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# Concrete pipes and ancillary concrete products —

**Part 1: Specification for unreinforced and reinforced concrete pipes (including jacking pipes) and fittings with flexible joints (complementary to BS EN 1916:2002)**

ICS 23.040.50; 91.100.30

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## British Standard

The preparation of this British Standard was entrusted to Technical Committee B/505, Wastewater engineering, upon which the following bodies were represented:

British Plastics Federation

Chartered Institution of Water and Environmental Management

Clay Pipe Development Association

CPSA — Concrete Pipeline Systems Association

Institute of Cast Metals Engineers

Institution of Civil Engineers

LOTAG — London Technical Advisors Group

METCOM

ODPM represented by BRE

Water UK

This British Standard, having been prepared under the direction of the Engineering Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 18 November 2002

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The several parts of BS 5911 specify requirements for various types of precast concrete pipe and ancillary concrete products such as manholes, inspection chambers and street gullies.

BS 5911-1 has been prepared under the direction of Technical Committee B/505. It is a revision of part of the content of BS 5911-100 and BS 5911-120. BS 5911-1 was prepared to complement, and to be used in conjunction with, BS EN 1916. In order not to create any barrier to trade, products under the scope of this British Standard are specified as conforming to "BS EN 1916 and BS 5911-1 or equivalent".

BS 5911-1:2002+A2:2010 supersedes BS 5911-1:2002+A1:2004, which is withdrawn.

BS EN 1916:2002 does not contain all the requirements of the existing national specifications of CEN members because complete agreement could not be achieved. BS 5911-1 contains requirements from BS 5911-100 and BS 5911-120 that could not be agreed upon for inclusion in EN 1916.

<sup>A1)</sup> The requirements for cementitious content and cement groupings have been aligned with the provisions of BS 8500-1:2006 and BRE Special Digest 1 [1] insofar as they relate to precast concrete pipeline systems. <sup>A1)</sup>

The start and finish of text introduced or altered by Amendments No. 1 and No. 2 is indicated in the text by tags <sup>A1)</sup> <sup>A1)</sup> and <sup>A2)</sup> <sup>A2)</sup>. Minor editorial changes are not tagged.

Amendment A2 introduces the following principal changes:

- all references to other standards have been updated;
- Table 2 and Table 3 have been replaced to align with BS 8500.

For an enquiry or order to be fully understood it is essential that the manufacturer be given the information set out in Annex A of this part of BS 5911.

*Product certification.* Users of this part of BS 5911 are advised to consider the desirability of third party certification of product conformity with this British Standard. Appropriate conformity attestation arrangements are described in BS EN 1916. Users seeking assistance in identifying appropriate conformity assessment bodies or schemes may ask BSI to forward their enquiries to the relevant association.

BSI Committee B/505, whose constitution is shown in this British Standard, takes collective responsibility for its preparation under the authority of the Standards Policy and Strategy Committee. The committee wishes to acknowledge the contribution of the following organizations:

The Concrete Society;

The Institution of Highways and Transportation;

The Pipe Jacking Association.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with a British Standard cannot confer immunity from legal obligations.**

### Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 21 and a back cover.

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## 1 Scope

BS EN 1916 specifies requirements and describes test methods for precast concrete pipes and fittings, unreinforced, steel fibre and reinforced, with flexible joints and nominal sizes not exceeding DN 1750 or WN/HN 1200/1800, for which the main intended use is the conveyance of sewage, rainwater and surface water under gravity or occasionally at low head of pressure in pipelines that are generally buried. The scope includes pipes (collectively referred to as "jacking pipes") intended to be installed by pipe jacking, microtunnelling or other trenchless technology.

This part of BS 5911 specifies complementary requirements to those in BS EN 1916 for unreinforced and reinforced concrete pipes and fittings, as provided for in that European Standard, with nominal sizes not exceeding DN 1500 for circular pipes with base and WN/HN 800/1200 for egg-shaped pipes. Full requirements for reinforced concrete circular trench and jacking pipes with nominal sizes greater than DN 1750, but not exceeding DN 3000, are also specified.

In addition to pipes and fittings having a circular cross-section, BS EN 1916 also covers circular pipes with base and egg-shaped pipes, neither of which are within the scope of BS 5911-100. However, these products are now manufactured in the United Kingdom and so they have been included in this part of BS 5911.

Steel fibre concrete jacking pipes are not manufactured in the United Kingdom and so are excluded from this part of BS 5911. <sup>A2</sup> BS EN 752 <sup>A2</sup>, BS EN 1295-1 and BS EN 1610 deal with the planning, design, installation and testing of drains and sewers. The Pipe Jacking Association's "Guide to best practice for the installation of pipe jacks and microtunnels" [3] is a source of advice on the use of jacking pipes.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

<sup>A2</sup> Text deleted. <sup>A2</sup>

<sup>A1</sup> Text deleted. <sup>A1</sup>

BS 3123, *Specification for spring calipers and spring dividers.*

<sup>A2</sup> Text deleted. <sup>A2</sup>

BS 4027, *Specification for sulfate-resisting Portland cement.*

BS 4035, *Specification for linear measuring instruments for use on building and civil engineering constructional works — Steel measuring tapes, steel bands and retractable steel pocket rules.*

<sup>A2</sup> BS 4449, *Steel for the reinforcement of concrete — Weldable reinforcing steel — Bar, coil and decoiled product — Specification.* <sup>A2</sup>

<sup>A2</sup> BS 4482, *Steel wire for the reinforcement of concrete products — Specification.* <sup>A2</sup>

<sup>A2</sup> BS 4483, *Steel fabric for the reinforcement of concrete — Specification.* <sup>A2</sup>

BS 4484-1, *Specification for measuring instruments for constructional works — Part 1: Metric graduation and figuring of instruments for linear measurement.*

BS 4921:1988, *Specification for sherardized coatings on iron or steel.*

<sup>A2</sup> Text deleted. <sup>A2</sup>

BS 5204-1, *Specification for straightedges — Part 1: Cast iron straightedges (bow shaped and I-section).*

BS 5204-2, *Specification for straightedges — Part 2: Steel or granite straightedges of rectangular section.*

<sup>A2</sup> Text deleted. <sup>A2</sup>

<sup>A2</sup> Text deleted. <sup>A2</sup>

<sup>A2</sup> BS 7979, *Specification for limestone fines for use with Portland cement.* <sup>A2</sup>

<sup>A2</sup> BS 8500-2:2006, *Concrete — Complementary British Standard to BS EN 206-1 — Part 2: Specification for constituent materials and concrete.* <sup>A2</sup>

BS EN 197-1, *Cement — Part 1: Composition, specifications and conformity criteria for common cements.*

<sup>A2</sup> BS EN 197-4, *Cement — Part 4: Composition, specifications and conformity criteria for low early strength blastfurnace cements.* <sup>A2</sup>