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Specification for Poling Work

*Provision, Renewal, Recovery of poles within the
Openreach Access Network*

About this document ...

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1 Introduction

This Document forms part of the Access Network Specification range of ISIS Documents and is applicable to both Openreach Direct Labour and External Contractors.

The information below details the performance requirements for the provision, replacement, and recovery of Poles within the BT network. Practices and items of plant are only detailed where necessary to ensure BT's Network and plant is not compromised.

Note: The specifications for attachments to Poles, i.e., Dropwires, Aerial Cables, Stays etc., are covered in other Documents in the range. See EPT/ANS/A001 for an index of all Access Network Specifications.

2 Glossary

◆ Products

Item	Description
Banding Stainless Steel	(Item Code 013610) Stainless steel strip banding 20mm x 0.7mm x 50 metres. It is contained in a plastic "Easy carry container". Used in conjunction with a Universal Pole Bracket (UPB), as the preferred method of attaching Aerial Cables to Wooden Joint User Poles where a Power down cable exists on the Pole. Can also be used as an alternative method of attaching Aerial Cables & Stays to BT Steel Hollow and Wooden Poles.
Cap Pole 1A	(Item Code 016277) A mushroom shaped Glass Reinforced Plastic moulding. Fitted to the top of a Hollow Pole to provide a smooth entry / exit point for wires and cables.
Clip Banding Stainless Steel	(Item Code 013603) Used in conjunction with Banding Stainless Steel and Tool to fix Universal Pole Bracket (UPB) to Poles. See Banding Stainless Steel & UPB for details.
Collar Hollow Pole 2	Obsolescent (Item Code 016318) A hinged metal bracket. Fitted near the top of Hollow Poles to facilitate the fitting of a Stay or Aerial Cable.
Conduit 20	(Item Code 014808) A Plastic conduit supplied in 2.3m lengths. To be installed in accordance with the specification down the sides of Poles to enable retrospective confirmation of Pole depth.
Hollow Pole	(Item Code – Various, depending on size / class) Alternative to wood Pole. Currently available in Galvanized Steel,

	previous versions include Stainless Steel & Glass Reinforced Plastic (GRP). Typically used in Hazardous situations.
Insulator Stay No 2	(Item Code 012501) Glazed earthenware insulator designed to take compressive loads between its two eyes. Used to isolate BT plant from Power
Pins Steel No 1	(Item Code 073204) Steel Pins used to attach Pole Numbers to wooden poles.
Plugs Conduit 20	(Item Code 014809) Plastic plug. To be fitted at top & bottom of Conduit 20 to prevent ingress of debris
Pole Numbers	(Item Code - Various) For Wood Poles - A range of Plastic numbers. To be fixed to Poles using steel pins to enable pole identification. For Hollow Poles – As above but labels are Self-Adhesive.
Ring Pole Head Dropwire	(Item Code 121240) 2 Piece Galvanized steel ring with connecting nut & bolt. This is a current standard fitting used to support the feed cable (Dropwire) at the Pole top.
Ring Pole Head 2 (Halo)	(Item Code 100915) 2 Piece Galvanized steel ring with connecting nut & bolt. This is a larger sized ring suitable for larger diameter medium and stout poles.
Screws Coach	(Item Code 014700) Galvanized steel screw. Used to fix Steps to Wood Poles
Soil Stabilizing Agent 12.5KG	(Item Code 025143) A soil stabilizer. For use in backfilling Pole surrounds when the excavated spoil is too wet to compact.
Stay Guard High Visibility	(Item Code 013612) A Solid Yellow split tube which requires no tools to aid installation. Used to mark Stay wires attached to BT Poles to make them highly visible.
Steps Pole No 1	(Item Code 015550) Galvanized steel step has a fixing hole on each side level with the tread, and one at the lower end of the strut. To be fitted to wood poles in accordance with the Specification (not required on Hollow Type Poles)
Tool Fixing Stainless Steel Banding	(Item Code 013608) Used in conjunction with Banding & Clip Banding Stainless Steel to fix Universal Pole Bracket to Hollow Poles and Joint User Poles.
Type 1 Granular Sub-Base	(Item Code 024951) A Granular Sub-Base. Used as an alternative backfill material around Poles. See also Soils Stabilizing Agent 12.5KG.
Universal Pole Bracket (UPB)	(Item Code 016988) The UPB is made from a high strength corrosion resistant aluminium alloy. Its dimensions are 120mm x 114mm x 46mm. For further information on port loadings/configurations, refer to ISIS EPT/ANS/A012 – Specification for Aerial Cabling.
Wood Pole	(Item Code – Various) Preferred Pole Type. Two Classes currently used are Light & Medium. Available in various sizes from 6m to 15mtr (depending on class)

Hessian Sacking Kit for bleeding poles	(Item Code 110993) Kit comprising of 8 x 1.6m Battens, 2 x 2.5m x 1m Pieces of Hessian and 1 x Box of 2 ½" galvanised nails used for wrapping bleeding "wet" Poles.
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Table 1

2.1 Terms

Block / Blocking	Obsolete method of providing pole / route stability
Depth of Pole	The depth that a pole is set into the ground.
DNO	Refers to the Power Distribution Network Operator. (Formally Regional Electricity Company)
Obsolete	Within this Document, the term OBSOLETE refers to Products / Practices which have been withdrawn and which are no longer authorised for use in the Network.
Obsolescent	Within this Document, the term OBSOLESCE refers to Products / Practices which although Outdated / Superseded, are currently still authorised for use in the Network.
SA	Specification Authority (Openreach Network Capability & Development)
Scrap Pole/s	Poles that are no longer fit for use within the BT network and cannot be re-used.
Stay	Current method of providing Pole / Route stability
Strut	Obsolete method of providing Pole / Route stability
Testing Earth Wire	A Copper wire run down from the top of the Pole and wound round the base of the Pole (wood poles only) to facilitate testing. <u>Not to be used for Lightning Protection work</u>
Works Executioner	The Person / Organisation undertaking the work
Works Originator	The Person / Organisation Planning / Designing / Issuing the work for execution

Table 2

3 ***General Description of the work to be carried out***

Pole Installation and Recovery

Provide, replace, or recover any specified wooden or hollow pole, in its present or any other location as required by the Work Originator.

Pole Dressing

Provide, replace, or recover any or all pieces of pole furniture as required by the Work Originator.

Excavation

Carry out all necessary excavations in connection with this specification, to remove and dispose of all excess spoil from the site.

Reinstatement

Carry out reinstatement as detailed elsewhere in this specification.

4 ***Requirements***

4.1 **Provision and Renewal of Poles**

New pole/s shall be of the correct size and type for the specific site circumstances. See EPT/ANS/A011 for details of Pole Loadings / Load Categories.

The replacement Pole/s should be positioned wherever possible in the same location as the pole being recovered.

The new Pole shall be positioned such that a full Pole Test can be carried out.

Hollow poles in need of replacement must be replaced with a similar hollow pole (where a hazard still exists). Exceptionally, in situations where in order to obtain minimum wire height, the required Pole size is greater than that provided by the largest available hollow pole (10mtr), a wooden pole may be used.

In such cases, a Request Test must be raised via the AAPO to ensure either an 'H' or 'Z' label is affixed by an Openreach Pole Tester (the only person allowed to attach testing labels to poles). The request test must be submitted as soon as the work is executed.

The preferred hierarchy of solutions is as follows:

Option	Solution	Possible Issues
1	Move the pole to a new location,	Cost.

	beyond 1m from the existing hazard, continue with a wooden pole	Wayleaves. Additional ductwork/civils required.
2.	Replace the pole in its existing location with a hollow pole	Poles only available in sizes 9 & 10 metres. Wire height issues. Pole loading.
3.	Replace the pole in its existing location with a wooden pole, and seek request test to re-classify pole as H	Should only be a last resort, as pole will continue to require platform access

Table 3

Any required changes to design shall be agreed with the Works Originator / Designer and recorded.

4.1.1 Ownership rebranding of BT poles

Only BT poles shall be used on the Openreach network. Under no circumstances shall a BT pole be used for another CP's network. The 3-metre mark engraving shall never be changed. Likewise, CP marked Poles must not be used on the BT Openreach network. The only exception to this is where written permission is obtained from the approver of this document. Please see figure 1 below.



Figure 1- Example of pole with tampered 3 metre mark

4.1.2 Correct Pole Choice for Circumstances – Light or Medium

The loading capabilities for DPs on light & medium vary according to the particular location. Poles in denser urban areas can take a higher dropwire loading as they are not subject to the highest wind loadings.

This is detailed in full in ISIS EPT/ANS/A011 along with guidance on how to determine the loading for any particular location. Table 4, giving the maximum loading is detailed below:

Category	Type of Distribution Point	Maximum Number of Wires	
		Light Poles	Medium Poles
1	Urban – terraced houses/apartment blocks	40	40
2	Urban – semi-detached houses	28	40
3	Semi-rural DP's. Houses reasonably spread	24	40
4	Rural DPs	20	30
5	Exposed rural	12	20

Table 4- MAXIMUM DROPWIRE LOADINGS

From the above table, in the majority of cases, for poles with only dropwire loads, then a 'light' pole will suffice.

The only other consideration is when the pole has loading only to one side, or wires within a limited arc. The guidance on this is as follows:

4.1.3 Poles with non-radial loads

- Please see [EPT/ANS/A011](#) for non-radial (one side loaded) poles.

NEWLY PLANNED DPs

When planning new DPs, consideration should be given to the likely maximum future dropwire count, when determining whether to use a 'Light' or 'Medium' pole.

Obviously, if it is planned for the pole to carry aerial cables, or there is a genuine possibility of this in the future, or the pole is 'one side loaded' then a 'medium' pole should be used.

CARRIER POLES

When carrier poles are provided simply to give clearance for dropwires crossing roads (usually for bungalows, low buildings etc.) then in virtually all cases a 'light' pole will suffice.

POLE HEIGHTS & CARRIAGEWAY CLEARANCE

It is important that the correct height of pole is used where wires / cables will be crossing the carriageway, and it may be useful to use the [Height calculator](#).

COMPLIANCE CHECKS

As part of the audit regime, checks will be carried out to ensure the most appropriate pole gauge has been used, for the particular circumstance.

For planned works, checks will be carried out to ensure the work has been completed in line with the original agreed planned solution, and / or that any changes have been agreed with the planner.

For Asset Assurance work, checks will be carried out to ensure that the most appropriate size has been both specified and used for the particular circumstance.

Defects will be raised for non-compliance.

4.1.4 Pole positioning considerations (new & replacement poles)

When placing Poles consideration must always be given to existing items of street furniture. Poles should not be placed in positions which will restrict access to PCP'S, DSLAMS etc.

4.1.4.1 Poles in the vicinity of Mobile Phone Masts

Due to the non-ionizing radiation risk associated with phone masts, Openreach operate a horizontal exclusion zone of 4 metres. To ensure that the Pole climber will always remain outside of the exclusion zone, poles must not be installed within 5 metres of a mast.

4.1.4.2 Poles in verged/Footway, Kerbed areas

Where a Pole is to be provided / replaced in Verge, Footway, Kerbed areas, the following considerations apply:

- The preferred position for Poles is on the Property boundary side of the Footway. (See "B" in Figure 2)
- Wherever possible / practical, a minimum of 1 metre clearance should be maintained in the footway for pedestrian access. (See decision table below)
- Wherever possible, on made up Footpaths or Grass Verge, the Pole position should be a minimum of 500mm from the Kerb Stones or other edges (See

"A" in Figure 2). On very wide footpaths this may be increased depending on the position of other utilities.

Note: The 1m Footway clearance takes precedence over this requirement.

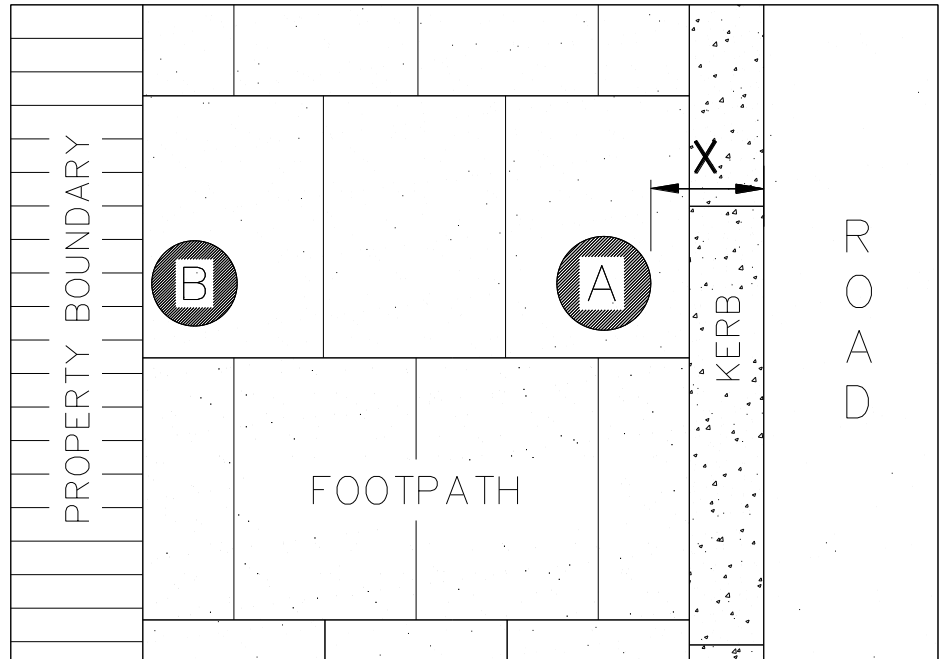


Figure 2-

A = Minimum Distance for Pole from kerb edge

B = Preferred Pole position for Poles in Footway

Note: X = 500mm

Decision Table – 1m Footway Requirement

Existing Poles

Situation	Solution
Existing Pole Position provides Min 1m Footway clearance	Renew in same position *Note: Consideration must also be given to RTA Requirements (see below)
Existing hole does not provide 1m clearance but suitable alternative position available with 5m	Renew Pole in new suitable position
Existing hole does not provide 1m clearance but suitable alternative position available with 10m	Agree DFE with AAPO for up to 5m of additional duct and renew Pole in new suitable position
Existing hole does not provide 1m clearance and no suitable alternative position is available	Contact AAPO for Authority to: a) Erect with <1m Footway clearance (Slip Number required)

with 10m	or b) Provide Non-Standard Solution
----------	--

Table 5

New Poles

Situation	Solution
Min 1m clearance achievable	Provide Pole in suitable position
No suitable location available which will provide 1m clearance	Contact Openreach Works Originator

Table 6

Additional considerations

Consideration should also be given to the following aspects which may impact on the Pole in future:

- Ladder Positioning
- Pole Testing
- Access by Elevating Platform
- Surface reinstatement requirements following Pole Testing
- Increased likelihood of damage by tall vehicles where Pole is located close to carriageway edge, particularly where significant road camber exists.

4.1.5 Pole positioning considerations (RTA renewals)

- Where, following site survey, the existing Pole position is deemed to be in a vulnerable position it should be re-positioned to a safer position away from the carriageway. (See decision table above).

4.1.6 Revised Working Procedures for 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

For process for "First person on site" please follow [this hyperlink](#).

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 table 7 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 damager are available, and have been recorded in line with process	See Step 1 for pole examination guidance. IF no damage is confirmed - No further Action	Arrange for pole renewal, with costs charged to appropriate HL estimate	Arrange for pole renewal, with costs charged to appropriate HL estimate
Details of damager are NOT available.	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

Table 7

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 EPT/OHP/C022 or the HSH. If there is evidence of damage, go to Step 2

Step 2

Contact the Network Assurance Operations Control

- 0800 0858262 or 0330 123 3304

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.

Guidance for Poling Teams

If Poling teams are called to an incident with a request for a pole renewal following an RTA, then the assumption is that the above process has been followed and the pole definitely requires renewal.

4.1.7 Restrictions on the Use of Creosote Treated Poles

There are restrictions on the locations where creosote treated poles can be used.

Openreach's current range of creosoted wooden poles **CANNOT** be used within **school playgrounds, play areas or other places where children will congregate**. The restriction also applies for pole replacement either for uplift works, or Asset Assurance renewal program works. The alternative options available are:

- Use of a hollow pole, available in 2 classes (Light & Medium). A hollow pole should be suitable unless heavyweight aerial cable is being deployed.
- Provide the service UG, or by surface cable on wall or similar, if this is deemed to be the most cost-effective solution.

If any job in such a location does not specify a hollow pole, the job should be referred back to the appropriate Control, and the Line Manager advised. If there is doubt as to whether a location should be classified as a school or public playground, consult your Line Manager in the first instance.

It is imperative that the correct poles are used in the restricted circumstances, and auditors will check to ensure compliance. Use of ordinary creosoted poles will be a 10pt CD, and it will be necessary to return to remove and replace any poles incorrectly installed.

4.1.8 Revisions to Low Wire Policy and Standards

This section details a change to the permitted height standard for drop wires and aerial cables and aligns the policy for all types of work. It details

instances where it is permitted to raise a Cat 4 A1024 for wires between 5.5m & 5.9m. There is no change for Openreach volume teams.

Under existing rules, engineers can provide new dropwires at heights between 5.5m & 5.9m, provided a Cat 4 A1024 is raised, to avoid a pole renewal. The principle behind this is that the height variance between 5.5m & 5.9m is an economic issue only, and not a matter of safety or compliance with the Comms Code 2003.

Installation of a new dropwire at between 5.5m and 5.9m is non-compliance to the agreed Openreach installation standard. Such instances are recorded as a Cat 4 A1024 in order to allow compliance to the standard to be monitored. It also affords the opportunity for audit visits to be carried out to ensure that such non-compliances only occur out of necessity and do not occur where the full standard could have been achieved.

This option has NOT been open to either Complex teams, or Contractors, when working on Low Wire re-tension & refix, pole renewal or new provision work. The principle being that as we are undertaking a poling job, we should ensure that dropwires are at 5.9m and aerial cable is at 5.6m

A detailed analysis of both completed jobs, and jobs in the pipeline (post survey) has shown that a considerable number of jobs either lead to a Non-Standard Solution (NSS) or to multiple carrier or intermediate poles, as well as a DP renewal.

(NB – NSS jobs can include ductwork and under-grounding of some or all of the network, to complete the job)

The purpose of this change is to prevent the provision of single poles, very tall poles (13 & 15 Metre), multiple carrier poles or NSS if they are to solely achieve 5.9m for wires and cables

Therefore, it will NOT be required to do any of the following actions if they are to solely achieve 5.9m rather than 5.5m

1. Renew a pole rather than use a re-tension & refix solution (re-tension, refix, renew, or re-route).
2. Provide additional carrier poles
3. Provide poles taller than 11m – This is the preferred maximum height.
4. Use Non-Standard Solutions (NSS)

Note: If in any instance 5.5m cannot be achieved, then the appropriate solution must be chosen in accordance with the Low Wire Height policy prioritisation flowchart

Where 5.9m cannot be achieved, the best possible wire height of 5.5m or above must be provided.

The use and relocation of standard brackets e.g., Eyebolts, Bracket 22 or Bracket 32 should be deployed to achieve 5.9m.

It is essential that Cat 4 A1024s are raised where wires are provided or renewed between 5.5m & 5.9m as failure to do so will constitute a quality defect.

If a wire or cable is provided or renewed between 5.5m and 5.9m, when the full 5.9m installation standard could have been achieved with the solution selected from the Low Wire height policy prioritisation flowchart, this will constitute a quality critical defect regardless of whether an A1024 is raised.

Where a height of 5.5m or above can be achieved using standard brackets e.g., Eyebolts, Bracket 22 or Bracket 32, there is no requirement to fit a Bracket 44 to increase that height.

If clearance of 5.5m cannot be achieved using standard brackets, then a Bracket 44 should be deployed to enable clearance of 5.5m minimum, with customer agreement.

An increased pole height up to 11m should be considered if a Bracket 44 cannot be used.

Note: The rules regarding wires below 5.5m will be rigorously enforced, and the appropriate defects will be issued.

◆ LOW WIRE HEIGHT POLICY PRIORITISATION FLOWCHART

All Overhead work on dropwires and aerial cables must be completed in accordance with the priorities in the following flowchart:

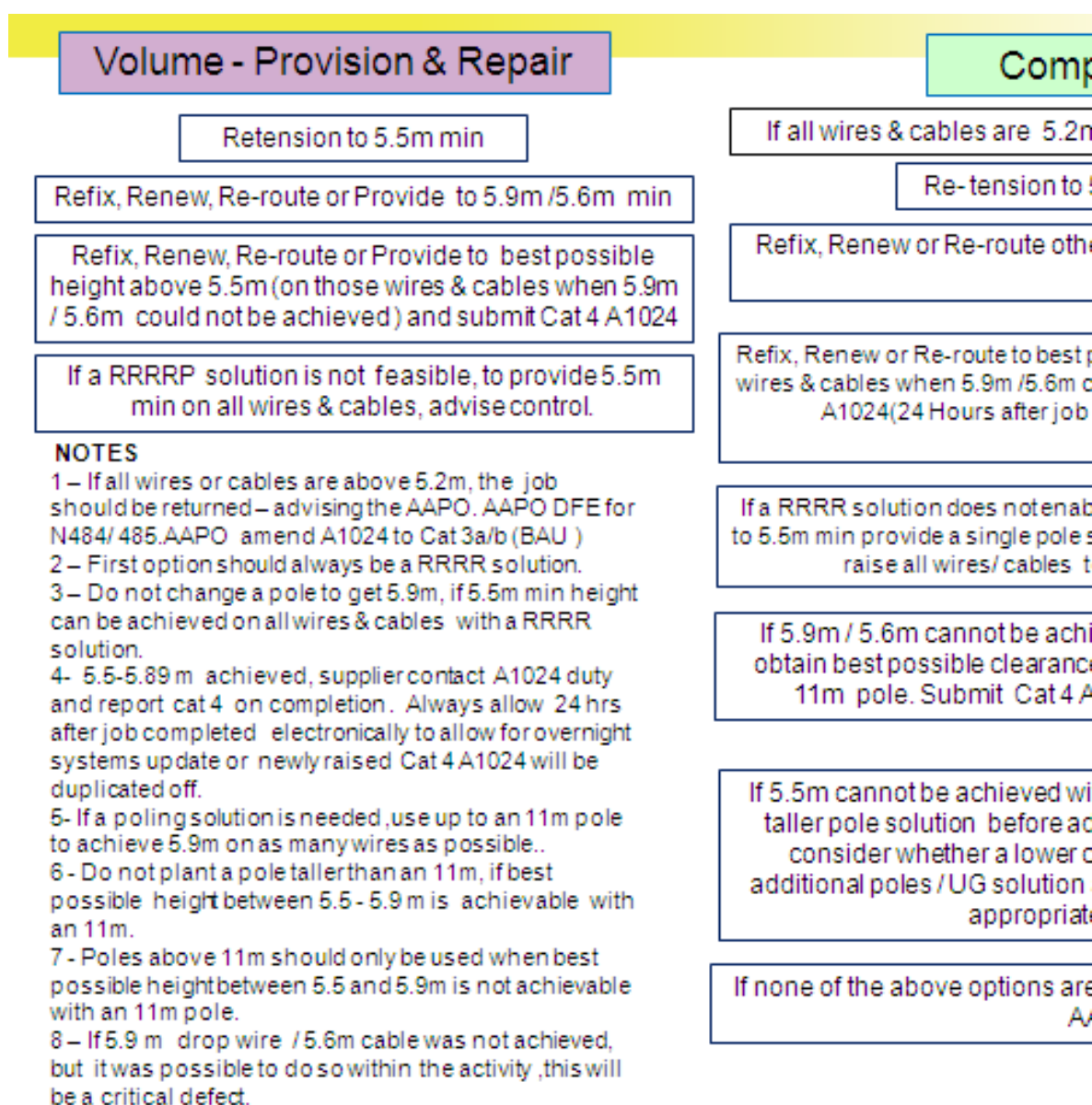


Figure 3

Additional Low Wire Programme Notes

Note 9 - Installation Standard

The default installation standards over carriageway remain at 5.9 metres minimum for Dropwires and 5.6 metres for Aerial Cables. These standards should always be achieved wherever possible.

Note 10 – Non-Compliance for wires or cables erected at 5.5 metres or above

Erecting or renewing a dropwire or aerial cable to between 5.5 & 5.9 metres is non-compliance to the installation standard. This must only be done as an

expedient to avoid unnecessary additional expenditure and in accordance with the low wire priority flowchart. This must always be recorded as a Cat 4 A1024 using the appropriate contact method. The new cat 4 A1024 must not be raised before the issued Cat 1 /2 has been made "engineering complete" overnight to allow for systems updates.

Note 11 – Low Wire rectification Programme

The purpose of the low wire rectification programme is to correct all Cat 1 & 2 low wires. Cat 3 & 4 low wires should be raised in conjunction with these, but no additional expenditure should be incurred, specifically no additional poles should be erected, or civil engineering work carried out for the express purpose of correcting Cat 3 or Cat 4 low wires

4.1.9 Instances where 5.5m cannot be achieved, with a Single Pole

Solution

There will be occasions when with a single pole solution up to 11m, it is not possible to achieve 5.5m and in those instances a taller pole should be considered first.

If this is not possible the following priority should be followed:

- Whether a lower cost UG solution is feasible.
- Consider a 2 pole or multiple pole solution
- Lastly, a Non-Standard Solution (NSS) may be required.

In ALL these instances, follow normal AAPO processes for additional work authorisation.

◆ Planning Poling Solutions For "New Work" – Non Asset Assurance

The principles detailed in this memo apply equally to 'new' network provision work, where a poling solution is being provided. Work can be planned to achieve 5.5m if meeting 5.9m would require additional poles or NSS. This should be done in accordance with the Low Wire Policy priorities.

The Works Executor must contact the Work Planner, if it is considered that additional work is required to achieve the standard

4.1.10 Guidance for Quality Checkers & Auditors

- Correct heights have been achieved on all wires for the prioritised solution completed.
- 5.9M was achieved when it was possible to do so.
- Correct use and reuse of fixing brackets to achieve required height
- Cat 4 A1024 submitted when a wire or cable was erected between 5.5m and 5.9m

4.1.11 Summary

- Return AA jobs that have no wires or cables below 5.2m
- Do not use the following solutions to simply achieve 5.9m, as opposed to 5.5m.
- Renew a pole rather than use a re-tension & refix solution.
- Provide additional carrier poles
- Provide poles taller than 11m – This is the preferred maximum height.
- Use Non-Standard Solutions (NSS)
- A Cat 4 A1024 must be raised in ALL cases, for each pole where wires are provided or renewed between 5.5m & 5.9m.

4.2 Pole handling

Care shall be taken during Transporting and Handling to prevent damage. See details below.

4.2.1 Hollow poles

- When hollow poles are being transported, they should be protected from contact with any metal surfaces or tools.
- Hollow poles must be transported so as to prevent damage or marking, particularly creasing or marking from creosote or other materials. Damaged poles must not be erected.
- If mechanical means are employed for lifting or erecting hollow poles, steel or wire rope slings or chains must not be used.

4.2.2 Wooden poles

- Only poles supplied by an authorised BT Supplier shall be used
- Poles must be handled with due care to prevent damage
- Poles must never be dropped
- Poles which suffer mechanical damage, or which have been dropped must not be used unless they have been examined by a BT pole examiner and approved for incorporation into the BT network

4.2.3 "Bleeding" poles

Poles are seasoned and treated as part of the manufacturing process to reduce the probability of creosote 'bleeding' out to a minimum. However, a

small percentage of poles will still 'bleed'. The supply chain for Poles incorporates the following control gates which must be applied by those involved:

- All deliveries to Pole stacks (DL or Contract) should be supervised, to check the quality of newly arrived Poles.
- Delivery of Bleeding Poles **must not** be accepted from Pole Suppliers.
- Any identified as Bleeding at point of delivery, or whilst sitting on the stack must be returned / replaced. See returns forms below.



- Bleeding poles **must not** be taken from the stack and **must not** be erected in the network.
- Where an existing pole is observed to be bleeding, it can be reported via A1024 – Defect Category 520 (Leaking Poles).
- Existing Leaking Poles can be protected using Hessian & Batten method described in Section 6.2.

4.3 Span length limits

The spacing between Poles shall be appropriate for the site circumstances, i.e., Location and type of Cable/s attached or planned to be attached.

4.4 Location of Other Utilities

The Work Executioner will be responsible for the location and marking of any underground services in the area of the pole/stay replacement site and also, the location of any overhead services that may be affected by any operation carried out in connection with the replacement of the pole and associated work.

4.5 Provision of a Testing Earth on Poles

Wooden Poles

To facilitate testing, Wooden Poles should always be provided with a testing earth wire when they are:

1. Distribution poles (DP's).
2. Carrier Poles with an existing testing earth attached

Note: 1. Earth wires must not be fitted to any pole within 'Zone A' at Electricity Generating and Transmission Stations.

Note: 2. Only 1.4 mm Non-insulated Wire Copper Soft should be used for the provision of Testing Earth Wires on wooden poles.

Note: 3. 1.4mm WCS must not be used when providing Lightning Protection of the independent suspension wire of an aerial cable. See EPT/ANS/A020 for full details of Lightning Protection requirements.

Attachment of the Testing Earth Wire

Testing Earth wires shall be run straight down the pole from the top to the underside of the butt where approximately 1 metre of wire should be formed into a flat spiral and secured by 25 mm brass staples.

The earth wire shall be run clear of steps or other pole fittings to minimize the risk of local corrosion between dissimilar metals.

On distribution poles the earth wire shall be run in a line where it will be covered by the capping protecting the Block Terminal tail cable.

From the pole butt for a distance of 4 metres the earth wire shall be secured at 300 mm intervals and above this point to the top of the pole at 600 mm intervals, using 25 mm brass staples.

Hollow Poles

Hollow poles, being of steel construction, do not need a Testing Earth wire fitted.

4.6 Power clearance

Relevant minimum Power proximity clearances must be maintained between BT & DNO Plant. (See EPT/PPS/B026 & EPT/PPS/B046 for details of requirements).

4.7 Insulators

Insulators shall be fitted to Stays where required. Where an insulated stay exists on a pole being renewed, it should be assumed that the insulator and stay are still required. See EPT/PPS/B026 & EPT/PPS/B046 for insulation requirements.

4.8 Pole furniture & fittings

◆ Wood poles

New pole/s should be fitted with all necessary pole furniture as detailed below.

Ring, Pole Head Dropwire

This is the current standard fitting used to support wires at the pole top (See Appendix 3 - Ring Pole head Dropwire). All poles intended for overhead distribution must be supplied fully dressed with a ringhead, this includes DP's and carrier poles with copper or fibre distribution apparatus (e.g., CBTs).

UPB's are primarily intended for attachment of aerial cables and stays, UPB's should not be used on poles for the distribution of dropwires; a ring must be fitted. A ringhead is not required on aerial cable only route poles.

The ringhead should be secured by a single bolt and shall incorporate flat plate washers and tubular spacing washers to ensure a good fit. The lock nut must be fitted. The Ring Pole Head shall be located into a hole pre-drilled at approximately 200 mm from the pole top. If no hole exists, then a hole should be bored to accommodate a 16mm bolt at a distance of 200 mm down from the top of the pole.

Appropriate ring size

Ring Pole Head will prove compatible with most light and medium classed poles.

Ring Pole Head 2

For some larger diameter poles a Ring Pole Head 2 may be required and must be fitted (back-to-back UPB's must not be provided).

A Ring Pole Head 2 should also be used for replacement of crown rings, please see [EPT/OHP/B079](#) for more detail.

Pole Steps

A set of galvanized steel steps are to be provided in accordance with the Specification (Pole steps are not to be fitted on hollow poles).

The layout of the pole steps shall be positioned as shown in Appendix 4 of this Document.

The pole climbing steps shall normally continue to within 4.5 metres of the ground, lowest step to be 4 – 4.5 m from the ground level, or in the case of sloping ground, to a height above ground level detailed by the Work Originator. Only working steps should be fitted at positions less than 4m from the ground.

Step Orientation

DP's- In general DPs should be stepped at right angles to the carriageway.

CP's- The orientation for carrier poles may vary depending on both the ladder placement and presence of Aerial Cables.

As a general rule the Pole steps should be orientated to provide the best safe ladder placement whilst avoiding the need to close a footpath or creating an unnecessary hazard.

Examples of preferred orientations are shown below:



.....*Figure 4- DP*..... *Figure 5- Urban CP*



Figure 6- CP Aerial Cable route

The above process is the standard practice. However, this may be modified if an [on-site risk assessment](#) indicates that another layout would be beneficial in terms of safer access or other working arrangements.

The pole steps shall be secured to the pole using screws coach, which are designed to be driven in with a hammer, for all but the last 12 mm.

IT IS ESSENTIAL FOR SAFETY REASONS THAT THE LAST 12 MM OF THE COACH SCREW BE SCREWED HOME.

The coach screws shall be driven into the pole so that the head of the coach screw beds firmly on the pole step, when finally screwed home the final 12 mm.

The coach screws must be located in sound timber, they must never be driven into cracks or other minor flaws, where steps are removed from poles in service any holes left by the removal of coach bolts must be plugged with Plugs Creosoted.

Note: Where redundant Pole furniture has been recovered, all holes shall be plugged correctly.

4.8.1 Hollow poles

Cap Pole 1A

A mushroom shaped Glass Reinforced Plastic moulding shall be fitted to the top of hollow poles, no special tools are required to fit the Cap and unnecessary force should not be used. The cap should be offered to the pole head and pushed home by hand only. DO NOT USE HAMMERS. Where the cap is loose on the pole it should be packed out with adhesive tape.

Telenco Universal Pole Bracket

A new range of steel hollow poles has been introduced into BT. The new range of poles are available in 'Light' and 'Medium' gauge with lengths of 9 & 10 Metres and equate directly to the Light & Medium wooden poles. The new poles do not have 3 cable loop rings at the top of the pole. Therefore, on the occasions where an aerial cable or stay is required, a Telenco Universal Pole Bracket shall be fitted (see [Appendix 5 - Hollow Pole Caps](#))

4.9 Route/pole strengthening

Stays shall be provided / re-provided where required. See EPT/ANS/A014 and EPT/ANS/A015 for Route Stability and Stay Construction Specifications.

4.9.1 Stays on Poles in Urban Situations

The following applies in situations where Stays are required to provide route stability in urban areas.

Asset assurance Work:

- The Pole should be re-located away from the kerb edge to enable a stay to be fitted in line with the Boundary Wall / Hedge at the back of the footpath.
- Where site conditions preclude re-location, and it is the Surveyors assessment that a stay in the current kerbside location would prevent a possible hazard, the job should be referred to the Asset Assurance Office (AAO) for a planned solution. The AAO will give guidance on the correct process to be used for any Non-Standard Solution (NSS).
- Where, in urban situations, it is necessary for a pole / stay to be positioned close to a fence line or boundary wall, it may not be possible to excavate a hole for the Stay / Pole by mechanical means due to the close proximity of other buried services. In such cases a manual excavation will be required. Where this is the case, consideration must be given to ensure that any foundations for walls etc. are not undermined.
- To prevent unnecessary service outages, it is advisable to check, and if necessary, excavate the stay (and possibly pole) position before the old pole is recovered.

New Planned Works or Network Improvements:

- The Planned Pole location should be on the Boundary Wall / Hedge at the back of the footpath.
- If Hazards are anticipated for footway users, full consideration should be given to providing services underground, in duct.
- Additionally, the general guidance on Pole Positions contained in ISIS NWK/LNK/C319 should be followed.

All Works:

- The "30m" Rule should be utilised where possible
- A Stay Guard High Visibility should be provided on all stays fitted in Urban Situations

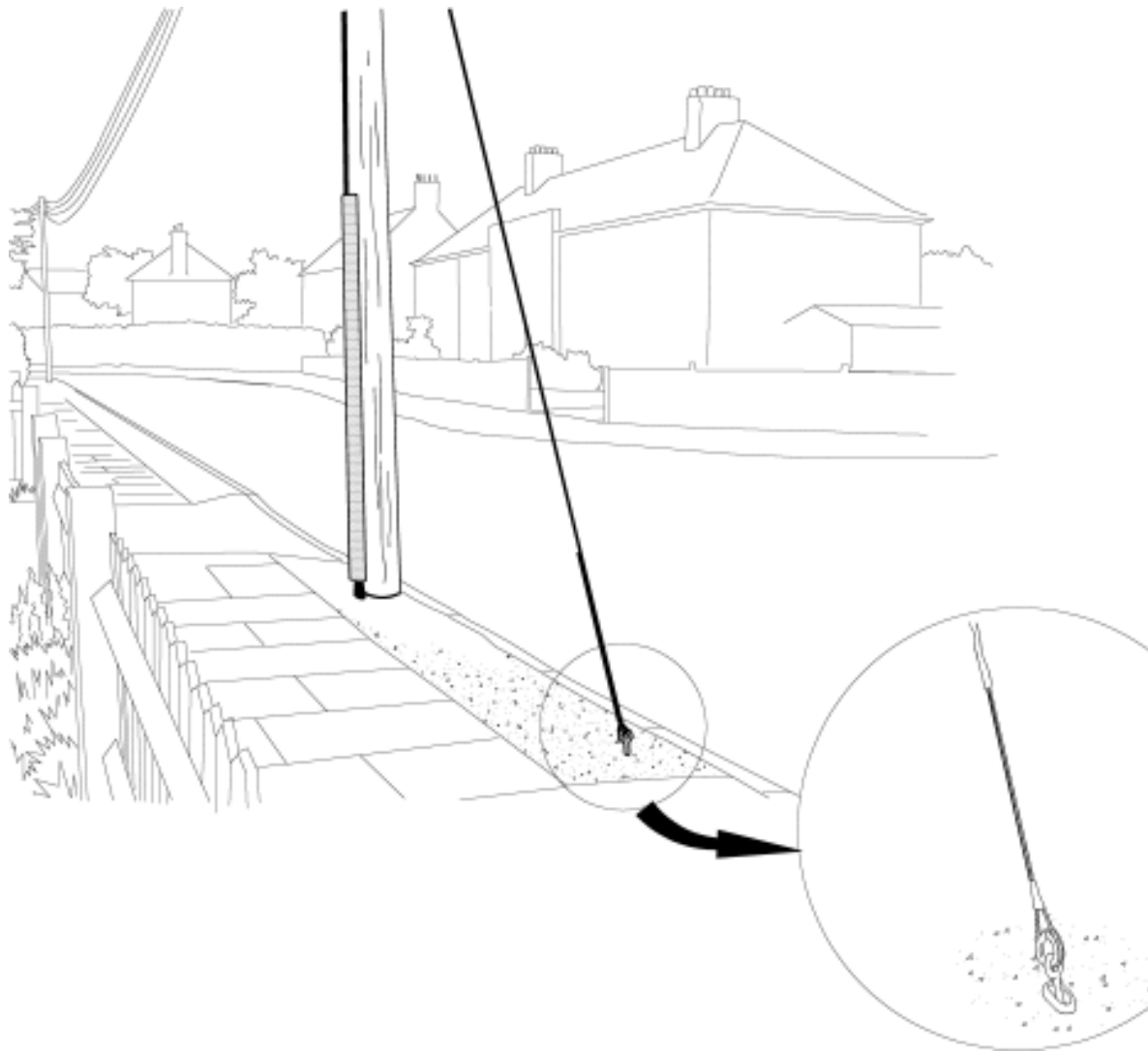


Figure 7 – above shows an example of a stay on an urban footpath, and how both the anchor and the stay wire itself, can present a risk to pedestrians and other road users

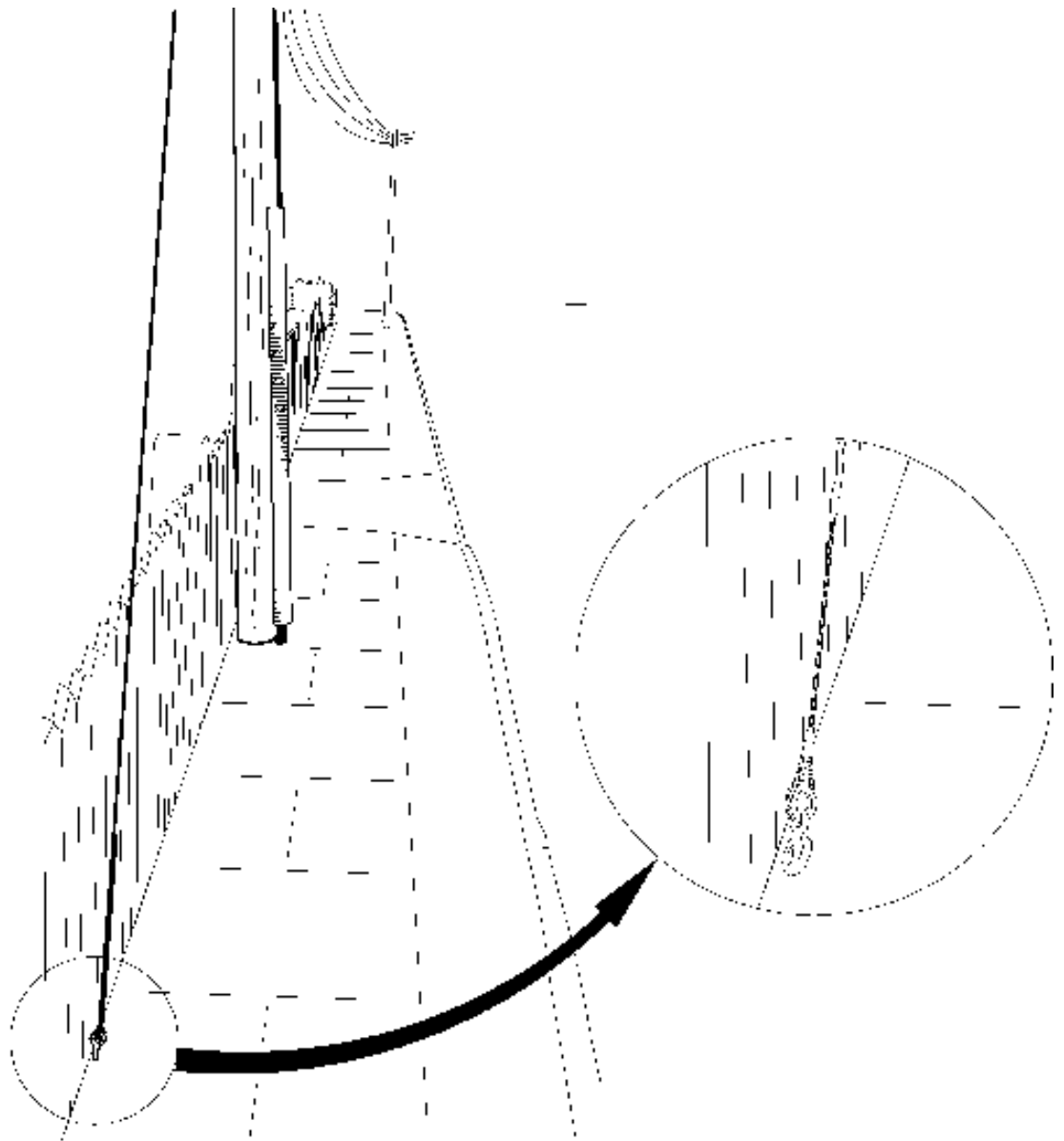


Figure 8 above - shows how if the pole and stay are positioned on the fence-line or house border side of the footpath, it presents a much-reduced risk

4.10 Recovery of an Existing Strut

When identified by the works originator as being no longer required, existing struts shall be recovered and disposed of by the Work Executioner by an agreed method compliant with the Work Originator's policy.

4.11 Temporary Staying of Route

Where required the Work Executioner will be responsible for the temporary staying of any pole carrying the additional loads created by the temporary removal of the stay or other poles etc., along the route.

4.12 Pole holes

Where a pole is planted next to an existing pole the butt of the old pole **must not** be left in situ.

4.13 Pole depths

The depth at which a pole is to be set in the ground varies with the character of the soil. Under average conditions (i.e., all soil conditions except poor ones), poles **must** normally be set to a depth of from 1.2 metres to 1.8 metres according to their length (*i.e., 6 m 1.2, 15 m 1.8, all pole lengths in-between in proportion, see table 1 below*).

In "made up ground" or where the soil is exceptionally loose (poor ground), increased depths **must** be allowed. See table below.

Poles classified as DPs are planted deeper than route poles. This is to allow for any unplanned out of balance loading. It is usually 300mm in normal or good soil, and 600mm in poor soil – however refer to tables below for specific depths.

Poles which were classified as route poles at the time of installation, but which are subsequently changed to DPs do not require to be re-installed at greater depth. If the pole has an excessive out of balance load, which subsequently leads to lean beyond 10°, then the pole should be reported via A1024 for remedial action.

Poles **must** be set at adequate depth to ensure stability of the pole in the ground with the following aspects taken into consideration:

- Site conditions at the pole hole location
- Changes in ground level adjacent to the Pole
- Maximum load capacity of the pole (See EPT/ANS/A011 for details on Pole Loading Capacity)
- Any additional minimum depth set by the work originator.

4.13.1 Poles in Banks/Slopes

Increased depths **must** also be allowed where poles are set in banks, since there would be a liability of the side of the bank giving way under heavy stresses.

Poles should be set to the depths identified in this document. However, when poles are set into the side or near the edge of banks or ditches it should be ensured they are set at adequate depth by additionally taking into account the slope and nature of the ground.

As a guide, when a pole is set at adequate depth, a line drawn from a point on the pole at ground level, to a position of no more than 45° to a horizontal line from the pole butt would always be contained in the undisturbed soil of the bank (see Figures 9, 10 and 11). A 1:1 base to height ratio would achieve this. This assumes the pole is in reasonably drained, well compact, undisturbed ground.

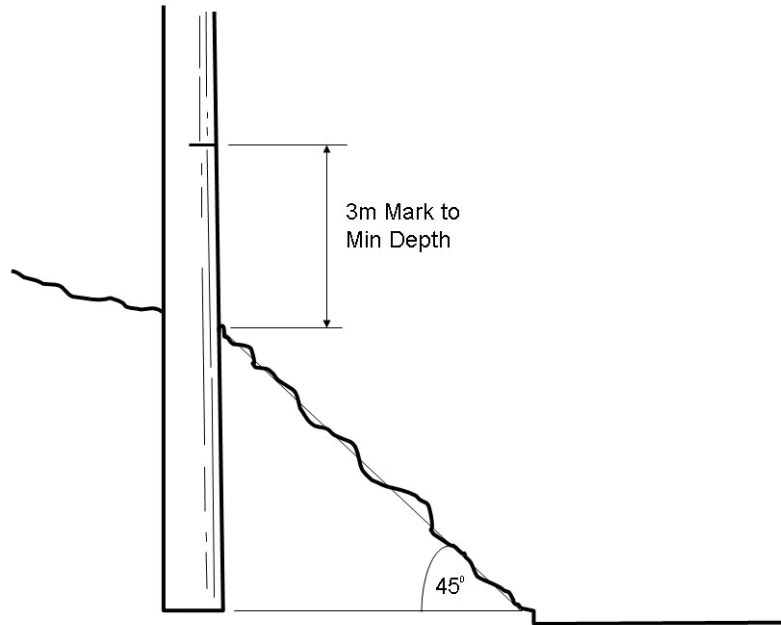


Figure 9- Pole set on 45° of bank

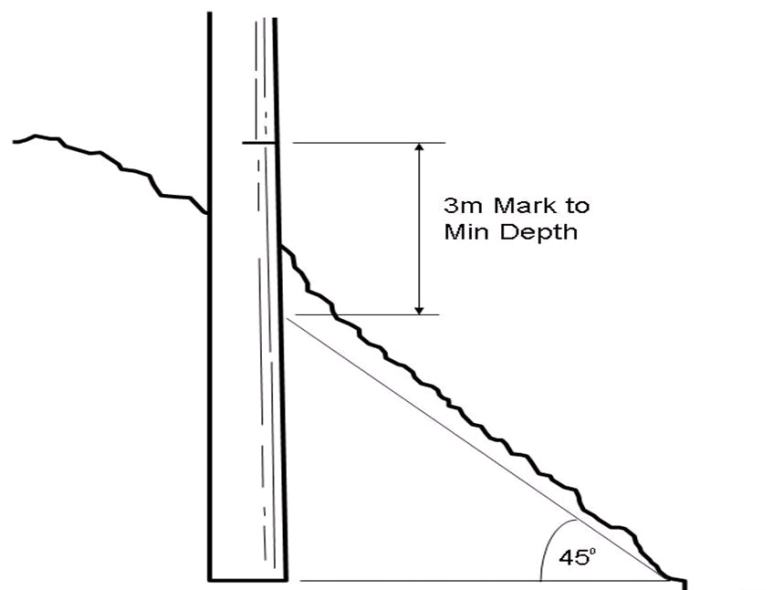


Figure 10- Pole set within 45° of bank

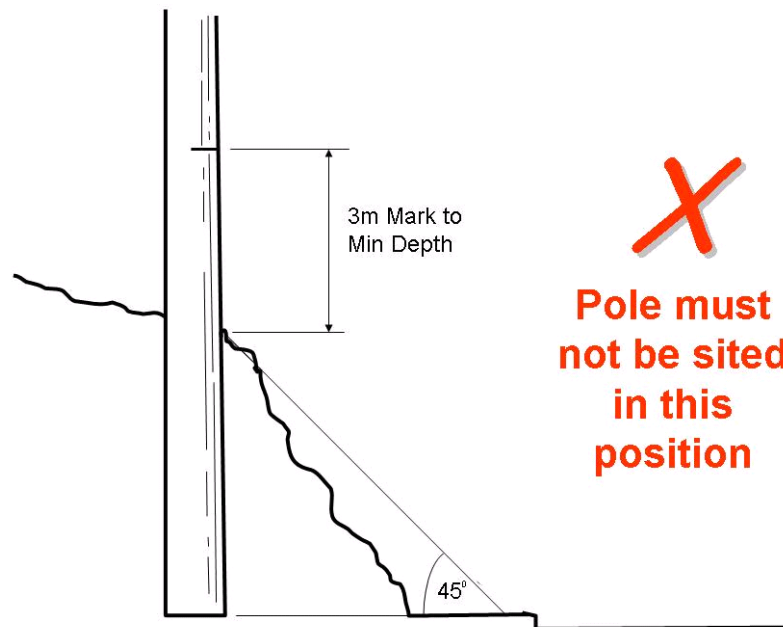


Figure 11- Poles set greater than 45° of bank

Additionally, the following should be taken into account when considering the slope and stability of the bank:

If the pole is in soft or wet ground or a bank or ditch has been dug out and backfilled the maximum slope angle should be much less than 1 in 1 (see Figure 12). A maximum of 1 in 2 (25°) is a guide; and for very soft or very wet ground (for example marshy) it may have to be as low as 1 in 4 (15°).

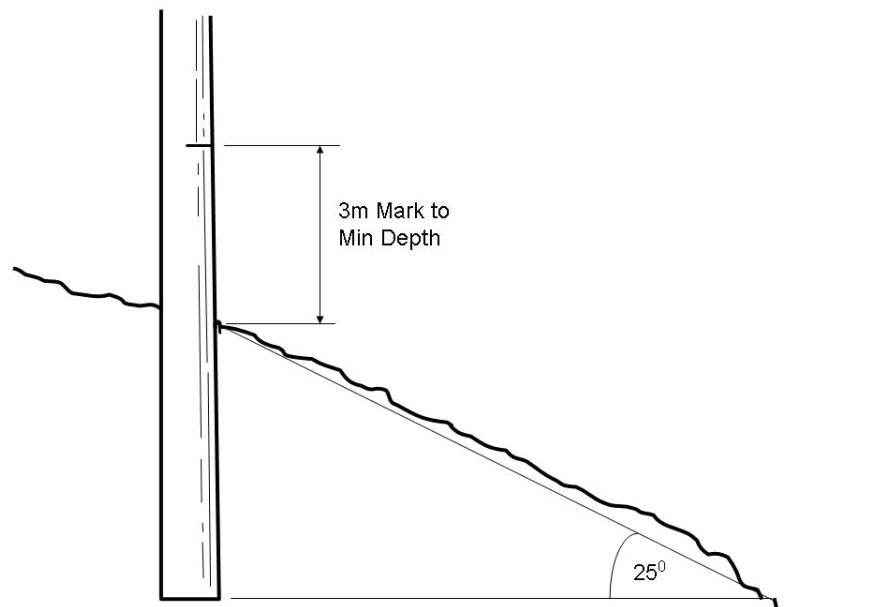


Figure 12- Pole set in soft or wet ground

If the pole is set in long established undisturbed, very stable soil, or the bank/ditch side is supported in some way (see Figure 13), then the angle may be greater than 45°. For example, some steep banks in rural lanes in the south-west of the UK are very old and very stable.

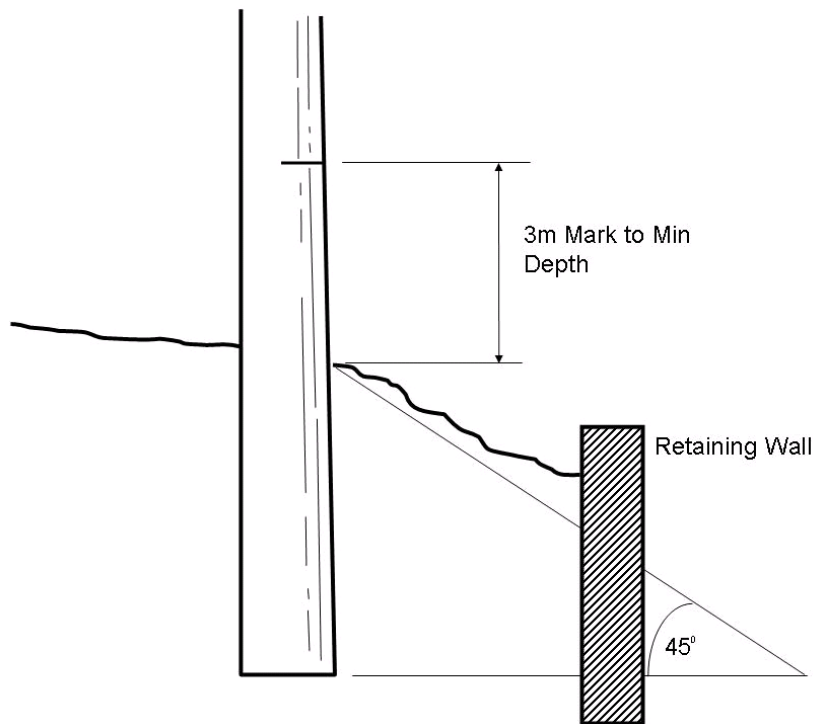


Figure 13- Bank supported by retaining wall

- Do not allow for any stability from cables or stays when assessing the planting depth of a new pole.
- Particular attention should be paid to any features which may change, such as ditches which may be dug out.
- The ladder position of anyone climbing the pole cannot be assumed to add to the stability of the pole. The person may turn on the pole and tension wires away from the ladder.
- Any unsupported pull-on-pole may decrease the stability of a pole set in a slope by causing gradual failure of the supporting soil over time due to fluctuating loads. This may be made worse if the pull is trying to lever the top of the pole out of the bank.

4.13.2 Standard Planting Depths for Poles

For audit purposes the depths in Table 8 will be taken as the minimum. The depths should not be exceeded by more than 150mm. This is to ensure that cable clearance heights are not unduly affected. If it is necessary to replace spoil in a pole hole prior to planting, to comply with the above, ensure it is fully compacted.

- Wood poles which are to be used as distribution points must be set at least 1.5m into the ground.
- For hollow poles, the depth in the ground shall be 1.5m (top of door aperture 1.6m above ground level)
- UNDER NO CIRCUMSTANCES SHALL THE BUTT END OF ANY POLE BE SHORTENED OR MODIFIED EXCEPT FOR AN APPROVED SLOT WHEN FITTING A BLOCK

Pole Length	Route or stayed poles in good or average soil conditions	DPs or equivalent poles in good or average soil conditions, or Route or Stayed Poles in poor conditions	DPs or equivalent poles in poor soil conditions
6	1.2	1.5	1.8
7	1.3	1.6	1.9
8	1.35	1.65	1.95
9	1.4	1.7	2.0
10	1.5	1.8	2.1
11	1.55	1.85	2.15
12	1.6	1.9	2.2
13	1.7	2.0	2.3
14	1.75	2.05	2.35
15	1.8	2.1	2.4

Table 8- Standard Planting Depths for wood poles

Poor soil is:

Soft clay, clay loam, poorly compacted sand, clay containing a large amount of silt and vegetable matter, made up ground etc. Poor soils often have poor drainage and may be wet.

4.13.3 Exceptions to Standard Pole Depths (Hand dug Poles in Urban Areas)

Guidelines for use of alternative planting depths:

- The depths detailed here are ONLY applicable where the pole hole has been manually dug
- In ALL instances where the mechanical auger has been deployed, the original depths must be adhered to
- There are now 2 tables, one for Light poles, and one for Medium poles
- It is necessary to continue to determine the ground/soil conditions, but the number of categories has increased from 2 to 3. These are now "Good", "Average" and "Poor" (see definitions below)
- Account must be taken of the nature of the buildings, and as these revised depths are only to be used in urban situations, there are only 2 categories, terraced buildings (i.e., with little or no gaps between) or semi-detached

Note: See separate section for poles in Scotland.

Definition of urban:

Part of a Town, City or other large conurbation which has a reasonable density of population and is located in a generally low lying or unexposed area of the UK.

Soil / Ground Classifications

Good	Compact, well graded sand and gravel, hard clay, well graded fine and coarse sand, decomposed granite, rock, and soil. Good ground conditions should be well drained and in locations where water will not stand
Average	Compact fine sand, medium clay, compact well drained sandy loam, loose coarse sand, and gravel. Average ground conditions should drain sufficiently well that water does not stand on the surface.
Poor	Soft clay, clay loam, poorly compacted sand, clays containing a large amount of silt and vegetable matter, and made up ground. Poor ground conditions will normally be wet and have poor drainage.

Table 9- Soil / Ground Classifications

Light Poles

Pole Size	Route Pole in Urban Area	Route Pole in Urban Area	DP in "Terraced" type road <15m	DP in "Terraced" type road <15m	DP in Suburban Semi – Detached type road	DP in Suburban Semi – Detached type road
	Good Soil	Average Soil	Good Soil	Average Soil	Good Soil	Average Soil
6	1.2	1.2	1.3	1.3	1.2	1.3
7	1.2	1.3	1.3	1.4	1.3	1.4
8	1.2	1.3	1.4	1.5	1.4	1.5
9	1.3	1.4	1.4	1.5	1.4	1.5
10	1.3	1.4	1.5	1.6	1.5	1.6
11	1.4	1.5	1.6	1.6	1.6	1.7
13	1.5	1.6	1.7	1.8	1.7	1.8
For Poor Soil (see definition) add 300mm in all cases						

Table 10- Exceptional Pole Depths (Light Poles)

Medium Poles						
Pole Size	Route Pole in Urban Area	Route Pole in Urban Area	DP in "Terraced" type road <15m	DP in "Terraced" type road <15m	DP in Suburban Semi – Detached type road	DP in Suburban Semi – Detached type road
	Good Soil	Average Soil	Good Soil	Average Soil	Good Soil	Average Soil
7	1.2	1.3	1.3	1.4	1.3	1.4
8	1.3	1.3	1.4	1.5	1.4	1.5
9	1.3	1.4	1.4	1.6	1.4	1.5
10	1.4	1.5	1.5	1.7	1.5	1.6
11	1.4	1.6	1.6	1.7	1.6	1.7
12	1.5	1.6	1.6	1.8	1.6	1.7
13	1.5	1.7	1.7	1.8	1.7	1.8
15	1.6	1.8	1.8	1.9	1.8	1.9
For Poor Soil (see definition) add 300mm in all cases						

Table 11- Exceptional Pole Depths (Medium Poles)

Poles in Urban back gardens or similar urban locations, in Scotland or elsewhere in the UK.

For Poles in these situations, it is necessary to make an assessment of the degree of exposure. Any pole which is considered "exposed" must be planted

to the standard depth. These revised depths listed below can only be for poles in "normal" or "sheltered" exposure. Again, these revised depths only apply where the pole is manually dug, if the auger is used, then the original depth applies. It is assumed that virtually all poles in these situations will be DPs.

Definitions

Local knowledge of the surrounding country will provide an indication of the appropriate classification to be used. In general, the three degrees of exposure will apply as follows:

1. **Sheltered** – Where nearby hills, buildings, woods, or other features protect the line from high winds.
2. **Normal** – Inland situations where there is no significant shelter from winds.
3. **Exposed** – Situations near most of the UK coast and over higher ground, where winds of high velocity and/or icing are more likely to occur.

Where there is doubt as to the class of exposure, use the higher one.

Pole Size	Light Poles "normal" or "sheltered" only		Medium Poles "normal" or "sheltered" only	
	Up to 40m Garden Length	Up to 50m Garden Length	Up to 40m Garden Length	Up to 50m Garden Length
6	1.3	1.4		
7	1.4	1.5	1.4	1.5
8	1.4	1.5	1.4	1.5
9	1.4	1.5	1.5	1.6
10	1.5	1.6	1.5	1.6
11	1.5	1.6	1.6	1.7
12			1.6	1.7
For poor soil (see definition) add 300mm in all cases				

Table 12- Revised Pole Depths – Urban "normal" or "sheltered"

Poles in Non-Urban Situations – Rural or Exposed

All poles in non-urban situations must still be planted to the Standard depths. In most cases it should be possible to use the auger, but EVEN IF THIS IS NOT POSSIBLE, then the hole will need to be manually dug to the original depths.

4.14 Other Exceptions to Standard Depth – Restricted Depth

◆ Wood Poles

Wooden Poles set in rock sockets and in stable rock backfilled excavations may be stable when the depth of the pole in the rock is as little as 0.9 m. Reduced planting depths are allowed where the minimum planting depth of 1.2m is achieved, provided the following conditions are met:

- A minimum of 0.9M of the pole is in rock,
- The type of rock complies with the definitions shown below
- The pole is recorded on the national register of poles at restricted depth.



HERE

Please click [HERE](#) for the data capture form.

Once completed, the form should be sent to following e mail address:

poleupdate@openreach.co.uk

For further details, please contact the Pole test control Office on 0330 123 3304.

4.14.1 Hollow poles

These may be planted at reduced depth in accordance with the above conditions however the minimum planting depth shall be 1.35m - to prevent the cutaways for the UG feed being exposed.

4.14.2 Definition of Rock

Three types of rock are found:

- Soft Rock – Means a bed of rock that may consist of a mass of hard stone containing fissures or seams; it not being practicable to excavate by fork and/or spade. Although it may be possible to excavate using an ordinary pickaxe, it would, if so excavated, result in a very uneconomical rate of progress, and so necessitate the use of a compressor and pneumatic tools for economical excavation. Notwithstanding the foregoing definition, soft stone (e.g., chalk etc.) shall NOT be classed as rock where excavation is by means of a mechanical excavator/digger/pole erection unit.
- Hard Rock - Means a solid mass of rock which may have seams but is virtually unaffected by a blow from a pickaxe and requires a compressor or blasting equipment to execute excavation.
- Boulder rock - Means a solid stone in boulder formation, similar in character to hard rock, having a measurement exceeding 380mm cube or volume exceeding 0.055cubic metre (e.g. (380mm x 380mm x 380mm) or (300mm x 500mm x 390mm) or approximate imperial equivalent measurements (12" x 20" x 16").

4.15 Pole depth verification

Conduit 20 & Plug Conduit 20

All wood poles shall be installed with a length of conduit down the side to allow for confirmation of compliance to depth and integrity regulations.

Conduit 20 is supplied in 2.3m lengths. Before attaching to the pole, this should be cut to length using a hacksaw so that approximately 150mm will be showing above the reinstatement.

The conduit 20 shall be fitted making sure that the bottom end is flush with the butt of the pole and the top end is accessible and will not interfere with any cable/duct feeding the pole or the earth wire (where fitted) and that the plugs are fitted top and bottom.

Five Staples Galvanised 65mm, equally spaced, should be used to secure the conduit to the pole. The top staple should be located 100mm from the end to allow removal of the plug. Care should be taken, when driving in the staples, not to crush or damage the conduit.

4.16 Pole alignment & orientation

4.16.1 Alignment

Poles shall be erected to ensure they are vertical when viewed from all angles. Vertical definition and permitted tolerances are defined in [Appendix 6 - vertical definition & permitted tolerances](#).

4.16.2 Orientation (Hollow poles)

When a hollow pole is placed adjacent to a kerb line, the door shall be positioned so that all work can be carried out on the footway. See [Appendix 7 - hollow pole orientation](#).

When a pole is placed against a boundary wall or fence, the door shall be positioned facing outwards away from the wall or hedge line. See [Appendix 7 - hollow pole orientation](#).

4.17 Reinstatement

All reinstatements will be carried out in accordance with the New Roads and Street Works Act (NRSWA) and the associated Code of Practice titled Specification for the Reinstatement of Openings in Highways (ISBN 0-11-551143-1). This details the materials to be used and standards of workmanship that are to be adopted to achieve the prescribed requirements.

Apart from the surface reinstatement down to a minimum level to satisfy the code of practice, reinstatement around poles which are considered as surround to apparatus, should be with the material excavated or as near as possible a match to it. If the material removed cannot be replaced for any reason, match the existing ground as closely as possible.

Where the excavated spoil from around the Pole is too wet to compact, Soil Stabilizing Agent may be mixed with existing spoil to provide a suitable backfill material. Exceptionally, Type 1 Granular Sub-Base may be used.

Do not use Limestone granular backfill.

4.18 Possible Technical Departures from Standards (TDFS)

There will be possible instances where it is not possible, or cost effective, to fully comply with the relevant standards detailed in this document. In those cases, it MAY be possible to apply for a TDFS for a particular job. The process for this is detailed in EPT/ANS/A013.

4.19 Statutory notices

When a new pole has been installed, an 'objection to overhead apparatus' form A273 must be attached to the pole within 3 days of completion of work.

If several dropwires are to be changed or added within the next 3 months, a form A273a must be attached.

The A273 shall be clearly annotated with the Date of works together with the name and contact details of the works executioner.

4.20 Marking and Labelling of Poles

General – Marking and labelling of products will be in line with standard BT practice.

- Poles (DP's & Carriers) shall be correctly numbered
- All necessary labels (i.e., Hollow Pole No climb) shall be provided
- Labels on Wooden Poles should be fixed between 1.8m – 2.0m above the ground line. The labels are attached to the pole with Pins Steel No 1 through the holes provided
- Labels on Hollow Poles (self-adhesive) should be fitted at a height of approximately 1m above the top of the door aperture

- Numbers / Labels / 3 metre mark shall be clearly visible on approach to the pole (not obscured in bushes etc)

4.21 Registration of New Poles

All new poles installed shall be registered as soon as possible on the Asset Assurance database. This is to ensure that details on pole population are captured soon after installation.

The process for this data capture is to use the Provelt app. If this is unavailable use the following data collection form can be used. Click



HERE

for a copy of the form.

Once completed, it should be emailed to: poleupdate@openreach.co.uk

For further details, please contact the Pole test control Office on 0800 085 8262 or 0330 123 3304.

4.22 Storage and Disposal of Poles

Environment Agency Groundwater Regulations consider the constituents of creosote used on Poles as hazardous. Left unchecked, potentially contaminated rainwater running off from some pole stacks may enter and pollute controlled water sources. Openreach and its Partners are therefore required to provide effective environmental management of their pole stacks to control the risk.

Within Openreach the risk is managed using Pole Stack covers which prevent rainwater falling onto poles. Partners may choose alternative options, but whatever the solution, it must provide effective control of the risk.

All recovered poles shall be disposed of by the Works Executioner via an auditable process and in accordance with BT's Environmental Policy and the Environmental Protection Act 1990.

The requirements for Pole disposal include, but are not limited to:

1. Recovered poles should have all BT markings, labels and fittings removed.

2. Poles which have been treated with green coloured copper chrome/arsenic preservative, or carry the markings B, BL, BX, P, TC, CE, or C must not be sold as scrap or disposed of by burning. (See [Appendix 8 - Preservative Treatments - Code Markings](#) for details of each category.) These poles shall be disposed of by an agreed method compliant with BT policy. (See [Markings for preservative details](#).) Poles bearing an "EDT" label or having those letters carved into the timber should be reported to the Work Originator before disposal.

4.23 Operating Instructions

All products used will be fitted in line with the restrictions detailed previously and in line with the instructions issued with the kit to be used.

4.24 Product Approval

Only products approved by the Specification Authority shall be used.

5 *Requirements for Wireless Poles*

Where the Pole being erected is to support an Antenna for a Point to Point, Wireless to the Cabinet (WTTC) application, specific requirements apply. These are fully detailed in ISIS - TMN/RSM/A141 and must be complied with.

6 *Appendices*

6.1 Appendix 1 - Universal Pole Bracket (UPB)

- Standard fixing to Pole is using Bolt Hex Head.
- When used on Hollow Poles and Joint User Poles, Stainless steel banding can be used to fix the bracket to the Pole.
- **See EPT/ANS/A012 for full details of plant attachment permutations.**



Figure 14

6.2 **Appendix 2 - Lagging of Existing Poles in the Event of Bleeding**

A Pole wrapped with Hessian shall consist of:

- A minimum of 3 complete turns of Hessian on the Pole
- A minimum of 300mm of space must be left clear at the base of the Pole for hammer testing purposes
- The 3-metre mark and the Pole labels must not be covered
- Affix the Battens approximately 75mm apart with 300mm vertical separation between the nails. One of the battens may need to be cut to size to affix above and below the 3-metre mark
- The Hessian should be installed under any capping/cables



Figure 15- Example of fitted Hessian Sack Kit

6.3 Appendix 3 - Rings Pole head Dropwiring

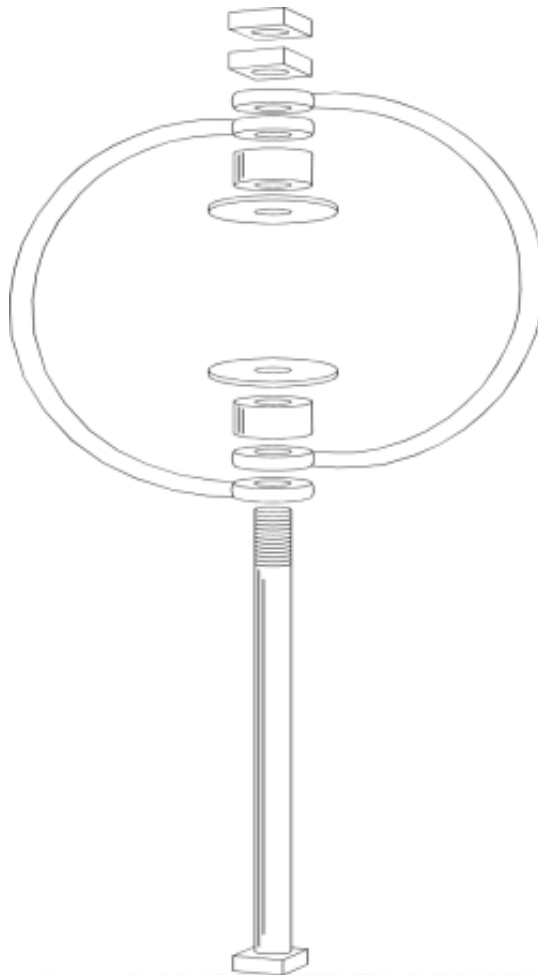


Figure 16

6.4 Appendix 4 - Step Positions on Pole

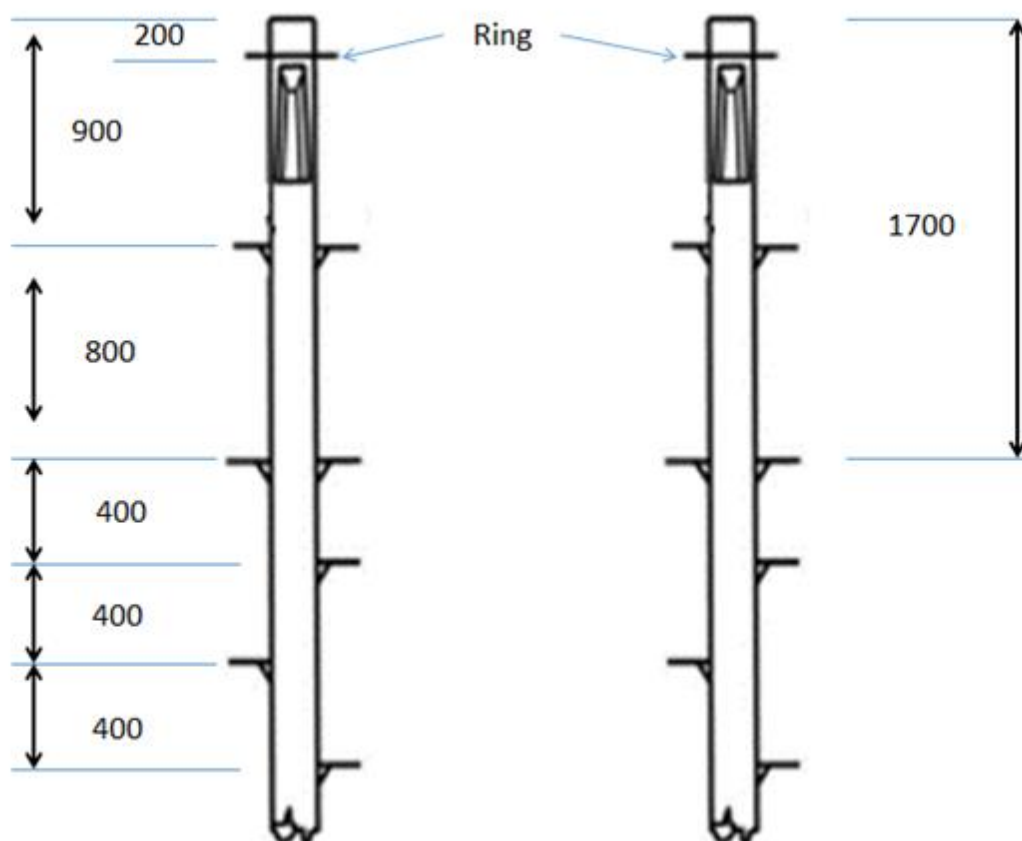


Figure 17

Note: The position of Bass steps relative to climbing step

6.5 Appendix 5 - Hollow Pole Caps

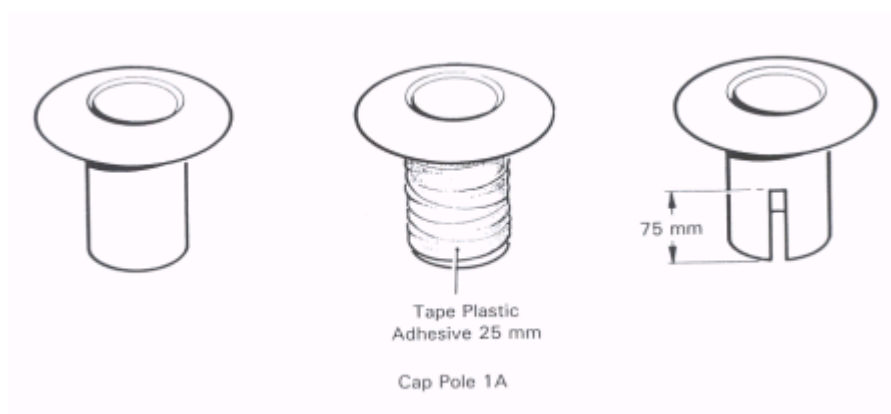


Figure 18

6.6 Appendix 6 - vertical definition & permitted tolerances

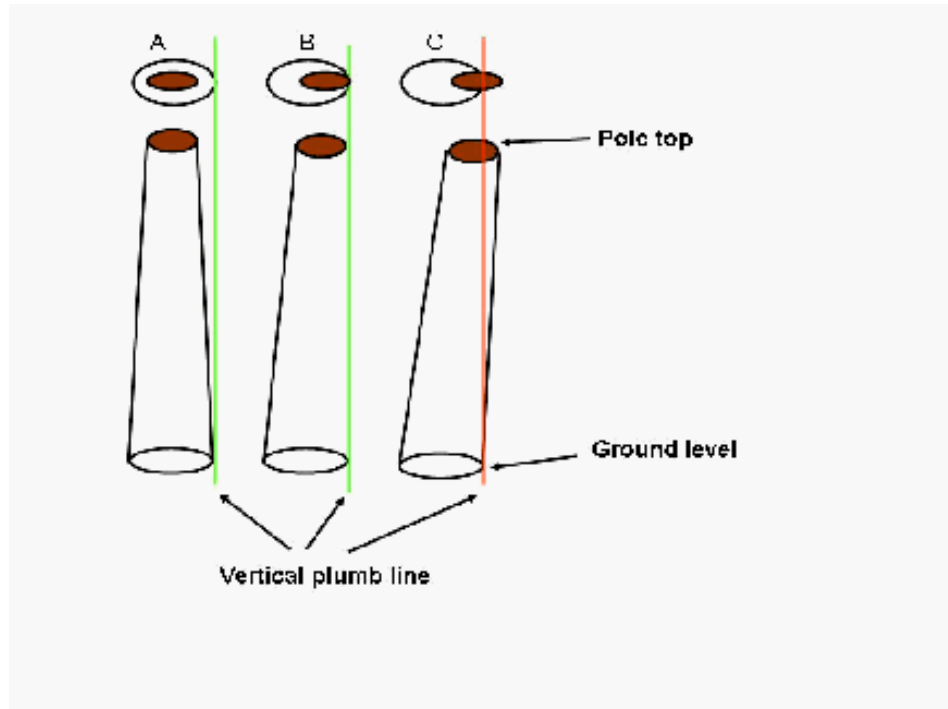


Figure 19

Fig A: Shows absolute vertical.

Fig B: The Pole alignment is moving away from true vertical but is still regarded as within acceptable tolerance.

Fig C: The top circumference has now moved beyond true vertical

For Quality Audit purposes: Any alignment between Fig A, up to and including Fig B is within acceptable tolerance.

Where, from any aspect, the top circumference is beyond the true vertical with respect to ground level circumference (i.e., Fig C). The alignment becomes outside of acceptable tolerance and should be regarded as below standard.

Note: Any natural bend in pole between ground level & pole top is to be allowed for in calculation.

6.7 Appendix 7 - hollow pole orientation

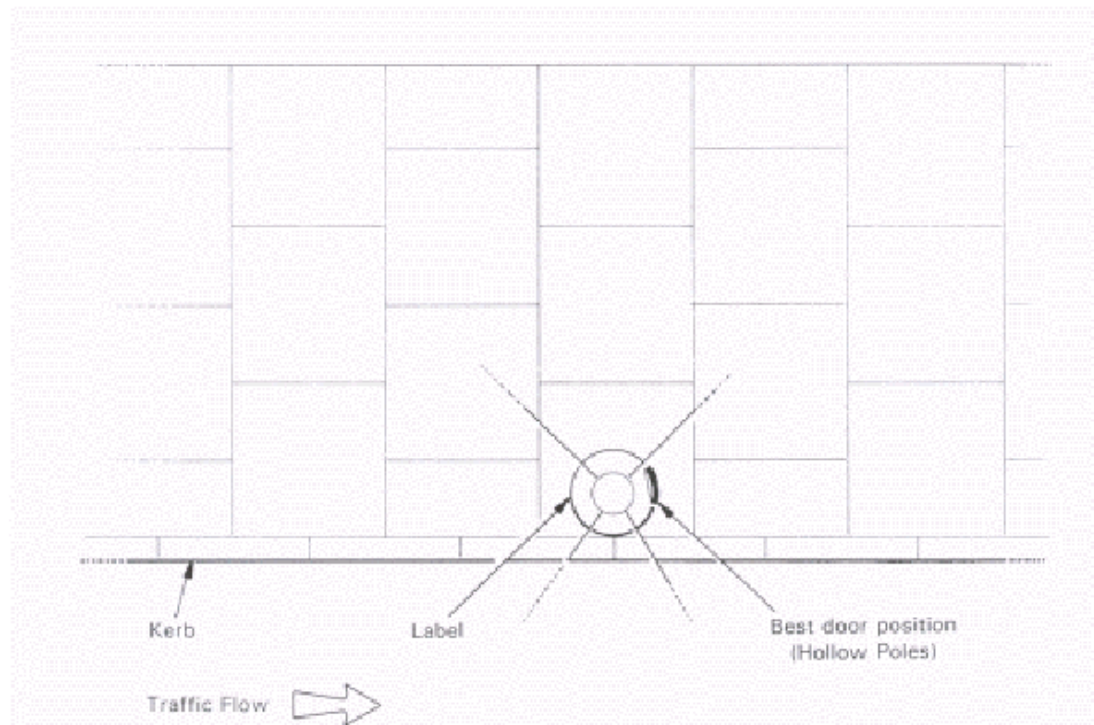


Figure 20- Roadside

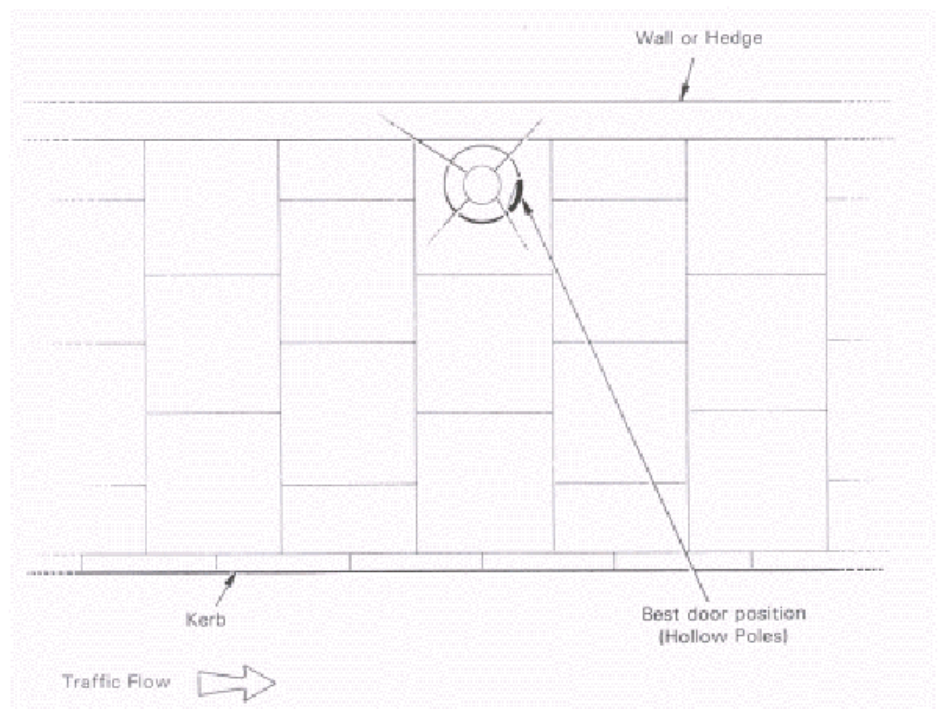


Figure 21- Back of path against Wall or Hedge

6.8 Appendix 8 - Preservative Treatments - Code Markings

CODE	PRESERVATIVE
B or BL	Preserved with Wolman salts (Triolith 1930), Tanalith (1944 and 1947/8)
BX	Preserved with Wolman Salts and Fuel oil (1930)
C or CE	Preserved with Celcure
P	Preserved with Penta-chloro-phenol
TC	Preserved with Tanalith "C" (TC and TC1-5)
AC	Preserved with Osmose Nature Wood AC500 (Alternative preservative, pole appearance will have a greenish colour)

Table 13

END OF DOCUMENT
