



THE HIGHWAYS AGENCY



THE SCOTTISH OFFICE DEVELOPMENT DEPARTMENT



**THE WELSH OFFICE
Y SWYDDFA GYMREIG**



**THE DEPARTMENT OF THE ENVIRONMENT FOR
NORTHERN IRELAND**

Introduction to the Design Manual for Roads and Bridges

Summary: This introduction provides information on the use of the manual for the design and assessment of trunk road schemes. It extends and replaces the information given in HA 51/96 (DMRB 1.0.1), which is hereby superseded.

**VOLUME 1 HIGHWAY STRUCTURES -
APPROVAL PROCEDURES
AND GENERAL DESIGN**

**SECTION 0 PUBLICATION
PROCEDURE**

PART 1

**INTRODUCTION TO THE DESIGN
MANUAL FOR ROADS AND BRIDGES
(DMRB)**

SUMMARY

This Introduction provides information on the use of the manual for the design and assessment of trunk road schemes. It extends and replaces the information given in HA51/96 (DMRB 1.0.1), which is hereby superseded. Also included is a note (in two versions) to go at the front of each of the other volumes to remind users to read the Introduction before making use of the particular volume.

INSTRUCTIONS FOR USE

1. Remove HA51/96, which is superseded by this Introduction (DMRB 1.0.1), and archive as appropriate.
2. Insert Introduction (DMRB 1.0.1) into Volume 1, Section 0.
3. Insert Note to Users, Version A at the front of Volumes 2 to 8, Volume 10 and Volumes 12 to 15.
4. Insert Note to Users, Version B at the front of Volumes 9 and 11.
5. Archive this sheet as appropriate.

Note: A quarterly index with a full set of Volume Contents Pages is available separately from the Stationery Office Ltd.

REGISTRATION OF AMENDMENTS

| Amend No | Page No | Signature & Date of incorporation of amendments | Amend No | Page No | Signature & Date of incorporation of amendments |
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**SECTION 0 PUBLICATION
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PART 1

**INTRODUCTION TO THE DESIGN
MANUAL FOR ROADS AND BRIDGES
(DMRB)**

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1. INTRODUCTION

The Manual

1.1 The “Design Manual for Roads and Bridges” (DMRB) was introduced in 1992 in England and Wales, and subsequently in Scotland and Northern Ireland. It provides a comprehensive manual system which accommodates, within a set of loose-leaf volumes, all current standards, advice notes and other published documents relating to the design, assessment and operation of trunk roads (including motorways). It has been developed from a number of separate series of documents previously published by the Overseeing Organisations of England, Scotland, Wales and Northern Ireland. These documents, together with later additions, have been gathered together in a consistent series of volumes within the manual to help in meeting the requirements of quality assurance procedures.

1.2 This Introduction provides information on the use of the manual for the design and assessment of trunk road schemes. It extends and replaces the information given in HA 51/96 (DMRB 1.0.1), which is hereby superseded. Particularly, it sets out the basis on which documents are prepared, how they should be used, how the series of documents should be accommodated within the manual, and how future additions and updating are to be handled.

1.3 Documents (new and amended) in the manual are published quarterly, together with an index containing revised volume contents pages and an alpha-numeric listing of the documents in the manual.

Use of the Manual for Trunk Roads

1.4 The documents in the manual have been prepared by the Overseeing Organisations specifically for use when assessing and designing trunk roads (including motorways) throughout the UK, subject to any restrictions contained in individual documents. Examples of such restrictions might be where a certain document is stated as not for use in Scotland or Northern Ireland, or where it is specific to a particular Overseeing Organisation.

Use of the Manual by Other Highway Authorities

1.5 The manual sets a standard of good practice that has been developed principally for trunk roads. It may also be applicable in part to other roads with similar characteristics. Where it is used for local road schemes,

it is for the local highway authority to decide on the extent to which the documents in the manual are appropriate in any particular situation.

1.6 While the requirements given in the manual may be the best guidance available to local authorities, such authorities should ensure that their application to local road schemes does not compromise safety, result in poor value for money, or have an unacceptable impact on the environment. It is recommended that any local highway authority making use of the manual should establish formal procedures for considering whether it is appropriate to depart from particular requirements (see paragraphs 1.15, 1.16 and 1.17 below).

Implementation

1.7 Individual documents in the manual are to be implemented in accordance with the instructions given with that particular document. The inclusion of the document in the manual simply provides a controlled procedure for its retention and updating.

Terminology

1.8 In documents published before April 1994, the term "Overseeing Department" was used for reference to:

The Department of Transport

The Scottish Office Industry Department

The Welsh Office (Y Swyddfa Gymreig)

The Department of the Environment for Northern Ireland

1.9 More recently, the term “Overseeing Organisation” has been used in place of “Overseeing Department” to reflect the setting up of the Highways Agency in England and to be compatible with the titles of the other national road organisations. The term “Overseeing Organisation” now refers to the equivalent organisation in the other organisations as follows:

The Highways Agency

The Scottish Office Development Department
The Welsh Office Highways Directorate
(Y Swyddfa Gymreig, Adran Y Cyfarwyddwr Priffyrdd)

The Department of the Environment for Northern Ireland: Roads Service

1.10 When the manual is used in Northern Ireland, references to “trunk roads” should be taken as applying to those roads so designated by the Overseeing Organisation.

1.11 There are some cross references in the manual to documents in the “Manual of Contract Documents for Highway Works” (MCHW). This is a complementary manual to the DMRB that contains documents relating to contract document compilation, specifications, contractual details, method of measurement and other guidance covering contractual issues. The manual contains the Specification for Highway Works and the Highway Construction Details which are incorporated directly into contracts by reference. It should be noted that there is a certain amount of interlinking between the manual and these latter two documents.

Scope

1.12 The manual embodies the collective experience of the Overseeing Organisations, their agents and design organisations over many years, and as such, represents a guide to best practice. It provides technical requirements and guidance resulting from research and practical experience in the management of the trunk road system. It is continuously reviewed, to keep abreast of changes in practice and developments in technology, to improve safety, to reduce environmental impact and to give better value for money.

1.13 The structure of the manual allows for the co-ordinated issue of documents covering a specific field of activity. For example, in the field of environmental design, Volume 10 has been issued containing nine co-ordinated Advice Notes (DMRB 10.1.1 etc), collectively known as the Good Roads Guide.

1.14 The manual has been prepared for use by appropriately qualified and experienced professional staff. It is not a statutory or regulatory document nor a training manual; neither does it cover every point in exhaustive detail. Many matters are left to the professional expertise and judgement of users, while others are covered elsewhere, in British or European standards, in codes of practice and in specifications which are cross referenced in the text. The technical requirements given in the manual must be adhered to for trunk roads unless a departure is approved (see paragraphs 1.15, 1.16 and 1.17 below).

Relaxations and Departures

1.15 In some instances the technical requirements in a document prescribe a number of levels of provision. In such cases the particular requirement must be met, but the user has discretion to relax the criteria within certain limits if it is not practical to meet the absolute criteria in full. (Note: in Northern Ireland relaxations are not at the discretion of users but can only be granted by the Overseeing Organisation). This could be, for example, for reasons such as linking into the existing road or to reduce the impact on property or the environment, where safety issues are not compromised and the cost of complying with the full requirements could not be justified.

1.16 Where special circumstances arise and the straightforward application of the technical requirements cannot be justified for some reason, such as the environmental impact or cost, users are encouraged to come forward with departures which go beyond relaxations from the criteria or propose additional criteria (for aspects not covered by existing documents) based on a reasoned assessment. Each Overseeing Organisation has procedures for considering such proposals on their merits and accepting or rejecting them.

1.17 Users must ensure that any proposal involving a departure from the technical requirements is formally approved through the particular procedures of the relevant Overseeing Organisation prior to incorporation into the works. Approval cannot and will not be given retrospectively for departures exposed at a later stage. Relaxations may be applied at the user's discretion but it is recommended that the reasons for their application are recorded and copied to the relevant Overseeing Organisation prior to incorporation into the works.

2. USE OF THE MANUAL FOR THE DESIGN OF HIGHWAYS

2.1 The manual supports policy, administrative and technical procedures which are required to ensure that the Overseeing Organisations operate in an efficient and effective manner. Particular volumes and documents contain technical requirements and guidance on a wide range of topics, such as:

- (a) technical and other procedures and methods to be employed;
- (b) analytical criteria to be used;
- (c) appraisal requirements;
- (d) dimensional requirements;
- (e) numerical and statistical data.

2.2 The documents give guidance and set technical requirements for the economic, engineering, environmental, aesthetic and horticultural criteria which apply to the trunk road network and are an essential component in obtaining quality. They:

- (a) define the quality of the trunk road network in terms of value for money consistent with adequate safety and durability, while taking into account the impact on the environment and costs;
- (b) provide a sound and rational basis on which competitive tenders can be sought;
- (c) develop and promulgate best practice whilst encouraging innovation;
- (d) facilitate quality control of design, construction and maintenance;
- (e) define methods for assessing maintenance requirements when evaluating options;
- (f) define methods for monitoring the performance of the network.

2.3 The documents in the manual fall into three categories: standards (technical requirements), advice notes and combined documents. The function of each of these is:

Standards - set out the Overseeing Organisation's technical requirements applicable to those roads for which they are the highway authority. Generally the use of standards is a requirement for the relevant Overseeing Organisation's roads except where departures are agreed.

Advice Notes - these amplify and advise on particular technical requirements. They also provide guidance (representing best practice) to users. They advise on matters that should be taken into account according to local circumstances for a particular requirement on a scheme.

Combined Documents - include technical requirements, advice and guidance within a single document. In these documents technical requirements are distinguished by use of a text box as illustrated below.

3.7 The criteria given in Table 3 shall apply for all situations where the ...

2.4 The Overseeing Organisations have various procedures for issuing documents giving guidance on problems which need to be addressed urgently where it would take too long to publish a new document or amend one that is already in the manual. In such instances the Overseeing Organisation will issue the guidance directly to those users working on trunk road schemes that may be affected. Such guidance will normally have a limited life before being incorporated into the manual. It will not be formally published nor available from the Stationary Office Ltd.

Construction (Design and Management) Regulations 1994

2.5 The CDM Regulations 1994 [in Northern Ireland - the Construction (Design and Management) Regulations (Northern Ireland) 1995] impose duties on designers of construction projects to avoid foreseeable risks to health and safety or reduce these risks so far as is reasonably practicable so that a project can be constructed, used, maintained and demolished safely. Designers also have to ensure that the design includes

adequate information about any aspect of the project which might affect health or safety and to co-operate with the planning supervisor or other designers on such matters.

2.6 In requiring designers to conform to specific requirements in the manual, the Overseeing Organisations are aware of the need for them to comply with the Regulations. However, the Overseeing Organisations also have a duty to the travelling public to ensure, so far as is reasonably possible, a balance in safety between them and that of the workforce. The requirements of the manual take this into account. It is also important when considering the relaxation of, or departure from, any requirements in the manual that users ensure that health and safety standards are not compromised.

Department of Transport Documents

2.7 In addition to the documents in the manual, the Department of Transport prepares general advice, some of which is applicable to trunk roads. Of these documents the most relevant are Local Transport Notes (LTN), which in some cases refer to requirements having a statutory backing which apply fully or in part to trunk roads. Where these apply they are incorporated into the manual by reference. Copies of LTNs are not included with the document but are available separately from the Stationery Office Ltd. Other documents such as Traffic Advisory and Traffic Topic Leaflets mostly cover topics which apply to local rather than trunk roads but some are of general relevance.

3. COVERAGE OF THE MANUAL

Pre-May 1992 Documents

3.1 Old style Department of Transport documents form part of the manual, and although these are gradually being updated some still remain. A few are modified by addenda when used in Scotland or Northern Ireland. There are also Scottish Office documents, in the form of technical memoranda, within the manual.

3.2 When some of these documents are used for preparing projects/schemes being progressed on behalf of the other Overseeing Organisations, terms which are specific to England need to be replaced as appropriate. The most commonly required substitutions are detailed in Table 1 at Annex A.

Scottish Addenda

3.3 In addition to the commonly required substitutions identified in Table 1 (Annex A), other documents require specific changes when used for schemes in Scotland. These changes are published as Scottish Addenda. They are printed on purple paper for ease of identification and are identified in the volume contents pages by the suffix "Scottish Addendum applicable for use in Scotland". Copies of these documents (entitled "DMRB - Scottish Addenda") are available separately from the Stationery Office Ltd, bookshops and agents. The quarterly index lists those documents that are current.

Documents Not Applicable to Scotland

3.4 Where documents are not to be used for schemes in Scotland, they are identified in the volume contents pages by the suffix "Not applicable for use in Scotland".

Scottish Office Documents

3.5 In some cases the "Not applicable for use in Scotland" documents are replaced for use on schemes in Scotland by specific Scottish Office documents. These have also been incorporated into the manual and are identified in the volume contents pages by the suffix "For use in Scotland only". It is the intention that in due course all such documents will be superseded by new documents which will apply throughout the UK.

3.6 In addition to the above, certain Scottish Technical Memoranda remain available but are not included in the manual. Details of these are listed in the quarterly index.

Northern Ireland Addenda

3.7 In addition to the commonly required substitutions identified in Table 1 (Annex A), other documents require specific changes when used for schemes in Northern Ireland. These are published as Northern Ireland Addenda. They are printed on buff coloured paper and are identified in the volume contents pages by the suffix "Northern Ireland Addendum applicable for use in Northern Ireland". Copies of these documents (entitled "DMRB -Northern Ireland Addenda") are available separately from the Stationery Office Ltd, bookshops and agents. The quarterly index lists those documents that are current.

Documents Not Applicable to Northern Ireland

3.8 Where documents are not for use on schemes in Northern Ireland, they are identified in the volume contents pages by the suffix "Not applicable for use in Northern Ireland".

Northern Ireland Documentation

3.9 In some cases the "Not applicable for use in Northern Ireland" documents are replaced (for use on schemes in Northern Ireland) by old style DoE Northern Ireland documents. These have also been incorporated into the manual and are identified in the volume contents pages by the suffix "For use in Northern Ireland only". It is the intention that in due course all such documents will be superseded by new documents which will apply without amendment throughout the UK.

The European Economic Area

3.10 All the documents in the manual have to comply with European Union law. This has particular implications for those which contain requirements for, or advice about, products. In such cases the Overseeing Organisations must allow for the mutual recognition on the basis of "equivalence" of products complying with relevant standards and technical specifications of other member states of the European Economic Area.

3.11 The criteria for mutual recognition are different depending on whether the requirements for the product have statutory force or whether they are given effect only by public purchasing specifications. The latter is the case for most documents in the manual. The only exception to the requirement to allow for mutual recognition on the basis of “equivalence” is in publications for use in public purchasing contracts and where a specification is made by reference to a European Standard.

3.12 In order to make the position clear to users, it has been agreed with the European Commission that documents containing product requirements which have no statutory force will, in future, contain a statement at the front of the document to indicate that they are for use in connection with public purchasing contracts. The statement will not be included in documents which introduce statutory requirements or which contain no requirements for products.

4. THE STRUCTURE OF THE MANUAL

Introduction

4.1 The manual is made up of separate volumes with each being divided into a number of sections. Documents are allocated to a volume and section according to their subject matter.

4.2 The manual currently comprises the following volumes:

- Volume 1 - Highway Structures: Approval Procedures and General Design
 - Volume 2 - Highway Structures: Design (Substructures and Special Structures), Materials
 - Volume 3 - Highway Structures: Inspection and Maintenance
 - Volume 4 - Geotechnics and Drainage
 - Volume 5 - Assessment and Preparation of Road Schemes
 - Volume 6 - Road Geometry
 - Volume 7 - Pavement Design and Maintenance
 - Volume 8 - Traffic Signs and Lighting
 - Volume 9 - Traffic Control and Communications
 - Volume 10 - Environmental Design
 - Volume 11 - Environmental Assessment
 - Volume 12 - Traffic Appraisal of Road Schemes
 - Volume 13 - Economic Assessment of Road Schemes
 - Volume 14 - Economic Assessment of Road Maintenance
 - Volume 15 - Economic Assessment of Road Schemes in Scotland
- Other volumes may be added to the manual as necessary.

Binders

4.3 Purpose-made binders to contain the documents in the manual, (including section dividers), can be obtained from the Stationery Office Ltd, bookshops and agents. For some volumes, continuation binders are required as there is insufficient space for all documents in one binder. These are labelled with the volume number and a, b, etc.

Document Reference

4.4 All documents in the manual are allocated to a volume, then split into sections and parts (note - pre 1992 documents do not have a part). A document reference, ie a number prefixed by HD, HA, BD, BA, TD, TA, (nominally highways, bridges and traffic) continues to be allocated to new documents in addition to a part number within the appropriate section and volume.

4.5 The documents assigned to each volume and section are listed in the quarterly index of contents pages. The DMRB Alpha-Numeric Index lists current documents according to their Document Reference to facilitate the location of specific documents within the manual. Where reference to a specific paragraph is required which cannot be avoided, then exceptionally the reference may be extended to a fourth or fifth number. This fully defines a paragraph since the paragraph numbers always start with the chapter numbers. For example:

BD 20/92 (DMRB 2.3.1) - defines "Design Manual for Roads and Bridges, Volume 2, Section 3, Part 1, Bridge Bearings. Use of BS 5400: Part 9:1983".

BD 20/92 (DMRB 2.3.1.2.4) - defines paragraph 2.4 in the above document.

Documents Published Since May 1992

4.6 Generally all new documents (published since May 1992) have a common format and are jointly published by the Overseeing Organisations of England, Scotland, Wales and Northern Ireland for use throughout the UK (a few exceptions exist as indicated). Text is arranged in a two-column left-justified layout with headers and footers. Each document is subdivided into chapters which contain numbered paragraphs.

4.7 Headers contain information which identifies the individual document by its document reference and part number together with the section and volume of the manual in which it is located. Footers contain the page number and the publication month and year. The information in the header and footer of a page uniquely identifies the position of that page within the manual. This is essential for document control for a loose-leaf structured manual.

4.8 There are some exceptions to the format described in 4.6 and 4.7 where volumes build on previously issued versions of separate manuals, eg Volume 12, or where the layout does not lend itself to the subject matter, and Volume 10 which is generally in landscape format.

5. DOCUMENT CONTROL

Introduction

5.1 The manual system has been designed to ensure that publications can be used in a quality controlled environment. Overall document control is provided through the volume contents pages. The yellow instruction sheets issued with each document detail actions to be taken when inserting the document into the manual. Control within each document is achieved through the Registration of Amendments pages which list those pages that have been amended (if any). Standards and advice notes are deleted from the volume contents pages only when they have been withdrawn. If they have been superseded, then the document reference will normally remain but the year suffix will change, ie BD 20/92 would become BD 20/97.

5.2 Each Overseeing Organisation and the Stationery Office Ltd maintain control and archive copies of all documents in both the DMRB and the MCHW.

Publication

5.3 New and amended documents in the manual are normally published to a three-monthly cycle (February, May, August and November) unless there is an overriding need to issue a particular document quickly.

Volume Contents Pages

5.3 The volume contents pages are revised and issued at quarterly intervals to coincide with the publication cycle for new or amended documents. They are available as a separate document entitled "DMRB - Volume Contents and Alpha-numeric Index" (DMRB 1.0.2) from The Stationery Office Ltd, bookshops or agents. Revised volume contents pages have footers which indicate the date of issue, ie August 1997, etc.

5.4 The superseded contents pages should be archived as they are an additional means of identifying documents that have been superseded or withdrawn.

Alpha Numeric Index

5.5 A full Alpha-numeric Index based on the document reference is included with the volume contents pages (see paragraph 5.3 above). This allows users to easily locate particular documents which may be applicable to more than one subject area. The index also lists those documents added to and withdrawn from the manual since the previous index was published. It is

recommended that the Alpha-numeric Index be retained as part of this Introduction in Volume 1 of the manual.

New Documents

5.6 All new documents are published as a loose-leaf package in a shrink wrapped cover. Documents are differentiated by colour of cover; blue for standards and combined documents and green for advice notes. They include a yellow instruction sheet which gives:

- (a) the location of the new document within the manual;
- (b) details of superseded document(s) which should be removed from the manual and archived;
- (c) any other relevant instructions.

Amendments

5.7 Amendments are published as loose-leaf replacement pages for insertion in the particular document. An amendment package includes:

- (a) a yellow instruction sheet;
- (b) a revised front cover with reference to the amendment;
- (c) a revised document contents page containing reference to the amendment;
- (d) revised Registration of Amendments pages noting which pages have been replaced;
- (e) the replacement pages.

6. ENQUIRIES

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