



**WAT-G-057**

**EASR Guidance: Permit Activity: Discharge of sewage effluent**

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# Purpose

This document provides information and guidance for anyone undertaking the discharge of sewage effluent which requires a permit under The Environmental Authorisations (Scotland) Regulations (EASR).

This guidance does not cover any other permissions that may be required.

Before you apply you should ensure the treatment system is suitable for your site. Guidance on this is detailed in What should I take into account when designing my treatment system?

The outfall must be installed in accordance with EASR Water GBR 6. The outfall should be designed and installed following best practice as described in WAT-G-036 EASR Guidance: Intakes and outfalls.

# Understanding the activity

The discharge of sewage can be to groundwater via a soakaway or to a surface water such as a watercourse or the sea. This guidance applies to effluent from sewage treatment systems with no overflows but it also applies to the discharges of sewage effluent from the sewage treatment works that has overflows.

If the discharge is from a sewage treatment works (STW) serving a combined sewerage system, you should refer to WAT-G-065 EASR Guidance: Permit Activity: Municipal Sewage Treatment Works, in addition to this guidance.

# When is a permit to discharge sewage to the water environment required?

You can apply for a permit for a large sewage discharge or for certain small sewage discharges to specific areas. If the development is served by more than one treatment system but they share an outfall pipe you will need to apply for an authorisation for the discharge from each treatment system.

## Large discharges

These are discharges from;

1. more than 10 domestic properties;
2. non-domestic properties with a population equivalent (see section 2.4) of more than 50; or
3. a combination of both domestic and non-domestic properties with a total population equivalent of more than 50.

## Small discharges

These are discharges:

* within a phosphate sensitive catchment, directly to a freshwater loch or pond or where the registration standard conditions cannot be complied with; and are from
* a treatment system that is that is less than or equal to two years old; and are from:

1. less than or equal to 10 domestic properties;
2. non-domestic properties with a population equivalent of less than or equal to 50; or
3. a combination of both domestic and non-domestic properties with a total population equivalent of less than or equal to 50.

## What is a domestic property?

A domestic property is a private dwelling including individual caravans.

Non-domestic properties include cafes, caravan sites, offices, bed and breakfasts, holiday lets and hotels etc.

## What is population equivalent (p.e.)?

Population equivalent is the maximum daily organic biodegradable sewage load, used to design and size a sewage treatment system. Alternatively, census figures can be used.

### How to calculate population equivalent for a domestic property

For domestic properties, SEPA considers each property to have a p.e. of 5, irrespective of the number of bedrooms.

For example, for 15 domestic properties, 15 x 5p.e. = 75 p.e.

### How to calculate population equivalent for a non-domestic property

To calculate p.e for a non-domestic property, multiply the maximum number of people who could use the system in a day by the Biochemical Oxygen Demand (BOD) load for the specific type of property and divide by 60. Round up to the nearest whole number. (Number of people who could use the system) × BOD load)/60.

The BOD load for different types of non-domestic properties can be found in the [British Water Code of Practice – Flows and Loads](https://www.britishwater.co.uk/page/Publications#wastewater%20treatment%20plant%20publications) (Table of loadings for sewage treatment systems).

For example, a snack bar with 100 customers per day. This has a BOD of 19 grams per person/day. 100 x 19 = 1900g/day. Divide this by 60 gives 31.7 which can be rounded up to 32 p.e.

### How to calculate population equivalent for a combination of domestic and non-domestic properties

For domestic properties, SEPA considers each property to have a p.e. of 5, irrespective of the number of bedrooms.

Add the population equivalent of the domestic properties to the population equivalent of the non-domestic properties.

For example, one domestic property and a caravan site (touring non-serviced) which can accommodate a maximum of 200 people per day. The caravan site (touring non serviced) has a BOD of 44 grams per person/day. BOD from the caravan site = 200 x 44 = 8800g/day. Divide this by 60 gives 146.7 which can be rounded up to 147 p.e. Add to the standard 5 p.e. for one domestic property gives a total p.e. of 152.

# What you need to know when applying for a permit

## Are you near the public sewer?

If your discharge is near the public foul sewer, you must connect to the sewer if possible. SEPA will not authorise sewage discharges where it considers that it is reasonably practical to connect to the public foul sewer. You can determine if you are “near” the public foul sewer by multiplying each domestic property (or 5 p.e. for non-domestic properties) by 30 metres. If any of the properties are within this distance and can’t connect to the sewer, then you must justify why connection is not reasonably practical.

Connection may not be reasonably practical where there are features such as a major road, river etc between the property and the sewer or if there is no capacity in the sewer.

### Example of working out if you are near the sewer and exploring connection

* Step 1 Determine the location of the sewer from [Scottish Water](https://www.scottishwater.co.uk/).
* Step 2: Determine if your property is near the sewer. For a café of 100 p.e, it is near the sewer if it is within a distance of (100 divided by 5) x 30m = 20 X 30 = 600m.
* Step 3 If you are near to the sewer, explore connection to the sewer.
* Step 4 If you are near to the public sewer and you can’t connect, you will need to justify why connection is not reasonably practical.

## Are you discharging to a freshwater loch or pond?

You should not discharge into a freshwater loch or pond. If you have to discharge into a freshwater loch then you will be required to:

* Demonstrate that all other discharge options are impractical.
* Install secondary treatment with a partial soakaway as a minimum.
* Install treatment designed to reduce phosphorus to 2 milligram per litre (mg/l) mean total phosphorus as a minimum for discharges less than or equal to 200 p.e. For discharges greater than 200 p.e. phosphorous reduction will normally be required.

New sewage discharges of any size to a freshwater loch will be authorised by permit.

## Are you discharging into a phosphate sensitive catchment?

A phosphate sensitive catchment is the catchment of a freshwater loch which is at risk of significant nutrient enrichment. This can give rise to environmental damage including harmful algal blooms.

A phosphate sensitive catchment means the catchments of:

* Loch Leven (in Perth and Kinross Council).
* Lunan Lochs (Perth and Kinross Council).
* Loch Flemington (Highland Council).

New sewage discharges of any size in these catchments, whether to soakaway or surface water, will be authorised by permit.

New sewage discharges within the Loch Leven or Lunan Lochs catchments will only be allowed if phosphate mitigation measures are undertaken at another property so that there is an overall net reduction in phosphate loading from both properties. These measures are required as part of the planning application. You should refer to [Loch Leven and Lunan Lochs Supplementary Planning Guidance.](https://www.pkc.gov.uk/ldp2designatedsites) You should submit your mitigation calculations with your application. Phosphate limits may be applied to your permit.

New sewage discharges in the Loch Flemington catchment must have a treatment system designed to meet a mean value no more than 2 milligram per litre (mg/l) total phosphorous. If the discharge is to a surface water, a partial soakaway within a minimum area of 10 square metres (m2) per house or 2 square metres (m2) per p.e will be required.

# What you need to know to apply for a permit for a large sewage discharge

Large sewage discharges are defined in section2.1 Large discharges.

## Are you discharging to a watercourse?

SEPA will determine the treatment needed depending on the dilution and the water quality of the watercourse. If there is insufficient dilution SEPA will not grant a permit.

You should not discharge to a watercourse which flows into and is close to a freshwater loch or pond. If you have to discharge here, you should see the section on discharges to lochs and ponds.

## Are you discharging to or near designated bathing waters or shellfish waters?

Discharges to surface waters to, or near designated shellfish waters and bathing waters may need treatment to reduce pathogens. The guidance in WAT-G-070, EASR Guidance: Discharges to and near bathing and shellfish waters should be followed.

## Are there any water supplies for human consumption nearby?

Sewage discharges can pose a risk to potable water supplies because they contain elevated concentrations of ammonia and pathogens such as E. coli as well as other pollutants. You should not locate your discharge near a water supply. You can find out the location of private water supplies from your local authority.

## Is your discharge to a canal?

Do not discharge to a canal as it may cause pollution. Additionally, [Scottish Canals](http://www.scottishcanals.co.uk) will not normally allow a sewage discharge to a canal.

## Is your discharge to coastal or transitional waters?

If your discharge is:

* from greater than 50 p.e but less than or equal to 100 p.e; and
* the discharge is not within or near a designated shellfish or bathing water;

then treatment by septic tank with a partial soakaway is normally acceptable. The partial soakaway should be within 10m of Mean High-Water Springs (MHWS). The MHWS mark can be found on an Ordnance Survey (OS) map, which can be accessed using our [NGR Tool](https://map.sepa.org.uk/ngrtool/) and zooming in to the 1:25,000 scale.

For discharges greater than 100 p.e you will need carry out modelling to determine the impact of your discharge. Please contact [waterpermitting@sepa.org.uk](https://scottishepa.sharepoint.com/sites/IntegratedAuthorisationFramework/Shared%20Documents/WS06_Water_Activities/Digital%20system%20support/Sewage/2024%20April_%20Revised%20CAR%20Guidance/waterpermitting@sepa.org.uk) to discuss this prior to submitting your application. You should refer to WAT-G-066, EASR Guidance: Permit Activity: Assessing the impact of a discharge on coastal and transitional waters provides further guidance.

Any outfall should normally be located below the MLWS (Mean Low Water Springs) mark to aid dispersion. MLWS is a term that’s used to describe how far the sea goes out at low tide. The MLWS mark can be found on an Ordnance Survey (OS) map, which can be accessed using our [NGR Tool](https://map.sepa.org.uk/ngrtool/) and zooming in to the 1:25,000 scale.

The outfall should have protection against erosion of the underlying sand so as to prevent movement of the outfall pipe and leakage of effluent at a point above MLWS.

Engineering works below Mean High Water Spring (MHWS) such as the construction of the outfall itself may require a permit from [Marine Scotland](http://marine.gov.scot/).

## Is the discharge to a soakaway?

A soakaway is a piped infiltration system consisting usually of a series of perforated pipes buried underground in trenches filled with clean gravel or broken stone, on a slight gradient away from the inlet. A soakaway in this context is different to a soakaway for rainwater. A soakaway is also known as an “Infiltration system” in the Building Standards Technical Handbook.

The soakaway must be constructed in accordance with the [Building Standards Technical Handbook](https://www.gov.scot/publications/building-standards-technical-handbook-2020-domestic/3-environment/3-9-private-wastewater-treatment-systems-infiltration-systems/) (Section 3: Environment). This provides guidance on achieving the standards set in the Building (Scotland) Regulations. Soakaway construction is regulated by local authority Building Standards.

Large sewage discharges to groundwater pose a significant risk to the water environment and will only be acceptable if:

* The effluent is treated to a high standard.
* There are suitable ground conditions to treat the effluent.
* The water table is below the base of the soakaway so there is no direct discharge of sewage to groundwater.
* There are no sensitive receptors nearby, such as private water supplies.

The information detailed in WAT-G-068 EASR Guidance: Permit Activity: Hydrogeological guidance for discharges of effluent to a soakawaymust be providedto support any application.

# What do I need to know to apply for a permit for a small sewage discharge?

Small sewage discharges are defined in section 3.2.

You should follow:

* Our sewage registration guidance.
* Section 4.2 Are you discharging to a freshwater loch or pond?
* Section 4.3 Are you discharging into a phosphate sensitive catchment?

# What should I take into account when designing my treatment system?

If the use of your treatment system varies or is seasonal you must ensure it continues to work effectively. This may require two or more units to operate in parallel, so that more units can be operated as the loads increase and/or by recirculating the effluent so that the medium is kept wet with a viable population of bacteria. For sites receiving no flow for part of the year, consideration should be given to reseeding the plant on start-up.

You should try to install a single treatment system shared by a number of properties rather than individual systems provided for each property. Performance of a single treatment system is normally more consistent because of better balanced flows and loads.

You should install grease traps for discharges from commercial kitchens with a high fat and grease content as fats can cause blockages.

Further information regarding factors affecting small STWs can be found in:

* [British Water Code of Practice – Flows and Loads](https://www.britishwater.co.uk/page/Publications#wastewater%20treatment%20plant%20publications)
* [GPP 4: Treatment and disposal of wastewater where there is no connection to the public foul sewer](https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/)
* [A Guide to The Installation of Packaged Wastewater Treatment Plants](https://www.britishwater.co.uk/page/Publications).

Any reed bed or wetland must be designed and constructed in accordance with:

* The Good Building Guide – Reedbeds: Application and Specification (Part 1) and Design, Construction and Maintenance (Part 2). J Griggs and N J Grant (2000).; or
* Constructed Wetland Association Guidelines: Constructed Wetlands to Treat Domestic Septic Tank Effluent. Constructed Wetland Association (2017).

# What should I consider when operating my treatment system?

* You should have the sludge removed from your treatment system at least once a year. [A Guide to The Desludging of Sewage Treatment Systems](https://www.britishwater.co.uk/page/Publications) provides further details.
* [Maintaining your septic tank](https://www.netregs.org.uk/environmental-topics/water/septic-tanks/maintaining-your-septic-tank/)  provides guidance on maintaining your septic tank.
* You must have any package treatment plant maintained in accordance with the manufacturer’s instructions. [A Guide for Users of Packaged Wastewater Treatment Plants](https://www.britishwater.co.uk/page/Publications) provides further details. Maintenance must be carried out by a competent person such as a service engineer. British Water have a list of [accredited service technicians](https://www.britishwater.co.uk/page/ListofAccreditedServiceTechnicians).
* You must regularly check your treatment system to ensure it is operating correctly. You must rectify any indications of failure such as poor-quality effluent, sewage leaks, warning lights, power or pump failures as soon as possible.
* You must not put things down the drain which would affect the effectiveness of the treatment system. This includes bleach, fat or grease, rainwater or hot tub effluent. Grease traps should be used for discharges with high fat and grease content such as discharges from commercial kitchens, hotels or restaurants.

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