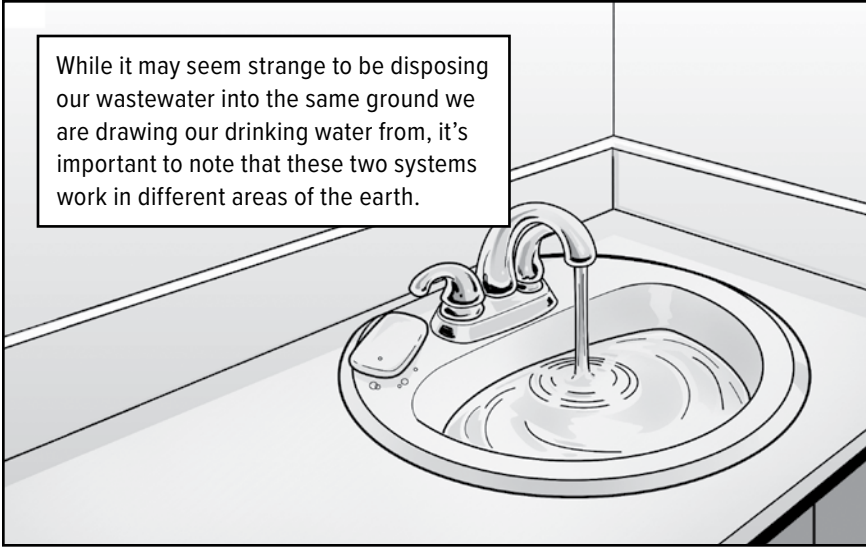
**HEAVY WATER USE CAN OVERLOAD
YOUR SEPTIC SYSTEM.**



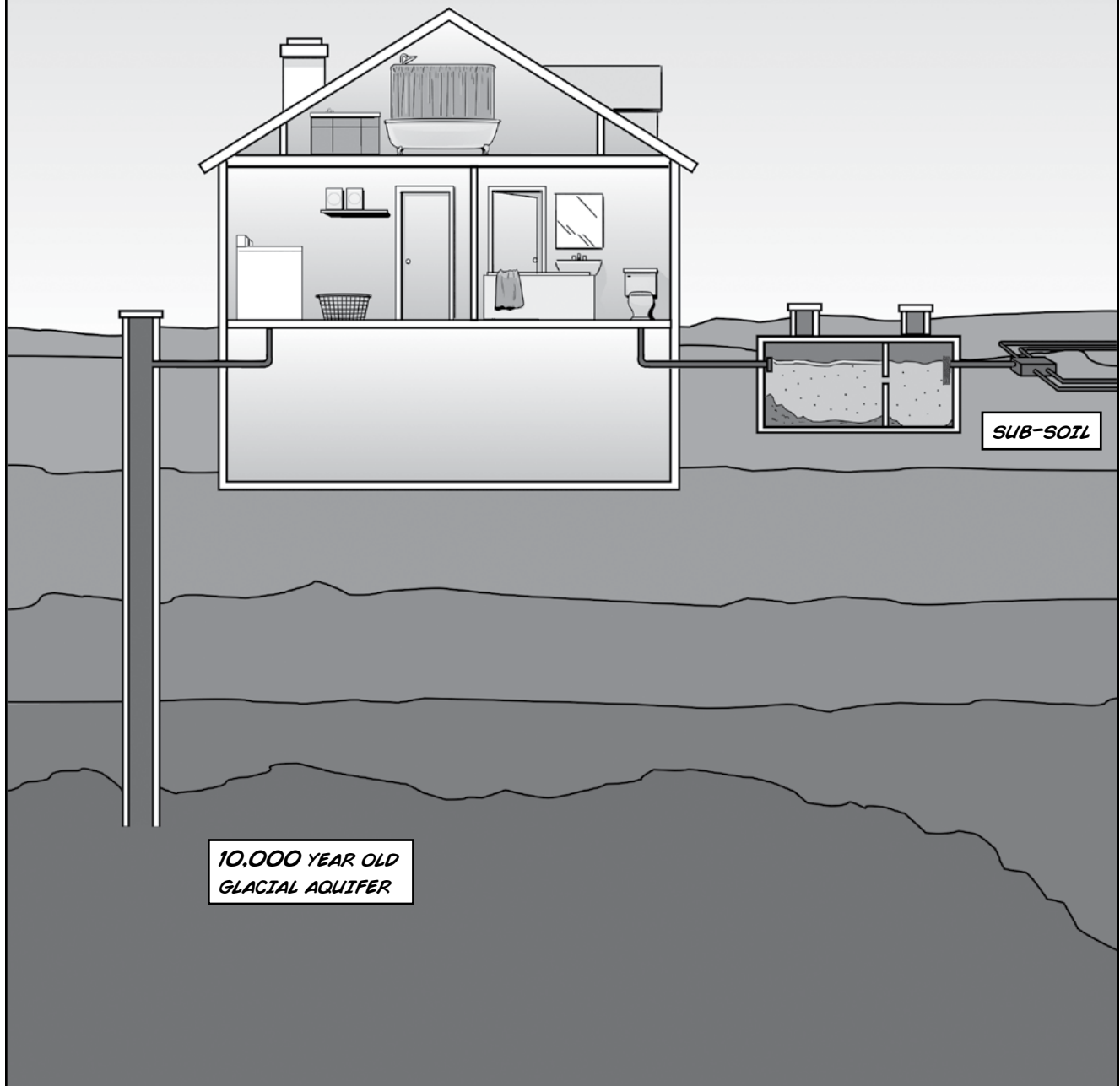
WELL LIDS COVER A HOLE UP TO 30 M DEEP.

**KEEP OFF
THE LID.**

While it may seem strange to be disposing our wastewater into the same ground we are drawing our drinking water from, it's important to note that these two systems work in different areas of the earth.



Your well draws water from deep in the ground, while the leaching bed discharges just below the surface, where the soil can filter the wastewater before it reaches the water table. That said, the two are related, and the importance of keeping both working properly cannot be overstated.

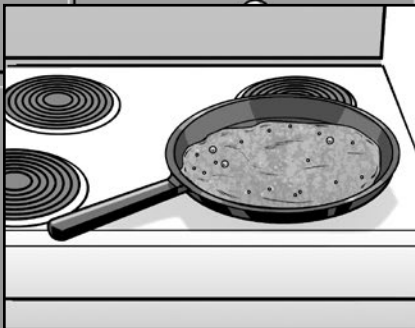


IT'S ONLY NATURAL

Because your septic system relies on living organisms to function, only feed it that which you would expect to break down naturally. The bacteria in your tank thrive on wastewater, but chemicals and solvents can cause major indigestion.



Even small amounts of paints, thinners, nail polish removers, petroleum and other common household compounds can poison the organisms that break down organic waste. Some can pass through the system, seeping into the ground and contaminating ground water.



Animal fat, grease and oils also cause problems for your system. When poured down the drain, they can congeal in pipes, eventually plugging them. When fats reach the tank, they form a solid mass on the liquid's surface, and interfere with the biological activity.



Grease can seal up your tank's effluent filter, slowing the flow or backing-up the tank. Detergents designed to break down grease, allow it to be carried into the drainage field, where it can clog the soils. All oily waste should go out with the trash.

In-sink garbage disposals also put additional loading on your system, and are not recommended. While food stuffs may be organic, they belong in the garbage.

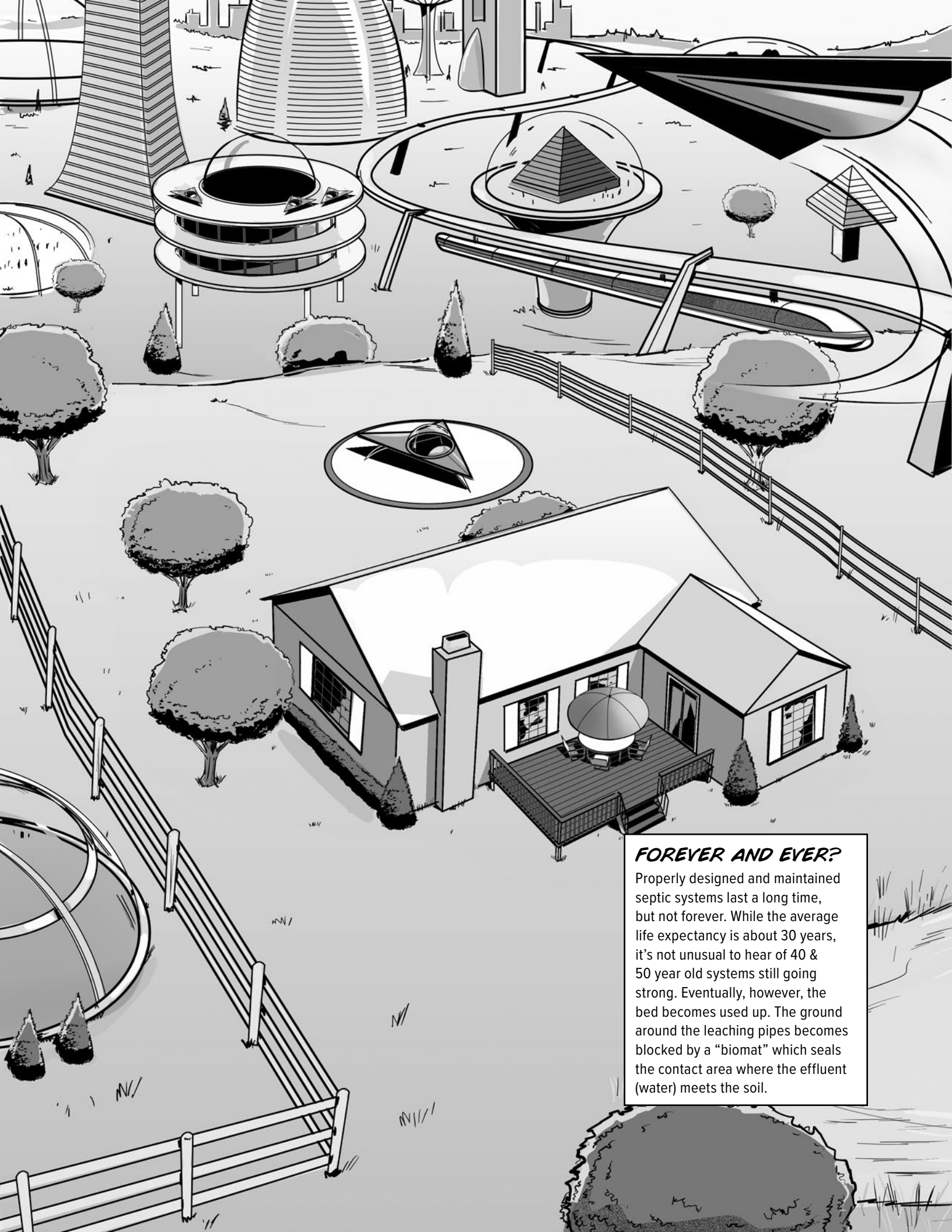
DISPOSABLE
HYGIENE PRODUCTS, DIAPERS, AND
WIPES SHOULD NEVER BE FLUSHED DOWN AS THEY
CAN IMPAIR OR PLUG YOUR SEPTIC SYSTEM. EVEN SOME
COLOURED AND PATTERNED TOILET PAPERS, MADE WITH
SYNTHETIC FIBRES, ARE DETRIMENTAL TO THE HEALTH
OF THE SYSTEM. PLAIN WHITE IS BEST.

REMEMBER:
IF IT WON'T BREAK DOWN,
IT SHOULDN'T GO DOWN.

Even though discharge from water treatment systems, furnace condensers and water softeners, is just water, they put additional strain on your septic system. These should be directed to a separate leaching pit.







FOREVER AND EVER?

Properly designed and maintained septic systems last a long time, but not forever. While the average life expectancy is about 30 years, it's not unusual to hear of 40 & 50 year old systems still going strong. Eventually, however, the bed becomes used up. The ground around the leaching pipes becomes blocked by a "biomat" which seals the contact area where the effluent (water) meets the soil.

HOW WILL I KNOW?

When the bed becomes full it will back up into the tank, which in turn backs up the pipe from the house. Toilets flush slowly, basement sinks won't drain, grass over the bed area can become spongy or exude a grey liquid, and you may smell that smell (*Oh, you'll know*).



Often, this will happen after a heavy rain, spring thaw, or a big party. Unfortunately, there is no quick fix once the symptoms reach this stage. The system needs to be replaced and this job requires a professional.



THE BIG DIG

If your septic system requires repair or replacement, a permit must be obtained from your local Building Department before any work commences. Only a licensed septic installer can be hired to do the work on your septic system.

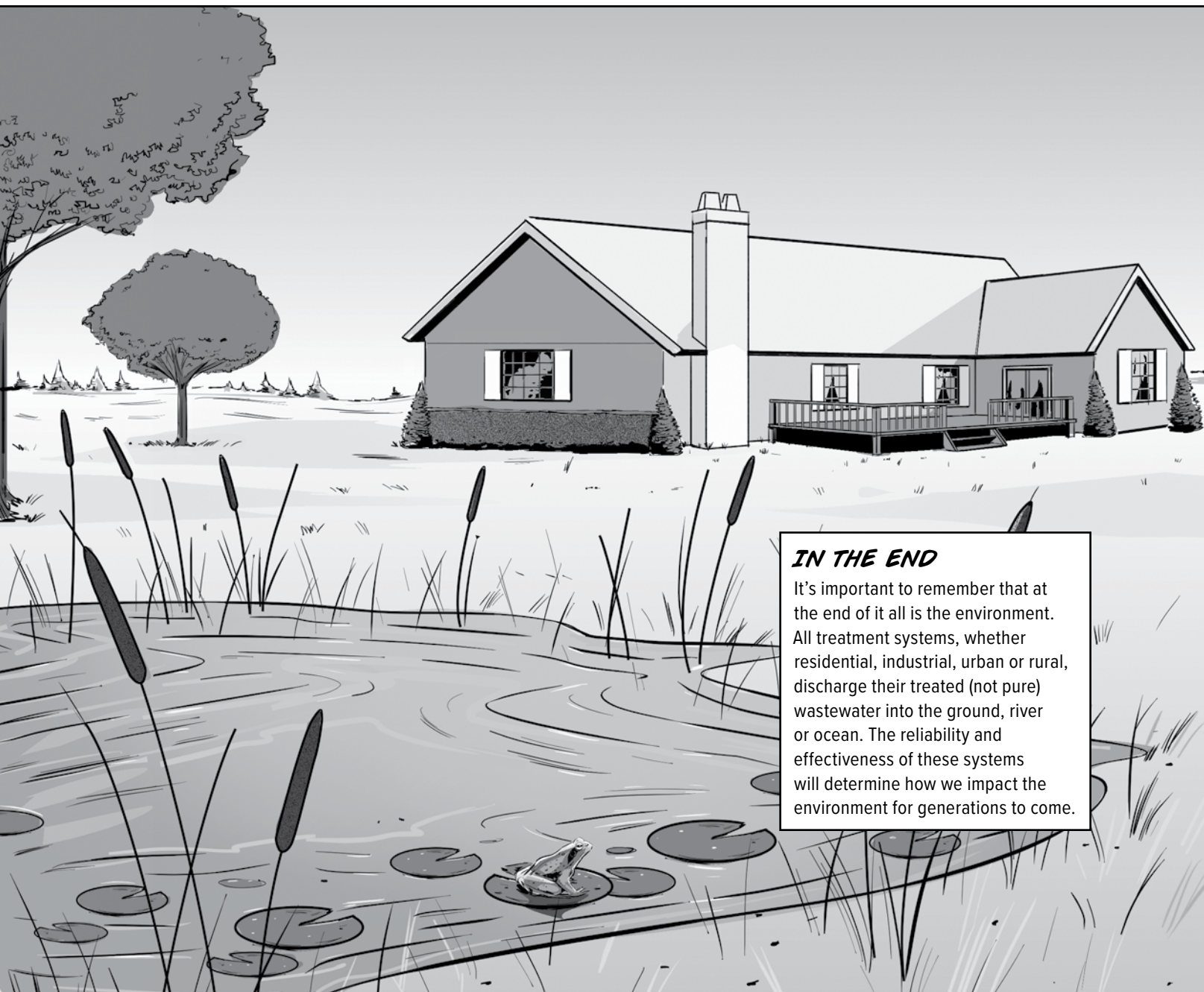
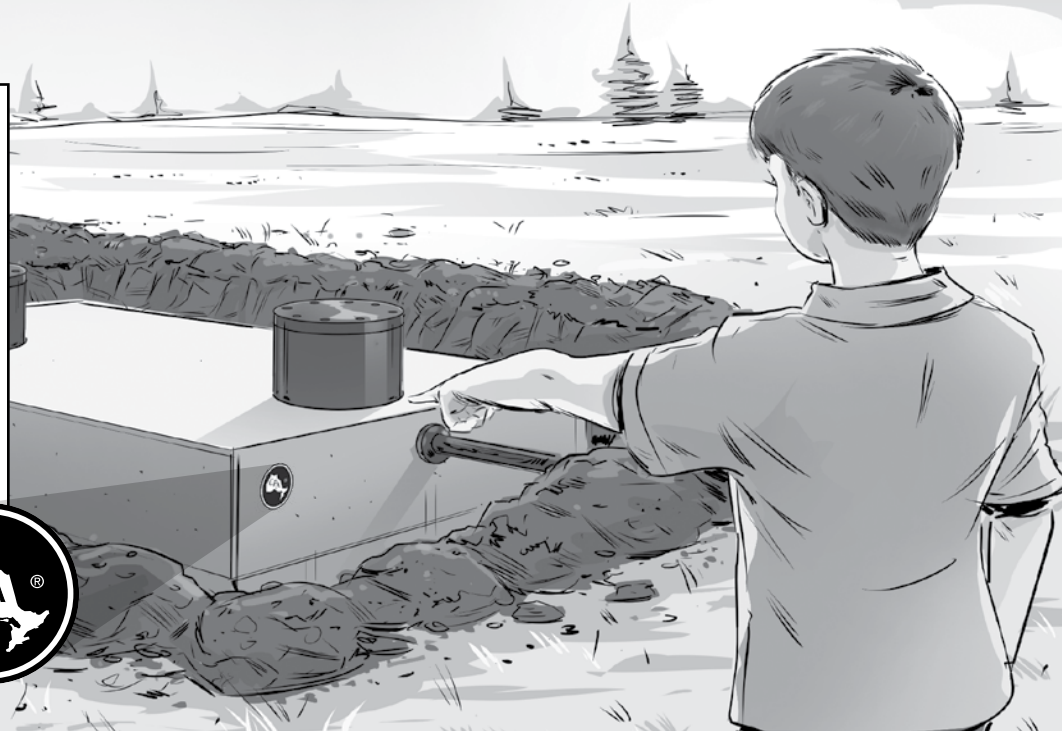


The Building Department may also require a design of the new system to be submitted by an engineer or a licensed septic designer. In most cases the installer can provide a quote including permits, designs and all materials. While the replacement of a septic system represents a significant cost, it is an investment in your home that lasts for decades and enhances its resale value.

RED TAG PROGRAM

Members of the Concrete Precasters Association of Ontario comply with legislation and specifications laid out in the Ontario Building Code and CSA B-66 through the CPA's Product Registration Program. The program requirements for testing and record keeping exceed those in the specifications and ensure that members' products meet the highest level of scrutiny.

Look for the Red Tag on your septic tank as a sign of quality assurance and compliance.



IN THE END

It's important to remember that at the end of it all is the environment. All treatment systems, whether residential, industrial, urban or rural, discharge their treated (not pure) wastewater into the ground, river or ocean. The reliability and effectiveness of these systems will determine how we impact the environment for generations to come.

SEPTIC TANK PUMPOUT RECORD

[illegible]

Now that you know where the system is, make a diagram for the next guy ... It could be you!

[illegible]



*HAVE MORE QUESTIONS?
CALL YOUR LOCAL CPA MEMBER:*

Concrete Precasters Association of Ontario

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