AS 1597.1—2010

Australian STANDARD

Precast reinforced concrete box culverts

Part 1: Small culverts (not exceeding 1200 mm span and 1200 mm height)

STANDARDS Australia

This Australian Standard® was prepared by Committee CE-026, Precast Reinforced Concrete Box Culverts. It was approved on behalf of the Council of Standards Australia on 24 June 2010.
This Standard was published on 18 August 2010.

The following are represented on Committee CE-026:

- AUSTROADS
- Association of Consulting Engineers Australia
- Australasian Railway Association
- Australian Chamber of Commerce and Industry
- Concrete Pipe Association of Australasia
- Engineers Australia
- Institute of Public Works Engineering Australia
- National Precast Concrete Association Australia
- University of Sydney

This Standard was issued in draft form for comment as DR 09064.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

Keeping Standards up-to-date

Australian Standards® are living documents that reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued.

Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments that may have been published since the Standard was published.

Detailed information about Australian Standards, drafts, amendments and new projects can be found by visiting **www.standards.org.au**

Standards Australia welcomes suggestions for improvements, and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at **mail@standards.org.au**, or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

Australian Standard®

Precast reinforced concrete box culverts

Part 1: Small culverts (not exceeding 1200 mm span and 1200 mm height)

Originated as AS A136—1963.
AS A136—1963 revised and designated, in part, as AS 1597.1—1974.
Second edition 2010.
Reissued incorporating Amendment No. 1 (August 2018)

Published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001, Australia

ISBN 978 0 7337 9659 3

PREFACE

This Standard was prepared by the Standards Australia Committee CE-026, Precast Reinforced Concrete Box Culverts, to supersede AS 1597.1—1974, *Precast reinforced concrete box culverts*, Part 1: *Small culverts (not exceeding 1200 mm width and 900 mm depth)*.

This Standard incorporates Amendment No. 1 (August 2018). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

The objective of this Standard is to provide designers, manufacturers, installers and specifiers of culverts with minimum requirements for the design, testing, manufacture and installation of precast reinforced concrete rectangular box culverts of spans up to 1200 mm.

The objective of this revision is to align the Standard with current manufacturing and installation practices as well as governing design codes.

The revised Standard provides for four types of culvert and a range of standard sizes up to and including 1200 mm span and 1200 mm height. Values for test loads are given, based on AS 5100, *Bridge design*, Part 2: *Design loads*.

A1 This revision includes Amendment 1 which incorporates an expanded standard size range in Table 2.5. The range of standard sizes specified in Table 2.5 in AS 1597.1 have proven to be too limited for the needs of customers and suppliers. The original Note 2 to Table 2.5 and Table 2.6 has been used by customers to order sizes not specified in the tables, which has caused difficulty for suppliers and increased costs and time delays for customers. This amendment is intended to offer a larger range of standard sizes to suit customer needs and to reduce the need for suppliers to provide sizes not specified in Table 2.5. An extra eight standard sizes have been added to Table 2.5.

Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

CONTENTS

Page

STANDARDS AUSTRALIA

Australian Standard
Precast reinforced concrete box culverts

Part 1: Small culverts (not exceeding 1200 mm span and 1200 mm height)

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard sets out minimum requirements for the design, testing, manufacture and installation of precast reinforced concrete box culverts for conveying water not under pressure, and for carrying roadway and railway loadings permitted by AS 5100.2.

Culvert units, lids, link and base slabs manufactured in accordance with this Standard can be expected to achieve a design life in excess of 100 years.

Design requirements are focused on proving load and ultimate strength load testing. Alternatively, design by calculation in accordance with AS 1597.2 is acceptable.

1.2 APPLICATION

This Standard is applicable to rectangular precast culvert units having a maximum span of 1200 mm and maximum height of 1200 mm. Precast culvert units covered by this Standard have a nominal maximum length of 2400 mm and are used under a maximum fill height of 2 m (road load class) or 5 m (railway load class).

NOTES:

1 Guidelines to purchasers on requirements that may need to be agreed upon at the time of calling for tenders or quotations are detailed in Appendix A.

2 Information on means for demonstrating compliance with this Standard is given in Appendix B.

3 For precast reinforced box culverts of internal dimensions exceeding 1250 mm span or 1250 mm height, refer to AS 1597.2.

4 Additional design considerations may be required for special culverts, e.g., skewed ends, culvert units with large holes, roadway culverts subjected to loadings other than standard roadway loadings and fill heights greater than 2 m, and railway culverts subjected to loadings other than standard railway loadings and fill heights greater than 5 m.

1.3 NORMATIVE REFERENCES

The following are the normative documents referenced in this Standard:

NOTE: Documents referenced for informative purposes are listed in the Bibliography.

AS		
1012	Methods of testing concrete	
1012.1	Part 1:	Sampling of fresh concrete
1012.8.1	Part 8.1:	Method of making and curing concrete—Compression and indirect tensile test specimens
1012.8.2	Part 8.2:	Method of making and curing concrete—Flexure test specimens
1012.9	Part 9:	Determination of the compressive strength of concrete specimens