

# Supplementary Requirements for Surface Water Drainage Proposals

(Document Revised: 05.10.2022)



National Planning Policy requires Local Planning Authorities to ensure that flood risk is not increased due to development. To ensure this requirement is met and that developments are adequately drained, we apply the West Sussex County Council (WSSCC) [Policy for the Management of Surface Water](#).

We have also developed a [surface water drainage proposals checklist](#) for planning applicants and their consultants. This checklist clearly outlines our expectations and requirements for surface water drainage proposals. A completed checklist should be submitted alongside surface water drainage proposals, to enable our drainage engineers to review and evaluate the submission quickly and efficiently.

The checklist should be used when completing 'discharge of conditions' applications or if the applicant wishes to avoid pre-commencement conditions relating to surface water drainage. Before completing this checklist please read the guidance notes below.

Any proposed surface water scheme must consider sustainable drainage (SuDS) principles.

## SuDS Selection

The following destinations must be considered for surface run-off in order of preference:

1. Discharge into the ground (infiltration). Infiltration structures include soak-away structures, basins, swales and permeable paving.
2. Attenuation followed by a controlled/restricted discharge to a surface water body. Any discharge to surface water bodies must be restricted to an agreed rate.
3. Controlled/restricted discharge to a surface water sewer. Any discharge to a surface water sewer must be restricted to an agreed rate.

**Surface water should not be discharged into the foul sewer system.**

SuDS selection hierarchy is based upon the following documents:

- *CIRIA C753 - The SuDS Manual*
- *BS8582:2013 Code of Practice for Surface Water Management for Development Sites*
- *Approved Document H of the Building Regulations*

For additional guidance, please refer to:

- *The 'West Sussex County Council (Lead Local Flood Authority) Policy For The Management of Surface Water'* (linked above).

## Infiltration Drainage Design

Any infiltration drainage design must be supported by the results of adequate winter groundwater monitoring data that has determined the highest winter groundwater table. Residential developments of five properties or more will require groundwater monitoring to be carried out between October and March inclusive. The extent of monitoring required for smaller developments will be subject to agreement with the Council's Engineers, but will need to capture **peak** groundwater levels during the winter period. This is likely to be during January/February but is dependent on certain factors including the weather.

Adequate freeboard must be provided between the base of any soakaway structures and the highest recorded groundwater level identified in that location. Ideally, this buffer zone should be at least 1 metre (as stated in the CIRIA Suds Manual guidance). However, in some locations, particularly on the coastal plain, or in other areas with unusual geology, where shallow perched and/or tidally influenced water tables are often present, this is unlikely to be achievable. The utilisation of any infiltration potential that exists must still be fully considered to avoid/minimise the use of other less favourable methods of surface water disposal. Therefore, in those specific circumstances, the utilisation of infiltration structures with bases immediately above the peak recorded groundwater levels may be acceptable/encouraged.

In areas where an aquifer is to be protected (subject to guidance from the Environment Agency) then a minimum 1 metre freeboard **must** be provided.

Suitable water treatment is required upstream of the point of infiltration in all circumstances; to minimise any groundwater pollution risk or detriment to the drainage network.

Infiltration rates for soakage structures are to be based on percolation tests undertaken at an **agreed** time during the winter period and at the location and depth of the proposed structures. The percolation test depth is also dependent on the **peak** groundwater levels recorded at that location, in so far as the test depth must not be below the peak groundwater level recorded. The percolation tests must be carried out in accordance with BRE 365, CIRIA R156 or a similar approved method. For the purpose of design, the percolation rate must be applied to the sides of the infiltration structure only and the rate for the base must be zero, unless otherwise agreed. In respect to infiltration basins or permeable pavements, the percolation rate is applied to the base only.

All design storms must include a climate change allowance, as per <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>, on stored volumes or rainfall intensity. All major applications must also include a 10% allowance for urban creep applied to the design. Infiltration structures must cater for the critical 1 in 10 year storm event, (plus 40%) between the invert of the entry pipe to the soakaway and the base of the structure. The design must also have provision to ensure that there is capacity in the system to contain the critical 1 in 100 year storm event (plus 45%) on site.

The infiltration design should also drain 50% of its total volume in 24 hours or less for the 1 in 10 (plus 40%) critical storm event and also the 1 in 100 year (plus 45%) critical storm event if possible, to provide spare capacity for subsequent storms.

## Restricted Discharge

Any discharge to a watercourse or surface water sewer must be restricted to the estimated mean greenfield runoff rate ( $Q_{bar}$ ), for all design storm events, using the impermeable area of the site, **plus** all permeable areas that are to be positively drained, in the calculations (rather than the entire greenfield site area).

Greenfield runoff rates can be derived from IH124 or a similar approved method.

For **brownfield sites**, the above criteria still applies, but if this cannot be achieved (evidence of this will need to be provided) flow should be restricted to as close to  $Q_{bar}$  as possible, with a minimum requirement of 50% betterment.

Flow restriction is to be achieved using a suitable controlled outflow with a minimum outflow of 2l/s, unless otherwise agreed, with satisfactory blockage mitigation measures specified.

The storage design must include a climate change allowance, similar to that specified in the 'Infiltration Drainage Design' above.

Any storage design must be submitted with groundwater monitoring data where applicable to ensure there will be no detrimental effect on the structure or storage capacity. If a storage structure needs to be tanked to prevent infiltration from groundwater, floatation resistance calculations will also need to be submitted.

Storage areas are preferred to be in an 'open' form such as basins or ponds, rather than underground tanks.

## Flow Exceedance Routes

The drainage design should show flow routes through the proposed development, demonstrating where surface water will be conveyed for three types of flow:

1. Low flow routes: Regular flow from source control features such as permeable pavements should travel in low flow channels through the development in a controlled way, positively contributing to landscape quality.
2. Overflows: In the event of local blockages or surcharge a simple overflow arrangement should allow water to bypass the obstruction and return to the management train sequence until conditions return to normal.
3. Exceedance routes: When SuDS are overwhelmed by exceptional rainfall, then exceedance routes are required to protect people and property. These provide unobstructed overland flow routes from the development and should be considered for all drainage schemes. Exceedance routes should also be protected from future changes in land use.

## Landscaping and Drainage

All sites must demonstrate that root potential areas of existing and proposed trees do not conflict with the proposed surface water drainage network. This is to ensure no future detriment to the infrastructure in terms of its structure and functioning.

## **Water Quality**

All developments must demonstrate provision of adequate treatment of surface water prior to discharge. Treatment at source and via a treatment train should be provided. Please refer to CIRIA C753 Chapter 26 for further details. For example, permeable paving is encouraged wherever possible.

## **Culverting a Watercourse**

The culverting (piping) of a watercourse is not advised, unless there is no alternative. The resulting reduction in storage volume, flow capacity and habitat potential would be unacceptable. Culverted watercourses are also more difficult to maintain due to the limited accessibility.

Land Drainage Consent must be sought from the Lead Local Flood Authority (West Sussex County Council), or its agent (Chichester or Arun District Councils), prior to starting any works (temporary or permanent) that affect the flow of water in the watercourse. Such works may include culverting, channel diversion, discharge of flows, connections, headwalls and the installation of trash screens.

Please also refer to the 'culvert policy' and consent application form and associated guidance document available on the West Sussex County Council website:

<https://www.westsussex.gov.uk/fire-emergencies-andcrime/dealing-with-extreme-weather/dealing-with-flooding/flood-risk-management/ordinarywatercourse-land-drainage-consent/>

The development layout must take account of any existing watercourses (open or culverted) to ensure that future access for maintenance is not restricted. A minimum 3 metre access easement is normally considered adequate. (*See also: Land Drainage Act 1991, amended 1994*).

## **Maintenance and Management**

Details of the maintenance and management of the SuDS system, including any watercourses for which the landowner is responsible, are to be set out in writing in a site-specific maintenance manual. This manual shall include details of the financial management and arrangements for the replacement of components at the end of the manufacturers recommended design life. This document is then to be submitted as part of the planning process.

## **References**

The Building Regulations 2000, Drainage and waste disposal. Approved document H  
ISBN: 1-859462-08-1

Building Research Establishment, Soakaway Design – Digest 365 (BRE 365)  
ISBN: 978 1 84806 918 6, 2016

Centre for Ecology and Hydrology. Flood Estimation for Small Catchments - IH Report 124  
Marshall, D.C.W. & Bayliss, A.C.  
ISBN: 0948540621, 1994

CIRIA C753 The SUDs Manual  
Woods-Ballard, B.; Kellagher, R. et al  
ISBN: 978-0-86017-760-9, 2015

CIRIA R156 Infiltration Drainage – Manual of Good Practice  
Bettess, R.  
ISBN: 0 86017 457 3

British Standards Institution. BS8582:2013 – Code of Practice for Surface Water  
Management for Development Sites  
ISBN: 978 0 580 76700 5