KCOM Physical Infrastructure Access (KPIA) (Reference Offer) Operations Manual

Department: Product, Wholesale & Networks

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Classification: Commercial in confidence

This document is to be read in conjunction with the KCOM Wellbeing, Health, Safety & Environment (WHS&E) Contractor Code of Practice

History

Date	Issue	Comments	Author
May 2025	1	Initial Document.	Elizabeth Mott

Definitions of Terms Used:

Term (e.g. abbreviation or technical term)	Explanation
KCOM Physical Infrastructure Access (KPIA)	KPIA is a product facilitating duct and pole access in KCOM's "Hull Area" meaning the area defined as the 'Licensed Area' in the licence granted on 30 November 1987 under section 7 of the Telecommunications Act 1984 to Kingston upon Hull City Council.
ASN	Aerial Subscriber Node
AFN	Aerial Fibre Node
Authorised Personnel	Those personnel who have the necessary accreditation and are approved by KCOM to work on the KCOM network.
CBT	Connectorised Block Terminal
Change Request	Formal statement of requirements to be logged by KCOM
CHAS	Contractors Health And Safety assessment scheme
COSHH	Control Of Substances Hazardous to Health
ELM	Fibre locking mechanism
MEWP	Mobile Elevated Working Platform
Nominated Contact	The person allocated by KCOM to the CP to coordinate and manage the request on their behalf.
RAMS	Risk Assessment Method Statement
SSIP	Safety Schemes In Procurement
WHS&E	Welfare, Health, Safety & Environment
WSOC	Wholesale Service Operations Centre
Network Objects	Physical components that are made available to CPs for deploying their own networks. Typically include ducts, poles, joint boxes, manholes and chambers

KCOM

Contents

1 Introduction/Scope

KPIA is being introduced as a formal substitute for the Access To Infrastructure arrangements established to enable access for other CPs to KCOM's ducts and poles in the "Hull Area", meaning the area defined as the 'Licensed Area' in the licence granted on 30 November 1987 under section 7 of the Telecommunications Act 1984 to Kingston upon Hull City Council.

The KPIA product provides CPs with access to our Physical Infrastructure including ducts and poles within the Defined Area in which the initial deployment is authorised. KPIA may only be used to provide Public Electronic Communications Services and/or Public Electronic Communications Network. It allows you to:

- install multiple cables, Blown Fibre Tubing (BFT) or sub duct in KCOM duct and joint chambers; and
- attach equipment and cables on KCOM poles;
- install joint enclosures within chambers in compliance with installation standards outlined in Section 7, Engineering Principles.

This Operations Manual is provided to describe the principles and processes that will be used when a request for access to KCOM Physical Infrastructure is made. It is also a supporting document to the "PIA Framework Agreement" (**the "Agreement**"), which CPs are required to sign before being given access to KCOM Physical Infrastructure. Capitalised terms in this Operations Manual will carry the same meaning as when they are used in the Agreement, unless stated in the 'Definitions of Terms' table above.

The procedures and principles contained within this Operations Manual will be updated from time-to-time dependant on the types of Requests received and as otherwise required. Any

Communications Providers ("**CPs**") in the process of making a Request or with a Request already accepted will be provided with a new copy of this document when a new update becomes available.

Any ACCNs issued regarding this product, will be sent to the CP billing contact as supplied in the Service Plan

2 Principles

Requests should be made to kpiaprovisioning@kcom.com unless KCOM has allocated a Nominated Contact to the CP. Wholesale Provisioning will remain the main contact throughout the process.

Orders should be made in accordance with the directions below by an officer of the CP making the request.

- Establishment –
  - Contact KCOM by email to kpiaprovisioning@kcom.com requesting establishment for the purpose of accessing KCOM External Infrastructure
  - New KCOM infrastructure must be fully constructed and approved by KCOM before it becomes available for use under KPIA
- Feasibility
  - CP views KCOM network using KCOM EMAPS (electronic mapping)
  - CP to complete a KCOM PIA Onestop Form identifying the specific network elements required, identifying capacity requirements, detailed on 'Schedule' tab and email to kpiaprovisioning@kcom.com. KCOM will distribute this to its Planning area. The Onestop is a record of what network objects you intend to use. As part of our feasibility response we provide specification details of the objects. The response should not be taken as acceptance of a design. It is simply an acknowledgment that you intend to use the objects listed.
  - Queries may arise due to identification of engineering issues or requirement for notices / permits, requiring resolution before progression.
  - KCOM will confirm, by email using the same form, inventory to be utilised and associated costs.
  - CP can undertake non-intrusive surveys of the KCOM Network during the feasibility/design stage to establish pole top/duct capacity and validate the network information provided they follow the Whereabouts requirements.
- Build
  - CP to submit notice of build into KCOM, Build Initiation
  - CP to complete all network installation works and on completion submit Build Complete.
  - Whereabouts required for all works on KCOM network with 1 working days' notice - to be submitted into KCOM Works Control

- KCOM Supervisor to audit supplier works and act as technical contact
- CP is expected to resolve blockages. However, in exceptional circumstances where KCOM is required to perform this task, the CP can request KCOM resolve blockages by requesting such on the Network Adjustment form. A desktop feasibility will be carried out which will provide costs and timescales. The CP would then submit an order for the works. KCOM will contribute to blockage clearance as detailed in Section 8, Network Adjustments.
- CP responsible for approved new build on KCOM network using either :
  - KCOM supplied materials; or
  - CP supplied new build materials from it's own supply chain provided the materials are to KCOM specification. Any non conformance would result in defect notices to resolve. New network will be gifted to KCOM.
- Coop and Ancillary works will require 10 Working Days' notice and KCOM Planner Approval
- CP Build Approval

- Build Complete
- CP Submits Build Complete to KCOM Works Control; this will be approved by KCOM Planning and billing will commence. KCOM to record all CP network on the electronic mapping toolLead Ins
  - Lead in installations will be recorded on standard whereabouts submission to provide visibility of works on KCOM network.
  - CP will submit monthly lead in reports to kpiangineering@kcom.com no later than the end of the calendar month from the date when the CP uses the Lead-in Duct and/or connects the drop wire to the Pole
  - The maximum length of cable from a CP's Distribution Point to the footway box / joint chamber connecting the Lead In duct to the premises should be approximately 150 metres. Where the required distance exceeds 150 metres, this must be noted on the Lead In submission
- Post Complete
  - Damage and ongoing network assurance
  - NRSWA Diversionary works
- Cease Network
  - CP Cease - CP can remove installed network and cease payment obligations after the Minimum Licence Period.
- Forecast and Service Review
  - Forecast and continuous Service Review are key to successful implementation

3 Forecasting

You must provide regular, reasonably accurate forecasts of your intent to build using PIA, the purpose of which is to enable an efficient delivery from KCOM. You must use the standard PIA Forecasting Form pre-populated with submission dates to submit a 12 month forecast of build activity.

3.1 Forecast Content

The forecast must contain a forecast for each calendar month of what and when you intend to build that calendar month and be broken down by Service Category which means volume of:

- Duct (KM

- Poles (number of poles)

3.2 Forecast Area

You must inform us of the location of your forecast build activity; this will be by post code, and the relevant geographic information will be provided in the PIA Forecasting Form. Any more granular detail of your forecast build activity may assist with our operational planning.

3.3 Forecast Frequency

Your forecast must be submitted 3 months in advance of the Fixed Forecast Period and be for a twelve (12) month period. Where you anticipate any material changes to forecast volumes beyond a 10% threshold you must submit a revised forecast

4 Processing Quotations, New Requests and Placing Orders

4.1 PIA Request – Area Build

Using KCOM EMAPS the following will need to be presented to KCOM :

- A geographical plan showing the area to which a CP requires access;
- A plan showing the KCOM Physical Infrastructure to which a CP requires access including:
    - Locations on the plan where each piece of CP Apparatus will be placed (linked to the specification); and
    - Where the CP intends to connect their existing network to the KCOM Network.
- Details of the path, route, buildings where the infrastructure is required and the location of a CP's existing network.
- The specification and volume of equipment that a CP intends to place in the KCOM Physical Infrastructure;

KCOM will not undertake surveys for KPIA.

4.2 KPIA Request

Complete details on the KCOM KPIA Onestop Form for each licence required and email to kpiaprovisioning@kcom.com.

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KCOM Planners team will aim to validate the order, checking that

- the number of duct / structures per route does not exceed [X]
- that the total number of objects selected does not exceed [Y]
- X + Y does not exceed 500 objects,
- and
- that there is route continuity e.g. no inventory omissions.

Please note that you, the CP, remain solely liable for the accuracy of any Request order submitted.

KCOM will acknowledge receipt, allocate a KCOM reference number and advise the expiry date for your Request order (the Build Period). The Request can be modified or cancelled up to the point where you submit your Build Completion Pack.

Note that where there is missing or incomplete information this will be advised for correction and resubmission. No work can be undertaken until the Request order has been validated. This permit to work will be issued to the CP via email by KCOM Wholesale Partners.

If you fail to complete your build within the Build Period then the Request order will be cancelled and you will be required to remove any equipment installed at the location and make good; any associated Ancillary and Co-op orders that have been requested and that could not be cancelled will be chargeable. Removal will be confirmed by KCOM supervisory team.

5 Monitoring and Overseeing CP Works

Where KCOM agrees to provide access to KCOM Physical Infrastructure the CP must sign the Agreement.

KCOM and the CP will inform each other of the Nominated Contact for the requested Build Period. The CP must ensure its operatives are accredited. On this basis the CP is expected to work unsupervised, subject to KCOM conducting ad hoc audits during or on completion of the works.

The CP will be provided with the details relating to their requested build as an output of the KCOM planning system to enable provision of the Build Completion section (as built) within the Onestop pack, to KCOM at the end of the Build Period. These details will use the specifications and locations provided by the CP in the survey request.

5.1 Authorised CP Personnel

The CP will inform the Nominated Contact of the CP Personnel that will or may be working on KCOM's Physical Infrastructure. Information required for each person will be:
Full Name
Employer's Name
Details of Accreditation
Contact Number

This list will form the list of authorised CP Personnel that will be allowed to work on KCOM's Physical Infrastructure during the Build Period or to perform any repairs during the Licence Period. The CP must keep this list current.

The KCOM Nominated Contact will appoint an Engineering HSEQ Advisor who will follow the steps below:

1) Ensure WHS&E Contractor Code of Practice [Applicable to Contractors and Partners Working on KCOM / Third-Party Sites, Premises and Plant] is signed by the CP
2) Ad-hoc site visits will be conducted by the engineering HSEQ team ensuring the CP is working in line with the contractor WHS&E Code of Practice.

5.2 Accreditation requirements for PIA work on the KCOM Network

The purpose of accreditation requirements for PIA on the KCOM Network is to ensure the safety of operatives, KCOM representatives and the general public; and to ensure the

integrity of KCOM network infrastructure. Accreditation requirements for operatives fall into three categories:

- Safety Accreditations: Mandatory safety accreditations, necessary to ensure the safety of operatives, KCOM Representatives and the general public.
- Craft Accreditations: Mandatory technical accreditations, necessary to ensure the integrity and quality requirements of the KCOM Network.
- Additional requirements: technical accreditations required by the CP for its purposes.

Safety and Craft Accreditation requirements relate to the activity being undertaken rather than the operative's designated role. For example:

- Operatives carrying out both underground and overhead cabling work will need relevant Safety and Craft accreditations for both types of work.
- A surveyor that carries out test rod and rope activities as part of a survey will need to hold the relevant Craft accreditations for Fibre UG.

Supervisors not completing a practical activity themselves (only supervising) will only be required to hold the relevant Safety Accreditation.
Appendix 5 incorporates matrices which cross reference task / job roles to required accreditation.

5.3 Notification of Works

5.3.1 Scheduled works during the Build Period:

The KCOM Nominated Contact will ensure that a Change Request is on the KCOM service management system covering the time period, authorised CP Personnel and area in which work will be carried out. The reference issued to the CP must be known by the CP Personnel working on site.

5.3.2 Build Completion Pack (within Onestop Form)

On completion of the scheduled works the CP will provide the following information to KCOM:

- Documentation confirming build and materials correspond with the original scope of works in the Request;
- Identification of any variances between the completed works and the original scope, together with explanation for the variation;
- Photographs of labelling;
- Photographs of joints, cabling and fittings;
- Photographs of fittings on poles; and
- Confirmation that any pre-existing draw cords have been replaced where utilised.

5.3.3 Scheduled works after the Build Period:

For any subsequent non-emergency access requirements to the KCOM Network the CP must e-mail:

change@kcom.com

using the template in Appendix 1, giving details of the change they wish to make, the date and time the change will be made, location and authorised CP Personnel to carry out the change.
At least 10 Working Days' notice in writing must be given for the change. A reply with an authorised change number must be received by the CP before the works go ahead.

5.3.4 Emergency works after the Build Period:

For emergency changes the CP must e-mail:

wsoc247@kcom.com

giving details of the change they wish to make, the date and time the change will be made, location and authorised CP Personnel to carry out the change.

This should then be followed up with a telephone call to 0800 138 0292 whereby the WSOC will, if approved, issue a reference number for the change.

Emergency restoration of service needs to be advised, using the Whereabouts process, as soon as reasonably practicable. The CP is responsible for obtaining any Highway or other notifications, permits, consents that may be necessary. Emergency repairs by the CP can include temporary closures, temporary cables and overlay cables. The CP is responsible for all repairs to its own apparatus/infrastructure and should submit a retrospective Build Completion Pack covering any deviations undertaken to the original route as a result of repair.

Immediate notice is required to address rectification and making safe any work done by CP Personnel on, or in, the Physical Infrastructure which, in KCOM's reasonable opinion, presents an immediate or serious threat of physical harm or damage to person or property

Once any work is completed a follow up call should be made to the WSOC on 0800 138 0292 to sign off site.

5.3.5 Reporting of Issues:

Any safety issues, defects or damage to the KCOM Physical Infrastructure observed either prior to, during or after completion of work should be reported to 01482 603466.

During hours this will be answered by KCOM Works Control; out of hours this will be answered by KCOM WSOC.

Details should be given of the location and type of issue. A supervisor will then visit the site to assess the issue and assign necessary resources to make safe or repair the issue.

5.3.5.1 Third Party Damage:

If you are working in the KCOM Network and you identify third party damage to our network, then you need to report this to the KCOM Works Control (in hours) or WSOC (out of hours). Contact details are 01482 603 466 for Works Control or 0800 138 0292 for WSOC.

Please note that the person onsite who identified the damage must be the reporter of the damage.

You will be required to provide information on the following:

- Location
- Identity of any other CPs which may be using the infrastructure and be impacted (if known)
- Explanation of exactly what is damaged
- Explanation of how it has been damaged
- Photographic Evidence of the damage

Following the damage being raised, the Network Repair Team will send an email confirming that the damage has been logged and will be handled by KCOM accordingly.
KCOM will triage the report and determine the urgency based on the information provided. If the damage is deemed a safety hazard to the public, then you have to either guard effectively or remove the hazard. You may be required by the External Works Control or WSOC to stay on site until the KCOM response has arrived.

If a third party causes damage to KCOM's Physical Infrastructure or apparatus then we will pursue action against the third party to recover our costs. We will not seek to recover any costs on your behalf. If you wish to recover costs for damage to your apparatus from a third party, then you must make your own arrangements to do so. We will share on a reciprocal basis any suitable information regarding third party damage.

If KCOM, as infrastructure owners, are called out to damage by a third party which is not KCOM equipment but deemed dangerous if left unattended, KCOM shall make the site safe and charge the CP owner of such damaged equipment its legitimately incurred expenses for such work.

If you believe we have caused damage to your network and/or CP Apparatus, please send full details including Photographic Evidence and location via our mailbox address for claims which is WSOComplaints@kcom.com

5.4 Audit

We will undertake audits on the work you are doing and completing as part of your PIA Request. We will vary the frequency of our audit if we find issues of concern in an area or with a customer.

There are two types of audit for PIA;

1. In Progress Unplanned Audit: Ad hoc audits will occur while your work is in progress. The audit is checking that the techniques being used and the work being done is not likely to cause network damage or disrupt existing apparatus and/or services. The auditor will issue "stop work" where they believe the public or network is being put in danger. This should only happen where the site cannot be made safe or poor working practice rectified.
2. Retrospective quality audit: This will be triggered by the submission of your Build Completion Pack or the monthly build report.

The Quality Audit Team audit objects on a Request. Where KCOM detect a defect at all points that are checked we will assume that the defect is across the full Request and require the CP to check all points (e.g., labelling is incorrect, or cabling has not been restrained in the objects that have been checked) where access is available without the need for traffic management.

Elements which are the subject of audit are detailed below:

Pole Survey

- Wire Heights and Separation
- Wire Count / 180º arc
- Pole Marking
- Upper/Lower Envelope

Duct Survey

- Safety, Gas Testing etc.
- Cable, Sub Duct Sizes
- Duct classification

Sub Duct and Cable Installation

- Safety, Gas Testing etc
- Whereabouts
- Labelling
- Cable Management
- Damage Avoidance

Overhead Cable Installation

- Pre Climb Checks
- Wire Heights and Separation
- Wire Count / 180º arc
- Pole Marking
- Upper/Lower Envelope

Critical defects need to be accepted or appealed within 5 days. All potential defects identified should be rectified within 30 Working Days except in the case of serious safety issues which you should rectify with immediate effect. If you fail to rectify defects within the periods set out in the audit process, you will be liable for costs incurred by KCOM in their rectification. Following the closure of the defect, a subsequent audit may be required to ensure remedial work has been completed and meets Engineering Principles and the terms of the Agreement. This may be via a follow up on site audit or via reviewing evidence we have received from you to show the defect has been rectified.

The closure of any reports needs to be signed off by both parties and will mean that both parties agree that the defect has been resolved. We reserve the right to reopen reports that have been closed if we feel this is necessary because the defect has not been rectified or rectified properly.

Where we have concerns about the quality or safety of work being performed, either as a result of a deteriorating quality trend, high level of defects requiring action and/or damage issues then we may require you to provide an improvement plan. A joint meeting to discuss and agree the plan, reporting, timelines and actions will be scheduled. This should be carried out within 20 Working Days of our initial request. We will provide details and evidence of our cause for concern as part of the request.

In circumstances where performance continues to deteriorate, does not improve, or the agreed action plan has not been implemented or cannot be agreed we will request a further meeting jointly with the OTA to facilitate a mutually agreeable plan, with independent over watch. Nothing in the above removes, limits or restricts any and all rights we have under our agreement with you for PIA including but not limited to the suspension of your ability to place PIA Orders, the issue of a breach notice, the claiming of compensation from you when you fail to rectify defects and termination of your Licence.

6 HSE

The authorised CP Personnel must have read, and they and their employing organisations must adhere to the W*HS&E Contractor Code of Practice [Applicable to Contractors and Partners Working on KCOM / Third-Party Sites, Premises and Plant]* (**the "Code of Practice"**)

As per the introduction of the Code of Practice, the CP, or any subcontractors working on the KCOM Physical Infrastructure on behalf of the CP, will need to sign the Code of Practice.

Contractors are required during On-Boarding to return the following to KCOM's WHS&E team at engineeringhse@kcom.com

- KCOM Code of Practice

7 Engineering Principles and Practices

7.1 Whereabouts Requirements

CPs are, and must ensure their contractors are, in contact with KCOM at all times to identify the section of KCOM Network on which they are working. Only personnel with approved access will be permitted to work with KCOM Physical Infrastructure.

The Whereabouts form is to be completed and emailed to kpiaengineering@kcom.com to confirm the KCOM physical infrastructure on which they are working :

- Installation / Construction
- Faults
- Any other activity in which access is required to the KCOM network

KCOM will confirm, by email, approval to proceed or whether there are issues such as other work already proceeding at the requested site.

7.2 Summary of Permitted CP Build Activities

The table below provides guidance on activities a CP is permitted to carry out and where not, the process to be followed

Table 7-1

Stage	K55 Form Category	Name	Description	Authorised	Gifted to KCOM	Guidance
Feas	N/A	Survey (Non Intrusive)	Visual survey. Lifting chamber lids, verifying network exists as recorded.	CP	N/A	CP can lift chambers and visual survey under whereabouts without Build Initiation,.
Feas	N/A	Survey (Intrusive)	Intrusive survey involving rodding activities.	Not Permitted	N/A	Not permitted, Build Initiation required with Whereabouts
Build	N/A	Civils Interconnect	Core Drill access to KCOM Network	CP	N/A	CP can Core Drill existing chambers
Build	N/A	Plan, Rod and Rope	Once Build has been initiated, a CP can Plan, Rod and Rope under whereabouts.	CP	N/A	Permitted, Build Initiation required with Whereabouts
Build	N/A	Underground Installation	Once Build has been initiated, install their network under whereabouts.	CP	N/A	Permitted, Build Initiation required with Whereabouts
Build	Coop Ancillary	Upgrade existing chamber	Increase size of existing chamber	KCOM	N/A	Not Permitted, unless agreed.
Build	Coop Ancillary	New Build UG - Chamber	Additional chamber required on existing duct.	CP	Yes	Permitted, Build Initiation required with Whereabouts
Build	Coop Ancillary	New Build UG - Spine Duct	Upgrade trench to provide duct capacity, new duct.	KCOM	N/A	CP must raise a Coop Ancillary order for new duct install or core drill both chambers and install their own duct.
Build	Network Adjustment	New Build UG - Lead In Swept Tee and Toby	Where a connection to a property doesn't exist a new physical connection is required to be built.	CP	Yes	Only allowable where no connection exists to a property.
Build	Network Adjustment	New Build UG - Lead In Toby to Premise	Where no customer install exists i.e. KCOM network terminates at a toby within the public domain.	CP	Yes	A CP is expected to extend the duct using the same installation method i.e. D56 to D56 from Toby to Customer Access Point

Stage	K55 Form Category	Name	Description	Authorised	Gifted to KCOM	Guidance
Build	Network Adjustment	New Build UG - Lead In (Alternative Premise Access Point)	Where a Lead In access point at a premise is not suitable, can a CP intercept the duct, insert a split duct tee and extend duct to new access point.	CP	Yes	Permitted, Build Initiation required with Whereabouts and Network Adjustment.
Build	Network Adjustment	Blockages UG (Spine)	Dig down to clear blockage	CP	N/A	CP's can clear blockages subject to Network Adjustment requirements.
Build	Network Adjustment	Blockages UG (Lead In)	Dig down to clear blockage	CP	N/A	CP's can clear blockages subject to Network Adjustment requirements.
Build	Network Adjustment	Upgrade existing chamber	Increase size of existing chamber	KCOM	N/A	Not Permitted, unless agreed.
Build	N/A	Pole (Network and Drop Installation)	Once Build has been initiated, CP can install their network under whereabouts.	CP	N/A	Permitted, Build Initiation required with Whereabouts
Build	Network Adjustment	Pole (Ancillary Works)	Works to increase Pole Capacity - Remove Redundant Equipment, Relocate Copper Block Terminals on Pole, Network Re-arrangement, Remove Pole Steps, Erect New Pole..	KCOM *	N/A	Not Permitted, unless agreed * Exception that Bass Steps can be moved if accredited to CP17
Build	Network Adjustment	Remove inactive drop wire	Remove inactive drop wire	CP	N/A	CP can only remove inactive drop wire if it is not connected to any premise or other structure and is clearly redundant.

7.3 Cable Performance

7.3.1 Underground Installations

All cabling components shall have a service life of no less than 25 years and be suitably robust for the underground environment.

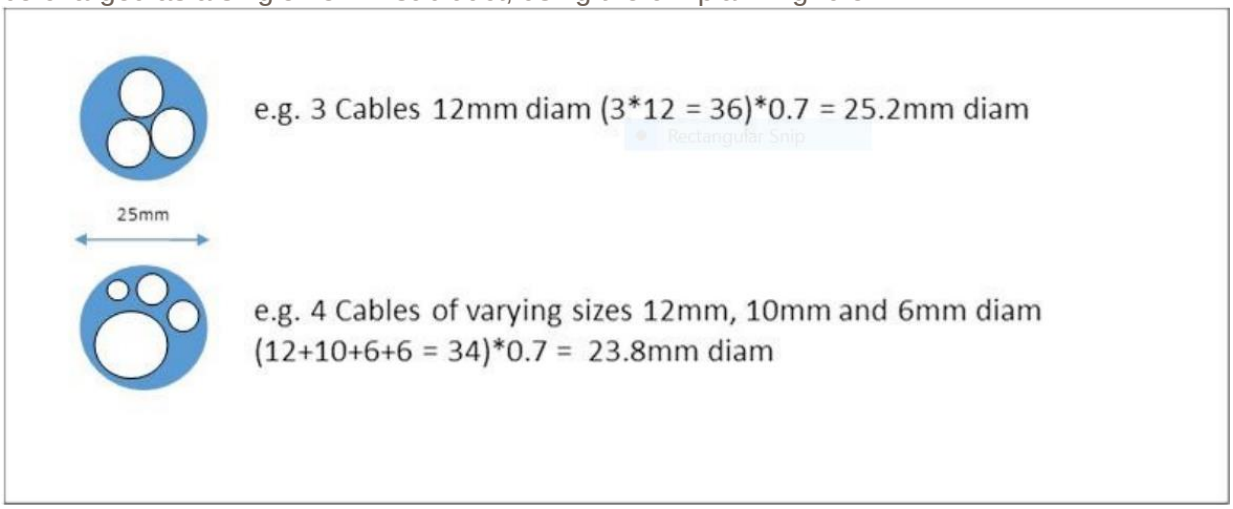
Following installation, there shall be no visible damage to the outer part of the cable.
Prior to termination, all cable / tubing ends shall be effectively capped to cover sharp edges.
All joining of cables and sub-duct shall be positioned within the jointing chamber with at least 0.5m of cable between the joint and duct entry.

All cabling within chambers shall have sufficient slack to allow the cables and joints to be repositioned.

CPs must ensure that all Physical Infrastructure at the Location is left safe and secure at all times when the immediate area is not attended and that all underground access point covers are replaced and are secure.

7.3.2 Cable Capacity Specification

Where installing your spine network you may install multiple cables of varying diameter to be charged as a single 25mm sub duct, using the 0.7 planning rule:



The 0.7 planning rule only applies to three or more cables. For two or less cables the actual diameter of the cables should be used for recording/ charging purposes. You are required to provide details of the number and diameter of the cables or sub duct installed as part of your Build Completion Pack submission. Where a route (within a Request) contains a mix of cables, e.g. 2 in one section, 3 in another, so long as the total diameter count does not exceed 25mm (applying the 0.7 planning rule), to aid recording you can record as 1 cable at 25mm diameter.

Where the total diameter of the installed cables exceeds 25mm you will need to place another Request for the additional capacity, which will be subject to additional charges, and ensure any cables/sub duct are labelled with the new Request reference. You may install spine network cables (up to 25mm diameter) over a period of time. If cables are installed over a period of time then KCOM cannot guarantee capacity will be available and, if it is not you will be still liable for charges for the full 25mm.

Cables installed for lead-ins, including lead-in link are excluded from the multi-cable calculation and each cable is charged separately. All cables and or sub duct installed as part of a Request will need to follow the exact same route as the original cable and or sub duct (for the purposes of the 25mm calculation).

7.3.3 Joint Box Types

	Type	Length	Width	Depth	Category
Carriageway	JRCX11A	1820	680	1215	~~Medium~~
Carriageway	JRCX11B	1820	680	1365	~~Medium~~
Carriageway	JRCX11C	1820	680	1515	~~Medium~~
Carriageway	JRCX12A	1220	680	1215	~~Small~~
Carriageway	JRCX12B	1220	680	1365	~~Small~~
Carriageway	JRCX12C	1220	680	1515	~~Small~~
Carriageway	JRCX12D	1220	680	1665	~~Small~~
Carriageway	JRCX14A	2285	680	1215	~~Large~~
Carriageway	JRCX14B	2285	680	1365	~~Large~~
Carriageway	JRCX14C	2285	680	1515	~~Large~~
Footway	JUF102A	725	255	515	~~Small~~
Footway	JUF102B	725	255	665	~~Small~~
Footway	JBF102A	725	255	515	~~Small~~
Footway	JBF102B	725	255	665	~~Small~~
Footway	JUF104B	915	445	665	~~Small~~
Footway	JUF104C	915	445	815	~~Small~~
Footway	JUF104D	915	445	965	~~Small~~
Footway	JBF104B	915	445	665	~~Small~~
Footway	JBF104C	915	445	815	~~Small~~
Footway	JBF104D	915	445	965	~~Small~~
Footway	JRF106B	1310	610	665	~~Medium~~
Footway	JRF106C	1310	610	815	~~Medium~~
Footway	JRF106D	1310	610	965	~~Medium~~
Footway	JRF106E	1310	610	1115	~~Medium~~
Footway	JRF106F	1310	610	1265	~~Medium~~
Footway	JRF110A	2315	737	1265	~~Large~~
Footway	JRF110B	2315	737	1415	~~Large~~
Footway	JRF110C	2315	737	1565	~~Large~~
Footway	JRF111A	1690	710	1115	~~Large~~
Footway	JRF111B	1690	710	1265	~~Large~~
Footway	JRF111C	1690	710	1415	~~Large~~
Footway	JRF111D	1690	710	1565	~~Large~~
Footway	JBF111A	1690	710	1115	~~Large~~
Footway	JBF111B	1690	710	1265	~~Large~~
Footway	JBF111C	1690	710	1415	~~Large~~
Footway	JBF111D	1690	710	1565	~~Large~~
Footway	JMF102A	725	420	450	~~Small~~
Footway	JMF102B	725	420	600	~~Small~~
Footway	JMF106B	1310	610	600	~~Medium~~
Footway	JMF106C	1310	610	750	~~Medium~~

Footway	JMF106D	1310	610	900	~~Medium~~
Footway	JMF106E	1310	610	1050	~~Medium~~
Footway	JMF106F	1310	610	1200	~~Medium~~
Footway	JB104B	915	445	600	~~Small~~
Footway	JB104C	915	445	750	~~Small~~
Footway	JB104D	915	445	900	~~Small~~
Footway	JMF102C	725	255	450	~~Small~~
Footway	JMF102D	725	255	450	~~Small~~
Footway	JMF102B	725	420	600	~~Small~~
Footway	JMF101	660	510	150	~~Small~~

7.3.4 Overground Installations (Poles)

7.2.4.1 General

All cabling utilised on poles must be of an approved specification. Proposed specification for usage must be submitted to, and written approval received from, KCOM, before work commences. This specification must include:

- Cable manufacturer name, type /part number
- Outer diameter of cable
- Cable's ultimate tensile load
- Confirmation of cable's suitability for use under overhead power lines of up to and including 11Kv, with a minimum vertical clearance of 1.8m.

Such approval will endure thereafter and further authorisation need not be sought unless the specification is subsequently varied.

All fittings must be positioned in such a way to avoid interference with other CP infrastructure.

CPs must observe reasonable instructions as provided by KCOM regarding circumstances under which Poles should not be climbed and thus necessitating the use of an elevated platform, also referred to as a 'cherry picker', in particular if a Pole is decayed, shallow and/or where low wires already exist (as distinct from a Defective Pole).

The CP is responsible at all times for ensuring the safety of its operatives, including appraising structural security of poles on each occasion prior to undertaking work.

KCOM reserves the right to remove and re-attach CP Apparatus on a Pole to relieve congestion provided this does not cause any damage to the CP Apparatus and/or interruption to existing services. The process and steps KCOM will take to move and re-attach CP Apparatus is as follows :

- KCOM to advise CP of maintenance required
- If downtime required, KCOM to advise CP and make arrangements to minimize disruption
- KCOM to confirm to contractors what equipment resides on a pole under maintenance and to whom it belongs

- KCOM issues works orders

Pole replacement
If KCOM needs to replace a Defective Pole with a new Pole then :

- KCOM will advise the CP of the requirement and request attendance for a joint site visit; ten (10) Working Days' notice will be given for standard works ie non emergency
- the CP will remove their apparatus from the Defective Pole and re-attach to the new Pole

Pole Code	Condition
S (Internal KCOM Code Only)	Safe to climb – subject to a present and valid in date test label and pass of operative pre climb check
D	These poles **must not be climbed** but may be accessed from a MEWP. This will depend on the condition the pole has been classed as D. This information will be available from KCOM Works Control.
H (Hazard)	The pole is within 1m of a defined hazard (spiked railings etc) and has no safe climb zone – MEWP access only, but full range of engineering activities are permitted.
Z (Safe Climb Zone)	The pole is within 1m of a defined hazard but has been assessed as having a safe climb zone. Full range of engineering activities are permitted.

7.2.4.2 Utilisation of Poles as Substitution for Underground Network

Poles are intended as distribution points to properties.

Poles connected with underground duct and Couplers

Within the KCOM network an architecture exists where Drop Cable Poles are fed with Underground Duct. In some locations, underground couplers were used instead of access chambers to provide connectivity to the pole. In these circumstances, an excavation would be required to expose the coupler to enable a new cable to be pulled through the duct to the pole. The excavation can then be re-instated with the coupler remaining in situ or the coupler can be removed and replaced with an access chamber, as per the standard KCOM practice as part of their FTTP rollout. The new access chamber will be gifted to KCOM.

Excavation and reinstatement work associated with couplers does not qualify for any Network Adjustment contribution.

If the CP wishes not to utilise the existing underground duct, a network adjustment must be submitted to KCOM to gain their written approval to do so in advance of any works taking place.

KCOM does not support a pole-to-pole architecture and if a single span needs to be considered for technical reasons then a network adjustment request should be raised for this span.

New Poles
Where new poles are installed by the CP, the on-going maintenance and ownership is their responsibility.

7.2.4.3

Stand-Off Bracket Use of Spare Faces
The CP is permitted to use spare faces on any KCOM stand-off bracket attached to a Pole. Where the CP wishes to use a spare face on a stand-off bracket that is clearly labelled as having been installed by and belonging to another Communications Provider, the CP must contact that Communications Provider for permission to attach before commencing any work to use the relevant bracket face.

7.2.5 Minimum Installation Height

Crossing Type	Minimum Clearance above Ground Level
1. Carriageway (public or private) with unrestricted vehicular access, classified as a road crossing.	**Install** dropwires at 5.9m & aerial cable at 5.6m **Re-tension** existing network at 5.5m for both dropwire and aerial cable
2. Field entrances & access to private land from carriageway with unrestricted vehicular access	**Install** dropwires at 5.9m & aerial cable at 5.6m **Re-tension** existing network at 5.5m
3. Entrances between fields and private land not involving a carriageway.	**Install** dropwires & aerial cables at minimum 4.0m
4. Routes (multiple pole spans) on private land, field's etc.	**Install** dropwires & aerial cables safely at safe heights and foreseeable hazards must be avoided
5. Bridleways, tow-paths, walkways, footpaths & cycle paths	**Install** dropwires & aerial cables at 3.7m
6. Private drives on individual properties where the only vehicular access is into garage/garaging space, where it is for cars and/or MPV's, as opposed to larger vehicles.	**Install** dropwires & aerial cables as high as reasonably practicable on customer's property/building.
7. Private drives/roads/garaging areas where unrestricted vehicular access is required	**Install** dropwires at 5.9m & aerial cables at 5.6m **Re-tension** existing network at 5.5m for both dropwire and aerial cable
8. Back Alleys with permanently fixed access restrictions	**Install** dropwires & aerial cables safely at safe heights and foreseeable hazards must be avoided
9. Private Property being served	**Install** dropwires & aerial cables safely at safe heights and foreseeable hazards must be avoided
10. Private Property being "flown" over (neighbours etc.)	**Install** dropwires & aerial cables at least 3m above ground & additionally at least 2m away from any building over which it passes.
11. Alongside roads (none or minimal encroachment on road)	**Install** dropwires & aerial cables at-3.0m min or higher if other crossing types are involved
12. Non-navigable waterways	**Install** dropwires & aerial cables at 5.0m
13. Crossings over canals and other navigable waterways	**Install** dropwires & aerial cables as required by the responsible authorities
14. Where a pole is known to be on a high load route	**Install** dropwires at 6.5m

7.4 Fibre Cables

It is the choice of the CP whether to install optical fibre cable in sub duct or not (although this should be submitted as part of their specification in their Request).

If it is necessary to move existing plant, never bend cables below their minimum bending radius. For safety, where fibre blowing techniques are used, the end of the duct must be fitted with an ‘air guard’ to contain any debris.

7.5 Enclosures

You must ensure that any joint closures are designed so that they are commensurate with the joints they are covering.
Any joint closures housed in a joint box owned by KCOM that have blown fibre tube or cables installed, shall incorporate a method to release any positive pressure which may build up. This is to ensure the safety of operatives and the public.

All cables, Joint Closures etc are to be restrained in each chamber.

In order that the provision of good support is not hindered by lack of space, and so that there is easy access to cable joints for maintenance purposes, every effort must be made to ensure that all cables occupying a particular duct way are supported on brackets at one level, and that bracket levels are allocated to duct-ways in a systematic manner.

If a joint-box break through is required as part of the CP’s programme of work this can be undertaken by the CP on authorization from KCOM in most cases; note, if at an exchange manhole or within a Sensitive Area of the Physical Infrastructure, this must be requested from KCOM.

The parties will agree a programme of work under which they or KCOM will carry out such work.

7.6 Gas Seals

If disturbed, Gas Seals must be replaced immediately using products pre-approved by KCOM.

7.7 Lead in interception at property wall

The existing KCOM lead-in may be intercepted by the CP for an adjacent or remote CP lead-in to the customer property.

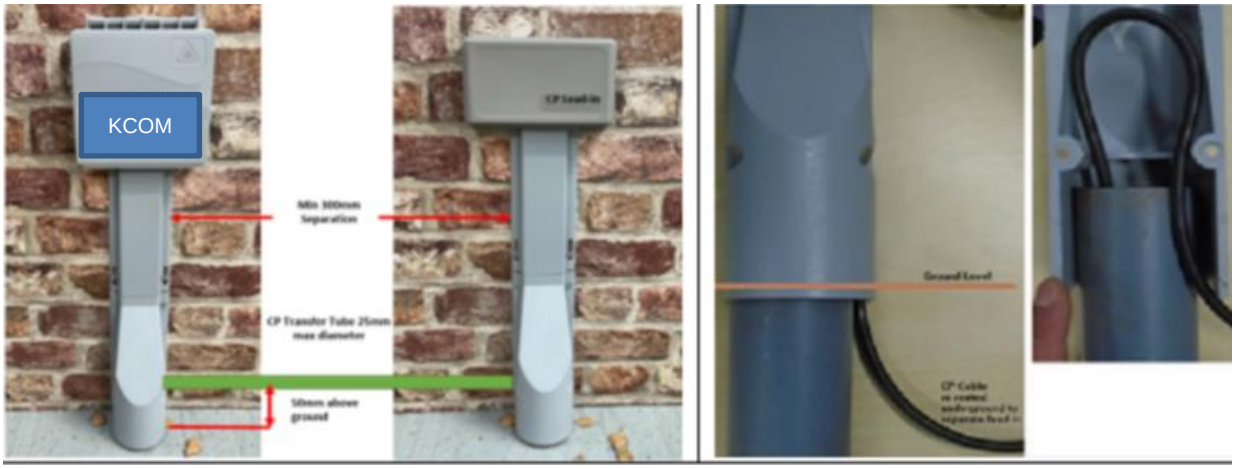


Figure 1

7.8 Labelling Traceability Requirements

All cables must be clearly labelled stating CPs Name, Request Reference and install date,

7.8.1 Underground Labelling

Up to size 6 chambers must be labelled in the middle of the cable and in chambers above a size 6 must be labelled at the Duct Mouth and the Centre.

The marking system and materials must be suitable for long use in an underground environment so that KCOM may continue to quickly and easily identify the apparatus as belonging to CPs. An example of a KCOM label is shown below which can be affixed to the cable using cable ties, CPs should use a similarly suitable label:

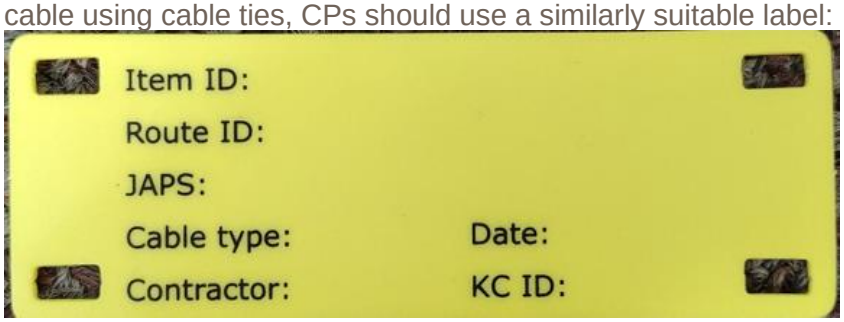


Figure 2. Example KCOM Cable Label (for indicative purposes only)

Where a fibre cable, from an underground duct, is feeding a pole it shall be labelled on the pole.

CPs must clearly mark joints with a label identifying the CP's company name or logo.

Any colour cable can be used in UG Network. Overhead cables and clamps and CBTs must be approved by KCOM.

Any Sub-Duct colour can be used except Black, Brown and Green as these are also used by KCOM.

Shotgun cables are not allowed.

When working in the KCOM Physical Infrastructure CPs may use an existing rope (that another CP or KCOM has left in place following their own rodding and roping for a build they are going to complete at a later stage). The CP may only use this rope on the strict understanding and condition that they pull a new rope in with their cable to replace the one they have used. In any situation where this is not undertaken, KCOM will raise additional charges. If a rope has been used and not replaced, please report this to kpiaengineering@kcom.com

7.8.2 Pole Labelling

KCOM identify poles with a DP number. CP labelling requirements are:

- Where a fibre cable from an underground duct is feeding a pole, it shall be labelled on the pole.
- All cabling utilised on poles, and connected to them in the case of overhead transmission, must be labelled on the pole using a marking system and materials suitable for long term use in an environment subject to weathering; this is critical for KCOM to quickly and easily identify cable and apparatus as belonging to specific CPs and ensure interference is avoided between competing CP infrastructure
- No advertising or marketing material is permitted on a pole. Any equipment attached to a pole must only be for the permitted use, be compliant with all requirements and be clearly labelled in the same format.
- Label must specify KPIA reference, CP name, date of installation, CP equipment reference.

7.9 Siting of CP equipment on KCOM Poles

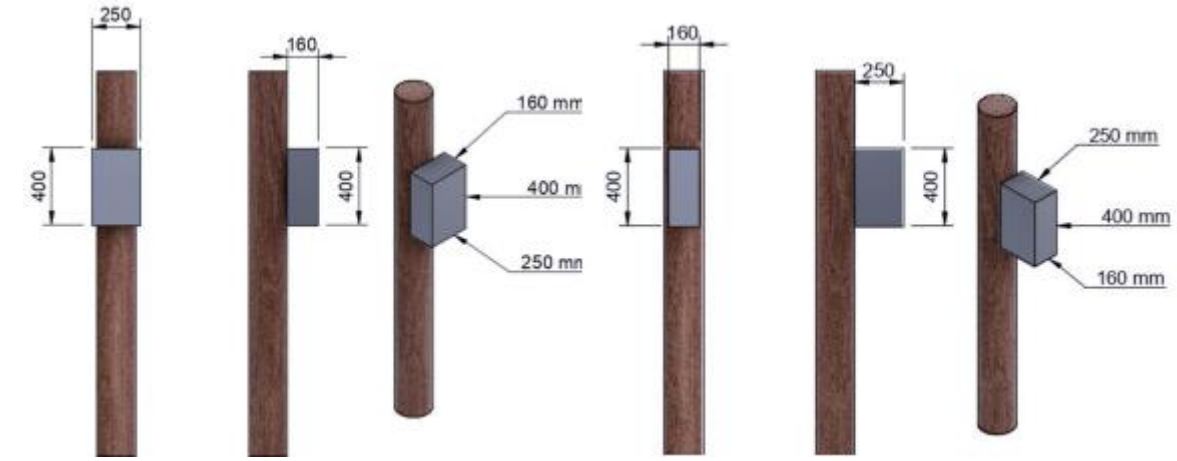
KCOM's pole loading guidelines are:

- On light poles, no more than 7 dropwires should feed from a pole within a 180 degree arc and no more than 4 within a 30 degree arc.
- On medium poles, no more than 15 dropwires should feed from a pole within a 180 degree arc and no more than 5 within a 30 degree arc.
- On stout poles, no more than 20 dropwires should feed from a pole within a 180 degree arc and no more than 10 within a 30 degree arc. Where dropwires leave the pole in directly opposite directions and are of similar span lengths, the above need not apply; distribution on this basis through 360 degree would increase the limit to 40 dropwires.

Note these limitations include dropwires already installed on a pole. The CP must not remove existing dropwires from the pole. If there is no capacity for further drop wires a Network Adjustment request should be submitted; see 8.2.1 for details.

The distribution blocks used to serve end users from Poles are known by various terms including Aerial Subscriber Nodes (ASN's), Aerial Fibre Nodes (AFN's) and Connectorised Block terminals (CBT's). This document uses a single reference for this type of equipment, which is ASN. Distribution Blocks, Connection Boxes, Cable Joints, Fibre-locking devices may be fitted to wooden poles subject to the following:

- Items must be securely attached to the pole using appropriate materials
- New apparatus shall only be installed on the pole in the areas defined by KCOM
- Any single ASN must meet the maximum dimension requirements specified by KCOM in Figure 3 below
- Customer connectivity apparatus e.g. CBT's must only be located in the Upper Space Envelope
- Fibre locking mechanisms (ELM's) shall be located in the lower envelope of space
- Where the Lower envelope is being used (for Joints, ELM's etc), a vertical clearance of 450mm must be provided between the Lowermost Climbing Step and the uppermost part of the equipment
- The top envelope will support a maximum four boxes (ASNs) whilst the bottom envelope will support a maximum of two



Face Mounted Side Mounted

Figure 3 ASN Mounting

Any cables which run vertically on the pole must be fixed at a minimum of 450mm intervals and must not impede access to the climbing steps. The CP must fix cables using a 16mm aluminium strip (typically available in three length options 80mm, 120mm and 180mm). This strip must be secured using 38mm long galvanised bonding nails, along with galvanised steel flat washers (typically with a 6.5mm diameter centre hole).

For protection of cables it is recommended to cover cables up to 2.3m minimum from the ground line, by fitting suitable capping. Where a CP's cable shares the same duct space or run together with KCOM cable, the capping requirement is mandatory. Any cables running between the upper and lower envelopes of spaces (i.e. through the climbing area) must be suitably managed and in a manner agreed in writing, in advance with KCOM. This is to avoid risk to climbers. Nb: Capping's must not be placed over the 3 Metre mark on the Pole

7.10 Drop Wire Connection to Properties

Bracket location should be a minimum of two brick widths from a corner and be a minimum single brick width from any existing bracket.

Fixings at customer's premises are solely the responsibility of the CP, but it is recommended that fixing points should be eyebolts or other closed ring methods, with a fixing strength of min 4.5kN. CP Dropwire attachments must not be made to existing KCOM fixings (Brackets & Eyebolts) which already have a Dropwire attached

7.11 Connection to CP Network and joint-box break through

All joint box work undertaken by the CP requires authorisation from KCOM; note that, if at an exchange manhole or within a Sensitive Area of the Physical Infrastructure, this work must be undertaken by KCOM. The CP should agree a date with the KCOM Nominated Contact whereby their connecting duct will be ready for KCOM to connect to the KCOM Network. The CP shall agree with KCOM the size of the duct that will connect to the KCOM Network. The CP, if necessary, will extend its duct network to within no less than 2 metres of the agreed handover joint -box but should not break into the joint box. The CP is expected to undertake the connecting duct work and the associated work breaking through into the KCOM joint-box will be paid for by the CP at its own expense. Once the connecting duct work is completed the CP will confirm this to KCOM. KCOM will then break through into the KCOM joint box and extend the CPs duct into the KCOM Network.

Where connecting duct is installed to the KCOM Network, the CP, if necessary, will extend its duct network to no less than 2 metres of the agreed handover joint-box. The CP is expected to undertake the connecting duct work and associated work breaking through into the KCOM joint-box at its own expense.

7.12 Co-op and Ancillary Works

Co-op and Ancillary Works refer to requests on KCOM to undertake work on behalf of the CP. On request from the CP for specific works, KCOM will advise costs and proceed on approval of these from the CP. Ancillary Works are specific network construction to be conducted by KCOM and charged to the CP; Co-op Works refer to activities undertaken with KCOM presence.

Ten (10) days' notice is required for Co-op and Ancillary Works. Examples of these are :

Ancillary Works	Co-op Works
Cable recovery (light / Heavy / large)	Co-op Survey
Joint box breakthrough	Issue of Security Key
Manhole Breakthrough	Removal of locked lids
Customer changeover (pole)	Other KCOM assistance
Provision of an Earth Spike for pole	
Renew, provide and/or re position Pole steps on Pole	
Re-tension, refix and renewal of aerial cable	
Re-tension, refix and renewal of drop wire	
New Small / Medium / Large Footway Box	
New Small / Medium / Large Carriageway Box	
New Duct – Soft / Footway / Carriageway	
New Pole / Replacement Carrier Pole / Replacement DP Pole	
Provide pole top ring-head	
Clearing a block in a Duct (Soft / Footway) / Carriageway	

7.13 New Build Material Suppliers

CP's can obtain materials from the following KCOM approved suppliers.

GENUS SubTerra™ Access Chambers: Castings Services: Castings Services Ltd, Langley Road South Salford, M6 6TZ. Telephone: 0161 745 9095, Email: sales@castings-services.co.uk, www.castings-services.co.uk

STAKKAbox™ JMF Access Chambers | Cubis Systems (cubis-systems.com)

7.14 Records

The CP must maintain full and accurate records of any and all use of the Physical Infrastructure including full details of:

(a) Location of any CP Apparatus in the Physical Infrastructure (with O/S coordinates);

(b) Physical Infrastructure being used by the CP including whether spine, chamber, lead-in or Pole;

(c) the CP Apparatus at each location;

(d) Photographic Evidence of any installation or repair work the CP or CP Personnel has done on or in the Physical Infrastructure;

(e) the date CP Apparatus was installed at the location and if relevant removed.

(f) the diameter of any cables installed by the CP; and

7.15 Sensitive Areas

Any requests for PIA will be reviewed on a case by case basis and any decision will be made at our sole discretion. Any such requests will be subject to the CP being responsible for co-ordinating with third parties, applying for permits, getting consent to access and any other action required to obtain access or consent from third parties and covering costs incurred by either the CP and/or KCOM.

8 Network Adjustments

8.1 Background

Network Adjustments are works carried out by the CP to repair infrastructure and resolve congestion.

KCOM will fund those network adjustments that do not form part of a CP's rollout plan but are essential, either due to assets causing a risk to the general public/engineers health or, where defects in quality are found. For the avoidance of doubt, a pole simply being "D" would not fall into this category, unless it caused an immediate risk to health.

In addition, a Network Adjustment Fund is available, subject to the conditions within Schedule 5 of the Contract.

Network Adjustment Fund

For each KPIA request/area submitted, we will calculate the duct spine length in kilometres and then multiply this by £700 of one adjustment per kilometre. This will create a "pot" for the entire area, which can be used for any network adjustment in that area. Adjustments won't be calculated on a per kilometre basis but rather drawn down from the "pot" up to its maximum value for the entirety of that area.

The CP drawing down on this "pot", will be responsible for 50% of the network adjustment cost. KCOM will then reimburse the CP for the remaining 50% of the cost. For any network adjustments the CP may need to undertake, the KCOM price book will be utilised as a guide, with a maximum of a 10% increase allowed over the price book value.

KCOM have the right to investigate requests and if found not to be necessary, KCOM have the right to claim verification charges from the CP, as set out in the Price List.

If standard blockage clearance identified, Not to Exceed capped cost is supplied to the CP with a request to accept within 5 working days or request is cancelled. If cost to resolve is greater than Capped cost, the full estimated cost to complete the works is provided and the CP has to agree to fund the amount over the capped cost, CP will receive 50% of the capped cost as payment.

A Self-Provide Order must be accepted by KCOM before any work can proceed; this will only be considered where there is an existing, valid Request for the Physical Infrastructure which is the subject of the request to make a Network Adjustment.

On completion the following documentation is required:

- Full details of the work carried out, including:
  - Network Adjustment Type e.g. 'Clear Blockage';
  - Job ref:- KPIA number;
  - Date the work was started and completed.
- Full Postal Address e.g. Grid Reference, Eastings and Northings;
- Good quality photographic evidence as outlined in Schedule 1 of the Contract of the work, both during the work and after completion of the work;
- If damage was present, any repair work that has been undertaken.

If we identify additional work is required in order to complete the network adjustment you will be liable for those additional costs.
Scenarios where this may be appropriate include, but are not limited to:

- Complex civils;
- Traffic management;
- Local authority charges;
- Additional blockages/repair to damage duct.

8.2 Criteria

8.2.1 Network Adjustment Requirements

The following scenarios, requiring further action in the form of self-provide Network Adjustments, may be encountered when progressing a Request. Elements which cannot be self-provided as determined below must be ordered from KCOM on an individual basis using the Network Adjustment form. Where new duct is installed by the CP to bypass congested KCOM infrastructure, reached via the core drilling of KCOM chambers, ownership of that new duct will remain with the CP.

Item of Physical Infrastructure	Requirement	Activity	Comments

Various	Breaking into or out of KCOM network		This is not considered to be a repair or congestion activity
Chamber	Lack of capacity	Remove redundant cables	Customer is not permitted to self provide
		Enlarge Chamber	Customer is not permitted to self provide Where service strip /location of other services does not permit enlargement, this would require a new joint chamber.
		New Chamber	The Customer may provide and install their own chamber
	Damaged	Repair Chamber	This would include replacement of a warped/distorted chamber lid/frame and removal of tarmac where covering the entire chamber cover. Customer is not permitted to self provide
	Missing Ladder in Manhole	Install ladder in Manhole	Customer is not permitted to self provide
Spine Duct	Lack of capacity	Remove redundant cables	Customer is not permitted to self provide
		New Duct	The Customer may provide and install their own new duct
		Install footway boxes	Only for the purpose of connecting lead-in duct to spine duct
	Collapsed	Repair	Subject to KCOM's standard engineering and other practices.
		New Duct	The Customer may provide and install their own new duct
	Repair of existing Spine Duct including where parts of the Spine Duct are missing (e.g. where disintegrated due to damage by 3rd Party	New Duct	Subject to KCOM's standard engineering and other practices
Pole	Defective Pole	Repair/Replace	Only where the pole is unusable / inaccessible. Only applicable where subject to a new order, i.e. not for maintenance purposes
Pole (drop wire lead-in)	Lack of capacity (Furniture)	Provide Stand-off Bracket	
		Remove Redundant Equipment	Customer is unable to self-provide unless agreed with KCOM
		Move Bass Steps	Customer is only able to self-provide if their personnel are accredited including in the Openreach module 'Pole stepping on congested poles' (CP17).

			CP should provide evidence as part of the Build Complete.
		Relocate Copper Block Terminals on Pole	Customer is not permitted to self provide
		Network Re-arrangement	Customer is not permitted to self provide
		Remove Pole Steps	Customer is not permitted to self provide
		Erect New Pole	Customer is not permitted to self provide
	Lack of capacity (Loading)	Remove inactive drop wire	Customer can only remove an inactive dropwire where it is not connected to any premises or other structure and is clearly redundant
		Pole Stay	Customer is not permitted to self provide
		Renew pole with one of a heavier gauge (Medium to Stout)	Customer is not permitted to self provide
		New Pole/ Network Re-arrangement	Customer is not permitted to self provide
Lead-in Duct	Lack of capacity	New underground lead-in	Customer may provide own new underground lead-in.
Lead-in (Directly Buried)	Collapsed or otherwise in need of repair	New underground lead-in	Customer may provide own new underground lead-in.
		Repair	
	Lead-in Duct	New underground lead-in	Customer may provide own new underground lead-in.
Cables	Directly Buried Cables		Customer may provide and install their own new duct.

All cabling within chambers shall have sufficient slack to allow the cables and joints to be repositioned.

CPs must ensure that all Physical Infrastructure at the Location is left safe and secure when the immediate area is not attended and that all underground access point covers are replaced and secure.

8.2.2 Exclusions

Adjustments do not include:

- Any work which KCOM considers to be outside its current Physical Infrastructure footprint;
- Work to provide new duct, new chambers or new poles unless, in the case of new poles, it is to replace a Defective Pole (D pole);
- Work within a Multi-Dwelling Unit.

Note that any work to remove obstructions in, on or close to the Physical Infrastructure which are temporary in nature, including the removal of silt, water, scaffolding, branches or foliage of any kind are standard activities and do not need to be advised to KCOM.

Other issues to be noted for Network Adjustments:

- The determination of whether a KCOM cable is “redundant” will be based on our standard engineering practices. We will only remove our redundant cables where we reasonably believe this can be done safely and without risk of damage or interference or interruption to existing services. CPs cannot remove either KCOM’s or another CP’s cables or facilities other than their own.
- The term “inactive drop wire” refers to those wires where we do not have a regulatory or contractual obligation to supply service using that wire and which we can safely remove without causing interruption to existing services.
- PIA CPs will be required to identify any inactive drop wires they have which are connected to our poles and on notice from KCOM remove that inactive drop wire. This will be on the same basis and within the same period, as we remove our inactive drop wires in circumstances where the end user either 'churns' to another PIA CP or to a KCOM provided service. In this case the losing PIA CP will not be subject to Early Termination Charges on the lead-in provided by the drop wire that is removed.
- Overlay is recommended where duct repair costs exceed those for new provision.

9 Related KCOM formal documentation

Title	Description	Comments
Framework Agreement	KPIA Contract	TBA
WHS&E Contractor Code of Practice [Applicable to Contractors and Partners Working on KCOM / Third-Party Sites, Premises and Plant]	Health and safety at KCOM network sites	DOC-0267
End User Guide KCOM Wholesale Billing	Billing portal	KCOM Billing Portal Guide
Wholesale Credit Check	Credit Check Application	Wholesale Credit Check
Onestop pack		TBA

Appendix 1: Planned Works Request

KCOM Wholesale & Networks Planned Works Request	
Change Request Number: (CRQ/PEW Ref)	
Change Owner & Contact details:	
Brief Change Description:	
Planned Start Date and Time:	
Planned End Date and Time:	
Expected Down time:	
List of Affected CI's: (Circuit references – MXGE or OWHU)	
Primary Service Impacted: (PSTN/Data/VoIP)	
Risk and Impact:	
Is site Access Required: (If yes, provide site details and Name/ contact details of person attending)	
Contact details who KCOM will contact if there are any issues:	
KCOM Resource (if required) (Yes/No)	
Detailed Work Plan (if Yes KCOM resource required, plan covering implementation, backout and test plan would be required)	(Could be in the form of a separate attached document)
Section below to be Completed by KCOM if KCOM resource required	
KCOM Peer Reviewed: (if KCOM resource required)	
KCOM Resource Name and Contact details (to be completed by KCOM if KCOM resource required)	

Appendix 2: CP Service Plan

1 CP Emergency Call Out

(To address rectification and making safe any work done by CP Personnel on, or in, the Physical Infrastructure which, in KCOM's reasonable opinion, presents an immediate or serious threat of physical harm or damage to person or property)

Company	[CP Name]
Name	[Name]
Telephone Number	[Telephone Number]

2 Operational Contacts

Company	KCOM
Tier 1	
Name	KCOM Wholesale Provisioning team
Telephone Number	0800 7022000
Email Address	wholesalepartnersbusiness@k
Tier 2	
Name	WSOC Team (Technical Support)
Telephone Number	0800 1380292
Email Address	wsoc247@kcom.com
Tier 3	
Name	Head of Customer Service
Telephone Number	0800 7022000
Email Address	

Company	[CP Name]
Tier 1	
Name	[Name]
Telephone Number	[Telephone Number]
Email Address	[Email Address]
Tier 2	
Name	[Name]
Telephone Number	[Telephone Number]
Email Address	[Email Address]
Tier 3	
Name	[Name]
Telephone Number	[Telephone Number]
Email Address	[Email Address]

3 Billing Contacts

Company:	KCOM
Tier 1	
Name	KCOM Wholesale Provisioning team
Telephone Number	0800 7022000
Email Address	kpiaprovisioning@kcom.com
Tier 2	
Name	KCOM Wholesale Provisioning team Manager
Telephone Number	0800 702200
Email Address	kpiaprovisioning@kcom.com
Tier 3	
Name	KCOM Wholesale Account Manager
Telephone Number	TBC
Email Address	wholesalesales@kcom.com

Company:	[CP Name]
Tier 1	
Name	[Name]
Telephone Number	[Telephone Number]
Email Address	[Email Address]
Tier 2	
Name	[Name]
Telephone Number	[Telephone Number]
Email Address	[Email Address]
Tier 3	
Name	[Name]
Telephone Number	[Telephone Number]
Email Address	[Email Address]

4 Security Contacts

Company:	KCOM
Tier 1	
Name	Carl Simpson
Telephone Number	01482 248627
Email Address	accessmanagement@kcom.com
Tier 2	
Name	WSOC Team (Technical Support)
Telephone Number	0800 1380292
Email Address	wsoc247@kcom.com
Tier 3	
Name	Head of Customer Service
Telephone Number	0800 7022000
Email Address	

Company:	[CP Name]
Tier 1	
Name	[Name]
Telephone Number	[Telephone Number]
Email Address	[Email Address]
Tier 2	
Name	[Name]
Telephone Number	[Telephone Number]
Email Address	[Email Address]
Tier 3	
Name	[Name]
Telephone Number	[Telephone Number]
Email Address	[Email Address]

Appendix 3: Technical Specifications

Specifications are liable to change and must be confirmed with KCOM. The following applies at the date of this document.

Underground

Sub Ducting

Requirement	Performance specification
Installation Performance	The sub-duct should be manufactured from suitable polymer materials. The materials used should be suitable for use in an external and underground environment. Sub-duct should be suitable for an installed service life of 25 years.
Design	One or more blown fibre tubes bundled together and protected by an outer sheath. Blown fibre tubes without an outer protective sheath are not acceptable for installation in the KCOM underground infrastructure. The outer surface of the blown fibre tubing sheath must be smooth and circular in cross-section.
Materials	The blown fibre tubing outer sheath must be manufactured from a suitable polymer material. The materials used for blown fibre tubing and associated connectors must be suitable for use in an underground network. All materials used must be in accordance with the latest COSHH regulations. Blown fibre tubing and connectors must be suitable for an installed service life of 25 years.
Dimensions	The maximum diameter of the sheathed blown fibre tubing is 25mm.
Identification	The blown fibre tubing must be suitably identified, the blown fibre tubing must be labelled in jointing chambers with the CP name clearly marked. The blown fibre tubing sheath may also be printed with the manufacturer's generic sheath marking such as supplier name, date of manufacture, incremental length marking, etc. and where possible CP name. Blown fibre tubing must not be printed with KCOM identification markings or a CP name other than that of the CP that it is being installed for.

Tubing

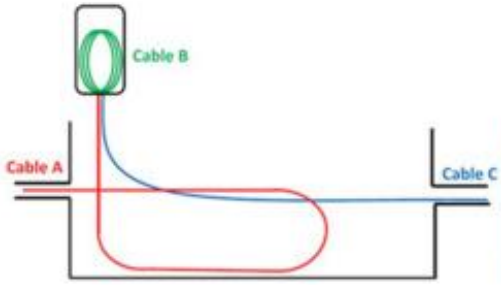
Requirement	Performance specification
Installation Performance	The blown fibre tubing shall be suitable for installation in accordance with KCOM specification. Connectors must only be installed in jointing chambers and contained within a jointing closure. A maximum working pressure of 10 bar must not be exceeded for blown fibre tubing and associated connectors.
Design	The outer surface of the sub-duct should be smooth and circular in cross-section.
Materials	The materials used in the manufacture of the sub-duct and connectors should be in accordance with the latest COSHH regulations.
Dimensions	The nominal outside diameter of the sub-duct shall be 25mm.
Identification	The sub duct must be suitably identified. The sub duct must be labelled in jointing chambers with the CP name clearly marked. The sub duct may also be printed with the manufacturer's generic duct marking such as supplier name, date of manufacture, incremental length marking, etc. and where possible CP name. Sub duct must not be printed with KCOM identification markings or a CP name other than that of the CP that it is being installed for.

Jointing

Requirement	Performance specification
Installation Performance	Optical fibre cables that are installed directly in standard network duct shall be robust enough to withstand future cabling practices (e.g. cabling rod impact / abrasion). It is recommended that an appropriate grade of sheath material should be used to withstand these cabling practices.
Design	When installing new cable within KCOM network, every effort should be made to ensure minimal disruption to existing infrastructure. Where new cables pass through chambers, the new cables should not impede existing cables/infrastructure in such a way that they cannot be maintained easily. If it is necessary to move existing plant, never bend cables beyond their maximum bending radius.
Materials	All cabling components shall have a service life of no less than 25 years and be suitably robust for the underground environment.
Dimensions	Subject to and as set out in the terms and conditions for KCOM ATI you may install a number of cables that combined do not exceed 25mm in diameter (based on the 0.7 planning rule) or one single cable that does not exceed 25mm in diameter.
Identification	CP's must clearly mark joints with a label identifying their CP name. The marking system and materials must be suitable for long term use in the underground network so that we may continue to quickly and easily identify the apparatus as belonging to them.

Chamber Occupancy

Within any given KCOM chamber, it is always recommended to use brackets and/or bearers to support any new CP sub duct, tubing, cabling or jointing apparatus appropriate to the size of the chamber. Attention should be given to bend radiuses of tubing and cabling to prevent damage to new and existing plant.
In order that the provision of good support is not hindered by lack of space, and so that there is easy access to cable joints for maintenance purposes, every effort must be made to ensure that all cables occupying a particular duct way are supported on brackets at one level, and that bracket levels are allocated to duct-ways in a systematic manner.
All cables within any chambers should always be labelled with a form of identification clearly stating the name of the CP.
Based on current KCOM build standards, the table below lists the maximum length of coiled cable allowed.



Joint Box Type	JF11	JF10	JF6	JF4	JF2
Max Cable Length Coiled/Stored **(A+C)**	9.3m	9.3m	6.3m	4.3m	3.2m

Permitted use for cable coils include to facilitate a distribution joint and to store cable in advance of completing a cable run but it is important that any such coils are used within a reasonable period of time to connect to a network and not used such as to prevent or limit others from using the duct or chamber, or as a pseudo ‘reservation’. When leaving a cable coil in advance of completing a cable run you must be labelled and dated appropriately.

Civils Guidance

Duct Capacity

- 50% of D56 (50mm diameter duct = up to a maximum of 25mm can be used)
- 50% of D54 (90mm diameter duct = up to a maximum of 45mm can be used)

Core Drill of Chambers

- Duct Entry can be core-cut by a PIA accredited operative and should be D56 or D54.

New Build Chambers on Existing Duct

- Network will be gifted to KCOM on completion; issue of materials will be chargeable.

Tee/Swept Tee Installation

- Installation of new Tee/Swept Tee on KCOM duct for Lead-In purposes must follow the Co-op and Ancillary Works process.

Overground (Poles)

Requirement	Performance specification
Breaking load, or ultimate fail load	Max 2000N
Maximum Outer Diameter	Drop Wires must not exceed 7mm Ø
Cable colour	The outer sheathing of the cable shall be black, or black with a coloured marker line
Cable Insulation	The cable must be suitable for use under 11kV Power Lines (with a minimum vertical separation distance of 1.8 Metres)
Resistance to wind /ice	Cable must be able to withstand 97 kph wind, no ice. 0 kph wind, + 5mm ice. without appreciable sag
Sag due to temperature variation	Cable must be specified to operate in a temperature range of -15°C to +30°C

Appendix 4 : Establishment

- All new applications will be credit checked
- Advise your RID code
- Complete and sign Agreement
- Service Now Portal Access – functionality is under development but incorporates ability to report faults. The following list of contacts must be completed:

Name	**Position**	**Email**	**Tel**	**Access (Admin – can have 2 of these e.g. main order placer(s) and fault reporting facilities)**

Appendix 5 : Accreditation – PIA Skills Matrices

Mandatory Safety Accreditation Requirements

Role	Accreditation	Notes
All Civils roles	SA006; NRSWA O1, LA	
Civils Supervisor	SA006; NRSWA S1, LA	
Subduct and heavy cabling	SA02 or SA006*; NRSWA O1	
Fibre UG (including installs)	SA02 or SA006*; NRSWA O1	
Fibre OH (including installs)	SA001; NRSWA O1	Also, relevant accreditations for access equipment (e.g. IPAF PAL for MEWP; PASMA for mobile access towers)
Fibre surveying	SA02 or SA006*; SA001 or SA001(A); NRSWA O1	
Fibre supervisor	SA002 or SA006*; SA001 or SA001(A); NRSWA S1	

*SA006 Safe Working in Civils incorporates SA002 Underground Safety and therefore meets the requirements for all UG work.

Mandatory Craft Accreditation Requirements

Role	Accreditation	Notes
All Civils roles (including supervisors)	K008; Q-range modules as appropriate to the task.	See list below for details.
Subduct and heavy cabling	K008; K006	
Fibre UG (including installs)	K008; S007 or N028	S007 or N028 is not required where the activity is test rod and rope only.
Fibre OH (including installs)	S008 and S009 or N027	
Fibre surveying	No specific requirements	
Fibre supervisor	K008; S007 or N028; S008 and S009 or N027	As relevant to the activities being supervised.

Additional Accreditations

CPs should determine an appropriate list of task/craft accreditations for operatives. This may be based on the Openreach requirements for PIA; other schedule as determined to be appropriate; or internally validated training. This list should be shared with KCOM on request.

Q-range accreditation list for civils operatives and supervisors

- Q012: Box Building (Concrete)
- Q013: Box Building (Modular)
- Q019: Core Drilling
- Q021: Duct Laying 1
- Q022: Duct Laying 2

- Q023: Duct Laying 3
- Q024: Frame and Cover (Footway)
- Q025: Frame and Cover (Carriageway)
- Q028: Maintenance Excavation
- Q030: Mole ploughing
- Q036: Duct Slew

Reviewed and Approved by:

Name	Role	Approved
	Product Architect	
	Engineering Manager	
	Engineering SHE&Q Manager	
	H&S Manager	
	Engineering Manager	
	Head of Architecture	
	WSOC Manager	

Appendix 6: Version Management

Version	Description	Changed By	Date Approved
V1	First Issue	GM	