

**WAT-G-075**

**EASR Guidance: The discharge of water run-off from a surface water drainage system from built developments**

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# 1. Purpose

This document provides information and guidance for anyone undertaking the discharge of water run-off from a surface water drainage system from:

* Buildings.
* Roads other than waterbound roads.
* Yards.
* Any other built development.

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

Sustainable urban drainage systems (SUDS) are a legal requirement for surface water run-off for all developments constructed on or after 1 April 2007 draining to the water environment, other than a single dwelling or discharges to coastal waters.

# 2. Understanding the activity

Water run-off includes any water from rainfall (or any meltwater from ice or snow) that flows over (or horizontally through) the surface of the ground and any matter (for example soils) that are picked up by that water as it does so.

This activity is water run-off from completed built developments. It does not include run-off from construction sites. These are authorised by GBR 10D or a permit.

# 3. Types of authorisation

Depending on the activity, the discharge may require a permit under The Environmental Authorisations (Scotland) Regulations 2018 (EASR) or be authorised by EASR water GBR 10A or 10B. Table 1 sets out the types of authorisation.

**Table 1: Types of authorisation for the discharge of water run-off from a surface water drainage system from built developments**

| **Type of authorisation** | **Activity description** |
| --- | --- |
| Water GBR 10A | The discharge of water run-off from a surface water drainage system to the water environment from buildings, roads other than water-bound roads, yards and any other built developments constructed before 1 April 2007, subject to the following exceptions:Discharge is from a motorway/trunk road outfall serving a length of >1km and the footprint or associated infrastructure is enlarged or altered on or after 1 April 2007 The GBR rules can be found on the GBR 10A activity webpage. |
| Water GBR 10B | The discharge of water run-off from a surface water drainage system to the water environment from buildings, roads other than waterbound roads, yards and any other built developments constructed on or after 1 April 2007, subject to the exceptions:Discharge from land of >30ha for residential purposes; or industrial estates; or parking with >1000 spaces or motorway/trunk road outfalls which serve a length of >1km. The GBR rules can be found on the GBR 10B activity webpage. |
| Permit | The discharge of water run-off from a surface water drainage system from;a) buildings;b) roads other than water-bound roads;c) yards; or d) any other built development; where the activity is not authorised by GBR 10A or GBR 10B. |

Discharge of water run-off from a construction site is authorised by GBR 10D or an EASR permit.

Discharges of run-off from water-bound roads and tracks are covered by GBR 22.

# 4. Adoption

The[Water Assessment and Drainage Assessment Guide](https://www.susdrain.org/news/articles/scottish_suds_working_party_publishes_new_guidance.html) (WADAG) provides advice to those involved in the installation of water and drainage infrastructure on the relevant stages to obtain relevant permissions, such as those from local authority Planning, Scottish Water and SEPA.

Maintenance of SUDS within the boundaries or curtilage of a private property, such as a residential driveway or a supermarket car park, is the responsibility of the landowner or occupier.

Our preference is for SUDS constructed outwith the boundaries or curtilage of a private property to be adopted by Scottish Water, the local authority or a public body.

[Sewers for Scotland](https://www.scottishwater.co.uk/Business-and-Developers/NEW-Connecting-to-Our-Network/Developing-housing-and-commercial-properties/Applying/Waste-Water-Connection-Technical-Standards#:~:text=The%204th%20Edition%20of%20%22Sewers%20for%20Scotland%22%20is,required%20when%20designing%20new%20water%20or%20drainage%20infrastructure.) contains Scottish Water’s construction standards for SUDS. If a SUDS for a development is constructed to these standards, Scottish Water has a duty (at the developer’s discretion) to adopt the SUDS and thereby become responsible for it. A waiver or deviation from the Sewers for Scotland design can potentially be agreed with Scottish Water, e.g. to enhance biodiversity or amenity benefits.

Section 7 of the Sewerage (Scotland) Act 1968 allows for the roads authority and Scottish Water to connect to each other’s drainage systems where reasonable to do so. The [SUDS for Roads](https://www.scotsnet.org.uk/resources) guidance document was published in 2010 and provides a collaborative framework for a more integrated drainage approach.

It is anticipated that in a growing number of circumstances the local authority, in its role as the roads authority, may take on part or all of the SUD system as part of a run-off management plan.

# 5. SUDS requirements

SUDS are required for run-off from built developments constructed on or after 1 April 2007 (except from a single dwelling or for a discharge to coastal waters) for all run-off authorised by GBR 10B. Built development includes re-development sites where the construction was completed after 1 April 2007. Run-off authorised by permit will normally also require SUDS.

SUDS requirements for a particular land use (e.g. residential, industrial estates) should be determined by referring to the [SUDS Manual](https://www.susdrain.org/resources/ciria-guidance.html) (CIRIA C753). Different urban land uses generate a variety of pollutants and similarly, different types of SUDS are capable of treating these pollutants to various extents.

As well as providing guidance on appropriate treatment, the SUDS Manual provides detailed guidance on types of SUDS and design considerations.

## 5.1. Determining appropriate SUDS treatment

### 5.1.1. Interception

It is very important that SUDS are designed to prevent runoff from the site for the majority of small rainfall events, as described in section 4.3.1. of the [SUDS Manual](https://www.susdrain.org/resources/ciria-guidance.html). This is known as interception and typically requires source control.

### 5.1.2. Simple index approach

Runoff should be treated to prevent negative impacts on receiving water quality. Table 4.3 of the [SUDS Manual](https://www.susdrain.org/resources/ciria-guidance.html)sets out the water quality management approach for differing land uses.

For most developments, this can be achieved by following the Simple Index Approach as described in section 26.7.1 of the CIRIA SUDS Manual to determine the type of SUDS required for the site. A [Simple Index Approach (SIA) Tool](http://www.susdrain.org/resources/SuDS_Manual.html)is available to help determine whether the proposed SUDS are in line with the Simple Index Approach and acceptable. Appendix C of the SUDS Manual also includes worked examples of applying the Simple Index Approach. Guidance on infiltration SUDS is provided in section 5.2.5 of this document.

The Simple Index Approach is appropriate for all land uses authorised by GBR 10B. For trunk roads/motorways, the[Design Manual for Roads and Bridges](https://www.standardsforhighways.co.uk/)guidance should be followed.

High pollution hazard sites require a permit and whereas the Simple Index Approach may be appropriate, an alternative approach such as a detailed risk assessment is likely to be required. Further guidance on detailed risk assessment is available from section 26.7.3 of the SUDS Manual.

You should refer to the following section for further guidance on appropriate SUDS.

## 5.2. Appropriate SUD systems

There are a number of sources of information that provide guidance on appropriate SUDS.

* [SUDS Manual](https://www.susdrain.org/resources/ciria-guidance.html).
* [Sewers for Scotland](https://www.scottishwater.co.uk/Business-and-Developers/NEW-Connecting-to-Our-Network/Developing-housing-and-commercial-properties/Applying/Waste-Water-Connection-Technical-Standards)for discharges adopted by Scottish Water.
* [SUDS for roads](https://www.scotsnet.org.uk/resources) for discharges adopted by the Roads Authority.
* [[Water Assessment and Drainage Assessment Guide](https://www.susdrain.org/news/articles/scottish_suds_working_party_publishes_new_guidance.html)](http://www.sepa.org.uk/library/content-search/?q=Water+Assessment+and+Drainage+Assessment+Guide&LibGo=Search&page=1)(WADAG).

Existing ponds must not be used as SUDS and existing watercourses must not be used to convey untreated run-off.

Under GBR 10B roof water also requires SUDS treatment. However, SEPA recognises that there are situations where discharges of certain run-off water pose a very low risk of pollution or impact on receiving water flow e.g., roof water discharging to transitional waters (estuaries) or other waters with very high dilution. In such cases, **minimal** SUDS measures, as appropriate to the situation, will be acceptable. e.g., any ‘source control’ measures, short length of filter trench, partial soakaway etc.

The degree of SUDS treatment should be appropriate to the risk of pollution from a particular development.

The indicative guidance in the following sections provides additional information on the type of SUDS that may be appropriate for various situations.

### 5.2.1. Housing, parking, retail/business parks

Source controls such as permeable block paving, filter strips, green roofs or swales are best practice and are a vital part of the treatment train.

Site and regional controlsinclude detention basins/ponds or stormwater wetlands. Pond/wetlands are preferred to detention basins due to biodiversity / amenity benefits. Larger ponds and wetlands may be necessary for large / high risk activities.

Water butts with overflows to permeable block paving or soakaways may be worth including. Green roofs should be considered, especially for larger buildings.

An open drainage network, for example, comprising conveyance swales or linear wetlands, is encouraged as this allows for rapid detection and management of accidental spills or cross connections as well as providing an initial level of treatment.

SUDS for housing need to be selected by the developer in consultation with Scottish Water and the local authority.

It is good practice that a maintenance schedule / regime is established which also identifies who is responsible for maintenance.

For retail/business parks with high risk areas such as vehicle unloading bays, refer to section 5.2.3.

Discharges to transitional waters normally require only minimal treatment.

### 5.2.2. Industrial estates

Business or retail parks are covered in section 5.2.1 above.
Suitable treatment options for industrial estates include:

* Source controlssuch as filter strips, permeable block paving, green roofs or swales.
* Site controls such as swales or detention basins/ponds.
* Regional controls such as ponds or stormwater wetlands. Larger ponds and wetlands. may be necessary for large / high risk activities.

Green roofs should be considered, especially for larger buildings.

An open drainage network comprising conveyance swales or linear wetlands is encouraged as this allows for rapid detection and management of accidental spills, as well as providing an initial level of treatment.

Upstream oil interceptors may be required to protect SUDS from gross oil pollution but are not considered as a SUD system by themselves. It is not intended that oil interceptors would be adopted by Scottish Water and therefore ongoing maintenance would be the responsibility of the owner.

Infiltration systems for industrial yards are usually inappropriate because of groundwater and contaminated land concerns and need to be assessed on a site-by-site basis.

High risk areas on industrial estates need assessing as described in section 5.2.3 below.

When applying for a permit you should provide a maintenance schedule and also identify who is responsible for maintenance.

Discharges to transitional (estuarine) waters from some industrial estates that pose a lower risk of causing pollution normally require only one level of treatment.

### 5.2.3. Discharges from high risk areas constructed after 1st April 2007

These high risk areas detailed in GBR 10B(e) are:

* Fuel delivery / refueling areas.
* Vehicle loading or unloading bays where potentially polluting matter is handled.
* Oil and chemical storage, handling and delivery areas.

GBR 10B(e) prohibits run-off discharges to the water environment from these areas.

All efforts should be made to minimise or eliminate completely the need for these high risk areas to discharge to the surface water drainage system and/or foul sewer e.g. by using canopies or undertaking the high risk activities indoors.

Where drainage from a high risk area is unavoidable in an area served by a suitably sized foul sewer, the high risk area should discharge to the foul sewer with the prior agreement of Scottish Water.

If there is no reasonable alternative (including disposal to a foul sewer) other than a discharge to the surface water drainage system, then this activity will require a permit as it is not authorised under the GBR. The permit will then specify the controls, including levels and type of SUDS treatment, and any additional treatment such as oil interceptors, required to protect the receiving waters.

### 5.2.4. Roads and motorways

For trunk roads and motorways, the[Design Manual for Roads and Bridges](https://www.standardsforhighways.co.uk/) (DMRB)guidance should be followed.

DMRB requires that all SUDS draining trunk roads / motorways to watercourses are lined unless a Ground Water Impact Assessment (GWIA) has been carried out. We encourage unlined SUDS so that road runoff can be infiltrated near to its source, and therefore we would not normally require lining of road runoff SUDS.

DMRB requires the use of HEWRAT (Highways England Water Risk Assessment Tool). This tool specifies the treatment required to protect the receiving watercourse. We will accept the HEWRAT assessment. However, where the HEWRAT assessment indicates no treatment, we will require a minimum of 1 level of SUDS for new or modified developments.

HEWRAT is designed for watercourses, and where discharges are proposed to lochs, a suitable risk assessment is required to be undertaken by the applicant. The DMRB/HEWRAT assessment takes account of discharges that may affect protected areas and the output can be used to help SEPA complete the Annex 1 assessment in SEPA’s WAT-G-008 EASR Guidance: Assessment of impact on Protected areas from inland water activities.

For roads and motorways suitable treatment options include:

* Source controls such as swales, filter trenches and filter strips.
* Site or regional controls such as extended detention basins.

Basins are preferred to ponds for treating runoff from motorways and major roads, if protected by filter drains or swales first. An extended detention basin contains permanent wet pools within the basin and provides additional habitat of reasonable quality, but probably more importantly for water quality performance is the far larger area of intermittently wet vegetation. That is the principal surface to be contaminated by oil as surface films are left clinging to vegetation when water volumes decline after the rain event. Exposure to sunlight and the far greater availability of oxygen allows for degradation in surface zones, e.g. oily vegetation compared to bottom sediments in ponds.

### 5.2.5. Infiltration SUDS

Infiltration SUDS can affect groundwater in two ways:

* By mobilising contaminants that are already in the ground and allowing them to reach groundwater or surface water.
* By contaminants from the land use itself (e.g. as a lorry park) contaminating groundwater.

You should not discharge directly to groundwater.

Table 26.4 of the [SUDS Manual](https://www.susdrain.org/resources/ciria-guidance.html)provides guidance on SUDS mitigation indices for discharges to groundwater and requires soils of ‘Good attenuation capacity’.

‘Good attenuation capacity’ includes loamy soils. This would not include soils with a ‘principal soil type’ of sand or coarser, with the material having no apparent plasticity/cohesion. Clay soils would not normally allow sufficient infiltration. These characteristics should be determined in accordance with British Standard (BS5930: 1999, Code of Practice for Site Investigations).

Where the run-off is from a high risk area, you need to undertake a risk assessment to consider the impact this run-off will have on groundwater including any abstractions.

High risk areas are:

* Brownfield sites.
* Industrial sites.
* Petrol stations.
* Lorry parks.

For low-risk infiltration SUDS such as permeable block car parking, roof water soakaways and infiltration trenches serving housing and roads, no risk assessment is required.

### 5.2.6. Areas of land contamination

SUDS can be used on sites with land contamination, but a risk assessment needs to be undertaken.

SUDS which use infiltration will not be suitable where infiltration is through land containing contaminants which are likely to be mobilised into surface water or groundwater. This can be overcome by restricting infiltration to areas which are not affected by contamination or constructing SUDS with an impermeable base layer to separate the surface water drainage system from the contaminated area. A shallow grass swale (with impervious liner) is the shallowest drainage option. Therefore, this carries the least risk of inserting drains deep enough to pick up contamination from the ground. Conventional drains will invariably be deeper. A shallow wetland marsh (with impervious liner) may be a good idea to remove unavoidable residual contamination.

As with a traditional drainage system, the introduction of SUDS may provide a pathway along which contaminants in aqueous or non-aqueous liquid phase can migrate and enter groundwater or surface water. The likelihood of this should always be considered and the system located to a different area or redesigned as required. However, a traditional piped drainage system is also likely to act as a contaminant conduit in this way.

### 5.2.7. Proprietary SUD systems

Proprietary run-off treatment systems such as oil interceptors and vortex settlement chambers have historically been used and accepted as ‘equivalent systems’ for use during the construction phase of a development, in accordance with GBR 10D(d).

For completed developments, proprietary systems are sometimes used as part of the overall SUDS management train e.g. to protect a SUDS pond from excess silt or oil contamination. We do not consider that they normally provide SUDS treatment. For example, proprietary systems would not be considered as treatment in unconstrained sites due to their relatively high maintenance requirements and the lack of visibility if these systems fail. Proprietary systems will only be considered as SUDS for constrained sites (i.e. in exceptional circumstances where conventional SUDS are not practicable). Proprietary systems may also be appropriate for existing sites which are currently causing pollution and where treatment is to be retrofitted. If it is agreed that a proprietary system is acceptable, then in order to be considered a SUDS, this system should:

* Treat the runoff.
* Allow infiltration (only where ground conditions are suitable).
* Attenuate flows.

If conventional SUDS are not proposed, then you should contact us in order to discuss this on a site-specific basis. Clearly not all proprietary systems are equally capable at treating run-off – some systems will be more effective and robust than others. SEPA recognises that some proprietary products may have demonstrated that they are capable of delivering more than one level of SUDS. We will require that you demonstrate that the design of the proprietary system allows effective maintenance and removal of accumulated pollutants.

Proprietary systems generally have a higher maintenance requirement than SUDS and therefore maintenance and vesting responsibilities must be made very clear. There is an advantage in installing systems where it is clearly visible if maintenance has not been undertaken (e.g. by ponding on the surface).

## 5.3. Other considerations

### 5.3.1. Combined sewers

Scottish Water will only accept new run-off into a combined system in exceptional circumstances.

This avoids premature operation of combined sewer overflows (CSOs) and the unnecessary using up of capacity in the drainage infrastructure. If Scottish Water is to permit new run-off discharges to the combined sewer, then storm flows will need to be attenuated to Scottish Water’s prescribed limit.

### 5.3.2. Removing run-off from existing combined sewers

We encourage the disconnection of run-off from combined sewers and Scottish Water are beginning to do this in more and more cases. This can help to reduce CSO discharges and sewer flooding, free up development constraints and minimise wastewater treatment costs.

GBR 10A doesn’t require SUDS for runoff from sites constructed before 1 April 2007 where that run-off was previously discharged to the combined sewer.

However, SEPA would strongly encourage these new runoff discharges from existing developments to be treated by SUDS designed in accordance with the CIRIA SUDS Manual C753. SUDS should maximise multiple benefits such as biodiversity and amenity and the nature and scale of SUDS should relate to the risk of pollution. Practical constraints eg due to existing infrastructure, may limit implementation of traditional above ground SUDS and in these cases proprietary treatment systems may be appropriate to assist in treatment of pollutants. This may be especially relevant to runoff from high risk sites.

Disconnected run-off from roofs poses a much lower risk of pollution.

The nature of SUDS/runoff treatment needs to be assessed on a case by case basis.

Runoff from sites constructed on or after 1 April 2007 which are having run-off removed from the combined sewer require SUDS designed in accordance with the CIRIA SUDS Manual C753. If this is not possible due to e.g. existing infrastructure, then this would need to be agreed with SEPA on a case-by-case basis.

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