AS 1597.2—2013

Australian Standard®

Precast reinforced concrete box culverts

Part 2: Large culverts (exceeding 1200 mm span or 1200 mm height and up to and including 4200 mm span and 4200 mm height)

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 21 March 2013
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The following are represented on Committee CE-026:

- AUSTROADS
- Australasian Railway Association
- Concrete Pipe Association of Australasia
- Engineers Australia
- National Precast Concrete Association Australia
- University of Sydney

This Standard was issued in draft form for comment as DR AS 1597.2.

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.

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PREFACE

This Standard was prepared by the Standards Australia Committee CE-026, Precast Reinforced Concrete Box Culverts, to supersede AS 1597.2—1996, *Precast reinforced concrete box culverts*, Part 2: *Large culverts (from 1500 mm span and up to and including 4200 mm span and 4200 mm height)*.

The objective of this Standard is to provide designers, manufacturers, installers and specifiers of culverts with minimum requirements for the design, manufacture and installation of precast reinforced concrete rectangular box culverts of spans up to 4200 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 4200 mm width and 4200 mm height. Design requirements are based on the AS 5100 series, *Bridge design* and AS 3600, *Concrete structures*.

Where the Standard departs from these Standards, or includes additional requirements in excess of those specified in these Standards, it identifies that the purchaser has the option to adopt the design requirement in this Standard, or to revert back to AS 5100 series or AS 3600 series requirements. Appendix A also contains advice and recommendations on the information that should be supplied by the purchaser at the time of inquiry or order to assist with these design requirements.

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.

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard sets out minimum requirements for the design, manufacture and installation of precast reinforced concrete rectangular box culverts for conveying water not under pressure, and for carrying roadway and railway loadings specified by the AS 5100 series.

This Standard is applicable to the design of culverts in dry or intermittently wet conditions.

NOTES:

1 For culverts to be designed for embankments that occasionally impound water, specialist design advice should be sought regarding the overall embankment stability.

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

3 Design requirements are based on the methods of limit state design, using theoretical strength and serviceability calculations. Alternatively, design by prototype testing in accordance with the general principles and requirements of the AS 5100 series or AS 3600 is acceptable.

4 The testing procedure and test loads for prototype testing should demonstrate that the units tested satisfy the design loads and manufacturing requirements of this Standard.

1.2 APPLICATION

This Standard is applicable to rectangular precast culvert units having a standard length of 1200 mm, a maximum height of 4200 mm and a span exceeding 1200 mm up to 4200 mm.

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 Lengths greater than 1200 mm may be ordered, preferably in multiples of 1200 mm (e.g. 2400 mm and 3600 mm).

4 For precast reinforced concrete box culverts of internal dimensions not exceeding 1200 mm nominal span and 1200 mm nominal height, refer to AS 1597.1.

5 Additional design considerations may be required for special culverts (e.g. larger spans, skewed ends, culvert units with large holes, roadway culverts subjected to loadings other than standard roadway loadings and railway culverts).

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.

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1012	Methods of testing concrete	
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