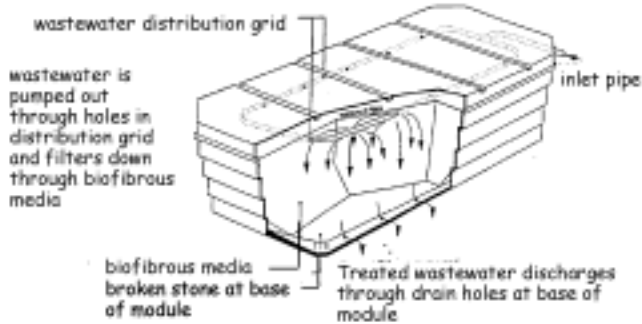


- sub-clauses a and b with a normal percolation rate, or a suitable outfall; or
- b. a constructed wetland, other than a reed bed, to a professionally prepared design and constructed by specialist contractor(s); or
- c. a proprietary filtration system designed, constructed and installed in accordance with the conditions of a notified body; or
- d. any other equivalent filtration system designed by a specialist in this subject and constructed by specialist contractor(s);



Where the percolation value (as demonstrated by the percolation test) is more than 140 secs/mm (Very Slow Rate):

- a. as a system described under 'slow percolation rate' that does not use an infiltration system for the final treated wastewater; or
- b. for domestic sized buildings, by designing and constructing a mound filter system in accordance with BR 478, 'Mound Filter Systems for the treatment of domestic

Extension To A Building Where A Septic Tank Is In Use

If building an extension which is going to result in additional loading on the current private wastewater treatment system, then evidence should be provided regarding the adequacy of the existing septic tank and the associated infiltration system. This is because the population loading will increase as a result of the proposed extension and these loadings are one of the main factors in determining the capacity of the septic tank and the area of the infiltration system.

Please note that this leaflet is merely intended to provide supplementary guidance. Should you have any doubts about whether any work requires a building warrant or whether it complies with current regulations please consult the Building Standards Section at the number shown below.

Please also note that works of the nature included in this leaflet would still require a Building Warrant.

Information current at time of printing: 31/01/2011.



Comhairle nan Eilean Siar

Development Department
Sandwick Road
Stornoway
Isle of Lewis

Stornoway
Phone: 01851 822692

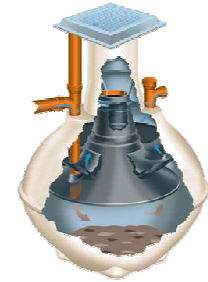
Balivanich
Phone: 01870 604990

Web: www.cne-siar.gov.uk



Building Standards

Septic Tanks & Infiltration Systems



The purpose of this leaflet is to provide supplementary guidance on the installation of septic tanks & the construction of infiltration systems in accordance with the current building regulations.

Please take one.

Should you need further assistance then please do not hesitate to contact one of our Building Standards officers.

Comhairle nan Eilean Siar

Stornoway
Phone: 01851 822692

Balivanich
Phone: 01870 604990

Web: www.cne-siar.gov.uk

Labeling

Every dwelling with a drainage system discharging to a private wastewater treatment plant or septic tank should be provided with a label to alert the occupiers to such an arrangement. The label should describe the recommended maintenance necessary for the system and should include the following: 'The drainage system from this property discharges to a wastewater treatment plant (or septic tank, as appropriate). The owner is legally responsible for routine maintenance and to ensure that the system complies with any discharge consent issued by SEPA and that it does not present a health hazard or a nuisance'. The label should be located adjacent to the gas or electricity consumer unit or the water stopcock.

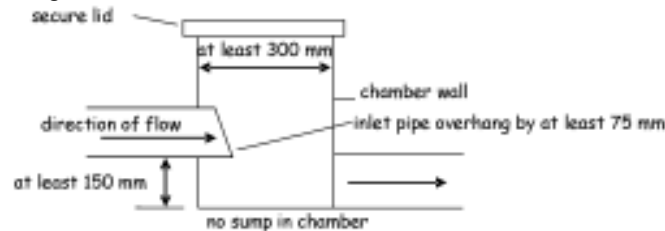
Septic Tank

Septic tanks should be large enough to serve the number of users. BS6297 gives the formula:

$$C = (180P + 2000)$$

Where C = tank capacity in litres and P = Number of users. The number of users should be based on the size of the house. i.e. a house with 3 double bedrooms should allow for 6 users. The minimum size a tank should be is capable of serving four users.

A private *wastewater* plant and septic tank should be provided with a chamber for the inspection and sampling of the *wastewater* discharged from the tank. The owner should carry out inspection at regular intervals and SEPA may sample the effluent to ensure compliance with any discharge consent. A chamber should be provided in accordance with the following diagram:



Every part of the septic tank should be located at least 5m from a dwelling and at least 5m from any boundary.

If the tank is to be discharging near a water course then evidence should be provided that SEPA are satisfied with the proposals for the discharge of treated water from the septic tank.

A private wastewater treatment plant and septic tank should be provided with an access for desludging. The desludging tanker should be provided with access to a working area that:

- will provide a clear route for the suction hose from the tanker to the tank; and
- is not more than 25 m from the tank where it is not more than 4 m higher than the invert level of the tank; and
- is sufficient to support a vehicle axle load of 14 tones

An air admittance valve must not be the sole means of soil ventilation to dwellings using a septic tank system.

Infiltration Systems

An infiltration system serving a private wastewater treatment plant or septic tank should be located to minimise the risk of pollution. Infiltration fields should be located:

- a. at least 50 m from any spring, well or borehole used as a drinking water supply; and
- b. at least 10 m horizontally from any watercourse (including any inland or coastal waters), permeable drain, road or railway.

A ground assessment and soil percolation test should be carried out to determine the suitability of the ground for the treatment and dispersion of the wastewater discharged. The following three step procedure should be followed:

First, carry out a preliminary ground assessment. To determine if the ground is suitable for the installation of an infiltration system.

Second, a trial hole should be dug to determine the position of the water table and soil conditions. This trial hole will enable the sub-soil type to be determined. The trial hole should be left covered for a period of 48 hours before measuring any water table level. It should also be noted that it is the seasonally highest level of the water table that should be determined for the infiltration area

Third, to determine the type of infiltration system and the area of ground required, percolation tests should be carried out.

The design of the infiltration system is dependant on the results of the ground assessment report and percolation tests results. These test results should be submitted.

To carry out a percolation test, you should excavate a minimum of two percolation holes, not less than 5 m apart along the line of and below the proposed invert level of the effluent distribution pipe. Each hole should be 300 mm square to a depth of 300mm. Where deep drains are necessary, the holes should conform to this shape at the bottom but may be enlarged above the 300 mm level to facilitate safe excavation. Fill the 300 mm square section of the holes to a depth of at least 300 mm with water and allow them to seep away overnight. It is important to saturate the soil surrounding the test holes to simulate day to day conditions in an operational drainage field. Next day, refill the test sections of the percolation holes with water to a depth of at least

300mm and observe the time (t) in seconds, for the water to seep away from 75% to 25% full level. Divide this time by 150 mm. The answer gives the average time in seconds (Vp) for the water to drop 1 mm. To obtain consistent results carry out the test at least 3 times for each percolation hole and take the average figure.

The floor area of a sub-surface drainage trench required to disperse effluent from treatment plants or septic tanks may then be calculated from the following formula:

$$A = P \times Vp \times 0.25$$

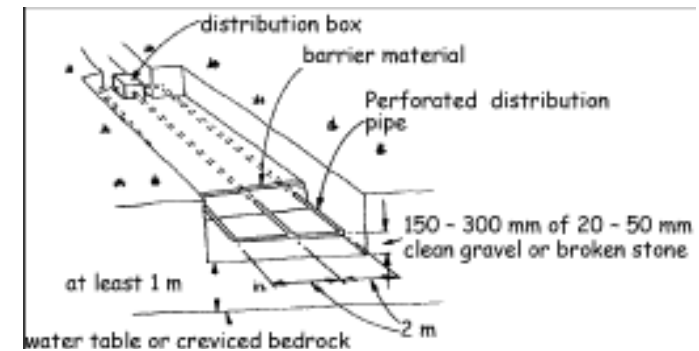
A is the area of the sub-surface drainage trench, in m²
p is the number of persons served by the tank;
Vp is the percolation value obtained, as described above, in secs/mm.

For wastewater that has received the benefit of secondary treatment followed by settlement, this area may be reduced by 20%, i.e.

$$A = P \times Vp \times 0.2$$

Where the percolation value is more than 15 secs/mm and not more than 100 secs/mm (Fast Rate), as:

- a. a piped infiltration trench system in accordance with national annex NG.3 of BS EN 752-4: 1998, using perforated, rigid pipes with a smooth internal surface; or
- b. a piped infiltration bed system in accordance with the diagram below; or
- c. any system described under 'slow and very slow percolation rates';



Where the percolation value is more than 100 secs/mm and not more than 140 secs/mm (Normal Rate), as:

- a. a reed bed complying with the requirements of the BRE, [Good Building Guide, GBG 42, Parts 1 and 2](#) together with a piped infiltration system described in