

# GUIDELINES FOR SEPTIC TANK AND HOLDING TANK INSTALLATION

## 1.1 SCOPE OF GUIDELINES

This Guideline has been prepared on behalf of NSDOEL by the Concrete Septic Tank Association of Nova Scotia (“CSTANS”). Neither its members nor CSTANS assumes any liability or responsibility of any regulator or any other party.

These Guidelines are not intended to be a comprehensive installation manual for all septic tanks/holding tanks to be used on On-site Sewage Disposal Systems. It is the responsibility of the user of this Guideline to comply with the requirements of the Regulations Respecting On-site Sewage Disposal Systems (the “Regulation”), which became effective on June 10, 1997 and to also follow the appropriate practices necessary to comply with the Regulation. This Guideline should be read in conjunction with NSDOEL “On-site Sewage Disposal Systems Technical Guidelines” dated November 15, 2000 (the “General Technical Guideline”).

This Guideline is intended to be used as an educational and instructional manual by qualified persons and installers of On-site Sewage Disposal Systems.

## 2.1 DEFINITIONS

The following definitions apply in this Guideline:

“*Burial Depth*” means the maximum earth cover for which the tank has been designed, which, in any case, shall not be less than 150 mm and not in excess of 1500 mm

“*Disposal Field*” means the part of an On-site Sewage Disposal System that distributes treated sewage into the soil;

“*Holding Tank*” means a watertight covered receptacle designed and constructed to hold sewage prior to removal for disposal at an appropriate approved facility;

“*Installer*” means a person who holds a valid certificate of qualification issued pursuant to these Regulations to construct or install an On-site Sewage Disposal System;

“*On-site Sewage Disposal System*” means:

- (i) a septic tank and a disposal field;
- (ii) a holding tank;
- (iii) a privy, or
- (iv) a system, other than one described in subclauses (i), (ii) or (iii), that meets specifications established or adopted by the Department and is not directly connected to a municipal system or an approved central sewage collection and treatment system, but does not include a wastewater treatment facility;

“*Qualified Person*” means a person, other than an employee of NSDOEL, who meets the requirements prescribed in Section 35 of these Regulations;

“*Septic Tank*” means a watertight covered receptacle designed and constructed to treat sewage prior to discharge to a disposal field or to further treatment;

### 3.1 GENERAL REQUIREMENTS

An approval from the NSDOEL under the Regulations is required for the installation of a Septic Tank/Holding Tank forming part of an On-site Sewage Disposal System (see Section 2 - General Technical Guidelines).

No person other than an authorized Installer may install an On-site Sewage Disposal System.

### 4.1 INSTALLATION REQUIREMENTS FOR SEPTIC TANKS

All Septic Tanks must be supplied by a manufacturer who is a member of the CSTANS.

All Septic Tanks must conform to the latest edition of standard CAN/CSA -B66-M 90, published by the Canadian Standards Association and should otherwise comply with the General Technical Guidelines including, in particular s. 3.1. The installer should take the following steps when installing a Septic Tank:

1. Ensure the Septic Tank is the proper size for the site and that it is designed for the Burial Depth to which it shall be subjected after the final grading of the lot.
2. Qualified Person should determine the seasonal high ground water table to verify that the ground water level does not exceed the permitted level for the given Septic Tank. Unless otherwise specified by the manufacturer of the septic tank, ground water level may not exceed one meter up on the side of the tank. **If the site’s ground water level exceeds one meter**, additional ballast will be required in the bottom of the excavation to which the Septic Tank must be fastened. See remedies under Section 5 – Installation of Holding Tanks. For calculation of the proper weight of ballast, consult your local professional engineer.
3. Ensure that the excavated hole is large enough to allow for the safe release of the lifting sling, normally requiring a distance of 300mm beyond all sides of the Septic Tank.
4. Ensure that a 150mm layer of sand or crushed gravel is levelled on the bottom of the excavation to provide a proper bedding for the bottom of the Septic Tank. The Installer is responsible to ensure that the proper bedding material is used.
5. If the Septic Tank is made up of two or more sections, ensure that the joint is clean and free from damage by closely inspecting the bottom section; otherwise, proper sealing of the joint

may be prevented. Chips and minor damage may be repaired with mortar or hydraulic (quick-set) cement. If mortar or other cement product is used, this repair must be allowed to harden before the Septic Tank can be set. Do not accept a Septic Tank with enough damage to compromise the proper sealing of joints or the structural integrity of the Septic Tank.

6. Ensure that sealant tape is stored in a heated enclosure until use. Do not install joint sealant if a delay in the setting of either section of the Septic Tank will occur.
7. Remove excess moisture from the joint surface. Place the sealant tape along the center of the joint surface, or in the groove if one is present. Cut any excess tape with a sharp knife to allow ends to be butted together. This butt joint must be clean and dry, should be made away from the corner, and should stick to itself sufficiently to prevent separation. Plug the hole in the bottom of the Septic Tank with plug supplied by the manufacturer.
8. Pump out any water that is present in the excavation; otherwise, the Septic Tank may float even though the water level may not exceed the permitted level.
9. After sealant is properly installed, lower the bottom section of the Septic Tank into the hole using a sling designed for such an application. Check and level the Septic Tank before removing the sling, preferably with a builders level or a laser which can be used without entering the excavation.
10. Remove sling by either tying a rope to its corners or by using a shovel (or any other tool with a long handle), allowing the sling to be released without entering the excavation.
11. Attach sling to upper section(s) of the Septic Tank and suspend it over a level area where the joint can be inspected by hand. Do not attempt to get under the Septic Tank unless it is blocked up in four places in such a way that the entire weight of the Septic Tank is supported, preferably being done on a hard surface such as the body of the truck. Chips and minor damage may be repaired as noted above.
12. Ensure that the Septic Tank inlet and outlet are properly oriented before lowering the upper section onto the lower section(s). Slowly lower the upper section and ensure perfect alignment before the upper section contacts the lower section. However, do not enter the excavation; alignment should be done with shovels or with other long handle tools. Once the sealant has contacted, it may be impossible to lift the upper section without damaging the seal. If the upper section must be removed, a new sealant tape should be used.
13. Once the upper section has been set and the weight has been released from the lifting device, inspect the entire perimeter of the joint. Sealant should be uniformly compressed along the entire joint.
14. Once the Septic Tank is properly installed, backfilling may begin using suitable material, evenly distributed around the tank. Rocks and other hard objects larger than 100mm in size should not be used. Care must be taken to properly compact the backfill under all pipes to prevent them from collapsing and sustaining damage. Use hand compaction along sides of the Septic Tank as they are not designed to resist machine compaction. Backfill over the top

of the Septic Tank must also be free of objects larger than 100mm to prevent damage. Burial Depth must not be less than 150 mm and not more than 1500 mm unless otherwise specified in writing by a Level 1 Qualified Person or an inspector of the NSDOEL.

15. Do not attempt to drive within 1.5 Meters (5 feet) of the top of the Septic Tank with anything larger than a lawn tractor as the top of the Septic Tank is not designed to support anything larger than a lawn tractor.
16. Seals may be provided at pipe entry and exit points. Carefully remove the temporary closure only on the holes that will be used. Push entry and exit pipes through the holes so that the pipes protrude on the inside of the wall of the Septic Tank by at least 25mm, but ensuring also that the pipes are away from baffles by at least 75mm. If a filter is to be fitted at the outlet, the outlet pipe may need to be glued into the filter depending upon the type of filter. After the pipes are properly installed, the outside of the holes around the pipes should be packed with mortar or grout to help support the pipes during final backfilling and subsequent earth movement.
17. Seal all covers with joint sealant, caulking, or foam gaskets to ensure water tightness. Foam gaskets, such as those made for sealing truck caps, will be preferable for later removal of covers during inspection or cleaning.
18. If concrete risers are used, they must also be sealed to prevent ground water from entering and they should be packed with at least 100mm of mortar or grout around their perimeter to prevent frost damage. Risers should extend within 150mm of finished grade. If covers are exposed at or above grade level, they must be securely closed to prevent unauthorized or accidental entry. A chain or bar device bolted through the riser walls may be used for this purpose.  
For cast in place plastic risers: If plastic risers and covers are used, follow the plastic manufacturer's instructions for assembly. An additional sealant such as silicone is recommended for wet conditions.
19. Ensure that the homeowner is aware of the future maintenance and inspection requirements to keep the tank functioning properly. Specifically, if a Septic Tank has been inactive over the winter, inspect it for signs of frost heaving.

## **5.1 INSTALLATION REQUIREMENTS FOR HOLDING TANKS**

**Installation requirements for Holding Tanks are the same as installation requirements for Septic Tanks with the following exceptions.**

1. Ensure that all outlet and unused inlet openings are completely and permanently sealed off. (For the remaining entry points into the holding tank, follow Step 16 of the Installation Requirements for Septic Tanks.)
2. Measures must be taken to make certain that the holding tank will be unaffected by frost. Specifically, the sealed joint of a two piece tank or the top slab of a one piece tank must be kept from shifting or moving. Possible methods of controlling this movement are:

- Wrap a cable around both sections of the tank at each end of the tank. Using turnbuckles, tighten (but do not over-tighten) the cables to ensure that the joint of the tank will be unaffected by frost action. The suggested size of the cable should be 10mm.

*If groundwater exceeds 1 meter above the bottom of the tank, contact your manufacturer for a ballasting procedure. The following procedure is one suggested method:*

- Purchase a precast concrete base slab with embedded eyebolts at each corner. Ensure that a 150mm layer of sand or crushed gravel is levelled on the bottom of the excavation to provide a proper bedding for the precast slab. (The Installer is responsible to ensure that the proper bedding material is used.) Evenly spread 5 to 10 bags of dry mortar mix on the precast slab in order to properly seat the tank. Set the holding tank in place following the installation instructions for septic tanks. Attach cables to the eyebolts and run the cables over the top of the tank. Tighten (but do not over-tighten) the cable using turnbuckles. The suggested size of the cable should be 10mm.
3. Provide frost protection by insulating the holding tank and risers to the specifications of the designer or local professional engineer.
  4. Ensure that the homeowner is aware of the future maintenance and inspection requirements to keep the tank functioning properly. Specifically, if a Holding Tank has been inactive over the winter, inspect it for signs of frost heaving. A Holding Tank should not be pumped out in the fall and left empty over the winter season.

## **6.1 CONCLUSION**

While the precast Septic Tank/Holding Tank may be delivered and set in place by a representative of the manufacturer, the proper installation of the Septic Tank/Holding Tank and the design of the On-site Sewage Disposal System is the responsibility of the Installer and/or the Qualified Person. If the Qualified Person encounters unusual conditions that prevent the above guideline from being followed, appropriate enquiries should be made of the NSDOEL and, where appropriate, your Septic Tank/Holding Tank dealer before departing from the above guidelines.