Network Rail

KEYPOINTS

CONTROLLER OF SITE SAFETY, INDIVIDUAL WORKING ALONE, PROTECTION CONTROLLER (COSS, IWA, PC)

Issue thirteen valid from June 2021

CERTIFICATION REQUIRED: CURRENT SENTINEL CARD ENDORSED WITH PTS AND COSS/IWA/PC COMPETENCIES AS APPROPRIATE

Sentinel Cards and Track Visitor Permits (TVP) can be checked authenticated by the COSS using a smart phone or by calling the IVR line (0330 726 2222)

Keypoint Cards have been produced for many of the track safety competencies, as a reminder of the main duties, rules and requirements.

Further copies are available from Willsons Group Services.

To obtain an order form, email:

denise@willsons.com

(phone **01636 702334**)

CONTENTS

ROLES

PiC (Person in Charge): A person involved in the planning and who is on site where the work is being undertaken and has the overall accountability of supervising and overseeing works. This person will normally be the team leader (or equivalent) and hold COSS competence to make sure planned controls are put in place to keep persons safe from trains, activity and site risks.

COSS (Controller of Site Safety): sets up a Safe System of Work for a group of people.

IWA (Individual Working Alone): sets up a Safe System of Work for themselves.

PC (Protection Controller): arranges for a line blockage which will be shared by two or more IWA/COSSs.

SWL (Safe Work Leader): sets up a Safe System of Work for a group of people

PLANNING

All work that will affect the area of being on or near the line should be planned in accordance with NR/L2/OHS/019 this includes reference to the Rule Book

You will need to know:

- the nature and location of the work
- the access point and route to/from site
- the limits of the site
- the lines at the site and the speed/direction of trains
- communication details
- whether there are any hazards such as limited clearances
- whether it is a red zone prohibited area at the location
- the Safe System of Work to be used
- how to verify the Safe System of Work Plan before implementation, this should be done a shift in advance

IWA/COSS Do you know your site location?

You should never undertake the duties of an IWA or COSS unless you are site familiar with the location you are going to work at.

Site familiarisation with the location can be achieved either by provision of the documents relevant to the site of work e.g. extracts from the National Hazard Directory, Sectional Appendix, up to date photographs and signalling diagrams; or by conducting a site visit and keeping records of your visit.

What must I know about the area?

- the approved points of access
- the most suitable means of communication between you and the signaller
- the most suitable means of communication to call the emergency services
- the speed at which trains are permitted to travel on each line
- the track layout and the direction from which trains normally approach on each line
- whether single line working or other exceptional wrong direction movements will be in operation
- whether there is overhead line equipment or conductor rails at the site of work
- whether there are any open line prohibition areas at the location.
- whether there is a potential for runaway risk due to the gradients on approach to the site of work

CROSSING THE LINE PROCEDURE

You can only use this procedure if all of the following apply:

- The procedure has been planned and included in the Safe Work Pack
- The location has been approved and a Risk Assessment completed to demonstrate it is a safe location to use the procedure
- You are competent in using the procedure and your name has been given to signaller
- This procedure is used for walking and not working
- Cross no more than four running lines or walk past a structure that restricts clearance from a running line
- Communication must be by mobile phone that has a minimum of 50% battery life, signal strength required to be 3 bars or more
- Keep the phone line open to the Signaller but hold the phone to your side until the line has been crossed or the structure passed

Crossing the line procedure, how to use it

You must tell the signaller:

- where you want to cross the line or pass by a structure
- give your name and employer
- how long it will take to cross the line or pass by the structure

When the signaller tells you that you can cross the line or pass by the structure you must:

- immediately cross the line or pass by the structure
- stay on the phone to the signaller until you have crossed the line or passed by the structure
- make sure that you are in a position of safety.

You must then tell the signaller when you have crossed and you and the group are in a position of safety.

You must also take into consideration other hazards for example:

- limited sighting conditions of approaching trains, such as curves, bridges or other structures, limited clearances , poor underfoot conditions, line side equipment that could result in an electric shock, noise from sources next to or near the railway, other local features which might affect the safety of the system of work.

Walking route to the site of work:

- this should be using the Cess, Cess walkways, made up paths, walkways, and authorised walking routes where available

you must also:

- at 100 mph or less keep 1.25 meters / 4ft from the nearest running line
- at 100 mph or more keep 2 meters / 6 ft 6 ins from the running line
- If the route to the site requires you to cross open lines, be closer to running lines than the stated distances above, e.g moving past a structure a SSOW will be required

When you the IWA / COSS and the group leave the site of work SSOW arrangements as above need to be in place

Unless the work is short notice emergency work, your Safe System of Work must be planned in advance in accordance with NR/L2OHS/019 and you must be provided with:

- a Safe System of Work pack which includes a partly completed RT9909 Form verified by the COSS as required
- part completed NR3180 Line Blockage Form if required
- the forms give details of any line blockage, isolation or speed restriction arranged for your work, and
- the right people and equipment for the Safe System of Work.

Do not start to walk or work on or near the line unless you have set up a suitable Safe System of Work.

INDIVIDUAL WORKING ALONE (IWA)

Only a person with a valid Sentinel Card endorsed IWA or COSS can work alone on or near the line. If your Sentinel Card only shows COSS with a red triangle you must not work alone.

IWA working at least 2 metres from any line

You must keep at least 2m from any line open to train movements.

The only exception to this is if you are working within an Engineering Supervisor's worksite. To create a Safe System of Work in an Engineering Supervisor's worksite you must meet the following criteria.

1) sign in and out, in person with the Engineering Supervisor
2) Train/OTP movements must be at extreme caution (no greater than 5mph)
3) be in a safe position if a Train/OTP movement takes place within your site of work

If you cannot meet these conditions you are working open line.

IWA working open line looking up every five seconds

An IWA should only work on an open line if they can look up every five seconds if no other Safe System of Work is available e.g. a Line Blockage or Equipment Warning.

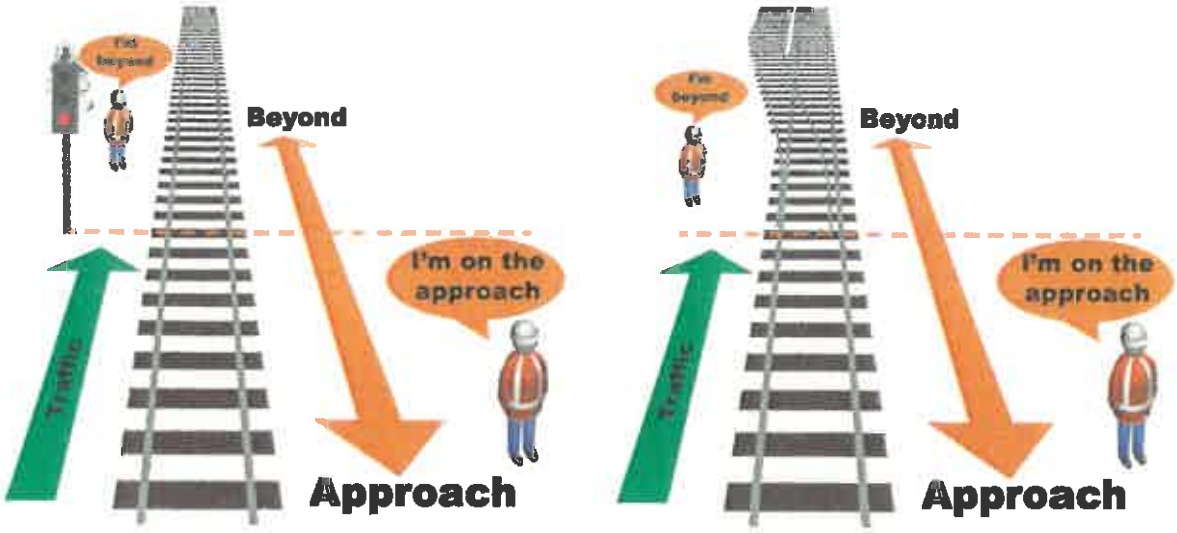
You can only carry out Patrolling, Inspecting or Examining duties.

Look up at least every 5 seconds.

You will be able to reach a position of safety at least 10 seconds before any approaching train arrives, and you can reach that position of safety without crossing any open line other than the one you are on.

You must **NOT** rely on the above arrangements during darkness, poor visibility or in a tunnel.

BEYOND OR APPROACH



'Beyond', is on the far side of the signal when looking in the normal direction of traffic.

'On the approach', is on the near side of a signal or points when looking in the normal direction of traffic.

(An example of a signal is given here however it could be a set of points or another fixed structure).

These terms are used extensively on the railway you need to know and understand their meaning.

IWA UNDERTAKING PROTECTION PROCEDURES

An IWA may be asked to undertake protection procedures; this may involve keying signals to danger, placing additional detonator protection for a line blockage or a possession and the placement of worksite marker boards.

SIGNAL POST REPLACEMENT SWITCH

Signal post replacement switches (SPRS) are provided at some automatic and semi-automatic signals. When operated, they place the signal to danger.

Although called a SPRS, they are not always on the signal post but will be near to the signal and may be on a separate post.

KEYING A SIGNAL TO DANGER

If you are going to use the SPRS, you must first make sure the signal is showing a proceed aspect (not red). If it is showing a proceed aspect, you must:

- get the signaller's permission to place the key in the switch and operate it
- operate the key and then check that the signal has gone to danger
- tell the signaller the signal is at danger
- remove the key

If the signal is displaying a red aspect when you arrive, you must tell the signaller and ask for further instructions.

KEYING A SIGNAL TO AUTOMATIC

- get the signaller's permission to place the key in the switch and operate it
- operate the key and then check that the signal has gone to a proceed aspect
- tell the signaller what aspect the signal displaying
- remove the key

DETONATOR PROTECTION FOR A LINE BLOCKAGE

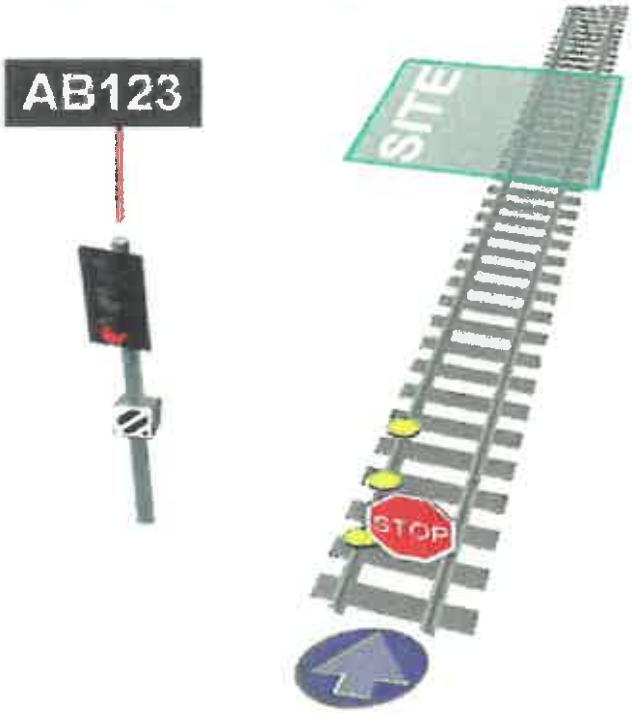
Detonator Protection consists of:

- three detonators on the line concerned, 20 metres (approximately 20 yards) apart on the same rail, and
- a possession limit board in the four-foot next to the first detonator in the direction from which trains can approach.

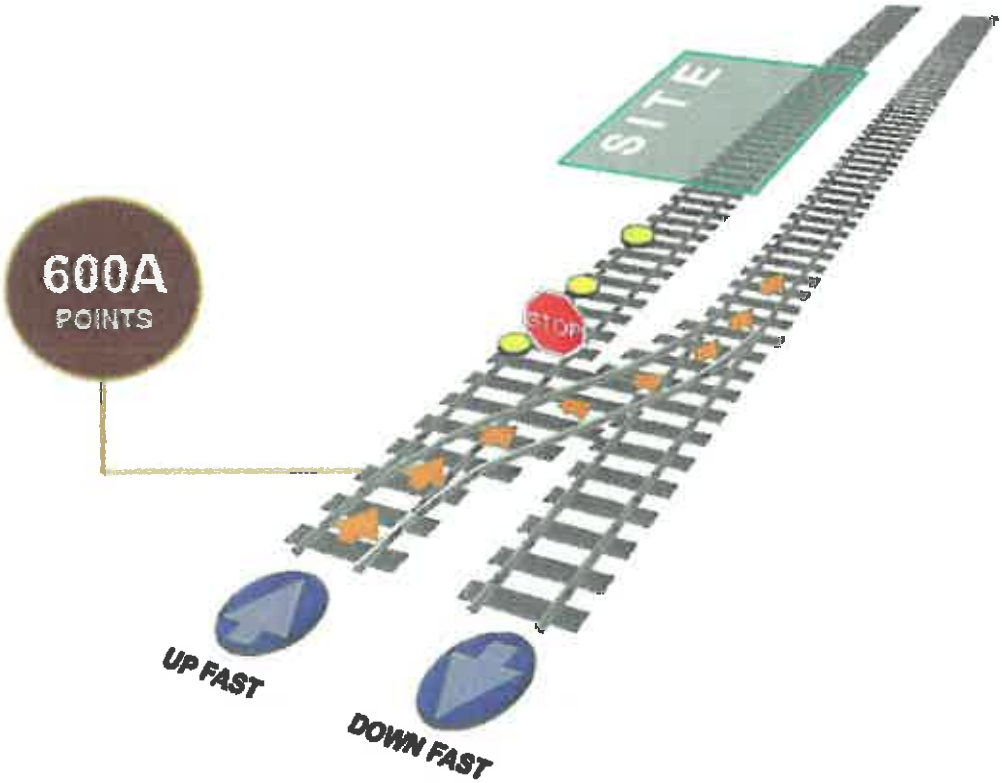
Under no circumstances must any detonator be placed on the approach to:

- the protecting signal, or
- any points or through-crossing that will be used for normal train movements.

DETONATOR PROTECTION FOR A LINE BLOCKAGE AT A SIGNAL



DETONATOR PROTECTION FOR A LINE BLOCKAGE BEYOND POINTS



DETONATOR PROTECTION FOR A POSSESSION

This consists of:

- three detonators on the line concerned, 20 metres (approximately 20 yards) apart on the same rail, and
- a possession limit board in the four-foot next to the middle detonator.

The PICOP will give you the location and lines on which to place the Detonator Protection.

YOUR SAFE SYSTEM OF WORK

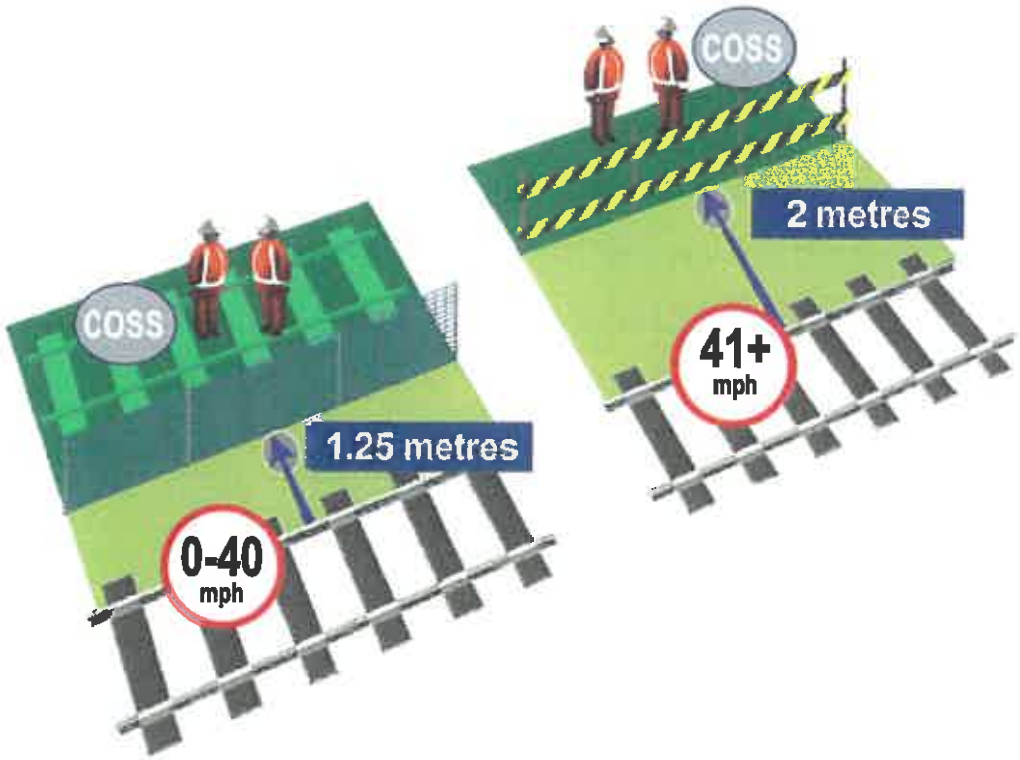
Safeguarded site of work (Protection)

You must block all the lines at your site of work.

Fenced site of work (Protection)

You must put up a fence between the site of work and nearest open line. The distance between the fence and the open line depends on the type of fence and speed of trains on the line:

Speed of trains:	0-40 mph	41-125 mph
Rigid barrier	at least 1.25 metres	at least 1.25 metres
Netting/tape	at least 1.25 metres	at least 2 metres



For example:

- On a 30mph line, blue netting must be at least 1.25 metres (4 feet) from the nearest open line
- On a 55mph line, barricade tape must be at least 2 metres (6 feet 6 inches) from the nearest open line.

Setting up Fencing

If your work is to be fenced, the fencing must provide an effective barrier.

Temporary fencing must be:

- Made of a rigid or tensioned barrier or plastic netting or barricade tape
- Suitable for the location
- Continuous throughout the whole length of the site (except where a proper break is provided to allow personnel to cross the line).

- Where necessary, extended at right angles at the ends to contain the site.

If left in position when no work is taking place, a break must be provided at least every 40m along the fence.

Remember to check for buried services before putting metal stakes into the ground (a permit to dig may be required).

Rigid or Tension Barrier

- A type approved by Network Rail
- High enough to prevent anyone falling or tripping over it towards open lines.
- Colour blue or striped black and yellow.
- Erected to the maker's instructions by a competent person.

Plastic Netting or Barricade Tape

- Light blue netting or two rows of 75mm or 150mm wide, black and yellow striped barricade tape.
- About 1m high, not more than 915mm above rail level.
- Uprights are at least every 2m, fixed firmly enough for the base not to move if normal hand pressure is applied.
- Must not move to within the minimum distance from a line open to train movements if the wind blows or a train goes past the site.

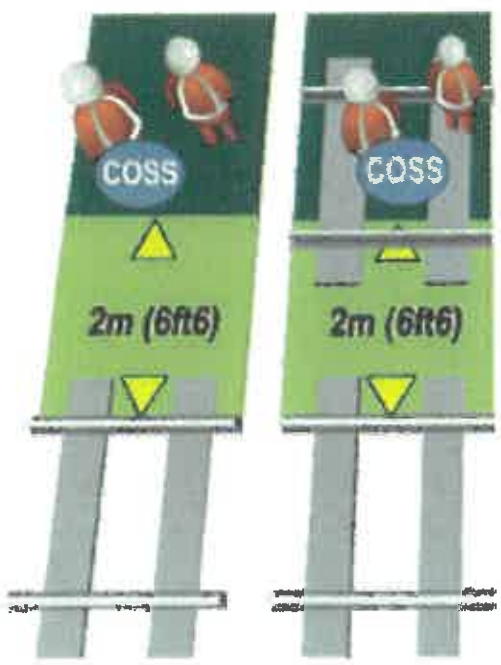
Note: Remember you will need a Safe System of Work to set up your fencing.

Separated site of work (Protection)

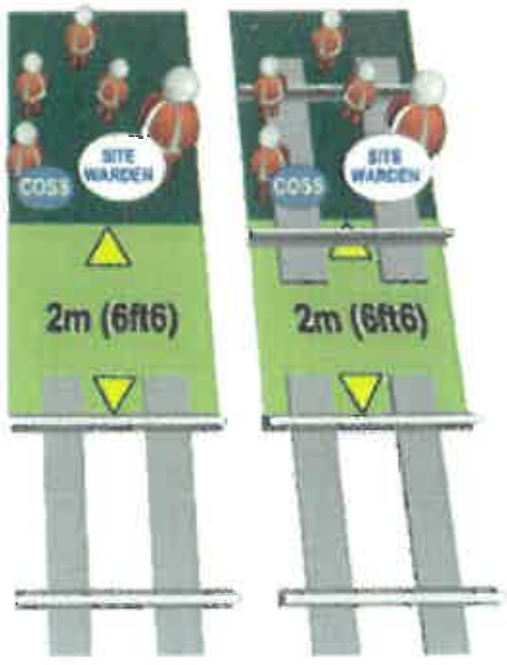
You must make sure there is a space between the site of work and nearest open line.

Size of the space	Size of the group	Site Warden needed?
at least 2 metres	1 or 2 people	No
at least 2 metres	More than 2 people	Yes
at least 3 metres	Any	No

The example below shows a group of four people with a Site Warden at least 2 metres from the nearest open line.



A COSS plus one other person (left) in the cess and (right) on a blocked line



A larger group with a Site Warden (left) in the cess and (right) on a blocked line

SITE WARDENS

The COSS check the Site Warden(s) is competent

- make sure they have the required equipment
- must tell the group who the Site Warden(s) is
- must position the Site Warden so they can clearly see the group and if someone strays out of the safe area

Tell the group and the Site Warden not to take part in the activity

The COSS can act as Site Warden if they hold the Site Warden competence

The COSS must remind the Site Warden if they become distracted, to tell the COSS immediately

BLOCKING THE LINE

Unless the work is short notice emergency work, a line blockage should be:

- planned in advance in accordance with NR/L2/OHS/019, you have approved the safe work pack
- taken when it will cause least disruption to services, and
- detailed on a partly-completed Line Blockage Form.

A line blockage is achieved by placing a 'Protecting' signal or signals to danger, this is arranged by the signaller.

An authority number is given to you by the signaller.

If you have been asked to attend a fault or failure situation you must plan the work in accordance with NR/L2/OHS/019/mod01 Planning and working during incident response

TAKING A LINE BLOCKAGE

- Contact the signaller and quote the GZAC and WON number. Agree the general arrangements, recording the details on the NR3180 Line Blockage form
- You must agree with the signaller:
  - whether the line blockage requires additional protection
  - where the work will take place
  - the line(s) to be blocked
  - the protecting signals
  - when the blockage must be given up or suspended, and
  - a suitable, tested means of communication.
  - If the site work is less than 200m beyond the protecting signal
  - The location where the protection needs to be placed (if applicable)
- Record this in the NR3180 Line Blockage form
- The signaller will tell you when the protecting signal or signals have been placed to danger and will issue you an authority number.
- Record the authority number, time, date and agreed call back time in the NR3180

If your task will affect the safety of trains it will be necessary to use one of the following of the following additional protection methods:

Additional Protection
Disconnecting signalling equipment: COSS asks the signaller to arrange for signalling equipment to be disconnected by a signalling technician to protect the line that is to be blocked
T-COD: COSS places a Track Circuit Operating Device on the line concerned to occupy the track circuit in areas shown in the Sectional Appendix. You must get the signallers permission before a T-COD is placed on the line
Token or Staff: On a single line worked by a token or staff, the COSS keeps the token or staff for the duration of the line blockage
Detonator Protection: COSS arranges for a competent person to place detonator protection at the protecting signal or clear of any points or through crossings beyond the signal.
Lock Out Devices (LODs): the COSS must be trained in the use the device.

LOCK OUT DEVICES

These are another form of additional protection you have to be trained on each individual LOD you will use

There are 5 types of LODs:

- LOD(E) inhibits movements in both directions on a section of line, including moves into and out of the protected area. This is the protection system for railway undertakings. It is a captive key system so the key stays in the LOD
- LOD(K) prevents signalled moves in both directions into the protected area. This is also a captive key system. This type of protection is suitable for a small area where staff can easily return to the instrument at the end of their work. If more than one team is working in a complex area establishing their own protection, a LOD(K) eliminates the risk of another team releasing the protection in error.
- LOD(T) inhibits all moves preventing all signalled moves into the protected area. This is a key enabled system so the user must obtain the key before operation can commence.
- A LOD(D) system disconnects the train detection system but does not inhibit permissive or shunt moves into the protected area. It is the equivalent of taking a line blockage where the fixed system replaces the TCOD
- LOD(P) prevents all signalled moves against the 'normal' direction of traffic enabling staff to utilise lookout protection for a single direction. The system normally covers both lines on a two-track railway inhibiting the opposite direction signalling on the two lines, however it is permissible for the system to apply to an individual line subject to suitable signage and local instructions

You must check and be sure you know what the LOD(P) in your area prevents operation of Whichever system you will be using, all LOD cabinets can be opened with a BR222 key.

Generic Operation of the devices:

- open the cabinet with a key
- contact the signaller
- ask the signaller for permission to operate the LOD
- once operated and conformed worked (The signaller will check the indications in the signalling location)
- they will give you an authority number and a time
- when finished, contact the signaller with the phone at the LOD
- confirm name, duty performing the authority number you was given
- confirm finished activity
- request to operate the LOD to normal, when permission granted operate the LOD
- The signaller will confirm the signalling indications as normal
- agree a time

RUNAWAY RISK

When planning work with gradients on approach to the site of work needs considering and NR/L2/OHS/019 Module 5 will be used

The planner shall establish if the site of work at risk from runaways where rail mounted plant is to be used and the following conditions apply:

- the site of work is on a gradient steeper than 1 in 100 or has a gradient
- steeper than 1 in 100 within 5 miles of the site of work
- the site of work is in a possession; and
- work is taking place on or near the line.

The Watchman

Shall be identified as a method of warning during the planning stage and the details shall be added to the SWP

The COSS is required to appoint a Watchman and they shall:

- be placed and remain in a position of safety
- have Lookout competence
- have a sighting distance of 500yds/460m minimum
- not be involved in the work
- be close enough to the group to confirm all staff receive warnings
- have sight of all staff to be warned at all times
- where noise is involved the COSS or PIC shall use the touch warning method
- have a whistle or horn.

The COSS must tell the watchman

- if they cannot maintain the agreed sighting distance, visibility, or needs to stand down from duty
- warn the group to move to a position of safety
- tell the PIC/COSS the reason
- watchmen shall have a break every two hours with a 20-minute break before reassuming duty.

WHEN THE ARRANGEMENTS ARE IN PLACE

Once this is in place the signaller will issue you an authority number.

- Record the authority number, time, date and agreed call back time in the NR3180 Line Blockage form

The COSS must arrange for a red flag or red light to be placed on the approach to the site of work if:

- the work will affect the safety of any approaching train, or
- a group is working.

The red flag or red light must be placed in the four-foot where it will be clearly visible to the driver of a train approaching on that line.

This must be done in both directions if:

- You are working on a single or bi-directional line, Or a
- Single line working is in operation on the line concerned.

For any of the following other additional arrangements will need to be made:

- a platform line is to be blocked and a train is stabled on it
- the work affects any level crossings
- a trolley is to be used

Before starting work, you must:

- reach a complete understanding with the signaller as to what is required
- fill in the Line Blockage Form, and
- get an authority number from the signaller.

ADDITIONAL PROTECTION USING A T-COD

1. Contact the signaller and request a Line Blockage using T-COD additional protection
2. Agree the Line Blockage arrangements with the Signaller, completing section 1 & 2 of the NR3180 Line Blockage form.
3. The Signaller then places the protecting signal or signals to danger or arranges for it to be keyed to danger by use of a signal replacement switch.
4. Obtain the Signaller's permission to place the T-COD on the track and tell the Signaller when this has been done.
5. Record in the NR3180 Line Blockage form which track circuit is showing occupied.
6. Fill in the NR3180 Line Blockage form recording the Authority Number and Call Back time given to you by the Signaller.

HOW TO USE A T-COD

Check the Sectional Appendix that the site of work is authorised for T-COD use.

Use the correct type of T-COD for the rail, Yellow - flat bottom, Orange - bullhead

Examine the T-COD before each application to make sure there are no signs of damage or wear.

When using the T-COD follow the manufacturer's instructions

NOTE: Signal overlaps must be taken into consideration to make sure the correct track circuit is occupied

WITHDRAWING A T-COD

When the line is safe and clear for trains to proceed.

1. Remove the T-COD from the line; also remove the Hand Danger signal from the 4-foot.
2. Move to a position of safety, contact the Signaller and quote your Line Blockage authority number. Confirm with Signaller that the T-COD has been removed from the track.
3. Complete form NR3180 Line Blockage form and cancel the Line Blockage. The Signaller gives you a time/date when the blockage is given up.

The protecting Signal maintained at danger may now be cleared by the Signaller or by use of a SPRS.

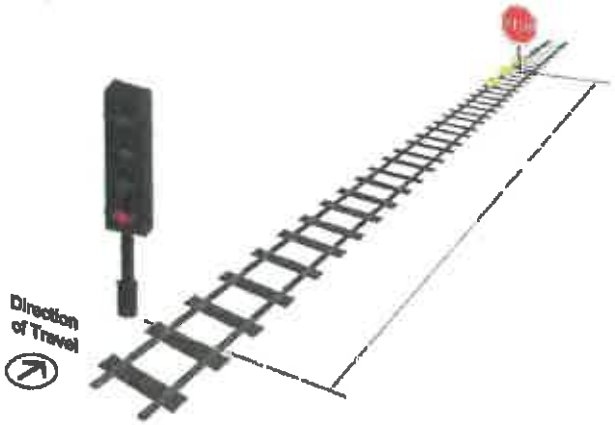
GIVING UP A LINE BLOCKAGE

When the line blockage is to be given up or is to be suspended, you must:

- make sure that any work that is to continue does not need a line blockage
- remove any red flag or red light that has been placed in the four foot
- remove any additional protection arrangements
- Contact the controlling Signaller and request to give up the Line Blockage – quote your Authority Number
- Confirm to the Signaller when the additional protection (where necessary) is withdrawn - quote your Authority Number
- The Signaller will give you a time and date when the Line Blockage is given up, record this on the NR3180 Line Blockage form
- The protecting signal(s) will then be restored to normal working either by the Signaller or by use of a Signal Post Replacement Switch.

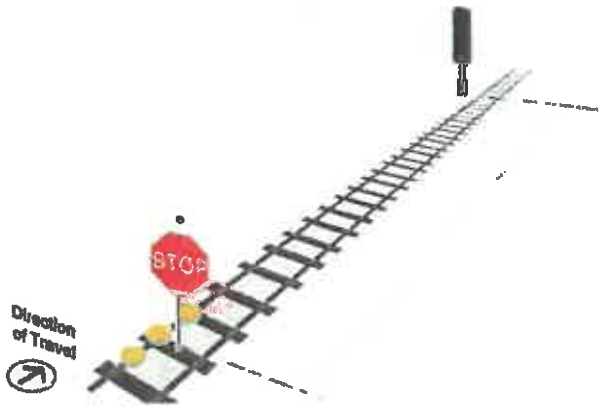
POSSESSION ARRANGEMENTS

BEYOND SIGNAL ON APPROACH TO POSSESSION



This distance is normally 400m beyond a signal or points but can be any distance up to 400m

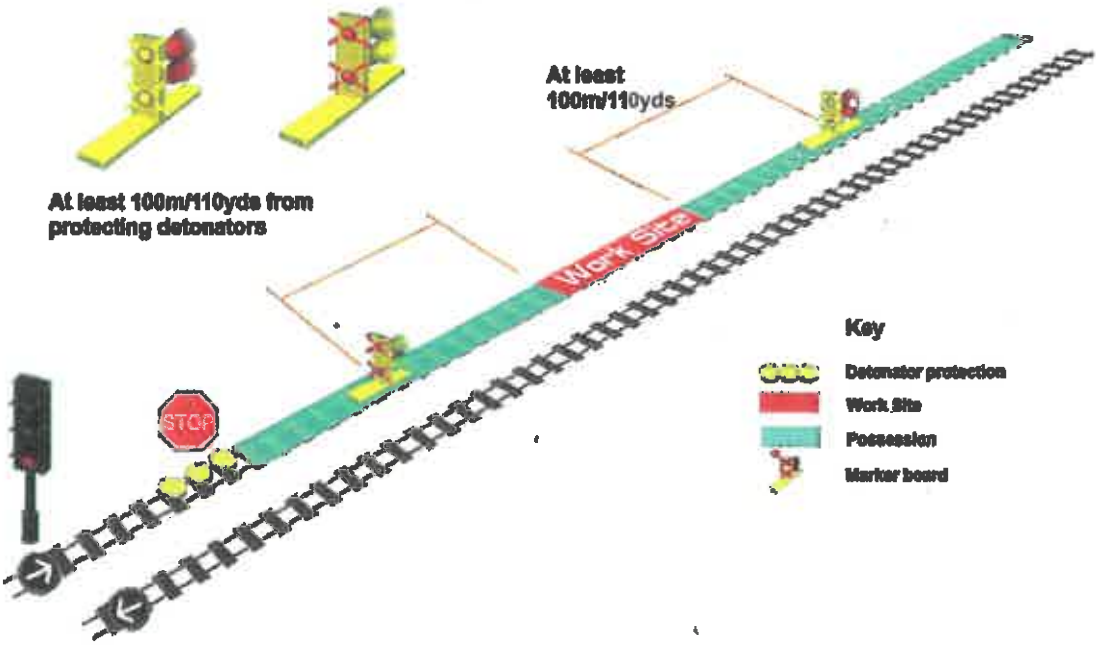
ON APPROACH TO SIGNAL BEYOND POSSESSION



This distance is normally 400m on approach to a signal or points but can be any distance up to 400m

MARKER BOARDS FOR A POSSESSION WORKSITE

The Engineering Supervisor will give you the location and lines you are to place marker boards, these are to be placed 100m from each end of the worksite. They are to be positioned in the 4 foot with the red over red flashing lights facing away from the worksite.



The Engineering Supervisor may give you a chainage to place the marker boards e.g. 35 miles 30 chains.

Yards - Chains – Miles

22 yards = 1 Chain (approximately 20m)

20 chains = ¼ mile (approximately 400m)

40 chains = ½ mile (approximately 800m)

60 chains = ¾ mile (approximately 1200m)

80 chains = 1 mile (approximately 1600m)

WORKING IN A POSSESSION

Outside a worksite – With the PICOP's Authority

You can book in with the PICOP provided it is pre-planned.

You must treat ALL lines as open at a line speed of 25mph with movements in both directions and set up a suitable safe system using Lookouts.

Note: Allowed during daylight hours only. Not allowed in poor visibility or when in or near a tunnel

Outside a worksite – Without the PICOP's Authority

You must treat ALL lines as open at line speed with movements in both directions and set up a suitable safe system.

Inside a worksite

You must:

- be briefed by the ES (Engineering Supervisor) on the worksite arrangements
- sign the Engineering Supervisor's certificate, and
- set up a suitable Safe System of Work.

You can only set up a Safeguarded, Fenced or Separated site of work area if:

- you reach a clear understanding with the ES about all movements
- nobody will be put in danger by the movements
- the ES authorises the movements, and
- if there are train or OTP movements at your site of work, they will be made at extreme caution and at no greater than 5 mph.

In darkness or poor visibility, you can only set up a Safe System of Work with unassisted Lookouts if the ES agrees to restrict the speed of movements to no more than 20mph.

YOUR SAFE SYSTEM – OPEN LINE

Lookout working, in whatever form (unassisted, LOWS, touch), should only be used as a last resort and only when a senior manager has approved it's use.

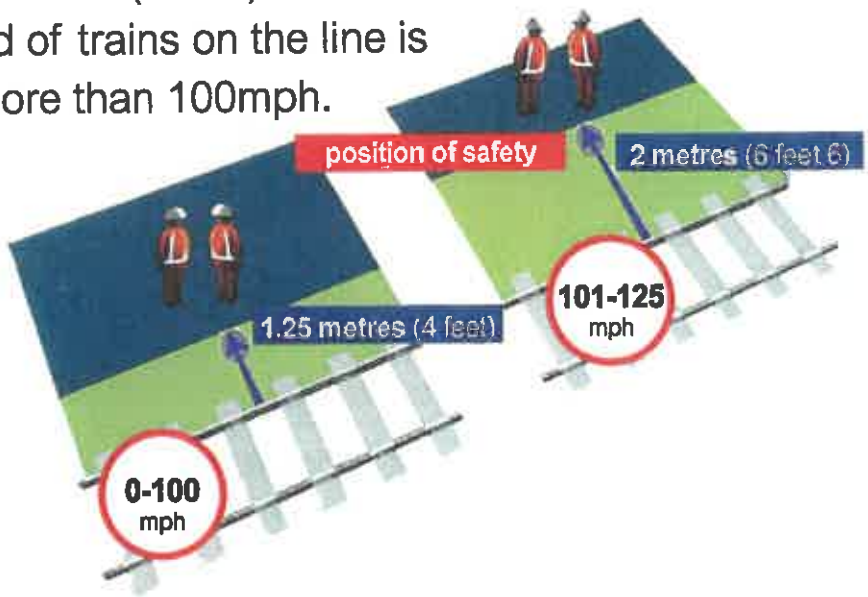
Every effort should be made to plan work at the top of the hierarchy of operational risk controls in standard 019".

You must:

- arrange for a warning of approaching trains to be provided
- identify a position of safety, and
- check both you and the group are in the position of safety **at least 10 seconds** before the train arrives.

The position of safety must be at least:

- 2 metres (6 feet 6 inches) from the nearest line on which a train might approach, or
- 1.25 metres (4 feet) from the nearest line if the maximum speed of trains on the line is not more than 100mph.



You will need to:

- work out the required warning time
- make sure there is sufficient sighting distance.

Unassisted lookouts cannot be used in darkness or poor visibility unless:

- The maximum speed of trains is no more than 20mph, and
- No distant lookouts are needed

Open Line working is not allowed:

- if more than 45 seconds warning time is needed
- if there are more than two open lines between the site of work and position of safety
- if the group will need to walk more than 25m along the line to reach the position of safety
- at locations listed in the Hazard Directory
- if the permissible speed is above 125mph.

The warning can be provided by:

- an Automatic Track Warning System (ATWS)
- a Train Operated Warning System (TOWS)
- (COSS only) a Lookout Operated Warning System (LOWS)
- (COSS only) unassisted Lookouts, or
- (IWA patrolling, inspecting or examining only) looking up every 5 seconds, but only if you do not have to cross a line to reach the position of safety.

SEMI-AUTOMATIC TRACK WARNING SYSTEMS (SATWS) OPERATOR

Before using SATWS equipment a radio frequency mapping exercise must be carried out and the data for that location shall be documented and made available.

Equipment must be tested prior to use. Checks should include:

- Is the calibration in date?
- Is there any damage to the equipment?
- Are the settings correct?
- Do the sirens work and the lights flash?
- Are the batteries fully charged?

Setup and use

SATWS is a system whereby trains are detected by a sensor attached to the running rail at a distance required to give a pre-determined time warning of the arrival of a train at a site of work e.g. where the line speed is 60MPH and 30 seconds warning is required then the detector will be placed 850 metres (880 yards).

Sensors are located to take account of all potential train movements towards a site of work from any signalled direction.

Immediately that a train is detected an audible and visual warning is given to the work group at the site of work.

When the trains passes the site of work the SATWS operator manually cancels the train. When all trains detected have passed over the site of work the SATWS operator advises the COSS (if they are not the same person) that work can recommence.

In the event of a loss of radio frequency

The operator shall change the radio frequency onto another of the 8 which have been allocated by Ofcom for dedicated use of track warning systems.

If this does not rectify the issue or there is a fault warning on start up then this should be reported to control as a fault and an alternative safe system of work identified or the work postponed.

AUTOMATIC TRACK WARNING SYSTEM (ATWS)

The difference between SATWS and ATWS is that there is a detector situated on the exit point of a site of work.

This means that there is no manual intervention and the ATWS operator makes sure the work group retreat to the designated position of safety whilst the audible/visual alarm is operating.

The alarm ceases when there are no trains approaching the site of work and the ATWS operator advises the COSS (if they are not the same person) that work can recommence.

TRAIN ACTIVATED WARNING SYSTEM (TAWS) ALSO KNOWN AS TRAIN OPERATED WARNING SYSTEM (TOWS)

The mileage/chainage covered by the TOWS/TAWS system will be published in the Sectional Appendix

TAWS/TOWS will be identified as part of the safe system of work in the safe work pack

TOWS/TAWS should only be operated by a competent IWA / COSS trained to operate the system. What line and area the system covers

When in use, if no trains are in the area and the line the system covers an intermittent safe tone is heard

When a train is in area and on the line the system covers continuous tone is heard

The system is operated using a switch or key

The device will be in a position of safety, on a post of other fixed structure in a cabinet

On arrival: Make sure your group remain in a Position of Safety

- Check that the system is not in use
- If it is then either another IWA/COSS is using it, or the system has a fault
- Try and find out if anyone is around, considering your safety at all times

How the system works

The system is activated and switched off by means of a switch/ key at access points within the area of coverage.

On activation of the system an intermittent safe tone is heard

When a train activates a track circuit which it triggers a sounder with and continuous warning tone requiring the individual / workgroup to move to the designated position of safety

The warning given is a minimum of 10 seconds at any point in the area covered by the system (which should be indicated on the switches)

TOWS/TAWS will be identified as part of the safe system of work in the safe work pack

In the event of the TOWS/TAWS failing to activate or emitting a continuous warning tone with no train being in the section it must be reported as a failure and not relied upon as part of the safe system of work

If it fails the IWA/ COSS should stop work, more the group to a position of safety then report the failure. Then if safe and practical make arrangements for an alternative safe system of work

Make sure your group remain in a Position of Safety

Check that the system is not in use

If it is then either another IWA/COSS is using it, or the system has a fault

Try and locate the user if safe to do so, considering your safety at all times

If unsure the system is in use or is faulty then authority to use an alternative safe system of work should be gained or the work postponed

How the system works

The system is activated and switched off by means of a switch/ key at the access points within the area of coverage

On activation of the system an intermittent safe tone is heard

The system changes tone when a train activates a designated track circuit which triggers a continuous warning tone

The individual / workgroup must then immediately to move to the designated position of safety

The warning given is a minimum of 10 seconds at any point in the area covered by the system (which should be indicated at the switch location)

In the event of the TOWS/TAWS failing to activate or emitting a continuous warning tone with no train being in the section it must be reported as a failure and not relied upon as part of the safe system of work

If it fails the IWA/ COSS should stop work, more the group to a position of safety then report the failure. Then if safe and practical make arrangements for an alternative safe system of work

On completion of the work

The IWA/ COSS should make sure tools and materials are clear of the line

The COSS that the group are in a position of safety

Turn the system off unless another IWA or COSS are using device

Lookouts must:

- be qualified and properly equipped
- know where to stand, who to warn and the direction from which trains will approach, and
- not be distracted.

Lookouts must not be used if:

- there is not enough sighting distance
- more than one intermediate Lookout is needed in any direction
- more than four distant/intermediate Lookouts are needed in total.

Touch Lookouts:

- As the COSS you need to decide how many are required, one for each person with ear protection is recommended
- they must be positioned close but not so close they could effect the activities of the person with the ear protection
- The Touch Lookout must not be involved in the work taking place

Positioning Distant or Intermediate Lookouts

- Distant/Intermediate Lookouts must be positioned in a position of safety all times. (The only exception is to pass an obstruction if the site of work is moving).

As COSS you shall be required to select the Lookout, checking that they:

- are fit and well
- not fatigued
- do not seem distracted
- have appropriate workwear for the weather conditions
- have no other reason(s) why they cannot undertake their duties

You are recommended to give the Lookout a break from the duties at least every 2 hours and more frequently during extreme weather conditions.

LOWS CONTROLLER & LOWS LOOKOUT

Before using LOWS equipment a mapping exercise must be carried out and the data for that location shall be documented and made available.

Equipment must be tested prior to use. Checks should include:

- Is the calibration in date?
- Is there any damage to the equipment?
- Are the units switched on?
- Are the settings correct?
- Do the sirens work and the lights flash?
- Are the batteries fully charged?

Setting up

Until the warning unit is set up and working correctly the group must remain in a position of safety until the COSS tells them it is safe for work to commence.

If the system fails or it is not possible to obtain the correct signal after three attempts, the use of LOWS must be suspended. An alternative SSOW must be set up, or the work abandoned.

The LOWS Controller must brief the LOWS Lookout(s) on the following:

- Where their position of safety is located
- Methods of communication to include
  - what to do if a problem arises
  - what to do if the Lookout requires a physical needs break
- When to operate the warning.

Battery Maintenance:

- Where possible, rotate the use of available batteries.
- Allow batteries to discharge before re-charging

DO NOT:

- Leave batteries connected to equipment when not in use.
- Leave batteries on charge
- Top up batteries that have not been used
- Charge batteries in extreme temperatures (Cold /Hot)

Equipment Logbook:

Each use of the equipment must be recorded in the equipment logbook, which includes date and location used and any faults.

ELECTRIFIED LINES

Overhead line equipment (OLE)

You must assume that all OLE is live and dangerous unless:

- an isolation has been arranged
- you have been issued with an Overhead Line Permit, and
- you have been briefed by the Nominated Person.

Otherwise you/the group must not go within 2.75 metres (9 feet) of any live OLE.

Conductor rails

You must assume that all conductor rails are live and dangerous unless:

- an isolation has been arranged
- you have been issued with a Conductor Rail Permit, and
- you have been briefed by the ES/ Authorised Person/Nominated Person.

Work can take place with the electricity still on if:

- approved insulated tools and equipment are used, and
- you are certain that you/the group will not touch a live rail.

TAKING CARE WHEN USING METAL EQUIPMENT

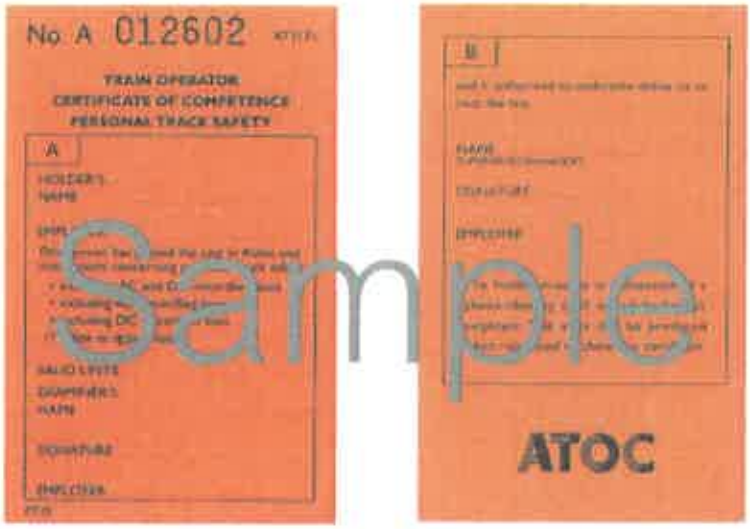
You must not place metal objects e.g. measuring tapes or chains across the rails as it might operate the signalling equipment and change a signal aspect in front of a driver.

You must not allow any metal object near signalling equipment or within 300mm (12 inches) of an axle counter head, as this could accidentally interfere with its operation.

QUALIFICATIONS & BRIEFING

Before allowing work to start, you must:

- complete the RT9909 Record of Arrangements and Briefing Form
- identify yourself to the group
- Confirm that each member of the group has a valid Sentinel card or TVP.
- brief the group on the safety arrangements, paying particular attention to group members who are less experienced who will be identified by a blue safety helmet and either a green square surfaced on their Sentinel Card or are in possession of a TVP.
- Please note that the TOCs and FOCs do not use Sentinel competence cards. They use an orange card and this is a valid form of proving that a person from a TOC or FOC holds the competence on the card.



The Rail Delivery Group (RDG) who replaced the Association of Train Operating Companies (ATOC) no longer produces any PTS-related documentation for Train Operating Companies to use. Train Operating Companies endorse a train driver's certificate as drivers require it as part of their driving competence.

British Transport Police (BTP) PTS

British Transport Police Officers who hold the PTS Certificate will have a green card that states this. BTP officers holding a current card should be granted access to the railway if they so require.

Note some holders have a pink card which is still valid

You will need to tell the group:

- the nature and location of the work
- the access point and route to/from site
- the limits of the site
- the lines at the site, whether they are open/blocked, and the speed/direction of trains
- the best means of communication in an emergency
- whether there are any hazards such as limited clearances or poor underfoot conditions
- whether any lines are electrified and which parts are live/ isolated, and
- the method of Safe System of Work to be used

For Safeguarded, Fenced or Separated site of work (Protection), you must also tell the group:

- the limits of the safe system and how they are defined, and
- if appointed, who the Site Warden is and the method of warning.

For open line working, tell the group:

- where the position of safety is
- the method of warning, and
- if appointed, who the site Lookout(s) is/are and where they are positioned.

The COSS shall question the group members to check understanding of the brief.

Each member of the group must sign the RT9909 Record of Arrangements and Briefing Form form to confirm they understand and accept the arrangements.

TRACK VISITOR PERMITS (TVP)

TVP holders must wear a blue safety helmet and can undertake minor work in a open line and specialist or minor work in a safeguarded, fenced or Separated site of work (Protection). Take extra care when briefing TVP holders or inexperienced staff that are new to the railway environment.

TVPs are valid for 24 hours and they can be issued for up to 4 sites of work on one TVP. The TVP must be retained by the COSS and appended to the Record of Arrangements and briefing form RT9909, if the TVP has multiple sites then the COSS of the last site shown will do this.

Should there be multiple TVP holders at the same site the COSS must ensure that there are enough experienced staff (without a green square on their card) to enable close supervision of the TVP holders. The ratio is no more than three TVP Holders to one experienced staff.

Take extra care when briefing TVP holders or inexperienced staff that are new to the railway environment

DURING THE WORK

Keep checking the Safe System of Work to make sure it remains effective and nobody is put in danger. For example check for:

- changes in the weather which might restrict the available sighting distance
- Heavy rain that could cause running or pooling water that could affect the infrastructure e.g. ballast, cabling or structures
- changes in noise levels
- members of the group wandering out of the safe area, not paying attention or using a mobile phone or any electronic device
- Lookouts straying from their position or not being fully alert.

Take great care if the site of work is moving as conditions can change quickly.

REPORTING FAULTS, FAILURES, ISSUES WITH THE INFRASTRUCTURE

If you IWA/COSS/PC need to report anything you should first contact the signaller using standard safety communication procedures

RAIL INCIDENT OFFICER (RIO)

The RIO is responsible for on site command and control of all related organisations and their support at an accident or incident involving train operations, lines or sidings.

The RIO is not responsible for setting up Safe Systems of Work.

This is the responsibility of the COSS following communication with the RIO

WHEN THE WORK IS FINISHED

The Safe System of Work must remain in place until:

- the work is finished or suspended
- the line is clear and safe, and
- both you and the group are no longer on or near the line.

Where relevant:

- sign out on the Engineering Supervisor's certificate
- book out with the PICOP
- sign out on the NR3180 Line Blockage Form
- sign and return your electrical permit.

The Safe System of Work pack must be returned to the planner.

PROTECTION CONTROLLER (PC)

Considerations when Planning Work

If you are going to be a PC there are additional considerations, these could be (But not limited to):

- the type of work each IWA/Group will be doing
- confirm the line(s) they are working on
- What the work will affect e.g. points, signals, track circuits or acel counters?
- Is a group going to be using a trolley?
- will they be using tools, machines that could affect another group working?
- What are the locations each group will be working?
- will the work overlap?

- can the different activities be done safely in the same line blockage?
- is communication between the PC and the COSS/IWA available - good mobile signal

At the time of the work

- The PC must confirm the arrangements as per what was planned this in case any changes
- If an unexpected IWA or COSS arrives and wants to share the line block you will need to confirm the same information for planned work
- at the time of the granting of the line blockage request each IWA/COSS to sign your NR3180

During the work

- check in with each IWA/COSS at agreed time(s) to confirm how their work is going, on time, running late or any issues

When the work is finished

- As each IWA/COSS finishes work
- They have completed the work and do not need your line blockage protection
- Confirm no one is on or near the line and all the group(s) are in a position of safety or at the access /egress location
- confirm all materials and tools are clear of the running lines
- request each IWA/COSS to sign your NR3180

Remember you have to keep the line blockage in place until all IWA or COSS complete their work. the exception is if one IWA/COSS will make their own SSOW arrangements in accordance with the 019 standard

PERSON IN CHARGE OF A SIDING (PICOS)

Before allowing engineering work or on-tracking of OTP to take place in a siding or group of sidings, a PICOS will be appointed to take possession of the sidings concerned.

In order to perform the role of PICOS you must hold current competencies in COSS or IWA.

Ideally a PICOS will take possession of the whole of each affected siding.

An IWA must not arrange a possession in sidings for the protection of anyone except themselves.

You, as the PICOS need to agree with the person operating the siding(s) about the following details:

- Your name and contact information.
- The location of the siding(s) (there may be more than one) involved and if the possession will take up the whole length of a siding or part of it.
- How you will arrange line protection this will be either via the Signaller, securing the points, sleeper secured across rails with a PLB, red flag or red light placed at the sleeper.
- The date and time you will take possession and by when it will be given up.

The PICOS needs to record the following

- The date and time each COSS, DP or IWA confirms they no longer need to share your protection
- The date and time the possession is given up.
- Your company should supply a form for you to record the details.

LINE CLEAR VERIFICATION

The main purpose of the process is to verify that all vehicles that have accessed the possession have subsequently exited.

The responsibility of the COSS is:

- To confirm with the ES that they have been briefed on the LCV process and has the appropriate Vehicle Management Form (VMF) to hand.
- To obtain permission from the ES before any hand trolleys can be placed on the line (the maximum number of trolleys a COSS can record on the VMF is five).
- To record on the VMF the time the ES gives permission for any hand trolleys to be placed on the line.
- To confirm to the ES and record the time on the VMF that all hand trolleys are removed clear of the line.

COMMUNICATIONS

Refer to NR9935 Frontline Safety Critical Communications.

SIGHTING DISTANCE CHART (METRES)

The warning must be sufficient to enable everyone to be in a position of safety at least 10 seconds before the arrival of a train

Maximum Speed	Sighting distance, in metres, needed to give a warning time of		
	15 secs	20 secs	25 secs
125 mph	900m	1200m	1400m
120 mph	900m	1100m	1400m
115 mph	800m	1100m	1300m
110 mph	800m	1000m	1300m
105 mph	800m	1000m	1200m
100 mph	700m	900m	1200m
95 mph	650m	850m	1100m
90 mph	650m	850m	1050m
85 mph	600m	800m	950m
80 mph	550m	750m	900m
75 mph	550m	700m	850m
70 mph	500m	650m	800m
65 mph	450m	600m	750m
60 mph	450m	550m	700m
55 mph	400m	500m	650m
50 mph	340m	500m	600m
45 mph	320m	420m	520m
40 mph	280m	360m	460m
35 mph	240m	320m	400m
30 mph	220m	280m	340m
25 mph	180m	240m	280m
20 mph	140m	180m	240m
15 mph	120m	160m	180m
10 mph	80m	100m	120m
5 mph	40m	60m	60m

Sighting distance, in metres, needed to give a warning time of			
30 secs	35 secs	40 secs	45 secs
1700m	2000m	2300m	2600m
1650m	1900m	2200m	2500m
1550m	1800m	2100m	2400m
1500m	1800m	2000m	2300m
1450m	1700m	1900m	2200m
1350m	1600m	1800m	2050m
1300m	1500m	1700m	1950m
1250m	1450m	1700m	1850m
1150m	1350m	1600m	1750m
1100m	1300m	1500m	1650m
1050m	1200m	1400m	1550m
950m	1100m	1300m	1450m
900m	1050m	1200m	1350m
850m	950m	1100m	1250m
750m	900m	1000m	1150m
680m	800m	900m	1050m
620m	720m	820m	920m
540m	640m	720m	820m
480m	560m	640m	720m
420m	480m	540m	620m
340m	400m	460m	520m
280m	320m	360m	420m
220m	240m	280m	320m
140m	160m	180m	220m
80m	80m	100m	120m

SIGHTING DISTANCE CHART (IN MILES & YARDS)

The warning must be sufficient to enable everyone to be in a position of safety at least 10 seconds before the arrival of a train

Maximum Speed	Sighting distance, in miles and yards, needed to give a warning time of		
	15 secs	20 secs	25 secs
125 mph	920y	1240y	1540y
120 mph	1/2 mile	1180y	1480y
115 mph	860y	1140y	1420y
110 mph	820y	1080y	1360y
105 mph	780y	1040y	1300y
100 mph	740y	980y	1240y
95 mph	700y	940y	1180y
90 mph	660y	1/2 mile	1100y
85 mph	640y	840y	1040y
80 mph	600y	800y	980y
75 mph	560y	740y	920y
70 mph	520y	700y	860y
65 mph	480y	640y	800y
60 mph	1/4 mile	600y	740y
55 mph	420y	540y	680y
50 mph	380y	500y	620y
45 mph	340y	1/4 mile	560y
40 mph	300y	400y	500y
35 mph	260y	360y	1/4 mile
30 mph	220y	300y	380y
25 mph	200y	260y	320y
20 mph	160y	200y	260y
15 mph	120y	160y	200y
10 mph	80y	100y	140y
5 mph	40y	60y	80y

Sighting distance, in miles and yards, needed to give a warning time of			
30 secs	35 secs	40 secs	45 secs
1m80y	1m380y	1m700y	1m1000y
1 mile	1m300y	1m600y	1 1/2 mile
1700y	1m220y	1m500y	1m780y
1620y	1m140y	1m400y	1m660y
1540y	1m40y	1m300y	1m560y
1480y	1720y	1m200y	1 1/4 mile
1400y	1640y	1m100y	1m340y
3/4 mile	1540y	1 mile	1m220y
1260y	1460y	1680y	1m120y
1180y	1380y	1580y	1 mile
1100y	1300y	1480y	1660y
1040y	1200y	1380y	1540y
960y	1120y	1280y	1440y
1/2 mile	1040y	1180y	3/4 mile
820y	960y	1080y	1220y
740y	860y	980y	1100y
660y	780y	1/2 mile	1000y
600y	700y	800y	1/2 mile
520y	600y	700y	780 yards
1/4 mile	520y	600y	660y
380y	1/4 mile	500y	560y
300y	360y	400y	1/4 mile
220y	260y	300y	340y
160y	180y	200y	220y
80y	100y	100y	120y

LIFE SAVING RULES

Working responsibly

Always be sure the required plans and permits are in place, before you start a job or go on or near the line.

Always use equipment that is fit for its intended purpose.

Never undertake any job unless you have been trained and assessed as competent.

Never work or drive while under the influence of drugs or alcohol.

Working with electricity

Always test before applying earths or straps.

Never assume equipment is isolated – always test before touch.

Driving

Never use a hand-held or hands-free phone, or programme any other mobile device, while driving.

Always obey the speed limit and wear a seat belt.

Working at height

Always use a safety harness when working at height, unless other protection is in place.

Working with moving equipment

Never enter the agreed exclusion zone, unless directed to by the person in charge.

Rail Sentinel

Rail Sentinel website offers the latest developments on the new Sentinel Service.

http://www.railsentinel.co.uk

RSSB Rail Safety and Standards Board

RSSB provides support and facilitation for a wide range of cross-industry activities.

http://www.rssb.co.uk

Railway Group Standards (RGS) online

RGS can be found on the RSSB website providing free access to all current (many withdrawn) Railway Group Standards, Rail Industry Approved Codes of Practice (RACOPS), Guidance Notes (GNs) and Rail Industry Standards (RISs).

Safety Central - The site is your one-stop shop of safety information, advice, resources and useful contacts, designed to promote consistency and best practice across the whole rail industry.

http://safety.networkrail.co.uk/

There are two ways to report safety concerns. Your first step should be to tell your supervisor or sponsor. If this isn't possible, you can contact CIRAS - the railway's confidential reporting service – **www.ciras.org.uk**

No matter where you work, reporting a Close Call is vital to improving safety. If you see something with the potential to cause harm raise the alarm on site and make it safe. If it is not safe to continue work then stop. Once the hazard has been removed or made safe then report it. The more data we receive about Close Calls the smarter we can be in preventing accidents nationally.

There are different numbers to call depending on who you work for. Your manager will be able to tell you what the number is for your organisation

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The purpose of this Keypoint Card is to act as a reminder only. If you are unsure about any issue relating to the information given here, you must refer to the appropriate module of the Rule Book GE/RT 8000 Series or Handbook.

In supplying this document, Network Rail makes no warranties, expressed or implied, that compliance with all or any documents it issues is sufficient on its own to check safe systems of work or operation.

Users are reminded of their own duties under health and safety legislation.

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