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ISIS practice  
For BT People

EPT/OHP/C022

Issue 44, 06-Oct-2022  
Use until 06-Oct-2024

Published by Chief Engineers Office - Openreach

Privacy- None

# ***Poles - General Test and Examination***

# ***About this document ...***

## **Author**

The author of this document may be contacted at:

Wesley Grantham  
Fibre & DSL Detailed Solution Design Professional  
Openreach (BOI)  
Post Point BY2Grimsby Pyewipe TEC  
Estate Road No. 2  
South Humberside Ind Est  
Grimsby  
DN31 2TJ  
  
Telephone: +447736637011  
Fax:  
Email: wesley.grantham@openreach.co.uk

## **Content approval**

This is the Issue 44 of this document.  
The information contained in this document was approved on 06-Oct-2022  
by Anthony Stewart, Desk Engineer Co-ordinator

## Version History

Version No.	Date	Author	Comments
Issue 44	06-Oct-2022	Wesley Grantham	Referenced spiked railing covers in section 13, removed damage table in section 10.4 and referred to EPT/OHP/C025.
Issue 43	08-Aug-2022	Wesley Grantham	Changes to section 9.2.1 only
Issue 42	19-Jul-2022	Wesley Grantham	Changes to section 9.2.1 only
Issue 41	07-May-2020	Wesley Grantham	Author update and changes to section 9 Shallow Climable and 10.2 Gallows Poles/Struts/Stays and numerous minor changes and links to other documents.
Issue 40	03-Oct-2019	Martin Nottage	Author update no content change
Issue 39	06-Nov-2018	ISIS co-ordinator .	Sect.6 pre climb laminate updated
Issue 38	16-Jan-2018	ISIS co-ordinator .	Added hollow pole door replacement sec 12.1
Issue 37	16-Nov-2016	ISIS co-ordinator .	Changes to pre-climb check guidance (Section 6) , to include 1998 2i Poles
Issue 36	09-Feb-2016	ISIS co-ordinator .	Changes to pre-climb check guidance (Section 6) , and inclusion of new checklist/laminate
Issue 35	03-Mar-2015	Document Manager T	Document migrated onto new platform with no content change
Issue 35	23-Sep-2014	ISIS co-ordinator .	Section 14 updated with example photo pictures of 'H' Poles. AEC B218 content. (AT342)
Issue 34	10-Apr-2014	ISIS co-ordinator .	Addition of supplier type '5' & '6' poles to list of poles with restrictions
Issue Draft 33a	8-Apr-2014	ISIS co-ordinator .	Addition of type 5 & 6 poles

			to the list of restricted pole types.
Issue 33	2-Apr-2014	ISIS co-ordinator .	Section 6 pictorial flowchart updated (AT313)
Issue 32	4-Mar-2014	ISIS co-ordinator .	Section 3 amended to reflect new pole testing periodicity guidance
Issue 31	11-Feb-2014	ISIS co-ordinator .	Updated contact list for DNOs (Electric companies)
Issue 30	20-Jan-2014	ISIS co-ordinator .	Removal of training information around SC poles, as no longer available
Issue 29	10-Jan-2014	ISIS co-ordinator .	Inclusion of AEI/AEC/B116 - pre climb check label
Issue 28	2-Jan-2014	ISIS co-ordinator .	Section 5, solution to obscured 3metre marks and aluminium strips provided (283AT)
Issue 27	9-Apr-2013	Chief Engineer's Office Technical Documentation Team	Changes to pre-climb inspection -the years to check for previous tests is revised -Section 6 (flowchart)
Issue Draft 26a	22-Feb-2013	Chief Engineer's Office Technical Documentation Team	Revisions to applicable dates for pre-climb checks (flow chart) in Section 6
Issue 26	17-Feb-2012	Chief Engineer's Office Technical Documentation Team	Section 6 flowchart updated / text changes. Section 7 added. Copied into SFY/HSH/D040. Refer to DCC040/SH.
Issue 25	13-Feb-2012	Chief Engineer's Office Technical Documentation Team	ISIS links amendment only. All HSC/COP/A002 links updated to new ISIS - SFY/HSH/C008.
Issue 24	24-Jan-2012	Chief Engineer's Office Technical Documentation Team	Section 10 - AEC B025 incorporated - Written Risk Assessment Form (WRAF). DCC1455/SH.
Issue 23	21-Sep-2011	Chief Engineer's Office Technical Documentation Team	Section 10 updated with clarification on two man working on JU poles (JP)
Issue 22	28-Mar-2011	Chief Engineer's Office Technical Documentation Team	Change to flowchart in Section 6. AEC B024 refers. SH/DCC.

Issue 21	21-Mar-2011	Chief Engineer's Office Technical Documentation Team	Document updated: Figure numbers and insertion of AEC B024 (See Section 6). DCC1181/SH refers.
Issue 20	24-Nov-2010	Chief Engineer's Office Technical Documentation Team	Section 5 inserted - Faded 3 Meter Markings. DCC1076/SH.
Issue 19	29-Oct-2010	Chief Engineer's Office Technical Documentation Team	Section 15 updated EM17/2010 refers. DCC916/SH.
Issue 18	18-Dec-2009	Chief Engineer AEI Technical Documentation team	Amendment to Isis title, secondary heading removed
Issue 17	4-Dec-2009	Chief Engineer AEI Technical Documentation team	Inclusion of repair process for Damaged poles section 16 DCC514
Issue 16	16-Mar-2009	Chief Engineer AEI Technical Documentation team	Updated contact list in section 4
Issue 15	3-Mar-2009	Chief Engineer AEI Technical Documentation team	Revision to Section 8
Issue 14	20-Feb-2009	Chief Engineer AEI Technical Documentation Team	Inclusion of ESM 35/2008
Issue 13	17-Dec-2008	Chief Engineer AEI Technical Documentation Team	References to ESMs removed
Issue 12	31-Oct-2008	Technical Capability	Inclusion of new classification Z poles
Issue 11	24-Oct-2008	Technical Capability	Inclusion of power wire height measuring by rods telescopic
Issue 10	12-Sep-2007	Paul Downes	Section 4 update
Issue 9	28-Jan-2007	Paul Downes	Section 7.2 re-numbered
Issue 8	24-Jan-2007	Paul Downes	Update to Section 7
Issue 7	4-Dec-2006	Paul Downes	Update to Section 4
Issue 6	23-Nov-2006	Paul Downes	Update to Section 8, inclusion of Ladder 7A application.
Issue 5	3-Jul-2006	John Pearson	Change of author and emergency contact details
Issue 4	14-Dec-2004	John Pearson	Change of contact No.s
Issue 3	15-Oct-2004	John Pearson	Update to sections 3 & 4. Sections 11 - 19 renumbered Change of author, minor changes

Issue 2	31-Oct-2003	John Pearson	Change of author, minor changes
Issue Draft 1a	29-Jul-2003	Nick Adams	inclusion of various memos
Issue 1	24-Jul-96	A Renshaw	edrs

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# 1 **Scope**

This document describes the method of carrying out the General Test and Examination on any pole to be climbed or worked on by BT people or any person authorised to climb or work on a pole by BT. It details the action to be taken when the test and examination indicates that a pole is in an unsatisfactory condition.

A summary chart for wood poles is given in Section 19 of this document, but this must only be used for reference with a full knowledge of this document and appropriate training.

# 2 **Application**

Since the condition of the pole may have deteriorated since the last Periodic Examination (see below) it is imperative that the General Test and Examination, as detailed in this document, be made before commencing any work on a pole or otherwise altering the loading on a pole.

It is the responsibility of every person, before starting any work on any pole or altering the loading on any pole, including poles not owned by BT, to ensure that the general test and examination has been carried out and that the pole is not in a dangerous or defective condition.

It is the responsibility of line management to ensure, that any person working on or altering the loading on any pole, has been trained to carry out the General Test and Examination as described in this document. Also, that they fully understand the action to be taken if a pole is found to be defective.

It is the responsibility of every person not to work on or climb a pole unless they are trained to carry out the General Test and Examination as described in this document. If you are asked to work on or climb a pole and you are not trained, you must inform your manager.

If any person feels that they are not reasonably sure in judging the soundness or condition of a pole by means of the General Test and Examination they must seek guidance and not take a chance.

You must not excavate unless you are trained and equipped to do so and all the requirements of safe digging have been observed. See ISIS SFY/HSH/D053 - Safe Digging and Location of Buried Services.

# 3 **Background**

All poles owned by BT are given a Periodic Examination by Pole Testers in accordance with the correct periodicity which is detailed in ISIS

EPT/OHP/C024. Poles believed to be obsolete or no longer required should have undergone a full periodic test and have a current Pole Test label attached. Poles for recovery should also have a recovery/reposition label attached.

Poles found to be unsatisfactory by a Pole Testers are marked with a letter 'D'. In the case of a wooden pole this takes the form of a red coloured aluminium label (50mm x 38mm) on which a letter D is embossed. Sheet steel poles and "Hollow" type poles are marked with a 75mm high letter D in red paint or stick on label. These markings are national markings and are also subject to agreements with other companies.

Wood poles considered to be satisfactory by a Pole Examiner are marked with a suitable label(s) that gives the date of the examination and the code number of the Pole Testers who carried it out.

*Note:* The only people authorised to attach 'D', 'H', 'C', 'Z', '558' or '559' labels to poles are pole testers.

Poles owned by other companies or authorities may be subject to a variety of inspections and test regimes. In ALL cases where work on these poles is to be carried out by BT, the General Test and Examination must be carried out as described in this document to ensure a safe working situation.

## 4 ***Checking & Measuring Dropwire & Aerial Cable Clearances***

### **Check Wire Heights**

It is essential, PRIOR to climbing or working on any pole, to measure the clearance of ALL wires and aerial cables attached to that pole, where they cross the carriageway.

The first action is to make a visual check to determine if the lowest point of the cable occurs at a point above the carriageway. If the lowest point is above the carriageway the engineer should take a height measurement at the edge of the road on the side where the wire is lowest. If still in doubt, take another measurement on the opposite side of the carriageway.

*Note:* **If this reading is 5.2m or above, then work may continue (subject to checks on other wires and other safety checks). PLEASE NOTE, in exceptional circumstances, a wire/cable may have lost its span tension resulting in a pronounced dip. In these instances the lowest point must be measured. ALSO NOTE - the check height of 5.2m is applicable to all carriageways.**

If this necessitates measuring from the carriageway this should only be attempted when the speed, visibility and the level of traffic permit. If it is not

possible to measure the wire height because it is unsafe, assume the wires to be low and refer the work to the Control.

**Note:** Wire heights must be checked even when the pole is to be accessed by a platform elevating or Mobile Elevating Work Platform (MEWP). This is because different risk assessments are used depending on wire heights.

A risk assessment has been completed for working from a platform elevating for low dropwires which includes working at the house end, and can be viewed [here](#)

After the completion of work, the height of the wire/cable worked on must be re-checked to ensure that it is at the relevant minimum height, (currently 5.9/5.6m for newly provided cables, and 5.5m for re-tensioned dropwires). If below standard, re-tension, re-fix, or report as appropriate.

**Joint User Poles** - Measure all BT wires on Joint User poles which cross the carriageway. Whilst it is highly unlikely, there may be low electricity wires which also cross the carriageway. The minimum installation height for electricity wires is 5.8m and they are installed at greater tensions than BT plant so they are unlikely to dip below BT wires or cables.

*If it is suspected that electricity wires MAY be low, in the first instance, make a visual comparison with BT wires that have been checked. Only measure the clearance of electricity wires if a visual comparison does not give a clear result. Measure (low voltage power lines only) using Rods Clearance Complete or Rods telescopic 7m (see below). Always wear Gloves IR when doing so.*

**Rods Clearance Complete** (IC 116121) may be used to obtain a direct height measurement of the conductors.

Rods Clearance Complete comprise of a set of 7 x 1 metre long GRP (Glass Reinforced Plastic) rods including one with a rubber cradle. As many rods as necessary are joined together and raised to touch the overhead cable, starting with the section with the rubber cradle. (See [Figure 1](#))

A 2 metre long folding rule, which is included in the set, is used to measure the gap between the bottom of the lower rod and the ground. The height of the cable can then be calculated by adding the rule measurement to the number of rod sections in use.

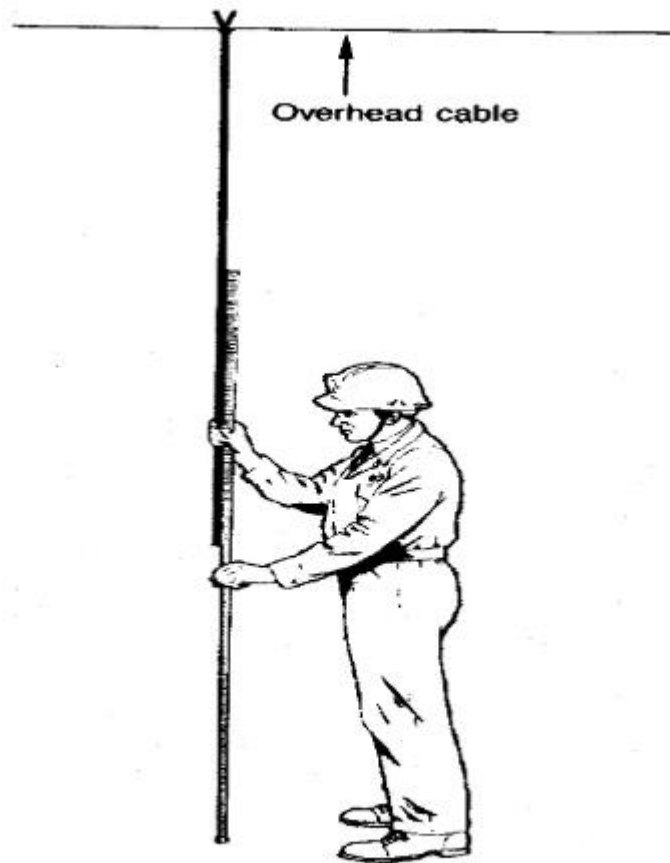


Figure 1- Rods Clearance Complete

*Note:* Gloves IR must be worn during this operation.

#### **Using Rods Telescopic 7m**

#### **DO NOT MEASURE LV LINES WHEN IT IS RAINING**

To measure the height of a Low Voltage Power line, proceed as follows:

1. From a position directly below the LV line, extend the Rod, from marking to marking making sure that the white ring marks on each section are showing, and keep passing it "to and fro" below the LV cable, as the rod is being raised, until it touches the cable.
2. It can now be determined that the height of the LV line, is between the marking on the rod, and the next lowest marking.
3. Now very slowly, lower the rod, until the tip can now pass under the LV line without touching.

4. Once this point is reached, measure, using a standard rule, or yardstick, the distance from the 'lower' marking ring height, to the top of the outer tube of the rod assembly (see Figure 2 below)
5. Add this figure to the 'lower' marking ring height, and this will give the height of the LV line, eg

Lower Ring marking	4.8m
Distance measured by tape	80 mm
Height of LV line	4.88m



Figure 2- Showing 4.8m + 80mm

The procedure can then be repeated for the Openreach wire, and the distance between the two wires can be determined.

Remember:

You MUST wear Gloves IR when using the Rods Telescopic 7M to measure LV power

The clearances given in the documentation are minimum figures; therefore ensure you are erring on the side of caution in your measurements.

If after measuring, a power cable is identified as low, ie below 5.2m, contact the relevant electricity supply company.

Please dial 105 from your mobile phone to be directed to your local DNO.

In all instances be prepared to quote the following information.

- Address of pole (give as much information as possible)
- Pole Number (if available)
- Defect

The Electricity Supply Company will then give out an incident number which must be recorded in the job notes field for audit trail purposes.

## **5 *Faded or obscured 3 Metre Markings***

There are many poles with worn or fading 3m marks, and many reasons why the 3m mark can become difficult to see. See pictures below.

When faded markings are encountered, Pole Testers can fit an aluminium strip to the pole to replace the marking. The top of the strip represents the 3m point, and is the point to which any measurement to check the planting depth should be made. The strip will also indicate that it is a BT pole and will be marked with either an 'L', 'M' or 'S' to indicate 'Light', 'Medium' or 'Stout' gauge respectively. This is required to check or plan pole loadings / dropwire count etc.

This solution of fitting the aluminium strip can also be used where the 3 metre mark is covered by pole capping or other pole mounted equipment.

### **5.1 Guidance for All Pole Climbers / Pre Climb Checks**

As part of the pre climb check, the top of the 3m mark should be measured from ground level, and unless marked C, any pole with a planting depth of less than 1.2m should not be climbed. Later poles will have a horizontal line gouged in the wood as part of the 3m mark, which represents the actual 3m point on the pole. On earlier poles, the top of the letters BT, PO or GPO represents the 3m point.

As an alternative to existing 3m mark, Pole Testers may affix an aluminium strip to the pole.

*Note:* Only Pole Testers may affix these strips.

For measurement purposes, measure to the top of the strip when checking the planting depth of the pole.

The strip indicates the position of the 3m mark and whether the pole is Light, Medium or Stout gauge. If further information is required, e.g. pole age or overall height, then it may be necessary to obtain the information from Artisan via your control, or your supervisor.

*Note:* If there is no strip fitted, then treat as any pole with no 3m mark.



Figure 3- Although still just visible, the 3m mark is becoming faded



Figure 4- Aluminium strip fitted to same pole at the 3m point





Figure 5- Aluminium strip close up, showing owner (BT) 3m mark and gauge 'L'



Figure 6- Aluminium strip close up, showing owner (BT), 3 Metre mark (3M), pole size and class (8L), year of preservation (2003), supplier (2) and finally the Depot (IS)

## 6 ***Checking the test history & supplier codes***

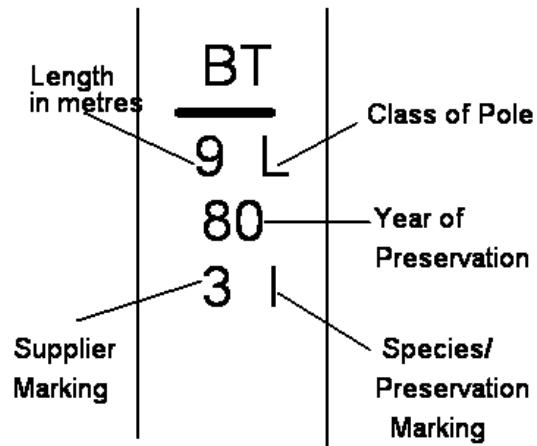
It is essential, PRIOR to climbing or working on any pole, to check for evidence of any previous pole inspections and to confirm that those inspections meet the criteria detailed below.

It is necessary to determine the following pieces of information:-

1. Check the age / date of the pole itself, i.e. year of preservation, by reference to the three metre mark. This is also known as birth or Dobie mark. See **Figure 7** below.
2. Check the depot (supplier marking) and species of the pole from the Dobie mark
3. Check for the existence of an A558 pole test label on the pole. See the example label in **Figure 8** below.

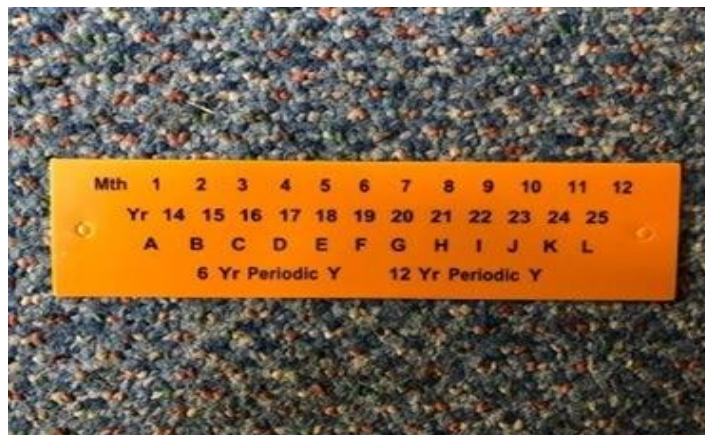


4. If an A558 label exists, check for the year of the last inspection.
5. Use the pre climb app to ensure the pole is not sterile



**Figure 7:** (Above) Detail of pole markings

Note that earlier poles might be marked PO or GPO, but the year is always as shown.



**Figure 8:** (Above) Example of a pole test label.

**Pole test cycles / labels:**

- Cycle **12** labels started 01.01.14 and will be used through to 31.12.25 and are coloured **Golden Yellow**
- Cycle **11** labels cover period 01.01.2003 – 31.12.2013 and are coloured **Sky Blue**
- Cycle **10** labels cover period 01.01.1997 – 31.12.2002 and are coloured **White**
- Cycle **9** labels cover period 01.01.1991 – 01.12.1996 and are coloured **Dark Green**

Red A558 labels are only fixed to D poles – these should also have a red D label.

D poles must not be climbed, and can only be worked on following the guidance in ISIS **EPT/OHP/C031**

The label is punched out to show the month and year of the last pole inspection. The letter codes on the bottom row identify the pole tester.

Using these three pieces of information, follow the guidance below to determine what actions are necessary.

*Note:* The guidance is also shown in the embedded PDF attachment, which can be printed and laminated as required.



PRE CLIMB CHECK  
November 2018 .pdf

If in doubt, do **NOT** climb.

Contact number for Pole Test Helpdesk 0330 1233304 - Option 1

## Poles - Pre-climb or Pre-Work checks

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What do I need to start the "PRE-CLIMB" or "PRE-WORK" check?

Here is your guide to completing the checks. You may use the decision table overleaf or the Pole Calculator – Recommended (Openreach iPhone tool box) to check if the pole is within test date



### Gathering the pole information

1. Locate the 3M mark or the owner ID  
Measure the depth to the line or on older poles the depth is measured to the top of the owners ID
2. Use the year of the pole = E.G. 2003 or 1950  
to calculate the AGE of the pole
3. Record the Species of the pole if it is provided  
For example "AC" or "Z" or "I" or "IS"
4. Record the Depot if provided



5. Locate the Pole Test label if present – poles 17 years old and under may not require a label.  
Use the date of the last test to calculate if the pole is within its test date or it is sterile.

### The Pole Test Labels (A558) and Identifying D Labels

*Top line* - Indicates the *Month* of the pole test. *Second Line* - Indicates the *Year* of the pole test.

*This example shows*

a test date of 5 (May), 2015

OR

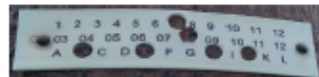
*This example shows*

a test date of 7 (July), 2008

OR

**RED labels – Denote 'D' or 'SD'**

**Poles - DO NOT CLIMB**



6. Using the iPhone calculator or decision table check if the pole is within test date before continuing

Poles are tested at different times and frequencies use the information taken from the pole and complete the MANDATORY PRE-CLIMB or PRE-WORK check to decide if the pole is, OK, D or STERILE

"D" or Defective - these poles are only accessible by a hoist following a Risk Assessment - see "Working on D poles" ISIS EPT/OHP/C031 summarised overleaf

**WARNING DO NOT CLIMB DEFECTIVE POLES**

STERILE poles do not have a current in date test record but will pass the physical checks of the PRE-CLIMB or PRE-WORK check

**WARNING STERILE POLES**  
Can only be accessed using a HOIST

You have doubts the pole has passed the PRE-CLIMB or PRE-WORK check or that the pole is within its test date

Unsure or you suspect the pole is unsafe  
**SEEK ADVICE but DO NOT CLIMB**

OK poles have a current in date test or do not yet require a label and will pass the PRE-CLIMB or PRE-WORK check

**OK the pole passes a PRE-CLIMB check**  
**CLIMBING is PERMITTED**

### Pre-climb Check Reminder

*Important checks you need to make before you start to climb or work on a pole.*

- Check the pole is within its periodic test date – steps 1 to 6 above
- Check wire/cable heights –for relevant clearances
- Pole depth
- Hammer test - A summary of the process is provided overleaf
- Pole damage, cuts & scuffs or excessive lean
- The vicinity of any power lines (Joint User Pole, LV or HV)
- Hazards that are within 1m or attachments that may restrict or impede climbing
- Always fix your pre-climb label between 75-100mm of the base of the pole before climbing
- Where a Hoist is to be used clearly mark 'Hoist' along with your details on the pre-climb label
- If decay suspected it must be investigated especially around the steps and at the top of the pole
- Don't forget to check steps visually and physically for any weakness or movement before you put weight on them

If you are in any doubt, **DO NOT CLIMB THE POLE** – For all the Pole Test issues or questions call - Pole Test Control 0330 1233304 Option 1 - or if you are working in Northern Ireland call 028 3833 3093

## The Pre-climb or Pre Work Check

Issued by Plant Safety November 2018

The Pole Climbing Traffic Light			
Using the Pole and Testing details follow the steps in order to determine how you are able to proceed - <b>For Joint User poles not owned by BT refer to EPT/OHP/C032</b>			
STEP 1	Poles marked 2i and dated 1998? If NO - go to Step 2 If YES - check the Pole Test label Has the pole been tested since Nov-2016?	YES	POLE TESTED SINCE Nov 2016 PROCEED WITH PRE-CLIMB CHECK
		NO	POLE TESTED BEFORE Nov 2016 The pole is sterile –can only be accessed with a HOIST
STEP 2	Any pole marked 4i or 5i or 6i? OR any poles dated 88 or 89? OR 1i Poles dated 90 to 96? Or any pole marked species AC or Z? If NO - go to Step 3 If YES -check Pole test label. Is the test within the last 6 years?	YES	POLE TEST DATE WITHIN 6 YEARS PROCEED WITH PRE-CLIMB CHECK
		NO	POLE TEST DATE over 6 YEARS The pole is sterile –can only be accessed with a HOIST
STEP 3	Is the pole 54 years old or over? If NO - go to Step 4 If YES, check Pole test label. Is the test within the last 6 years?	YES	POLE TEST DATE WITHIN 6 YEARS PROCEED WITH PRE-CLIMB CHECK
		NO	POLE TEST DATE over 6 YEARS The pole is sterile –can only be accessed with a HOIST
STEP 4	Is the pole aged 18 to 53 years old? If NO Proceed to S' 5 If YES, check Pole test label. Is the test within the last 12 years?	YES	POLE TEST DATE WITHIN 12 YEARS PROCEED WITH PRE-CLIMB CHECK
		NO	POLE TEST DATE over 12 YEARS The pole is sterile –can only be accessed with a HOIST
S' 5	Is the pole age less than 18 years? and NOT identified in Step 1 or 2	YES	PROCEED WITH PRE-CLIMB CHECK (A pole test label is not required)
All poles that are CLIMBED or WORKED on are required to PASS the PRE-CLIMB or PRE-WORK check. Any pole that is to be WORKED on including using a hoist is required to have a pre-work assessment and a MANDATORY hammer test as part of the pre-work for Sterile or D pole risk assessment.			
<b>Rules for working on BT D-poles EPT/OHP/C031</b>  <b>NEVER</b> - Access the pole from a ladder – (these poles can ONLY be accessed by MEWP, scaffold or access tower) - Start work in proximity to a D pole if you think it is in imminent danger of collapse. - Add or remove aerial cables. (Unless the pole is being renewed and has been supported by other means) - Replace/remove any cable that appears to be providing support to the pole.  <b>ALWAYS</b> - Carry out a full assessment of risk. - Be careful not to jar or strike the pole with a platform. - Refer to documentation or your line manager if you are unsure as to what action you can/cannot perform.  New dropwires may only be added to 'D' poles, provided they meet the criteria below:- <ul style="list-style-type: none"> <li>The pole is not classified as PIDOC (Pole in Imminent Danger of Collapse)</li> <li>The pole is not classified as a 'D' pole due to INTERNAL or EXTERNAL DECAY (see A75)</li> <li>The pole does not have an unbalanced load</li> <li>When added, additional wires do not exceed 75% of the maximum load of the pole</li> </ul>		<b>THE MANDATORY PRE-CLIMB HAMMER TEST</b> Pre-climb check – don't just rely on your visual check, you must ALWAYS do a hammer test. <b>Hammer Test</b> - Tap the pole lightly with a 1lb Hammer – the type of sound you get will indicate the condition of the pole around the point struck. <ul style="list-style-type: none"> <li>GOOD TIMBER gives you a sharp, metallic ring.</li> <li>INTERNAL OR SURFACE DECAY gives you a dull sound.</li> </ul> <b>Reference taps</b> – You should make reference taps 600 - 900mm up the pole to compare the response you get with those at ground level. <b>Prodding Test</b> - This test should only be applied to those parts of the pole where decay is visible, suspected or where your hammer test has indicated that external decay may be present. <b>To do the test</b> , prod the surface of the pole lightly with your probe. Wood in good condition will resist penetration and will grip the point of your probe.	

## **7            *Carrying out the pre-climb check***

### **7.1           Hammer Test**

Tap the pole lightly with a Hammer, Joiner's 1lb; the note obtained will indicate the condition of the pole around the point struck. Good timber gives a sharp, metallic ring whilst a decidedly hollow note is obtained when extensive internal decay is present; a dull or dead note indicates either slight internal decay or surface decay. The note obtained may not be particularly distinctive but a change in tone will be noticed as the hammer taps pass from good to decayed wood. Reference taps should be made 600mm to 900mm up the pole to compare the response with that at the ground line.

**Figure 9:** (Below)



**Figure 10:** (Below)



## 7.2 Prodding Test

This test should be applied to those parts of the pole where decay is visible, suspected or where the hammer test has indicated that external decay may be present. To carry out the test, prod the surface of the pole lightly with a Probe, Pole Testing. Wood in good condition will resist penetration and will grip the point of the probe, but decayed wood will offer little or no resistance to penetration and will not grip the point. Also decayed surface wood will be removed easily by light scraping. ('Lightly' means a firm push, adequate to push the point slightly into good wood. There is no need to stab at the pole or hammer the probe in.)

## 7.3 What the Test Finds

The General Test and Examination is designed to ensure that the pole is safe to work on or climb. This test is not to find small amounts of decay which will not impair the safety of the pole at the time of working on it. The test WILL enable you to spot a pole which is so seriously affected by decay or damage that there is a significant risk of failure of the pole if the loading is changed or the pole is climbed. Although wood poles last on average more than 40 years, decay can occasionally occur quite early in the life of a pole. Do not assume that because the pole is not old it will not be decayed.

**Caution:** DO NOT TAKE CHANCES - DO YOUR POLE TEST - IT IS FOR YOUR SAFETY.

# 8 ***Additional labelling requirement to verify pre-climb check***

## 8.1 Why is this required?

There is sufficient evidence to indicate that poles are being climbed despite having dangerous levels of decay that would readily have been found by a properly conducted Pre-Climb Check. This, in addition to anecdotal evidence, leads us to conclude that the critical Hammer / Probe Test is not completed in all cases.

As retrospective quality checks cannot clearly establish whether a Hammer / Probe Test was carried out, it is important to establish a process that provides confidence that the test is being conducted.

Openreach has a Safe System of Work in place to mitigate any risk associated with climbing its estate of over 3.6 million poles. A key element in



that Safe System of Work is the Pre-Climb Check, and in particular, the Hammer / Probe Test which forms part of that check.

### 8.1.1 Are we able to prove to ourselves and to the Enforcement

#### Agencies that the Pre-Climb Check is being carried out properly?

For most elements of the check it is possible to do this retrospectively. For example, you can check whether the pole is in test, whether the pole has a 'D' marking, whether there are low wires etc. What cannot be checked accurately is whether the Hammer / Probe Test was carried out. A properly executed Hammer / Probe Test will be able to identify a level of decay that would present a threat to a climber.

### 8.1.2 What does this mean to you?

**Note: THIS IS A MANDATORY INSTRUCTION:**

**Openreach:** When all elements of the Pre-Climb Check have been completed, the engineer will be required to write their **EIN** and date on the label with Pen Marker No.1, and fix it to the base of the pole with Pin Steel 2 or Pin Steel 2 1.1/8in. The label should be fixed 75mm above ground level and no higher than 100mm above ground level. **The label must be attached to the pole BEFORE climbing.** Refer to **Figure 11** below.

**Contractors:** When all elements of the Pre-Climb Check have been completed, the engineer will be required to write their **CSS ID** and date on the label with Pen Marker No.1, and fix it to the base of the pole with Pin Steel 2 or Pin Steel 2 1.1/8in. The label should be fixed 75mm above ground level and no higher than 100mm above ground level. **The label must be attached to the pole BEFORE climbing.** Refer to **Figure 11** below.

### 8.1.3 What is the Pre-Climb Check Label?

The label is a white plastic strip (100mm x 25mm) with two holes designed for gripping Pin Steel 2 or Pin Steel 2 1.1/8in to aid fixing. The label is a new product and is available to order as a stores item in packs of 50 (Item Code 068269 Label Pre-Climb Check).



**Warning:** THE LABEL IS FOR USE ON BT POLES ONLY. NOT TO BE USED ON DNO OWNED JOINT USER POLES

**Warning:** IF ANY ELEMENT OF THE PRE-CLIMB CHECK FAILS, FOLLOW THE NORMAL REPORTING PROCESS, DO NOT FIX THE PRE-CLIMB CHECK LABEL TO THE POLE

#### 8.1.4 Requirements for labels when accessing the pole by a MEWP (Hoist)

IF you are accessing the pole by MEWP, it is still necessary to carry out a pre-climb check and to fit a label. However to differentiate that the pole was accessed by MEWP, the word 'Hoist' must be clearly written on the label, along with your EIN and date.

#### 8.1.5 What should you do if a Label is already on the pole?

The label should be replaced by the next engineer to climb that pole and the same Pre-Climb Check procedure should be followed, ensuring that the old label and pins are removed.

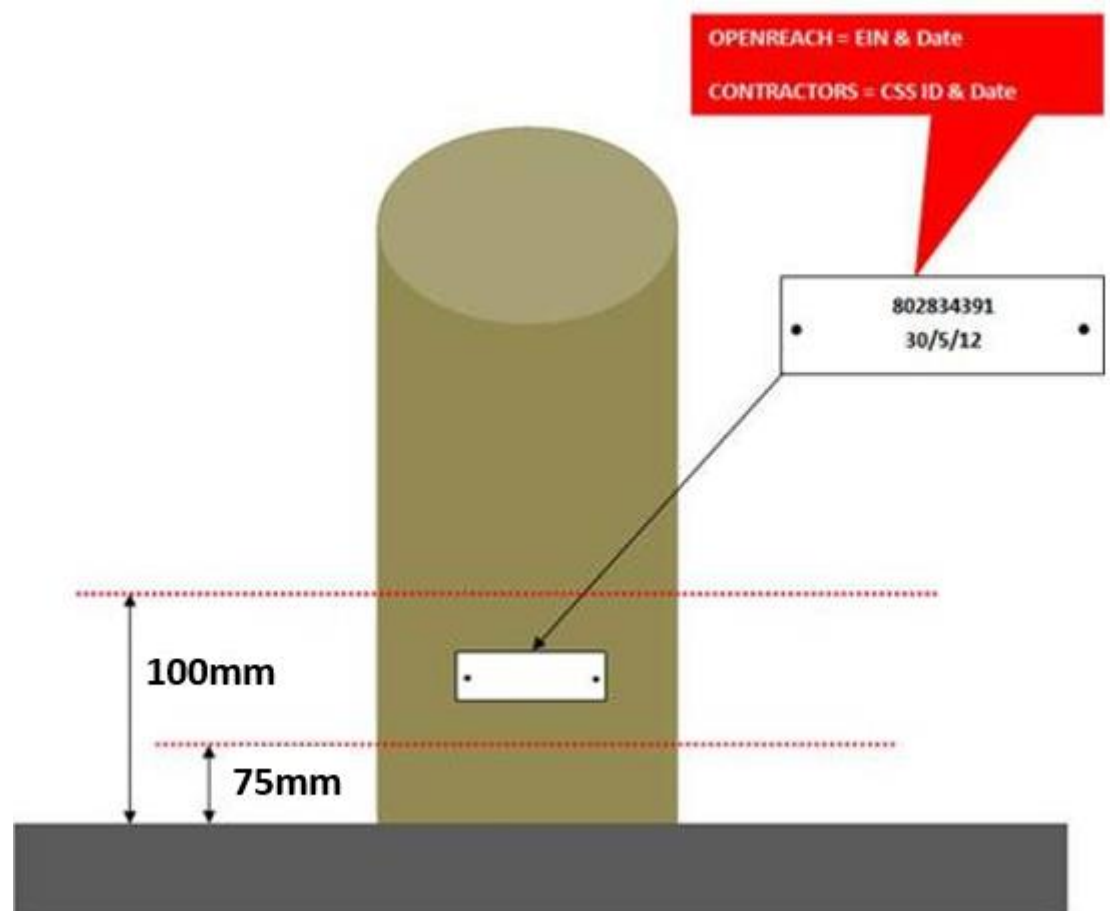
#### 8.1.6 How will this process be checked?

Anyone carrying out a follow up check would look for the presence of the Pre-Climb Check Label as evidence that a satisfactory Pre-Climb Check had been carried out.

#### 8.1.7 The items required for fixing the label are:

Item	Item Code
Label Pre-Climb Check	068269
Eye shield Goggle or Spectacle	BT21E3A or BT21E5A
Gloves Leather	BT21GL2

Pen Marker No.1	129408
Pin Steel 2 or Pin Steel 2 1.1/8 in	070864 or 070867
Hammer Joiners 1lb	114352
Pincers (to remove old label and pins)	115690



**Figure 11 (Above):** Fixing the Pre-Climb Check Label

### 8.1.8 Use of the Pole Safe App

You must use Pole Safe within the Provelt App to record the completion of the pre-climb check and the attachment of the pre climb label for successful checks.

## 9 ***Special Instructions for Shallow Climbable Poles***

Shallow Climbable or 'SC' poles are marked with a green 'C' label, similar in size to the existing Shallow Depth or 'SD' and 'D' labels. No further poles will be marked 'SD' and the SD classification will be phased out over a period of time. 'SD' poles are now labelled with a 'D' label.

All SC poles have been tested and subjected to a detailed risk assessment by fully qualified Pole Testers. They are safe to climb and work on, provided certain conditions are observed. This section describes the procedures to be followed when working on poles labelled 'C'.

Poles that are classified as 'SD' or 'D' where shallow-depth' have been found to be marginally shallow when tested, but have no physical defects. They are OK to remain in service and are not currently placed in the renewal programme. Access is via a MEWP or Scaffold only. These Poles cannot be climbed and work is carried out following the working on D pole rules.

### 9.1 **Labelling**

Poles can be marked with the following labels:

Label 'D' This is a square red label, approx. 40mm square, with an embossed 'D'. Poles with a 'D' label must not be climbed and will be replaced.



Figure 12: Sample 'D' Label

Label 'SD' This is a square red label, approx. 40mm square, with an embossed 'SD'. These poles must not be climbed but may remain in service. The SD category has been replaced and all shallow depth Poles are now labelled with a 'D'.

Label 'C' This is a square green label, approx. 40mm square, with an embossed 'C'. These poles can be climbed provided ALL of the guidance in this memo is followed. See Figure 13.

**Figure 13:** Sample 'C' label





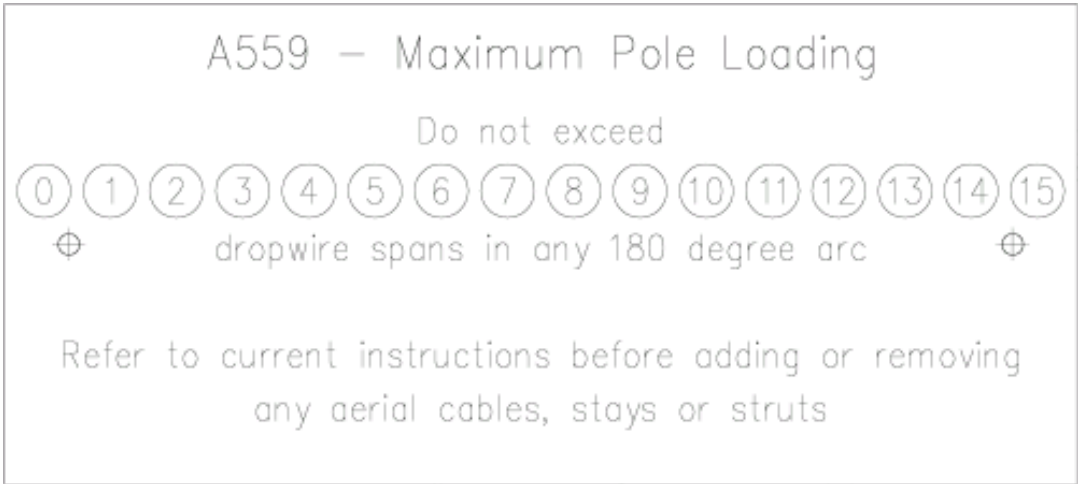
<p>Label 558G</p> 	<p>This is a label showing the year and month of the last inspection, and a 3 or more letter code to identify the Pole Tester. Poles last inspected in a previous cycle will have a different colour (not red), but showing the same information.</p>
<p>Label 558 Red</p> 	<p>Used on poles that have been inspected and marked 'D', contains the same information as label A558 but are coloured red.</p>
<p>Max Load Label (A559)</p>	<p>This is a rectangular white label which details the maximum number of dropwire spans that can be fitted to the pole in any 180 degree arc. It is only used on Shallow Climbable (SC) poles. The number is punched with a circular hole, in the same way as the Label 558. See figure 14.</p>

Figure 14: (Below) Sample A559 Maximum Load label



## 9.2 Method for wire counting to determine Dropwire Loading

All SC poles should have an A559 label fitted, as shown above. The label will have a number punched out, either 7 (light poles) or 15 (medium poles).

This number should be interpreted as the maximum **difference** between the fullest 180° arc, and the remaining 180° arc.

### 9.2.1 For Engineers wanting to add/remove dropwires

**ALL** dropwires are to be counted, using the following method.

Step 1:- Count all the dropwires in the fullest 180° arc. (A)

Step 2:- Count the remaining dropwires in the opposing 180° arc. (B)

Now subtract B from A and check this number does not exceed the number punched out on the A559 label.

See worked examples below.

**Example 1:** - Label has the number 15 punched out

Number of dropwires in fullest 180° arc = 18

Number of dropwires in remaining 180° = 6

The difference here is 12 – therefore the pole is safe to climb (providing it passes the pre-climb check) and dropwires can be added to this pole.

**Example 2:-** Label has the number 7 punched out.

Number of dropwires in fullest 180° arc = 13

Number of dropwires in remaining 180° = 7

The difference here is 6 – therefore the pole is safe to climb (providing it passes the pre-climb check) and dropwires can be added to this pole.

**Example 3:** Label has the number 7 punched out.

Number of dropwires in fullest 180° arc = 14

Number of dropwires in remaining 180° = 5

The difference here is 9 – the pole now becomes unsafe to climb and would need a pole tester to re-test and make the pole D (depth). Work can still be done up the pole but only by using a MEWP. However, dropwires may be added into the lesser arc. See example below:

2 new dropwires are to be added in the remaining 180°, which would change the difference to 7 (14-7). Remember a MEWP is needed to do this until the difference is brought in to line with the A559 limit. No request test would be needed after completing this work.

Please see Figure 15 below.

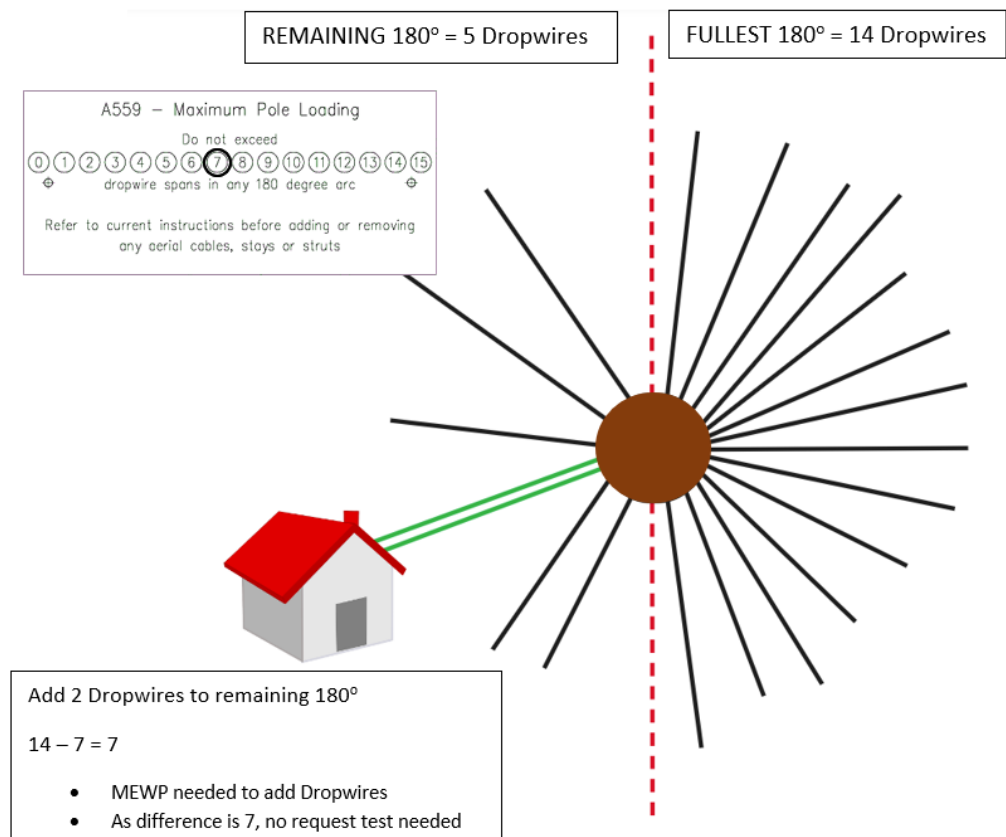


Figure 15- Addition of dropwires in lesser arc.

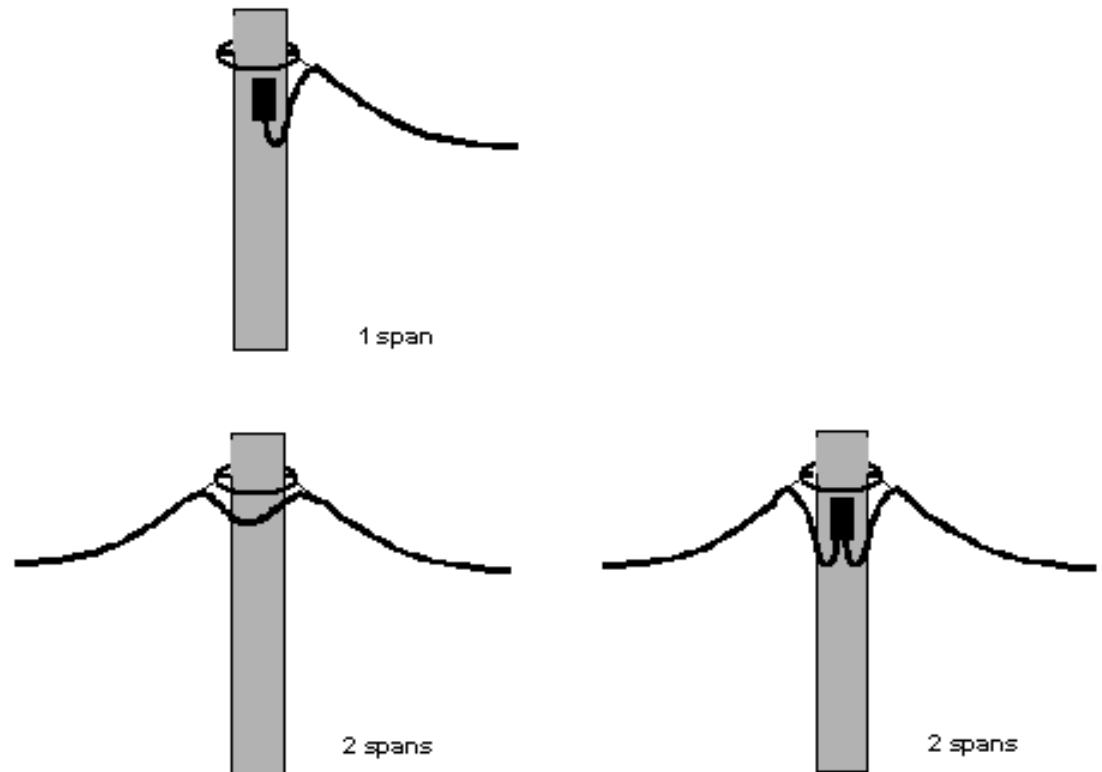
In all cases you must count all of the dropwire spans. An unbroken dropwire entering and leaving a pole, counts as two spans, even though it is one continuous length of dropwire. Figure 16 illustrates this.

For the purposes of dropwire loading, CAD55M, Dropwire 15, SST and ULW fibre cables should be considered as dropwires, not aerial cable.

Where the proposed work involves adding dropwires to the fullest 180° arc, which is likely to take the Dropwire count above the limit shown on the A559,

or the Dropwire count has already exceeded the limit, the installation must be completed using a MEWP. A Pole Test Request (for reassessment of the pole) must also be raised immediately after the installation of the cable. This will in most cases result in the Pole being made 'D' for depth.

**Figure 16:** Counting dropwire spans on a pole



### 9.2.2 Climbing Limitations

On Shallow Climbable poles:

- Do not climb if there is a Severe Weather Warning in force in the area
- Do not allow more than one climber on the pole at any time
- Always count the **difference** between the fullest 180° arc, and the remaining 180° arc and compare this to the A559 label. If the difference exceeds the number 'punched out' on the A559 label, the pole cannot be climbed and a request test (via the Pole Test control) would be needed. A MEWP must be used to access the pole. No dropwires can be added to the fullest 180° arc but can be added to the opposing arc to bring into line the A559 limit. A

request test can be done after the provision/fault; subject to whether the limit has been exceeded after the work.

## 9.3 Pre-Climb Checking of SC Poles

All poles - including SC poles - must be checked prior to climbing. The existing pre-climb check is detailed in Health and Safety Handbook SFY/HSB/D040.

The only variance in the check is with regard to the 3m mark. A SC pole will have a 3m mark between 1.8m and 2.05m (2.08m for imperial poles) above ground. It is essential to check that the 3m mark is between these limits.

### 9.3.1 Additional Checks

In addition to the standard pre-climb checks, the following extra checks must be performed on SC poles:

- Pole lean - if you judge the pole lean to be greater than 10 degrees, or are concerned that the lean is deteriorating, do not climb the pole. You should seek a request test.
- Cable icing - do not climb the pole if there is appreciable icing on the cables or dropwires.
- Weather conditions - do not climb the pole if there is a Severe Weather Warning in the area.

## 9.4 Work which is not permitted

Certain activities must not be performed on Shallow Climbable poles when a climber is on the pole.

### **With a climber on the pole:**

- Do not fit any additional aerial cables\*
- Do not change an existing aerial cable\* by altering the configuration, direction or layout of the cable
- Do not remove any stay wires, even momentarily

*Note: \*This does not include CAD55M, Dropwire 15, ULW and SST Fibre cables which should be considered dropwires for this purpose.*

*All such work must be planned in conjunction with a Network Planner. If such work is required on a SC pole, access to the pole must only be from a Platform Elevating or other approved method eg scaffolding.*

*When the work is performed, a Pole Tester must re-run the Risk Assessment incorporating the details of any new aerial cable and the other circumstances of the pole. The pole will be re-classified as appropriate. Any Planning*



*activity for additional aerial cables should include a site visit with a Pole Tester to ensure the pole is capable of the extra loading.*

## **9.5 Work which is permitted**

It is permitted to carry out the following activities with a climber on the pole:

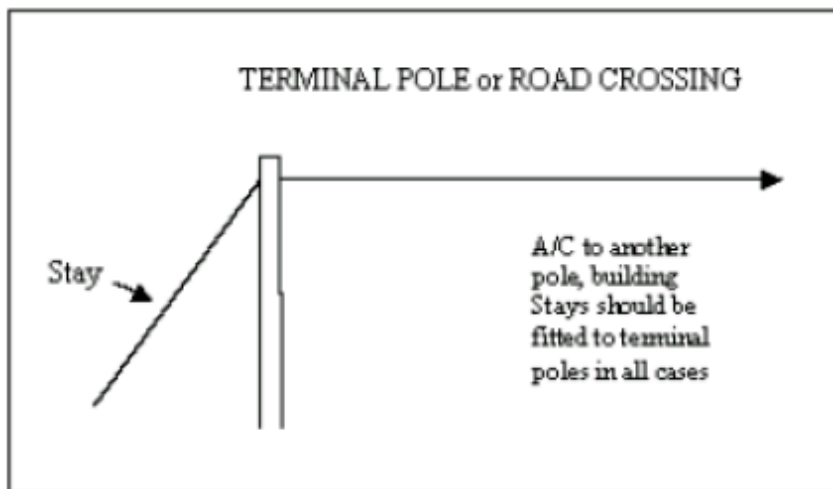
- Disconnection/connection of circuits for testing purposes
- Installation of Box Connections or other pole top equipment provided normal restrictions regarding number and location on the pole are not exceeded.
- Re-tensioning of existing aerial cables and dropwires.
- Before adding or removing dropwires, check the A559 Maximum Load label.

# **10 *Test and Examination of Wooden Poles***

## **10.1 Identifying Whether a Stay Should Be Fitted & Poles with Missing Stays**

There are generally 3 reasons why a pole will have a stay or strut fitted. These are as follows.

### Example 1

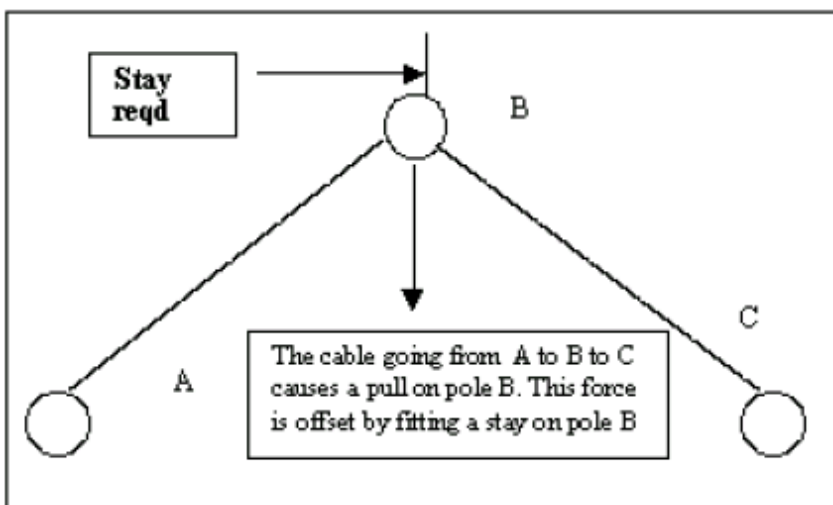


#### **Example 1 –Terminal Pole or Road Crossing**

Where the cable terminates on the pole, a stay or strut is ALWAYS required, unless the 14m/30m rule applies

See ES memos 16/99 & 27/2000 –these are for short lengths of lightweight aerial cable on unstayed poles with special rules

### Example 2

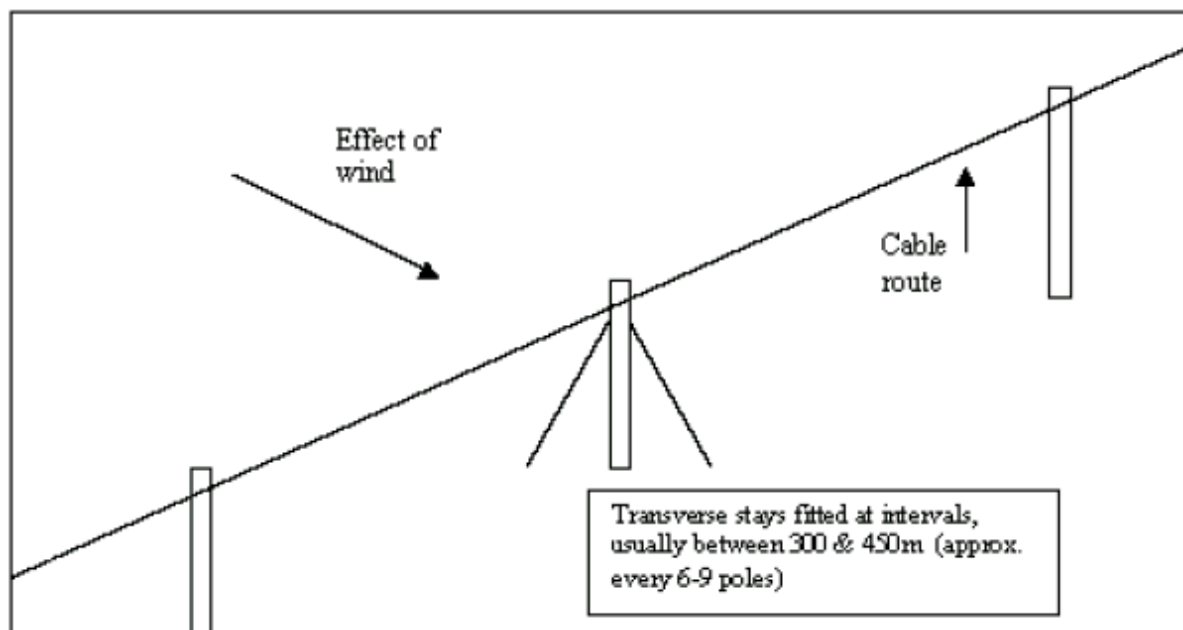


#### **Example 2 –change of route**

The second instance where stays are required is where there is a significant deviation of the aerial cable route. It is different for the various pole and cable sizes, but any significant pull will require a stay. .

The above 2 examples are by far the most commonly found occurrences of stays on poles that are likely to be climbed. Another example, but rarely found, is where a stay is fitted because the dropwire loading is all on one side of the pole.

Poles meeting the criteria in Example 3 will be found, but it is much less likely there is a need to climb these poles.

**Example 3**

Stays are also fitted on these straight route poles, at calculated intervals, to offset wind. This is generally referred to as transverse staying. These are usually approximately every 6-9 poles on the route.

Details for all calculations for stays are in ISIS EPT/ANS/A014

**NOTES for the above examples**

*Note: 1.* Stays are provided to give long term stability to the Overhead Network. The long-term effect of a continued load in one direction will gradually cause the pole to bend and/or lean in the direction of the load. The stay or strut helps to offset that loading, and maintain the network at the correct standard.

*Note: 2.* There will always be circumstances other than those detailed above and these are covered in more detail in the relevant ISIS. The ISIS document quoted above

*Note: 3.* EPT/ANS/A014 is generally designed for use by planners and designers of Overhead networks. Also Pole Testers are trained in some aspects of route stability, to allow them to complete comprehensive pole tests.

*Note: 4.* A pole with a missing OR corroded stay is NOT inherently dangerous and can be climbed. However, before climbing such a pole, follow the guidance in the table in Section 10.2.

## 10.2 Sequence

Examine all wooden poles in the sequence detailed below. If, as the result of the examination, at any point in the sequence, the pole is considered to be

unsatisfactory, the remaining parts of the examination must not be carried out, the pole must not be climbed or worked on and your manager must be informed. (See Section 10.4 to assess the results of the examination.)

Always wear your helmet when testing a pole and be aware that cracked or broken fittings (eg insulators) may be dislodged by the test. Ensure there is no danger to the public or to other BT people.

- a.** Check for any existing 'D','H','Z', 'SD' or 'C' marking.
- b.** Check for any dangers within 1 metre of the pole such as spiked railings, glass topped walls, razor wire, and chestnut paling fencing or similar hazards.
- c.** Where obstructions exist which prevent a full hammer test around the circumference of the pole above ground level, the following applies -

A minimum of 2/3 of the circumference must be visually inspected. A minimum of 1/2 of the circumference must receive a hammer test. The remaining 1/2 to 2/3 must receive at least a visual inspection. The area tested does not have to be one continuous section.

- d.** Check the depth of the pole (for Shallow Climbable Poles, see Section 9)

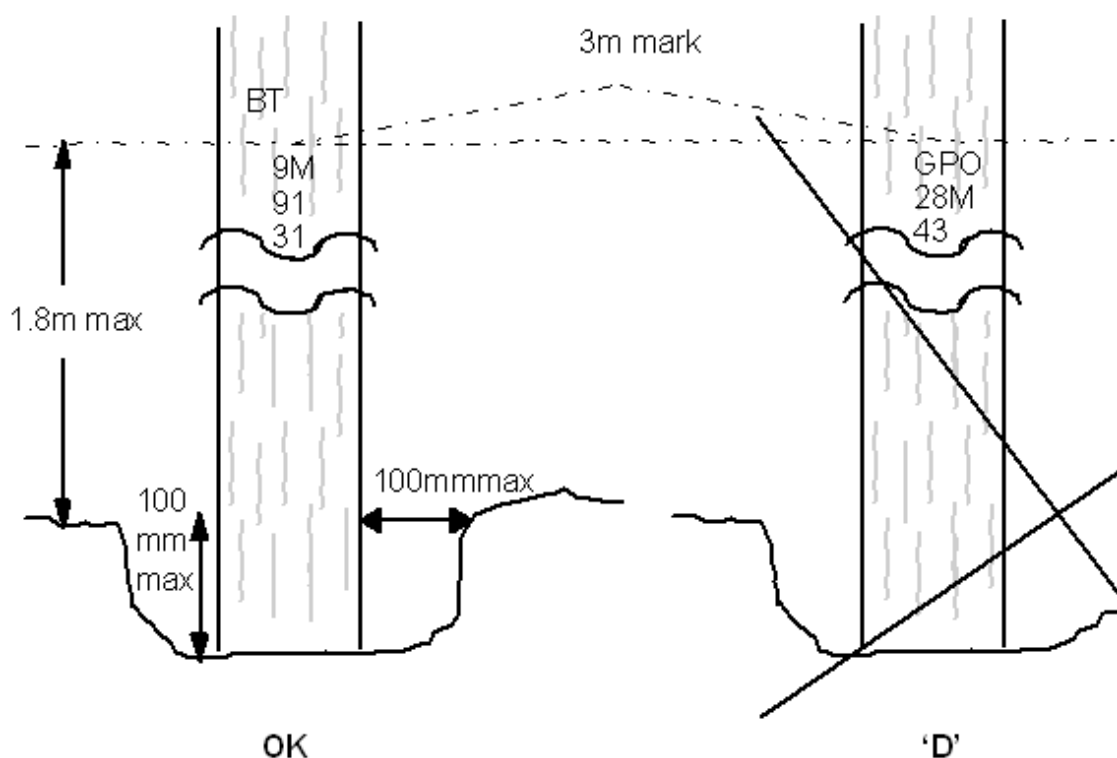
The position of the 3m mark for metric poles should be 1.8m (1.83m for imperial poles) or less above the ground line (ie the lowest point of the ground around the pole).

On modern poles the 3m mark (that is 3m from the butt) is indicated by a "reference" line or gouge under the BT marking or within the markings of other company's poles. On older poles there is no "reference" line, and the 3m point should be taken as the top of the ownership/size marking.

Check that the ground has not been cut away from around the pole foundations by ground lowering or the excavation of holes or trenches. Where the pole is left on a raised area of ground due to recent excavation, judge the depth of the pole from the new ground level. Where trenches or holes larger than the diameter of the pole have been excavated closer than 1.5m from the pole, measure the depth of the excavation and the distance from the pole. The depth of the excavation should not be greater than the distance from the pole to the nearest edge of the excavation.

Where localised settlement of the backfill around the pole has occurred within 100mm of the pole, then this may be ignored providing the settlement is less than 100mm deep. Any such settlement should be reported to your supervisor for rectification.

**Figure 17** (Below)



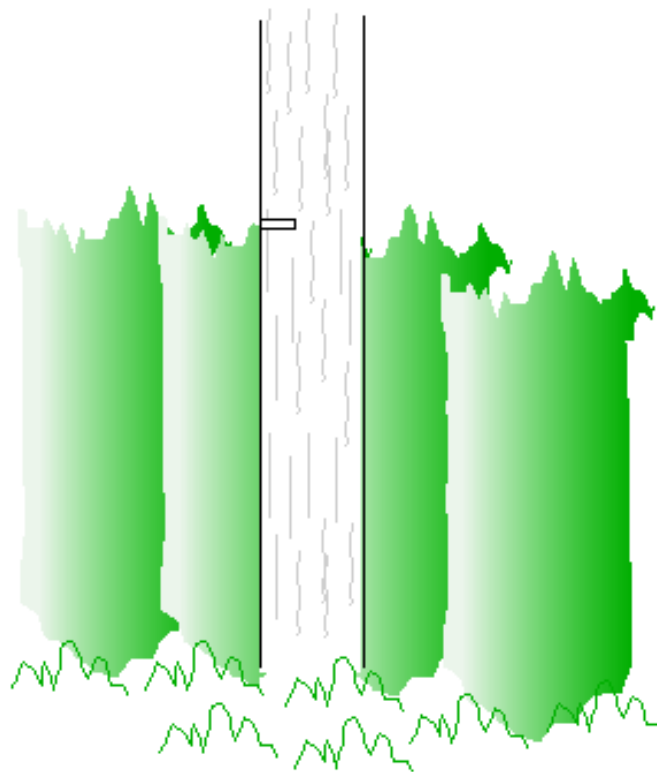
**Note:** Because imperial pole has been used to demonstrate 'D' above, distance from ground to ownership mark (GPO) must be in excess of 1.83m for the pole to be 'D'

e. Inspect the pole for any physical damage.

Special attention must be given to poles situated in or adjacent to a hedgerow, as such poles may be damaged by hedge-cutting machines; the most probable location of such damage will be 1.5m to 3m above the ground line. It is possible that physical damage may be obscured for example by mud being placed over the cut or new hedge growth etc. (see **Figure 18**). Carefully examine the area around any physical damage for decay (details for the permitted amount of physical damage can be found in Section 10.4)

**Note:** Longitudinal cracks (shakes) in the pole are natural features of a wood pole and are not defects. Unless the shake is continuous from top to bottom of the pole.

**Figure 18**



**f. Test for decay**

At the ground line stamp aside or cut away any grass, undergrowth or stones to permit testing as near as possible to the ground line. When it is suspected that the ground level has been raised, for example on a roadside bank where road sweepings have been deposited or the ground level raised due to resurfacing, remove the additional material to expose the original ground line. Apply the hammer test **right down at the ground line** with not more than 25mm spacing between hammer taps all-round the pole. Apply the prodding test at similar points round the ground line as low as possible where decay is in any way suspected. The extent of any decay must be determined by applying the tests at several points on the decayed area.

If the test at the ground line shows some decay or there is doubt as to the condition below the ground line, the ground around the pole must be excavated to expose 300mm of the pole below ground line. Clean the pole surface and apply the hammer and prodding tests around the exposed section. After testing, backfill and thoroughly consolidate the earth around the pole. Report the fact that excavation has been carried out to your supervisor if further reinstatement is necessary. Do not excavate unless you are suitably trained and equipped to do so.

The test for decay must also be applied at all points on the pole where decay is apparent or suspected. Special attention should be given to the area around the top of the pole and where steps are mounted.

**Note: Checks a to f must be carried out even when the pole is to be accessed by a platform elevating or Mobile Elevating Work Platform (MEWP)**

**g. Examine all pole fittings**

Examine all fittings for security of fixing and excessive weakening due to decay or corrosion.

*Steps (see Figure 19)*

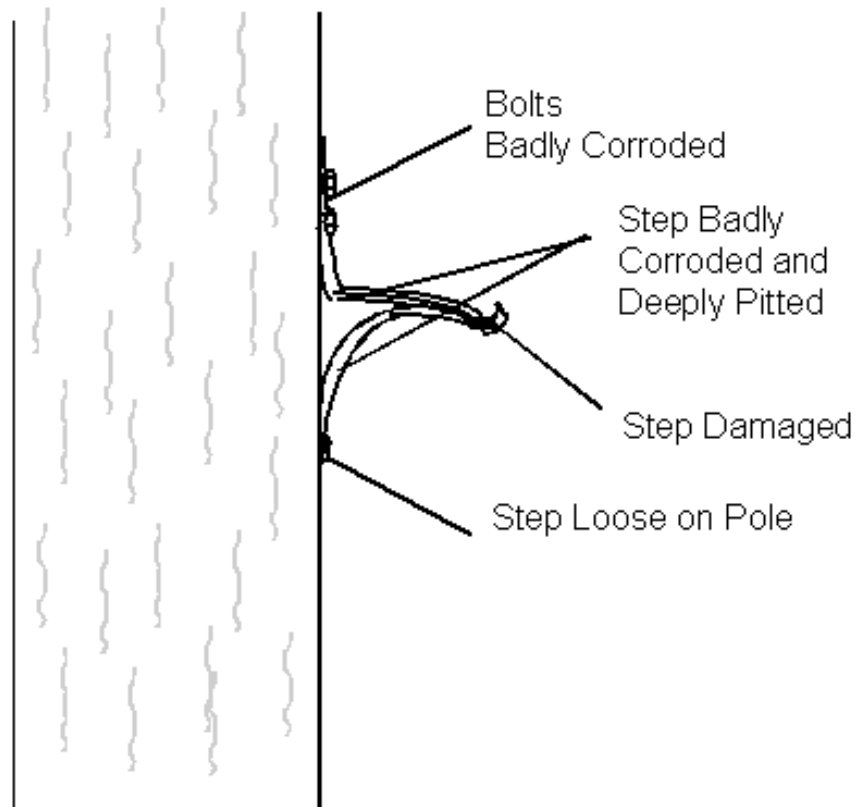
Check each pole step before trusting your weight to the step. Ensure you are in a stable position before checking a step. Check:

- There is no decay at the point where the step is fixed.
- That the step is not made from aluminium or from batches numbered ICDD88 (Number on underside of step brace. Not applicable to Old Style steps with coach bolts in line vertically.)
- For security of fixing and excessive weakening due to corrosion or other damage.
- For growth of corrosion around coach screw heads and for the absence of galvanising and/or deep pitting of the pole steps.
- For coach screws loose due to being exposed in deep cracks or shakes.
- For coach screws seriously weakened below the head.
- For firmness before putting any weight on them.

All the above means:

- Ensure you are in a stable position.
- Check the step visually.
- Check step physically by trying to move it vigorously vertically and horizontally and feeling for any weakness or movement.
- Check that pole stepping is adequate and in accordance with current instructions.

**Figure 19**



**h.** Poles with missing, damaged or corroded stays the following checks must be completed:

**Stay wires including those fitted to Gallows Poles**

Check for security of fixing and excessive weakening due to decay or corrosion.

Check that the stay wire is not excessively rusted, to a point where the strands are broken or fraying. The main body of the anchor and other parts of the fitting should not be corroded to the point where they could bend or distort. Surface rust on the wire or fittings is NOT a defect.

**Struts**

Struts form part of the structure of the main Pole. As such, before ascending the main Pole check for 'D' markings, obstructions, decay and mechanical damage on the Strut.

If the Strut is defective, do not ascend the main pole. Where the Strut is defective, this will effectively make the main Pole a 'D' for decay.



### Gallows pole

Where a Gallows Stay Pole is found to be 'D' this does not make the main Pole 'D'.

The main Pole can be climbed subject to a successful pre-climb check and on-site risk-assessment.



**Figure 20**

### Missing stays

See Section [10.1](#) for guidance on identifying poles that should be stayed. Poles with missing stays are not in themselves inherently dangerous. However, it is essential to complete the mandatory check of all wires crossing the carriageway, and also to check the pole for excessive lean.

**If any of the above defects are found, follow the guidance in the following table**

Defect	Action	Immediate precautions
The pole has 1 or more wires which cross the	Refer job back to relevant control eg. Possibly for a	Do NOT climb pole

carriageway at a height below 5.2m	Platform Elevating Team or temporary prop with assistance. Raise an A1024 for the defect.	
Pole meets the criteria in Section 2, but does not have a stay or strut fitted	Raise an A1024 for the defect.	Do not climb until full pre-climb check has been completed.
Stay severely weakened, excessive corrosion visible, including stay wire fittings for galleys stays.	Raise an A1024 for the defect	Do not climb until full pre-climb check has been completed.
Pole is a Shallow Climbable pole (labelled with a green 'C') AND has an excessive lean of 10 degrees or more.	Seek request test	Do not climb until request test completed. Once completed, Pole Testers will advise if pole is to be made 'D' or whether work can continue. If work can continue, Pole Testers should raise an A1024 for the defect
Strut severely weakened, showing signs of decay or damage.	Seek request test	Do not climb until request test completed Once completed, Pole Testers will advise if pole is to be made 'D' or whether work can continue. If work can continue, Pole Testers should, raise an A1024 for the defect
Pole has a lean of up to 15°	Raise an A1024 for the defect, remedy code 324 (provide stay)	Do not climb until full pre-climb check has been completed.
Pole is leaning by 15° or more	Seek Request test	Do not climb until request test completed Once completed, Pole Testers will advise if pole is to be made 'D' or whether work can continue. If work can continue, Pole Testers should raise an A1024 for the defect

#### i. Other Items

- Check for security of fixing and excessive weakening due to decay or corrosion before using any fitting or relying on it for a handhold. Ensure it will not fall on you. Look particularly for loose insulators.

- Check the earth wire to ensure it will not cause a hazard to you whilst working.
- Continue assessing the pole condition during the climb, including any signs of decay around holes where fixings have previously been removed.

### 10.3 Bleeding Poles

Where a bleeding pole is encountered, an A1024 can be submitted with a defect code of 520 to provide suitable lagging.

For any existing lagged Poles encountered, shorten any laths all around the pole with a saw, and remove any sacking to a height of 150mm above ground level; or recover the laths and sacking if they are no longer required.

### 10.4 Results of the Examination of Wooden Poles

You must regard a pole as 'D' defective and you must not climb or work on that pole if

1. The pole is marked 'D' or 'SD'.
2. A pole is located within 1m of spiked railing, glass topped walls or similar hazards.
3. Less than two-thirds of the circumference of a pole can be examined or tested for decay, due to obstructions.
4. A pole is found without a visible 3m mark, or the position of the mark indicates that the pole is set at shallow depth. In addition, if there is an excavation larger than the diameter of the pole, within 1.5m of the pole, with a depth greater than the distance from the pole to the nearest edge of the excavation.
5. A pole has been weakened by physical damage (such as surface scuffing, localised impact, gouging type damage or cuts across the pole) for further information on damage depths see ISIS [EPT/OHP/C025](#).
6. A pole has any internal decay
- 6a. A pole has external decay extending around the pole for:
  - > 25mm around the pole and is more than 6mm deep.
  - < 25mm around the pole and is more than 30mm deep
 (Pockets of decay less than 25mm wide but more than 6mm deep should have their widths added together if the pockets are on the same circumference of the pole. If the widths add up to more than 25mm the pole should be considered as 'D'.)
- 6b. The ground line test indicates some decay or there is doubt as to the condition below the ground line and you are not trained or equipped to excavate to examine the pole further.
- 6c. Any decay exists at points where pole steps are fixed.
7. The pole is carrying a heavily unbalanced overload and damage or decay is less

extensive than (5) or (6a) above. The unacceptable level of decay should be in proportion to the level of overload.

You must regard a strut as 'D' if any of the above defects 1, 3, 5, 6, 6a, 6b exist (and 6c if for any reason a step(s) is mounted on the strut).

## 10.5 Test and Examination of Wood "Joint User" Poles or Other Poles Not Owned by BT

### **Two Man Working on ALL Joint User Poles**

Two man working has been in place on all JU poles in Scottish & Southern Energy (SSE) areas since 1<sup>st</sup> January 2008. Following a further request by the remaining DNOs, Openreach has agreed to introduce 2-man working on ALL Joint User poles (DNO owned **and** BT owned), with effect from 1<sup>st</sup> May 2009.

Many activities demand a 2-man activity - e.g. complex road crossing provision - however, **ALL** activities will now require 2 people to be in attendance.

**The Ladder 7A is an insulated ladder introduced for working in proximity to power lines. It must be used when working on any Joint User pole that has power cable attached irrespective of who owns the pole.**

Prior to climbing, working on or altering the load on any wood pole owned by an Electricity Company or other company which carry BT wires, cables or other system which BT needs to access, the General Test and Examination must be carried out and a written risk assessment form (WRAF) must be completed. See EPT/OHP/C032 Section 4 and 14.

When examining or working on joint user poles, including those owned by BT, care must be taken to keep clear of power wires and stay wires or any other metallic item which could come into contact with Electricity Company plant. The General Test and Examination must be carried out in accordance with the new rules detailed in Section 4 of this ISIS. Only wood poles of the types used by BT or the Electricity Companies may be worked on; if there is any doubt treat the pole as 'D' and inform your manager.

Poles identified as 'D' by the owners must not be climbed or worked on. Electricity Companies normally use a red coloured 'D' label similar to BT's (see documentation on the joint use of poles), but if you are in any doubt treat the pole as 'D' and report the problem to your manager.

Other companies have different inspection systems to BT and IT MUST NOT BE ASSUMED THAT THE POLE UNDERGOES THE SAME INSPECTION SYSTEM AS BT's. Carry out your General Test and Examination carefully.

Many Electricity Companies label poles found to be only slightly decayed, or with decay suspected, with a letter S (similar to BT's past system). Procedures for these poles are detailed in EPT/OHP/C031.

On non-BT poles receiving post-installation treatment in the form of bandages protruding above ground level, the ground level for testing purposes, must be assumed to be at the top edge of the protective bandage. No attempt must be made to test the protected area or to remove the bandage.

Many Electricity Company poles are now being treated with Boron Rod ground line treatment. Both new and suspect poles are being treated in this way. The treated poles are indicated by the presence of plastic plugs at the ground line and a label on the pole. These plugs should not be removed. Poles treated in this way should be tested in the normal manner avoiding hitting the plugs.

A report must be made to your manager on any pole considered to be unsatisfactory, and for those joint user and other poles not owned by BT the manager should ensure the owner is informed.

## 11 ***Examination of "HOLLOW" Type Poles***

These poles may be constructed from either metal or plastic and will have an access door whose top is approximately 1.6m above the ground level. "Hollow" type poles **MUST NOT BE CLIMBED** and have not been fitted with pole steps.

The Hammer and Probe Tests are not applicable to hollow poles.

Hollow poles should be given a visual examination before changing the loading on the pole. Poles regarded as 'D' must not have their loading changed except as detailed in Section 17.

- 1) Check for existing 'D' marking.
- 2) The top of the door aperture is 3.1m above the butt. Check the depth of the pole from the top of the inside of the access opening (approximately the position of the lock on original access doors) which should be 1.6 m or less above the ground line. However, it is permitted for the pole to remain in service if there is a maximum of 2.0m from the ground line to the top of the door aperture. Poles found with a measurement of more than 2.0m shall be classified as 'D'.
- 3) Inspect the pole for physical damage; special attention must be given to poles situated in or adjacent to a hedgerow, as such poles may be damaged by hedge-cutting machines; the most probable location of such damage will be 1.5m to 3m above the ground line. If the pole wall is cut through for more than one-sixth of its circumference, buckled or badly cracked due to an impact, it must be regarded as 'D'.

## 11.1 Non Standard Hollow Poles

Non standard hollow pole – Lamp Standards

A small number of non BT hollow poles have been found in the network carrying BT wires/cables. They have a similar construction to some lamp standards and have a collar fitted (See Figure 21 below).



Figure 21

### Action to be taken

In the unlikely event that work involves a Lamp Post Style Hollow Steel Pole the work must not be progressed, work on this type of pole is prohibited and a request test must be arranged by contacting the Network Assurance Operations Control – 0330 123 3304. When requesting you must advise if a customer driven order is associated with the pole.

- A pole tester will always make a Lamp Post Style Hollow Steel Pole D with a test result of COR.
- If a Lamp Post Style Hollow Steel Pole has a customer driven activity the pole will be placed in the Asset Assurance reactive queue for immediate issue.



- If a pole tester inspects a Lamp Post Style Hollow Steel Pole that does not have a customer driven activity it will be placed in a 3-month renewal programme.
- Wires or cables must not be installed, removed or re-tensioned on Lamp Post Style Hollow Steel Poles.
- Hollow poles must never be accessed by a ladder.

## 11.2 Hollow Pole Door replacement

This process is to fit a replacement door to fiberglass hollow poles where they are missing or defective.

### Detail:

After receiving enquiries from the field regarding missing & defective doors for fiberglass hollow poles we looked into finding an alternative as the original manufactured items are no longer available. As these poles are legacy equipment and no longer being installed, they are in the network in limited numbers. It has therefore been decided to introduce a simple solution, which can be manufactured onsite.

The solution consists of utilizing existing stores items to manufacture a door from split duct & straps cable fixing.

### PROCESS

- Measure & mark duct 58a in a 600mm length (1 length of duct 58a will give you 5 covers)
- Cut with junior hacksaw – wearing gloves Kevlar or similar suitable hand protection



Figure 22

- Attach to pole using straps cable fixing 14a. Cut off using a suitable cable tie tensioner if available - face cut ends away from pedestrians.



Figure 23

- If no tensioner cutter is available it is acceptable to use black adhesive tape.

#### **STORES ITEMS**

- Standard PPE as required
- 094984 - Duct 58A split
- 073063 - Strap cable fixing 14A
- 075995 – Tape plastic adhesive black
- 062741 – Junior hacksaw
- 078035 – Gloves Kevlar medium
- 078034 – Gloves Kevlar large
- 078036 – Gloves Kevlar XL

## **12      *Sheet Steel "Adastra" Poles***

These poles are constructed from tapered sections of galvanised sheet steel and have fittings (including steps) similar to wooden poles. They should not be confused with 'hollow' poles.

ADASTRA poles should have been made 'D' during periodic inspections from the mid-1970s. Any remaining poles should be automatically regarded as 'D' and not climbed or worked on. Report any such poles to your line manager.



# 13 ***Poles Labelled 'H' or 'Z'***

## 13.1 **Poles Labelled 'H' (Hazard)**

Poles identified as being within one metre of a hazard **may** have an 'H' label attached (see examples of hazards below). These poles may be accessed via a MEWP and the normal range of work can be completed. The general test and examination must still be carried out and if any other defects are revealed, a request test may be required.

A request test may also result in the pole being re-classified as 'Z' – this means the pole has a 'safe Climb Zone', refer to Section 13.2.

Defined list of Hazards - the following are the only declared 'hazards'.

1. Spiked Railings, there must be a clear spike - ball-ended "Fleur-de-Lyes" type railings are not classed as 'spiked railings'
2. Chestnut paling fencing
3. Glass-topped walls
4. Razor Wire

Figure 24 - Example pictures below





Figure 25 - Examples of Spiked Railings above



Figure 26 - Example of Chestnut Paling



Figure 27 - Example of Glass-topped wall



Figure 28 - Example of Razor wire

*Note:* Staff should consult with their manager in situations where they consider there is a hazard that is not shown in the examples above before climbing.

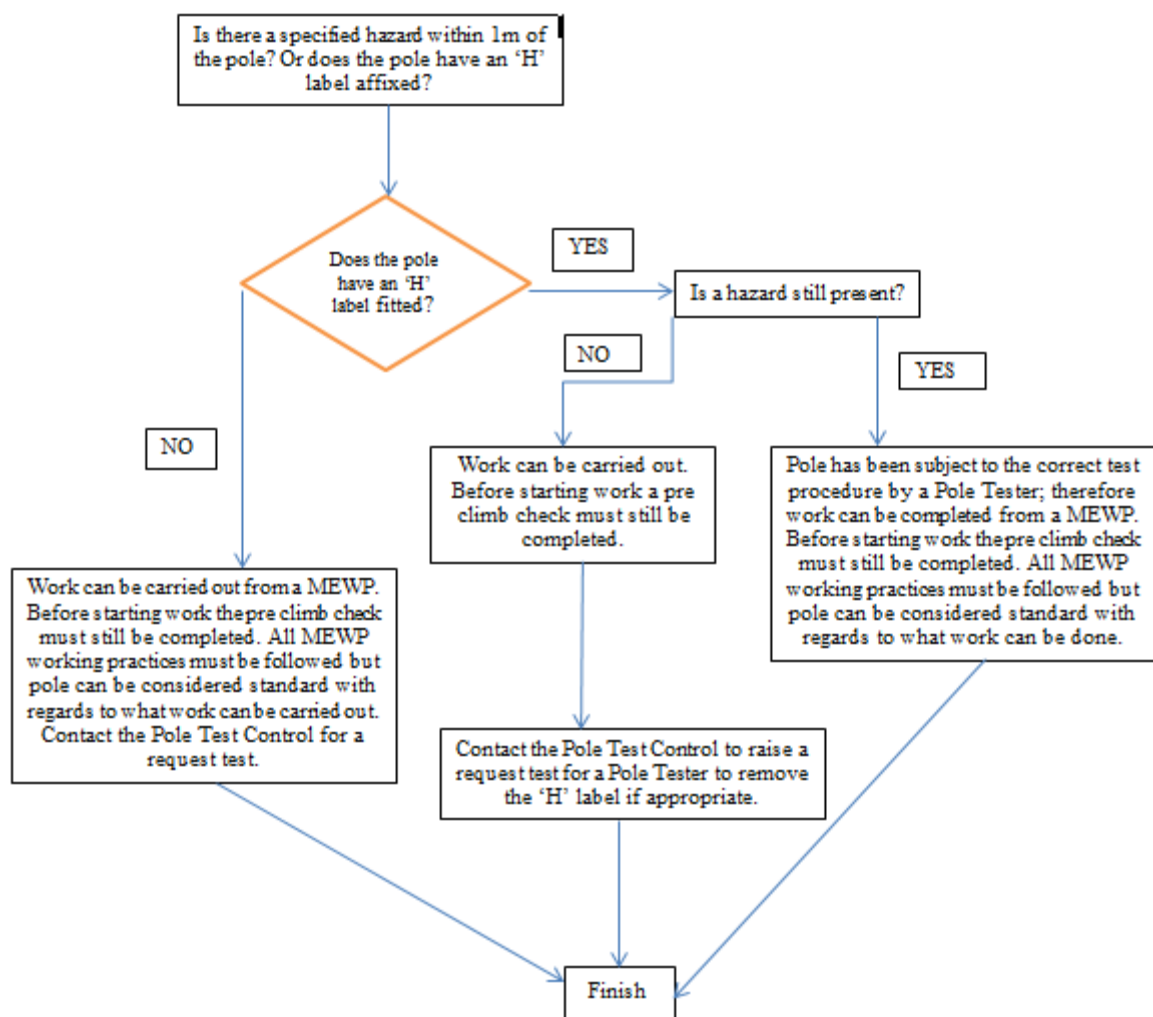
**Example of 'H' label (item code 009688)**



**Figure 29 – 'H' Label**

Where it is identified a pole labelled with an 'H' label no longer has a hazard within 1m **or may comply with the new classification detailed in 13.2**, a general test and examination should be carried out and, if OK, the pole worked on as normal. A request should be made to the Pole Test Control to enable a Pole Tester to reassess the pole and if necessary remove the label.

Where an undefined or uncertain hazard is identified, seek further advice before climbing the pole.

**START**

## 13.2 Poles Labelled 'Z' (Safe Climb Zone)

Previously, any pole within 1 metre of an agreed hazard was declared a 'hazard pole' and marked with an orange 'H' label.

The 1 metre positioning rule took no account of the hazard, the location of it in relation to the pole, and specifically, in relation to where an engineer might position the ladders to climb the pole. Also, the principles of 'Hazard Poles' have been in place for many years, and do not account for changes to climbing practices, notably the introduction of the new safety belt No 11, the Fall Arrest Lanyard and Tetra kit.

Accenture HR Services were asked to carry out a full review of the existing practices, and to consider what would be the best methodology for dealing with 'H' poles. This review concluded that the current method of declaring EVERY pole within 1 metre of a hazard 'H' should be replaced with a Site Specific Risk Assessment (SSRA) which means the circumstances for each

pole are assessed individually, initially by a pole examiner, to determine if the pole has a 'Safe Climb Zone' (SCZ).

The reasoning for this is that the introduction of the new Safety Belt 11, and the fall arrest lanyard reduces the risk considerably, and that with appropriate guidance, the pole may have a 'safe climb zone' when the ladder position is considered in relation to the hazard location.

### **Pole marking:**

All existing 'H' poles will be examined by a Pole Tester. Those which are determined to have a safe climb position will be marked with a green Z label. Those which do not will retain the original orange 'H' label.

**Figure 30:** Example of Pole Label



### **Determining the Safe Climb Zone**

The safe climb position will be on the opposite side of the pole to the hazard. On no account must you 'bridge' the hazard with your ladder. Refer to the sketches in 13.2. You must be able to stand at the foot of the ladder, with your arms outstretched, and your arms not meet the line of the hazard.

Carry out all regular pre-climb checks, including wire heights, test pole, and complete a full on-site [risk assessment](#).

### **Ladder Positioning**

Position the ladder normally; ensuring the angle (1:4) is correct. Take account of any guarding requirements, and ensure pedestrians will understand how to pass or avoid your worksite. The ladder must be tied top & bottom as normal.

It is preferable (but not essential) to have the line of the ladder rungs parallel to the pole steps. If it is necessary to have the ladder at a different angle, see further guidance below



You must be able to stand at the foot of the ladder, with your arms outstretched, and your arms not meet the line of the hazard.

### Climbing the Pole

With the ladder in a position parallel to the pole steps, then the pole would be climbed normally, with no additional guidance

With the ladder in a position up to 45 degrees away from the line of the pole steps, then position the ladder in the same way, with the top of the ladder in line with the first step. As the ladder is climbed, it is possible to clearly see the first step from the top of the ladder. Before leaving the ladder, deploy the fall arrest lanyard, and then move smoothly round so that your leading foot goes onto the first step. It will just be a little further round the pole, but clearly visible.

With the ladder between 45 and 90 degrees, then the height and position of the ladder will be dependent on whether the lowest step is on the side you intend to access from, or on the opposite side.

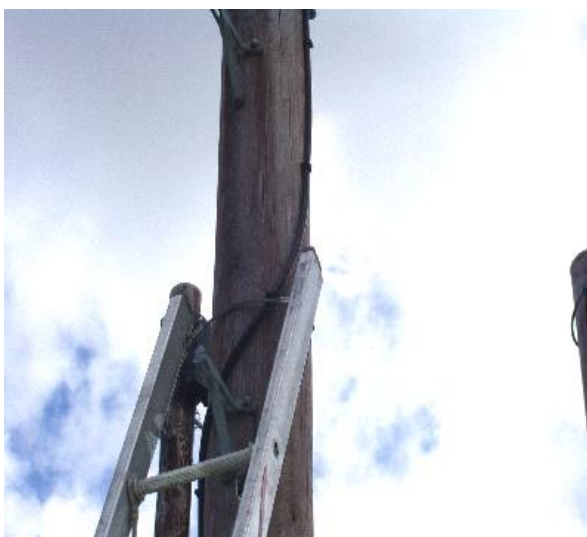


**Figure 31:** Shows the ladder position, with the right leg about to swing round to the first step



**Figure 32:** - shows the right foot in position and the climb started, after body has swung round onto front of pole

With the ladder on the same side as the lowest step, then position the ladder as **Figures 33** and **34** below:



**Figure 33** - shows the ladder on the same side as the lowest step



**Figure 34** - shows right leg on lowest step and about to move onto pole & swing left leg onto next step.

In the instances detailed above, in figures 31 - 34, always ensure you have considered the location of the steps, and completed a visual and physical check, before moving round onto the steps. Also, when descending, again ensure you are aware of and have considered the location of the ladder.

#### **What if you think the circumstances have changed?**

If the pole is marked with a "Z" label, then it will have been inspected by an experienced Pole Tester, who determined that at the time of inspection there is a suitable safe climb zone.

There will, very occasionally, be situations where the circumstances have changed. This might be that the hazard has been made taller (ie new spiked railing), or the railings might now be positioned on top of a wall, or moved closer to the pole or to another new position. If you think this is the case, and that the safe climb position no longer exists, then ask for a "request test", following current procedures.

#### **Guidance for Planners**

When planning new poles, consideration of hazards must still be given. The preferred option is always to plan the network in such a way so that adjacent hazards are not an issue, or that the pole position is not within 1 metre of the hazard.

There will however be circumstances where this is not possible. In these cases, then the preferred first option is to use a hollow pole. This will ensure that the hazard is not an issue.



There will be very rare occasions where it is not possible to use a hollow pole. These will primarily be because a pole of an unusual size is required, or that the pole loading, in terms of size/and or numbers of cables /joints, means a wooden pole is the only option. In these rare cases, it will be necessary to arrange a visit by a Pole Tester, to confirm if in the proposed position, there will be a safe climb zone and for the new pole to be marked accordingly.

**Hierarchy of preferred solutions:**

**Position pole away from hazard, or re-design network**

**Use a hollow pole**

**Final options only - use a wooden pole and classify "Z" or "H" accordingly**

**SUMMARY**

**Complete on - site risk assessment**

**Check the pole for markings**

**Check the climb position using the guidance in Illustration 1**

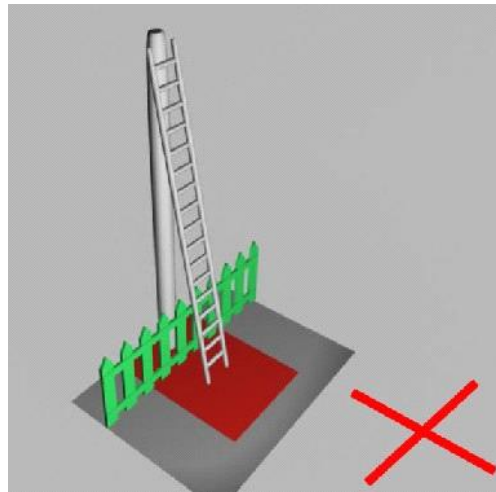
**Position the ladder accordingly**

**Ensure pedestrian safe access**

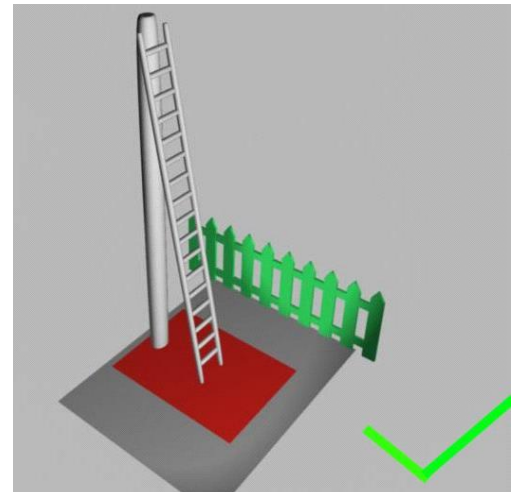
**Climb following guidance above**

**13.3**

**Illustration 1 - Hazard Situations**



Ex1. Do not cross hazard



Ex2. OK to climb with ladder here



### Safe climb zone

On arrival at site park vehicle safely and carry out an onsite risk assessment.

Assess if the ladder can be placed against the pole without crossing over a hazard (ex 1 & 2)

Standing where the foot of the ladder will be placed and with arms outstretched, can a hazard be touched? If yes, is it possible to move around the pole to clear the hazard? Then carry out the tests as detailed above to determine if there is a safe climb zone. If there is no viable alternative position, then the pole should be classified as 'H' and appropriate label attached.

*Note:* Alti-shield Max Rebar Protectors (Spiked Railing Covers) are available, which can be used to cover spiked railing and Chestnut paled fencing to create a safe climb zone. For further information please see [SFY/HSR/D041](#).

## 14 ***Poles Labelled 'S'***

BT, has in the past, used a system of classifying a pole as 'Suspect' and marked with an 'S' where internal decay was slight or only suspected. The BT 'S' classification has now ceased and existing 'S' poles should have all been examined and reclassified as either 'good' or 'D' defective. The 'S' labelling should have been removed. Poles still marked with the letter 'S' must be treated as 'D' and may not be worked on, any 'S' label should be reported to your line manager.

15

# Poles Involved in Road Traffic Accidents (RTAs)

Although not actually detailed in any AE&I practice ISIS document, it has become 'custom & practice' for all poles involved in RTAs to be renewed. A technical review has determined that this approach is wholly inappropriate, and that the decision to renew the pole should be based on a combination of the extent of the damage, and a full test & inspection of the pole.

**The principle is that if there is ANY damage, and we can recover the cost, we will renew the pole. This is appropriate, as there is potential for minor damage to shorten pole life, although this may not be apparent at the time. However, such minor damage will not make the pole unsafe to climb or to continue in service. If the costs are not recoverable, then we will examine the pole and make the decision accordingly.**

**Process for "first person on site" or discoverer of RTA damage**

There is considerable existing guidance on dealing with RTA damage. All of the existing guidance regarding on site Risk Assessment, making the site safe, reporting/liaison with emergency services etc remains exactly the same.

The only process change is with regard to whether the incident requires a pole request test, and whether it should lead to a pole renewal activity.

**In the first instance, refer to the table below, to determine the course of action.**

	Pole definitely has NO evidence of damage	Some evidence of damage, but probably within limits	Damaged beyond limits
Details of damage are available, and have been	See Step 1 for pole examination guidance.  IF no	Arrange for pole renewal, with costs charged to appro	Arrange for pole renewal, with costs charged to appro

<b>recorded in line with process</b>	damage is confirmed - No further Action	appropriate HL estimate	appropriate HL estimate
<b>Details of damage are NOT available.</b>	See Step 1 for pole examination guidance.  If no damage is confirmed - No further Action	GO to Step 2 below	Arrange for pole renewal, with costs charged to appropriate HDU estimate

**Step 1**

Examine the pole: if it is leaning beyond limits, is damaged beyond limits set out in pole test guidance, aerial cables are disconnected or damaged, or the pole is broken, splintered or on the ground proceed with a request for attendance by a pole team, as detailed in existing guidance - END

However, if the pole is still upright, not broken, and no aerial cables are disconnected or damaged, carry out a full pole examination, as detailed in this ISIS or the HSH. If there is evidence of damage, go to Step 2

**Step 2**

Contact the Pole Request Test Field Support Office:

They will offer guidance on how to verify the condition of the pole, and only if necessary, arrange for a pole tester to visit site.

**Step 3**

If the pole examination (either by pole tester or by "first person on site") confirms that pole renewal is not necessary, then no further action is required.

If it is determined that the pole is damaged beyond limits, or some damage and the damager's details are available, and renewal is required, continue with the existing process regarding contacting Damage Duty and arranging for a Pole Team to attend.

## 16 ***Action after Test and Examination***

Seek guidance if, after completion of the examination, there is any doubt about the condition of the pole.

Where the examination has indicated that a pole must be regarded as 'D' the pole must not be climbed or worked on (that is, any alteration of the load) except under the conditions detailed in Section 17 of this document. A report should be made to your manager who will arrange for the pole to be examined by a Pole Tester. If the Pole Tester classifies the pole as satisfactory, then the pole may be worked on or climbed.

If you suspect decay or corrosion or other damage to any pole below the ground line and you are not trained and equipped to excavate, treat the pole as 'D' and report the problem to your line manager.

You must not climb above steps which are found to be defective; either replace the steps if you are equipped to do so, or report the problem to your supervisor.

All other faults should be reported to your line manager for rectification.

## 17 ***Working on Poles Classified 'D'***

Please refer to EPT/OHP/C031 for details and guidance.

## 18 ***Repair Process for Damaged Wooden Poles (Poles Marked D for Damage)***

There are approximately 20,000 poles listed as D for damage –see example in **Figure 35**. Previously, the only solution was renewal. Following a technical assessment, in conjunction with Heriot Watt University, a repair methodology has been developed, that can be used on some of the D poles listed.

The solution cannot be used on all poles, and a set criterion has been developed to determine any particular pole's suitability.



Figure 35: Example of damaged pole

The repair process comprises 3 steps:-

Step 1 – verification that the pole is suitable for repair, and that the work can be completed safely

Step 2 – Applying quick setting resin to the damaged area. The resin is not designed to restore the strength to the pole; its primary aim is to seal the area, to prevent ingress of moisture etc.

Step 3 – The fitting of 2 metal repair straps, bridging the sides of damaged area. It is the straps that fully restore the strength to the pole.



Figure 36: Resin repaired area





Figure 37: Completed repair – metal straps fitted

#### **Working on Repaired Poles**

Once the repair is completed, the pole will be re-examined by a pole tester. If all tests are OK, the D label will be removed, and the Pole Test and Artisan databases updated accordingly.

The pole is then considered as 'returned to stock' and all engineering activities can continue on that pole. Cable & equipment loadings are the same as any other 'good' pole.

**However, any pole must still be subject to a pre-climb check, as standard, the repairs do not affect pole testing.**

## **19      *Summary Chart for Wood Poles***

### **EXAMINATION and TEST SEQUENCE**

1. 'D' marking
2. Hazards
3. Obstructions
4. Depth
5. Physical Damage
6. Ground Line Decay
7. Struts, Stays, Gallows Poles etcetera
8. Other Decay if apparent or suspected whilst climbing

## 9. Steps and Other Fittings

<b>Defect</b>	<b>Immediate Precautions</b>	<b>Action</b>
3-metre mark not visible	Do not climb the pole. Seek request test	Do not climb until request test completed. Once completed, pole examiner will advise if pole is to be made 'D' or whether work can continue
3 metre mark too high (>1.8m or 1.83 imperial from the ground)-remember differing standards for SC poles	Do not climb the pole. Seek request test	Do not climb until request test completed. Once completed, Pole Tester will advise if pole is to be made 'C' or 'D' or whether work can continue as normal.
External decay (as indicated by visual checks and the probe test) (a) isolated pockets no more than 25mm wide and less than 30mm deep (b) around the pole but less than 6mm deep	No special precautions for both (a) & (b)	No Action
External decay (as indicated by visual checks and the probe test) Greater than for defect above	Do not climb the pole. Seek request test	Do not climb until request test completed. Once completed, pole examiner will advise if pole is to be made 'D' or whether work can continue
Internal decay as indicated by hammer test	Do not climb the pole. Seek request test	Do not climb until request test completed. Once completed, Pole Tester will advise if pole is to be made 'D' or whether work can continue
Cuts in wood more than 30mm deep and 25mm wide around the pole. (The dimensions for permitted damage are now dependant on the pole diameter. The above figure is for the smallest diameter pole- seek request test if unsure	Do not climb the pole. Seek request test	Do not climb until request test completed. Once completed, Pole Tester will advise if pole is to be made 'D' or whether work can continue
Stay severely weakened, showing signs of damage or excessive corrosion	Raise an A1024 for the defect	Do not climb until full pre-climb check has been completed
Strut severely weakened, showing signs of damage,	Do not climb the pole. Seek request	Do not climb until request test completed. Once completed, Pole



excessive corrosion or decay	test	Tester will advise if pole is to be made 'D' or whether work can continue. Pole Tester should raise an A1024 for the defect
Decay at pole step mountings	Do not climb the pole. Seek request test	Do not climb until request test completed. Once completed, pole examiner will advise if pole is to be made 'D' or whether work can continue.
Loose or corroded steps	Do not use as hand hold. Do not climb past	Renew if possible or raise an A1024
Corroded Fittings	Do not use as hand hold. Do not climb past	Renew if possible or raise an A1024
Incorrect stepping	Climb with care	Fit additional steps or raise an A1024
Within 1 metre of agreed hazard and no safe climb zone exists	Do not climb the pole*	Pole can be worked on using a platform elevating
Pole is a shallow climbable pole (labelled C) AND has excessive lean of 10° or more	Do not climb the pole. Seek request test	Do not climb until request test completed. Once completed, Pole Tester will advise if pole is to be made 'D' or whether work can continue. Pole Tester should raise an A1024 for the defect
Pole has a lean of up to 15°	Raise an A1024 for the defect, remedy code 324 (provide stay)	Do not climb until full pre-climb check has been completed.
Pole is leaning by 15° or more	Seek Request test	Do not climb until request test completed Once completed, Pole Testers will advise if pole is to be made 'D' or whether work can continue. If work can continue, Pole Testers should raise an A1024 for the defect

\* Alti-shield Max Rebar Protectors (Spiked Railing Covers) are available, which can be used to cover Spiked railing and Chestnut paled fencing to create a safe climb zone. For further information please see [SFY/HSR/D041](#).

## 20 **References**

SFY/ESP/C026 - Safe Digging Practice.

EPT/OHP/C032 - Working on Joint User Poles

EPT/OHP/C031 - Working on D Poles

EPT/OHP/C025 – Periodic examination manual

AEI/AEC/B311- Attachment of plant to D and SD Poles

## **21      *Key contacts***

- The Pole Test Control number is 0330 1233304 option 1 and for N Ireland 028 3833 3093.

<b>END OF DOCUMENT</b>
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