

Reference	NR/L3/CIV/076
Issue	4
Publication date	4 th September 2010
Compliance date	4 th December 2010

Level 3

Management of the risk of Bridge Strikes from road vehicles and waterborne vessels

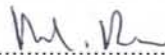
Endorsement and Authorisation

Endorsed by:



Keith Ross, Senior Technology Engineer (Structures and Buildings), Working Party Chair

Authorised by:



Nigel Ricketts, Professional Head (Buildings & Civils)

Accepted for issue by:



M McManus, National Standards Manager

This document is the property of Network Rail. It shall not be reproduced in whole or part nor disclosed to a third party without the written permission of Network Rail.

© Copyright 2010 Network Rail.

Uncontrolled copy once printed from its electronic source.

Published and issued by Network Rail, Kings Place, 90 York Way, London N1 9AG.

Network Rail

AVA

Documents

Document Sharing Hub

Reference	NR/L3/CIV/076
Issue	4
Publication date	4 th September 2010
Compliance date	4 th December 2010

Issue record

Issue	Date	Comments
4	Sept 2010	Revised to align with General Signalling Regulation 20, and amended publication of Signal Box Special Instructions
3	June 2008	Revised to align with General Signalling Regulations 17.2 and 20, and amended Bridge Strike Nominee damage limits. Renumbered as NR/L3/CIV/076.
2	April 2006	Renumbered as NR/SP/CIV/076.
1	October 2002	Superseded RT/CE/P/023 (Issue 3) and RT/CE/S/222, and aligned with GC/RT5122 (Issue 4) and GE/RT8004 (Issue 1).

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors from 4th December 2010: this is the date of the implementation of the GE/RT8000/TSI: General Signalling Regulations Issue 6 regulation 20.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 4 to continue with the issue of any relevant Network Rail standards current when GRIP Stage 4 was reached and not to comply with requirements contained herein unless the designated Standard Owner has stipulated otherwise in the accompanying Briefing Note.

Reference documentation

Railway Group Standards

[GE/RT8000/TS1](#) General Signalling Regulations:
Regulation 17.2 Bridge strikes
Regulation 20 Examination of the line

Network Rail standards

[NR/GN/CIV/201](#) Managing Bridge Strike incidents - good practice guide for Bridge Strike Nominees
[NR/GN/CIV/202](#) Management of the risk of Bridge Strikes
[NR/L3/CIV/176](#) Management of reports on Bridge Strikes
[NR/L3/OCS/043/7.4](#) National Control Instructions and Approved Code of Practice: Bridge Strikes from Road Vehicles and Waterborne Vessels
[NR/SP/CTM/017](#) Competence and Training in Civil Engineering
[NR/SP/CIV/003](#) Technical Approval of design, construction and maintenance of Civil Engineering infrastructure

British standards

BS EN 1991 -1-7 General actions – Accidental actions

Highways Agency Design Manual for Roads and Bridges

BD 65/97 Design Criteria for Collision Protection Beams

The Stationery Office

Traffic Signs (Amendment) Regulations and General Directions (TSRGD) [draft]

Reference	NR/L3/CIV/076
Issue	4
Publication date	4 th September 2010
Compliance date	4 th December 2010

Disclaimer

In issuing this document for its stated purpose, Network Rail makes no warranties, express or implied, that compliance with all or any documents it issues is sufficient on its own to ensure safe systems of work or operation. Users are reminded of their own duties under health and safety legislation.

Supply

Copies of documents are available electronically within Network Rail's organisation. Hard copies of this document may be available to Network Rail people on request to the relevant controlled publication distributor. Other organisations may obtain copies of this document from IHS (Technical Indexes Ltd) tel: 01344 328039.

Comments

The applicability and content of this standard will be reviewed on a regular basis. Written comments on the accuracy and utility of this standard will be taken into account when assessing the need for a new issue of the standard; such comments should be sent to Senior Policy Development Specialist (Buildings and Civil Engineering) at 40 Melton Street, London NW1 2EE.

Reference	NR/L3/CIV/076
Issue	4
Publication date	4 th September 2010
Compliance date	4 th December 2010

Contents

1 Purpose	5
2 Scope	5
3 Roles, responsibilities and competencies	6
3.1 General requirements	6
3.2 Roles and responsibilities	6
3.3 Specific competence requirements	6
4 Definitions	6
5 Registration and identification of Bridges likely to be subject to a Bridge Strike	8
5.1 Registration	8
5.2 Identification	8
6 Measures to reduce the frequency of Bridge Strikes	8
6.1 Road traffic signs and hazard warning markings	8
6.2 Advertisements and other distracting signs	8
7 Measures to provide robustness to resist Bridge Strikes	9
7.1 New and reconstructed Bridges	9
7.2 Bridges subject to alteration	9
7.3 Collision protection beams	9
8 Measures to reduce the effects of Bridge Strikes on performance	9
8.1 Signal Box Special Instruction (SBSI) Bridge Strike Appendix Schedule	9
8.2 Bridge Strikes by light vehicles at Underline Bridges	10
9 Examination of a Bridge following a Bridge Strike	10
9.1 General requirements	10
9.2 Examinations by Bridge Strike Examiners	10
9.3 Examinations by Bridge Strike Nominees	11
10 Recording, classifying and reporting Bridge Strikes	11
11 Outside Party Bridges	12
Appendix A: Management actions in Signal Box Special Instructions Bridge Strike Appendix Schedule	13
Appendix B: Damage limits for BSNs to permit the movement of trains at Normal Speed	15

Reference	NR/L3/CIV/076
Issue	4
Publication date	4 th September 2010
Compliance date	4 th December 2010

1 Purpose

The purpose of this Network Rail standard is to:

- define the requirements for the management of Underline and Overline Bridges on Network Rail's infrastructure such that there is no unacceptable risk to safety as a result of Bridge Strikes;
- reduce the risks to the operational railway from Bridge Strikes, as far as is reasonably practicable, by assessing the safety risks at each Bridge and implementing mitigating measures as necessary;
- reduce train delays resulting from Bridge Strikes, as far as is reasonably practicable, without compromising the safety of train operations.

2 Scope

This Network Rail standard applies to temporary and permanent Network Rail owned or managed, Shared or Outside Party Bridges as follows:

- all Underline Bridges spanning roads or under which vehicular traffic may reasonably be expected to pass;
- all Underline Bridges spanning navigable waterways, except those navigable only by small pleasure craft;
- all Overline Bridges carrying roads or which may reasonably be expected to carry vehicular traffic.

This Network Rail standard does not apply to:

- Bridge Strikes by small pleasure craft and other small vessels, which are unlikely to cause damage to Bridges;
- the management of the risk of Bridge Strikes by rail vehicles or their loads or by rail-mounted plant;
- the management of the risk of vehicle incursions onto Network Rail infrastructure, except where such incursions are the consequence of collisions of vehicles with parapets of a Bridges;
- operational requirements for the management of Bridge Strikes, including Late Reported Bridge Strikes, which are specified in [NR/L3/OCS/043/7.4 National Control Instructions and Approved Code of Practice: Bridge Strikes from Road Vehicles and Waterborne Vessels](#).

This Network Rail standard applies to those appointed by or on behalf of Network Rail for the management of Overline and Underline Bridges, and for the examination and reporting of Bridge Strikes.

Guidance for Bridge Strike Nominees (BSN) on the management of Bridge Strikes is provided in:

- [NR/GN/CIV/201](#) *Managing Bridge Strike incidents - good practice guide for Bridge Strike Nominees*.

Guidance on the management of the risk of Bridge Strikes is provided in:

- [NR/GN/CIV/202](#) *Management of the risk of Bridge Strikes*.

Reference	NR/L3/CIV/076
Issue	4
Publication date	4 th September 2010
Compliance date	4 th December 2010

3 Roles, responsibilities and competencies

3.1 General requirements

Those with responsibilities or delegated duties for complying with this Network Rail standard shall:

- be competent to carry out their duties;
- be aware of and understand their responsibilities;
- have the skill, knowledge and experience to undertake their duties;
- have sufficient resources to undertake their duties;
- understand and be able to judge when urgent or immediate action is necessary.

Appointments, responsibilities and duties shall be documented.

3.2 Roles and responsibilities

The Route Structures Engineer is responsible for:

- maintaining a register of Bridges at risk from Bridge Strikes, and installing identification plates on such Bridges (see **5**);
- implementing measures in accordance with **6** to reduce the frequency of Bridge Strikes;
- implementing measures in accordance with **7** to provide robust Bridges to resist Bridge Strikes;
- implementing measures in accordance with **8** to reduce the effects of Bridge Strikes on performance.

Bridge Strike Nominees (BSN) and Bridge Strike Examiners (BSE) are responsible for the examination and reporting of a Bridge following a Bridge Strike.

3.3 Specific competence requirements

The competency requirements for BSEs and BSNs are specified in [NR/SP/CTM/017: Competence and Training in Civil Engineering](#).

4 Definitions

Bridge

A structure of one or more spans greater than or equal to 1,800mm, whose prime purpose is usually to carry traffic or services over an obstruction or gap, but excluding culverts. For the purposes of this standard, structures whose prime purpose is to carry services (utilities) over an obstruction or gap are excluded.

Bridge Strike

An incident in which a road vehicle or its load, or a waterborne vessel or its load, impacts with the fabric of a Bridge.

Bridge Strike Examiner (BSE)

A person who has been certificated as competent to permit the movement of trains up to Normal Speed over or under Bridges following a Bridge Strike.