

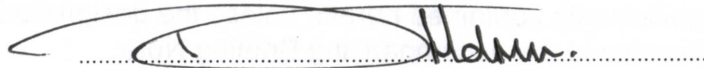
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Level 2

Prevention and Mitigation of Overruns – Risk Assessment of Signals

Endorsement & Authorisation

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Issue record

This Level 2 will be updated when necessary by the distribution of a complete document. Amendments will be marked by a vertical black line in the adjacent right hand margin.

Issue	Date	Comments
Issue 1	April 2003	New Document
Issue 2	August 2008	Updated to reflect Phase 2A / Engineering reorganisation responsibility change, no technical changes.

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 26 August 2008.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 4 to continue to comply 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.

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11. Abbreviations

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1. Purpose

This Level 2 document sets out the process and tools that Network Rail shall use to comply with the Railway Group Standard [GI/RT7006](#), *Prevention and Mitigation of Overruns – Risk Assessment*, and its associated Guidance Note GI/GN7606. Specifically this document mandates: -

- The structured approach to signal overrun, i.e. “Signal Passed at Danger” (SPAD) risk assessment on Network Rail Controlled Infrastructure.
- The appropriate strategies, tools, and techniques to be applied under the variety of operational and developmental situations that lead to a requirement for a signal overrun risk assessment to be undertaken.
- A clear approach to SPAD risk assessment, which shall be standardised throughout Network Rail.

2. Scope

This Level 2 document applies to anyone given the responsibility by Network Rail for conducting overrun risk assessments of railway signals forming part of track layouts and fixed block signalling systems on Network Rail Controlled Infrastructure. They may be either Network Rail employees or appointed contractors/consultants acting on behalf of Network Rail. The appointment shall be made in writing and held on file.

It will be used for the assessment of safety risk: -

- During the design of new/altered layouts and fixed block signalling systems on Network Rail Controlled Infrastructure.
- Arising as a result of the operation of layouts and signalling.

3. Reference Documentation

GI/RT 7006	Prevention and Mitigation of Overruns - Risk Assessment
GI/GN 7606	Guidance Note: Prevention and Mitigation of Overruns – Risk Assessment
GO/RT 3252	Signals Passed at Danger
GO/RT 3552/C	Hazard Ranking of SPADs
NR/GN/SIG/14202	Prevention and Mitigation of Overruns – Risk Assessment of Signals
NR/L2/SIG/14200	Prevention and Mitigation of Overruns – Risk Assessment of Signals Tools
NR/L2/OPS/031	Risk Assessment & Briefing of Timetable Change
NR/L2/OPS/0005	Risk Assessment of Multiple SPAD Signals

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TI095 Signal Overrun Risk Assessment Process
SPAD Risk Ranking Model (SRRM) Railway Safety
ACOP L21 to MHSWR 1999

4. Responsibilities

Network Rail, as the Infrastructure Manager, has the responsibility of complying with the Railway Group Standard [GI/RT7006](#) Prevention and Mitigation of Overruns – Risk Assessment and fully considering and mitigating any changes likely to affect the risk associated with trains passing a signal at danger. This Level 2 document mandates how this responsibility is discharged. Table 1 below defines individual responsibilities in detail.

Table 1

Position	Responsibility
Route Director	Overall responsibility for compliance with this procedure in the Route.
Principal Renewal & Enhancement Engineer (Control & Coms)	Overall responsibility for checking that the process and tools mandated in this procedure has been applied by competent users during the design of Infrastructure Changes. This responsibility also extends to the operation of existing track layouts and fixed block signalling systems on Network Rail Controlled Infrastructure and the provision of competent signalling engineering staff as required for the processes detailed in this procedure.
Route/Area Operations Manager	Responsibility for the provision of competent production or operation staff as required for the processes detailed in this procedure.
Sponsor	Is accountable for the safe delivery of the project. Including the incorporation of approved mitigation measures identified for the project, and the prioritisation of mitigation measures if they are not all being implemented together.
Responsible Person (A Network Rail Manager or appointed agent)	Is responsible for the application of the process and tools in this procedure.

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5. SPAD Risk Assessment Processes

5.1. General

Signal overrun risk assessment shall be undertaken when the following changes have been identified.

5.2. Infrastructure Change

An Infrastructure Change is defined as any proposed change to the existing railway layout. This Procedure identifies three changes that have to be assessed as shown:

- Consideration of track layout options.
- Design of new and modified track layouts.
- Design of new and modified signalling.

5.3. Existing Layouts

There is a requirement to assess safety risk arising from the operation of a layout to meet the provisions of a policy, or in response to a specific incident investigation or complaint, e.g.:

- Changes to the operation of a layout (e.g. traffic frequency, routing, timetable, speed limits, train type, or mix). Note: for a more detailed list see [GI/GN7606](#) sections 5.2 and 6.1
- Review of the overrun risk at existing signals that protect junctions before October 2005, as mandated, and any other reviews as may be subsequently required.
- Investigation of specific signals following driver complaints, adverse trends, Incident Investigation, or near miss scenario.
- SPAD Risk Ranking after a SPAD incident/accident as per the Railway Group Standard [GO/RT3252](#) and Guidance Note [GO/GN3552/C](#).

6. Process

6.1. General

It is a requirement that an overrun risk assessment of signals shall be undertaken on Network Rail Controlled Infrastructure.

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The processes for undertaking the risk assessments for Infrastructure Changes and Existing Layouts are set out in the following sections.

6.2. Infrastructure Change

The process outlined in Figure 1 shall be used to assess the risks from an overrun of a signal for any infrastructure change. Figure 1 illustrates the sequence of activities to be followed and the application of various tools and techniques at different stages of overrun risk assessment for Infrastructure Changes. The sequence also provides an audit trail where evidence of each activity being undertaken is recorded.

An Infrastructure Change considered in this section includes planned work as defined in section 4.1.1 of this Level 2 document.

6.3. Identification of Sponsor and Responsible Person for the Project

The Route Director identifies a Sponsor for the project.

The Sponsor may identify a Responsible Person for the project who will check that the project follows the process illustrated in Figure 1 or may personally undertake the role of Responsible Person.

7. Planning & Feasibility of Infrastructure Change

The Preliminary Assessment (PA) process will be undertaken. It identifies the proposed layout configuration and records the judgements behind the decision using the process set out in Appendix A of [NR/L2/SIG/14200](#).

NOTE: even though [GI/RT7006](#) section 4.4b allows a simple risk assessment to be undertaken if TPWS is fitted to a layout, if TPWS is the only train protection system fitted on Network Rail Controlled Infrastructure, then the process described in this Procedure shall be undertaken.

If more than one option for layout design is identified as being feasible during the Preliminary Assessment, then the Junction Screening Tool (JST) (details of which are in Appendix B of [NR/L2/SIG/14200](#)) will be used to provide a comparative level of risk from each of the proposed layouts. The results will be used to inform the decision making process and be included in the records of the Preliminary Assessment Process. During use of the JST, the layouts identified will be tested against different potential number of trains and routes through a layout up to an agreed design capacity that is equal to or greater than the proposed train service. This will help in identifying the layout that has a level of risk as low as reasonably practicable given the proposed and agreed design capacity number of trains through the layout.