
**VOLUME 0 INTRODUCTION AND
GENERAL
REQUIREMENTS**
**SECTION 1 PUBLICATION
PROCEDURE**

PART 2

GD 01/08

**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 It extends and replaces the information given in the version dated August 1997 (DMRB 1.0.1), which is hereby superseded.

INSTRUCTIONS FOR USE

1. Remove the existing Contents Pages from each Volume and archive as appropriate. Insert the new Contents Pages into each Volume.
2. Remove the existing Alpha-Numeric Index dated February 2008 from Volume 1, Section 0, Part 2 and archive as appropriate. Insert the new Alpha-Numeric Index, GD 01/08, in Volume 0, Section 1, Part 2.
3. Please 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.



THE HIGHWAYS AGENCY



SCOTTISH GOVERNMENT



Llywodraeth Cynulliad Cymru
Welsh Assembly Government

WELSH ASSEMBLY GOVERNMENT
LLYWODRAETH CYNULLIAD CYMRU



DRD

Department for
Regional Development
www.drdrni.gov.uk

THE DEPARTMENT FOR REGIONAL DEVELOPMENT
NORTHERN IRELAND

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 It extends and replaces the information given in the version dated August 1997 (DMRB 1.0.1), which is hereby superseded.

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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1. INTRODUCTION

The Design Manual for Roads and Bridges

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, current Standards, Advice Notes and other published documents relating to Trunk Road Works. It was originally 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 and revisions, have been gathered together in a consistent series of volumes within the DMRB to help in meeting the requirements of quality assurance procedures.

1.2 This Introduction provides information on the use of the DMRB for Trunk Road Works. It extends and replaces the information given in the version dated August 1997 (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 DMRB are generally 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 DMRB for Trunk Roads

1.4 The documents in the DMRB have been prepared by the Overseeing Organisations specifically for Trunk Road Works 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, Wales or Northern Ireland, or where it is specific to a particular Overseeing Organisation.

Use of the DMRB by Other Highway Authorities

1.5 The DMRB 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 (local roads authority in Scotland and Northern Ireland) 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 DMRB may be used by local highway/road authorities, such authorities should ensure that their application to local road schemes does not compromise health and safety, result in poor value for money, or have an unacceptable impact on the environment. It is recommended that any local authority making use of this manual should establish formal procedures for considering whether it is appropriate to relax or depart from particular requirements (see paragraphs 1.19 to 1.40 below).

Implementation¹

1.7 Individual documents must be implemented for Trunk Road Works as soon as they are published in the DMRB, except:

- (a) where otherwise stated in the introduction to, or instructions given with, a particular document; or
- (b) where the procurement of works, at any stage from conception through design to completion of construction, has reached a stage at which, in the opinion of the Overseeing Organisation, use of a particular document would result in significant additional expense or delay progress (in which case the decision must be recorded in accordance with the Overseeing Organisation’s procedure).

Definitions

1.8 “Advice Notes” amplify and give advice on particular requirements of Standards and other design and procurement issues (also see paragraphs 1.13 and 2.3 below).

¹ Refer to paragraph 2.3 for an explanation of the ‘black box’ system.

1.9 “**Overseeing Organisation**” refers to the following organisations (or their successors):

The Highways Agency

Transport Scotland

Transport Wales (Trafnidiaeth Cymru)

The Department for Regional Development
(Northern Ireland)

NB - Where a local highway/road authority decides to use the DMRB, either wholly or in part, it shall be defined as the Overseeing Organisation for the purposes of its local road schemes.

1.10 “**Standards**” means the Overseeing Organisations’ requirements, as set out in the DMRB and MCHW (also see paragraphs 1.13 and 2.3 below).

1.11 “**Trunk Roads**” means those motorway and all-purpose roads for which the Overseeing Organisations are responsible.

1.12 “**Trunk Road Works**” means all works associated with Trunk Roads, including assessment, design, construction, operation, maintenance and demolition.

Manual of Contract Documents for Highway Works

1.13 There are some cross references in the DMRB 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; including specifications, notes for guidance and methods of measurement for highway works and specialist activities, together with Standards and Advice Notes covering various procurement issues. The MCHW 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 DMRB and these latter two documents.

Scope

1.14 The DMRB embodies the collective experience of the Overseeing Organisations, their agents and design organisations over many years. It provides

requirements, advice and guidance resulting from research, practical experience in Trunk Road Works and legislative requirements. It is regularly reviewed, to keep abreast of changes in legislation, practice and developments in technology, to improve health and safety, to reduce environmental impact and to give better value for money.

1.15 The DMRB has been prepared for use by appropriately qualified and experienced professional staff. It is not a statutory or regulatory document or 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 recognised industry codes of practice, in guidance documents issued by trade associations and in specifications which are cross-referenced in the text.

Legislation

1.16 The DMRB does not make reference to all legislation that may be applicable to Trunk Road Works. Anyone engaged in Trunk Road Works should comply with all applicable current legislation.

Standards

1.17 Compliance with the Standards in force is mandatory for all Trunk Road Works, except where the Overseeing Organisation has either:

- (a) approved a Departure from Standard (see paragraphs 1.23 to 1.30 below); or
- (b) agreed that a new or revised Standard should not be implemented on an individual scheme (see paragraph 1.7 above).

Advice and Guidance

1.18 Whilst advice and guidance are not requirements, the Overseeing Organisations expect that any advice or guidance that has been issued should be considered by designers and applied where appropriate.

Relaxations

1.19 A number of DMRB documents contain within them provision for Relaxations where experience has shown that certain requirements may be varied within defined limits in particular situations. However, any further variation beyond these limits requires a Departure.

1.20 The responsibility for identifying circumstances where Relaxations are appropriate rests with the designer, and a clear and adequate justification for not adopting the full standard must be recorded in the consideration of hazards and risks for that element of the design (refer to paragraphs 1.32 to 1.37 below).

1.21 The designer must notify the Overseeing Organisation when a Relaxation is to be incorporated into the design in the following circumstances:

- (a) where an application for a Departure may be affected by the Relaxation;
- (b) in Northern Ireland, where each Relaxation must be formally approved by the Overseeing Organisation before it is adopted; and
- (c) elsewhere, where specifically agreed with the Overseeing Organisation.

1.22 A design incorporating a Relaxation that has been adequately justified in the particular circumstances for which it has been adopted remains a design in accordance with Standards.

Departures

1.23 Except where Relaxations are permitted, any variation or waiving of a requirement contained within a DMRB or MCHW document must be considered to be a Departure from that Standard.

1.24 Departures may be appropriate in a variety of situations, including:

- where it can be justified that a requirement of a Standard is inappropriate in a particular situation;

- where the application of a Standard would have unintended adverse consequences;
- where innovative methods or materials are to be used;
- where a Standard not in the DMRB or MCHW might be adopted if more appropriate in a particular situation; and
- where an “Aspect not covered by Standards” is identified (see paragraph 1.31 below).

1.25 The responsibility for identifying circumstances where Departures may be appropriate rests with the designer. A clear and adequate justification for not adopting the full standard must be submitted to the Overseeing Organisation when seeking approval for each proposed Departure (refer to paragraphs 1.32 to 1.37 below).

1.26 Applications for Departures must be submitted in accordance with the procedures required by each Overseeing Organisation, and each Departure must be approved before the design is finalised and prior to its incorporation into the works. At the discretion of the Overseeing Organisation, the Departure approval process may be in stages reflecting the design progress.

1.27 An approved Departure shall be considered as meeting the Overseeing Organisation’s requirements for that element of the works, provided that any mitigation measures proposed by the designer or conditional to that approval are also incorporated into the design and works.

1.28 The approval of a Departure, with or without comments, does not imply that the Overseeing Organisation relieves the designer of any responsibility for the design.

1.29 Departures are approved on a location-specific basis and relate to the particular circumstances identified in each submission. A similar Departure approval may be quoted to support a new application, but each case will be considered on its own merits.

1.30 However, as an exception, the Overseeing Organisations’ procedures may allow “bulk” Departures (when the same non-standard method or material is proposed for use at more than one location) in certain, clearly defined circumstances.

Aspects not covered by Standards

1.31 In some schemes, it may be found that an aspect of the works is not covered by existing DMRB and/or MCHW documents. In such situations, the designer must submit a Departure application for an “Aspect not covered by Standards” in accordance with the Overseeing Organisation’s procedure.

Justification for Relaxations and Departures

1.32 The justification for a Relaxation or Departure must include an assessment of the benefits, adverse impacts (i.e. ‘disbenefits’), hazards and risks associated with the design incorporating the Relaxation or Departure when compared with a design fully in accordance with Standards.

1.33 The prime factors when assessing any proposed Relaxation or Departure are health and safety, which in turn comprise three main elements:

- 1) safety for all classes of road user;
- 2) health and safety during Trunk Road Works; and
- 3) effects on other persons.

1.34 Other factors to be considered include, but are not limited to:

- technical, programme, budget, environmental, innovation, durability/maintenance and network availability issues;
- the cumulative effect of multiple Relaxations and/or Departures that may affect the particular submission;
- any relevant research results and/or details of use in other countries (e.g. where innovative methods or materials are proposed); and
- constraints of the design brief.

1.35 The benefits of a proposed Relaxation or Departure must clearly outweigh the adverse impacts.

1.36 As part of the assessment, the designer must consider measures to mitigate each of the risks associated with the Relaxation or Departure so that any residual risks are “As Low As Reasonably Practicable” (ALARP).

1.37 Consideration must be given to the whole life of the project since adverse impacts may not be immediately apparent and mitigation measures incorporated into the design may have unintended consequences at a later stage (e.g. during maintenance).

Non-Compliance with Standards

1.38 As required by paragraph 1.26 above, all Departures must be approved before the design is finalised and prior to their incorporation into the works.

1.39 However, in the event that it is discovered that Trunk Road Works have been carried out without approval having been sought or granted for the incorporation of any feature that should have given rise to a Departure, the organisation that would have been responsible for the Departure application (had it been made at the correct time) must promptly notify the Overseeing Organisation with proposals for addressing this non-compliance.

1.40 Designers and contractors should be aware that the Overseeing Organisation is likely to require them to take any rectification actions that it may specify to address the non-compliance. The Overseeing Organisations also reserve the right to rectify non-compliances themselves and take the necessary measures to recover the costs incurred.

Interactions with Local Roads

1.41 Where works that will subsequently be adopted by a local highway/road authority (e.g. the diversion of a side road during the construction of a new Trunk Road) are to be carried out by an Overseeing Organisation, the Standards to be used shall be those agreed between the Overseeing Organisation and the adopting authority.

1.42 In such situations, any Departure applications must first be submitted to the Overseeing Organisation for consideration of any issues that might affect other elements of the scheme or the safe operation or maintenance of its own infrastructure. The application will then be passed to the local highway/road authority for processing in accordance with their requirements. Finally, the outcome must be recorded in accordance with the Overseeing Organisation's Departures approval procedure.

Interpretation of DMRB Documents

1.43 In some Standards, it may not necessarily be easy to distinguish between requirements and advice/guidance, particularly in those produced before the introduction of the mandatory text box system (see paragraph 2.3 below). Unless the context suggests otherwise, the words "must" and "shall" must be construed as indicating requirements that require Departures where non-compliances are proposed.

1.44 Notwithstanding the general requirements above, some DMRB documents contain specific requirements for Departures and Relaxations that must be followed in applicable cases.

Interim Documents

1.45 When necessary, the Overseeing Organisations may issue interim documents to supplement or supersede parts of the DMRB until such time as the manual can be formally updated. Where these contain requirements then a Departure must be applied for in accordance with the Overseeing Organisation's normal approval procedure in the event of a proposed non-compliance.

2. USE OF THE DMRB FOR THE DESIGN OF HIGHWAYS

General

2.1 The DMRB supports policy, administrative and technical procedures which are required to ensure that the Overseeing Organisations operate in an efficient and effective manner. It covers 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 Individual documents set requirements and give advice and guidance for the health and safety, economic, environmental, engineering, social and aesthetic criteria which apply to Trunk Road Works 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 good practice whilst encouraging innovation;
- (d) facilitate quality control of Trunk Road Works;
- (e) define methods for assessing maintenance requirements when evaluating options;
- (f) facilitate the cost effective, safe and timely delivery of maintenance;
- (g) define methods for monitoring the performance of the network.

Document Categories

2.3 The documents in the DMRB fall into the following two categories:

Standards – these set out the Overseeing Organisations' requirements applicable to Trunk Roads. Since 1996, most Standards have been issued in the form of combined documents which include advice and guidance as well as requirements within a single document. In combined documents, requirements (i.e. the Standards elements) are distinguished by use of a text box as illustrated below.

3.7 The criteria given in Table 3 must be applied for all situations where the...

Advice Notes – these provide guidance (representing good practice) to designers and advise on matters that should be taken into account according to local circumstances for a particular requirement on a scheme.

Department for Transport Documents

2.4 In addition to the documents in the DMRB, the Department for Transport (DfT) 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 in the DMRB but are available separately from The Stationery Office Ltd. Other documents, such as Traffic Advisory Leaflets, mostly cover topics which apply to local rather than Trunk Roads but some are of general relevance.

2.5 Copies of most DfT publications can be downloaded from its website at www.dft.gov.uk

2.6 The DfT's WebTAG website (www.webtag.org.uk) also provides detailed guidance on the appraisal of transport projects and wider advice on scoping and carrying out transport studies.

3. COVERAGE OF THE DMRB

Pre-May 1992 Documents

3.1 Certain pre-1992 Department of Transport documents form part of the DMRB, and although these are gradually being updated some still remain. A few are modified by addenda when used in Scotland, Wales or Northern Ireland.

3.2 When these older documents are used, out-of-date terminology will need to be replaced as appropriate.

Scottish Addenda

3.3 Certain documents require specific changes when used for schemes in Scotland, and these changes are published as Scottish Addenda. They are identified in the volume contents pages by the suffix “Scottish Addendum applicable for use in Scotland”.

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 Technical Memoranda

3.5 In some cases the “Not applicable for use in Scotland” documents were replaced by specific Scottish Technical Memoranda. A number of these have been incorporated into the DMRB 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 other Scottish Technical Memoranda remain available but are not included in the DMRB. Details of these are listed in the quarterly index.

Welsh Addenda

3.7 Certain documents require specific changes when used for schemes in Wales, and these are published as Welsh Addenda. They are identified in the volume contents pages by the suffix “Welsh Addendum applicable for use in Wales”.

Documents Not Applicable to Wales

3.8 Where documents are not for use on schemes in Wales, they are identified in the volume contents pages by the suffix “Not applicable for use in Wales”.

Northern Ireland Addenda

3.9 Certain documents require specific changes when used for schemes in Northern Ireland, and these are published as Northern Ireland Addenda. They are identified in the volume contents pages by the suffix “Northern Ireland Addendum applicable for use in Northern Ireland”.

Documents Not Applicable to Northern Ireland

3.10 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”.

Availability of Addenda

3.11 Most recent addenda applicable to Scotland, Wales or Northern Ireland (as appropriate) are included as annexes to the main DMRB document to which they refer. However, most older addenda were published as separate documents which are available from The Stationery Office Ltd, bookshops and agents. The quarterly index lists those documents that are current.

4. STRUCTURE OF THE DMRB

Introduction

4.1 The DMRB is made up of separate volumes with each being divided into a number of sections. Most sections are further sub-divided into parts. Documents are allocated to a volume, section and (for documents issued since 1992) part according to their subject matter.

4.2 The manual currently comprises the following volumes:

- Volume 0 – General
- 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 – Network – Traffic Control and Communications
- Volume 10 – Environmental Design and Management
- Volume 11 – Environmental Assessment
- Volume 12 – Traffic Appraisal of Roads Schemes
- Volume 13 – Economic Assessment of Road Schemes (“The COBA Manual”) – published through the DfT website at www.dft.gov.uk

Volume 14 – Economic Assessment of Road Maintenance (“The QUADRO Manual”) – published through the DfT website at www.dft.gov.uk

Volume 15 – Economic Assessment of Road Schemes in Scotland (“The NESAs Manual”) – published through the Transport Scotland website

Other volumes may be added to the DMRB as necessary.

Binders

4.3 Purpose-made binders to contain the documents in the DMRB (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 Each document is given a reference number prefixed by a series code, i.e. BD, BA, GA, GD, HD, HA, TD, TA, nominally:

“B” for bridges and structures;

“G” for general;

“H” for highways; and

“T” for traffic engineering and control,

followed by:

“D” for Design Standard; or

“A” for Advice Note.

NB – The series codes BE (“Technical Memoranda – Bridges”) and SH (“Scottish Technical Memoranda – Highways”) are also retained until such time as all these old-style documents become superseded.

4.5 The full document reference is suffixed by “/” and two digits indicating the year of publication (e.g. “/08” for documents published in 2008). However, the year suffix should normally be omitted when making a general cross-reference to avoid the need for constant updating of documents.

4.6 The DMRB also includes certain older documents that have not yet been assigned a document reference and will be retained until superseded.

Decimal Reference

4.7 The documents assigned to each volume, section and (where appropriate) part are also given a decimal reference to facilitate the location of specific documents within the DMRB. For example:

DMRB 2.3.1 indicates the document contained in Volume 2, Section 3, Part 1.

4.8 Where reference to a specific paragraph is required which cannot be avoided, then exceptionally the reference may be extended to a fifth number. This fully defines a paragraph since the paragraph numbers always start with the chapter numbers. For example:

DMRB 2.3.1.2.3 defines the third paragraph in chapter 2 of the document contained in Volume 2, Section 3, Part 1.

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 instruction sheets (printed on yellow paper for hard copy subscribers) issued with each document detail actions to be taken when inserting the document into the DMRB. Control within each document is achieved through the Registration of Amendments pages which list those pages that have been amended (if any). Documents 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, e.g. TD 19/85 became TD 19/06 when it was revised in 2006.

5.2 Each Overseeing Organisation and The Stationery Office Ltd maintain control and archive copies of all DMRB documents.

Publication

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

Volume Contents Pages

5.4 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, e.g. May 2008.

5.5 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

5.6 A full alpha-numeric index based on the document reference is included with the volume

contents pages (see paragraph 5.4 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 DMRB since the previous index was published. It is recommended that the alpha-numeric index be retained as part of this Introduction in Volume 0 of the manual.

New Documents

5.7 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 green for Advice Notes. They include a yellow instruction sheet which gives:

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

Amendments

5.8 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.

Online Availability

5.9 All current DMRB documents are available from the Highways Agency website at www.highways.gov.uk

6. ENQUIRIES

All technical enquiries or comments on this Standard should be sent in writing as appropriate to:

Chief Highway Engineer
The Highways Agency
123 Buckingham Palace Road
London
SW1W 9HA

G CLARKE
Chief Highway Engineer

Director, Major Transport Infrastructure Projects
Transport Scotland
8th Floor, Buchanan House
58 Port Dundas Road
Glasgow
G4 0HF

A C McLAUGHLIN
Director, Major Transport Infrastructure
Projects

Chief Highway Engineer
Transport Wales
Welsh Assembly Government
Cathays Parks
Cardiff
CF10 3NQ

M J A PARKER
Chief Highway Engineer
Transport Wales

Director of Engineering
The Department for Regional Development
Roads Service
Clarence Court
10-18 Adelaide Street
Belfast BT2 8GB

R J M CAIRNS
Director of Engineering