

Design Manual for Roads and Bridges



General Principles and Scheme Governance
General information

GG 101

Introduction to the Design Manual for Roads and Bridges

(formerly GD 01/15)

Revision 0

Summary

This document provides information on the use of the Design Manual for Roads and Bridges.

Application by Overseeing Organisations

Any specific requirements for Overseeing Organisations alternative or supplementary to those given in this document are given in National Application Annexes to this document.

Feedback and Enquiries

Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Highways England team. The email address for all enquiries and feedback is: Standards_Enquiries@highwaysengland.co.uk

This is a controlled document.

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Release notes

| Version | Date | Details of amendments |
|---------|----------|--|
| 0 | Jun 2018 | GG 101 replaces GD 01/15. The full document has been re-written to make it compliant with the new Highways England drafting rules. |

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Foreword

Publishing information

This document is published by Highways England.

This document supersedes GD 01/15 Introduction to the Design Manual for Roads and Bridges, which is withdrawn.

This document sets the context for the use of the documents contained in the Design Manual for Roads and Bridges.

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

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Introduction

Background

The Design Manual for Roads and Bridges (DMRB) is a suite of documents which contains requirements and advice relating to works on motorway and all-purpose trunk roads for which one of the Overseeing Organisations is highway or road authority.

The DMRB embodies the collective experience of the Overseeing Organisations, their agents and designers. It provides requirements and advice resulting from research, practical experience of constructing and operating motorway and all-purpose trunk roads, and from delivering compliance to legislative requirements.

Assumptions made in the preparation of the DMRB

Competence

The DMRB has been prepared for use by competent practitioners, typically qualified professionals able to work independently in relevant fields, who are expected to apply their own skill and judgement when making decisions involving the information that the DMRB contains.

Link with regulation and legislation

DMRB documents are not statutory or regulatory documents or training manuals; neither do they cover every point in exhaustive detail.

In general the DMRB does not duplicate National, UK and European legislative requirements. Anyone engaged in works on or relating to the Overseeing Organisations' motorway and all-purpose trunk roads should understand and comply with the relevant legislation.

Link with the MCHW

The requirements and advice given in DMRB documents are provided on the basis that the works are constructed in accordance with the Manual of Contract Documents for Highway Works (MCHW).

Verbal forms used in the DMRB

The verb 'must' indicates a statutory or legislative requirement.

The verb 'shall' indicates a requirement of the Overseeing Organisation.

The verb 'should' indicates advice expressed as a recommendation.

The verb 'may' indicates advice expressed as a permissible approach.

The verb 'can' or verbs expressed in the present tense other than 'must', 'shall', 'should' and 'may' are used to introduce notes, which provide a short clarification of a concept or statement of fact.

In the DMRB the expression of requirements and advice can differ between new documents (i.e. documents issued with the new style, format and coding system introduced by this document) and old documents (i.e. those still in the old style, format and numbering system found in GD 01/15) and can not be consistent with the verb forms listed above. For example, in the old documents the terms 'must' or 'shall' are used interchangeably for requirements of the Overseeing Organisations and some documents use black boxes to highlight requirements.

Appendix A provides information about the old and new structure and coding system used within DMRB documents. Appendix B provides information about the new clause numbering system used within DMRB documents.

Mutual recognition

Where there is a requirement in the DMRB for compliance with any part of a British Standard or other technical specification, that requirement may be met by compliance with:

- 1) a standard or code of practice of a national standards body or equivalent body of any EEA state or Turkey;
- 2) any international standard recognised for use as a standard or code of practice by any EEA state or Turkey;
- 3) a technical specification recognised for use as a standard by a public authority of any EEA state or Turkey; or
- 4) a European Technical Assessment issued in accordance with the procedure set out in regulation (EU) No. 305/2011;

provided that the relevant standard enables an equivalent level of performance and safety to be achieved to that provided for by the stated British Standard or technical specification.

Abbreviations and Symbols

Abbreviations

| Abbreviation | Definition |
|--------------|--|
| DMRB | Design Manual for Roads and Bridges |
| EEA | European Economic Area |
| MCHW | Manual of Contract Documents for Highway Works |
| NAA | National Application Annex |

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Terms and Definitions

| Term | Definition |
|--------------------------------------|--|
| British Standards | Any standard published by the British Standards Institution including adopted European or other international standards. |
| Bulk departure | Departure where the same non-standard method or material is proposed for use at more than one location in certain clearly defined circumstances. |
| Departure | Variation or waiving of a requirement carried out in accordance with the Overseeing Organisation's procedures. NOTE: Section 2 provides examples of when an application for a departure can be made. |
| Motorway and all-purpose trunk roads | Collective term to indicate those parts of the UK highway and road network for which one of the Overseeing Organisations is highway or road authority. |
| Overseeing Organisation | The following organisations (or their successors): <ol style="list-style-type: none"> 1. Highways England Company Limited; 2. Transport Scotland; 3. The Welsh Government; 4. Department for Infrastructure (Northern Ireland). NOTE 1: Where any document within the DMRB refers to the Highways Agency, this can be taken to mean Highways England or its successors. NOTE 2: Where a local highway/road authority decides to use the DMRB in whole or part for development of its own highway/road network, the Overseeing Organisation is defined in accordance with their own procedures. |

1. Scope

Aspects covered

1.1 The DMRB provides requirements which shall be applied to the appraisal, design, maintenance, operation and disposal of motorway and all-purpose trunk roads for which one of the Overseeing Organisations is highway or road authority.

NOTE DMRB requirements can be applied to other roads with the approval of the specific highway or local authority acting as the Overseeing Organisation.

1.1.1 Where DMRB requirements are applied to other roads, the specific highway or local road authority acting as the Overseeing Organisation should decide on the extent to which the requirements are appropriate in any given situation.

1.2 Users of the DMRB shall be responsible for identifying and using current requirements and advice documents.

NOTE Overseeing Organisations can issue interim documents to supplement or supersede part(s) of the DMRB as an interim measure prior to the DMRB being formally updated.

Implementation

1.3 Individual documents shall be implemented as soon as they are published in the DMRB except:

- 1) where otherwise stated in a particular DMRB document;
- 2) where the contract has reached a stage that, in the opinion of the Overseeing Organisation, use of a new or revised document would result in significant additional expense or delay;
- 3) where an existing contract has terms which apply specifically to the implementation of new requirements.

1.4 Where the contract has reached a stage that, in the opinion of the Overseeing Organisation, use of a new or revised document would result in significant additional expense or delay, the decision whether to use a new or revised document shall be recorded in accordance with the Overseeing Organisation's procedure.

Health and safety

1.5 Where undertaking any activity that does or can have an impact on safety, either directly or indirectly, for any of the populations on the Overseeing Organisations' motorway and all-purpose trunk roads, risk assessment and management shall be carried out in accordance with the legislation and the procedures set out by the Overseeing Organisations.

Equality, diversity and inclusion

1.6 An equality impact assessment (EqIA) screening shall be carried out to determine the applicability of a full EqIA.

1.7 Where the EqIA screening indicates that a full EqIA is needed, an EqIA shall be carried out.

1.8 Where EqIA indicates that people with protected characteristics can be disadvantaged or put at additional risk, solutions to mitigate that risk shall be proposed.

1.8.1 Consultation and engagement with affected people and groups should be carried out to identify solutions or mitigation.

2. Application of the DMRB

2.1 All works undertaken on motorway and all-purpose trunk roads shall comply with requirements in the DMRB and MCHW.

NOTE Where necessary, requirements are supplemented by advice to assist in delivering the requirements.

National Application Annexes of the Overseeing Organisations

2.2 Where a National Application Annex (NAA) exists, the users shall comply with the requirements contained in it.

NOTE 1 NAAs allow Overseeing Organisations to complement, supplement or replace the requirements and advice contained in the main DMRB document.

NOTE 2 The NAAs attached to the DMRB documents are developed by the following Overseeing Organisations or their successors:

- 1) Highways England Company Limited;
- 2) Transport Scotland;
- 3) The Welsh Government;
- 4) Department for Infrastructure (Northern Ireland).

NOTE 3 Other highway authorities or local authorities can develop their own application annexes to complement, supplement or replace the requirements and advice contained in the main DMRB document.

NOTE 4 Application annexes developed by other highway authorities or local authorities are not part of the DMRB document set.

Departures

Scope

2.3 Statutory and legislative requirements must always be followed.

NOTE Departures are not applicable to statutory and legislative requirements.

2.4 Where requirements of the Overseeing Organisations are not met, a departure application shall be submitted in accordance with the procedures required by the relevant Overseeing Organisation and approved:

- 1) before the design is finalised; and
- 2) prior to their incorporation into the works.

2.4.1 Departures may be applied for in a variety of situations, including:

- 1) where it can be justified that a requirement is inappropriate in a particular situation;
- 2) where the application of a requirement would have unintended adverse consequences;
- 3) where innovative methods or materials are to be proposed;
- 4) where a requirement not in the DMRB, NAA or MCHW can be adopted if more appropriate in a particular situation; or
- 5) where an aspect not covered by requirements is identified.

NOTE 1 An approved departure can be quoted to support a new and similar submission.

NOTE 2 Departure applications are approved on a location-specific basis and relate to the particular circumstances identified in each submission.

2.4.2 Bulk departure applications should be submitted in preference to a number of individual departures, which share non-standard methods or materials.

2.5 Each departure application shall be approved in accordance with the Overseeing Organisation's procedures before the design is finalised and prior to its incorporation into the works.

NOTE An approved departure is deemed to meet the Overseeing Organisation's requirements for that element of the works, provided that any mitigation measures proposed or conditional to that approval are also incorporated into the design and works.

Interactions with local roads

2.6 Where works that will subsequently be adopted by a local highway/road authority are to be carried out by an Overseeing Organisation, any departure applications shall first be submitted to the Overseeing Organisation.

Departure applications for aspect not covered by requirements

2.7 Where an aspect of the works is not covered by existing requirements, a departure application for an aspect not covered by requirements shall be submitted.

2.7.1 Where an aspect of the works is not covered by existing requirements, the principles of current and relevant guidance should be followed.

Non-compliance with requirements

2.8 Where it is discovered that works have been undertaken that are not in accordance with the requirements of the DMRB or the requirements of a departure, the party responsible for undertaking such works shall amend the works to rectify the non-compliance, unless otherwise agreed with the Overseeing Organisation.

Relaxations

2.9 Relaxations of a requirement shall only be applied where they are explicitly permitted in a DMRB, NAA or MCHW document.

2.10 A departure application shall be submitted for any proposed variation beyond the limits permitted by a relaxation.

2.11 Adoption of a relaxation and its justification shall be recorded.

2.12 The Overseeing Organisation shall be notified when a relaxation is to be incorporated into the design in the following circumstances:

- 1) where a submission for a departure has the potential to be affected by the relaxation;
- 2) where there is the potential for a cumulative effect of multiple relaxations and/or the interaction between relaxations and nearby departures;
- 3) where specifically required by the Overseeing Organisation.

Appendix A. DMRB structure and coding system

A1 Old DMRB structure and coding system

The current 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.

Each document is given a reference number prefixed by a series code, i.e. BD, BA, GD, GA, HD, HA, TD, TA, nominally:

- 1) "B" for bridges and structures;
- 2) "G" for general;
- 3) "H" for highways; and
- 4) "T" for traffic engineering and control,

followed by:

- 1) "D" for design document; or
- 2) "A" for advice note.

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

The full document reference is suffixed by "/" and two digits indicating the year of publication (e.g. "/08" for documents published in 2008). Where the year suffix has been omitted, it should be assumed that the current iteration of the document should be used.

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

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.

New DMRB documents (including this one) will be published under a new structure and coding system, which is introduced in the next section.

A2 New DMRB structure and coding system

The new DMRB volumes and related digits are as follows:

- 1) General Information "G";
- 2) Appraisal "A";
- 3) Design "D";
- 4) Construction "C";
- 5) Maintenance and Operation "M";
- 6) Inspection and Assessment "S";
- 7) Disposal "Z".

The new document parts and related digits are as follows:

- 1) General Principles and Scheme Governance "G";
- 2) Sustainability and Environment "L";
- 3) Civil Engineering "C" (comprising road layout, pavement, structures and bridges, geotechnics and drainage);
- 4) Technology "T" (comprising control and communications technology and road lighting).

The new document reference comprises five digits, of which the first two are based on the location of the document within the structure (i.e. combination of volume and document part digits) and the final three are a number allocated by the policy group responsible for the part to which the document is allocated.

To support a smooth transition from the current volume set to the new one, DMRB documents will continue to be published into the current volumes for an interim period. However, in due course all documents DMRB will be published into the new structure.

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Appendix B. Clause numbering system in new DMRB documents

The numbering system presented in Table B.1 is used in DMRB documents published from this point onwards to make a clear distinction between requirements and advice.

Table B.1 Clause numbering system in new DMRB documents

| Format | Number format | Example |
|---|---|--|
| X. Section | 1-level number | 6. Key Stage 1: Initial review of project |
| Sub-headings(s) | No number | General features |
| X.X Requirement | 2-level number | 6.1 The format of the statement of intent given in Appendix B shall be used. |
| NOTE Advice (factual statement) | No number but associated with requirement | NOTE The statement of intent is typically a brief document. |
| X.X.X Advice (recommended or permissible method for fulfilling requirement) | 3-level number | 6.1.1. The statement of intent should form part of any commissioning report. |
| NOTE Advice (factual statement) | No number but associated with requirement | NOTE For many projects the statement of intent takes the form of a letter. |

Sections are the highest level of subdivision and have a numbered heading, i.e. 1-level number.

Sub-headings are provided to group linked requirements under a specific section and are not numbered.

Requirements are numbered sequentially with a primary 2-level system of numbering, i.e. 5.2, 7.3, etc.

Advice is always associated to a specific requirement and is numbered sequentially with a secondary 3-level system of numbering e.g. 5.2.1, 7.3.1 etc.

Notes provide information assisting users in understanding and contextualising a specific requirement. They are placed immediately after the requirement or advice which they refer to and do not require numbering, unless more than one note applies to the same clause. In such a case, the numbering is NOTE 1, NOTE 2 etc.

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