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Transport Infrastructure Ireland

## TII Publications



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# Bituminous Surfacing Materials and Techniques [and Amendment No. 1, dated May 1999]

**DN-PAV-03024**  
December 2000

## About TII

Transport Infrastructure Ireland (TII) is responsible for managing and improving the country's national road and light rail networks.

## About TII Publications

TII maintains an online suite of technical publications, which is managed through the TII Publications website. The contents of TII Publications is clearly split into 'Standards' and 'Technical' documentation. All documentation for implementation on TII schemes is collectively referred to as TII Publications (Standards), and all other documentation within the system is collectively referred to as TII Publications (Technical). This system replaces the NRA Design Manual for Roads and Bridges (NRA DMRB) and the NRA Manual of Contract Documents for Road Works (NRA MCDRW).

## Document Attributes

Each document within TII Publications has a range of attributes associated with it, which allows for efficient access and retrieval of the document from the website. These attributes are also contained on the inside cover of each current document, for reference. For migration of documents from the NRA and RPA to the new system, each current document was assigned with new outer front and rear covers. Apart from the covers, and inside cover pages, the documents contain the same information as previously within the NRA or RPA systems, including historical references such as those contained within NRA DMRB and NRA MCDRW.

## Document Attributes

<b>TII Publication Title</b>	<i>Bituminous Surfacing Materials and Techniques [and Amendment No. 1, dated May 1999]</i>
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## NRA DMRB and MCDRW References

For all documents that existed within the NRA DMRB or the NRA MCDRW prior to the launch of TII Publications, the NRA document reference used previously is listed above under 'historical reference'. The TII Publication Number also shown above now supersedes this historical reference. All historical references within this document are deemed to be replaced by the TII Publication Number. For the equivalent TII Publication Number for all other historical references contained within this document, please refer to the TII Publications website.

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# NRA ADDENDUM TO

## HD 37/99

### BITUMINOUS SURFACING MATERIALS AND TECHNIQUES [AND AMENDMENT NO. 1]

Standard HD 37/99 – Bituminous Surfacing Materials and Techniques [and Amendment No. 1, May 1999] – is applicable in Ireland with the following amendments:

## GENERAL

1. The NRA Specification for Road Works does not cover requirements for the following materials:  
Hot Rolled Asphalt (Performance Related Design Mix)  
Porous Asphalt,  
Thin Wearing Course Systems,  
Stone Mastic Asphalt,  
Micro Surfacing.

However, this Standard contains the UK Highways Agency's requirements relating to these materials: these may be useful for background information.

2. At several locations:

For: "Overseeing Organisation"  
Read: "National Roads Authority";

For: "trunk road"  
Read: "national road";

For: "Specification (MCHW 1)" or "(MCHW1)"  
Read: "NRA Specification for Road Works";

For: "Notes for Guidance (MCHW 2)" or "(MCHW2)"  
Read: "NRA Notes for Guidance on Specification for Road Works";

For: "BBA HAPAS"  
Read: "NRA approval".

## SPECIFIC

### 1. Introduction

- 1.1 Page 1/1, Paragraph 1.2:  
Delete Paragraph 1.2 and replace with:  
"1.2 This Standard should be used forthwith for all schemes for the construction and/or improvement of national roads. The Standard should be applied to the design of schemes already

being prepared unless, in the opinion of the National Roads Authority, application would result in significant additional expense or delay progress. In such cases, Design Organisations should confirm the application of this Standard to particular schemes with the National Roads Authority.

1.2A The NRA Specification for Road Works does not set out the requirements for certain materials and methods detailed in this Standard, such as porous asphalt, thin wearing course systems, and micro-surfacing. Use of these non-standard pavement types and details of specification requirements shall be agreed with the National Roads Authority. For details of the permitted forms of pavement, see Standard HD 36 (DMRB 7.5.1) Table 2.2.I.”

- 1.2 Page 1/3, Paragraph 1.21, line 3:  
Delete second sentence “For surface dressing . . . life is achieved.”

## **2. Laying Bituminous Surface Courses**

- 2.1 Page 2/1, Paragraph 2.4, line 1:  
For: “The Meteorological Office”  
Read: “Met Éireann”.

- 2.2 Page 2/1, Paragraph 2.5:  
Delete Paragraph 2.5 and replace with:  
“2.5 Met Éireann can also provide 24-hour local forecasts, including windspeeds from regional centres. Information on these services can be obtained from Met Éireann Headquarters, Glasnevin Hill, Dublin 9 (Tel: 01 8064200). Planning the laying of surface courses should always be done in conjunction with an up to date weather forecast.”

- 2.3 Page 2/3, Paragraph 2.17, line 1:  
For: “From the temperatures set out in Clause 938 of the Specification (MCHW 1) an 8 minute”  
Read: “An 8 minute”.

- 2.4 Page 2/3, Paragraph 2.17, line 10:  
Add the following:  
“For details of the specification requirements for porous asphalt in Ireland, contact the National Roads Authority.”

- 2.5 Page 2/6, Paragraph 2.53, line 10:  
Delete fifth and sixth sentences, “Guidance on ... modified binders” and replace with:  
“Guidance on the avoidance of wheel-track rutting in hot rolled asphalt may be given in the NRA approval documentation for proprietary surfacing

materials and modified binders.”

- 2.6 Page 2/7, Paragraph 2.57, line 1:  
Delete first sentence and replace with:  
“2.57 Asphalt mixes are required to be produced in plants that are registered to the ISO 9000 ‘Sector Scheme for the Production of Asphalt Mixes.’”
- 2.7 Page 2/7, Paragraph 2.60, line 1:  
Delete: “or the binder content of porous asphalt”.
- 2.8 Page 2/7, Paragraph 2.61, line 4:  
For: “NAMAS accredited”  
Read: “Irish Laboratory Accreditation Board (ILAB) accredited”.
- 3. Binders and Binder Modifiers**
- 3.1 Page 3/5, Paragraph 3.10, line 7:  
Delete third sentence “In the Specification . . . moving traffic).”
- 3.2 Page 3/6, Paragraph 3.16:  
Delete Paragraph 3.16.
- 3.3 Page 3/6, Paragraph 3.17, line 1:  
Delete: “as specified in Clause 939 of the Specification (MCHW 1)”.
- 3.4 Page 3/6, Paragraph 3.18, line 1:  
Delete first sentence, “The Notes ... Conventional” and replace with:  
“3.18 The UK Notes for Guidance (MCHW 2) Clause NG 922, classify cohesion requirements for three binder grades; Premium, Intermediate and Conventional. (Note: the NRA requirements are not set out in the NRA Notes for Guidance on the Specification for Road Works)”.
- 3.5 Page 3/6, Paragraph 3.19, line 23:  
For: “Specification (MCHW1) Clause 943.”  
Read: “UK Specification (MCHW1) Clause 943.”

#### **4. Hot Rolled Asphalt**

- 4.1 Page 4/1, Paragraph 4.1:  
Before Paragraph 4.1 add new Paragraph 4.1A:  
“4.1A The NRA Specification for Road Works does not cover requirements for Hot Rolled Asphalt Wearing Course (Performance-Related Design Mix). This chapter contains information concerning the UK Highways Agency’s requirements (Clause 943 of the UK Specification) for such a material, which may be useful as background information.”
- 4.2 Pages 4/1 to 4/3, Paragraphs 4.7 to 4.20:  
At several locations:

For: "Specification (MCHW1) Clause 943" or "Clause 943"  
Read: "Clause 943 of the UK Specification (MCHW1)".

- 4.3 Page 4/3, Paragraph 4.18, line 2:  
For: "NG943 of the Notes for Guidance (MCHW2)"  
Read: "NG943 of the UK Notes for Guidance (MCHW2)".

- 4.4 Page 4/3, Paragraph 4.19:  
Delete Paragraph 4.19 and replace with:  
"4.19 Base courses should also be assessed for rut resistance."

## 5. Porous Asphalt

- 5.1 Page 5/1, Paragraph 5.1:  
Before Paragraph 5.1 add new Paragraph 5.1A:  
"5.1A The NRA Specification for Road Works does not cover requirements for porous asphalt. This chapter contains information concerning the UK Highways Agency's requirements (Clause 938 of the UK Specification) for porous asphalt, which may be useful as background information. The use of porous asphalt on national road schemes shall be agreed with the National Roads Authority."

- 5.2 Pages 5/1 to 5.6, Paragraphs 5.8 to 5.54:  
At several locations:  
For: "the Specification (MCHW 1)"  
Read: "the UK Specification (MCHW 1)".

## 6. Thin Wearing Course Systems

- 6.1 Page 6/1, Paragraph 6.1A:  
Before Paragraph 6.1 insert new Paragraph 6.1:  
"6.1A The NRA Specification for Road Works does not cover requirements for thin wearing course systems. This chapter contains information concerning the UK Highways Agency's requirements (Clause 942 of the UK Specification) for such systems, which may be useful as background information."

- 6.2 Page 6/1, Paragraph 6.3:  
Delete Paragraph 6.3 and replace with:
- "6.3 When used on national roads, including motorways, proprietary thin wearing course systems shall have NRA approval for the site classification and the level of traffic in commercial vehicles/lane/day to be carried."

- 6.3 Page 6/1, Paragraphs 6.6 and 6.7:  
Delete Paragraphs 6.6 and 6.7 and replace with:  
"6.6 The UK Highways Agency's specification requirements for Thin Wearing Course systems are

set out in Clause 942 of the UK Specification (MCHW1) and accompanying UK Notes for Guidance (MCHW2) NG942.

6.7 A Thin Wearing Course system with current NRA approval shall only be laid by a contractor approved by the System Proprietor. Installation and quality control procedures shall comply with the requirements of the NRA approval and the method statement agreed with the National Roads Authority.”

- 6.4 Page 6/3, Paragraph 6.10, line 6:  
Delete third and fourth sentences, “These should ... the system” and replace with:  
“These should be carried out to check that the product complies with the requirements of the NRA approval. Non-compliance should be reported to the National Roads Authority, and may, if serious and ongoing, result in the suspension of the NRA approval for the system.”
- 6.5 Page 6/3, Paragraph 6.18, line 6:  
For: “Notes for Guidance (MCHW2) Clause NG942.”  
Read: “the UK Notes for Guidance (MCHW2) Clause NG942.”
- 6.6 Page 6/3, Paragraph 6.19, line 8:  
For: “the Specification (MCHW1) Clause 929,”  
Read: “the UK Specification (MCHW1) Clause 929,”.

## 7. Stone Mastic Asphalt

- 7.1 Page 7/1, Paragraph 7.1, line 1:  
Before: “Stone Mastic Asphalt” add:  
“The NRA Specification for Road Works does not cover requirements for Stone Mastic Asphalt. The National Roads Authority should be consulted about its use in Ireland.”
- 7.2 Page 7/2, Paragraph 7.9, line 17:  
After: “Overseeing Organisation.” add:  
“For schemes in Ireland where SMA is proposed, a Departure from Standard shall be obtained from the National Roads Authority.”

## 8. Surface Dressing

- 8.1 Page 8/6, Figure 8.6:  
For: “Clause 922”  
Read: “Clause 919”.
- 8.2 Page 8/7, Paragraph 8.38, line 1:  
For: “Table 2.1 in HD28 (DMRB 7.3.1.2)”  
Read: “Table 3.1 in HD36 (DMRB 7.5.1)”.

- 8.3 Page 8/7, Paragraph 8.38, line 3:  
For: "Table 2.2"  
Read: "Table 3.2".
- 8.4 Page 8/9, Paragraph 8.47, line 4:  
Delete second sentence "A formal ... (BBA)."
- 8.5 Page 8/9, Paragraph 8.47, line 7:  
For: "Highway Authorities Product Approval Scheme BBA/HAPAS"  
Read: "NRA Type Approval Scheme".
- 8.6 Page 8/11, Paragraph 8.53, line 3:  
For: "Table 2.1 of HD 28 (DMRB 7.3.1.2)"  
Read: "Table 3.1 of HD 36 (DMRB 7.5.1)".
- 8.7 Page 8/11, Paragraph 8.54, line 3:  
For: "Table 2.2 of HD 28 (DMRB 7.3.1.2)"  
Read: "Table 3.2 of HD 36 (DMRB 7.5.1)".
- 8.8 Page 8/13, Paragraph 8.57, line 3:  
For: "(DMRB 7.3.1)"  
Read: "(DMRB 7.3.1) and HD 36 (DMRB 7.5.1)".
- 8.9 Page 8/13, Paragraph 8.60, line 8; Paragraph 8.6.2, line 5; Paragraph 8.63, line 5:  
For: "Notes for Guidance to Specification, Clause NG922 (MCHW2)" (three locations)  
Read: "The UK Highways Agency's Notes for Guidance to the Specification, Clause NG922 (MCHW2)".
- 8.10 Page 8/13, Paragraph 8.64:  
Delete Paragraph 8.64 and replace with:  
"8.64 The maximum level of localised loss of shippings in any given area,  $P_3$ , should not be less than the specified percentage. Appropriate values are given in the UK Highways Agency's Notes for Guidance to the Specification, Clause NG922 (MCHW2)."
- 8.11 Page 8/14, Paragraph 8.72, line 3:  
Delete ", both to Specification clauses 919 and 922 (MCHW1)".

## 9. High Friction Surfacing

- 9.1 Page 9/1, Paragraph 9.3, line 9; Paragraph 9.4, line 3:  
For: "Notes for Guidance, (MCHW 2) Table NG 9/15." (two locations)  
Read: "UK Notes for Guidance, (MCHW 2) Table NG 9/15 (but NRA guidance is not tabulated in detail in the NRA Notes for Guidance)."
- 9.2 Page 9/1, Paragraph 9.6:  
Delete Paragraph 9.6 and replace with:  

"9.6 A high friction surfacing system with a current NRA Type Approval Certificate shall only be installed by a contractor approved by the National Roads Authority and the Certificate Holder as an Approved Installer for that system. The installation and quality control procedures shall be in accordance with the
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NRA Type Approval Certificate for each system and the current method statement agreed by the National Roads Authority.”

9.3 Page 9/1, Paragraph 9.8, line 18:  
Delete final sentence “Any cracks ... sub-Clause 924.7.”

9.4 Page 9/2, Paragraph 9.11, line 5:  
After: “Highways.” add:  
“In Ireland minimum performance requirements are set out in an NRA approved guidelines document for the assessment and certification of high friction surfaces for roads.”

## 10. Slurry Surfacing and Micro-Surfacing

10.1 Page 10/1, Paragraph 10.1, line 1:  
Before: “Slurry surfacing” add:  
“The NRA Specification for Road Works does cover NRA requirements for slurry sealing but not to the extent of slurry surfacing and micro-surfacing.”

10.2 Page 10/1, Paragraph 10.2, line 1:  
Delete first sentence, “The Specification ... two types:” and replace with:  
“10.2 The UK Specification (MCHW1) Series 900, with accompanying UK Notes for Guidance (MCHW2) in NG900, set out the UK Highways Agency’s requirements for these materials, dividing them into the two types given below. The National Roads Authorities requirements for slurry surfacing and micro-surfacing are not set out in the NRA Specification for Road Works or the accompanying NRA Notes for Guidance.”

10.3 Page 10/1 Paragraph 10.2, line 10:  
For: “British Board of Agrément Highway Authorities Product Approval Scheme, Roads and Bridges (BBA HAPAS)”  
Read: “NRA Type Approval”.

10.4 Page 10/1, Paragraph 10.2, line 14:  
For: “Clause 927”  
Read: “Clause 927 of UK Specification (MCHW 1)”.

10.5 Page 10/1, Paragraph 10.3, line 4:  
For: “the Part”  
Read: “this Part”.

10.6 Page 10/1 Paragraph 10.4, line 12:  
After: “Highways.” add:  
“For use in Ireland, guidelines for the assessment and certification of thin surfacing systems for roads shall be agreed with the NRA.”

10.7 Page 10/1, Paragraph 10.5:  
Delete Paragraph 10.5 and replace with:

“10.5 When used on national roads including motorways, proprietary slurry surfacing and microsurfacing systems shall have NRA Type Approval Certificates appropriate for the site classification and the level of traffic in commercial vehicles/lane/day to be carried. Prior to the issue of certificates, a Departure from Standard shall be obtained from the National Roads Authority before slurry surfacings (except those complying with BS 434), or microsurfacings, are used on schemes in Ireland.”

- 10.8 Page 10/2, Paragraph 10.20:  
Delete Paragraph 10.20 and replace with:

“10.20 Slurry surfacing and micro-surfacing with NRA Type Approval certificates shall only be laid by contractors approved by the system proprietors. Installation and quality control procedures shall comply with the requirements of Clause 918 of the NRA Specification for slurry sealing and with the specification approved by the NRA for micro-surfacing. They shall also comply with the requirements of the NRA Type Approval Certificate and method statement.”

- 10.9 Page 10/4, Paragraphs 10.39 to 10.42:  
Delete Paragraphs 10.39 to 10.42.

#### 14. References and Bibliography

- 14.1 Page 14/1, References, reference 2:  
After reference 2 add:  
**“2A. NRA Manual of Contract Documents for Road Works**  
Volume 1: Specification for Road Works  
Volume 2: Notes for Guidance on the Specification for Road Works.”

#### 15. Enquiries

- 15.1 Page 15/1, Chapter 15:  
Delete text and replace with:  
“15.1 All technical enquiries or comments on this Standard should be sent in writing to:

Head of Project Management and Engineering  
National Roads Authority  
St Martin’s House  
Waterloo Road  
Dublin 4”.



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E O’CONNOR  
Head of Project Management and Engineering





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