Transport for London
London Underground

Access

Basic Track Awareness

Learning information booklet

Issue 5.0

Effective 20 March 2017

MAYOR OF LONDON

Contents

1 Introduction

As an individual certificated Basic Track Awareness (BTA) you will be able to access the track under protection when trains or mechanised vehicles are moving, and traction current is switched on.

2 Personal responsibilities

You must not go on, or near the track unless it is absolutely necessary, and your duties require you to do so.

If your duties require you to be on, or near the track, you must have the necessary permission to do so, and:

- take reasonable care of your own health and safety, and the health and safety of others
- be aware of any expected hazards
- not interfere with, or misuse any safety equipment
- know what protection arrangements have been made
- pass safety critical messages using the phonetic alphabet
- carry out local instructions relating to specific locations
- use authorised walkways and walk boards where possible
- report incidents and hazards
- wear the appropriate Personal Protective Equipment (PPE).

The minimum PPE requirement on LU track is:

- sturdy footwear
- an approved high visibility garment.

3 Roles and Responsibilities

3.1 Site Person in Charge (SPC)

The designated individual on site (both on and off the track) responsible for:

- the work in progress
- the worksite discipline
- the programme of work
- all plant and materials
- first aid and emergency procedures.

A 'site person in charge' armband is worn on the left arm above the elbow.

3.2 Site Person in Charge - Protecting Workers on the Track (SPC-PWT)

An individual certificated by LU to safely manage worksites, and provide protection for themselves and others in:

- Engineering Hours (PWT-EH)
- Traffic Hours (PWT-TH)
- depots or stabling sidings (PWT-D).

A 'PWT' armband is worn on the right arm above the elbow.

3.3 Lookout

An individual certificated by LU to warn others who might be exposed to danger from moving trains or mechanised vehicles.

A 'lookout' armband is worn on the left arm above the elbow.

A lookout must:

- warn you of any approaching trains or mechanised vehicles
- carry the correct equipment
- stay in position as indicated by the person providing protection or until relieved by another lookout
- not be distracted from looking out for trains or mechanised vehicles.

3.4 Handsignaller (engineering)

An individual certificated by LU to control the speed of trains by handsignal, flag or handlamp, if required by engineering work.

A 'handsignaller (engineering)' armband is worn on the left arm above the elbow.

A handsignaller (engineering) must:

- carry the correct equipment
- control the speed of trains
- stay in the position as indicated by the person providing protection or until relieved by another handsignaller (engineering).

3.5 Protecting Workers on the Track – Train Movements (PWT-TM)

An individual certificated by LU to safely manage a worksite, and to supervise and control the movement of an engineer's train or mechanised vehicle within a specified area or an engineer's current area or a worksite in a possession.

a 'Train Movements' armband is worn on the left arm above the elbow.

3.6 Possession Master (POM)

An individual certificated by LU to take control of a possession.

A 'Possession Master' armband is worn on the left arm above the elbow.

3.7 Possession Worksite Access Controller (PWAC)

An individual certificated by LU to safely manage the access and egress for a possession worksite.

A 'PWAC' armband is worn on the left arm above the elbow.

3.8 Site Person in Charge – Possession Worksite (SPC-PW)

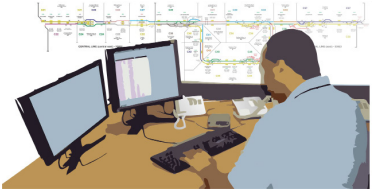
An individual certificated by LU to safely manage a possession worksite, and to supervise and control the movement of an engineer's train or mechanised vehicle.

A 'Possession Worksite' armband is worn on the left arm above the elbow.

3.9 Manager of the depot

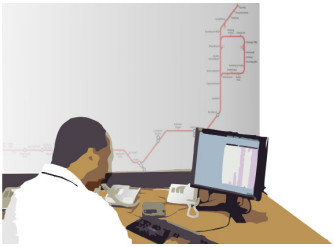
An individual who controls and manages the day to day running of a depot.

3.10 Track Access Controller (TAC)



An individual licensed by LU to control the Line Clear and Line Safe procedures during Engineering Hours.

3.11 Controller



Any suitably competent individual who controls the train service on a line where passenger trains are running.

The controller is contacted in the event of an emergency.

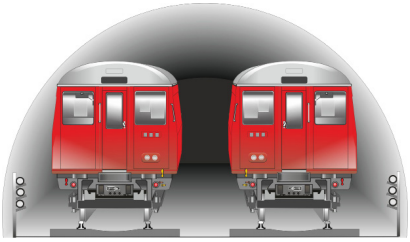
4 The track environment

The track environment is divided into three areas:

- Line Clear
- Line Safe
- other sections.

4.1 Line Clear area

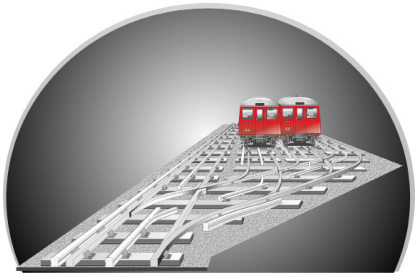
All LU track in the following locations:



sub-surface tunnels

tube tunnels

Short open sections of track that are either adjacent to, or between two tunnel sections, and are treated as a tunnel section. Some open sections can be in a Line Clear area.

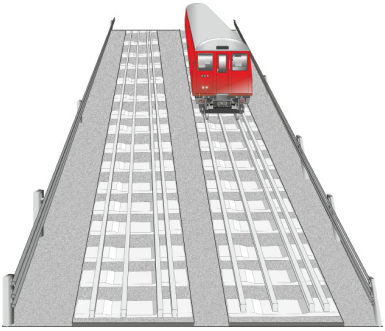


Sidings in a tunnel section where traction current is switched off in Engineering Hours

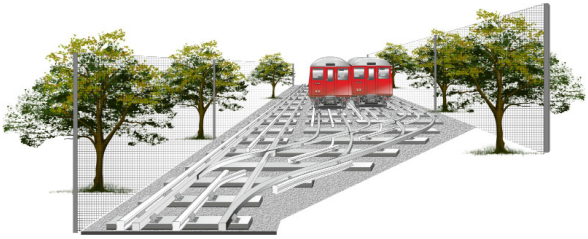
Any work in a Line Clear area must be carried out during Engineering Hours.

4.2 Line Safe area

All LU track in the following locations:



Track where passenger trains run that are not classed as a tunnel section or other sections

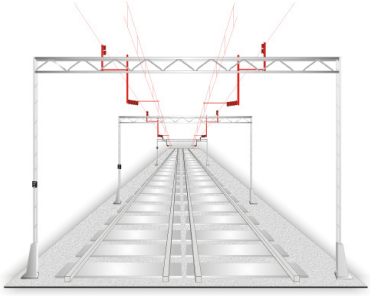


Stabling sidings in a surface section

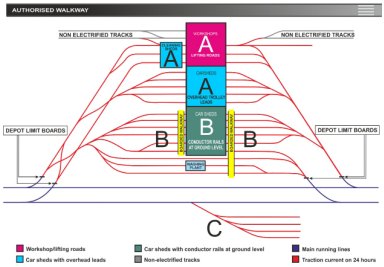
4.3 Other sections

There are some track locations that are not included in Line Clear area or Line Safe area:

Non-electrified LU track



Network Rail lines, or LU tracks where the approach signalling is under the control of Network Rail



Depots and stabling sidings where traction current remains switched on at all times

4.4 Track

You are on or near the track, if you are:

- within two metres of any rail
- on the permanent way
- on a platform end ramp.

You are not on or near the track, if you are:

- on a station platform
- in an area guarded by a physical barrier.

The level part of a platform which is separated from the public area by a barrier, despite not being for public use is part of the platform and not part of the track.

4.5 Physical barrier

A physical barrier is used to separate you or a worksite from the operational railway.

Examples of a physical barrier are:

- netlon fencing
- cable run
- vortok fencing.

4.6 Names of tracks

The following names are used to refer to the track on LU:

- northbound and southbound
- eastbound and westbound
- inner and outer
- up and down
- local and fast
- single line.

4.7 Track areas

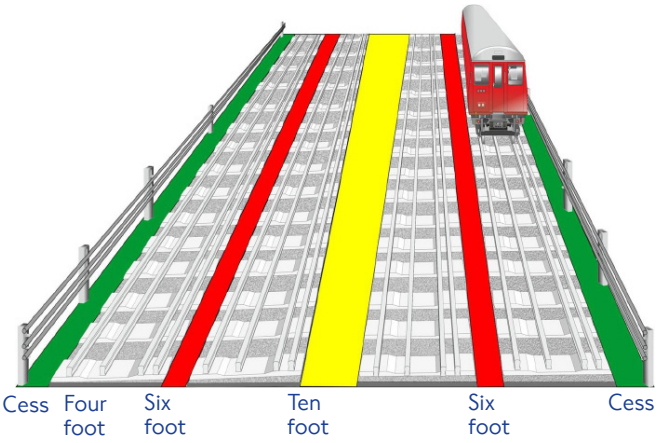
The following terms are used to define track areas on LU:

Cess - the space alongside the permanent way extending to a cable run or other boundary

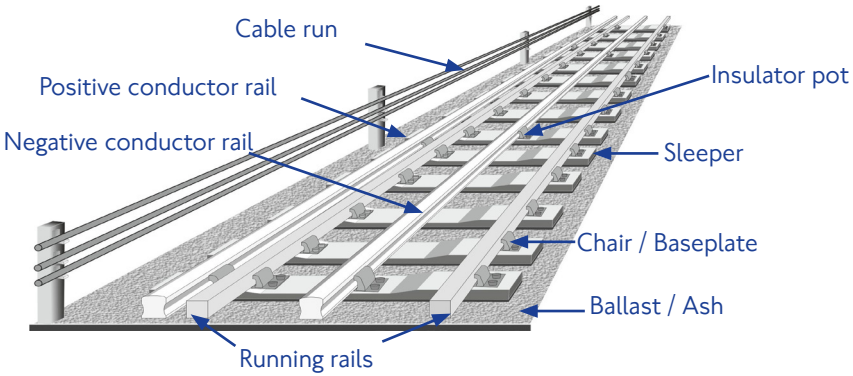
Four foot - the space between the two running rails of one line

Six foot - the space between one line and another where the lines are the normal distance apart

Ten foot - the space between one line and another, where a wide space is provided between one pair of lines, where there are three lines or more.



4.8 Track components



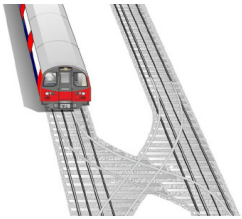
Permanent way components and their function:

- running rails – the two rails the train wheels run on
- negative traction current rail – high voltage rails that are raised higher on insulator pots, it is always located centrally between the running rails of one line
- positive traction current rail – high voltage rails that are raised higher on insulator pots, located on the outside of the two running rails of one line
- sleeper - designed to spread the load of the train, can be concrete or wood
- baseplates and chairs - a component, fixed to the top of a sleeper which supports and locates a running rail
- fastenings - a component that secures the baseplates, chairs and insulators to a sleeper and also secures the rail to the baseplate or chair
- ballast - material used to spread the load from the underside of the sleeper and holds the track in the desired location. It also provides drainage for the track.

The cable run consists of posts running alongside the cess where cables are attached.

4.9 Points and crossings

Points and crossings are used to transfer a train from one track to another.



You must take extra care when you are working or walking around points as they can move without warning.

4.10 Track hazards

The four main hazards on the track are:

Trains

Electricity

Slipping

Tripping.

You can avoid slipping and tripping by:

- keeping the worksite tidy
- paying attention to what you are doing
- not cutting corners when it comes to safety
- not being distracted from the task at hand.

Keeping safe involves knowing the hazards and how to avoid them; it also means complying with safety rules and not taking risks.

5 Signing in at LU premises

You must always sign in when entering LU premises, this is:

- to allow you entry on to LU infrastructure
- so that you can be located in the event of an evacuation.

When signing in you must ensure you:

- sign the visitors book and the Person In Charge Evacuation Register (PICER)
- sign the Person In Charge Access Document (PICAD) if working in a possession worksite
- get a visitors pass or sticker (which must must be worn at all times)
- know where the Staff Assembly Point (SAP) is located
- know the emergency procedure for that location.

If you have to access a station that is unstaffed or closed you will have to make the necessary arrangements to get signed in, and collect any keys for the relevant location.

6 Going on the track

Work on the track can take place in either Traffic Hours or Engineering Hours.

6.1 Traffic Hours

Traffic Hours start and finish at published traction current switching times.

Passenger trains are normally running and traction current is switched on.

When you hold BTA certification you are allowed on the track during Traffic Hours, as long as you are under protection.

Work on the track in Traffic Hours must not make the track unsafe for trains to run.

6.2 Engineering Hours

Passenger trains are not running and traction current is switched off. However engineer's trains and mechanised vehicles can work during Engineering Hours, either under their own power in a specified area or possession worksite.

Engineering Hours will normally start and finish at published traction current switching times.

Work on the track can make the track unsafe for trains to run.

Going on the track

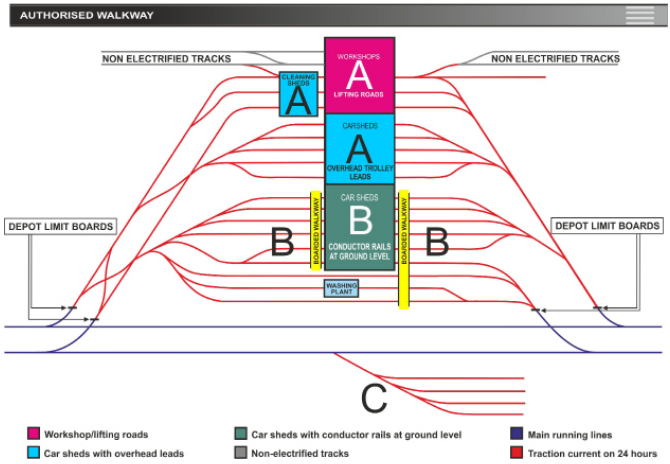
If you do not have any track certification you can only go on the track during Engineering Hours as long as:

- you are protected by a PWT-EH
- traction current is switched off
- there are no moving trains or mechanised vehicles (or any train or mechanised vehicle in the area is secured, to prevent it from moving).

On some sections of track other rules apply, these include:

- depots and sidings (where traction current is normally always on)
- non-electrified track
- Network Rail track.

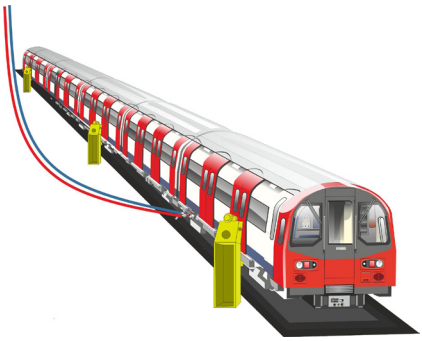
7 Depots and stabling sidings



Depots are locations where trains are stabled and traction current is normally on continuously (some sidings operate under Line Clear/Line Safe procedures). Depot staff carry out general train maintenance and overhauls within the various areas of the depot.

Depots and sidings are divided into three separate areas:

7.1 Area A

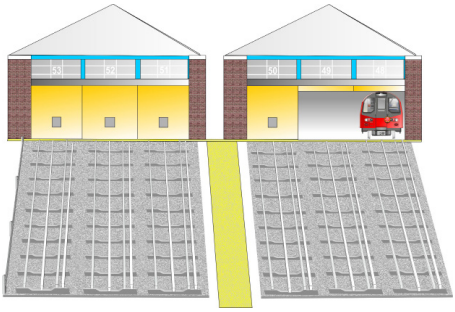


Area A includes the sheds with:

- no traction current rails at ground level
- raised platforms for access to the interior of a train, and where traction current rails can be isolated locally using switches
- overhead trolley leads.

You cannot work in area 'A' unless you have received the appropriate training and familarisation for that particular depot.

7.2 Area B

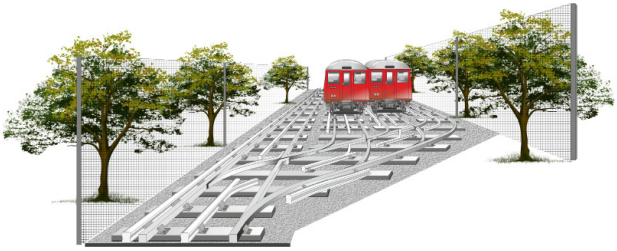


Area B includes:

- all track within depot limits, but not including area 'A'
- all track outside in the depot yard (excluding area 'A') where traction current rails are at ground level
- non – electrified track
- stabling sheds with traction current rails at ground level that cannot be isolated locally
- wash plant.

You cannot work in area 'B' unless you are suitably certificated and under protection.

7.3 Area C

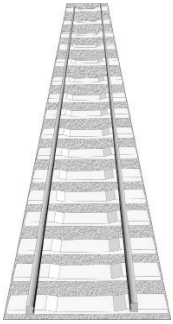


Area C includes:

The track outside of the depot limits where traction current is on continuously and depot rules apply.

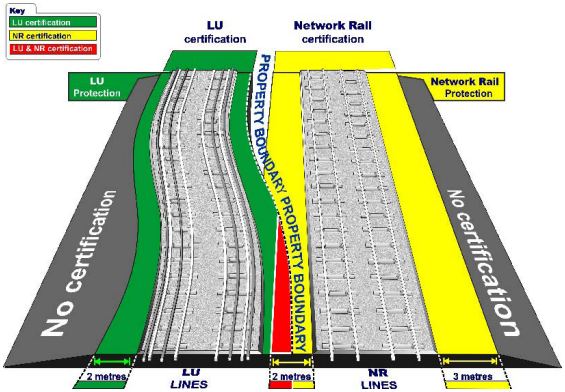
Traction current rails are at ground level and cannot be isolated locally.

7.4 Non-electrified track



These are sections of track which do not have traction current rails and are normally found at the ends of the lines, or within certain depots and stabling sidings. Due to the nature of these lines having no traction current rails, Engineering Hours does not apply. At these locations Traffic Hours/depot protection, or a possession is required to access the track.

8 Network Rail



Some LU trains run on or near track, or through stations owned by Network Rail. There may be additional hazards that affect the safety of personnel on the track. You must be certificated and competent to Network Rail standards before accessing any area of the operational railway which is designated as being under Network Rail rules.

You must be briefed by your manager or supervisor on the certification requirements for the location.

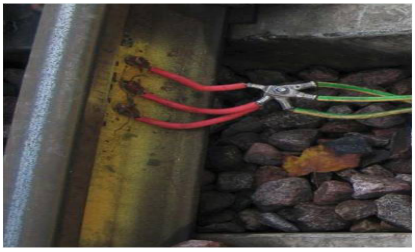
8.1 Overhead Line Equipment

When on a section of track which is adjacent to, or passes over Network Rail lines electrified by 25kv (A.C.) Overhead Line Equipment (OLE), the overhead lines and attachments must be treated as live at all times. Yourself and any tools and equipment must be a minimum safe distance of 2.75 metres from the OLE at all times.

8.2 Heathrow Express and London Overground

The Heathrow Express and London Overground lines use OLE electrified with 25kv (A.C.).

Where LU's infrastructure is in close proximity of these two lines, measures have been taken to immunise the LU's infrastructure against any electrical hazards that could possibly emanate from the OLE, these take the form of red, green and yellow bonds. Warning signs indicate the 'immunised' areas.



If you have to go into an area where OLE is present, you must be briefed by your manager or supervisor on the necessary safety procedures.

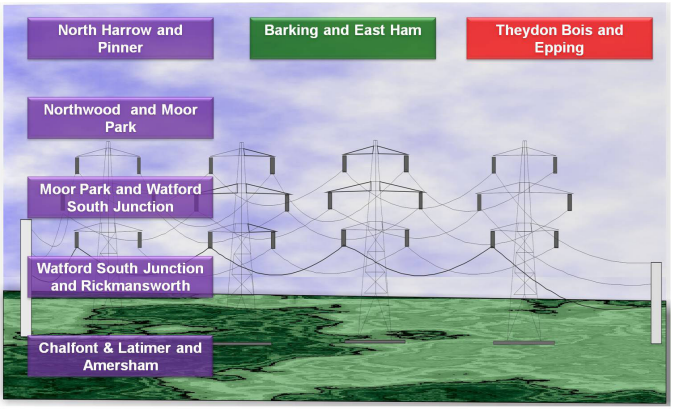
If you discover a damaged or disconnected bond you must:

- not touch or remove the bonds
- tell the SPC or person providing protection
- warn others working in the area
- ensure the controller is informed.

8.3 National grid

At certain locations high voltage power lines cross LU infrastructure. If you see a section of track obstructed by a fallen power line(s), you must:

- immediately stop any train from approaching
- keep a minimum safe distance from the power line(s) at all times
- ensure the controller is informed.



9 Protection

Protection is defined as:

'Procedures to make sure personnel on or near the track are not endangered by moving trains or mechanised vehicles'.

This is achieved by making sure:

- you move to a place of safety, or
- a train or mechanised vehicle cannot enter or leave a worksite in an uncontrolled manner.

BTA certification does not allow you to provide protection for youself or others, you must always be accompanied by a person certificated to provide protection.

9.1 Method statement and risk assessment

The SPC will have a method statement to describe how the work will be done. They will also have a risk assessment(s) that will identify any hazards that can affect the health and safety of the work group.

The person in charge of the work will brief you before the work starts, on the work and worksite safety.

10 Accessing the track in Traffic Hours and Engineering Hours

If you are required to go on the track in Traffic Hours you must be protected by a PWT-TH. The PWT-TH will tell the controller that you are on the track.

If you are required to go on the track during Engineering Hours you must be protected by a PWT-EH. The PWT-EH will book on with the TAC.

The person providing protection will check that you are wearing the appropriate PPE.

10.1 Accountabilities

When you are going on or near the track in Traffic Hours or Engineering Hours you must:

- attend briefings given by the person providing protection
- not go on or near the track unless instructed that it is safe to do so by the person providing protection
- attend any further safety briefings given by the person providing protection
- leave the track when and where the person providing protection tells you.

10.2 Safety briefings

The PWT-TH will normally give you three safety briefings.

A briefing is given:

- before travelling to the worksite
- at the worksite before the work starts
- after the work is completed.

The PWT-EH must give you a safety briefing before you go on the track. They may also give a further safety briefing depending on the worksite location and the type of work being carried out.

10.3 Traction current

The PWT-EH will check that traction current has been switched off in Engineering Hours by using a Current Rail Indicator Device (CRID) or Permanent-Current Rail Indicator Device (P-CRID)

11 Working in wet weather

LU policy states that 'live' track must not be worked on during periods of wet weather.

Periods of wet weather are when the track is wet enough to increase the risk of electrocution and underfoot hazards are present.

The SPC will decide if the work can take place during wet weather.

12 Engineer's trains and mechanised vehicles

When an engineer's train or mechanised vehicle is required to work with traction current switched off during Engineering Hours, it must do so only within a specified area or possession worksite.

A PWT-TM must be appointed when an engineer's train or mechanised vehicle is required to work in:

- a specified area
- a possession worksite.

When a train is required to work with traction current switched on, it can do so within the limits of an engineers current area or possession worksite.

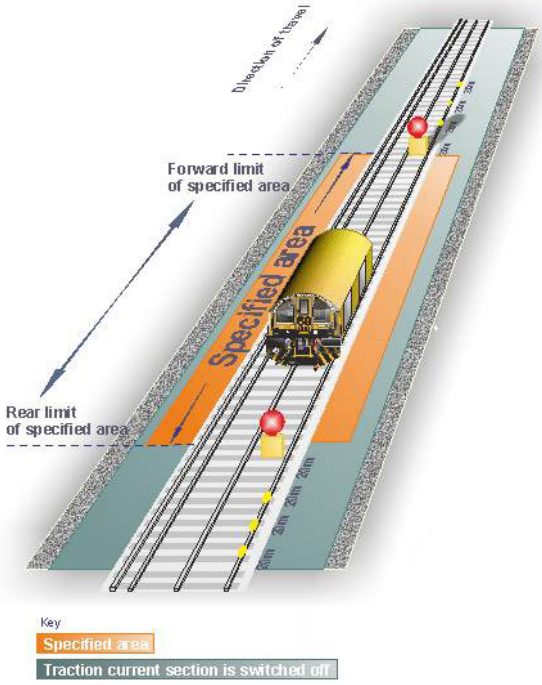
12.1 Specified area and engineer's current area

A specified area is:

- a designated area of track in Engineering Hours only
- defined with lamps and detonators
- where an engineer's train, mechanised vehicle or on-track plant can operate using their own power.

Traction current will always be switched off in a specified area.

You cannot work in an engineer's current area because traction current will always be switched on.



13 Possessions

A possession is a designated area of track taken out of service for major engineering work. It is under the control of a possession master, and is protected against unauthorised trains. It is defined by markers in the four foot showing the limits of the possession.

In a possession:

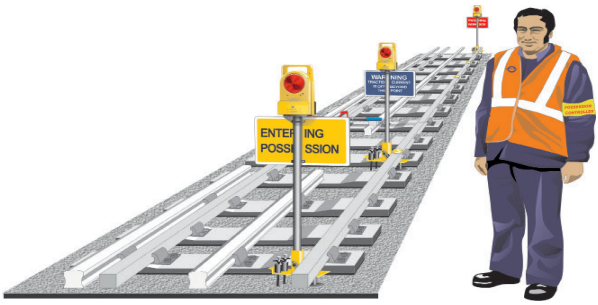
- traction current can be switched on or off
- engineer's trains or mechanised vehicles may be working within a worksite
- you must be certificated BTA if an engineer's train or mechanised vehicle is within the possession
- the work can span both Traffic Hours and Engineering Hours.

The SPC must sign in and be briefed by the PWAC about the safety arangements for the worksite.

The PWAC will issue the SPC with a coloured date stamped wristband, and sufficient wristbands for the workgroup.

When working in a worksite in a possession you will be briefed by the SPC on the safety arrangements for the worksite.

Once briefed the SPC will give you a coloured date stamped wristband. Your wristband must be worn for the duration of that shift.



14 Working in a depot or stabling siding

14.1 On arrival at the depot

When arriving for work at a depot that is not your normal place of work, you must:

- be suitably certificated
- use authorised walkways to enter the depot
- sign in at the relevant location within the depot or stabling siding.

Unless instructed otherwise you must always use the authorised or designated walkways and walk boards in the depot/stabling sidings; these are marked out with yellow lines.

14.2 Train hazards in depots

There are several hazards relating to trains in depots, these include:

- bi-directional trains movements that can approach from any direction
- trains move more slowly (5, 10, 15 mph) and quietly
- trains can move even when uncoupled, or with no driver's cab
- hidden train movements from behind stationary trains.

14.3 Individual responsibilities for going on or near the track in a depot or stabling siding

When you are going on or near the track within a depot or stabling siding, you must:

- attend the briefings given by the person providing protection
- not go on or near the track unless instructed safe to do so by the person providing protection
- attend any further safety briefings given by the person providing protection
- leave the track when and where the person providing protection tells you.

The person providing protection will normally give you three safety briefings:

- before travelling to the worksite (platform)
- at the worksite before the work starts (pre)
- after the work is completed (post).

The person providing protection will check that you are wearing the appropriate PPE.

15 Station platforms

Before any work is carried out on a station platform you must consider that trains will be running and traction current will be switched on.

You must follow the appropriate protection procedures if the work on the station platform requires you and any equipment or materials to:

- infringe over the platform edge
- enter the gauge of a passing train.

There is no requirement for station staff to give permission for planned work to take place on platforms.

15.1 Working on stations where Network Rail certification is needed

When working on stations which are owned by other operators, whether or not, LU certification and protection are valid depends on the location of the worksite.

LU rules for platform working are applicable at all plarform - train interfaces where LU certification applies, this is regardless of the station infrastructure manager.

16 Protection when trains and mechanised vehicles are moving

When trains or mechanised vehicles are moving in Traffic Hours, Engineering Hours or within a worksite in a possession, you must have a minimum of 25 seconds warning of an approaching train. This can be achieved by the person providing protection:

- providing protection without a separate lookout
- positioning one or more lookouts to warn you of an approaching train.

16.1 When a train or mechanised vehicle approaches

The person providing protection or lookout will warn you of an approaching train or mechanised vehicle by using one, or a combination of the following warning methods:

- verbal
- horn or whistle
- touch.

On recieving a warning you must:

- stop work and move to the agreed place of safety
- when in the place of safety, acknowledge warnings given by the lookout and train operator by raising one hand above your head.

If you are carrying equipment, put it down on the ground, clear the track and be in a place of safety before the train passes.

You must not resume your task after the train has passed, until you are instructed to do so by the person appointed at the briefing. This will normally be the person providing protection or the lookout.

17 Place of Safety

A place of safety is a location beside the track where you can stand safely when trains pass. A place of safety must meet the minimum distance requirements as shown in Rule Book support information 'places of safety'. The person providing protection will brief you on the location of the place of safety as part of the safe system of work.

A place of safety must:

- have level ground to stand and walk on
- have a reasonably good surface to walk on
- not be liable to cause slips and trips
- allow you to walk facing approaching trains (where possible)
- be wide enough for you to stand or walk in.

You must never walk in the:

- four foot unless instructed by the person providing protection
- six foot
- ten foot when a train(s) approaches.

The place of safety could be in the cess or ten foot.

The six foot is never a place of safety. If you do get caught in the six foot and trains are approaching, you must lay face down, parallel with the track and clear of any obstructions.

17.1 Temporary place of safety in depots and sidings

In a depot or stabling siding a place of safety can be created by the person providing protection for the duration of the work.

17.2 Authorised walking route

An authorised walking route provides safe access to, or from a place of work. They are often found near depots, sidings, stations and signal boxes and vary in construction.

Track certification and protection will be required where walk boards cross the track.

Walking along the track

To keep safe when walking along the track, you must:

- wear LU approved high visibility clothing
- follow instructions given by the person providing protection
- walk in the place of safety
- walk facing oncoming traffic where possible
- stop walking and stand sideways while trains pass.

17.3 Crossing the track

If you need to cross the track, you must:

- take the safest route and use walk boards where provided
- look in each direction for moving trains
- look out for obstructions and slippery conditions
- step over each rail
- step on the ballast
- not cross near any points or moving equipment.

You must not cross the track unless you are instructed to by the person providing protection.

17.4 Carrying loads

When carrying loads on or near the track with traction current switched on you must:

- take care, especially when carrying anything large or awkward
- keep long lengths of bare metal parallel to the track with both hands on top
- look where you are going.

Do not carry any large or awkward items across the track if it takes more than one person to lift them.

18 Limited clearance

A limited clearance sign indicates a location besides the track where you cannot stand safely when a train passes. Do not enter an area of limited clearance unless instructed to do so by the person providing protection.

The person providing protection must consider the following before walking you through an area of limited clearance:

- length of the limited clearance area
- availability of any refuge(s)
- maximum distance between adjacent refuges
- capacity of the smallest refuge
- number of staff in the group
- general visibility.

There must be sufficient sighting time to get you through the limited clearance.

19 Communication

When giving or receiving messages, you must make sure:

- you use the phonetic alphabet as shown below
- you are talking to the right person and that person knows who you are
- your message is clear, accurate, and to the point
- they understand the information and any action that is required
- they know how to make contact again (if required)
- details are recorded in the logbook or notebook (where applicable).

The message must start by:

- stating who you are
- asking who you are talking to
- stating where you are
- stating why you are calling.

A	Alpha
B	Bravo
C	Charlie
D	Delta
E	Echo
F	Foxtrot
G	Golf
H	Hotel
I	India
J	Juliet
K	Kilo
L	Lima
M	Mike
N	November
O	Oscar
P	Papa
Q	Quebec
R	Romeo
S	Sierra
T	Tango
U	Uniform
V	Victor
W	Whiskey
X	X-ray
Y	Yankee
Z	Zulu

19.1 Using numbers

When using numbers 10 and over in a message it must be said one at a time.

For example, 'Train 123' must be spoken as 'Train one two three' not 'Train one hundred and twenty three'.

The number '0' must always be referred to as 'zero'.

When signals, points, train descriptions or locations have similar names or numbers (for example, signals A 114 and A 314 on adjacent lines), you must take great care not to cause confusion.

Numbers do not need to be quoted separately when referring to the time, for example, the time 13:17 hours should be stated as 'thirteen seventeen'.

20 Emergency action

When going on or near the track you must know what to do if someone is injured.

A seriously injured person must not be moved, unless leaving them where they are, would place them in greater danger and cause further injury.

If a person is seriously injured, you must:

- stop any approaching train
- get traction current switched off, if required
- tell the controller, who will arrange for the emergency services to attend
- wait for qualified medical assistance to arrive.

If the person providing protection is injured:

- all members of the work group should immediately go to the place of safety indicated at the safety briefing
- attract the attention of the lookout, if present, so that they can take appropriate emergency action
- stop any approaching train, if there is no lookout and use the train radio to summon assistance. Otherwise use any other means to summon assistance
- contact the controller or the DDM, if in a depot.

A seriously injured person must never be moved across the track if:

- traction current is on
- train movements are likely.

20.1 Moving a casualty off a live traction current rail

If you need to get a casualty off a live traction current rail, you must:

- stand on a dry surface
- put on rubber gloves, or cover your hands with dry clothing
- use a piece of dry wood or an insulated tool to roll the person off.

20.2 Stopping a train

If you have to stop a train in an emergency, stand in a place of safety and use one of the approved signals.

Wave both arms above your head

Wave anything across your body

20.3 Emergencies involving Overhead Line Equipment

In an emergency involving OLE, you must:

- contact the LU controller
- give your location and structure number
- state the nature of the emergency
- await further instructions.

21 Refusal to work

Everyone has the right to refuse to work on the grounds of health and safety, if asked to:

- work in dangerous conditions
- take unnecessary risks.

If you have to refuse to work under the grounds of health and safety an EIRF must be raised by your line manager.

22 Signing out at LU premises

When you have finished work you must sign out and return your visitors badge or sticker. If you do not sign out the visitors book or PICER it will show you as still on the premises, resulting in a member of the emergency services risking their life looking for you.

You must not sign out on behalf of a colleague.

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