

The following information is associated with Network Rail Standard:
NR/L3/CIV/140/180N Issue 1

Additional Content Access

Click the links below to access non PDF related content associated with this standard.

Word Document

- [NR/L3/CIV/140/180N](#)

If you have any questions, or need assistance, please contact [IHS Support](#)

Information accessed via the links above is the property of the Copyright holder

IHS Additional Content Page

RAILTRACK PLC

**MODEL CLAUSES FOR SPECIFYING
CIVIL ENGINEERING WORKS**

SECTIONS 180 - 182
Building and Structure Drainage

ISSUE NO. 1 REVISION C

RT/CE/C/008/180N
Page 1 of 17

Date: 31 March 1996

Amendments

Amendments and additions since the previous issue are marked by a vertical line in the right hand margin.

© Railtrack PLC 1997

This document is the property of Railtrack PLC. It shall not be reproduced in whole or in part without the written permission of the publisher for use external to Railtrack.

Published by

Director Civil Engineering,
Railtrack PLC,
Eastside Offices
King's Cross Station
London N1 9AP

Controlled document

No:.....

Submitted by: Keith Ross
Structures Standards Engineer
Civil Engineering Directorate
King's Cross

Approved by: Model Clauses (Civil Engineering)
Committee 19 March 1997

Signature:
for Director, Civil Engineering

John Horsler
Civil Engineer, Structures Compliance
Chairman Model Clauses (Civil Engineering)
Committee

SECTIONS 180-182

BUILDING AND STRUCTURE DRAINAGE

SECTION CONTENTS

Page

This table of contents does not form part of the Specification.

NOTES TO SPECIFIER

180.1 Drainage for road pavements

4

SPECIFICATION CLAUSES

SECTION 180

GENERAL REQUIREMENTS FOR DRAINAGE

180.001	Application of standards and codes of practice	5
180.002	Use of existing drains or water courses	5
180.003	Design requirements	5
180.004	Records	6

SECTION 181

MATERIALS

181.001	Concrete	7
181.002	Pipes, joints and fittings	7
181.003	Inspection covers, manhole covers, frames and road gully gratings	8
181.004	Precast concrete inspection chambers, manhole chambers and covers	8
181.005	Precast concrete road gullies	8
181.006	Channel drains	8
181.007	Granular fill for bedding and surrounding drain pipes	9
181.008	Backfill material	9
181.009	Solvent cements	9
181.010	Ladders	9

SECTION 182

INSTALLATION

182.001	Trenching and excavation for drains and chambers	10
182.002	Laying of drain pipes generally	10
182.003	Laying of pipes on trench formation	10
182.004	Laying of pipes with concrete beds and haunching	10
182.005	Joints generally	11
182.006	Joints in unplasticised polyvinyl-chloride (UPVC) pipes	11
182.007	Jointing of pipes with rigid joints: clay and concrete pipes	11
182.008	Jointing of pipes with rigid joints: cast iron pipes	11
182.009	Manhole and inspection chambers	12
182.010	UPVC and other plastic inspection chambers and rodding points	12
182.011	Setting cast iron inspection fittings	12
182.012	Manhole and chamber step irons	13
182.013	Setting manhole chamber covers and frames	13
182.014	Setting precast concrete segmental manhole units	13

SECTION CONTENTS (continued)

SPECIFICATION CLAUSES (continued)

182.015	Bedding of gullies, traps, etc	13
182.016	Channel drains installation	13
182.017	Installation of combined drainage and kerb units	14

182.018	Soakaways	14
182.019	Connections to existing inspection chambers and manholes	14
182.020	Redundant drains	15
182.021	Testing of the drainage system	15

REFERENCES	<i>British Standards</i>	16
-------------------	--------------------------	----

SECTION 180 - 182

BUILDING AND STRUCTURE DRAINAGE

NOTES TO SPECIFIER:

These notes do not form part of the Specification.

Drainage for road pavements

180.1

The importance of the provision of adequate pavement and subsoil drainage cannot be over emphasised. Where ever possible the pavement foundation drainage should be kept separate from pavement run off drainage in new construction and in reconstructed work.

It is of vital importance to keep water out of the sub-base, capping and subgrade both during construction and during the service life of the pavement. This is achieved by excluding incoming water and providing an escape route for water already in the foundation.

When the water table is high the provision of subsoil drainage should be considered.

For surface water drainage purposes it is recommended that paved areas should have a minimum general fall of 1.7% (approximately 1 in 60) while external channels leading to gullies should have a gradient of not less than 0.8% (approximately 1 in 120) for hand work and 0.7% (approximately 1 in 150) for machine work. Any channels within the paved area should have a gradient not flatter than 1% (approximately 1 in 100).

BUILDING AND STRUCTURE DRAINAGE

SECTION 180

GENERAL REQUIREMENTS FOR DRAINAGE

Application of standards and codes of practice

- 180.001** Building and structure drainage (including connection to sewers) shall be designed and constructed in accordance with the recommendations of BS 8005: Part 1 and BS 8301 except where amended or qualified by the following Clauses. **!CHECK!**

!C!

All numbers within the heading margin are the relevant clause numbers within BS 8301.

(180.001)

Use of existing drains or water courses

- 180.002** No alterations shall be carried out to, or use made of any existing drains or water courses without the written agreement of the Employer's Representative unless shown otherwise on the Contract Drawings. **!CHECK!**

!C!

All statutory notices shall be given by the Contractor to the relevant Authority.

(180.002)

Design requirements 3.1

- 180.003** Details of the drainage scheme shall be submitted to Railtrack for approval in principle, and a copy of Form A based on the model in Appendix C **!CHECK!** shall be provided to the Employer's Representative not less than 4 weeks **!CHECK!** before the drainage work is due to commence. Contract Drawings shall be in accordance with the recommendations in BS 8031, appendix B.

!C!
!C!

3.2

- !C!** Details of the position of the building and number of occupants, the structure or the location and extent of paved areas to be drained as applicable are as shown on the Contract Drawings. **!CHECK!**

Combined drainage and kerb units

- !C!** The location and gradients of combined drainage and kerb units, position of accesses, silt traps, outfalls and end units together with the position and invert level of the surface water connection shall be as shown on the Contract Drawings. **!CHECK!**

Combined drainage and kerb units shall be designed by the Contractor. Details of the Contractor's proposals shall be submitted to the Employer's Representative for acceptance. Combined drainage and kerb units shall permit lateral entry of surface water from the channel either continuously or at intervals not exceeding 1000 mm.