
Guidance to operators implementing pole access

This document is to be read in conjunction with the wholesale regulated Pole Access product documentation (Product Description, IPM and Technical & Operational Manual)

Contributors

Open eir

Version

V 1.0



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March 2018	M. Heffernan	New document for guidance to other operators on aerial cable deployment

1. Introduction

All dielectric self-supporting (ADSS) fibre cable is a light weight metal free cable that can be attached to a bracket on an Open eir pole using the appropriate cable clamp or helical compression fitting. The pole access product provides an operator with a cable position on a pole and the operator is responsible for the supply and placement of the cable, pole bracket and cable fittings

Operators and their contractors are responsible for preparing detailed work instructions/method statements that they and their contractors will follow when placing and maintaining cables and pole furniture on Open eir poles.

2. Overhead construction

- The size and weight of the new overhead fibre cable used by operator must be no more 10mm outer diameter and 100kg/km respectively.
- The average span length on Open eir pole routes is 50m.
- ADSS fibre cable is placed on the highest pole position available.
- Operators are provided with cable positions on the opposite side of the pole to an existing copper distribution cable and the operator's cable is attached using an existing bolt. New bolt holes are not required and should never be made without prior permission from Open eir as they compromise the integrity of the poles preservation treatment. (See section 5 for case with UG copper distribution)
- New cables must not interfere with other cables on the pole. The new cable must be tensioned such that at installation (assuming an installation temperature of 15 degrees Celsius) the sag at mid-span is no greater than 1% of the span length.
- New pole brackets (Universal Pole Bracket type are generally available) are to be fitted on the opposite side of the pole to the existing bracket using the same bolt as the existing bracket; temporary sash lines must be deployed to secure existing cables and maintain the existing cable tension while the bracket cable fixing works are in-progress.

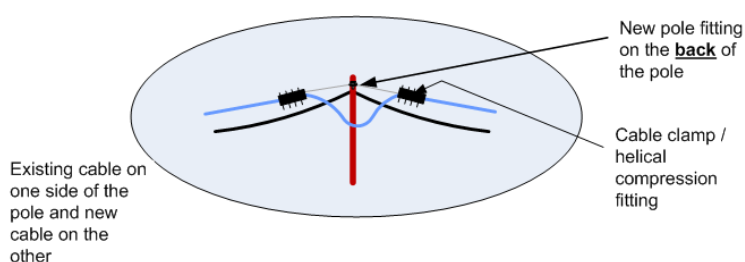


Figure 1 – New ADSS cable deployed on the opposite side of the pole as the existing cable



Figure 2 - UPB pole fitting on the opposite side of the pole to the existing copper cable bracket



Figure 3 - alternatives to the UPB bracket used by Open eir

3. ESB crossings

Today at medium voltage(10/20KVA) ESB crossings, the majority of Open eir aerial cables transition underground ; Open eir cables always transition underground at high tension crossings.

With ESB agreement, ADSS fibre cables may transition under medium voltage overhead lines provided it is safe to do so and accident prevention guidelines are followed and the required cable separation and road clearances (Table 1 below) can be achieved.

A minimum separation of 1m between the ESB MV line and the ADSS fibre cable is required.

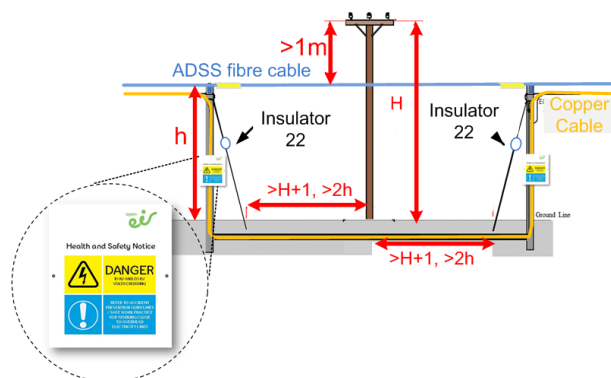


Figure 4 - ADSS cable transitioning under overhead Medium Voltage power line

Safety signs must always be deployed on the two poles spanning a medium voltage (10kV and 20kV) crossing when the fibre cable is deployed overhead.

The safety signs must be placed in a prominent position on the road facing side of the poles so that they can be clearly read from the road. The signs must not cover the pole marking or pole barcode. The suggested height for the sign is 2.0m above the pole marking.



Figure 5 - Health and safety notice

Fibre cable identification wraps (material code: 5011161) are applied to the ADSS fibre cable close to pole on both sides of the span crossing under the MV (10kV/20kV) power line.

Yellow high visibility 1m long PVC spiral cable abrasion protectors are used by eir as fibre cable identifiers.



Figure 6 - 1m yellow PVC spiral cable protector used as an ADSS fibre cable identifier

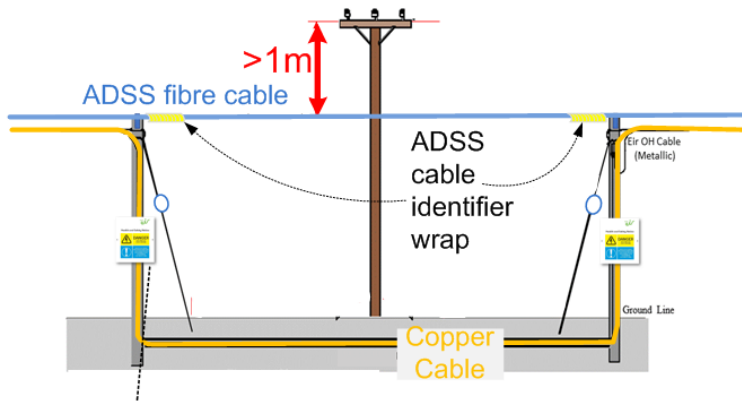


Figure 7 - Application of ADSS cable identifiers at MV (10/20kV) ESB crossings

If the crossing is unsuitable for an overhead ADSS fibre cable deployment then the ADSS cable must be deployed underground. For underground deployments the fibre cable is deployed in a 20/16mm pre-piped UV resistant sub-duct. Capping steel and a connector bend is used on the underground to overhead transition poles to protect the cable.

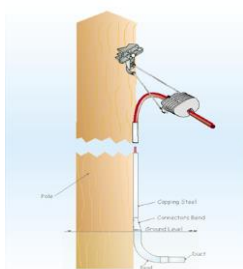


Figure 8 - Transition from underground to overhead - use sub-duct and capping steel

4. Definition of pole types

The UG/OH interface pole marks the start of the overhead route; a carrier pole has distribution/feeder cables but no fibre closures. A fibre DP pole has fibre DPs that terminate the fibre drop wires to the customer's premises.

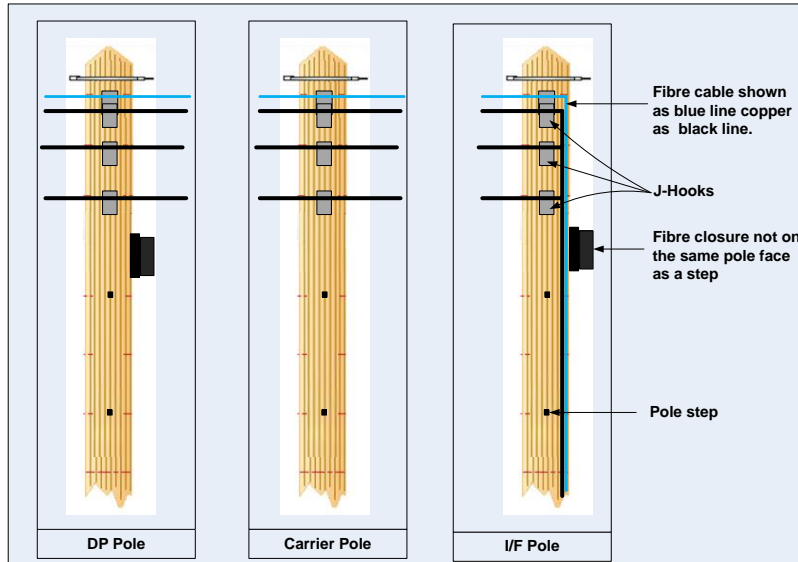


Figure 9 - Pole types

5. Underground copper distribution

Poles fed by underground distribution only do not have J-hooks bolted to the poles.

In these cases the pole bracket is applied with three coach screws as shown below rather than interacting with an existing J-hook.

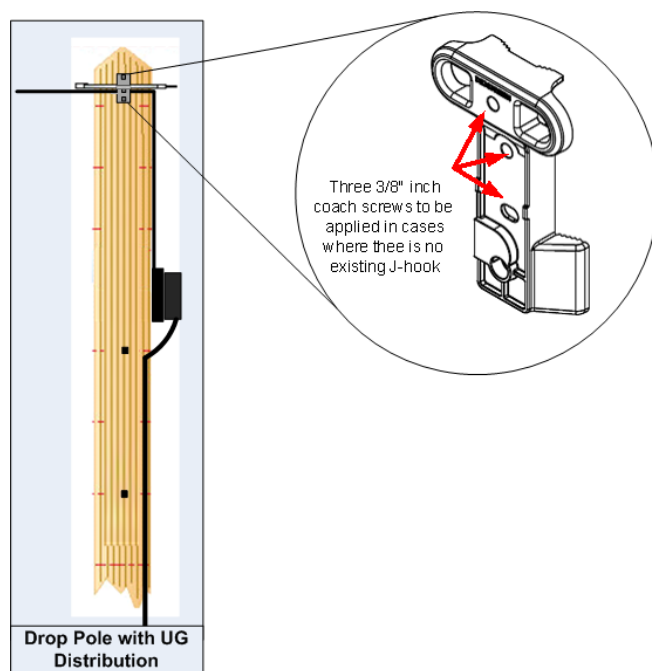


Figure 10 - Deploy Dexgreen bracket with three coach screws where the poles do not have existing J-hooks

6. Cable placement methods

The operator must ensure that during the deployment of cable there is no disruption to services on feeder and distribution cables.

The temporary (less than five minutes) disconnection of drop wires is allowed where this is unavoidable and necessary to allow the deployment of the new cable. Customer notification and permitted service outage times must be adhered to.

The fibre cables must be deployed in such a way that free access to other drops and services on the pole is not hindered.

One may choose the stationary reel method or the moving reel method to deploy cable. Where there are underground transitions or road crossings one may find that a combination of the two methods is appropriate

Once tensioned, all ADSS cables must adhere to the standard minimum clearances detailed in the table below :

Location	Min. Clearance (Meters)
Crossing over railways	7.0m
Crossing or overhanging carriageway, street or lay-by	6.0m
Crossing over entrance to house, farmyard, field or driveway	6.0m
Along roads with no overhang	4.5m
Along railway banks where footways exist	2.5m
Along railway banks not used by pedestrians	2.0m

Table 1 - Standard Minimum Clearance at 30° s Celsius

At DP poles positions, sufficient slack cable (~28m in total) should be left in a compact slack management system to enable splicing and routine maintenance to be performed at ground level .

6.1 Stationary reel method of deploying cable

In this method the cable drum is fixed at the start of the route. The cable is run out from A to B using a draw rope and pulleys temporarily attached to the poles. The cable is then hand tensioned from B to A pole by pole. Where the route length exceeds the maximum length that the cable can be pulled it is necessary to buffer the cable at an intermediate point(s) between A and B and pull on from there.

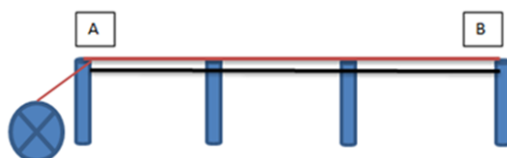


Figure 11 - Stationary reel method

6.2 Moving reel method option 1 - end to end

Pull cable along route to point B and terminate. Terminate every span back to point A. Road crossings and cable crossings can be overcome by looping the cable as described later in this document. It is recommended that the cable is tensioned by hand and is dead-ended at each pole with helical suspension fittings (spiral wraps) or cable clamps.

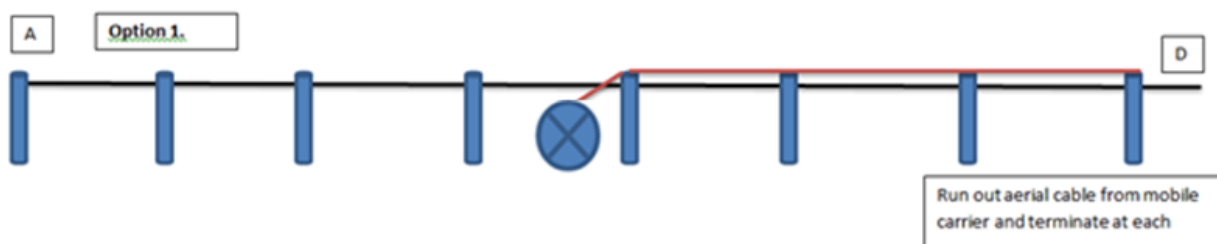


Figure 12 - Moving reel method - end to end

6.3 Combination of stationary and moving reel method - option 2

Set up cable drum at point C. Pull cable along route to point D and terminate. Terminate every span back to point C. Pull cable across road at point C to Point B and terminate. Run out cable from moving carrier from point B to point A.

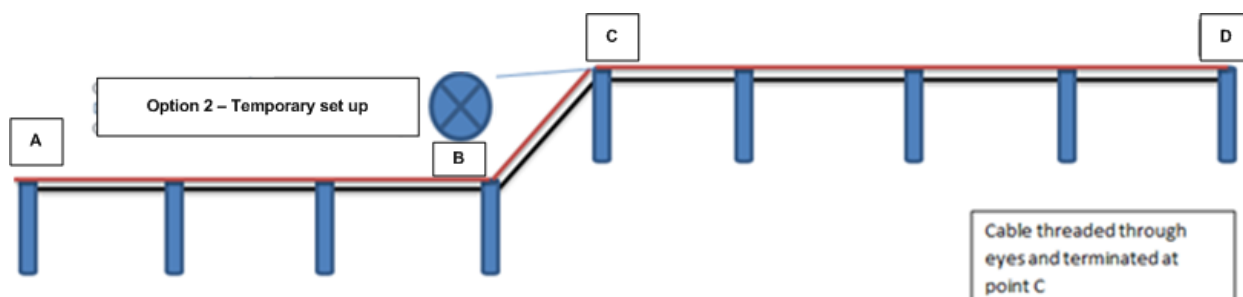


Figure 13 - Comination of stationary and moving reel methods

6.4 Fleeting at underground transition - option 3

Set up cable drum at point C. Pull cable along route to point D and terminate. Terminate every span back to point C. Pull off slack at point C (using figure of 8 method) to go through UG and on to point A. Pull through UG crossing and on to carrier at point B and continue roll out and terminate at each pole to point A.

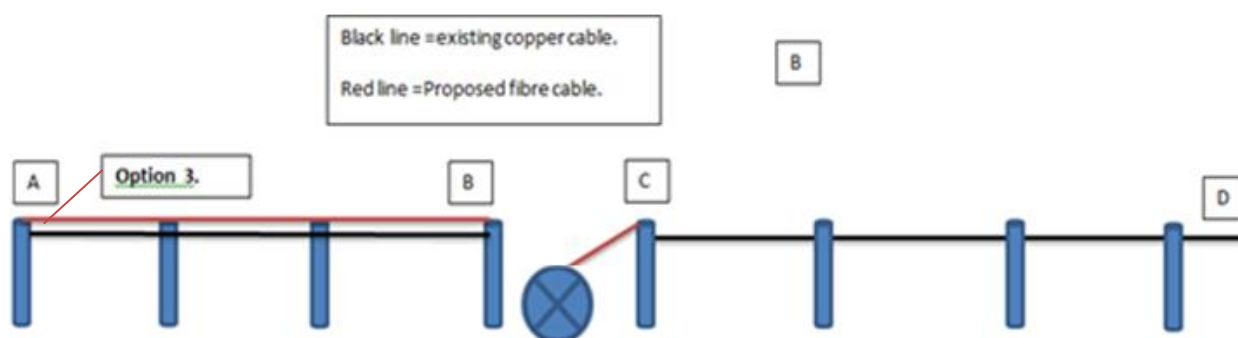


Figure 14 - Use of fleeting at underground transitions

7. Looping of cable to overcome obstructions

Aerial cables crossing to another road, gallows stays and drop wires can be obstructions to the placement of new fibre cables. These may be overcome by looping the fibre cable underneath the copper cable at road crossings or gallows stays and attaching a tree guard to provide protection and identification at this point. Drop wires to customers which prevent the ADSS cable from gaining the required position on the pole should be disconnected when terminating at the pole and reconnected on completion.

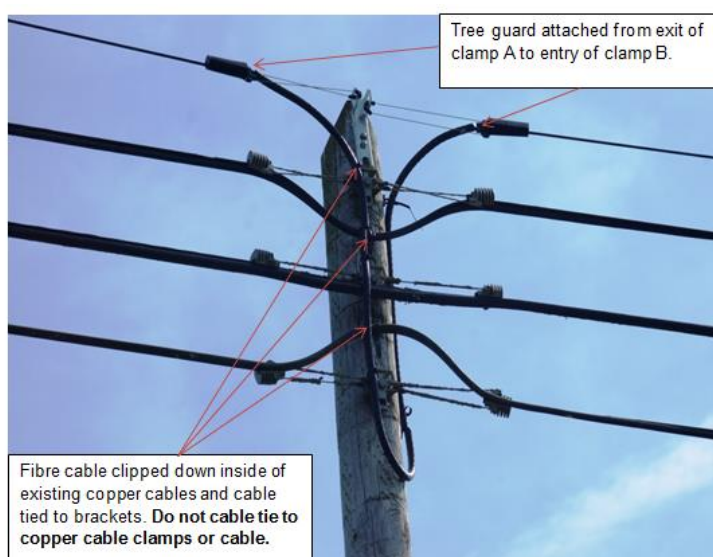


Figure 15 - Use of cable loops to avoid obstructions



8. Fibre Closures

The fibre closure must be placed on the side of the DP pole (not on the front or back of the pole) and 200mm above the top pole step. Coach screws must be used to attach the closure bracket to the pole, new bolt holes are not permitted and banding is not as secure as coach screws. Wooden poles expand and contract with the seasons and bands are likely to slip over time

The closure size and the system used for slack management must not create an obstruction to a maintenance technician working on the pole from a ladder. Examples of slack management systems that have an appropriate footprint are shown below; the biggest of the two is shown on the left below is 620mm high x 410mm wide.

Approved Openeir Suppliers:

Pole Fittings



Figure 16 Dexgreen pole fitting on the left, UBP middle, ANT Pole fitting on the right

Slack Management Brackets



Figure 17 ANT slack management bracket on the left, Dexgreen slack management bracket on the right

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