

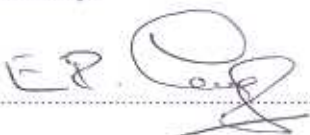
Ref	NR/SP/CTM/ 011
Issue	1
Date	December 2006

Specification

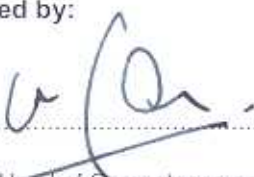
Competence & Training in Track Engineering

Endorsement & Authorisation

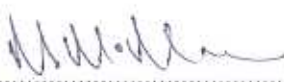
Endorsed by:


.....
E R Cummings Head of Track Engineering

Authorised by:


.....
D Carrier, Head of Competence and Training Management

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 the Standard Owner.

© Copyright 2006 Network Rail

Uncontrolled copy once printed from its electronic source.

Published & Issued by: Network Rail 40 Melton Street, London NW1 2EE



Documents
Document Sharing Hub

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

Issue record

Issue	Date	Comments
01	December 2006	New Issue

Summary

This specification defines the requirements for the training and assessment of persons undertaking track engineering work on Network Rail controlled infrastructure. The specification complements the requirements of company standard NR/SP/CTM/001 Competence Management.

Implementation

The provisions of this specification must be implemented from 2nd December 2006 for all track engineering work that may affect the operational safety of Network Rail controlled infrastructure.

Compliance

This Network Rail Specification is mandatory and must be complied with as follows:

- The requirements for Track Induction training take immediate effect.
- Assessment of existing people against the requirements set out in appendix B shall be complete by 31st Dec 2008 and shall be maintained from that date forward.

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 will be available to Network Rail persons on request to the Document Controller and to other organisations from IHS Technical Indexes (01344 404409)

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

Contents

1	Purpose	5
2	Scope	5
3	Reference Documents	5
4	Definitions	5
5	Requirements	7
6	Application.	9
7.	Assessment Strategy.	10
	Appendix A Track Training Framework	12
1	The Route to Competence	12
2	Track Training Modules	13
3	Other Track Training Modules	19
	Appendix B Competence Standards	20
1	Competence Standards	20
2	Competence Profiles.	21
3	Training Framework	23
4	Evidence requirements	24
5	Assessment.	25
Tr 1:	Maintain permanent way assets	26
Tr 2:	Maintain “off track” assets	31
Tr 3:	Renew permanent way assets	33
Tr 4:	Restore track geometry by manual repair	38
Tr 5:	Establish track geometry and restore to operational condition by mechanised repair	40
Tr 6:	Inspect the permanent way infrastructure	43
Tr 7:	Establish the operational condition of the permanent way by detailed inspection	45
Tr 8:	Restore Original Stress in Rails	49
Tr 9:	Undertake Stressing of Plain Line	51
Tr 10:	Undertake stressing in switch and crossing areas	54
Tr 11:	Ensure the track is fit for operational purposes following maintenance repair	57
Tr 12:	Ensure the track is fit for operational purposes following heavy maintenance	60
Tr 13:	Ensure the track is fit for operational purposes following track renewal	63
Tr 14:	Use small plant	66
Tr 15:	Move permanent way materials, components and equipment	69
Tr 16:	Deal with risks arising from contingencies within the railway	72
Tr 17:	Identify and deal with hazards in the railway environment	74

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

Tr 18: Control the obtaining and preparing of materials, tools and components needed for the renewal or maintenance of the permanent way	76
Tr 19: Create a safe working environment	79
Tr 20: Implement and monitor safe working systems for Permanent Way maintenance or renewal activities	82
Tr 21: Ensure the effective progression of permanent way maintenance or renewal activities	84
Tr 22: Undertake planning and site preparation for permanent way maintenance activities	87
Tr 23: Undertake planning and site preparation for permanent way renewal activities	91
Tr 24: Contribute to effective working relationships	95

Copyright Network Rail

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

1 Purpose

This specification sets out the minimum requirements for the training and assessment of people who undertake track engineering work on Network Rail controlled infrastructure. It defines processes that shall be implemented to ensure that people who undertake track engineering work are competent to perform the work.

2 Scope

This specification applies to all employers and people who undertake track engineering work on Network Rail controlled infrastructure.

3 Reference Documents

NR/CS/CTM/001	Competence Management.
NR/SP/CTM/005	Quality Assurance in Training Delivery
NR/SP/CTM/006	Quality Assurance in Competence Assessment
NR/SP/OHS/018	Safety requirements for Track medical & alcohol & drugs screening & certification

4 Definitions

Assessor

Assessor is a person approved to undertake assessments of people against the requirements of specific competence standards.

Assessment

Assessment is gathering and judgement of evidence to enable the determination of a person's Competence as required by the Competence standard.

Candidate

Candidate means a person whose Competence is assessed.

Competence

The ability to undertake responsibilities and to perform activities to a recognised standard on a regular basis. A combination of practical thinking skills, experience and knowledge, and may include a willingness to undertake work activities in accordance with agreed standards, rules and procedures.

In the context of this specification it also includes the consistent achievement of an identified standard of performance under defined normal, abnormal, and emergency situations; the ability to undertake work to ensure the safety of any person who might be affected by the work; and an appropriate level fitness.

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

Competence Management System (CMS)

Competence Management System is a suitably resourced, logical and integrated cycle of activities within an organisation used to assure competence of those who may, through lack of competence, have a impact on the:

- Safe operation and maintenance of Network Rail controlled infrastructure
- Occupational health and safety of workers on or about the Network Rail or
- Safety of other persons affected by their activities.
- Performance of Network Rail's business.

Competence Profile

Competence Profile is a description of the competences that apply to a specific job role or post. The Competence profile defines the Competence requirements for the person occupying the post.

Competence Standard

Competence Standard is a statement of:

- What a person must be able to do and how well, in order to achieve the intended outcome of work,
- The range of circumstances in which the ability would have to be demonstrated,
- The knowledge required to complete the work,
- The types of evidence needed to ensure that performance is consistent and can be sustained,
- How this would be assessed,

Mentoring period

Mentoring period is a period of time between completion of training and competence assessment where the person will undertake the work under supervision of a mentor. This period is used to enable the person to practice the competence and gather evidence ready for assessment.

Person in Scope

Anyone whose current or future role will involve completing tasks associated with track engineering maintenance, inspection, or renewal.

Persons "New to track engineering"

Those persons who have not previously undertaken work involving track engineering maintenance, inspection, or renewal tasks. It includes persons that may already be working in, or have worked in, the rail industry before, but in another role, not related to track engineering. New to track engineering is not related to grade but to previous experience as described above.

Verification

Verification is a process by which the quality of assessment decisions and the supporting process are independently assured.

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

5 Requirements

5.1 Deployment

Employers shall not deploy any Person New to track engineering on any tasks associated with track engineering maintenance, inspection or renewal work that may have a direct impact on the integrity of the track system, until that person has attended and successfully completed the Network Rail Track Induction Course.

5.2 Work on or near the line.

Where a person is required to work on or near the line they shall hold the relevant track safety competence(s).

In addition, persons shall be able to demonstrate medical fitness and be screened for alcohol and drugs in accordance with Network Rail Specification [NR/SP/OHS/018](#): Safety requirements for track safety medical & alcohol screening and certification.

5.3 Training

Subject to the minimum requirements in 5.1 & 5.2 employers shall have systems in place to identify specific training needs for each Person in Scope. A training framework and specific training modules have been developed to address the common training needs of Persons in Scope. Details of this framework together with normal training progression are contained in Appendix A of this specification. Employers shall use this information to determine what training is appropriate for each Person in Scope.

The following steps shall be used and documented to identify and satisfy specific training needs:

1. Identify deployment requirements for the person concerned.
 - Take account of specific types of equipment that the person will be required to work on and the type of activities the person will be required to undertake.
2. Establish the current competence of the person with relation to deployment requirements.
3. Establish what development is required and therefore which training modules are appropriate to match the deployment needs.
4. Agree development plan with the person and order in which the training should take place.
5. Arrange training.
6. Person completes relevant training.

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

5.4 Mentoring.

Following the successful completion of training, each person shall undertake a period of workplace experience. The detailed mentoring requirements shall be provided in the requirements for each training course. The person's employer shall appoint a mentor who shall be responsible for supporting the workplace experience. Employers shall ensure that appropriate supervision is maintained during the period of mentoring. Each employer shall provide to a log book to record what work the person has completed during the workplace experience.

5.5 Assessment.

Following successful completion of the relevant training and mentoring the person shall be assessed against the requirements of the relevant Competence Standard contained in appendix B of this specification.

5.6 Delivery of training.

Persons delivering the training courses listed in appendix A shall be approved by Network Rail in accordance with the requirements of NR/SP/CTM/005 – Quality Assurance in Training Delivery.

Trainers shall only use the Network Rail approved training plans and assessments to deliver the training event.

5.7 Completion of assessment.

Assessors shall be approved in accordance with the employing organisation's competence management system prior to undertaking assessments against the competence standards detailed in this specification. Assessors shall plan and complete assessments.

Employers shall have in place verification procedures to ensure that at least 10% of completed assessments are verified.

5.8 Maintaining competence.

Employers shall have systems in place to assure the continued Competence of persons undertaking track engineering work. These systems shall consist as a minimum of:

- a. The use of a log book to record work experience.
- b. The implementation of a review or re-assessment regime as defined in section 7.2

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

6 Application.

6.1 Competence standards.

Based on a functional analysis Competence Standards have been developed that are suitable to control the risks associated with competent performance of people who are undertaking track engineering work on Network Rail controlled infrastructure. These Competence Standards are contained in the appendix B of this specification.

6.2 Competence profiles.

The Competence Standards are applicable to the job roles associated with teams undertaking maintenance or installation.

Specific competence profiles shall be developed for each role and shall take account of equipment specific needs in a particular geographic location and other non track engineering competence requirements.

Competence Standards should be selected on the basis of the person's job role and responsibility. Three sets of profiles (See appendix B) covering track engineering competence requirements have been developed to aid this process.

6.3 Training needs.

A training framework and specific training modules applicable to the work activities associated with track engineering have been developed and brief details of each module are contained in appendix A of this specification. The training framework and specific training modules are directly linked to the competence standards in appendix B.

Persons in Scope who are New to Track engineering shall as a minimum complete Track Engineering Induction training regardless of what job role the person is undertaking.

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

7. Assessment Strategy.

The strategy to be applied to assessment takes account of a number of factors:

- Whether or not the person is new to the job role.
- What training and experience a person has had.
- What different types of equipment the person is required to work on.
- The practicality of gathering observed evidence.
- The risks from incompetent performance.

7.1 Initial Assessment

The following approach shall be used:

Case 1

Where the work is new to the person's area of responsibility they shall:

- a. Attend the relevant training and complete end of training assessments.
- b. Complete a period of work experience, under supervision, against objectives set at the end of the training and record the details in their Logbook. During the mentoring period, the Mentor shall ensure that both his/her own safety and the safety of the person is maintained at all times in accordance with the relevant instructions or rules.
- c. Be assessed against the requirements laid down in the relevant Competence Standard.
 - If the employee is competent the person completing the assessment shall issue a certificate of competence.
 - If the employee is not yet competent.
 - The line manager shall agree and implement a development action plan.
 - The employee may continue workplace experience under supervision.
 - On completion of development action plan the person shall be re-assessed for the specific competence.

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

Case 2

Where the employee has been previously trained and been completing the work for more than 1 year they shall be assessed for the specific competence using the following as the primary source of evidence:

- Detailed questioning/standard knowledge tests.
- Performance report from the line manager to confirm satisfactory and safe performance across the range of work detailed in the Competence Standard.
- If the employee is competent the person completing the assessment shall issue certificate of competence.
- If the employee is not yet competent they shall be dealt with as described in Case 1.

7.2 Maintaining Competence.

Employers shall have systems in place to assure the continued Competence of persons undertaking track engineering work. These systems shall consist as a minimum of:

- a. The use of a log book to record work experience which shall be reviewed by a responsible manager to confirm the person has practised the competence at least four times a year.
- b. The implementation of a re-assessment regime that confirms, at least every 3 years, that:
 - The work completed by the person meets the requirements of the performance statements in the relevant competence standard.
 - The person has the knowledge defined in the relevant competence standard.
 - There have been no incidents accidents or near misses as a result of the person completing the work.

Where continued Competence cannot be confirmed through the review/re-assessment, arrangements shall be made for the competence to be withdrawn. The responsible manager shall develop a plan to restore the person's competence which may include retraining and / or further mentoring and re-assessment.

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

Appendix A Track Training Framework

1 The Route to Competence

Training Course	Relates to Competence Standard
Track Induction	Tr 1 Maintain permanent way assets
Track Maintenance – Plain Line	
Track Maintenance – Switch & Crossings	
Track Renewal	Tr 3 Renew permanent way assets
Track Geometry 1	Tr 4 Restore track geometry by manual repair
	Tr 11 Ensure the track is fit for operational purposes following maintenance repair
Track Geometry 2	Tr 5 Establish track geometry and restore to operational condition by mechanised repair
Track Patrolling	Tr 6 Inspect the permanent way infrastructure
Track Inspection	Tr 7 Establish the operational condition of the permanent way by detailed inspection
Switch and Crossing Inspection	
Management of Rail Breaks and Defects	Tr 16 Deal with risks arising from contingencies within the railway
Stress Restoration	Tr 8 Restore original stress in rails
Stressing – Plain Line	Tr 9 Undertake stressing of plain line
Stressing – S & C	Tr 10 Undertake stressing in switch and crossing areas
Raising and Removing Speed Restrictions	Tr 12 Ensure the track is fit for operational purposes following heavy maintenance
	Tr 13 Ensure the track is fit for operational purposes following track renewal
Operations during Permanent Way Works	Tr 15 Move permanent way materials, components and equipment
Basic Safety during Permanent Way Works	Tr 16 Deal with risks arising from contingencies within the railway
	Tr 17 Identify and deal with hazards in the railway environment
	Tr 19 Create a safe working environment
Ensuring Safe Supervision during P-Way Works	Tr 20 Implement and monitor safe working systems for Permanent Way maintenance or renewal activities
Supervision of Permanent Way Works	Tr 18 Control the obtaining and preparing of materials, tools and components needed for the renewal or maintenance of the permanent way
	Tr 21 Ensure the effective progression of permanent way maintenance or renewal activities
Planning Permanent Way Works	Tr 22 Undertake planning and site preparation for permanent way maintenance activities
	Tr 23 Undertake planning and site preparation for permanent way renewal activities

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

2 Track Training Modules

The following training modules have been developed for work activities associated with the track engineering. Each module covers the completion of work using the relevant Network Rail track work instruction.

2.1 Track Induction

This module is designed to provide the basic underpinning knowledge of permanent way construction, components and working methods associated with maintenance, renewal, repair, adjustment and dismantling of permanent way assets. It is suitable for persons who are new to track and whose work may involve the maintenance, inspection or renewal of the track or other duties that may affect the stability, position or integrity of the track infrastructure. The module trains delegates to undertake basic tasks in accordance with Network Rail track work instructions. Practical exercises and assessments are included.

The training is linked to competence standard Tr 1 Maintain permanent way

2.2 Track Maintenance - Plain Line

This module is designed to provide a detailed understanding of maintenance and repair activities and techniques used on plain line. The training covers the requirements for routine preventative maintenance of plain line as defined by Network Rail Specifications.

The module covers, in detail, the techniques used to undertake routine preventative maintenance, adjustment, replacement and dismantling of permanent way assets in accordance with Network Rail track work instructions. Parts of the module will be devoted to the checking and determining the condition of specific track components against the specifications/tolerances defined in Network Rail Company specifications. Practical exercises and assessments include identification and use of various components old and new.

The training is linked to competence standard Tr 1 Maintain permanent way

2.3 Track Maintenance – Switch & Crossings

This module is designed to provide a detailed understanding of maintenance and repair activities and techniques used on switches & crossings. The training covers the requirements for routine preventative maintenance of as switches & crossings defined by Network Rail Specifications.

The module covers, in detail, the techniques used to undertake routine preventative maintenance, adjustment, replacement and dismantling of permanent way assets in accordance with Network Rail track work instructions. Parts of the module will be devoted to the checking and determining the condition of specific track components against the specifications/tolerances defined in Network Rail specifications. Practical exercises and assessments are included.

The training is linked to competence standard Tr 1 Maintain permanent way

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

2.4 Track Renewal

This module is designed to provide a detailed understanding of renewal methods and techniques used plain line and in switches and crossings. The training covers the requirements for renewal defined by Network Rail Specifications and the practical application of relevant track work instructions.

The module covers in detail the techniques used to dismantle, renew, adjust and replace permanent way assets in accordance with Network Rail track work instructions. Parts of the module will be devoted to the checking and determining the condition of specific track components against the specifications/tolerances defined in Network Rail specifications. Practical exercises and assessments of the factors to be considered in track renewals are included.

The training is linked to competence standard Tr 3 Renew permanent way assets

2.5 Track Geometry 1

This module is designed to provide a detailed understanding of requirements and techniques used to manually restore top, line, level or gauge. It includes checks that have to be made to ensure the track is fit for operational purposes following maintenance repair.

This module is designed to train persons who are responsible for undertaking track maintenance or renewals where they take responsibility for restoring track geometry to operational condition by the manual repair.

The training focuses particularly on the requirements and methods of manually restoring track geometry defined in the track work instructions and relevant specifications relating to track maintenance. Practical exercises and assessments are included.

The training is linked to competence standard Tr 4 Restore track geometry by manual repair and Tr 11 Ensure the track is fit for operational purposes following maintenance repair.

2.6 Track Geometry 2

This module is designed to provide the underpinning knowledge of how to gather site information, set out/measure, calculate/mark out the geometrical requirements within specified tolerances and restore track geometry by mechanised repair.

This module is designed to train persons who are responsible for undertaking track maintenance or renewals where they take responsibility for establishing track geometry and position in preparation for restoration to operational condition.

The training focuses particularly on the requirements of restoring track geometry by mechanised repair and establishing track geometry and position defined in the track work instructions and relevant specifications relating to track maintenance and construction.

The training is linked to competence standard Tr 5 Establish track geometry and restore to operational condition by mechanised repair

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

2.7 Track Patrolling

This module is designed to provide the underpinning knowledge of track inspection requirement, methods and techniques.

The module is designed to train persons who are responsible for track patrolling and routine inspection work undertaken where they take responsibility for ensuring the immediate safety of the line and the identification of medium and long-term deterioration.

The training focuses particularly on the track patrolling requirements defined in Network Rail specifications. The training covers the track work instructions associated with recognising defects and the actions that should be taken for each as defined by relevant specifications.

The training is linked to competence standard Tr 6 Inspect the permanent way infrastructure

2.8 Track Inspection

This module is designed to provide the underpinning knowledge of comprehensive inspection methods and techniques used to verify and prioritise reported defects and identify new defects.

The module is designed to train persons who are responsible for detailed inspection, monitoring and assessing the performance and condition of permanent way assets.

This module will focus particularly on the track inspection requirements as defined by Network Rail specifications. The module also covers ongoing periodic checking of the permanent way infrastructure to monitor its condition using gauges and other equipment, comparing this to previous inspection data, and assessment of the condition of the permanent way infrastructure using data obtained from measuring equipment or by visual or vehicular inspection. The use of relevant track work instructions is included.

The training is linked to competence standard Tr 7 Establish the operational condition of the permanent way by detailed inspection

2.9 Switch and Crossing Inspection

This module is designed to provide the underpinning knowledge of detailed inspection methods and techniques used to reduce the risk of derailment at switches and inspect cast crossings and cast vees in the track as defined by Network Rail Company Specification NR/SP/TRK/053 and NR/SP/TRK/054.

The module is designed to train persons who are responsible for detailed inspection of switches and cast crossings. The use of relevant track work instructions is included.

The training is linked to competence standard Tr 7 Establish the operational condition of the permanent way by detailed inspection

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

2.10 Management of Rail Breaks and Defects

This module is designed to provide the underpinning knowledge of how to deal with a broken rail in accordance with the requirements of Network Rail specifications and track work instructions.

This module is designed to train persons who are responsible for dealing with Rail Breaks and Defects in accordance with the requirements.

The training is linked to competence standard Tr 16 Deal with risks arising from contingencies within the railway

2.11 Passing Trains over Broken Rails

This module is designed to provide the underpinning knowledge of what needs to be taken into account before allowing trains to pass over a broken rail in accordance with the requirements of Network Rail Specifications.

This module is designed to train persons who are responsible for passing trains over broken Rails in accordance with requirements.

2.12 Stress Restoration

This module is designed to provide the underpinning knowledge required to restore the original stress in rails which have been replaced due to breakage or other defect as detailed by Network Rail specifications and the use of track work instructions relating to stress restoration of Continuous Welded (CWR) Track

The module is designed to train persons who are responsible for restoring the original stress in rails in a variety of situations.

The training is linked to competence standard Tr 8 Restore original stress in rails

2.13 Stressing – Plain Line

This module is designed to provide the underpinning knowledge required to correctly install stress in rails in plain line sections as detailed by Network Rail specifications and the use of track work instructions relating to stressing of Continuous Welded (CWR) Track.

The training is linked to competence standard Tr 9 Undertake stressing of plain line.

2.14 Stressing – S & C

This module is designed to provide the underpinning knowledge required correctly stress in rails through S&C layouts as detailed by Network Rail Specifications and the use of track work instructions relating to stressing in S&C layouts.

The training is linked to competence standard Tr 10 Undertake stressing in switch and crossing areas.

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

2.15 Raising and Removing Speed Restrictions

This module is designed to provide the underpinning knowledge of how to make an assessment of the condition of the infrastructure, following completion of maintenance or renewal work carried out, to determine its fitness for use.

The module is designed to train persons who are responsible for ensuring that the track is fit for operational purposes following work and raising and removing speed restrictions.

The training focuses particularly on the requirements of Network Rail specifications relating to track inspection and the use of relevant track work instructions.

The training is linked to competence standards Tr 12 Ensure the track is fit for operational purposes following heavy maintenance and Tr 13 Ensure the track is fit for operational purposes following track renewal

2.16 Lifting Operations during Permanent Way Works

This module focuses on the techniques, tools and methods used to move rails, switches and crossings. bearers. sleepers and ballast to ensure that the movement will be done safely, using the correct equipment and techniques. The training uses the relevant track work instructions and covers the use of:

- | | |
|--|--|
| <ul style="list-style-type: none"> • Rail/timber nips. • Jacks. • Grabs. • Slings. • Iron men. • Trolleys. | <ul style="list-style-type: none"> • Rail scooters. • Chains. • Straps. • Beams. • Sleeper lifting devices. |
|--|--|

The training is linked to competence standard Tr 15 Move permanent way materials, components and equipment. Should include correct storage methods to prevent damage to components

2.17 Basic Safety during Permanent Way Works

This module is designed to provide the underpinning knowledge to:

- Identify and deal with hazards in the railway environment,
- Deal with risks that may affect the safety of the line life or the environment
- Secure the work area during and following permanent way maintenance or renewal activities
- Minimise the effects of hazards in the railway environment

The training is linked to competence standards Tr 16 Deal with risks arising from contingencies within the railway, Tr 17 Identify and deal with hazards in the railway environment and Tr 19 Create a safe working environment. Track work instructions are used as appropriate.

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

2.18 Ensuring Safe Supervision during P-Way Works

This module is designed to provide the underpinning knowledge in establishing safe systems of work using technical knowledge and experience of renewal and maintenance activities security of the site, protecting the infrastructure and railway operations from crime. It includes the proper storage of tools, plant and equipment, as well as the disposal of waste materials, the immediate actions that need to be taken in the event of any incident and understanding their effect or implication on the safety of the line, life and the environment. Track work instructions are used as appropriate.

The training is linked to competence standard Tr 20 Implement and monitor safe working systems for Permanent Way maintenance or renewal activities

2.19 Supervision of Permanent Way Works

This module is designed to provide the underpinning knowledge of how to supervise track maintenance or renewal work.

The module includes work undertaken both prior to and during renewal or maintenance activities taking place and addresses responsibilities such as ensuring that correct and adequate materials and components are available, resource planning and availability, dealing with variances and communicating duty of care to the users of the resources ensuring that correct small plant and equipment are available and are in a proper condition managing the work of others thereby ensuring their health, safety, welfare and the quality and efficiency of their work. Track work instructions are used as appropriate.

The training is linked to competence standards Tr 18 Control the obtaining and preparing of materials, tools and components needed for the renewal or maintenance of the permanent way and Tr 21 Ensure the effective progression of permanent way maintenance or renewal activities

2.20 Planning Permanent Way Works

This module is designed to provide the underpinning knowledge of how to effectively plan track maintenance or renewal work.

This module covers the locating and understanding of information contained within drawings and specifications, methods that are used to plan the utilisation of resources for activities including the estimating of timescales, preparing method statements. The provision of supplies and services to enable work activities to take place thus ensuring the health, safety and welfare of all persons involved. Track work instructions are used as appropriate.

The training is linked to competence standards Tr 22 Undertake planning and site preparation for permanent way maintenance activities and Tr 23 Undertake planning and site preparation for permanent way renewal activities

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

3 Other Track Training Modules

3.1 Appreciation of Non-destructive testing

To provide the underpinning knowledge of how to test the integrity of rails using non-destructive testing equipment.

The module includes the use of tools, techniques used and how to interpret the results, what types of defects may be found and what the appropriate actions are. This module will focus particularly on the requirements of Network Rail Specifications and Instructions relating to Management of Rails to control RCF (GCC & HC), Rail Testing - Detection Criteria, and Track Inspection requirements and Rail Failure Handbook. Needs to also include appreciation of the minimum actions associated with defect identification

3.2 Small Plant Operation

To provide the underpinning knowledge and practical experience on the safe and effective operation of various items of small plant.

This training consists a number of specific modules covering various items of small plant such as:

- | | |
|--|--|
| <ul style="list-style-type: none"> • Rail drill. • Auger. • Rail saw. • Discutter. • Chain saw. | <ul style="list-style-type: none"> • Power wrench. • Kango packer. • Stone Blower (Hand Held). • Rail tensioning devices. • Temporary lighting. |
|--|--|

The modules cover:

- Tool and equipment care and control procedures.
- The necessary preparations to plant in line with work requirements.
- Completion of appropriate visual checks and manual tests to ensure that the plant is in safe and usable condition, suitable for task, that fuel and lubricant levels are correct and any required certification/calibration is valid and current.
- How to identify wear and defects that may prevent the plant from operating in the designed manner.
- How to select and use personal protective equipment appropriate to the type of plant.
- How to operate the plant safely taking account of the manufacturer's instructions.
- How to ensure that others are protected while the plant is being used.
- How to achieve the required result by using the plant.

Practical exercises and assessments are included and appropriate "Power plant certificates" issued on successful completion.

The training is linked to competence standard Tr 14 Use small plant

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

Appendix B Competence Standards

1 Competence Standards

The following Competence Standards have been developed for work activities associated with the track engineering:

- Tr 1 Maintain permanent way assets
- Tr 2 Maintain “off track” assets
- Tr 3 Renew permanent way assets
- Tr 4 Restore track geometry by manual repair
- Tr 5 Establish track geometry and restore to operational condition by mechanised repair
- Tr 6 Inspect the permanent way infrastructure
- Tr 7 Establish the operational condition of the permanent way by detailed inspection
- Tr 8 Restore original stress in rails
- Tr 9 Undertake stressing of plain line
- Tr 10 Undertake stressing in switch and crossing areas
- Tr 11 Ensure the track is fit for operational purposes following maintenance repair
- Tr 12 Ensure the track is fit for operational purposes following heavy maintenance
- Tr 13 Ensure the track is fit for operational purposes following track renewal
- Tr 14 Use small plant
- Tr 15 Move permanent way materials, components and equipment
- Tr 16 Deal with risks arising from contingencies within the railway
- Tr 17 Identify and deal with hazards in the railway environment
- Tr 18 Control the obtaining and preparing of materials, tools and components needed for the renewal or maintenance of the permanent way
- Tr 19 Create a safe working environment
- Tr 20 Implement and monitor safe working systems for Permanent Way maintenance or renewal activities
- Tr 21 Ensure the effective progression of permanent way maintenance or renewal activities
- Tr 22 Undertake planning and site preparation for permanent way maintenance activities
- Tr 23 Undertake planning and site preparation for permanent way renewal activities
- Tr 24 Contribute to effective working relationships

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

2 Competence Profiles.

The following profiles have been included to guide employers as to the likely application of the competence framework to various generic job roles.

Competence		Maintenance Team				Renewals Team				Tech Support
		Assistant	Member	Leader	Supervisor	Assistant	Member	Leader	Supervisor	
Tr 1	Maintain permanent way assets	Core	Core	Core						
Tr 2	Maintain "off track" assets	Optional	Optional	Optional						
Tr 3	Renew permanent way assets	Optional	Optional	Optional		Core	Core	Core		
Tr 4	Restore track geometry by manual repair		Core	Core			Core	Core		
Tr 5	Establish track geometry and restore to operational condition by mechanised repair				Optional				Optional	Optional
Tr 6	Inspect the permanent way infrastructure		Optional	Optional						
Tr 7	Establish the operational condition of the permanent way by detailed inspection				Optional				Optional	
Tr 8	Restore original stress in rails			Core	Core			Core	Core	Optional
Tr 9	Undertake stressing of plain line				Optional				Optional	Optional
Tr 10	Undertake stressing in switch and crossing areas									Optional
Tr 11	Ensure the track is fit for operational purposes following maintenance repair		Optional	Core	Core			Optional	Optional	Optional
Tr 12	Ensure the track is fit for operational purposes following heavy maintenance			Core	Core			Optional	Core	Optional
Tr 13	Ensure the track is fit for operational purposes following track renewal				Optional				Core	Optional

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

Competence		Maintenance Team				Renewals Team				Tech Support
		Assistant	Member	Leader	Supervisor	Assistant	Member	Leader	Supervisor	
Tr 14	Use small plant	Optional	Core	Core			Core	Core		
Tr 15	Move permanent way materials, components and equipment		Core	Core			Core	Core		
Tr 16	Deal with risks arising from contingencies within the railway		Core	Core			Core	Core		
Tr 17	Identify and deal with hazards in the railway environment		Core	Core			Core	Core		
Tr 18	Control the obtaining and preparing of materials, tools and components needed for the renewal or maintenance of the permanent way		Optional	Core	Core		Optional	Core	Core	Optional
Tr 19	Create a safe working environment		Core	Core	Core		Core	Core	Core	Optional
Tr 20	Implement and monitor safe working systems for Permanent Way maintenance or renewal		Core	Core	Core		Core	Core	Core	Optional
Tr 21	Ensure the effective progression of permanent way maintenance or renewal activities		Optional	Core	Core		Optional	Core	Core	Optional
Tr 22	Undertake planning and site preparation for permanent way maintenance activities				Core					
Tr 23	Undertake planning and site preparation for permanent way renewal activities								Core	Optional
Tr 24	Contribute to effective working relationships	Core	Core	Core	Core	Core	Core	Core	Core	Core

Example Competence Profiles

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

3 Training Framework

Competence Standard	Relates to Training Course
Tr 1 Maintain permanent way assets	Track Induction
	Track Maintenance – Plain Line
	Track Maintenance – Switch & Crossings
Tr 3 Renew permanent way assets	Track Renewal
Tr 4 Restore track geometry by manual repair	Track Geometry 1
Tr 5 Establish track geometry and restore to operational condition by mechanised repair	Track Geometry 2
Tr 6 Inspect the permanent way infrastructure	Track Patrolling
Tr 7 Establish the operational condition of the permanent way by detailed inspection	Track Inspection
	Switch and Crossing Inspection
Tr 8 Restore original stress in rails	Stress Restoration
Tr 9 Undertake stressing of plain line	Stressing – Plain Line
Tr 10 Undertake stressing in switch and crossing areas	Stressing – S & C
Tr 11 Ensure the track is fit for operational purposes following maintenance repair	Track Geometry 1
Tr 12 Ensure the track is fit for operational purposes following heavy maintenance	Raising and Removing Speed Restrictions
Tr 13 Ensure the track is fit for operational purposes following track renewal	Raising and Removing Speed Restrictions
Tr 14 Use small plant	Various portable plant modules
Tr 15 Move permanent way materials, components and equipment	Operations during Permanent Way Works
Tr 16 Deal with risks arising from contingencies within the railway	Management of Rail Breaks and Defects
	Basic Safety during Permanent Way Works
Tr 17 Identify and deal with hazards in the railway environment	Basic Safety during Permanent Way Works
Tr 18 Control the obtaining and preparing of materials, tools and components needed for the renewal or maintenance of the permanent way	Supervision of Permanent Way Works
Tr 19 Create a safe working environment	Basic Safety during Permanent Way Works
Tr 20 Implement and monitor safe working systems for Permanent Way maintenance or renewal activities	Ensuring Safe Supervision during P-Way Works
Tr 21 Ensure the effective progression of permanent way maintenance or renewal activities	Supervision of Permanent Way Works
Tr 22 Undertake planning and site preparation for permanent way maintenance activities	Planning Permanent Way Works
Tr 23 Undertake planning and site preparation for permanent way renewal activities	Planning Permanent Way Works

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

4 Evidence requirements

Sufficient evidence must be collected to enable competence to be assessed against the performance statements and knowledge and understanding requirements for each element. Evidence must be sufficient to ensure that the candidate is capable of consistent competent performance.

4.1 Performance Evidence

The standards of competence in the appendices specify what forms and the quantity of performance evidence which shall be presented for each element.

There are two types of performance evidence:

- Evidence of the way the candidate carried out activities - evidence of the process involved in demonstrating competence. This takes the form of observation, authenticated log book entries, or performance reports.
- Products of the candidate's work - items that the candidate produces or works on or documents produced as part of the activity. The evidence may be in the form of the product itself, or may be a records or photographs generated as part of the work.

4.2 Knowledge Evidence

The knowledge evidence section of the element specifies the knowledge and understanding necessary for competent performance. Knowledge is about knowing what should be done, how it should be done, why it should be done and what should be done if circumstances change. It can also be used to achieve coverage of contingencies and items of scope statements that are not covered by performance evidence. Knowledge evidence shall be collected for all of the items listed under the knowledge evidence required for each element.

4.3 Knowledge requirements that are common to all Competence Standards.

Candidates must have knowledge and understanding of:

1. Health and safety legislation, regulations and safe working practices and procedures that must include:
 - Relevant sections of the Health and Safety at Work Act.
 - Safety Critical Work Regulations.
 - Electricity at Work Regulations.
 - COSHH.
 - Transport and Works Act (Alcohol and drugs).
 - Track access restrictions.
 - Current rule book.
 - Work safe procedures

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

2. Waste disposal procedures as specified by Network Rail. This will include knowing whom to approach for authorisation.
3. Reporting lines and procedures as specified by Network Rail
4. The likely impact of your work on the operations of other departments and the impact of their work for you.

5 Assessment.

5.1 Initial Assessment

Where the activity is new to the person's area of responsibility evidence shall be used from satisfactory completion of training and mentoring and shall be gathered of the person completing the work in the workplace. Assessment decisions of "competent" shall only be made when:

- All the required performance and knowledge evidence, as defined in the competence standard, has been provided.
- The evidence has been confirmed as accurate, current and attributable to the person concerned.

Where the person has been previously trained and has been completing the work for more than one year. Performance evidence requirements defined in each element do not apply. The primary source of the evidence will be from detailed questioning supported by performance reports from the person's Supervisor.

5.2 Re-Assessment

Re-assessment shall be completed at least every 3 years in accordance with the requirements set out in 7.2.

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

Tr 1: Maintain permanent way assets

1 Purpose

The purpose of this competence standard is to define the competence requirements for persons required to maintain permanent way assets.

2 Scope

This competence standard applies in all circumstances where any person is required to maintain permanent way assets on Network Rail controlled infrastructure.

The level and extent of responsibility will include their own safety and that of others who might be affected by their work. The candidate will be expected to refer to others for authorisation when required, will be responsible for the implementation of the instructions and will work within set procedures and specifications. The candidate is responsible for the quality of their completed work.

3 Competence Standard

This Competence Standard comprises four elements

Element 1 Undertake routine preventative maintenance of the permanent way.

Element 2 Adjust permanent way assets to meet operating requirements

Element 3 Replace permanent way assets and components

Element 4 Dismantle and remove permanent way assets and components

To prove competence in this unit, the candidate must demonstrate their ability to complete work in accordance with instructions. The candidate will have to show they can follow recording, reporting and escalation procedures.

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

Tr 1 - Maintain permanent way assets	
Element 1 - Undertake routine preventative maintenance of the permanent way	
<p>Performance statements</p> <p><i>You must be able to:</i></p> <ol style="list-style-type: none"> Work safely at all times, complying with health and safety and other relevant regulations and guidelines Follow the relevant maintenance schedules to carry out the required work Carry out the maintenance activities within the limits of your personal authority Carry out the maintenance activities in the specified sequence and in an agreed time scale Report any instances where the maintenance activities cannot be fully met or where there are identified defects outside the planned schedule Complete relevant maintenance records accurately and pass them on to the appropriate person Dispose of waste materials in accordance with safe working practices and approved procedures 	<p>Knowledge statements</p> <p><i>You must have knowledge and understanding of:</i></p> <ol style="list-style-type: none"> Maintenance schedules and related specifications & instructions that are set by Network Rail. They must include schedules that are seasonal and periodical. Identification and selection of appropriate permanent way components Maintenance methods and procedures that must include: <ul style="list-style-type: none"> Method statements Hot weather restrictions Extreme weather plans Procedures for the recording of work carried out specified by Network Rail. Calibration checks and care and control procedures specified by the manufacturer. <p>Evidence required</p> <p>Performance evidence must be collected by observation in the workplace or during training, of the candidate completing all relevant maintenance procedures in respect of performance statements: a, b, c, d, and e for all items in scope statements 1 and 2.</p> <p>Where evidence is used from training this will be supported by workplace evidence to confirm that all items in scope statements 1 and 2 have been completed during the mentoring period.</p> <p>The remaining performance statements may be assessed using performance reports or questioning.</p>
<p>Scope of Competence</p> <ol style="list-style-type: none"> The assets or equipment to be maintained will be aspects of the track and its associated infrastructure. It could include the maintenance requirements for: <ul style="list-style-type: none"> Plain line Switches and crossings The types of maintenance activities involved will follow set procedures, method statements and must take account of track access limitations. The activities could include: <ul style="list-style-type: none"> Tightening to torque bolts, nuts and screws Fixing, fitting or refitting pads, insulators, clips, fishplates and bolts Applying lubricants Removing and disposing of waste Boxing in ballast 	

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

Tr 1 - Maintain permanent way assets	
Element 2 - Adjust permanent way assets to meet operating requirements	
<p>Performance statements</p> <p><i>You must be able to:</i></p> <ol style="list-style-type: none"> Work safely at all times, complying with health and safety and other relevant regulations and guidelines Follow the appropriate operating specifications & instructions for the equipment being maintained Carry out adjustments within the limits of your personal authority Make the required adjustments in the specified sequence and in an agreed time scale Confirm that the adjusted equipment meets the required operating specification Report any instances where the equipment fails to meet the required performance after adjustments or where there are identified defects outside the required adjustments Maintain documentation in accordance with organisational requirements 	<p>Knowledge statements</p> <p><i>You must have knowledge and understanding of:</i></p> <ol style="list-style-type: none"> Maintenance schedules and related specifications & instructions and instructions as set by Network Rail. They must include schedules that are seasonal and periodical. Maintenance methods and procedures that must include: <ul style="list-style-type: none"> Method statements Risk assessments Hot weather plans\requirements Extreme weather plans Emergency preparedness plans Maintenance records and documentation procedures as specified by Network Rail. The records must be both paper based and computer based. Equipment operating and care and control procedures as specified by Network Rail. This must include calibration requirements.
<p>Scope of Competence</p> <ol style="list-style-type: none"> The type of equipment to be worked on will be that associated with plain line and switches and crossings. The type and complexity of adjustments to be made will be: <ul style="list-style-type: none"> Rail adjustment and regulation Adjustment switch setting Sleeper spacing and squaring Ballast re-profiling and boxing-in Check rails The quality standards and accuracy to be achieved will be in line with the set specifications & instructions and approved maintenance instructions & manuals. It must include reinstating assets to within operational tolerances. 	<p>Evidence required</p> <p>Performance evidence must be collected by observation in the workplace or during training, of the candidate completing all relevant maintenance procedures in respect of performance statements: a, b, c, d, and e for all items in scope statements 1 and 2.</p> <p>Where evidence is used from training this will be supported by workplace evidence to confirm that all items in scope statements 1 and 2 have been completed during the mentoring period.</p> <p>The remaining performance statements may be assessed using performance reports or questioning.</p>

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

Tr 1 - Maintain permanent way assets	
Element 3 - Replace permanent way assets and components	
<p>Performance statements</p> <p><i>You must be able to:</i></p> <ol style="list-style-type: none"> Work safely at all times, complying with health and safety and other relevant regulations and guidelines Obtain all the required components and ensure that they are in a suitable condition for replacement and fit for purpose Ensure that any replacement components used meet the required specification Take adequate precautions to prevent damage to components, tools and equipment during replacement Replace the components in the correct sequence using appropriate tools and techniques Make any necessary settings or adjustments to the components to ensure they will function correctly Deal promptly and effectively with problems within your control and report those that cannot be solved Maintain documentation in accordance with organisational requirements 	<p>Knowledge statements</p> <p><i>You must have knowledge and understanding of:</i></p> <ol style="list-style-type: none"> Related specifications & instructions as issued by Network Rail. Component assembly methods and techniques as specified by Network Rail. These can be: <ul style="list-style-type: none"> Manual Mechanical Measuring to check tolerance Handling equipment, methods and techniques as specified by Network Rail including: <ul style="list-style-type: none"> Manual handling Mechanical handling Use of small tools Equipment handling Tool and equipment care and control procedures as specified by Network Rail. It must include calibration requirements.
<p>Scope of Competence</p> <ol style="list-style-type: none"> The type of asset to be worked on will be plain line and switches and crossings equipment and associated fastenings. The type of components to be replaced in respect of either plain line or switches and crossings include: <ul style="list-style-type: none"> Ballast (wet beds) Rails including check rails Switch & crossing units Expansion switches Sleeper/bearers Fastenings Insulations Chairs and baseplates The assembly methods and techniques to be used will include: <ul style="list-style-type: none"> Manual methods Mechanical methods Use of small plant and equipment The complexity of the assembly operations will be influenced by: <ul style="list-style-type: none"> Track configuration Using variable/diverse sources of information Track stability procedures Environmental procedures The quality standards and accuracy to be achieved will be as specified by Network Rail and the manufacturer and must include reinstating to operational tolerances. 	<p>Evidence required</p> <p>Performance evidence must be collected by observation in the workplace or during training, of the candidate completing all relevant maintenance procedures in respect of performance statements: a, b, c, d, and e for all items in scope statements 1 and 2.</p> <p>Where evidence is used from training this will be supported by workplace evidence to confirm that all items in scope statements 1 and 2 have been completed during the mentoring period.</p> <p>The remaining performance statements may be assessed using performance reports or questioning.</p>

Ref	NR/SP/CTM/011
Issue	1
Date	December 2006

Tr 1 - Maintain permanent way assets	
Element 4 - Dismantle and remove permanent way assets and components	
<p>Performance statements</p> <p><i>You must be able to:</i></p> <ol style="list-style-type: none"> Work safely at all times, complying with health and safety and other relevant regulations and guidelines Establish, and where appropriate, mark component orientation for re-assembly Ensure that any stored energy or substances are released safely and correctly Remove the required components using approved tools and techniques Take suitable precautions to prevent damage to components, tools and equipment during removal Check the condition of the removed components and record those that will require replacing Label and store the removed components in an appropriate location Store or discard the removed components in accordance with approved procedures Maintain documentation in accordance with organisational requirements 	<p>Knowledge statements</p> <p><i>You must have knowledge and understanding of:</i></p> <ol style="list-style-type: none"> Related specifications as issued by the Network Rail. Component removal methods and techniques as specified by Network Rail. These must include both temporary and permanent situations and will include: <ul style="list-style-type: none"> Manual methods Mechanical methods Identification of component defects involving the use of: <ul style="list-style-type: none"> Recorded information Visual inspection Dynamic inspections/observations Labelling and storage of components for re-use as required by Network Rail and particularly by: <ul style="list-style-type: none"> Retesting certification procedures Visual inspection procedures Disposal of unwanted components and substances as appropriate as required by Network Rail and particularly taking account of: <ul style="list-style-type: none"> Environmental issues COSHH Waste management regulations Tool and equipment care and control procedures as specified by Network Rail. It must include calibration requirements.
<p>Scope of Competence</p> <ol style="list-style-type: none"> The type of equipment to be dismantled will be that associated with: <ul style="list-style-type: none"> Plain line Switches and crossings Longitudinal timbers Level crossings The removal techniques or procedures to be followed will be those for both temporary and permanent situations and will include: <ul style="list-style-type: none"> Unfastening Untying Releasing Removal can be by manual and mechanical means. The complexity of the removal operations will be influenced by: <ul style="list-style-type: none"> Track configuration Using variable/diverse sources of information Track stability procedures The quality standards and accuracy to be achieved will be as specified by Network Rail and the manufacturer and must include reinstating to operational tolerances. 	<p>Evidence required</p> <p>Performance evidence must be collected by observation in the workplace or during training, of the candidate completing all relevant maintenance procedures on both plain line and switches and crossings in respect of performance statements: b, and d for all items in scope statements 1 and 2.</p> <p>Where evidence is used from training this will be supported by workplace evidence to confirm that all items in scope statements 1 and 2 have been completed during the mentoring period.</p> <p>The remaining performance statements may be assessed using performance reports or questioning.</p> <p>Candidates must demonstrate knowledge of all aspects of Scope statements 3 and 4.</p>