

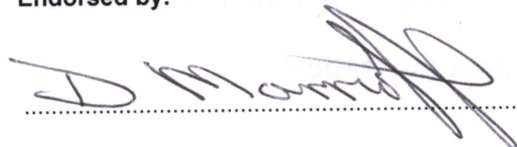
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Level 3

Signal Engineering Involvement in Civil Engineering Work

Endorsement & Authorisation

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Documents

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Issue record

Issue	Date	Comments
E1	Feb 2007	Initial Emergency 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.

Reference documentation

See section 3.

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1 Purpose

To check that signal engineering resources are coordinated in support of civil and track engineering work for maintenance and minor renewals.

2 Scope

Civil engineering renewals and/or maintenance activities that may require the disturbance of signal engineering equipment, systems or cables shall be managed in accordance with this instruction. On DC Electrified lines this includes work on traction return bonding.

This Work Instruction manages signal involvement in civil engineering work, but is only to be used where the Signal & Telecoms Maintenance Engineer authorises its implementation. It modifies the Signal Maintenance Testing Handbook to allow certain civil engineering work without signal engineering attendance and in particular [NR/SMTH/Part4/TC00](#). If the Signal & Telecoms Maintenance Engineer does not authorise implementation of this work instruction, the full requirements of the Signal Maintenance Testing Handbook shall be complied with.

3 Reference documentation

[NR/L3/SIG/11231](#)

[NR/L2/SIG/11221](#)

[NR/L2/SIG/11752](#)

[NR/L2/SIG/10064](#)

[GE/RT8000](#)

Signal Maintenance Testing Handbook

Signal Works Testing Handbook

Train Detection Handbook

General Instructions to Staff Working on S&T Equipment

Rule Book

4 Definitions

Planned Civil Engineering Work

Any civil engineering work that is not of a reactive nature (i.e. is not required as part of rapid response). Planned work shall encompass all routine maintenance (e.g. repair and renewal of track, formation and structures).

Reactive Work

Work to overcome a defect as part of a rapid response activity (e.g. broken rails, cracked crossings).

Civil Engineer

For the purpose of this instruction, the Civil Engineer is defined as any person responsible for initiating or arranging civil engineering physical works. This shall include Track Maintenance Engineers or equivalent.

Signal Engineer

For the purpose of this instruction, the Signal Engineer is defined as any person responsible for arranging signal engineering support to civil engineering works. This

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shall include Signal & Telecoms Maintenance Engineer, Senior/Maintenance Support Engineers or equivalent.

SMT

Signal Maintenance Testing

SWT

Signal Works Testing

IRJ

Insulated Rail Joint

Method Statement

A documented statement describing how all the activities within a worksite shall be carried out. The contents of a method statement shall be appropriate to the task and may range in scope from a job planning sheet (minor work) to a project plan (major work)

5 Background

There have been serious wrong side failures from the execution of civil engineering work with inadequate signal engineering involvement.

The reasons for the signal engineering involvement is to check that: -

- Signal engineering equipment is not damaged by the work.
- No employee is subject to high voltages from track circuit equipment.
- Equipment is left operationally safe when the work is completed.

Examples of civil engineering work that shall require signal engineering support are given in Appendix A and specific guidance on the "Like for Like" renewal of IRJs in Appendix E.

Similar planning arrangements shall be contractually agreed where Network Rail:

- is requested to provide signal engineering cover for outside parties, or
- procures the services of a signal engineering subcontractor to support permanent way work.

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6 Procedure

6.1 Signal Engineering Responsibilities

The Civil Engineer supplies the Signal Engineer with sufficient information to enable signal engineering requirements to be accurately planned in advance. The Signal Engineer typically needs to know what work is to be done, where, when and who is responsible for the work and who shall be the Engineering Supervisor(s) and PICOP (Person in Charge of Possession). It may be helpful for the Signal Engineer to supply a form to the Civil Engineer so that the Civil Engineer supplies all the information required (a typical format used in part of the Network is shown in Appendix F).

Timescales are particularly critical where work involves changes to signalling layouts and movement or disconnection of lineside cables.

There are three levels of signal engineering Involvement:

- Full SMT testing in the event that cables/equipment require removal, replacement or renewal
- Partial testing of track circuits for defined tasks testing in the event that full testing is not required but parameters have changed (e.g. welding rail joints) as per [NR/SMTH/Part 4/TC00](#)
- Non-attendance or dispensation

The Signal Engineer shall:

- Decide what level of involvement is required
- Allocate competent signal engineering technicians to support civil engineering work, and this is acknowledged in writing to the Civil Engineer.
- If cover is deemed to be not required, the requesting Civil Engineer to be advised. Suggested forms shown in Appendices G and H are to be issued to the requesting Civil Engineer (see 4.3.6)
- provide and brief sufficient and accurate information to enable the work to be completed in a safe manner.
- Check that work affecting telecoms cables is properly arranged with the responsible telecoms maintenance organisation.

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6.2 Planning Requirements

6.2.1 Planned Work

For planned civil engineering work, the interface between the Civil Engineer and the Signal Engineer can be separated into 10 basic stages as follows:

1. Work proposed by Civil Engineer:
2. Signal Engineer informed and begin research to determine level of support required
3. Detailed Job Planning
4. Identify signal engineering resource requirements
5. Create signal engineering Work Plan
6. Signal engineering Disconnections
7. Signal engineering confirms disconnections complete
8. Work is carried out
9. Signal engineering reconnect and test
10. Post project review

See Appendix C for greater detail of each stage

The Civil Engineer has been reminded that advice of work shall be given to the Signal Engineer in sufficient time to arrange the provision of competent staff and other resources as well as the preparation and checking of disconnections. (See Appendix D). Information may be presented as part of a workplan, method statement or other planning document.

6.2.2 Reactive/Unplanned Work

Wherever possible, all work shall be planned in advance using the above procedure.

The following are examples where pre-planning may not be possible:

- Broken rails, crossings, etc.
- Derailment, temporary plain lining
- Collapsed drains, culverts
- Bridge bash

The criteria for signal engineering involvement are given in Appendix A.

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Where signal engineering involvement is anticipated, the Civil Engineer shall contact the responsible Signal Engineer and provide the scope of work (*what, where, when and who*).

The Signal Engineer shall review the scope of work and arrange appropriate resources, involving other signal engineering personnel and managers as necessary. The following shall be considered as a minimum:

- Availability of competent staff
- Site familiarity
- Availability of materials
- Testing documentation (e.g. SMT)
- Availability of design records (wiring, bonding, signalling plan etc.

Where the Signal Engineer has ruled the requirements of Appendix B are met and that work can be carried out without signal engineering support he may issue dispensation in the following manner:

- Produce dispensation. It is recommended that forms are produced as used in parts of the network. Forms Appendix G and Appendix H are typical and state what the limits of the dispensation are
- Produce unique Reference number per each dispensation
- Enter details onto a database
- Issue dispensation to the requesting Civil Engineer (typically, forms Appendix G and Appendix H)
- Should ANY part of the dispensation not be met as issued, the dispensation SHALL be considered void and therefore invalid. If the work has been started but cannot be completed as agreed then the signal engineering technicians should be contacted (via Fault Control) who shall apply relevant SMT
- Upon completion of work Civil Engineer shall advise that the work has been completed to the Signal Engineer. Appendix H may be used for this purpose
- The completed advice should be retained and an entry made in the database showing it has been returned.

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7 Records kept by the Signal Engineers

Record	Held by	Kept for not less than	Disposal instructions
Project files shall include: <ul style="list-style-type: none"> • Method statements • Work Plans • Testing documents • Site visit records Post completion records and correspondence	Signal Engineer	12 months after completion of the work	Not specified
Competence records and IRSE licence records shall be available to persons planning resources	Line Managers	N/A	N/A
SMT records – SMT logs and maintenance test plan lists (MTPL) shall be checked and initialed	Signal Engineering Supervisor	In accordance with the requirements of SMT and project files	Not specified
Appendix F Track work/activities which may affect the signalling arrangements form or equivalent	Signal Engineer	12 months after completion of the work	Not specified
Appendix G (or equivalent)	Signal Engineering Supervisor	12 months after completion of the work	Not specified
Appendix H (or equivalent)	Signal Engineering Supervisor	12 months after completion of the work	Not specified
Appendix J	Signal Engineering Supervisor	12 months after completion of the work	Not specified