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Level 2

Principles, Timescales and Functional Responsibilities for Engineering Work, Access and Heavy Resource Planning

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User information

This Network Rail standard contains colour-coding according to the following Red–Amber–Green classification.

Red requirements – *No deviations, could stop the railway*

- **Red requirements shall** always be complied with and achieved.
- Red requirements shall be presented in a red box **with the word “shall” or expressed as a direct instruction**.
- Accountability for the efficacy of red requirements lies with the Professional Head/Standard Owner.
- Red requirements are monitored for compliance.
- Corrective actions shall be enforced if deviations are discovered through functional checks (e.g. engineering verification visits, audit or Operations Self-Assurance).

Amber requirements – *Controlled deviations, approved risk analysis and mitigation*

- **Amber requirements shall** be complied with unless deviation has been approved in advance.
- Amber requirements shall be presented with an amber sidebar **and with the word “shall” or expressed as a direct instruction**.
- Accountability for the efficacy of these requirements lies with the Professional Head/Standard Owner, or their nominated Delegated Authority.
- Amber requirements are monitored for compliance.
- Deviations **may** be permitted. Deviations are approved by the Standard Owner or through existing Delegated Authority arrangements.
- Corrective actions shall be enforced if **non-approved** deviations are discovered through functional checks (e.g. engineering verification visits, audit or Operations Self-Assurance).

Green – *Guidance*

- Guidance is based on good practice. Guidance represents supporting information to help achieve **Red** and **Amber** requirements.
- Guidance shall be presented with a dotted green sidebar **and with the word “should” (usually in notes) or as a direct instruction**.
- Guidance is **not mandatory** and is not monitored for compliance.
- Alternative solutions may be used. Alternative solutions do not need to be formally approved.
- Decisions made by a competent person to use alternative solutions should be backed up by appropriate evidence or documentation.

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Issue record

Issue	Date	Comments
1	June 2009	This standard replaces NR/L2/MTC/PL0056, NR/L2/MTC/PL0086, NR/L3/MTC/PL0107, NR/L2/MTC/PL0131, NR/L3/MTC/PL0156, NR/L3/MTC/PL0157, NR/L3/MTC/PL0179, NR/L3/TRK/3220
2	Sept 2009	Addition of content covering management of risks to possession delivery. Introduction of simple change control form.
3	Dec 2009	Clarification of content in clauses 7 and 10.
4	Sept 2010	Introduction of an improved change control form (ARPCR). Update of reference documentation table with new planning related standards introduced in other functions. Expanded definitions clause. Alteration of functional unit names following Transformation Programme reorganisation.
5	Dec 2010	Clarification of NDS handling of change after the T-3 submission deadline (clause 7). Periodic and weekly planning meetings renamed (clause 8). Enhanced wording on planning performance management (clause 11). Additional plan elements re works around level crossings (Appendix c).
6	March 2012	This standard replaces NR/L2/NDS/202 Issue 5. It has been rewritten to align with the reorganisation in 2012 of responsibilities for infrastructure maintenance work, engineering access and heavy resource planning. It also features a simplification of change control procedures (incorporation of previous LOI) and new requirements re the assessment of possession complexity and the conduct of cooperative detailed planning meetings.

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 02 June 2012.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 3 (Option Selection) to continue to comply with the issue of any relevant Network Rail standards current when GRIP Stage 3 was completed and not to comply with requirements contained herein, unless stipulated otherwise in the scope of this standard.

Reference documentation

N/A	The Network Code*
NR/L2/OPS/110	Rule Book sections relating to the planning of engineering works Requirements for the Weekly Operating Notice, Periodical Operating Notice and Local Operating Instructions (inc Sectional Appendix
NDS/PLN/LP/070A	Planning Of Engineering Access*
NDS/PLN/LP/070B	Planning Of Heavy Resource, Seasonal Treatment and Infrastructure Monitoring Services*

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NR/SP/ELP/29987	Working On or About 25Kv AC Electrified Lines
NR/L3/NDS/303	Management Of Possessions For Engineering Work Delivery
NR/L2/INI/CP0047	Application of the Construction (Design and Management) Regulations to Network Rail Construction Works
NR/L3/INI/CP0064	Delivering Work Within Possessions
NR/L3/MTC/MG0210	Management of possession overrun within Infrastructure Maintenance
NR/L3/MTC/PL0211	Planning of Engineering Access and NDS-Supplied Resource for Infrastructure Maintenance Delivery Units
NR/L3/MTC/PL0151	Works planning using PossMan
NR/L3/MTC/PL0159	Short-term works planning in Infrastructure Maintenance
NR/L3/MTC/PL0160	Medium-term works planning in Infrastructure Maintenance
NR/L3/MTC/PL0067	Highways interface planning in Infrastructure Maintenance
NR/L3/MTC/PL0175	Maintenance Planning Handbook

*1 – Available from NO Head Of Planning

*2 and 3 – Available from NDS Head Of Delivery

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1 Purpose

This standard describes the principles, key activities, timescales and required work plan information quality applicable to the planning of physical works, engineering access, and resources to support the delivery of maintenance, renewal and enhancement works on the railway infrastructure.

2 Scope

This standard applies to Network Operations (NO), National Delivery Services (NDS), Asset Management Renewals (AMR), Investment Projects (IP) and all contractors working on behalf of each NR function when planning engineering access on the railway infrastructure. Maintenance activities are referred to as NO (Infrastructure Maintenance) in this standard.

It includes the planning of engineering trains and on-track machines for maintenance, renewal and enhancement activity but not the timetabling of these. It does not include the planning and timing of WTT and amended train services for Network Rail's passenger and freight customers.

This standard does not mandate the detail of how work, engineering access, and resource plans are developed within Network Rail functions. NO, NDS, AMR and IP each have their own detailed planning standards and/or functional procedures, compatible with the timescale and quality requirements contained in this standard.

3 Introduction – Reasons for planning

There are several reasons why we plan the use of network access and resources used to maintain, renew and enhance the network .

Providing rail capacity to the UK mainland

It is Network Rail's purpose to provide the greatest possible volume and quality of rail capacity to the UK mainland. It is the responsibility of everyone involved in work and access planning to minimise the amount of time used for engineering access. Over the course of the Control Period it is anticipated that the demand for rail services will increase significantly, placing increased pressure on engineering access and emphasising the need for tighter control of the planning process.

Network Code compliance

Network Rail is required as part of its licence agreement to agree an access plan with its customers, the Train Operators, so that they can effectively manage their own businesses and provide reliable information to their customers.

Minimising Network Rail costs

Network Rail must minimise the cost of the maintenance, renewals and enhancement works to meet Control Period targets. Examples of the costs involved are:

- Compensation payments to Train Operators
- In-house and contracted-in labour costs

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- Scarce labour resource costs, such as for S&T testing and OLE work
- Plant hire costs
- Haulage (loco and traincrew) and OTM costs
- Materials costs (rail, S&C, ballast etc)

A general rule is that the nearer the point in time at which the work needs to be done, the more the labour plant, service and materials will cost. For example, planning works in time to align labour rosters with the workload will reduce the amount of overtime and contracted-in labour costs. Another example is that discounts on compensation payments to Train Operators for disruptive possessions decrease as the proposed date of the work gets nearer. Another would be where additional charges are made by suppliers to produce longer-lead time materials at short notice.

The method of conducting the work also has a significant cost impact. An example would be the choice between having locos at either end of an engineering train or planning the work to allow one loco to 'run round' the train. The overall planning process has to balance off the costs and benefits of resource, access and other factors to achieve an optimum plan.

Without efficient planning (and delivery) of work, those responsible may become unduly risk averse, resulting in less work being planned into the available access in order to avoid possession overrun. This is one example of where an inefficient planning system results in the under-utilisation of labour and plant (i.e. lower than desired productivity).

Controlling delivery risks

Planning can decrease the risks associated with delivery. These risks fall into three categories; safety, financial and reputational.

The lack of (or error in) plan details can contribute to safety incidents. An example here would be wrong information about possession physical or durational limits leading to delivery staff not being protected from trains. Mistakes also need to be made by safety critical roles during delivery for incidents to occur but poor planning can be a contributory factor. Significant late changes to the plan, typically in T-1 or T-0 weeks, are a particularly serious risk to be managed by the planning process.

Financial risks are penalty payments for possession overrun, for contractual breaches and premium costs for additional resources deployed at short-notice in order to avoid overrun or loss of planned work.

A third type of risk is reputational. Network Rail's efficiency in planning its engineering work is important to Train Operators. Planning failures leading to train service disruption have a significant impact on Network Rail's standing and can lead to financial costs and constraints being placed on us by the Office of the Rail Regulator (ORR).

4 Definitions

An alphabetical listing of key planning terms is given in Table 1.

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AMR	Asset Management Renewals function. Responsible for the renewal of track, structures, signalling and power supplies.
COSS	Controller Of Site Safety. A role responsible for the safety of activities within a Site of Work.
FOC	Freight Operating Company.
EAPU	Engineering Access Planning Unit. The NO unit responsible for negotiating disruptive engineering access requirements with the TOCs
ES	Engineering Supervisor. A role responsible for the safety of activities within a Worksite
ET	Engineering Train. Trains operated by NDS for the purpose of delivering and removing bulk materials to/from network locations.
Heavy Resources	Group term used to describe bulk materials (s&c, rail, ballast, sleepers) and major services and plant (haulage, wagons, OTMs and RRVs).
IMTS	Infrastructure Monitoring Train Service. A term to cover all train-borne measurement of NR infrastructure.
IP	Investment Projects. A function of Network Rail responsible for the delivery of major enhancements projects such as Thameslink and Crossrail.
Isolation Plan	Developed as part of the possession plan, this describes the requirements for the switching off and earthing of traction power supply equipment. Held in PPS.
Light Resources	Group term used to describe labour and smaller plant and equipment.
MDU	Maintenance Delivery Unit. A unit responsible for the maintenance of a defined portion of the rail network.
NDS	National Delivery Service. A functional unit within Network Rail responsible for the planning and delivery of 'heavy' resources (e.g. ballast, rail, sleepers, tampers), infrastructure monitoring and seasonal services.
NO	Network Operations. A functional unit within Network Rail responsible for the planning and operation of train services. Responsible for the planning and delivery of maintenance and minor renewals. Responsible for the planning of engineering access.
NROL	Network Rail Online Logistics. The computer system used to capture and manage heavy resource and seasonal/infrastructure monitoring services.
OTM	On Track Machine. Group term for large plant used for tamping, stoneblowing and railgrinding.

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PICOP	Person In Charge Of Possession. A role responsible for safety within a possession.
Possession	A part of the network, defined by physical extent and duration, and assigned to Network Rail for the purpose of engineering work. The safety of a possession is controlled by a PICOP.
Possession Plan	The plan held in PPS that describes the duration, location, limits of all possessions, including details of activities taking place within possessions and arrangements for altering TOC and FOC services around them where necessary.
PPS	Possession Planning System. The computer system used to record and publish possession plans.
Resource Plan	The plan held in NROL, Primavera and several local systems that describes ET, OTM, labour, small plant and materials needed for the possession plan and for minor activities not undertaken in possessions.
Site Of Work	A site of work is the smallest discrete unit of physical activity within a possession. Sites of Work must exist within the limits of a Worksite. The safety of a site of work is controlled by a COSS. In PPS a Site Of Work is labelled as a subsidiary Worksite.
TOC	Train Operating Company. Although freight operators are also Train Operators, the term tends to be reserved for passenger Train Operators.
Work Deliverer	Group term for staff working in the NO (Infrastructure Maintenance), AMR and IP functions. The term includes contractors working on behalf of these functions.
Work Deliverer Planners	A role within NO (maintenance), AMR and IP functions (or contractors working on their behalf) responsible for the planning of physical works and the specification of engineering access and resource requirements to support the works.
Work Deliverer Project Manager	A role within NO (maintenance), AMR and IP functions (or contractors working on their behalf) accountable for the planning of physical works and the specification of access and resource requirements.
Work Delivery Plans	Developed in parallel with the access planning products and covering the detailed staging and timing of physical works. IP and AMR work delivery plans are held in and produced by a corporate planning and scheduling system. NO (maintenance) work delivery plans are held in and produced by several different systems.
Work Item	Term used in PPS to describe the physical works conducted within a Site Of Work.
Worksite	A Worksite is a discrete area of physical activities within a possession defined by physical marker boards. There may be one or more Sites Of Work within a Worksite. Worksites must

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	exist within the limits of a possession. The safety of a Worksite is controlled by an ES. In PPS a Worksite is labelled a Primary Worksite in order to distinguish it from a Site Of Work (Subsidiary Worksite).
WTT	Working Timetable. The baseline timetable developed and published annually. Alterations to the WTT in order to conduct engineering work are classed as disruptive.

Table 1 – Alphabetical listing of key planning terms

Key products of the planning process are given in Table 2

EAS	Engineering Access Strategy – formally known as Rules of the Route (ROTR) – produced 44 weeks out from the start of the timetable year (96 weeks from the last engineering week in the timetable year). EAS describes the allowance of network capacity for engineering access that is disruptive to Train Operator timetabled services. It also describes the parameters of engineering access not disruptive to WTT services.
Pre-DPPP	Pre-Draft Period Possession Plan – produced 36 weeks out from the delivery of the period being planned. The Pre-DPPP is produced from individual Work Deliverer work plans and is reviewed at the period possession planning meeting so that the DPPP can be published
DPPP	Draft Period Possession Plan – produced 30 weeks out from the delivery of the period being planned. Provided to TOCs and FOCs for review and agreement so that the CPPP can be published.
CPPP	Confirmed Period Possession Plan – produced 26 weeks out from the delivery of the period being planned. This describes the detail of what is in the disruptive engineering access agreed in EAS.
PHRP	Periodic Heavy Resource Plan. The four-week plan of heavy resource deployment to support possessions listed in the CPPP. Drafts are discussed alongside the Pre-DPPP and DPPP. Published 26 weeks out.
Amended Timetable	Also known as the Informed Traveller Timetable – produced at least 12 weeks out from delivery of the week being planned. The Train Service Data Base (TSDB) is the electronic version of the WTT. It holds train records which can be updated with amendments until 22.00 the day prior to operation to reflect the latest plan. 12 weeks out from the week being planned downstream systems are populated with data from TSDB so as to allow visibility of the amended plan in compliance with the railway industry Informed Traveller Licence condition. This licence condition mandates that Train Operators and their customers be

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	able to offer/make bookings for advance purchase tickets and reservations at least 12 weeks prior to the date of operation.
DWON	Draft Weekly Operating Notice – produced 4 weeks out from the week being planned. Contains all planned possessions involving heavy resources and the majority of other possessions. This is used by Train Operators as a basis for spot bidding for services and allows the TPC to validate these.
WHRP	Weekly Heavy Resource Plan . The weekly plan of heavy resource deployment supporting possessions listed in the DWON.
WON	Weekly Operating Notice – produced 8 days from the week being planned. This contains all that is in the draft WON plus any urgent access amendments identified since the publication of the draft WON.
WON Supplement	WON Supplement – produced 2 days from the start of the WON week and generated out of PPS. This contains urgent access amendments identified after the publication of the WON. Changes after publication of the WON should be kept to a minimum as they can contribute to possession irregularities.
Wires	Communications in various formats issued to facilitate urgent works access after WON Supplement issue and during the WON week. Changes after publication of the WON should be kept to a minimum as they can contribute to possession irregularities.
Possession Management Pack	Aka PICOP Pack. This contains elements of the possession plan necessary for the PICOP to manage the safe and efficient delivery of the overall possession. It is produced immediately after the publication of the WON and briefed out to PICOPs, ESs, and COSSs during T-1.
Worksite Management Pack	Documentation required by the ES for the safe and efficient delivery of works within the worksite.
Site Of Work Management Pack	Documentation required by the COSS for the safe and efficient delivery of works within the site of work.

Table 2 – Key products of access planning

5 Roles and Responsibilities

NOTE This clause explains the key responsibilities of each function relating to the production of a robust possession plan.

5.1 Responsibilities of Finance

Finance is responsible for:

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- a) Provision of indicative OPEX and CAPEX budgets prior to start of EAS development and confirmed budgets prior to the start of CPPP development. Uncertainty regarding funding of CAPEX and OPEX budgets is a major cause of volatility in the planning process and causes unnecessary Schedule 4 costs.
- b) Release of funding associated with project GRIP phases.
- c) Payment of contractors and suppliers following delivery of works
- d) Reconciliation of cross-functional charges following delivery of works

5.2 Generic Responsibilities of Work Deliverers

'Work Deliverer' is a generic term for Network Rail and Contractor staff responsible for planning and executing engineering works. The term within Network Rail applies to roles with varying titles within IP and within NO route maintenance and renewals units. Work Deliverers are responsible for:

- a) Scoping the physical works and method(s) of delivery necessary to maintain, renew or enhance the network. Work plans should optimise the overall use of resources across the asset functions involved.
- b) Identifying all resources needed to conduct the works – labour, plant, tools, materials, track access and isolations. Access and resources must also be identified for works prior to and following the main works.
- c) Applying for access (plus associated isolations) and resources to meet the appropriate planning process deadlines (listed in the table in Appendix B). Any work that is likely to be disruptive to Train Operator timetabled services must be identified at EAS development stage. Worksites should have the smallest access footprint practicable.
- d) Providing sufficient work plan detail to access planners to allow them to accurately develop EAS and successfully integrate worksite requests into possessions at later stages of the planning process. Appendix C lists the various elements of the developing plan, when they are needed and for what reason(s).
- e) Control of delivery risk within the worksite.
- f) Participation in NO Area-led period and weekly plan reviews.
- g) Participation in NDS-led period and weekly heavy resource plan reviews.

Details of IP planning activities are contained in company standards:

- Governance Of Rail Infrastructure Projects (GRIP)
- NR/L3/INI/CP0064 - Delivering Work Within Possessions

5.3 Responsibilities of Asset Management Renewals

Asset Management is responsible for:

- a) See sub-clause 5.2 above
- b) Specification of Infrastructure Monitoring Train Service runs, which drive Infrastructure Maintenance access requirements for defect removal and rectification of track geometry faults (central team).