



DANGER
High voltage

“The overhead power glove box guide”

“Your guide to staying safe when working in
the vicinity of overhead power”



**Danger
of death**



Issue 3.6 Revised July 2020
Author: Alan Brushwood,
Openreach Safety team

[Back to home](#)

Uncontrolled document when printed – for internal use only

Text PowerGBG to 81192

Contents

Section 1

General safety when working with overhead power

- [General guide to working safely in the vicinity of power](#)
- [Filling out the risk assessment form](#)
- [How can I tell what voltage is on this pole or pylon?](#)
- [How do I safely measure separation distances?](#)

Section 2

Keeping safe when working on Joint User Poles (LV)

- [Safe working position on a ladder](#)
- [FAQs when working on Joint user poles](#)
- [How close can I get to **LOW** voltage on a JUP from a ladder or MEWP](#)
- [BT wire/cable and high voltage power route separation distances](#)

Section 3

LOW voltage

- [How do I recognise **LOW** voltage?](#)
- [What are the separation distances between **LOW** voltage and BT cables?](#)

Section 4

HIGH Voltage

- [How do I recognise **HIGH** voltage?](#)
- [Safety standards when working within the vicinity of **HIGH** voltage.](#)

Section 5

Safe working around power for Mobile Elevating Work Platforms (MEWPs) or Pole Erection Units (PEUs)

- [MEWP / PEU working with **LV**](#)
- [MEWP/ PEU Working with **HV**](#)
- [What is the safe sector method?](#)

Section 6

What should I do in an emergency?

- [Energy company emergency contact numbers](#)
- [Useful links and change log](#)

A general guide to keeping safe when working with or near OH power

This guide is for engineers who encounter overhead power. This **doesn't** replace formal training. **First rule when working with overhead power: Fully understand what voltage you are dealing with. DON'T GUESS!**

If you aren't sure what voltage you are dealing with **DO NOT START WORK.** Contact someone, either your FMA/Coach/Manager, safety services (0800 077 8588) or refer to the listed ISIS documents.

Joint user poles refers to both BT **and** Distribution Network Operators (DNO) owned poles. The voltage on these pole should be **LOW voltage only. DO NOT** attempt to access any cables or BT line plant that's on a pole which carries **HIGH voltage** until you've permission to do so from the DNO and have contacted your manager. (See **Sect. 4** for HV safe working distances)

If you find any situation you consider unsafe or breaches current guidance concerning BT line plant and its proximity to overhead power you **must** raise an **A1024** either online or via the mobile app

Under the category **398 Safety: BT line plant in conflict or contact with EL** choose the relevant defect code:

536 – Contact with power LV **537 – Proximity to power LV**

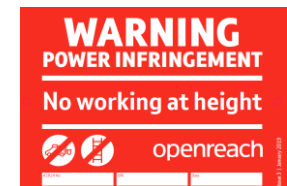
538 – Contact with power HV **539 – Proximity to power HV**

540 – Dropwires, cables or blocks directly on HV poles

The **REMEDY CODE** for all of these should be **309 – Survey required.**



As part of a project (April 19) to remove all telecoms lineplant from HV joint user poles you may see or be asked to attach a label like this direct onto a pole with HV. The label should be fixed around waist/shoulder height and is designed to alert Openreach engineers to the HV risk and remind them that no work is allowed. **If you are working on a service affecting task** – further it using QBF code **HAZ** and include the words **High voltage** in your notes



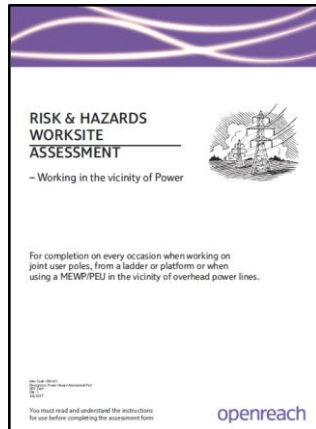
(i/c 092615) - pack of 10

A general guide to keeping safe when working with or near OH power

Remember 1:

You must complete the **RISK ASSESSMENT form** every time when working on Joint User Poles and **LV**, **EITHER** from a ladder or MEWP.

AND when using a MEWP/ PEU within 25m of **HV**

**Remember 2:**

A Ladder 7A (blue ladder) **MUST** be used on **ALL** Joint User Poles and occasions where there is a risk of contact with overhead power.

When working from a blue ladder you should always use your harness **AND** Lanyard These ladders have a rating of 1kv and will NOT offer protection against higher voltages

**Remember 3:**

Gloves IR Wherever there is a risk, however slight, of any contact between BT plant and power conductors, you **MUST** wear gloves IR. They **must** also be worn if you are using measuring rods, ropes or sash lines which may come into contact with power lines.

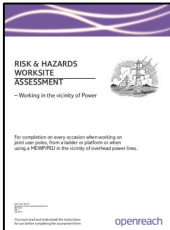
Did you know? They should be on your EYP **AND** checked visually for any signs of cracking and for any holes/splits by inflating them before use.



Blue ladder myth buster: It's a myth these can't be carried on top of vehicle as they might degrade in sunlight. **But** prolonged road vibration **will cause damage** and reduce the lifespan of the ladder. Minimise this risk by checking they're tightly secured and **always** check them thoroughly before you use them.

Section 1

How/when do I fill in the Risk and Hazards worksite assessment form?



i/c 061461

You need to fill in one of these **BEFORE** you start work **when working on a JUP or within 25m of HV**. Work through the form, ticking any control measures you've checked for or put in place. If you need to add other information, put your notes in the lower box.

This form helps you think about what hazards exist on your site and records what you've considered and put in place to keep yourself and others safe.

RISK - FALLING FROM HEIGHT FROM LADDER - CONTROLS		INCREASED RISK	
Safe Access	Secured	1:4	Wired focused on the task
Lined & Free from other ladders	Top & bottom		

SECTION 1 - To be completed before work commences on a joint user pole with **LV from an insulated ladder**
 SECTION 2 - To be completed **BY THE MEWP OPERATOR** before work commences on a joint user pole with LV from a MEWP
 SECTION 3 - To be completed **BY THE MEWP/PEU OPERATOR** before work commences for **ALL MEWP /PEU work within 25m of HV**
 Completed forms must be retained for a minimum of 6 months and be available for inspection

Section 1

Section 2

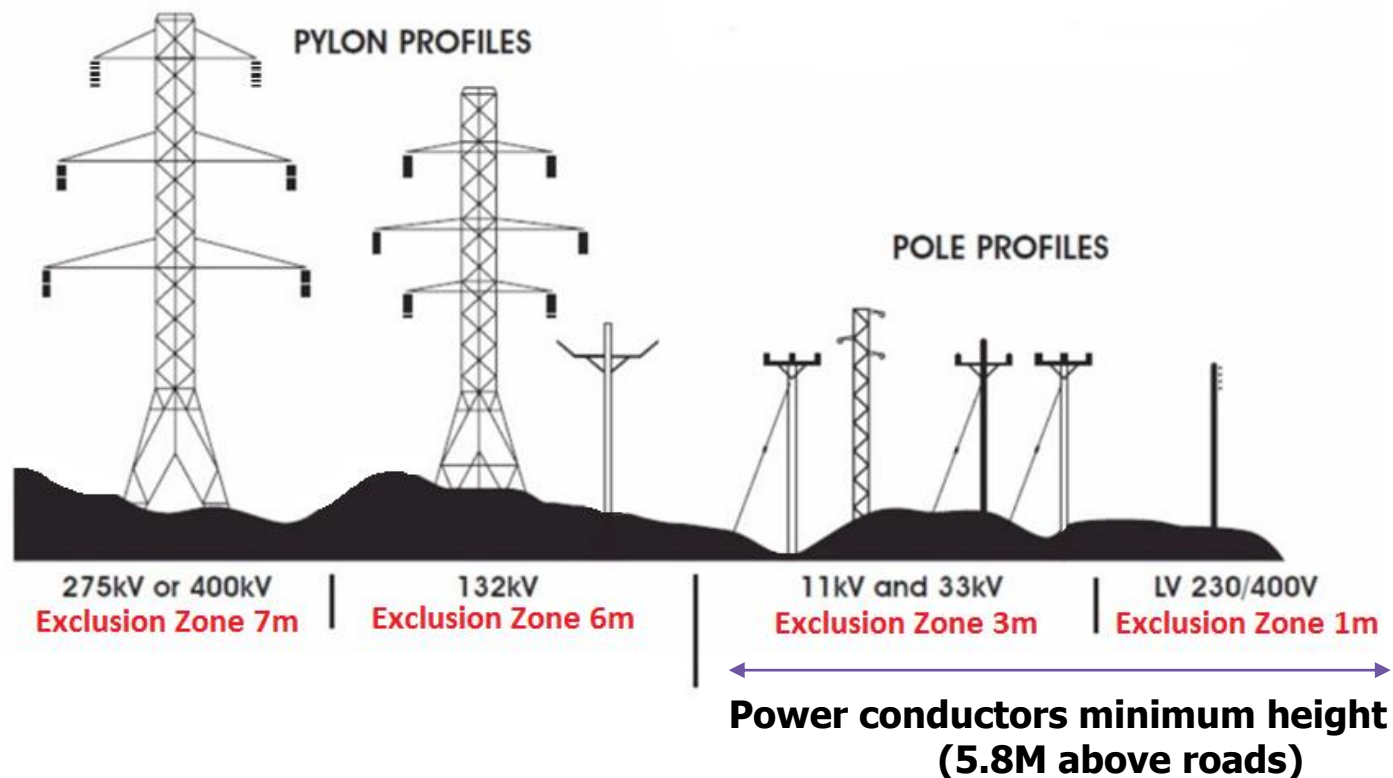
Section 3

Make sure you have latest version
- the ones with the blue & green background



How do I know what the voltage is on this pole or pylon?

These pictures show typical types of overhead lines and provides a guide to help you assess the line voltage of lines on steel pylons or wooden poles



Be aware that most network operators work on a **HV** distribution of **11 & 33kV** on wooden poles . However **Northern Power Grid** and **Western Power Distribution** use a **20 & 66kV** system.

How do I measure wire heights/separation distances on Low & High voltage?

Unless you know with absolute certainty that the power line is Low voltage, use an ultrasonic device

LOW voltage (less than 1,000 volts /1kV)

Rods Telescopic 7m (i/c 008874) or Rods Clearance Complete, (i/c 116121) can be used to get a direct height measurement of the conductors. To determine the clearance between a power line conductor and a BT wire or cable, measure the height above ground of each cable separately and take the difference.

[EPT/PPS/B046 Sect. 8](#)

Important: NEVER measure LV overhead power lines by this method when it is raining.



[EPT/OHP/C022 Sect.4](#)



Remember: When measuring LV always to use Gloves IR – They'll provide protection against contact with LV conductors.

(They **aren't** designed to protect against HV)



HIGH voltage (greater than 1,000 volts /1kV)

DON'T attempt to measure HIGH voltage with any type of rod or measuring tape.

The **ONLY** safe method is with an Ultrasonic measuring instrument (available by local purchase)



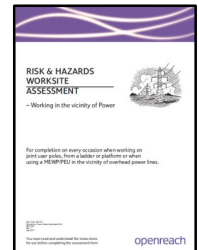
(Looks similar to this)

How do I keep safe when working on a Joint User pole (JUP)?

- Before you work on a JUP you must have had the relevant instruction, have the skill recorded and have been checked by your supervisor within the last 2 yrs
- Always have a second person present – this applies to both electricity company and BT owned poles (this needs to be an Openreach person and not a member of public or the property owner)
- Always use a ladder 7A (blue ladder)
- Think about the hazards – Use the **RISK & HAZARD WORKSITE ASSESSMENT** sheet to identify the hazards and record your control measures (i/c 061461)
- When your role is to act as a Ground Support Person (GSP), your responsibilities are:
 - To look out for hazards from the ground and warn the engineer working on the JUP or in the Mobile Elevating Work Platform (MEWP) of any danger.
 - To bring the MEWP to a low level in the event of an emergency.
 - To complete the handshake sign off.



As a GSP you **must not** leave site, work on another task or do any part of the active task.



Did you know:- That all new fixings to E/L poles require a licence before attachments are made and there's **no** exception to this rule.

IMPORTANT: Joint user poles refers to both BT and DNO owned poles. The voltage on these pole should be **LOW VOLTAGE ONLY**. **NEVER** attempt to access any BT cables or line plant that is on a pole which carries **HIGH VOLTAGE** until you've have permission to do so from the DNO and have contacted your manager.
(Section 4 covers safe working distances from HV)

How do I keep safe when working on a Joint User Pole – Pole labels

Part of your safety assessment when working on joint user poles is always inspecting the pole before you decide to work on it. Check you know your markings and labels. Here are a couple of things worth knowing:

There should be a 3m mark - Poles dated prior to 1958 cannot have their depth confirmed and must be treated as Defective for "Depth". Poles dated 1958 onwards have the 3 metre mark at the same point as BT supplied poles. If there's no 3m mark, YOU CANNOT work on it from a ladder. You can access it using a platform or scaffold.

Other labels – a quick guide:

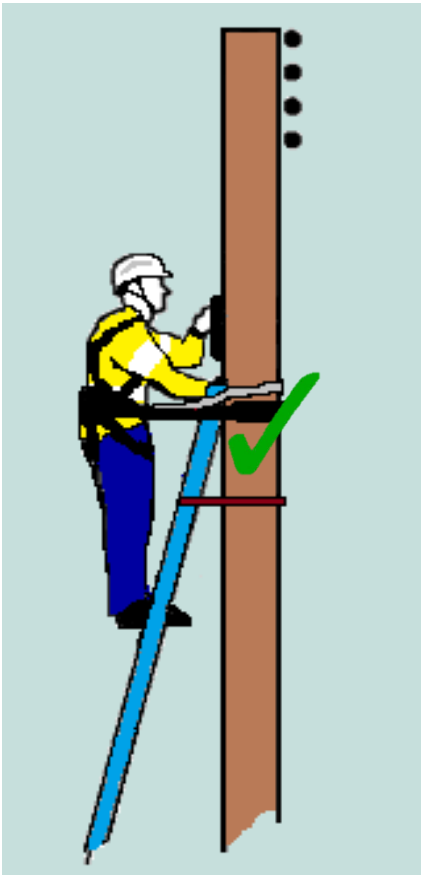
- J** Standard marking indicating there is a joint use agreement. It might also have a number by it, this number indicates the maximum number of dropwires permitted on this pole.
- C** If you see this it indicates that cables larger than dropwires are allowed.
- L** Indicates that work on this pole is limited – **YOU CANNOT** work on it from a ladder
- S** Some (but not all) suppliers use "S" to indicate "suspect". You should not attempt to access this pole until you have checked with the supplier.
- D** DNOs normally use a red coloured 'D' label similar to BT's but if you are in any doubt treat the pole as 'D' and report the problem to your manager.



Important: Not all suppliers use all of these labels. To keep safe **always** test the pole before you work on it and if in doubt, contact the supplier and find out more information on the markings.

Joint User poles – What's the safe working position when working from a ladder?

Your ladder position is really important and will improve your lateral stability if you get it right



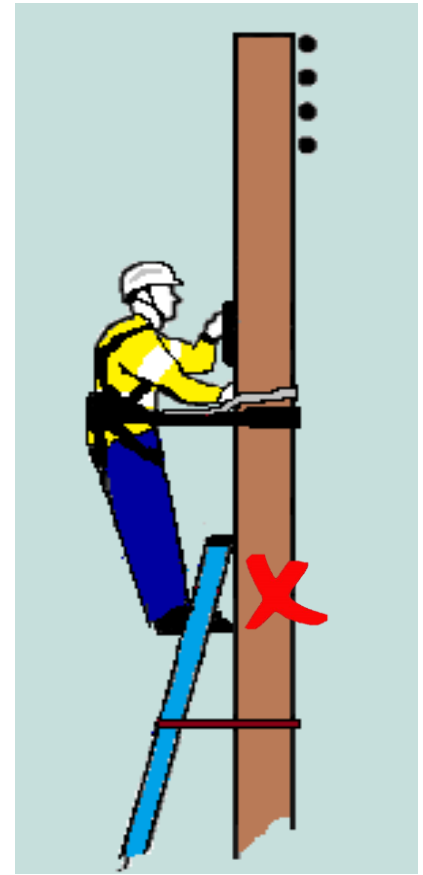
As a rule of thumb – See if you can get a hold of a rung from your working position – if you can, you've got it right



Why? – Because as you're working from a ladder your feet are closer together than they would be if they were on pole steps, so it's important to have an additional fixed structure to hold onto should you require it.

Here are a few reminders on how to stay safe and reduce your risk when on a JUP

- Test /inspect the JUP pole before you start work
- Always use a insulated ladder
- Always use your belt and lanyard *



* If you have been trained on Tetra system, follow the recommended process outlined on your training

How do I keep safe when working on a Joint User pole (JUP)?

Sometimes you'll come across joint user poles that have other wires/conductors coming down them. Always take time to study the position of these. Assume they are LIVE unless you can prove otherwise.

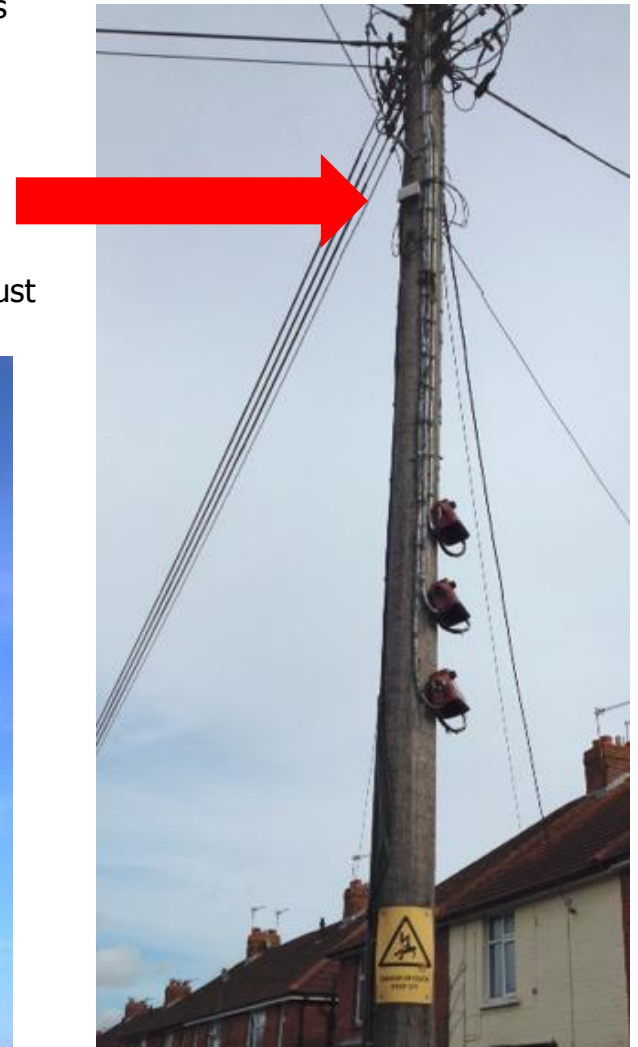
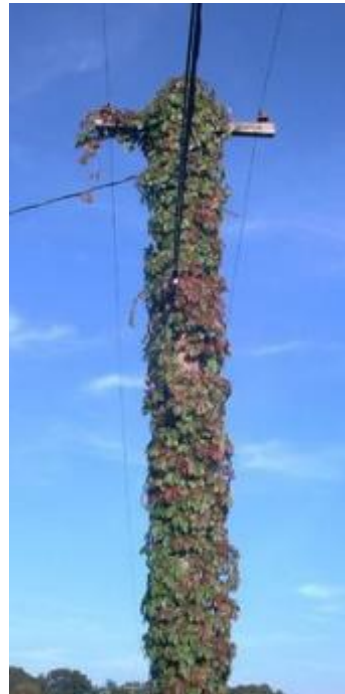
To keep safe **NEVER** put any part of your ladder 7A in a position where they may come to contact with these as you could cause a short circuit and power discharge.

If you are working on a JUP with power conductors that cross the road they must be checked and should not be below 5.8m

Be aware, foliage on JUPs can hide conductors **AND** conduct electricity. As part of your risk assessment you should get this removed so that you can determine if the JUP is safe to work on.

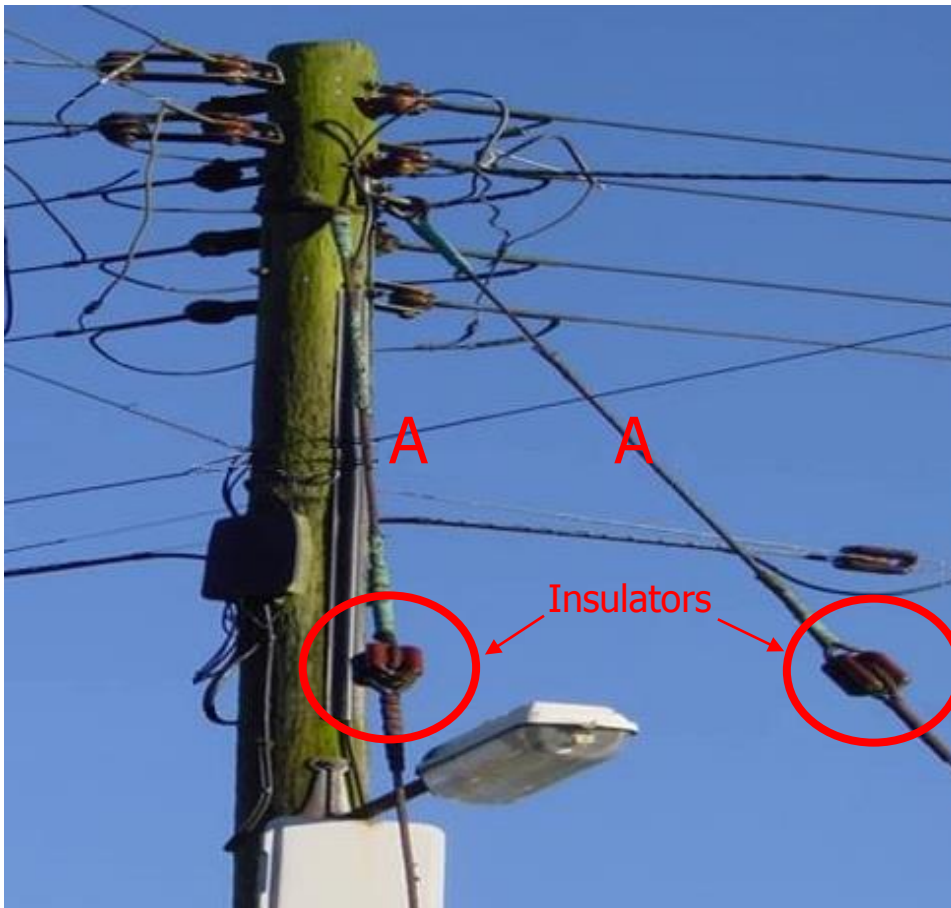
This can **only** be done by the DNO

Damage to a ladder 7a due to contact with power cables running down a JU pole.



How do I keep safe when working on a Joint User pole (JUP)?

Stay Wires –Stay wires are a common sight on electricity company owned joint user poles for safety reasons they come with insulator blocks usually positioned within 3ft of the top anchor point. The insulators on the stay wire prevent any electrical current that may be present under fault conditions being conducted to earth.



What this does mean is that **UNDER CERTAIN FAULT CONDITIONS** the section of stay wire above the insulator and the top anchor point (A) could become **LIVE**.

(You would have to be earthed to receive a shock)

As a precaution:

- Check that an insulator is present
- Give a the insulator a visual check for obvious signs of damage
- Position your ladder so that you can avoid any close/direct contact

You should maintain a safe working distance from this section of the stay wire of **500mm**.

See [EPT/PPS/B038](#)
sect 2.2 Joint user poles for more detail

How do I keep safe when working on overhead power or a JUP?

FAQs for overhead power and joint user poles.

Q Can I /should I attach a A1024 or other label to a JUP?

A **No.** However you can still report the defect on a A1024.

Q Can we use standard tools/equipment when working on a JUP?

A **Yes.** However under NO circumstances can aluminium ladders be used. You should always use a LADDER 7A (Blue ladder)

Q Can I climb a JUP in the hours of darkness using WITHOD?

A **No**, for your safety JUPs must **not** be climbed during the hours of darkness, or if there is low ambient light or thunderstorms.

Q Do I need to carry out my pre-climb checks on a JUP?

A **Yes, always.** You should refer to the risk assessment form for the hazards you may encounter (i/c 061461) – However you do not have to fix a pre-climb check label

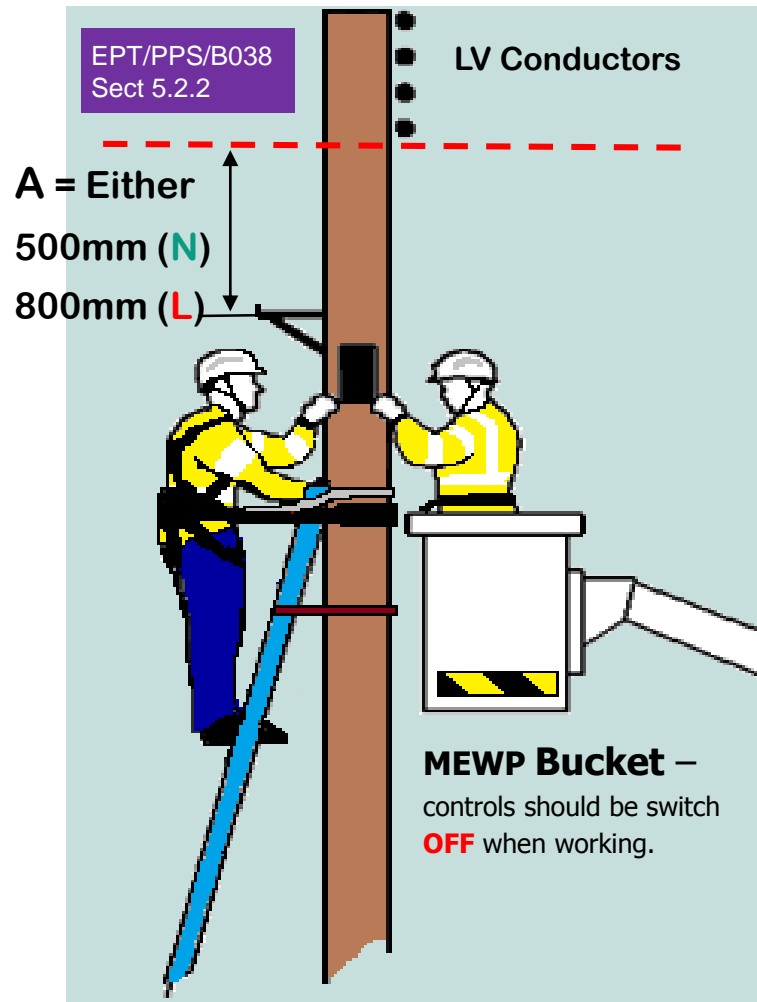
Q What should I do if I encounter powered non BT equipment on a pole? e.g. lighting, sound equipment, CCTV or low voltage domestic supply?

A Contact your manager who will need to e-mail the National Notice Handling Centre @ nnhc@openreach.co.uk with the details. They'll contact the site owner and give notice for the equipment to be removed.

[EPT/OHP/C032](#) - Working on Joint User Poles

Joint User poles - LOW VOLTAGE safe working distances from a ladder & MEWP

How close can I work safely from a LV conductor on a joint user pole?



A – BT plant must be either **500mm** from **NEUTRAL*** or **800mm** from **LIVE** conductor.* The **NEUTRAL** wire can be identified by the common drop off to each property.

The separating distances shown also apply when accessing overhead plant from a **bucket or ladder**.

You must not work on any line plant positioned closer than these distances

Keep your head and body below the lineplant at all times. (occasionally your hands may need to be a bit closer so you can carry out your work.)

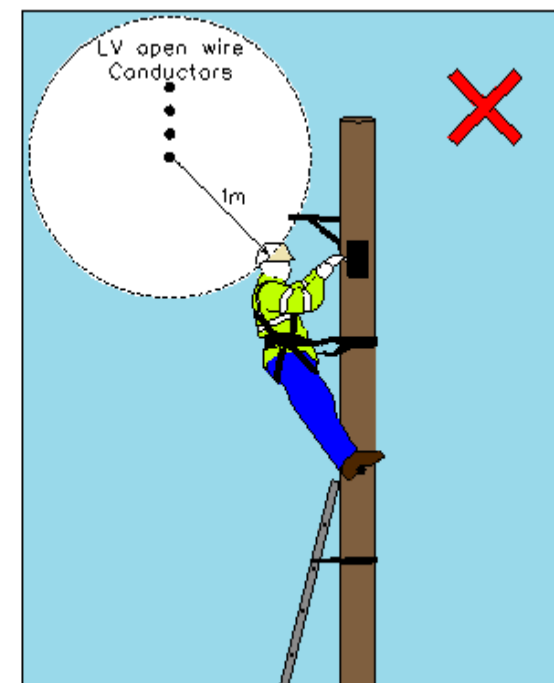
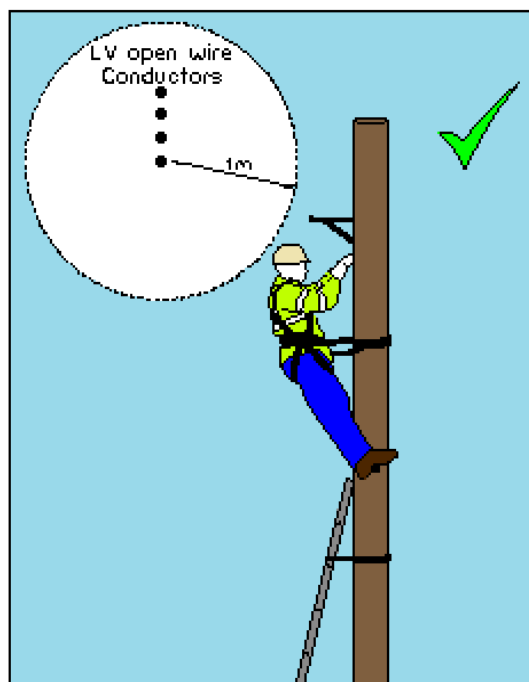
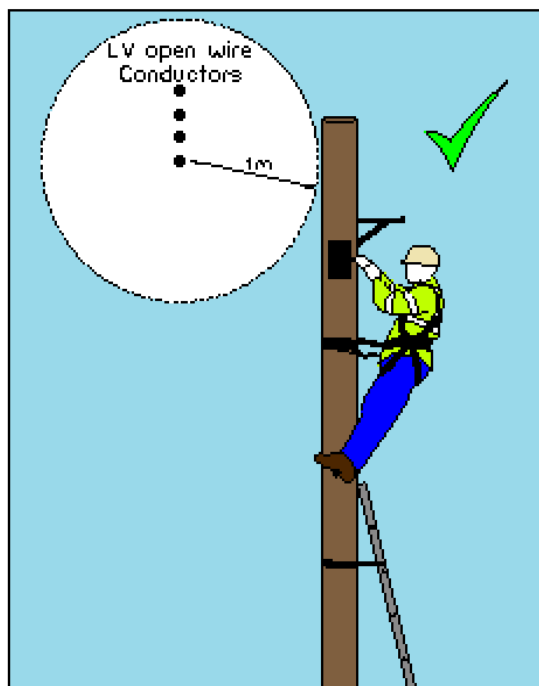
IMPORTANT NOTE - WHEN USING A MEWP

When manoeuvring or positioning the MEWP bucket it must never be closer than **1m** (in any plane) from any **LIVE** conductor/s

ALSO When you get the bucket to where you need to work, you **MUST** switch the bucket controls to **OFF**.

This stops you accidentally getting too close to the power (if you inadvertently knock or move the controls vertically or horizontally)

Maintaining correct working clearance from "single wire" LV conductors in mid span

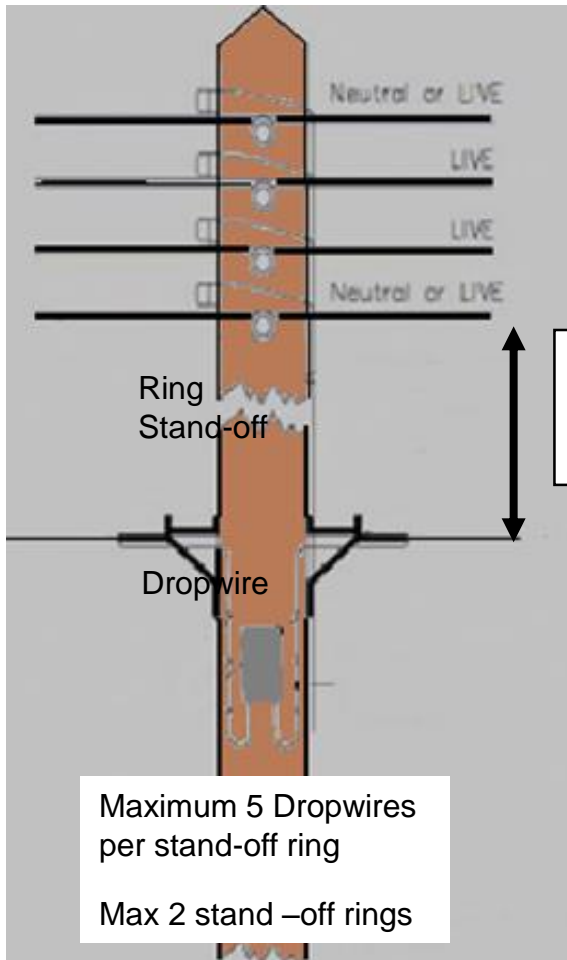


It's essential to maintain the minimum **1m clearance** from open wire LV conductors which are in mid-span, but passing close to a BT pole. As shown in the pictures, this may determine which side of the pole can be accessed.

Always measure the **1m** 'on the ground', do not use rods /rulers aloft to check the distance.

The 1m rules DOES NOT apply to ABC & Concentric Neutral cables in mid span.

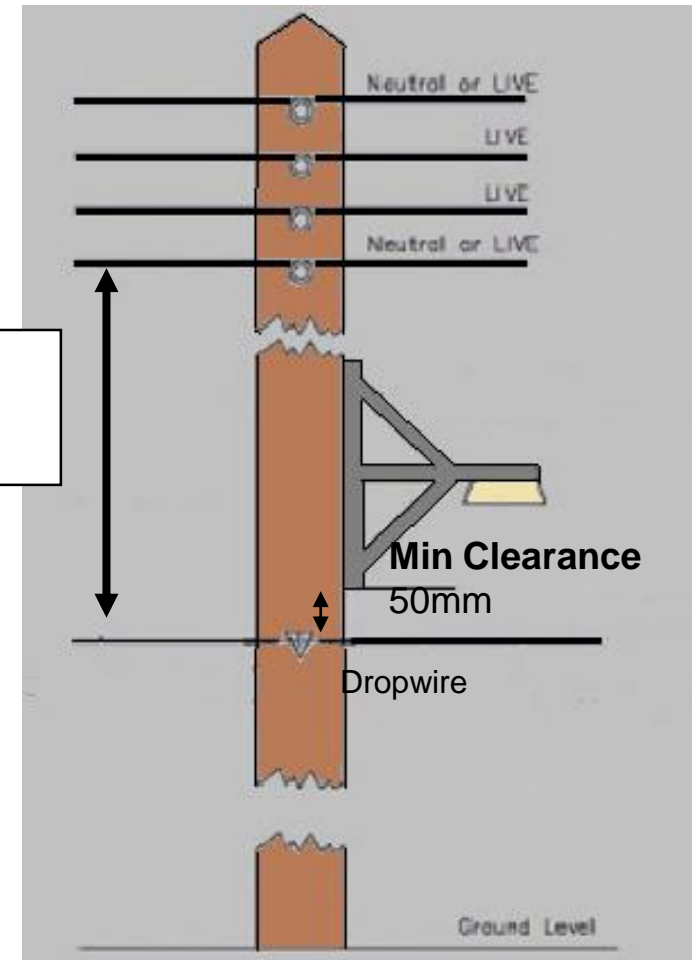
Joint User poles - LOW VOLTAGE and lighting cable separation distances



The **NEUTRAL** wire can be identified by the common drop off to each property

Minimum Clearance from:-
Live = 800mm
Neutral and ABC = 500mm

Lighting **MUST** be bonded to earth or neutral. **Note:** Visually inspect bonding strap.



LOW VOLTAGE - How do I recognise LOW voltage? (Less than 1,000 volts /1kV)

Low voltage lines come in 3 types:

Aerial Bundled Conductor (ABC) – classed as insulated, electric companies bundle their cables/wires together. As a rule these are '**LOW VOLTAGE**'

Concentric Neutral service cable - an insulated single service cable with the neutral concentrically bound around the phase conductor.

Single Wires – separate phase conductors and neutral. These must be assumed to be uninsulated irrespective of any covering which may be present.

**However you should
know that...**

At some sites around the country, **HIGH VOLTAGE ABC** has been identified.

These **SHOULD** have labels to that effect.

ALWAYS check for signage on the pole before you start work.

LOW VOLTAGE Aerial bundled conductors (ABC)



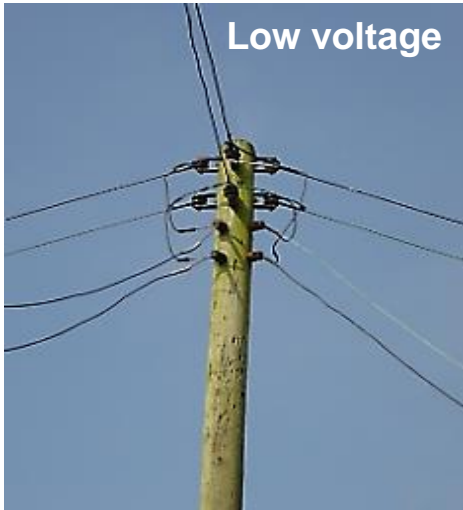
LOW VOLTAGE Concentric Neutral service cable



LOW VOLTAGE - single wires



How do I recognise **LOW** voltage? (LV - less than 1,000 volts /1kV)



- **LOW** voltage (LV) is **generally** mounted **VERTICALLY** on Electricity poles and has a voltage of less than 1000v A/C and 1500v D/C. (See exception images below)
- It is equally common to see single wires bundled together in a single black sheathing known as ABC (**A**erial **B**undled **C**onductor).
- Generally **LOW** voltage is seen going from pole to pole with individual feeds to houses/buildings.
- The **LOW** voltage insulators are usually smaller than HV and are 150mm (6 inches in diameter- around the same size as a i-phone) Can be ceramic or a grey composite polymer materials



Example of **LOW** voltage joint user pole sign "DANGER OF DEATH"



Example of 11kV insulator. Approx. 150mm in diameter (6 inches)



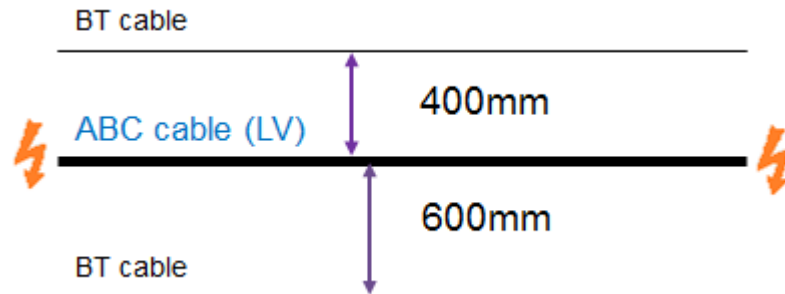
This is a **LOW** VOLTAGE JUP in a **HORIZONTAL** plane

LOW VOLTAGE - Non insulated power cables.
What are the minimum overhead separation distances?

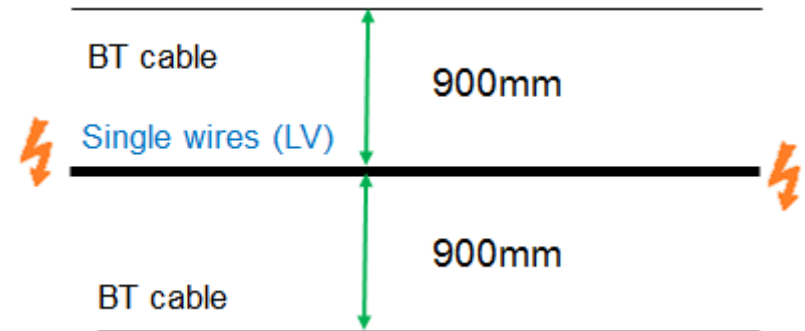
Can I put a dropwire or aerial cable above or below **LOW voltage?**

Yes you can, so long as you maintain the correct separation distances from the LIVE and NEUTRAL conductors.

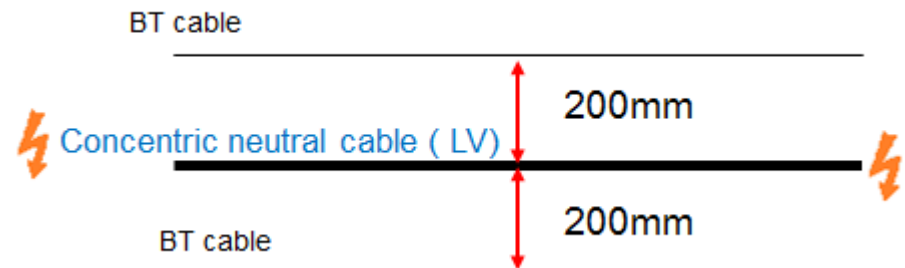
Where electricity and BT cables **CROSS** or run **IN PARALLEL** the minimum **IN SPAN** clearance is determined by **the type of cable** and whether the BT cable is run **ABOVE** or **BELOW**.



AN EXCEPTION TO THIS RULE - At crossing points which are close to the support points, (e.g. respective poles or house / building fixing points) where movement due to temperature is unlikely then the vertical clearance **can be reduced to 400mm**



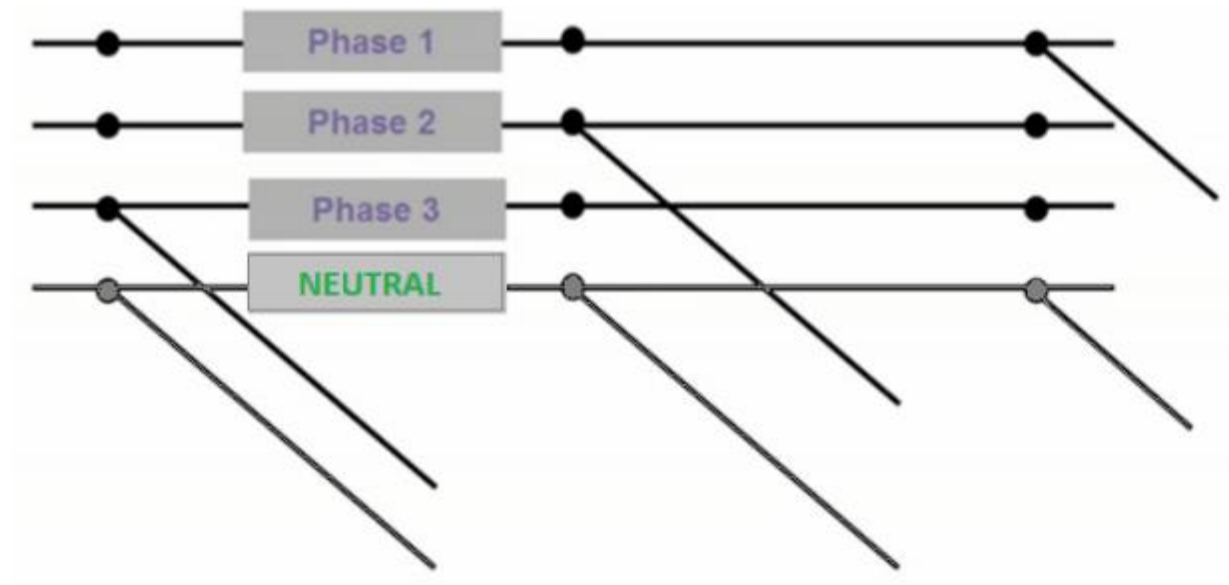
EPT/PPS/B026 Sect 10.D1.4 Code of practice



On **LOW** voltage how do I recognise the LIVE and NEUTRAL conductors?

On a vertical stack like this, look for the conductor that has a common drop-off to each property on the power route
– This is the **NEUTRAL**.

The **LIVE** will come individually from each of the phase wires.



NOTE: The **NEUTRAL** conductor can be on the **TOP OR** the **BOTTOM** of the stack.

To identify it correctly you should walk the route to establish which of the phase wires is the **NEUTRAL**

LOW Voltage – What are the separation distances on buildings?

Where BT cables and power lines **are attached to the same buildings**, then the minimum clearance between the points of attachment are as follows:-

Cable type	Clearance from BT cables
Concentric neutral service cable	200mm
ABC & Single wires service cables	600mm



Example of a concentric neutral service (a single cable) separation at attachment of 200mm.

The clearance for the cables cleated in **PARALLEL** along the wall is **50mm**.

If you have to bridge over an electric cable use a piece of **Protector Cable Abrasion PCA** (tree guard) over the BT cable with cleats 140mm apart and give 25mm clearance.



PCA comes in packs of 10 or 20 x 1m lengths and in five sizes for different cable diameters.
Dropwire / CAD55 PCA i/c 048987

Where power attachments are present at a customers premises the use of blue ladders 7A **isn't mandatory**, but you should consider the risk. The type of attachment, how close you are working to them, as well as the weather conditions may mean you decide to use them.

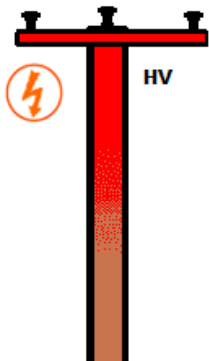
HIGH Voltage – the dangers

Information on the effects of HIGH voltage - Accidents involving **HIGH** voltages can result in severe injuries and death. When an electric current passes through the body, it generates heat and can extensively damage internal tissues and organs as well as produce serious burns. In some cases, the entry and exit wounds are so severe that a foot or hand may have to be amputated.



Step potential - If anything touches a **HIGH** voltage power line or if a power line falls to the ground, electricity will flow to the ground, energizing the tree or equipment and anything in contact with it. The surrounding ground may be extremely hazardous. The voltage **gradually** decreases from the point of contact until it reaches zero. This distance can be up to 10m (33ft) - or even greater depending on ground conditions.

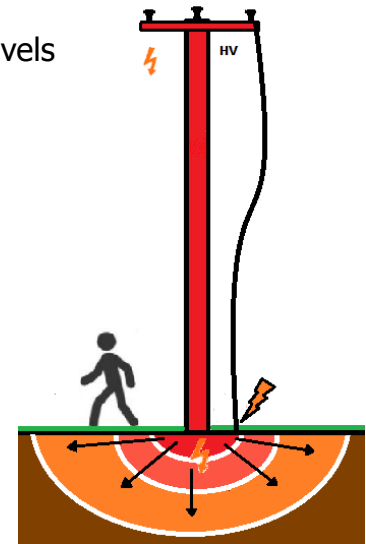
Leakage - Under some conditions, it's even possible for the wooden pole to conduct current several metres down the pole (known as leakage). The amount of leakage and distance it travels down the pole depends on the pole's moisture content, the voltage and the temperature. This could extend beyond any legacy BT wires or equipment on the HV pole. (see diagram)



Current Leakage

For these reasons YOU SHOULD NEVER WORK on HIGH voltage poles/ structures UNLESS the power has been switched off.

If you encounter existing legacy telecom wires or block terminals on HIGH VOLTAGE poles – NEVER access these unless the power has been switched off.



Step potential

How do I recognise **HIGH** voltage? (greater than 1,000 volts /1kV)

Typically **HIGH** voltage can be identified by SOME of the following characteristics:

- Horizontal, triangular configuration or large vertical formation.
- Steel Towers/pylons
- Longer spans over 45 metres.
- Anti climb devices (**these can also appear on LV**) It may seem obvious but you should never erect a ladder over the anti climb device.
- **DANGER HIGH VOLTAGE notices.** Not all - some have the same "Danger of death" label that appears on Low voltage poles.
- Large insulators /Glass dish type insulators (approx. 12 inches in diameter) – **BE AWARE** that on newer installations the insulators are grey and can be the same size for both 11 and 33kv.



IF you are in ANY doubt as to the voltage you are dealing with:

Before you start work speak with your manager / supervisor / planner or local power distributor and arrange to get the voltage verified from the utility prints.

Don't guess....

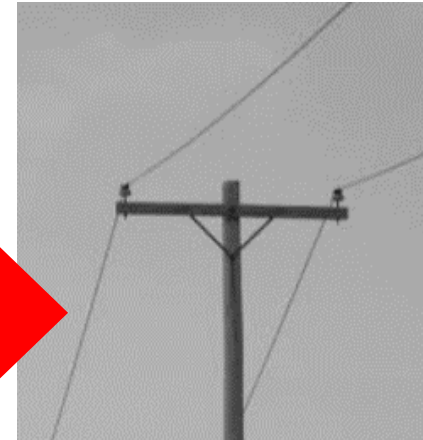


How do I recognise **HIGH** voltage? (greater than 1,000 volts /1kV)



33kV lines have large three shed insulators.

Note: Not all HV routes have three wires, some may just have two.



Example of 33kV **shed** insulator.
Approx. 300mm in diameter (12 inches)



Example of 33kV **tension** insulators.
Approx. 300mm in diameter (12 inches)

The 33kV insulator is generally much larger than the 11kV (colours may vary). On new installations, the insulators are made from a modern material and are grey in colour. **Note** In some cases they can be the same size for both LV and HV.

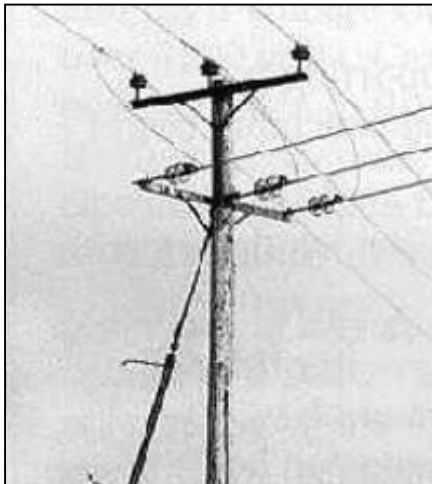
If you are in any doubt as to the voltage, you should check with the region power company. (details page 35)

How do I recognise **HIGH** voltage? (greater than 1,000 volts /1kV)

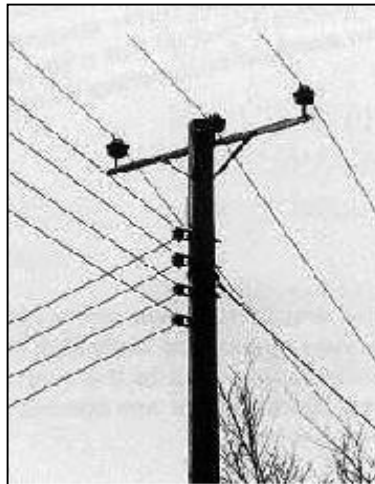
BE AWARE

Some poles may have BOTH - **HIGH VOLTAGE** 11kV 3 phase **AND LOW VOLTAGE**

If you find this, **ALWAYS** treat this as a **HIGH VOLTAGE** situation.



Tee-off pole, 3 phase 11kV
HIGH voltage line
NOTE – **HV** is now running
HORIZONTAL.



11kV **HIGH** voltage
AND
LOW voltage line.



33kV **HIGH** voltage
AND
LOW voltage line on the same pole

UNDER or OVER ? - Safety standards when working with **HIGH** voltage

Can I run metallic dropwires or aerial cable under or over HV?

	UNDER HV	OVER HV
11kV	✓*	X
20kV** & above	X	X
33kV & above	X	X

*Insulators are required on aerial cable.

[EPT/PPS/B023 Sect.3](#)

Electrified Railways

[EPT/PPS/B026 Sect.7](#)

Protection of Telecommunication
Lines from Power Lines

[EPT/PPS/B046 Sect. 4.3](#)

Crossing & proximities of BT lines
& HV power lines

**Western Power and Northern Power Grid use a 20kV and 66kV system – You cannot fly wires under or over these lines.

- You can use ADSS fibre cables (non metallic) under **HIGH** voltage, up to and including 33kV
- You must **NOT** fly wires under/over a **HIGH** voltage railway line, even if the wires cross on a bridge.
- You cannot attach any wires or cables to poles carrying **HIGH** voltage
- If you are working **within 25m of HIGH voltage** you must use the safe sector method.

**IF you're not sure of the voltage ... DO NOT GUESS ! or
assume its 11kV**



STOP WORK and find out the information

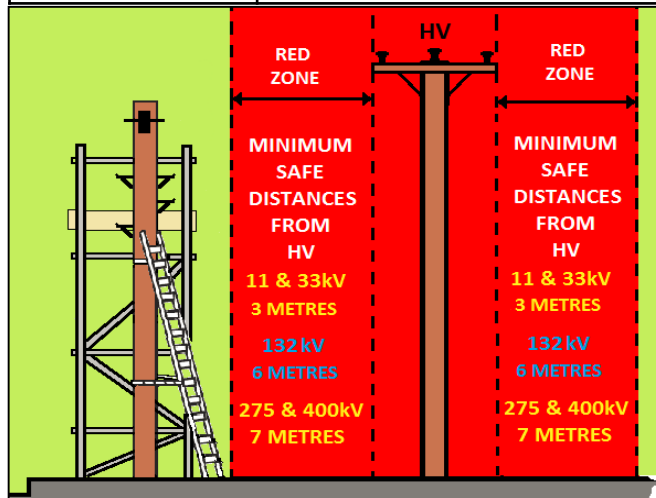


How far should I stay away from **HIGH** voltage?

If you're working on poles, or accessing BT line plant from a ladder or scaffold close to **HV**, the minimum **safe working distance** is shown below. **Important:** you **do not** take equipment or work in this zone.

If you **can't achieve the minimum safe working distance** from the HV, contact your manager and the safety team **before you start ANY work**.

HIGH VOLTAGE	MINIMUM safe working distance
11kV & 33 kV	3 metres
132 kV	6 metres
275 & 400 kV	7 metres

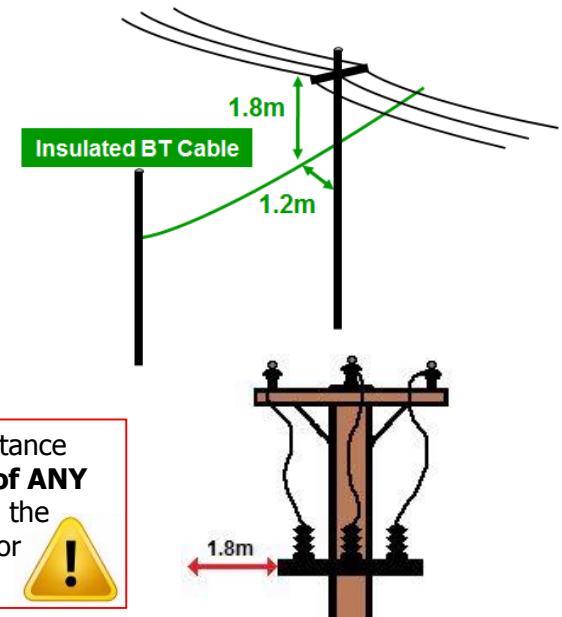


The diagram illustrates the minimum safe working distances from an HV pole. A ladder is shown on the left. The HV pole is in the center. Red zones on either side indicate the minimum safe distances from HV. The distances are: 11 & 33kV (3 METRES), 132kV (6 METRES), and 275 & 400kV (7 METRES).

BT LINE PLANT. Where BT O/H wires and cables cross **UNDER** an **HV** route (11kV or below only), the minimum separation distance between them and the **HIGH** Voltage are:

For further details see
ISIS [EPT/PPS/B026](#)
Sect. 7.A2.9 & 11

(Protection of Telecommunication Lines
from Power Lines)



The **1.8m** minimum separation distance also applies to the **outside edge of ANY live electrical** equipment sited on the DNO pole – i.e. air brake switches or transformers.

IMPORTANT: NEVER attach wires or cables to **HV** poles. If you find, or need to work on, existing BT line plant on **HV** poles, contact your manager AND the Openreach safety team who will advise on a safe system of work.

See ISIS [SFY/HSB/D043](#)

How far should I stay away from **HIGH** voltage?

New ADSS fibre cables are now approved for use under High Voltage Power, up to and including 33kV - Subject to the following conditions:

- **ADSS fibre cables ONLY** are permitted under voltages >11kV – there should be no metallic cables! *(this includes types which have metallic support wires)*
- **Min safe clearances must be met**
- **Yellow Warning Labels (i/c 093534)** must be provided on the two poles either side of the crossing.

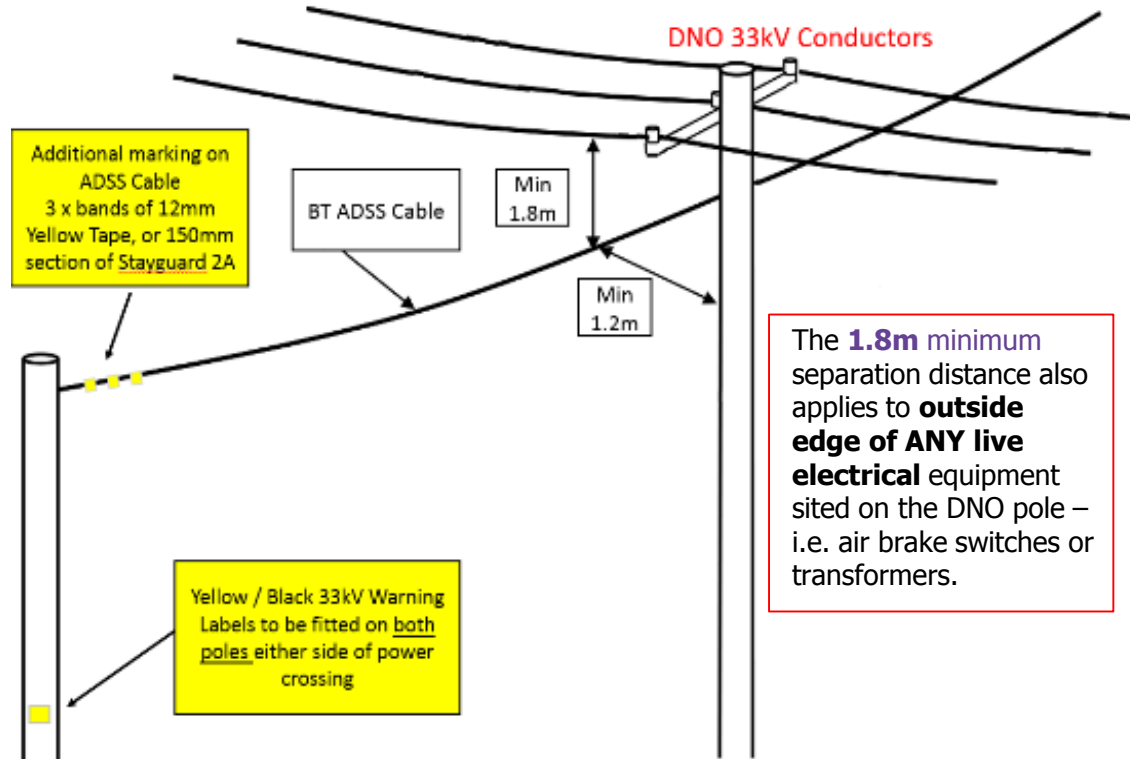
The ADSS cable should also be marked just beyond the Clamp position, using either a 150mm piece of Stay Guard 2A (i/c 016321) or 3 bands of Tape Plastic Adhesive Yellow (i/c 071298)

Joint / CBT Positions may not be located any closer than the second pole back, either side of the crossing

Caution!

33kV Power Crossing
Only ADSS Type cable to be used
No metallic cables permitted

For full details of the cable types see
[AEI/AEC/B301 - New ADSS and UG Cable Installation Guidance](#)



Keeping safe when working in the vicinity of power from a MEWP/PEU

Before you start work:

Be confident that you know the difference between **LOW** voltage and **HIGH** voltage.

Understand the difference in safe working practices between **LOW** and **HIGH** voltage

- Understand the safe sector method.
- Know how to measure the separation distances.
- Have a Risk Assessment form and fill it in
- Have all of the safety equipment that you may need – gloves IR, sash lines, measuring rods, spray paint, cones etc.

Remember only **LV** can be measured with rods. For **HV** the ultrasonic device is the **ONLY** safe method you can use.

Finally ask yourself **“Have I done enough to keep myself and others safe?”**

**If you do not know the answers to these questions, STOP work and seek further guidance.
Your life could just depend on it.**



FIRST AID - To adequately cover the potential for burns, PEU and hoist teams need to have access on site to, as a minimum:- One full dressing pack for each person on site (2 people 2 packs, 3 people 3 packs, etc.) this can be in the form of full first aid kits available via normal stores process.

To protect and reduce the possibility of increased skin damage in the event of burns and scalds a clean (un-opened) roll of Clingfilm (local purchase) or burns dressings should also be available.



MEWP in the vicinity of Power - **LOW** voltage

ALWAYS.....

- Be 100% confident that you know the voltage of the overhead power **BEFORE** you start work. **If you're not sure then check.**
- Complete the Ground Support Person (GSP) handshake sign off.
- Complete your risk assessment and record what you find on the RA pad. (JUPs)
- Be aware of the safe working distances and separation distances.
- Make sure you have, and can maintain, a communications link between you and the GSP.
- Be confident that the GSP is able to bring the bucket down in the event of an emergency.

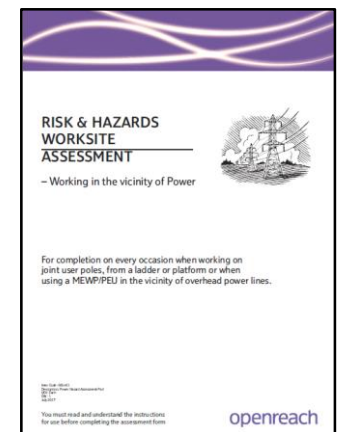


[SFY/ HSH/D039](#)

O/H Network using a MEWP

The GSP should not leave site whilst the MEWP is in operation.

The GSP should NEVER go up in the bucket.



RISK & HAZARDS
WORKSITE
ASSESSMENT

— Working in the vicinity of Power

For completion on every occasion when working on joint user poles, from a ladder or platform or when using a MEWP/PEU in the vicinity of overhead power lines.

You must read and understand the instructions for use before completing the assessment form.

openreach

MEWP in the vicinity of Power - **LOW** voltage

Is there a safe method for putting a wire **OVER** overhead low voltage?

Yes, there are two methods to first provide a sashline no2 over the low voltage power conductors.

You must be aware that this practice should be restricted to a number of nominated platform teams/operators within each patch. Line Managers / supervisors of those teams/operators must ensure that they go through the content of **ISIS EPT/OHP/B011** to ensure full understanding **before any work is carried out.**

There is a safe system of work for using either 1 or two MEWPs detailed in the ISIS [EPT/OHP/B011](#). Section 14.12

Both involve a sashline No2 being attached/through a plastic tube
([Stay Guard High Visibility i/c 013612](#))

(the ISIS also details how to safely recover wires that are above LV lines)

**NEVER attempt to throw a sashline
over power cables**



[EPT/OHP/B011 - Overhead Distribution](#)

MEWP/PEU working in the vicinity of power - **HIGH** voltage

You don't have to be working on HV poles to get an electric shock. Just working in the vicinity puts you at greater risk and you need to do something different to minimise this.

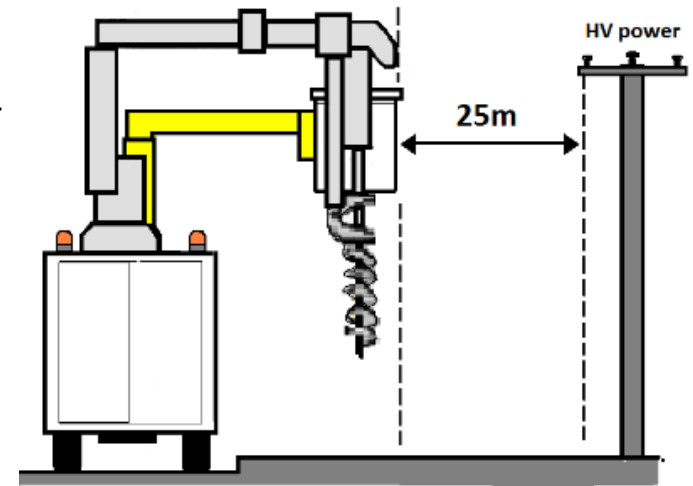
So how close is too close?

If **ANY PART** of the MEWP or PEU goes within **25m** of High voltage you need to employ the **SAFE SECTOR METHOD** and document your findings and actions on the Risk Assessment form.

Then, depending on the voltage you've identified, your assessment establishes your **MINIMUM safe working distance**.

Remember When operating a MEWP within 25 metres of overhead **HIGH VOLTAGE**:

TWO FULLY MEWP TRAINED operators **MUST** be in attendance.



Plant separation distance

It is important to note that the **plant separation distance** **IS NOT THE SAME** as the **safe working distance**.

The **plant separation distance** is the safe distance our poles can be installed when in the vicinity of overhead power and is **greater** than the **safe working distance**.

For full details on calculating the plant separation distance, refer to [EPT/PPS/B026 Appendix F](#)

MEWP/PEU working in the vicinity of Power - **HIGH** voltage

Question - What is the safe sector method?

It's simple, it's about identifying the minimum **safe working distance** from the **HV**, marking out a **RED ZONE**, and making sure you don't go into it.

- Step 1.** Decide the **RED ZONE** distance from the chart below - no part of the MEWP /PEU must enter this zone.
- Step 2.** Use cones or temporary spray paint to mark the **RED ZONE** so that it can be seen from above when you are working (*make sure if you use cones that you won't be confusing any traffic or pedestrians*)
- Step 3.** Use the **fully trained operator** acting as a GSP to make sure that you do not enter the **RED ZONE**.

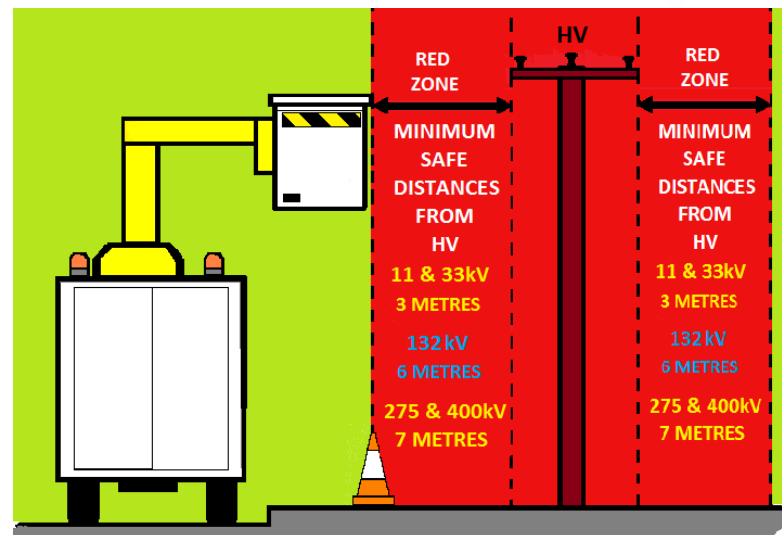
To mark out the **RED ZONE** use cones or **PAINT LINE MARKING TEMP. GREY** (i/c 087454)



HIGH VOLTAGE	MINIMUM safe working distance
11 & 33 kV	3 metres
132 kV	6 metres
275 & 400 kV	7 metres

IMPORTANT: NEVER attach wires or cables to **HV** poles. If you find, or need to work on, existing BT line plant on **HV** poles you should contact your manager **AND** the Openreach safety team who will advise on a safe system of work.

See ISIS SFY/HSB/D043



Think of the **RED ZONE** as a curtain going from the edge of the conductors to the ground.

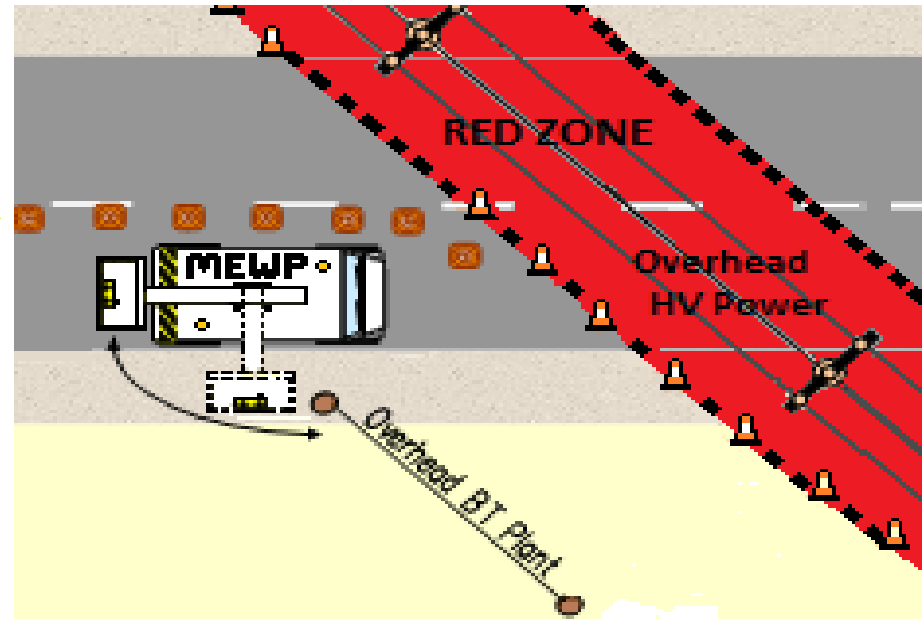
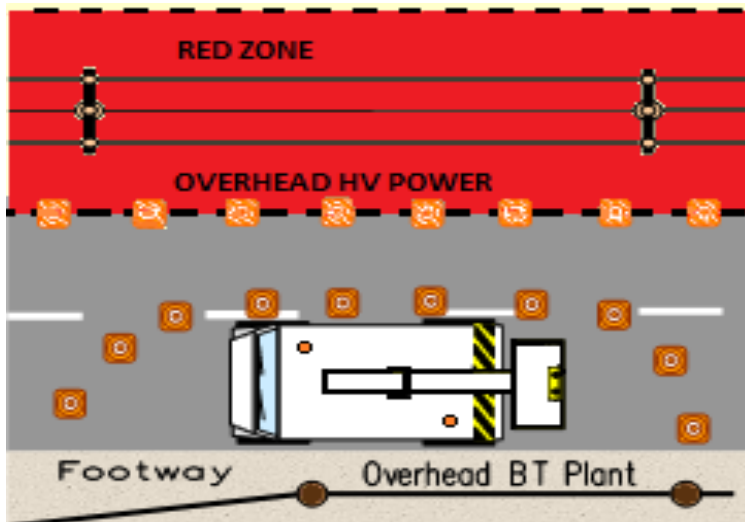
DON'T even park in this zone.

MEWP/PEU working in the vicinity of Power - **HIGH** voltage**Safe Sector method – Alternative layouts**

Ideally you should position your vehicle so that at full extension the MEWP boom cannot enter the RED zone.

If space is restricted, position your vehicle so that when you move the boom around to access BT line plant you do it **TOWARDS** the **RED ZONE** thereby avoiding any part of the boom encroaching into the marked out zone.

During the MEWP operation **NO PART OF THE BOOM** should ever enter the **RED ZONE**



Make sure you mark out the **RED ZONE** clearly with spray paint or cones so that you can see clearly the extent of the **RED ZONE** when you are working aloft.

THINK! If you're using cones in the road, advanced RWG is needed. Refer to **the Safety at street works & road works code of practice** for details.
<http://snip.bt.com/RWGCOP>

What should I do in if I encounter a direct overhead power contact ?

If you encounter wires that are in direct contact with live overhead **HIGH** voltage power **DO NOT WORK or TRY TO REMOVE THEM YOURSELF**. You must contact the electricity supply company immediately. (Dial 105) and take advice .

What if it there is a casualty resulting from a **HIGH** voltage contact?

You cannot do anything, even for a casualty, until the power is cut off - so call the emergency services and the electricity supply company.



What if it is a **LOW** Voltage contact?

If possible wait for the power to be turned off but if any BT wire threatens the public or traffic, and you wear Gloves IR, you can move the BT wires away or cut them back whichever is most practical. Stand on a dry insulating material, such as a rubber car mat if possible.

What if a casualty is in contact with **LOW** voltage?

Do not touch any wire or the casualty with bare hands, damp gloves or any damp article. Using Gloves IR or insulated tools while standing on insulation try to remove the live wire or using a stick, rope or article of clothing (they must be dry) and try to drag the cable or the person clear.

Distribution Network Operators emergency contact numbers

In November 2016 power companies introduced a new service. By simply dialling 105, it will put you through to your local network operator who can give you help and advice. Or you can go to the website below and enter your post code and it will show you all of the relevant contact details.

Area	Company	Contact Telephone Number
1 & 9	SSE Power Distribution	Central southern England 0800 072 7282 North Scotland 0800 300 999
2 & 6	SP Energy Networks	C & S Scotland 0800 092 9290 North West 0800 001 5400
4	Electricity North west	0800 195 4141
5	Northern Powergrid	NE England 0800 66 88 77 Yorks. & N Linc 0800 375 675
7	Western Power distribution	0800 678 3105 0800 096 3080
8	UK Power networks	0800 316 3105
	Energy Networks Association	http://www.energynetworks.org/info/faqs/electricity-distribution-map.html
ALL	JUST DIAL 105	www.powercut105.com



Where can I find more information on power?

<u>EPT/PPS/B046</u>	Work on overhead BT lines in the vicinity of power - Precautions against electrical accidents
<u>EPT/OHP/C032</u>	Working on Joint User Poles
<u>EPT/PPS/B026</u>	Code of Practice - Protection of Telecommunication Lines from Power Lines
<u>EPT/PPS/B023</u>	Electrified Railways - Electrical Guarding
<u>EPT/PPS/B038</u>	Joint User Poles - Technical Requirements for Attachment on Joint User Poles
<u>EPT/PPS/B037</u>	Joint User Poles – attachments
<u>SFY/ HSH/D039</u>	O/H Network using a Mobile Elevating Work Platform
<u>EPT/OAM/F070</u>	Non BT pole attachments
Health & Safety handbook	<u>http://snip.bt.com/HSHandbook</u>
0800 077 8588 or 0207 397 1487	Safety services via HR shared service
Web based training ORSAF023	Safe working at height – an update on overhead power – accessed via Learning Home

	CHANGES FROM VERSION 2.9 April 2018 onwards	Affects
V3.0	Added new page -advice on safe distance from stay wire on JUP	Sect 2 page 12
V3.0	Added advice to walk route to establish neutral conductor	Sect 3 page 20
V3.0	Added new page- danger of high voltage -leakage/ step potential	Sect 4 page 22
V3.0	Added advice not to erect ladder over anti-climb	Sect 4 page 23
V3.0	Added information that new materials of insulators and they may be the same size for HV & LV	Sect 4 page 24
V3.0	Added new pictures of insulators sheds	Sect 4 page 24
V3.0	Added hypa link to AEC on ADSS cable	Sect 4 page 28
V3.0	Added first aid requirement	Sect 5 page 29
V3.1	Added information on "no working at height" label & new process when working on HV JUP	Sect 1 page 3
V3.1	Amended wording gloves IR –no longer deemed to have a shelf life	Sect 1 page 4
V3.1	Replaced diagram to include height over road (removed question from FAQ section)	Sect 1 page 6
V3.1	Amended wording page 23 - DANGER HIGH VOLTAGE notices. To include – " <i>Not all - some have the same "Danger of death" label that appears on Low voltage poles</i> " also added picture of "danger of death" sign	Sect 4 page 23
V3.2	Updated Category Code error FROM 389 TO 398	Sect 1 page 3
V3.3	Remove the words with a PEU from opening line	Sect1 page 5
V3.4	Increase font size minimum clearance	Sect 1 page 6
V3.4	Re-word paragraph " Safe Sector method – Alternative layouts " Separate out high voltage and low voltage insulator types to pages 24 & 18	Sect 5 page 34
V3.5	Include information relating to 20kV and 66kV . Sect 1 page 6. Sect 4 page 26.	
V3.5	Include paragraph on plant separation distance , change of measurement lettering	Sect 5 page 32
V3.5	Change image (remove PEU)	Sect 5 page 33
V3.6	Added "Minimum of 1.8 m to any equipment on the pole" and amendment to image	Sect 4 page 27 /28
V3.6	Simplification of plant separation wording	Sect 5 page 28