

INFOSHEET #7

TREATMENT OF HOUSEHOLD WASTEWATER

How to address concerns identified in your Environmental Farm Plan Worksheet #7



Based on Environmental Farm Plan Workbook, 4th ed. 2013

This infosheet outlines options to address concerns identified in your Environmental Farm Plan (EFP) as they relate to use and treatment of household wastewater.

All options are classed as **Actions**, **Compensating Factors**, or **Monitoring**.

- **Actions** address the identified concern, and will change the EFP rating to (3) or Best (4).
- **Compensating Factors** are alternatives that will adequately address the concern, but will not change the rating in the EFP worksheet.

- **Monitoring** is an alternative only in special circumstances. When and how monitoring can be used is explained in the infosheet.

In most cases, you'll need more information before choosing and implementing options. Sources for more information are noted at the end of this infosheet.

For help with technical terms, please see the full glossary in your EFP Workbook.

QUANTITY AND QUALITY OF WASTEWATER

7-1. Efficient water use

| BACKGROUND | WHAT CAN YOU DO? |
|--|--|
| <p>Using less water in the household reduces wastewater and lessens the load on your treatment system. As a result, the system should have a longer life, require less frequent pumping of the septic tank, and have less potential for contamination of surface and ground water.</p> <p>Using water more efficiently also lowers demand for well water and energy costs.</p> | <p>OPTION 1 – ACTION</p> <p>Reduce water usage to less than 270 L (60 gal) per person per day:</p> <ul style="list-style-type: none"> • keep water usage in the home to a minimum – buy water-efficient washing machines and dishwashers, keep a jug of water in the refrigerator rather than run the faucet to get cold drinking water, use a dual-flush toilet • repair leaking taps, leaking toilets, etc. • eliminate all unnecessary water loss. |



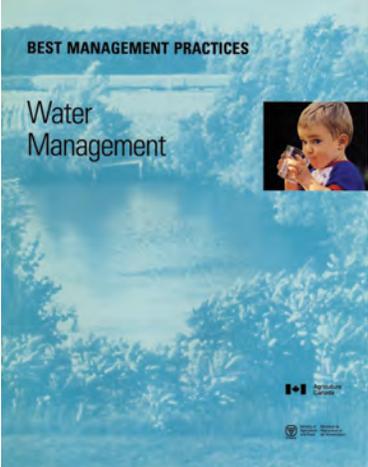
Storing a jug of water in the refrigerator reduces the need to run a faucet to get cold drinking water – thereby reducing wastewater volume and extending the life of the treatment system.

7-2. Fixtures and maintenance

| BACKGROUND | WHAT CAN YOU DO? |
|--|--|
| <p>Water-conserving measures reduce the amount of wastewater, which will lower the potential for surface and ground water contamination.</p> | <p>OPTION 1 – ACTION</p> <p>Install water-conserving fixtures and ensure efficient use:</p> <ul style="list-style-type: none"> • install a toilet dam – it can reduce your total water consumption by up to 20 L (4.4 gal) per person per day • install a water-efficient toilet – it can reduce total daily water use by up to 40 L (8.8 gal) per person per day • consider a dual-flush toilet • install water-efficient shower heads and faucet aerators • operate your dishwasher and washing machine with full loads only • use an on-demand (tankless) water heater • inspect system regularly and fix leaks as soon as possible. |



Water conservation will reduce demands on your well and energy costs for pumping.



This BMP publication includes water-conserving tips for around the home.

7-3. Solid waste

| BACKGROUND | WHAT CAN YOU DO? |  |
|---|---|--|
| <p>The addition of solid wastes, particularly through the use of garbage disposal units, results in a large load of solid materials being added to the sewage system.</p> <p>Larger solid loads could mean more frequent pump-outs of the septic tank, and possibly increased organic loading of the leaching bed. This could cause failure of the leaching bed, with a greater risk of surface and ground water contamination.</p> | <p>OPTION 1 – ACTION</p> <p>Do not use a kitchen garbage disposal unit that is connected to your sewage system:</p> <ul style="list-style-type: none"> • use a composting system to handle the materials that would otherwise be processed in the garbage disposal unit. | <p>Use a household composting system to handle the materials that would be processed in the garbage disposal unit.</p> |
| <p>For more information about solid and dissolved waste, see <i>BMP Water Management</i>, pages 24–29.</p> | | |

7-4. Dissolved waste

| BACKGROUND | WHAT CAN YOU DO? |
|--|--|
| <p>Overusing household detergents and cleaners and disposing of household solvents in the sewage system can lead to surface and ground water contamination. Household sewage systems do not remove these materials. The bacterial action in the sewage system may be inhibited by the addition of these materials.</p> | <p>OPTION 1 – ACTION</p> <p>Limit the use of household detergents and cleaners to less than 1–2 L (4.5–9 cups) per week.</p> <p>Do not dispose of household solvents in the sewage system.</p> <p>Use environmentally friendly household detergents and cleaners, i.e. biodegradable, non-toxic, and free of phosphates, chlorine, and petrochemicals such as petroleum distillates.</p> |



Never dispose of solvents in the sewage system.



For help with managing your septic system, see these OMAFRA publications:

- *SepticSmart! Understanding Your Home's Septic System*, Order no. AF139
- *Rural Septic System Checklist*, Order no. AF144

7-5. Water softener discharge

| BACKGROUND | WHAT CAN YOU DO? |
|--|---|
| Water softeners discharge relatively large volumes of backwash with high salt concentrations. This may have a negative impact on the operation of the sewage system, and could result in surface and ground water contamination. | OPTION 1 – ACTION |
| | Do not use a water softener. |
| | OPTION 2 – ACTION |
| | Direct water softener discharge to a sewage system that is properly designed, maintained and operated to accommodate this discharge water. |



Dissolved salt may impact the function of a private sewage system.

7-6. Grease and oils

| BACKGROUND | WHAT CAN YOU DO? |
|---|--|
| Grease and oils do not break down easily. They inhibit the bacteria in the septic tank from working on the other waste materials. As a result, the sewage system may have a reduced useful life. The septic tank may have to be pumped more often and the potential for surface and ground water contamination increases. | OPTION 1 – ACTION |
| | Eliminate or minimize the amount of grease and oils going into the sewage system: |
| | <ul style="list-style-type: none"> • wipe down the kitchen utensils before washing • do not dispose of cooking grease and oils in the sewage system. |



Reduce the amount of grease and oils going into the sewage system.

SEWAGE SYSTEM

7-7. Design and construction

| BACKGROUND | WHAT CAN YOU DO? |
|---|---|
| <p>Legislation controls the design and installation of the sewage system. The sewage system must be sized and installed according to regulatory requirements.</p> <p>A properly designed and installed system will also result in less maintenance, a reduced pumping interval for the septic tank, and a lower risk of surface and ground water contamination.</p> <p>It is illegal to have a sewage system connected to a farm drainage system or manure storage.</p> | OPTION 1 – ACTION |
| | <p>Ensure that the sewage system has a Building Permit or Certificate of Approval and that it was adequately sized and installed by a licensed installer:</p> <ul style="list-style-type: none"> • keep all documents for future reference. |



Ensure that the sewage system has a Building Permit or Certificate of Approval and that it was adequately sized and installed by a licensed installer.

To view SepticSmart! videos online, see: www.omafr.gov.on.ca/english/environment/facts/sep_smart.htm

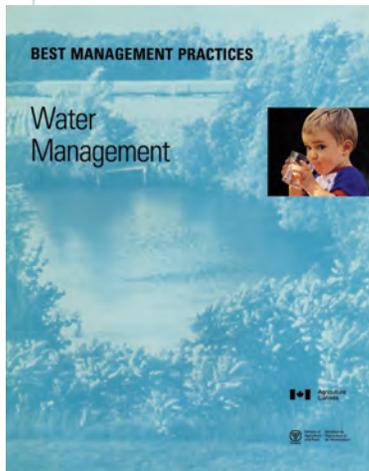
7–8. Knowledge of sewage system

| BACKGROUND | WHAT CAN YOU DO? |
|---|--|
| <p>A good knowledge of your overall sewage system will help you better diagnose functional problems, maintain and manage the system effectively, make improvements to the system, and protect the system from damage caused by vehicles, tree and shrub roots, livestock, and surface drainage.</p> | <p>OPTION 1 – ACTION</p> <p>Evaluate your existing sewage system:</p> <ul style="list-style-type: none"> • know the exact location of the septic tank and leaching bed • know the size and configuration of the system and how it operates • keep all documents concerning your sewage system for future reference. |

LOCATION OF SEWAGE SYSTEM

7–9. Distance from sewage system to nearest surface water

| BACKGROUND | WHAT CAN YOU DO? |
|--|--|
| <p>Sewage systems must be properly located in relation to surface water to reduce the risk of surface water contamination. Any outbreak of wastewater to the ground surface has the potential to reach surface water. Legislation stipulates the minimum separation distances between the sewage systems and the surface water.</p> <p>The location should take into account the soil type and topography to lessen the potential for surface water contamination.</p> | <p>OPTION 1 – ACTION</p> <p>Relocate your sewage system the required distance from any surface water:</p> <ul style="list-style-type: none"> • obtain a Building Permit or Certificate of Approval for the new system and keep for future reference • confirm that the new sewage system location changes the final EFP distance rating to a (3) or (4) Best. <p>OPTION 2 – COMPENSATING FACTOR</p> <p><i>For existing sewage systems that have a Building Permit or Certificate of Approval and are maintained in good working condition:</i></p> <p>Monitor the sewage system regularly for surface outbreaks, odours, ground conditions over the bed, backup of sewage, etc.</p> <p>OPTION 3 – MONITORING</p> <p><i>For existing sewage systems that do not have proof of a Building Permit or Certificate of Approval and are maintained in good working condition:</i></p> <p>Monitor the sewage system regularly for surface outbreaks, odours, ground conditions over the bed, backup of sewage, etc.</p> |



For more information about sewage septic systems, see *BMP Water Management*, pages 24–29.



Sewage systems must be properly located in relation to surface water to reduce the risk of surface water contamination.

To view the Building Code online, see: www.ontario.ca/buildingcode

7–10. Distance from sewage system to well

BACKGROUND

Sewage systems must be properly located in relation to water wells to reduce the risk of water well contamination.

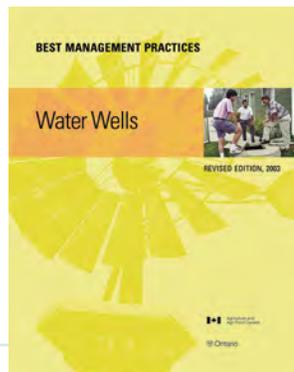
Legislation stipulates minimum separation distances between sewage system components and water wells.

This question addresses the level of natural protection provided by the soil around the well and well location relative to the sewage system. Where a high potential for contamination currently exists, more drastic actions may have to be carried out.



Test the well water for indicator bacteria at least three times a year, and once a year for other parameters such as nitrate.

This BMP publication explains well construction, maintenance, and troubleshooting to protect your family's drinking water.



WHAT CAN YOU DO?

OPTION 1 – ACTION

Relocate the sewage system the required distance away from your well:

- obtain a Building Permit or Certificate of Approval from the regulatory agency before starting any construction
- confirm that the new sewage system location changes the final EFP distance rating to a (3) or (4) Best
- test the well water for indicator bacteria at least three times a year, and once a year for other parameters such as nitrate.

OPTION 2 – ACTION

Relocate the well the required distance away from the sewage system:

- make sure the old well is properly abandoned
- confirm that the new well location changes the final EFP distance rating to a (3) or (4) Best
- test the well water for indicator bacteria at least three times a year, and once a year for other parameters such as nitrate.

OPTION 3 – COMPENSATING FACTOR

For existing sewage systems that have a Building Permit or Certificate of Approval and are maintained in good working condition:

Test the well water for indicator bacteria at least three times a year, and once a year for other parameters such as nitrate:

- note that monitoring of the well water is not a complete solution – if the water test reveals contamination of the well water, have a plan in place to immediately address the problem, such as installing a water treatment system on your well until the problem is resolved
- if you have an EFP rating of (1), contact your local regulatory agency to determine whether any additional action is required.

OPTION 4 – MONITORING

For existing sewage systems that do not have proof of a Building Permit or Certificate of Approval and are maintained in good working condition:

Test the well water for indicator bacteria at least three times a year, and once a year for other parameters such as nitrate:

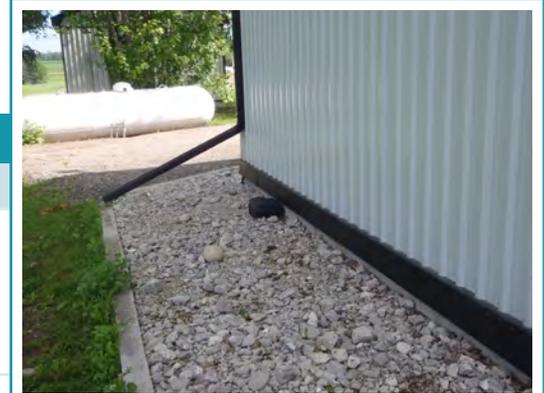
- note that monitoring of the well water is not a complete solution – if the water test reveals contamination of the well water, have a plan in place to immediately address the problem, such as installing a water treatment system on your well until the problem is resolved
- if you have an EFP rating of (1), contact your local regulatory agency to determine whether any additional action is required.

Note: You should plan and budget for the future relocation of your sewage system or well to protect your family's drinking water.

COLLECTION OF WASTEWATER

7-11. Source and amount of wastewater

| BACKGROUND | WHAT CAN YOU DO? |
|--|---|
| <p>Legislation requires that all wastewater be collected and treated in the sewage system.</p> <p>Clear water should be kept out, as it can overload the system. Leakage losses through leaky piping or treatment tanks can allow wastewater to return to the water supply. The result may be a deterioration in surface and ground water quality.</p> | <p>OPTION 1 – ACTION</p> <p>Collect and treat all wastewater in a separate sewage system:</p> <ul style="list-style-type: none"> • check for leaks in the sewage system and repair immediately • divert clear water away from the sewage system • keep all storm or drainage water out of the sewage system. |



Eave troughs, foundation and footing drains should be separate systems in no way connected to the sewage system.

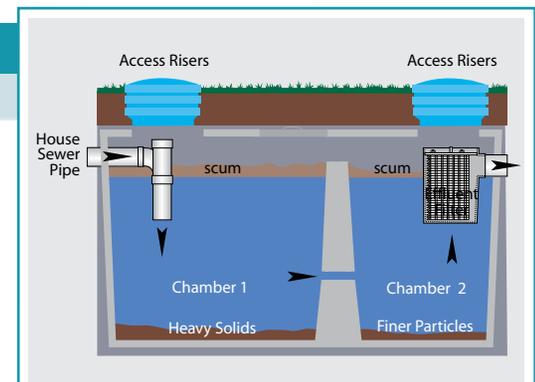
PRETREATMENT SYSTEM

7-12. Cesspool

| BACKGROUND | WHAT CAN YOU DO? |
|--|---|
| <p>Cesspools are only used for the disposal of contents of a chemical toilet, an incinerating toilet, a recirculating toilet, a self-contained portable toilet, all forms of privy systems and a composting toilet system.</p> | <p>OPTION 1 – ACTION</p> <p>Replace the cesspool with an approved sewage system (septic tank or other treatment unit and a leaching bed).</p> |

7-13. Septic tank

| BACKGROUND | WHAT CAN YOU DO? |
|---|---|
| <p>Failure to pump out a septic tank when conditions require can result in sludge or scum being carried to the leaching bed – leading to clogging and failure of the leaching bed and thus the complete system.</p> <p>A two-compartment septic tank is more effective for retaining sludge and scum that otherwise would move into the leaching bed.</p> | <p>OPTION 1 – ACTION</p> <p>Upgrade the septic tank to a two-compartment septic tank with a minimum working capacity of 3,600 L (800 gal):</p> <ul style="list-style-type: none"> • obtain all necessary approvals. <p>Ensure that the septic tank is checked for sludge and scum depths every three to five years and pumped as required:</p> <ul style="list-style-type: none"> • inspect septic tank regularly for leaks, and maintain as required • have the contractor who pumps out the tank make sure all baffles and T siphons are in place and functioning properly – NEVER enter the tank • consider installing a prefabricated effluent filter to help to prevent sludge entering the leaching bed. |



Two compartment tanks retain sludge and scum that otherwise would move into the leaching bed.

7-14. Holding tank – no leaching bed connected

| BACKGROUND | WHAT CAN YOU DO? |
|---|--|
| <p>In some special circumstances, the installation of a holding tank may be required.</p> <p>Legislation restricts installation and sets criteria for holding tank design, installation and operation.</p> <p>A holding tank that has a larger-than-required capacity provides a safety reserve. The tank will not have to be pumped as often and there will be less potential for overflow.</p> <p>An alarm system can be installed to alert when storage is reaching capacity. Regular checks for leaks will help prevent overflows and safeguard ground and surface water quality.</p> | <p>OPTION 1 – ACTION</p> <p>Ensure the wastewater produced is not in excess of design capacity, and check the tank regularly for volume and leaks:</p> <ul style="list-style-type: none"> • minimize wastewater production • install and maintain a working alarm system to signal before the tank needs to be pumped • regularly check that the alarm is functioning properly • regularly have the tank checked for leaks by a licensed contractor • maintain a written disposal agreement with a hauled sewage system operator. |

7-15. Other treatment unit

| BACKGROUND | WHAT CAN YOU DO? |
|--|--|
| <p>Circumstances may arise where a conventional sewage system will not work satisfactorily.</p> <p>Other treatment systems are an alternative to a conventional sewage system, but must be regularly maintained. Otherwise, the complete sewage system could fail and surface and ground water could become contaminated.</p> <p>Some of the systems contain mechanical or electrical devices, which also require regular maintenance. Before installing an alternative treatment system, contact the distributor of the system to verify that the installer is licensed to install their product.</p> | <p>OPTION 1 – ACTION</p> <p>Only install an approved alternative treatment system:</p> <ul style="list-style-type: none"> • ensure the system meets or exceeds installation and operational requirements of the Building Code and the manufacturer – this is especially important if house additions, bathrooms or hot tubs etc. have been added • ensure that the operation and maintenance requirements specified in the operator’s manual are followed • maintain a maintenance agreement with the service provider. |



Advanced Treatment Systems — Alternatives to Conventional Septic Systems
Booklet Number 2 — AF146

Canada Ontario

An alternative treatment system may be required where a conventional system cannot work satisfactorily.

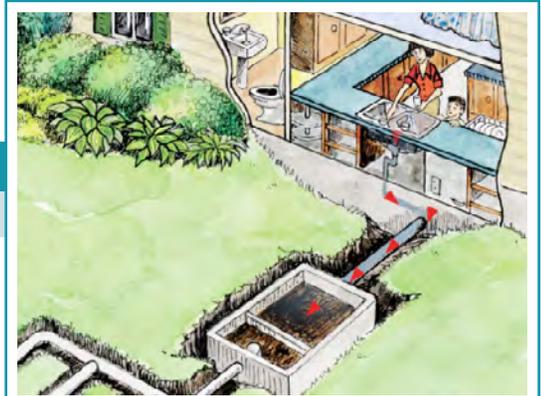
For more information, see:

- ***SepticSmart! Advanced Treatment Systems – Alternatives to Conventional Septic Systems, Order no. AF146***
- **the operator’s manual from the supplier**
- **Ontario Building Code – www.ontario.ca/buildingcode.**

SEWAGE SYSTEM

7-16. Subsurface distribution of wastewater (septic tank or other treatment unit)

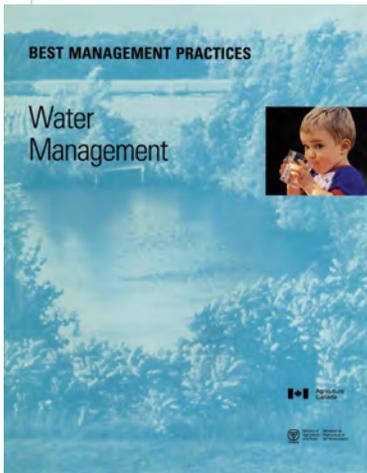
| BACKGROUND | WHAT CAN YOU DO? |
|--|---|
| <p>A leaching bed is required to properly treat and distribute the wastewater in the soil. An inadequate system can potentially contaminate surface and ground water and affect human health.</p> <p>The connection of a sewage source to a field drainage system or manure storage is illegal. Wastewater cannot be piped to anywhere but an approved treatment system.</p> | <p>OPTION 1 – ACTION</p> <p>Ensure all wastewater (including grey water) goes to a leaching bed, using a pressure or gravity-fed delivery system.</p> |



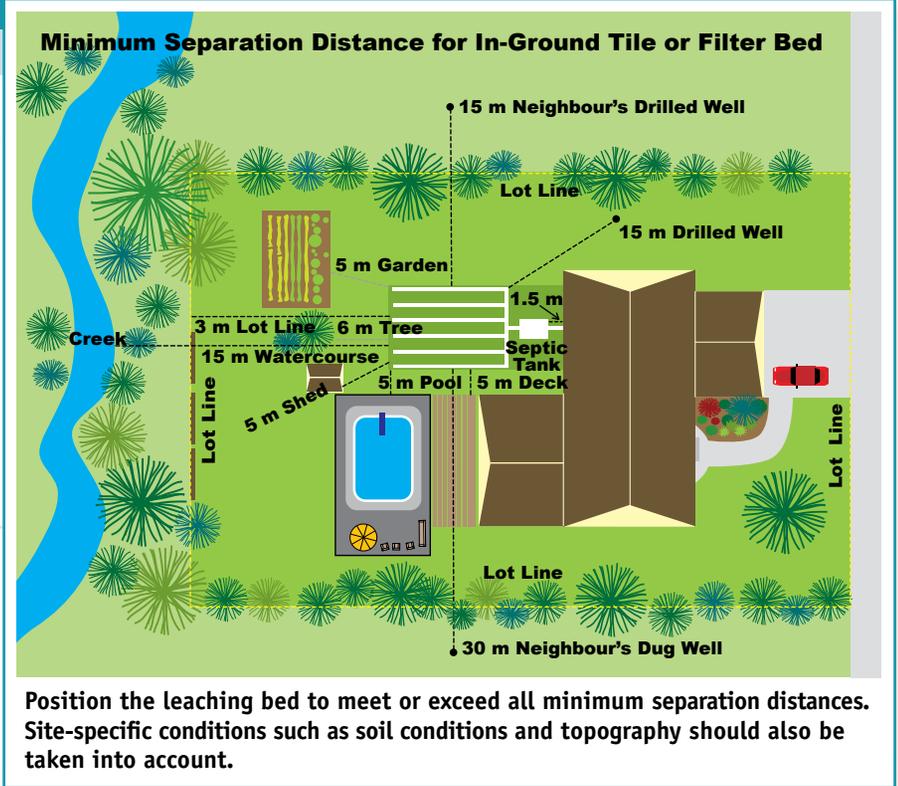
Using a pressure or gravity-fed delivery system, ensure all wastewater, including grey water, goes to a leaching bed.

7-17. Leaching bed location

| BACKGROUND | WHAT CAN YOU DO? |
|--|--|
| <p>Leaching beds must meet or exceed minimum separation distances from buildings, lot lines, water wells, etc. to meet legal requirements. Soil conditions and site topography must be considered.</p> | <p>OPTION 1 – ACTION</p> <p>Position the leaching bed to meet or exceed the minimum separation distances:</p> <ul style="list-style-type: none"> • minimum of 5 m (16.5 ft) from any building or structure • minimum of 3 m (10 ft) from any property line. <p>Position the leaching bed to prevent machinery and livestock traffic over it.</p> <p>Be aware of the soil conditions and topography required for the system to function properly.</p> |



For more information, see *BMP Water Management*, pages 24-29.



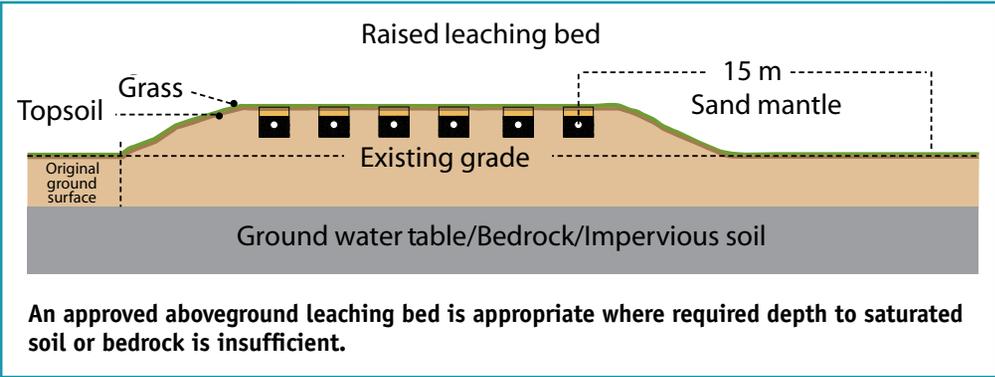
Position the leaching bed to meet or exceed all minimum separation distances. Site-specific conditions such as soil conditions and topography should also be taken into account.

7-18. Leaching bed surface water drainage

| BACKGROUND | WHAT CAN YOU DO? |
|--|---|
| Surface water should not drain onto the leaching bed area, as it keeps the soil saturated and does not allow the leaching bed to work to capacity. The sewage system may fail as a result. | <p>OPTION 1 – ACTION</p> <p>Divert all surface water away from the leaching bed area.</p> |

7-19. Depth to saturated soil or bedrock from trench bottom

| BACKGROUND | WHAT CAN YOU DO? |
|---|---|
| <p>A leaching bed requires an acceptable type of soil underneath to further break down the pollutants and filter out solids and pathogens.</p> <p>Also, if saturated soil or bedrock is located too close to the bottom of the leaching bed trenches, ground water can become contaminated. Adequate unsaturated soil depth beneath the distribution pipes is required to allow for proper wastewater treatment.</p> <p>A high water table can cause the system to become flooded and quit functioning. The Building Code requires a minimum of 0.9 m (3 ft) of soil depth between the trench bottom and saturated soil or bedrock.</p> | <p>OPTION 1 – ACTION</p> <p>Locate the leaching bed in a location where there is at least 0.9 m (3 ft) of depth of acceptable soil to the saturated soil or bedrock.</p> <p>OPTION 2 – ACTION</p> <p>Install an approved raised aboveground or partly raised aboveground filter bed (i.e. leaching bed) where insufficient soil depths exist.</p> |



7–20. Leaching bed loading (visual inspection)

| BACKGROUND | WHAT CAN YOU DO? |
|---|---|
| <p>If the ground over the leaching bed is always wet and spongy, or if there is a noticeable odour, wastewater may be moving to the surface instead of draining downward. It could also indicate that there is a blockage in the leaching bed. Taller, greener grass over the leaching bed is usually an indication of a leaching bed that is not functioning properly.</p> <p>These conditions could indicate poor drainage beneath the bed or a saturated condition. Surface or ground water contamination could result. It is illegal to have ponding or seepage of wastewater on the surface over the leaching bed.</p> | <p>OPTION 1 – ACTION</p> <p>If the ground is wet or spongy, or odours are detected, check water usage against the design capacity and have the system checked.</p> <p>If the problem cannot be resolved, consult a licensed installer to discuss:</p> <ul style="list-style-type: none">• a new system on a properly drained site, or,• a raised aboveground or partly raised aboveground filter bed (i.e. leaching bed). |

7–21. Disposal of pumpage from septic tanks, other treatment units and holding tanks

| BACKGROUND | WHAT CAN YOU DO? |
|---|---|
| <p>Sewage from septic tanks, other treatment units or holding tanks must be disposed of by a licensed hauler at an approved site.</p> | <p>OPTION 1 – ACTION</p> <p>Ensure you are using a licensed hauler.</p> |



Sewage from septic tanks must be disposed of by a licensed hauler at an approved site.

FOR MORE INFORMATION

Ontario Ministry of Agriculture, Food and Rural Affairs

Many sources of supplementary information are available. Below are some suggestions to get you started. Most can be found online at www.ontario.ca/omafra or ordered through ServiceOntario.

Rural Septic System Checklist, Order no. AF144

SepticSmart! Advanced Treatment Systems – Alternatives to Conventional Septic Systems, Order no. AF146

SepticSmart! Understanding Your Home's Septic System, Order no. AF139

BEST MANAGEMENT PRACTICES

BMP publications are excellent sources to better understand on-farm environmental issues and discover a range of proven, practical options to address them. BMP materials are available at no charge to Ontario farmers. Below are a few sample titles. To order, see ServiceOntario information.

Buffer Strips

Controlling Soil Erosion on the Farm

Cropland Drainage

Field Crop Production

Fish and Wildlife Habitat Management

Managing Crop Nutrients

Soil Management

Water Management

Water Wells

Inquiries to the Ontario Ministry of Agriculture, Food and Rural Affairs

Agricultural Information Contact Centre

Ph: 1-877-424-1300

Email: ag.info.omafra@ontario.ca

Web: www.ontario.ca/omafra

Order through ServiceOntario

Online at ServiceOntario Publications – www.ontario.ca/publications

By phone through the ServiceOntario Contact Centre

Monday–Friday, 8:30 am–5:00 pm

416-326-5300

416-325-3408 TTY

1-800-668-9938 Toll-free across Ontario

1-800-268-7095 TTY Toll-free across Ontario

Additional Resources

Ontario Onsite Wastewater Association

www.oowa.org

Getting to Know Your Septic System

About Your House

— *Buying a House with a Well and Septic System*

— *Your Septic System*

A Guide to Operating & Maintaining Your Septic System

OOWA Septic Dos and Don'ts

Ontario Rural Wastewater Centre

www.orwc.uoguelph.ca/

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