

BSI Standards Publication

Pavements constructed with clay, concrete or natural stone paving units

Part 103: Design and installation of modular permeable pavements – Guide



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Published by BSI Standards Limited 2026

ISBN 978 0 539 29613 6

ICS 93.080.20

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The following BSI references relate to the work on this document:

Committee reference B/507

Draft for comment 25/30483651 DC

Amendments/corrigenda issued since publication

Date	Text affected
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Foreword

Publishing information

This part of [BS 7533](#) is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 March 2026. It was prepared by Technical Committee B/507, *Paving units and kerbs*. A list of organizations represented on this committee can be obtained on request to the committee manager.

Supersession

This part of [BS 7533](#) supersedes [BS 7533-13:2009](#), which is withdrawn.

Relationship with other publications

[BS 7533](#) is published in the following parts:

- Part 101: *Code of practice for the structural design of pavements using modular paving units*;
- Part 102: *Installation of pavements using modular paving units – Code of practice*; and
- Part 103: *Design and installation of modular permeable pavements – Guide*.

Information about this document

This is a full revision of the document, and introduces the following principal changes:

- inclusion of a greater range of surfacing units and materials;
- guidance on bound surface courses; and
- increased infiltration rates to reflect expected changes in rainfall intensity.

This publication can be withdrawn, revised, partially superseded or superseded. Information regarding the status of this publication can be found in the Standards Catalogue on the BSI website at knowledge.bsigroup.com, or by contacting the Customer Services team.

Where websites and webpages have been cited, they are provided for ease of reference and are correct at the time of publication. The location of a webpage or website, or its contents, cannot be guaranteed.

Use of this document

As a guide, this part of [BS 7533](#) takes the form of guidance and advisory recommendations. It is not to be quoted as if it were a specification or a code of practice.

Presentational conventions

The guidance in this document is presented in roman (i.e. upright) type. Any recommendations are expressed in sentences in which the principal auxiliary verb is “should”.

Additional commentary, explanation and general informative material is presented in smaller italic type.

Where words have alternative spellings, the preferred spelling of the *Shorter Oxford English Dictionary* is used (e.g. “organization” rather than “organisation”).

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1 Scope

This part of [BS 7533](#) gives guidance on the design of permeable pavements surfaced with:

- concrete paving blocks manufactured in accordance with [BS EN 1338](#);
- concrete paving flags manufactured in accordance with [BS EN 1339](#);
- natural stone slabs manufactured in accordance with [BS EN 1341](#);
- natural stone setts manufactured in accordance with [BS EN 1342](#);
- clay pavers manufactured in accordance with [BS EN 1344](#); and
- other modular paving units, including porcelain.

It applies to areas subject to pedestrian and vehicular loading, with axle loads up to 11 000 kg and a cumulative design traffic of up to 30 million standard axles (msa).

This part of [BS 7533](#) specifically excludes design traffic above the specified maximum and areas of higher vehicle loading such as aircraft pavements and those in ports and specialized industrial areas. Although permeable pavements are often used effectively in conjunction with tree pits and tree root protection systems, the design and construction of tree root protection and tree pits is a specialist application and is not covered in this part of [BS 7533](#).

Design for impermeable surfaces with water stored within the pavement foundation layers, commonly known as a reservoir foundation below, is not covered by this part of [BS 7533](#).

This part of [BS 7533](#) applies to the design and installation of permeable pavements formed from paving units bedded on and jointed with graded granular permeable aggregates or permeable mortar where there is a full depth permeable base and/or sub-base construction below. Following this guidance provides a sustainable drainage system (SuDS) pavement design.

A surface constructed with a permeable laying course and permeable jointing material, bound or unbound, where the underlying pavement construction is impermeable (for example, an existing or new impermeable road base or similar) can be used to provide a surface drainage function or degree of surface water control in some scenarios and is covered in [Annex A](#). This configuration, sometimes referred to as “permeable paving overlay”, can be considered a SuDS component where it is demonstrated by testing that it can cleanse and/or attenuate surface water for the lifetime of the pavement.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes provisions, or limits the application, of this document¹⁾. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

[BS 8582](#), *Code of practice for surface water management for development sites*

[BS 8661](#), *Geotextiles – Guidance for specification for basic separation and filtration functions*

[BS EN 1338](#), *Concrete paving blocks – Requirements and test methods*

[BS EN 1339](#), *Concrete paving flags – Requirements and test methods*

[BS EN 1341](#), *Slabs of natural stone for external paving – Requirements and test methods*

[BS EN 1342](#), *Setts of natural stone for external paving – Requirements and test methods*

¹⁾ Documents that are referred to solely in an informative manner are listed in the Bibliography.