

Letter of instruction

Information for users

The following document:

NR/L3/TRK/3230 Issue 3

has had changes made to it, most recently, with effect from **23 September 2013**.

Instructions for use

It is essential that you first read and understand each letter of instruction pertaining to the standard before proceeding to use the standard. You must then apply the requirements of each letter to the standard.

NR/BS/LI/305	Issue 1	23 September 2013	Proceed to letter ►
NR/L3/TRK/3230	Issue 2	26 August 2008	Proceed to standard ►

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Issue:	2
Date:	26 August 2008
Compliance date:	26 August 2008

Level 3

Control of on track machines

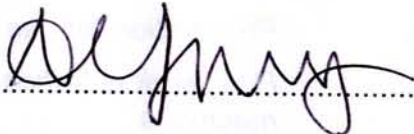
Endorsement and Authorisation

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Published and Issued by Network Rail, 40 Melton Street, London NW1 2EE.

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Documents

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Ref:	NR/L3/TRK/3230
Issue:	2
Date:	26 August 2008
Compliance date:	26 August 2008

Issue record

Issue	Date	Comments
1	May 2006	First issue
2	August 2008	Reissued due to organisational changes in Engineering and Maintenance. Additionally renumbered from NR/PRC/MTC/TK0003 to align with track Engineering document numbering system

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

Document Number	Title of Document
NR/L3/TRK/3220	<i>Planning of on track machines</i>
NR/L3/TRK/3240	<i>Preparation for use of on track Machines</i>
NR/L3/TRK/3250	<i>Post-work activities following works using on track machines</i>
NR/L2/TRK/001	<i>Inspection and Maintenance of Permanent Way</i>
NR/L2/MTC/0056	<i>Work and possession planning for the railway infrastructure - Meetings management pack</i>

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1 Purpose

This procedure defines the standard process, roles and responsibilities for the control on site of On Track Machine operations in Maintenance worksites.

2 Scope

The procedure applies to the control of:

- Tampers (Plain Line and S&C),
- Ballast Regulators,
- Dynamic Track Stabilisers and
- Stone blowers (Plain Line and S&C)

by teams within the Maintenance function at Route and Delivery Unit levels.

This procedure DOES NOT apply on lines operating at Enhanced Permissible Speeds and maintained to Absolute Geometry requirements.

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3 Roles and responsibilities

3.1 RACI

RACI DETAILS	KEY CONTROL ACTIVITY								
		ES	ICC			S&T		TQS	
		Engineering Supervisor	Integrated Control Centre	OTM Supplier	On Call Engineer	Signal & Telecoms Staff	Stoneblower Team Leader	Track Quality Supervisor	NDS Performance
Process Task									
6.1			I	A/R				I	
6.2				A/R					
6.3				A/R					
6.4			I	A/R				I	
7.1	X		I	I				A/R	
7.2			I	I				I	
7.3				I				A/R	
8.1.1								A/R	
8.1.2							C	A/R	
8.2			I	R				A/R	
8.3			I	A/R				I	
8.4			I	R				A	
8.5				R				A	
8.6				C				A/R	
8.7		I	C/I		C		R	A/R	
8.8	X			R				A/R	
9.1			C/I	C/I	A/R			C/I	
9.2			R/I	C/I	A/R			R/C/I	
9.3			R	C/I	R			A/R	
10.1	X					R		A/R	
10.2	X							A/R	
11.0			R		R			A/R	
12.1	X		I					A/R	
12.2			A/R						I
12.3									A/R
end RACI									

RACI is a means of linking process steps to roles as follows:

- **R – Responsible:** the individual(s) who perform an activity – responsible for action/implementation – although usually only one, Rs can be shared
- **A – Accountable:** the individual who is ultimately accountable including yes/no decision and power of veto – only one 'A' can be assigned
- **C – Consulted:** the individual(s) to be consulted prior to a final decision being made or action taken – two-way communication.
- **I – Informed:** the individual(s) who need to be informed after a decision is made or action is taken – one-way communication.

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4 Definitions and abbreviations

4.1 Definitions

Absolute Track Geometry

Fixed Track Position, with a defined maintenance methodology, to re-establish the validated design

Ancillary Works

Work identified as being required for maintenance but not necessarily required to support the mechanised treatment

Design

An approved methodology, using a set of parameters, to determine the position of the track upon completion of the work. Includes Fixed Track Position as determined by datum plates or other means, as well as tactical scheme data provided for the express purpose of the work by an approved design methodology using on-board computer systems, Hallade design, optical survey or other approved technique

Flash report

Daily or weekly summary of events provided to senior management for immediate information pending provision of detailed information

Fixed Track Position

Vertical and lateral dimensions as provided by a design to which the track shall be maintained, within pre-defined tolerances

“misses”

Where ballast around sleepers has not been treated due to the position of other equipment which prevents mechanised treatment, but which could have been treated by manual means

On-board computer system

A Network Rail approved computer system fitted to an On-track machine to record defined track parameters

On-track Machines (OTM)

For the purposes of this procedure self-propelled rail-mounted machines used to maintain or improve track geometry and track position and include Tampers, Stone-blowers and Ballast Regulators

Preparatory Works

Work identified as being required to be undertaken in conjunction with the planned mechanised treatment to deliver the required final product

Track Position data

Parameters provided either on site (by the use of datum points, monuments or other approved methods) or by drawing showing the position of the track relative to fixed reference points

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Treatment site

The physical location determined for treatment, including any associated run-in and run-out transitions

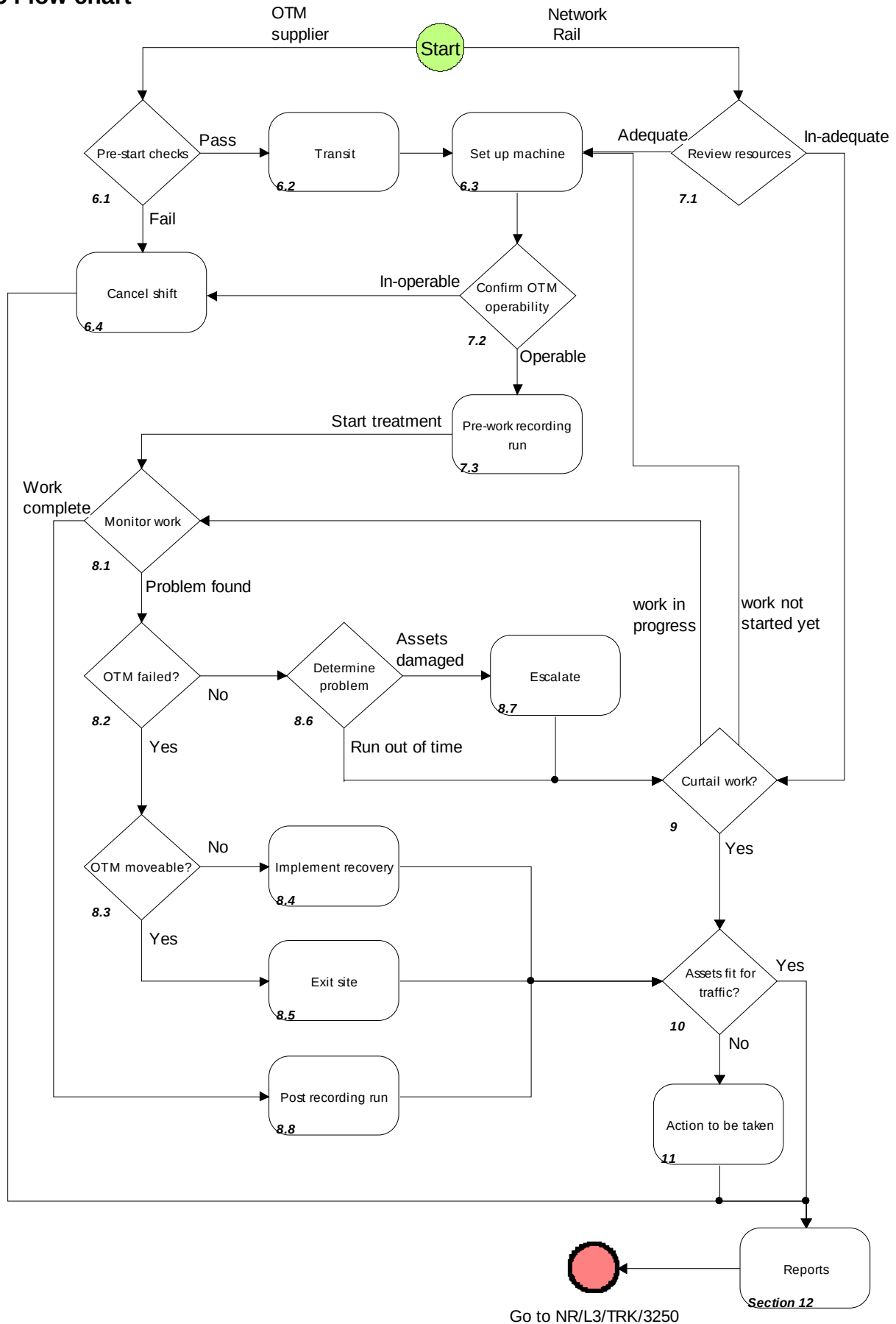
4.2 Abbreviations

Term	Definition
ES	Engineering Supervisor
ICC	Integrated Control Centre
NST	National Specialist Team
OLE	Overhead Line Equipment
OTM	On Track Machine (Tampers, stoneblowers, dynamic track stabilisers and regulators)
PPE	Personal Protective Equipment
S&C	Switches and Crossings
S&T	Signals and Telecommunications
TQS	Track Quality Supervisor

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5 Flow chart



Go to NR/L3/TRK/3250

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6 OTM suppliers obligations

6.1 Pre-start check

Prior to exiting the stabling point, the OTM supplier shall check that all necessary crew, certificates, other required documentation and equipment are present and correct.

Prior to exiting the stabling point, the On Track Machine (OTM) supplier shall undertake the required checks to confirm that the machine and all systems, including the on-board computer system, are functioning within normal operational parameters.

Where problems with the OTM are found, the OTM supplier shall make sufficient investigations to decide whether the OTM has failed or can be repaired in time to start work.

If the machine cannot exit the stabling point, then the OTM supplier shall inform Integrated Control Centre (ICC) and the Track Quality Supervisor (TQS). Where the reason why the OTM cannot exit the stabling point cannot be resolved, go to clause 6.4 otherwise go to clause 6.2.

6.2 Transit

The OTM shall transit from the stabling point to the possession limits, work site and start point in accordance with current operating rules and instructions.

6.3 Set up machine

Once at the start point for the work, the OTM supplier shall set up the machine when instructed by the TQS to enable the planned works to be undertaken. When the machine is set up, go to clause 7.2.

6.4 Cancel shift

The OTM supplier shall provide to the TQS and ICC suitable and sufficient information regarding the reasons for the OTM being unable to undertake the track treatment. Go to Section 12.

7 Pre-work requirements

7.1 Review resources

The TQS shall review the OTM objectives, design requirements and need for support staff.

The review of the OTM objectives shall confirm that it contains:

- The type of work to be undertaken.
- The extent and the order in which the work is to take place.
- The preparatory work that must have been undertaken to allow the work to take place.
- Construction depth of the track (so that the correct tine depth can be set on the machine for the work to be undertaken).

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- Details of support work and the role of support staff required to undertake support works. (Support staff may include OLE (survey and/or slue wires in accordance with design criteria), S&T, Technical and P-Way.
- Details of obstructions to be removed to facilitate the planned work and arrangements to reinstate them.
- Details of locations to be manually packed and where sleeper ends require opening out.
- Details of any non treatable locations.
- Details of fixed apparatus or other obstruction requiring special attention during the works

The review of the design information shall determine whether the design information supplied is adequate to allow the work to proceed. This will depend on the work method being used, and will require suitable and sufficient checks to be undertaken as follows:

- a) Design Treatment - 'manual' – The design position of the top and bottom of transitions must be marked on site along with the length of the transition, the cant at 5mm increments and the required lift and slue.
- b) Design Treatment - 'automatic' – The design metreage will be marked on site to allow the machine to be correctly positioned. The design position of the top and bottom of transitions must be marked along with the length of the transition and the cant at 5mm increments. These are required to allow the position and output of the machine to be checked and enable the use of 'manual' design treatment in the event of a computer failure.
- c) Measurement & Compensation – The design position of the top and bottom of transitions must be marked along with the length of the transition and the cant at 5mm increments. The operators must also be supplied with the following limits to apply to the design.
 - 1) Is Design Overlift to be used ?
 - 2) Maximum & Minimum Lift
 - 3) Maximum slue Left & Right
 - 4) The location of restricted slue and lift and the restrictions to be applied.

The review of the support staff shall determine that those required to facilitate the track treatment are or will be present when required with the correct tools, equipment and Personal Protective Equipment (PPE) required to undertake the works (such as jacks, kangos and forks, and other equipment to assist with the lifting of S&C) as required by the OTM objectives.

Where the TQS confirms to the OTM supplier the OTM objectives, design information and support staff are sufficient to allow the treatment to proceed the TQS shall instruct the OTM supplier to set up the machine. Go to clause 6.3.

Where the TQS confirms to the OTM supplier the OTM objectives, design information or support staff are insufficient to allow the treatment to proceed, the TQS shall inform ICC and seek guidance from the on-call engineer to determine a solution. Go to clause 9.

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7.2 Confirm machine operability

The OTM supplier shall confirm to the TQS that:

- The machine was checked prior to transit to site and all systems, including the on-board computer system, are functioning within normal operational parameters
- All required certification for the OTM is current and available
- All required crew are present and have with them their necessary or required certification, PPE and any other equipment

In the event that the machine cannot commence work, the OTM supplier and TQS shall advise their respective controls, consult with the on-call engineer and where necessary and where given permission, they shall terminate the shift. Go to clause 4.4.

7.3 Pre-treatment recording run

This clause does not apply to Ballast Regulators.

The TQS shall confirm that the OTM supplier undertakes a recording run using the machines on-board computer system prior to treatment starting.

8 Undertake the treatment

8.1 Monitor work

8.1.1 Tampers, Ballast Regulators and Dynamic Track Stabilisers.

The TQS shall confirm that the treatment is undertaken in accordance with the plan, method statements and risk assessments.

The TQS shall check that every sleeper is treated by the OTM or manual means, i.e. no "misses".

The TQS shall take suitable and sufficient measurements as the machine progresses with the treatment to enable any anomaly to be detected.

Upon completion of the planned treatment, go to clause 8.8.

If a problem occurs, go to clause 8.2.

8.1.2 Stoneblowers only.

The Stoneblower TQS shall periodically review with the operators the performance of the Stoneblower during the treatment, and shall request details of any error messages reported during the work.

For the following error messages:

- Encoder errors that require re-positioning machine more than once
- Twist fault
- Lift already at
- Running SD (quality error message)
- Lift or lining time out

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the Stoneblower team leader shall consult with the TQS.

The Stoneblower team leader shall inform the TQS whether the track integrity is at risk.

The TQS and Stoneblower team leader shall decide whether the site should be inspected and/or escalated to the on-call engineer for further guidance.

Upon completion of the planned treatment, go to clause 8.8.

If a problem occurs, go to clause 8.2.

8.2 OTM failed?

The TQS and OTM supplier shall consult and determine together whether the problem is due to the OTM failing.

Where the OTM has failed, go to clause 8.3.

Where the problem is not due to the OTM failing, go to clause 8.6.

8.3 OTM moveable?

The OTM supplier shall determine the reason for the OTM having failed.

The OTM supplier and the TQS shall inform ICC of the nature of the problem.

Where the OTM is unable to move, go to clause 8.4

Where the OTM can transit under its own power, go to clause 8.5.

8.4 Implement recovery

The OTM supplier shall arrange for the machine to be removed from the track as soon as possible in accordance with current operating rules and instructions.

The OTM supplier shall inform ICC of progress.

Go to section 10.

8.5 Exit site

The OTM supplier shall transit the OTM from the work site to the possession limits, and on to the stabling point in accordance with current operating rules and instructions.

Go to section 10.

8.6 Determine problem

The TQS shall consult with the OTM supplier.

The TQS shall determine whether the treatment has damaged any assets or it is time to stop work, either because the possession needs to be given up, or the OTM is required at another site.

Where assets are damaged, go to clause 8.7.

Where time has run out, go to section 9.

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8.7 Escalate

The TQS shall inform the Engineering Supervisor (ES) and ICC that the work needs to be curtailed due to a technical problem with the track, e.g. its structural integrity or its alignment.

The TQS shall consult with the ICC and on call track engineer for guidance.

If the Team Leader on the stone blower advises the TQS that the work undertaken lacks integrity the TQS shall escalate the issue to the on call track engineer for guidance.

Go to section 9.

8.8 Post work site recording run

This clause does not apply to ballast regulation or Stoneblower treatment.

The TQS shall confirm that the OTM supplier undertakes a post-work recording run using the machines on-board computer system upon completion of the work (a recording made while the machine is operating is not acceptable).

The TQS shall review the recording and check for defects in the top and alignment of the treated track.

Go to section 10.

9 Curtailment of treatment

Choose the appropriate sub-clause depending on the nature of the problem being resolved.

9.1 Lack of design information or support staff

The TQS, ICC, and the on-call engineer shall determine whether the work shall proceed as planned, amend the OTM objectives, use the OTM on another site, or cancel the shift.

Where treatment work is to proceed, the TQS, ICC and the on-call engineer shall agree what changes, if any, are required to the OTM objectives.

Where necessary the TQS shall amend the OTM objectives accordingly.

The TQS shall supply to the machine operator the OTM objectives and the design methodology to be used.

Go to clause 6.3.

Where work is to be cancelled or the machine is to be sent to another site, go to clause 10.

9.2 Run out of time

Where the possession needs to be given up the TQS, ICC and the relevant on-call engineer shall determine whether the work shall continue as planned or be curtailed:

- Where work continues, ICC shall implement procedures to advise Train Operating Companies that the possession will over-run. Go to clause 8.1, or
- Where work is curtailed, go to clause 10.

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Where the OTM is required on another site, the TQS, ICC and the on-call engineer shall determine whether the work shall continue as planned or be curtailed:

- Where work continues ICC shall inform the other work owner(s) that the OTM will not be available to work. Go to clause 8.1, or
- Where work is curtailed, go to clause 10.

9.3 Assets damaged

Where the track treatment has damaged assets the TQS, ICC and the on-call engineer shall determine the nature and severity of the damaged assets, whether the work shall continue or be curtailed and agree what remedial actions are required.

ICC shall implement appropriate immediate actions, e.g. broken rail procedure.

Where work continues, go to clause 8.1.

Where work is curtailed, go to clause 10.

10 Post treatment requirements

The TQS shall confirm to the ES that the condition and position of the track is such that the lines affected can be re-opened to traffic by undertaking the following checks prior to departing the work site.

If a discrepancy is found to Company Standards, the design or work programme, and cannot be immediately rectified, then the TQS shall inform the ES and the on call engineer and implement emergency contingency arrangements as appropriate.

10.1 Immediate site inspection for defects

The TQS shall inspect the site for compliance with NR/L2/TRK/001; Inspection and Maintenance of permanent way, with particular attention paid to confirm that apparatus or components have not been damaged whilst the treatment was undertaken.

The TQS shall verify that the track geometry is within the mandated maintenance limits (e.g. twist parameters, cross level, top and alignment) by inspecting the site when the OTM is completely clear of the work site.

Where S&C has been treated, the TQS shall consult with the S&T support staff assigned to the work.

The TQS or S&T support staff shall confirm to the ES that the switches are operating correctly and are fit for purpose.

If all is correct, go to clause 10.2.

Where the assets cannot be opened to traffic, go to section 11.

10.2 Immediate site inspection for structure clearance/track position

Where track has been moved or lifted adjacent to fixed structures, the TQS shall confirm that the final track position is within the tolerances defined when planning the treatment relative to any fixed datums.

Where the track interval has been affected, the TQS shall confirm that this is as required by the design criteria.

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Where the position of the track and clearances are affected, the TQS shall confirm that they are as required by the design parameters and specification.

If all is correct, go to clause 12.

Where the assets cannot be opened to traffic, go to clause 11.

11 Action to be taken if lines cannot be opened to traffic

If lines cannot be opened to traffic the TQS, ICC and the on-call engineer shall consult.

The on-call engineer shall identify any necessary immediate remedial work that shall be undertaken to enable lines to be opened to traffic. Where necessary, ICC shall request necessary staff be called to assist in achieving this.

Where necessary, risk mitigation controls shall be applied, e.g. imposition of speed restrictions, where track position is incorrect or defects will remain in track pending rectification.

12 Reports required at the end of the shift

12.1 Information to infrastructure fault control

The TQS shall provide to ICC performance data at the end of the shift.

12.2 Provision of daily information

ICC shall collate the data and provide a daily performance summary of OTM performance via flash reporting.

ICC shall provide NDS Performance a copy of the collated data.

12.3 Provision of national information

NDS Performance shall summarise the national performance data on a weekly basis and provide it to the Head of Maintenance Improvement, Route Infrastructure Maintenance Directors and the Head of Plant & Equipment NST.

Standards Briefing Note

Ref: NR/L3/TRK/3230	Issue: 2	Publication Date: 26 August 08	Compliance Date: 26 August 08
Title: Control of on track machines			
Standard Owner: Track Engineering			
Non-Compliance rep (NRNC): Principal Maintenance Support Engineer [Track]			

Purpose: This procedure defines the standard process, roles and responsibilities for the control on site of On Track Machine operations in Maintenance worksites.	The following teams require awareness briefing: Executive Management Group ☐ Commercial Property ☐ Contracts and Procurement ☐ Strategic Change ☐ CTRL ☐ Engineering Asset Management ☐ Civil Engineering ☐ E&P Engineering ☐ Enhancements Engineering ☐ Ergonomics ☐ Future Railway Programme ☐ Ops Principles & Standards ☐ Rail Vehicle Engineering ☐ Railway Systems ☐ Telecoms Engineering ☐ Track Engineering ☒ Signal Engineering ☐ Finance ☐ Funding ☐ Govt & Corp Affairs ☐ Human Resources ☐ Information Management ☐ Infrastructure Investment Crossrail ☐ Track ☒ Programme Management ☐ Contracts & Procurement ☐ HSQE ☐ Sig. Power & Comms ☐ WCRM ☐ Construction ☐ FTN/GSM-R ☐ Thameslink ☐ Enhancements ☐ Infrastructure Maintenance Maintenance Areas ☒ Operational Property ☐ Overhead Condition ☐ Renewals ☐ Legal Services ☐ National Delivery Service ☒ Network Development ☐ Operations & Customer Services ☐ Planning & Regulation ☐ Safety and Compliance ☐ Westwood ☐				
Scope: The procedure applies to the control of: - Tampers (Plain Line and S&C), - Ballast Regulators, - Dynamic Track Stabilisers and - Stone blowers (Plain Line and S&C) by teams within the Maintenance function at Route and Delivery Unit levels. This procedure DOES NOT apply on lines operating at Enhanced Permissible Speeds and maintained to Absolute Geometry requirements.					
What's New/Changed: Document reissued as a result of Engineering and Maintenance re-organisations. As a result post titles amended accordingly but process mapped within the procedure not altered.					
Affected documents: <table><tr><td><i>Reference</i></td><td><i>Impact</i></td></tr><tr><td>NR/PRC/MTC/TK0003</td><td>Superseded</td></tr></table>	<i>Reference</i>	<i>Impact</i>	NR/PRC/MTC/TK0003	Superseded	
<i>Reference</i>	<i>Impact</i>				
NR/PRC/MTC/TK0003	Superseded				
Implementation requirements: <i>The following posts have specific responsibilities within this standard and shall receive technical briefing as part of the Implementation Programme:</i> Track Maintenance Engineer Territory Plant Co-ordinator					
For further information contact: Name: Charlton Hawley Contact number: 07734 342891 Email: Charlton.hawley@networkrail.co.uk	 Documents Document Sharing H				