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| Ref:             | NR/L2/TRK/4100                 |
| Issue:           | 4                              |
| Date:            | 3 <sup>rd</sup> September 2011 |
| Compliance date: | 3 <sup>rd</sup> September 2011 |

## Level 2

Serviceable concrete sleepers for use in running lines and sidings

### Endorsement and Authorisation

Endorsed by:

Guy Simpson, Working Group Chair

Authorised by:

Andy Jones, Steering Group Chair

Accepted for issue by:

Mick McManus, National Standards Manager

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## User information

This Network Rail standard may contain requirements that are colour-coded according to the following Red–Amber–Green classification.

### Red – Mandatory requirements

- **Requirements** that **will** be complied with, and achieved under all circumstances.
- Accountability for the efficacy of these requirements lies with the Professional Head/Standard Owner.
- These requirements are monitored for compliance.
- Local non-compliances, discovered through engineering verification visits, will be reported and monitored through the quarterly Engineering Verification Report.
- Corrective actions will be enforced where local non-compliances remain open beyond the agreed mitigation plan dates.
- These are presented in a red box **and with the word “shall” or a direct instruction.**

### Amber – Conditional requirements

- **Requirements** that **will** be complied with unless deviation has been approved.
- Accountability for the efficacy of these requirements lies with the Professional Head/ Standard Owner, or their nominated Delegated Authority.
- These requirements are monitored for compliance.
- Derogations **may** be permitted; which are to be approved by Standard Owner in advance.
- Derogations and Temporary Non-Compliances **may** be granted through the existing Delegated Authority arrangements.
- These are presented with an amber sidebar **and with the word “shall” or a direct instruction.**

### Green – Guidance

- Guidance based on good practice; representing supporting information, based on good practice, to help achieve **RED** and **AMBER** requirements.
- This guidance is **not mandatory** and is not monitored for compliance.
- Alternative solutions may be used, which do not need to be formally approved.
- Decisions made by a competent person to use alternative solutions should be backed up by appropriate evidence/documentation.
- This is presented with a dotted green sidebar **and with the word “should” (usually in notes).**

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## Issue record

| Issue | Date           | Comments                                                                                   |
|-------|----------------|--------------------------------------------------------------------------------------------|
| 4     | September 2011 | This specification is an up issue which has been renumbered, formerly RT/CE/S/062 Issue 3. |

## Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 3 September 2011.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 3 (Option Selection) to continue to comply with the issue of any relevant Network Rail standards current when GRIP Stage 3 was completed and not to comply with requirements contained herein, unless stipulated otherwise in the scope of this standard.

## Reference documentation

NR/L2/TRK/2102 Design and Construction of Track, Issue 6

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## 1 Purpose

This specification is for use in the selection of serviceable sleepers for installation in Network Rail's running lines and sidings.

## 2 Scope

This Network Rail standard specifies the selection of serviceable concrete sleepers for installation in Network Rail's running lines and sidings. It specifies the requirements for serviceable concrete sleepers in the following areas of activity:

- a) replacement of existing sleepers as a planned renewal in running lines;
- b) spot replacement of defective existing sleepers in running lines as a maintenance activity or during reballasting;
- c) replacement of existing sleepers in sidings.

## 3 Definitions

For the purposes of this standard, the following terms and definitions apply;

### Serviceable concrete sleepers

Concrete sleepers which have seen previous service and which it is proposed to re-use in another location, in any of the areas of activity set out in clause 2.

## 4 Serviceability criteria

### 4.1 General

All sleepers proposed for use as serviceable concrete sleepers shall meet the following requirements. In addition, consideration must be given to the availability of compatible insulators, pads and fastenings.

A summary of the details of which sleepers are suitable for use in differing track categories is given in **Table 2**.

#### 4.1.1 Cracking

Serviceable sleepers with any transverse or longitudinal cracks through the housing are not acceptable. Sleepers with hairline centre binding cracks (transverse cracks not exceeding 1mm in width and not within 150mm of the housing) may be used in lines of Track Categories 3 to 6.

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#### 4.1.2 Abrasion

Abrasion in both rail seat areas shall be of similar depth with each rail seat providing a reasonably smooth flat surface and subject to the following limits:

- Rail seat gall  $\leq 2\text{mm}$  deep is acceptable in track categories 3 and 4.
- Rail seat gall  $\leq 5\text{mm}$  is acceptable in track categories 5 and 6.
- Rail seat gall  $\leq 8\text{mm}$  is acceptable for sidings.

#### 4.1.3 Prestressing tendons or strands

The pre-stressing tendons or strands shall not have become exposed by abrasion or damage to the concrete nor should any rust stains caused by corrosion of those pre-stressing tendons or strands be visible.

NOTE: It is acceptable for the ends of the pre-stressing tendons to be visible on both end faces of any concrete sleeper as long as they are of a good condition and there is no exposure of the tendons through corner damage.

#### 4.1.4 Damage

Damage to concrete sleepers outside of the soffit, rail seat and the housing area is not critical and therefore shall be acceptable providing it complies with 4.1.3 above.

However, serviceable sleepers with particular damage to the rail seat area and soffit are subject to the criteria below:

##### Rail Seat Area

As the rail seat area supports the rail, more stringent limits apply than elsewhere on the sleeper. Minor chips or spalling of the concrete surface are not acceptable outside the following limits:

- Edge of the rail seat area -  $>30\text{mm}$  by  $50\text{mm}$  long and  $>10\text{mm}$  deep (**Fig 1**).
- Edge of the housing area -  $>15\text{mm}$  by  $50\text{mm}$  long and  $>10\text{mm}$  deep (**Fig 2**).