

Digest

Soakaway design

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Digest 365 is one of the most widely used BRE publications, aiding designers to support planning and development applications. This edition of Digest 365 describes the design and construction procedures for soakaways, and explains how to calculate rainfall design values and soil infiltration rates. It also gives useful examples of how to design soakaways.

This revised edition includes important changes to recommendations and requirements which have been introduced since the last edition was published in 2007.

1 Introduction

Digest 365 on soakaway design was first published in 1991, replacing Digest 151. Digest 365 is widely used by designers to support planning and development applications.

This revised edition includes a number of important changes, including the following:

- recommendations by The Environment Agency on predicted climate change effects
- data on a return period of 100 years
- description of sustainable drainage systems (SUDS)
- flood management
- updated illustrations and new references
- glossary.

This revised edition retains the fundamental approach included in previous editions – the content has been updated rather than rewritten. However, the revision will ensure that Digest 365 remains fit for purpose.

This Digest describes design and construction procedures for soakaways, explains how to calculate rainfall design values and soil infiltration rates, and gives examples of designing soakaways. It provides data to facilitate designs for 10- to 100-year rainfall events (note that regulatory requirements may not be as onerous as 100-year events).

A traditional way of disposing of surface water from buildings and paved areas, soakaways are used remotely from a public sewer or watercourse. However, in recent years, soakaways have been used within urban, fully sewered areas to limit the impact on discharge of new upstream building works and to avoid the cost of upgrading sewers outside building developments. Increasingly soakaways are seen as a more widely applicable option alongside other means of surface water control and disposal in sustainable drainage.

Soakaways are used to store the immediate surface water run-off from hard surfaced areas, such as roofs or car parks, and allow for efficient infiltration into the adjacent soil. They discharge their stored water sufficiently quickly to provide the necessary capacity to receive run-off from a subsequent storm. The time taken for discharge depends upon the soakaway shape and size, and the surrounding soil's infiltration characteristics.

Soakaways can be square, circular (conventional), or trench excavations. They can be filled with rubble, lined with brickwork, plastic cells, perforated pre-cast concrete ring units or any similar structure that collects rainwater and run-off. The structures are built to allow rainwater to infiltrate directly into the ground. Soakaways can also be deep bored.

There are times when a soakaway may not be an appropriate solution, eg in areas of ground that have low permeability, where surface water could be contaminated. The maximum seasonal water table should be above the base of the soakaway; contaminants in the ground could be mobilised, or in areas of instability.

Although the guidance in this Digest can inform design and construction of soakaways, further specialist advice will be required.