AS 2159 Supplement 1—1996

Piling—Design and installation—Guidelines

(Supplement to AS 2159—1995)

This Australian Standard was prepared by Committee CE/18, Piling. It was approved on behalf of the Council of Standards Australia on 14 December 1995 and published on 5 March 1996.

The following interests are represented on Committee CE/18:

Association of Consulting Engineers, Australia

Australian Federation of Construction Contractors

Australian Geomechanics Society

Australian Uniform Building Regulations Coordinating Council

Austroads

Confederation of Australian Industry

CSIRO, Division of Applied Geomechanics

Department of Administrative Services — Australian Construction Services

Institution of Engineers, Australia

Monash University

Railways of Australia Committee

Timber Preservers Association of Australia

University of Sydney

Waterways Authority

Review of Australian Standards. To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all Australian Standards and related publications will be found in the Standards Australia Catalogue of Publications; this information is supplemented each month by the magazine 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

STANDARDS AUSTRALIA

RECONFIRMATION

OF
AS 2159 Supp 1–1996
Piling–Design and installation–Guidelines
(Supplement to AS 2159–1995)

RECONFIRMATION NOTICE

Major stakeholders of this publication have reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 29 August 2018.

AS 2159 Supplement 1—1996

Piling—Design and installation—Guidelines

(Supplement to AS 2159—1995)

PREFACE

These Guidelines have been produced by the Standards Australia Committee CE/18 on Piling.

The material contained in these Guidelines was assembled during the preparation of AS 2159—1995, but was not considered to be of a mandatory nature and hence not appropriate for inclusion in the Standard. However, the Committee considered that the material would be helpful to designers and constructors and agreed that the material be published in this separate document.

© Copyright - STANDARDS AUSTRALIA

Users of Standards are reminded that copyright subsists in all Standards Australia publications and software. Except where the Copyright Act allows and except where provided for below no publications or software produced by Standards Australia may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from Standards Australia. Permission may be conditional on an appropriate royalty payment. Requests for permission and information on commercial software royalties should be directed to the head office of Standards Australia.

Standards Australia will permit up to 10 percent of the technical content pages of a Standard to be copied for use exclusively in-house by purchasers of the Standard without payment of a royalty or advice to Standards Australia.

Standards Australia will also permit the inclusion of its copyright material in computer software programs for no royalty payment provided such programs are used exclusively in-house by the creators of the programs.

Care should be taken to ensure that material used is from the current edition of the Standard and that it is updated whenever the Standard is amended or revised. The number and date of the Standard should therefore be clearly identified.

The use of material in print form or in computer software programs to be used commercially, with or without payment, or in commercial contracts is subject to the payment of a royalty. This policy may be varied by Standards Australia at any time.

CONTENTS

			Page
SE	CTIO	N 1 SCOPE AND GENERAL	
	1.1		
	1.2	REFERENCED DOCUMENTS	. 4
SE	CTIO	ON 2 SITE INVESTIGATIONS	
	2.1	INTRODUCTORY NOTE	. 5
	2.2	PRELIMINARY INVESTIGATIONS	. 5
	2.3	INVESTIGATION TECHNIQUES	. 5
	2.4	BORE FREQUENCY/SPACING	. 6
	2.5	TESTS OF SOIL/GROUND WATER AGGRESSIVENESS	. 6
	2.6	COMMENTS RELATING TO SPECIFIC PILE TYPES	. 7
SE	CTIO	ON 3 REFERENCES FOR DESIGN CALCULATIONS	
	3.1	GENERAL	. 9
	3.2	GENERAL REFERENCES	. 9
	3.3	AXIAL CAPACITY OF SINGLE PILES AND PILE GROUPS	. 10
	3.4	DYNAMIC ANALYSIS OF PILES	
		(DRIVING AND DYNAMIC TESTING)	. 11
	3.5	SETTLEMENT OF SINGLE PILES, PILE GROUPS	
		AND PILED RAFTS	. 12
	3.6	LATERAL RESPONSE OF PILES	. 13
	3.7	DYNAMIC RESPONSE OF SINGLE PILES AND PILE GROUPS	. 14
	3.8	MISCELLANEOUS TOPICS INCLUDING EFFECTS OF	
		EXTERNAL SOIL MOVEMENT, TORSIONAL LOADING,	
		BUCKLING AND STABILITY	. 14
SE	CTIO	ON 4 DURABILITY	
	4.1	CONCRETE PILES	. 16
	4.2	STEEL PILES	. 18
	4.3	TIMBER PILES	. 23
	4.4	REFERENCES	. 23
SE	CTIO	ON 5 TESTING	
	5.1	INTRODUCTION	. 24
	5.2	STATIC COMPRESSION LOAD TESTING OF PILES	. 27
	5.3	TENSION (UPLIFT) LOAD TESTING OF PILES	. 28
	5.4	LATERAL LOAD TESTING OF PILES	. 28
	5.5	DYNAMIC PILE TESTING	. 28
	5.6	ALTERNATIVE TESTING METHODS	. 30
	57	INTEGRITY TESTING	30

STANDARDS AUSTRALIA

Piling—Design and installation—Guidelines (Supplement to AS 2159—1995)

SECTION 1 SCOPE AND GENERAL

- **1.1 SCOPE** These Guidelines provide information on pile design and installation in relation to AS 2159.
- **1.2 REFERENCED DOCUMENTS** The following documents are referred to in this document:

AS	
1604	Timber—Preservative-treated—Sawn and round
1726	Geotechnical site investigations
2159	Piling—Design and installation
2239	Galvanic (sacrificial) anodes for cathodic protection
2312	Guide to the protection of iron and steel against exterior atmospheric corrosion
3600	Concrete structures
ASTM	
	Maria Comparation and the state of the state
D 3689	Method of Testing Individual Piles Under Static Axial Tensile Load
D 3966	Method of Testing Piles Under Lateral Loads