PAGERPOWER
Urban & Renewables

Broadband Connectivity Assessment

Great Northern

GNW Developments Limited

November 2022







PLANNING SOLUTIONS FOR:

- Solar
- Telecoms
- Railways
- Defence
- Buildings
- Wind
- Airports
- Radar
- Mitigation

www.pagerpower.com

ADMINISTRATION PAGE

Job Reference:	11380K
Date:	November 2022
Author:	Aaron Williams
Telephone:	01787 319001
Email:	aaron@pagerpower.com

Reviewers:	Abdul Wadud; Kai Frolic
Email:	abdul@pagerpower.com; kai@pagerpower.com

Issue	Date	Detail of Changes
1	November 2022	Initial issue

Confidential: The contents of this document may not be disclosed to others without permission.

Copyright © 2022 Pager Power Limited

Stour Valley Business Centre, Sudbury, Suffolk, CO10 7GB

T:*+44 (0)1787 319001* E:*info@pagerpower.com* W:*www.pagerpower.com*

All aerial imagery (unless otherwise stated) is taken from Google Earth. Copyright © 2022 Google.

EXECUTIVE SUMMARY

Report Purpose

There is a requirement to ensure that new residences have access to superfast broadband download speeds (understood to mean a minimum of 24 Mbps) to ensure future occupants can obtain sufficient broadband services. Pager Power has been commissioned to investigate the broadband connectivity at the proposed development, located at Great Bridgewater Street, Manchester.

Process

The availability of broadband services and the associated speeds has been determined based on:

- Openreach coverage checker – which is available via the Openreach website and identifies available speeds in any area within the UK.
- Crosschecks with three of the main UK broadband providers.
- Investigation of the process for obtaining superfast broadband to the premises.

Conclusions

Suitable superfast broadband download speeds, understood to mean a minimum of 24 Mbps, is not currently available at eight of 10 assessed addresses near to the proposed development. Therefore, superfast services may not currently be available to the proposed development under baseline conditions.

Openreach typically provides Fibre To The Cabinet (FTTC) infrastructure which allows for superfast service, and this is leased by BT and Sky who provide internet services, amongst other retail providers. Fibre services are not available at nine of the 10 addresses near to the proposed development location. Therefore, FTTC infrastructure may not currently be available for the proposed development from Openreach. The review has shown that for majority of the assessed addresses near to the proposed development, there is no superfast services from BT and Sky.

Virgin Media provides superfast services with of an average download speed of up to 1130Mbps; however, information was unavailable for eight of the 10 addresses and was confirmed as unavailable at one of 10 addresses near to the proposed development location. The remaining address did have access to superfast services from Virgin Media. Consultation with Virgin Media previously has indicated that the Virgin Media network is available throughout the centre of Manchester.

Next Steps

The proposed development will likely consist of more than 19 plots. Therefore, Fibre To The Premises (FTTP) infrastructure is available free of charge for this development subject to application to Openreach. This would ensure internet speeds are maintained and is recommended for the proposed development. If the installation of FTTP were to be pursued, the application must be done at least six months before provision of the service to the first property

is provided. The site registration process is discussed in Section 4.2. The details that must be included within the registration are:

- Site start date and required service date.
- Site address and coordinates.
- Description of development including type, phases and capacity.
- Contact details.
- Location plan, site plan (1:500) and schematic or schedule of accommodation.

The proposed development may benefit from superfast services from Virgin Media. Although the review of locations near to the proposed development location did not reliably confirm that superfast service was currently available from Virgin Media, this does not necessarily mean that Virgin Media's infrastructure is not in place at nearby access points and ducts. Consultation with Virgin Media previously has indicated that the Virgin Media network is available throughout Manchester.

If Virgin Media is contacted within a sufficient time frame and notified of the site plans[1,2] it is possible that the proposed development will benefit from either FTTP or cable broadband supplied by Virgin Media.

Other internet service providers can be contacted in advance[3]. Provided one or more of these processes are followed, superfast services can be made available for the proposed development.

[1] https://www.virginmediapartners.com/developersnetworkexpansion

[2]https://www.virginmedia.com/content/dam/virginmedia/dotcom/images/shop/downloads/New-Build-Handbook-v1-63.pdf

[3] For example, Hyperoptic is a fibre to the building internet provider in many town and city centres in the UK.

PAGERPOWER
Urban & Renewables

LIST OF CONTENTS

Administration Page 2
Executive Summary 3
Report Purpose 3
Process 3
Conclusions 3
Next Steps 3
List of Contents 5
List of Figures 6
List of Tables 6
About Pager Power 7
1 Background 8
1.1 Introduction 8
2 Development Plans 9
2.1 Proposed Development Site Plan 9
2.2 Proposed Development Site Layout – Aerial image 10
2.3 3D Building Representation 11
3 Internet Services in the UK 12
3.1 Common Types of Broadband 12
3.2 Broadband Speeds 13
4 Broadband Connectivety Assessment 14
4.1 Overview 14
4.2 Broadband Connectivity Assessment 14
5 Facilitation of Superfast Internet Services 20
5.1 Overview 20
5.2 Openreach 20
5.3 Virgin Media 21
5.4 Data Ducting Infrastructure for New Homes 21
6 Conclusions 23

6.1 Conclusions 23
6.2 Next Steps 23
Appendix A – Example Documents for Site Submission 25
Purpose 25
Example Site Plan 25
Example Site Plan with Plot Numbers 26
Example Flat Floor Plan with Plot Numbers 27
Example Site Plan for Business Unit 28
Example Site Plan for Business Unit Plots 29
Appendix B – Data Ducting Infrastructure for New Homes 30
Overview 30
External Infrastructure Requirements Overview 30
Internal Infrastructure Requirements Overview 31

LIST OF FIGURES

Figure 1 Proposed development site plan 9
Figure 2 Proposed development site layout (blue) – aerial image 10
Figure 3 3D building representation 11
Figure 4 Common types of broadband (fixed line) 12
Figure 5 Locations assessed 14

LIST OF TABLES

Table 1 Assessment of current availability 19

ABOUT PAGER POWER

Pager Power is a dedicated consultancy company based in Suffolk, UK. The company has undertaken projects in 54 countries within Europe, Africa, America, Asia and Australasia.

The company comprises a team of experts to provide technical expertise and guidance on a range of planning issues for large and small developments.

Pager Power was established in 1997. Initially the company focus was on modelling the impact of wind turbines on radar systems. Over the years, the company has expanded into numerous fields including:

- Renewable energy projects;
- Building developments;
- Aviation and telecommunication systems.

Pager Power prides itself on providing comprehensive, understandable and accurate assessments of complex issues in line with national and international standards. This is underpinned by its custom software, longstanding relationships with stakeholders and active role in conferences and research efforts around the world.

Pager Power's assessments withstand legal scrutiny and the company can provide support for a project at any stage.

1 BACKGROUND

1.1 Introduction

There is a requirement to ensure that new residences have access to superfast broadband download speeds (understood to mean a minimum of 24 Mbps) to ensure future occupants can obtain sufficient broadband services. Pager Power has been commissioned to investigate the broadband connectivity at the proposed development, located at Great Bridgewater Street, Manchester.

This report presents the investigation into the current internet speeds in the area around the proposed development to determine whether minimum internet speeds at the development can be met.

2 DEVELOPMENT PLANS

2.1 Proposed Development Site Plan

The proposed site layout plan for the tall building plots is shown in Figure 1[4] below.

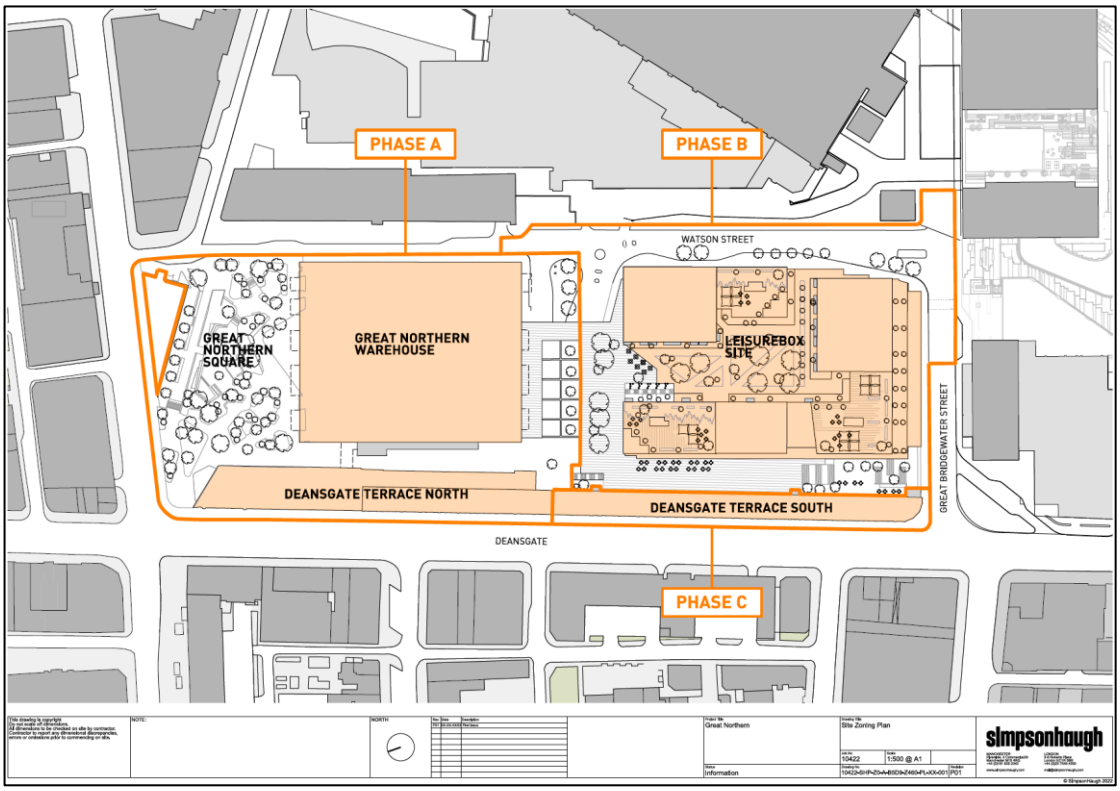


Figure 1 *Proposed development site plan*

[4] Source: GN Project Overview Crib Sheet 211022

2.2 Proposed Development Site Layout – Aerial image

The approximate proposed development footprint, of the tall building plots, overlaid on aerial imagery is shown in Figure 2 below.

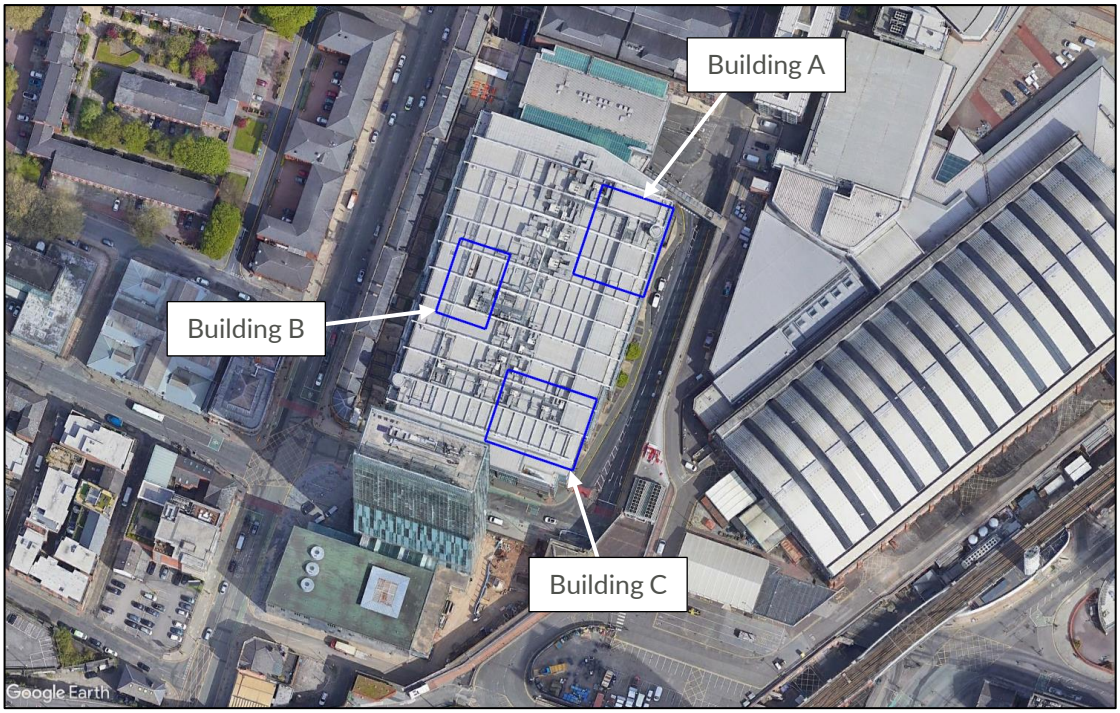


Figure 2 *Proposed development site layout (blue) – aerial image*

2.3 3D Building Representation

A 3D aerial image of the proposed development is shown in Figure 3 below.

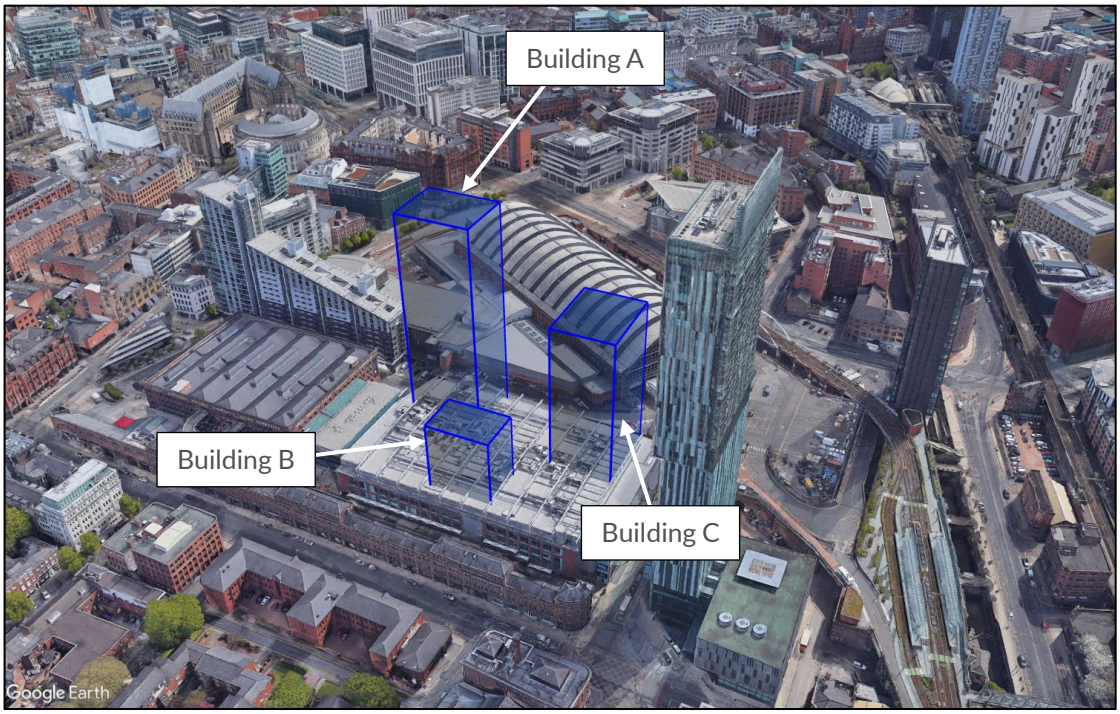


Figure 3 *3D building representation*

3 INTERNET SERVICES IN THE UK

3.1 Common Types of Broadband

Broadband services in the UK can be provided in various ways. Typical fixed line broadband options include:

- Asymmetric Digital Subscriber Line (ADSL) – which is provided via a copper telephone line as shown in Figure 4 below.
- Fibre optic broadband – which is provided via a bespoke fibre network. Fibre optic broadband typically provides the highest speeds in the UK and can be further subdivided into:
    - Fibre To The Cabinet (FTTC) – whereby a fibre connection is made between the exchange and a distribution point (typically referred to as a cabinet), which in turn is connected to a residence via a copper cable.
    - Fibre To The Premises[5] (FTTP) – whereby a fibre connection is made between the exchange and the residence.

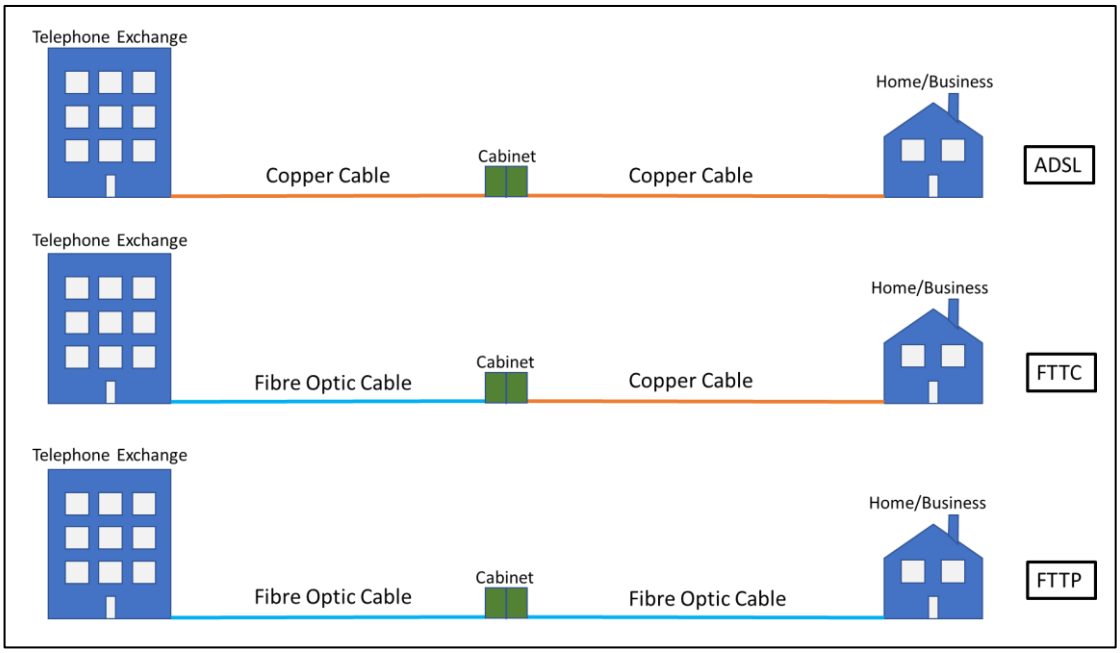


Figure 4 *Common types of broadband (fixed line)*

- Gfast – which is a new hybrid technology used by Openreach that delivers broadband much like FTTC; however, the transmission is modified typically at the distribution point to increase the speed of the service.

[5] Also referred to as Fibre To The Home (FTTH).

- Cable (DOCSIS) – typically provided by Virgin Media[6] who make use of DOCSIS technology[7] standard whereby typically there is a fibre connection made up to a distribution point, which in turn is connected to a residence via coaxial cable.

Wireless Broadband services are available in the UK are less common. Typical wireless options include:

- Fixed Wireless Access (typically offered by small internet service providers to rural locations) whereby a fibre connection is made up to a distribution point, which in turn is connected to a residence via wireless technology (typically WI-FI).
- Mobile network providers can also provide wireless home broadband via 4G / 5G technology and may be sought as another alternative solution.
- Satellite internet services are very uncommon and used only in very remote rural areas typically where no alternative viable solutions are available.

3.2 Broadband Speeds

The term 'superfast' is understood to mean speeds of 24 Mbps or higher[8]. Available speeds for the technologies are as follows:

- Standard broadband – up to 24Mbps;
- Superfast broadband – up to 80Mbps (FTTC);
- Gfast Broadband – up to 330 Mbps;
- Cable Broadband – up to 1130 Mbps[9] (Virgin Media);
- Ultrafast Full Fibre – typically up to 1 Gbps[10] (FTTP).

[6] Virgin Media now also provide FTTP solutions in the UK for home broadband services.
[7] Data Over Cable Service Interface Specification - An international standard for data transfer over cable.
[8] Source: BBC, 2014, *One million UK properties on 'superfast broadband' after investment'*. Last accessed August 2021.
[9] https://www.virginmedia.com/shop/broadband/speeds
[10] Source: Openreach. 1 Gbps = 1,000 Mbps.

4 BROADBAND CONNECTIVETY ASSESSMENT

4.1 Overview

The availability of internet services at the proposed development has been explored in two ways:

- Assessment via Openreach – which shows the availability of their fibre network at UK locations via an automated service on their website.
- Enquiries with three main high-speed broadband providers in the UK, namely:
  - BT (Uses Openreach broadband infrastructure network);
  - Sky (Uses Openreach broadband infrastructure network);
  - Virgin Media (Owns and maintains its own broadband network).

4.2 Broadband Connectivity Assessment

10 address locations were assessed near the development boundary as shown by the green icons in Figure 5 below. The results are shown in Table 1 on the following page. The red line boundary is also shown within Figure 5 below.

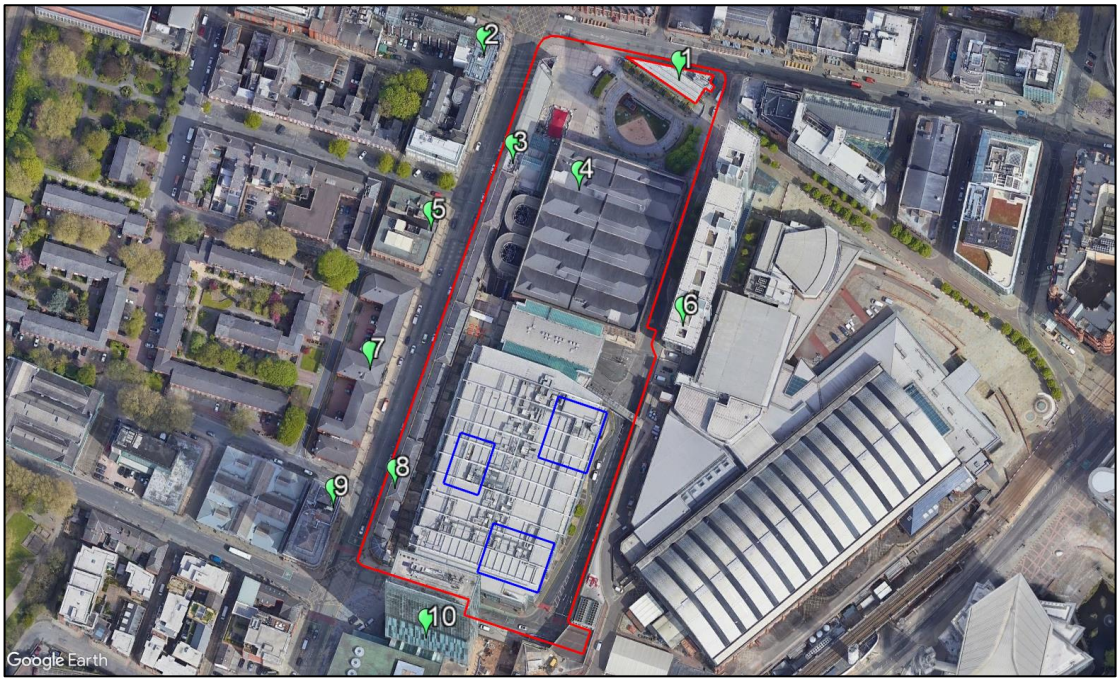


Figure 5 *Locations assessed*

Location	Address	Openreach	BT (Openreach network)	Sky (Openreach network)	Virgin Media
1.	Suite 1A, Central Buildings, 11 Peter Street, Manchester, M2 5QR	No fibre service available. Superfast services not available (i.e. ADSL only). See Section 5.2 for obtaining superfast services from Openreach.	Results showed that typical download speeds in practice average from 8 to 16 Mbps. Minimum download speed is 3 Mbps.	Results showed that typical download speeds in practice average from 11 to 17 Mbps. Minimum download speed is 8.2 Mbps.	Information currently unavailable for this address on Virgin Media availability checker. Consultation with Virgin Media previously has indicated that the Virgin Media network is available throughout the centre of Manchester. See Section 5.3 for obtaining superfast services from Virgin Media.
2.	Overseas House, Quay Street, Manchester, M3 3HN	FTTP is available. Supports speeds of up to 1Gbps.	Results showed that up to 900 Mbps download speeds are available. The guaranteed download speed is 700 Mbps.	Results showed that typical download speeds in practice average from 5.2 to 10 Mbps. Minimum download speed is 3.7 Mbps.	Information currently unavailable for this address on Virgin Media availability checker. Consultation with Virgin Media previously has indicated that the Virgin Media network is available throughout the centre of Manchester. See Section 5.3 for obtaining superfast services from Virgin Media.

Location	Address	Openreach	BT (Openreach network)	Sky (Openreach network)	Virgin Media
3.	231 -233 Deansgate, Manchester, M3 4EN	Information currently unavailable for this address on Openreach availability checker. Superfast services may not be available based upon the download speed results for Sky. See Section 5.2 for obtaining superfast services from Openreach.	Information currently unavailable for this address on BT availability checker.	Results showed that typical download speeds in practice average from 5.9 to 12 Mbps. Minimum download speed is 4.3 Mbps.	Results showed that typical download speeds at an average of 1130 Mbps are available.
4.	Unit 1, Great Northern Square, Manchester, M3 4EJ.	No fibre service available. Superfast services not available (i.e. ADSL only). See Section 5.2 for obtaining superfast services from Openreach.	Results showed that typical download speeds in practice average from 7 to 16 Mbps. Minimum download speed is 3 Mbps.	Results showed that typical download speeds in practice average from 8.1 to 15 Mbps. Minimum download speed is 3 Mbps.	Information currently unavailable for this address on Virgin Media availability checker. Consultation with Virgin Media previously has indicated that the Virgin Media network is available throughout the centre of Manchester. See Section 5.3 for obtaining superfast services from Virgin Media.

Location	Address	Openreach	BT (Openreach network)	Sky (Openreach network)	Virgin Media
5.	270 Deansgate, Manchester, Greater Manchester M3 4JB	No fibre service available. Superfast services not available (i.e. ADSL only). See Section 5.2 for obtaining superfast services from Openreach.	Results showed that typical download speeds in practice average from 5 to 13 Mbps. Minimum download speed is 3 Mbps.	Results showed that typical download speeds in practice average from 8.1 to 15 Mbps. Minimum download speed is 5.9 Mbps.	Information currently unavailable for this address on Virgin Media availability checker. Consultation with Virgin Media previously has indicated that the Virgin Media network is available throughout the centre of Manchester. See Section 5.3 for obtaining superfast services from Virgin Media.
6.	Flat A 1-1, 1 Watson Street, Manchester, M3 4EE	No fibre service available. Superfast services not available (i.e. ADSL only). See Section 5.2 for obtaining superfast services from Openreach.	Results showed that typical download speeds in practice average from 5 to 12 Mbps. Minimum download speed is 2 Mbps.	Results showed that typical download speeds in practice average from 5.2 to 10 Mbps. Minimum download speed is 3.7 Mbps.	Services confirmed as not available. Consultation with Virgin Media previously has indicated that the Virgin Media network is available throughout the centre of Manchester. See Section 5.3 for obtaining superfast services from Virgin Media.

Location	Address	Openreach	BT (Openreach network)	Sky (Openreach network)	Virgin Media
7.	298 Deansgate, Manchester, M3 4HH	No fibre service available. Superfast services not available (i.e. ADSL only). See Section 5.2 for obtaining superfast services from Openreach.	Results showed that typical download speeds in practice average from 5 to 13 Mbps. Minimum download speed is 3 Mbps.	Results showed that typical download speeds in practice average from 6.9 to 13 Mbps. Minimum download speed is 5.1 Mbps.	Information currently unavailable for this address on Virgin Media availability checker. Consultation with Virgin Media previously has indicated that the Virgin Media network is available throughout the centre of Manchester. See Section 5.3 for obtaining superfast services from Virgin Media.
8.	285 Deansgate, Manchester, M3 4EW	No fibre service available. Superfast services not available (i.e. ADSL only). See Section 5.2 for obtaining superfast services from Openreach.	Results showed that typical download speeds in practice average from 6 to 14 Mbps. Minimum download speed is 3 Mbps.	Results showed that typical download speeds in practice average from 8.1 to 15 Mbps. Minimum download speed is 5.9 Mbps.	Information currently unavailable for this address on Virgin Media availability checker. Consultation with Virgin Media previously has indicated that the Virgin Media network is available throughout the centre of Manchester. See Section 5.3 for obtaining superfast services from Virgin Media.

Location	Address	Openreach	BT (Openreach network)	Sky (Openreach network)	Virgin Media
9.	Dimitris Restaurant, 1-3 Campfield Avenue Arcade, Manchester, M3 4FH	No fibre service available. Superfast services not available (i.e. ADSL only). See Section 5.2 for obtaining superfast services from Openreach.	Results showed that typical download speeds in practice average from 5 to 10 Mbps. Minimum download speed is 3 Mbps.	Results showed that typical download speeds in practice average from 5.9 to 12 Mbps. Minimum download speed is 4.3 Mbps.	Information currently unavailable for this address on Virgin Media availability checker. Consultation with Virgin Media previously has indicated that the Virgin Media network is available throughout the centre of Manchester. See Section 5.3 for obtaining superfast services from Virgin Media.
10.	Beetham Tower, 301 Deansgate, Manchester, M3 4LQ	Information currently unavailable for this address on Openreach availability checker. Superfast services may not be available based upon the download speed results for BT and Sky. See Section 5.2 for obtaining superfast services from Openreach.	Results showed that typical download speeds in practice average from 6 to 15 Mbps. Minimum download speed is 3 Mbps.	Results showed that typical download speeds in practice average from 9.6 to 16 Mbps. Minimum download speed is 7 Mbps.	Information currently unavailable for this address on Virgin Media availability checker. Consultation with Virgin Media previously has indicated that the Virgin Media network is available throughout the centre of Manchester. See Section 5.3 for obtaining superfast services from Virgin Media.

Table 1 *Assessment of current availability*

5 FACILITATION OF SUPERFAST INTERNET SERVICES

5.1 Overview

The process of obtaining superfast services for Openreach and Virgin Media is outlined in Sections 5.2 and 5.3. Other internet service providers can be contacted in advance[11]. An overview of guidance on data ducting infrastructure for new homes is outlined in Section 5.4 and Appendix B.

5.2 Openreach

The proposed development will likely benefit from the option of FTTP from Openreach. The benefit of FTTP over FTTC is that internet speeds are typically faster, and the network has a greater capacity for higher speeds in the future, whilst considered to be more reliable and consistent[12]. The process and the cost of doing this varies depending on the development type and size. For developments comprising more than 19 plots, Openreach will install FTTP for free. A 'plot' in this context is defined as *an individually Council Addressed property paying full residency council tax*[13]. The proposed development therefore qualifies for free facilitation of the fibre network from the exchange to the properties themselves. This requires registration of the site, specifically:

- Registration is required 6 months before provision of the service to the first property and eight weeks before development commences on site;
- The dates of commencement on site and required service must be provided;
- A description of the development including the number of plots, whether it is part of a larger development and associated phases;
- Contact details for the company building the properties and the person managing any queries from Openreach must be provided;
- Plans of the development must be provided including:
    - Location;
    - Site plan at a minimum of 1:500;
    - Schedule of accommodation that show how many plots per floor and their connection to a riser in cases of multiple cores.
- Registration is undertaken online[14], whereupon it will be assessed by the Openreach team. The timescale for this assessment is not defined, the customer service team advised that this varies according to the number of applications being processed at any

[11] For example, Hyperoptic is a fibre to the building internet provider in many town and city centres in the UK.
[12] Internet latency is typically lower for FTTP and internet speeds are usually more consistent.
[13] The definition was provided during an engagement with Openreach customer support carried out in 2018 it can also be found at the following link: https://www.openreach.com/fibre-broadband/fibre-for-developers/registering-your-site.
[14] https://www.developers.openreach.co.uk/developerportal/index

given time, however a response from the assessment team should be received within five working days from submission of the registration form;

- Following assessment of the registration documents, an agreement will be provided by Openreach which must be signed and returned so that the application can be progressed by Openreach. This stage is not required if a framework agreement between the developer and Openreach has already been signed;
- Once the agreement has been signed it will be processed by the Openreach planning team, who will coordinate the connection process based on the development timescales.

5.3 Virgin Media

The proposed development may benefit from at Superfast services from Virgin Media. Although the review of locations near to the proposed development location did not reliably confirm that superfast service was currently available from Virgin Media, this does not necessarily mean that Virgin Media's infrastructure is not in place at nearby access points and ducts. Consultation with Virgin Media previously has indicated that the Virgin Media network is available throughout Manchester.

If Virgin Media is contacted within a sufficient time frame and notified of the site plans[15,16] it is possible that the proposed development will benefit from either FTTP or cable broadband supplied by Virgin Media.

5.4 Data Ducting Infrastructure for New Homes

A broadband connectivity assessment has been produced following the requirement of Manchester City Council as stated below.

All new build residential developments must incorporate measures to facilitate digital connectivity for all new build residential properties having regard to the Data Ducting Infrastructure Guidance produced by the Department for Communities and Local Government. (Section 10 NPPF).

A review of Section 10, Supporting high quality communications infrastructure, of the National Planning Policy Framework (NPPF) states in paragraph 114 the following:

Advanced, high quality and reliable communications infrastructure is essential for economic growth and social well-being. Planning policies and decisions should support the expansion of electronic communications networks, including next generation mobile technology (such as 5G) and full fibre broadband connections. Policies should set out how high quality digital infrastructure, providing access to services from a range of providers, is expected to be delivered and upgraded over time; and should prioritise full fibre connections to existing and new developments (as these connections will, in almost all cases, provide the optimum solution).

Advice on infrastructure (internal and external) to ensure superfast services are installed for the proposed development are most likely to be provided by Openreach, Virgin Media, or other internet infrastructure stakeholders alongside the direct consultation as outlined in the previous

[15] https://www.virginmediapartners.com/developersnetworkexpansion
[16]https://www.virginmedia.com/content/dam/virginmedia/dotcom/images/shop/downloads/New-Build-Handbook-v1-63.pdf

sections. However, the guidance note *Data Ducting Infrastructure for New Homes*[17] produced by the Ministry of Housing, Communities & Local Government also provides advice on internal and external infrastructure. An overview of this document is shown in Appendix B.

[17]https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/11496/dataducting.pdf

6 CONCLUSIONS

6.1 Conclusions

Suitable superfast broadband download speeds, understood to mean a minimum of 24 Mbps, is not currently available at eight of 10 assessed addresses near to the proposed development. Therefore, superfast services may not currently be available to the proposed development under baseline conditions.

Openreach typically provides Fibre To The Cabinet (FTTC) infrastructure which allows for superfast service, and this is leased by BT and Sky who provide internet services, amongst other retail providers. Fibre services are not available at nine of the 10 addresses near to the proposed development location. Therefore, FTTC infrastructure may not currently be available for the proposed development from Openreach. The review has shown that for majority of the assessed addresses near to the proposed development, there is no superfast services from BT and Sky.

Virgin Media provides superfast services with of an average download speed of up to 1130Mbps; however, information was unavailable for eight of the 10 addresses and was confirmed as unavailable at one of 10 addresses near to the proposed development location. The remaining address did have access to superfast services from Virgin Media. Consultation with Virgin Media previously has indicated that the Virgin Media network is available throughout the centre of Manchester.

6.2 Next Steps

The proposed development will likely consist of more than 19 plots. Therefore, Fibre To The Premises (FTTP) infrastructure is available free of charge for this development subject to application to Openreach. This would ensure internet speeds are maintained and is recommended for the proposed development. If the installation of FTTP were to be pursued, the application must be done at least six months before provision of the service to the first property is provided. The site registration process is discussed in Section 4.2. The details that must be included within the registration are:

- Site start date and required service date.
- Site address and coordinates.
- Description of development including type, phases and capacity.
- Contact details.
- Location plan, site plan (1:500) and schematic or schedule of accommodation.

The proposed development may benefit from superfast services from Virgin Media. Although the review of locations near to the proposed development location did not reliably confirm that superfast service was currently available from Virgin Media, this does not necessarily mean that Virgin Media's infrastructure is not in place at nearby access points and ducts. Consultation with Virgin Media previously has indicated that the Virgin Media network is available throughout Manchester.

If Virgin Media is contacted within a sufficient time frame and notified of the site plans[18,19] it is possible that the proposed development will benefit from either FTTP or cable broadband supplied by Virgin Media.

Other internet service providers can be contacted in advance[20]. Provided one or more of these processes are followed, superfast services can be made available for the proposed development.

[18] https://www.virginmediapartners.com/developersnetworkexpansion

[19]https://www.virginmedia.com/content/dam/virginmedia/dotcom/images/shop/downloads/New-Build-Handbook-v1-63.pdf

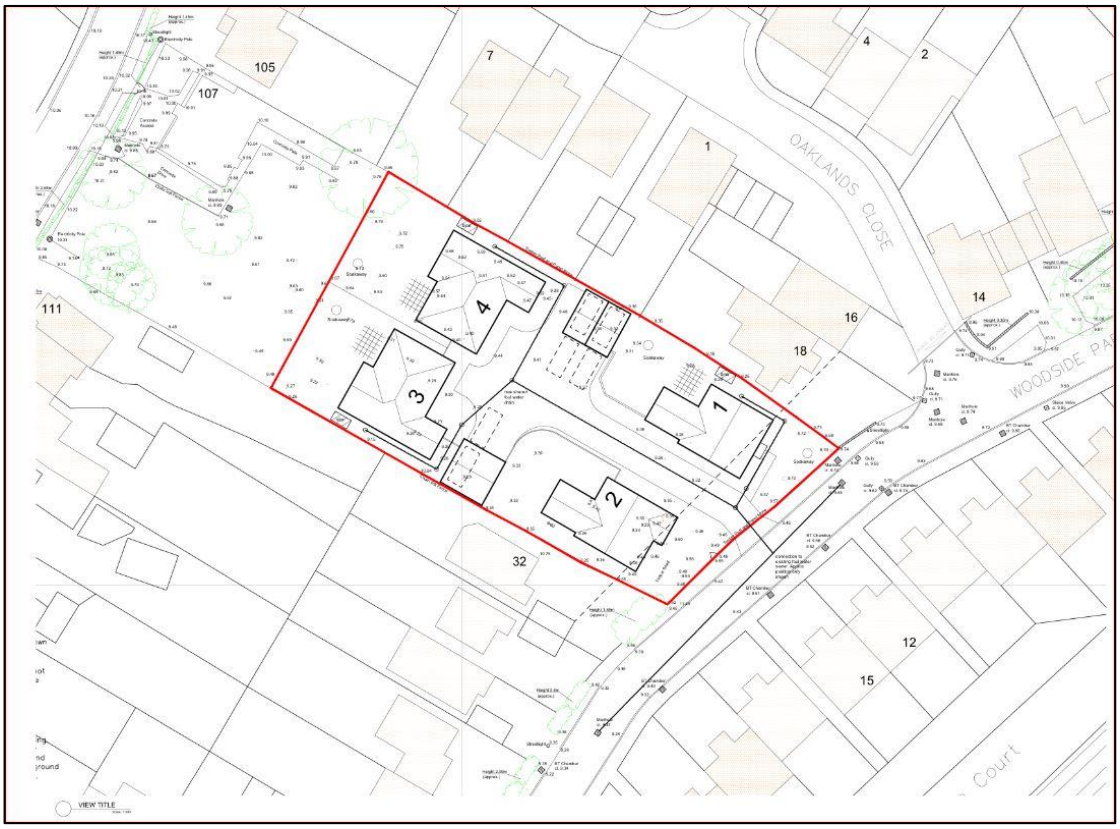
[20] For example, Hyperoptic is a fibre to the building internet provider in many town and city centres in the UK.

APPENDIX A – EXAMPLE DOCUMENTS FOR SITE SUBMISSION

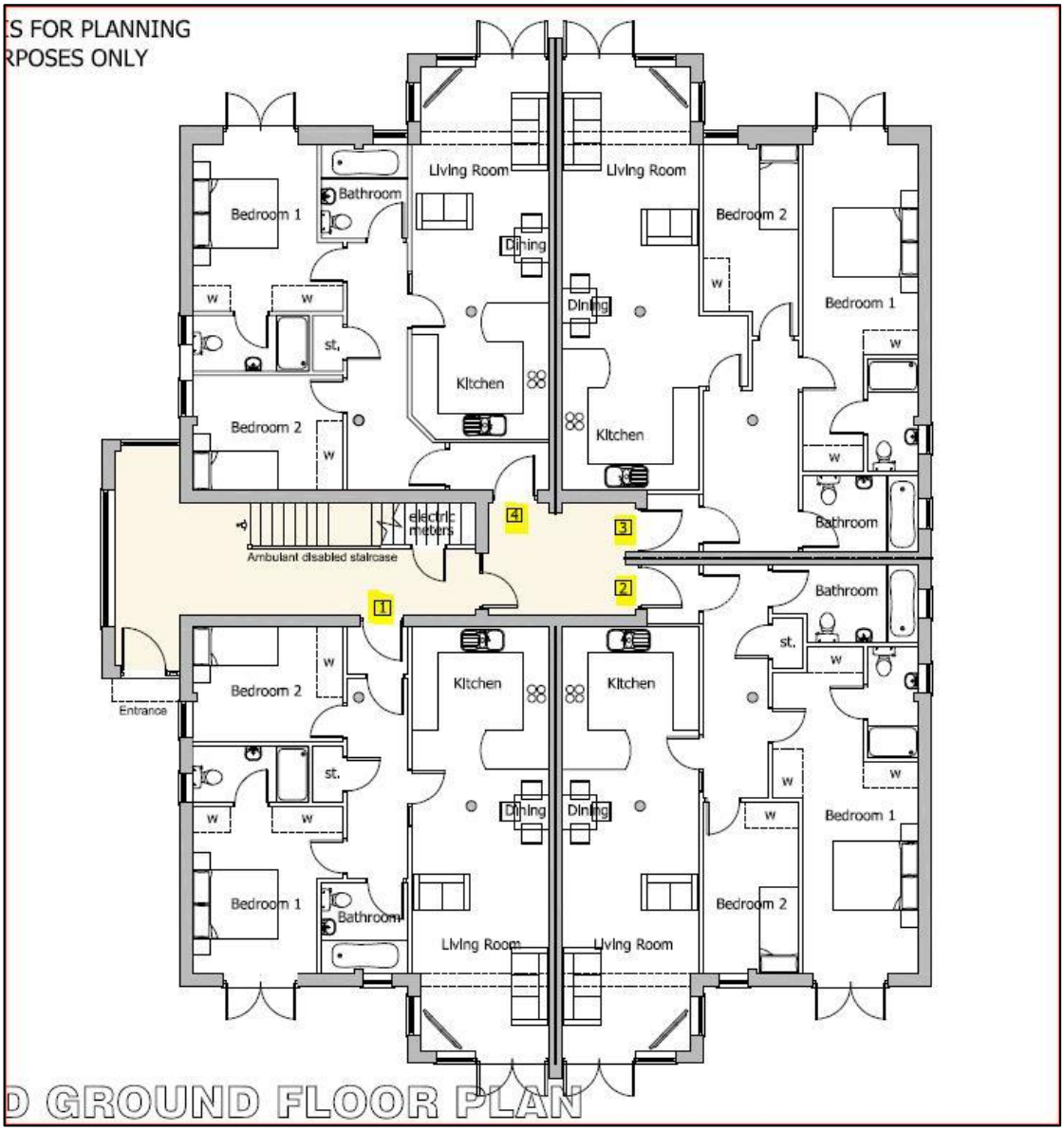
Purpose

Openreach have provided examples of good documentation to facilitate the site registration process. These are shown below for reference.

Example Site Plan



Example Site Plan with Plot Numbers



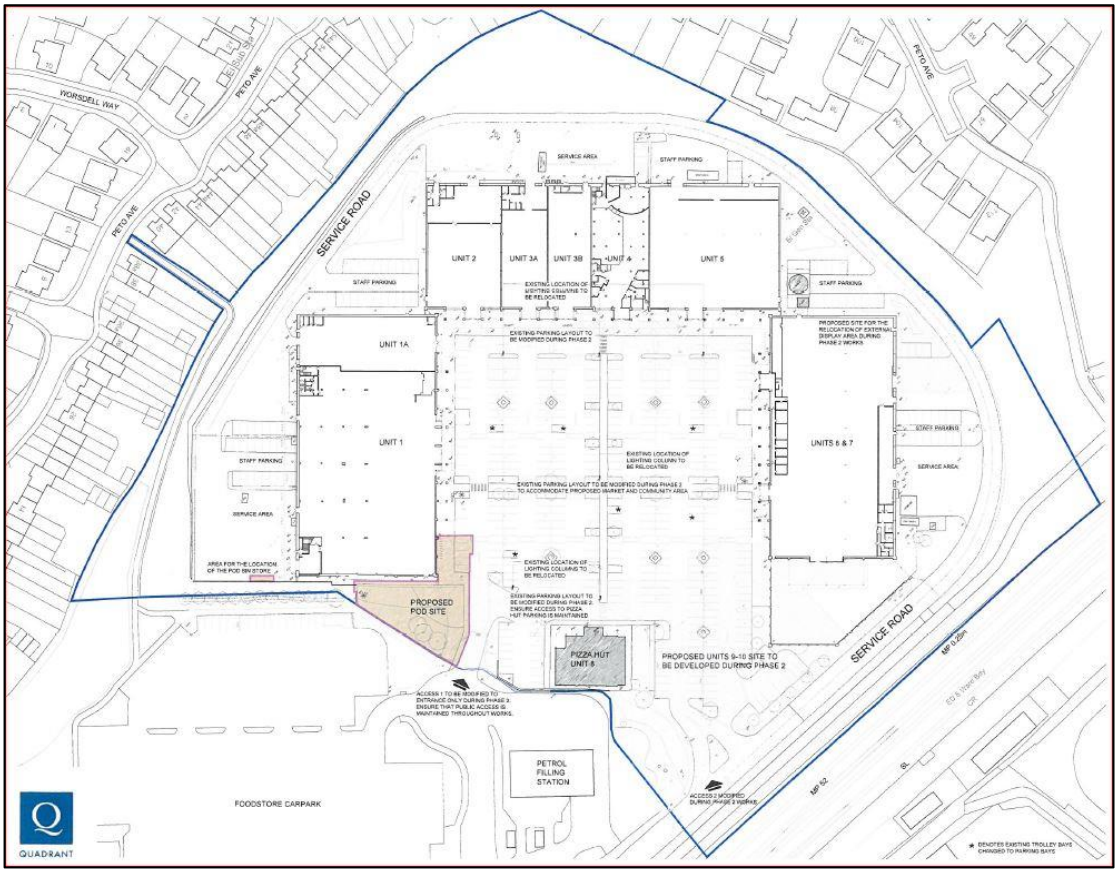
Example Flat Floor Plan with Plot Numbers



Example Site Plan for Business Unit



Example Site Plan for Business Unit Plots



APPENDIX B – DATA DUCTING INFRASTRUCTURE FOR NEW HOMES

Overview

The guidance note *Data Ducting Infrastructure for New Homes*[21] produced by the Ministry of Housing, Communities & Local Government also provides advice on internal and external ducting. Relevant sections on the requirements for internal and external ducting are shown with the sections below.

External Infrastructure Requirements Overview

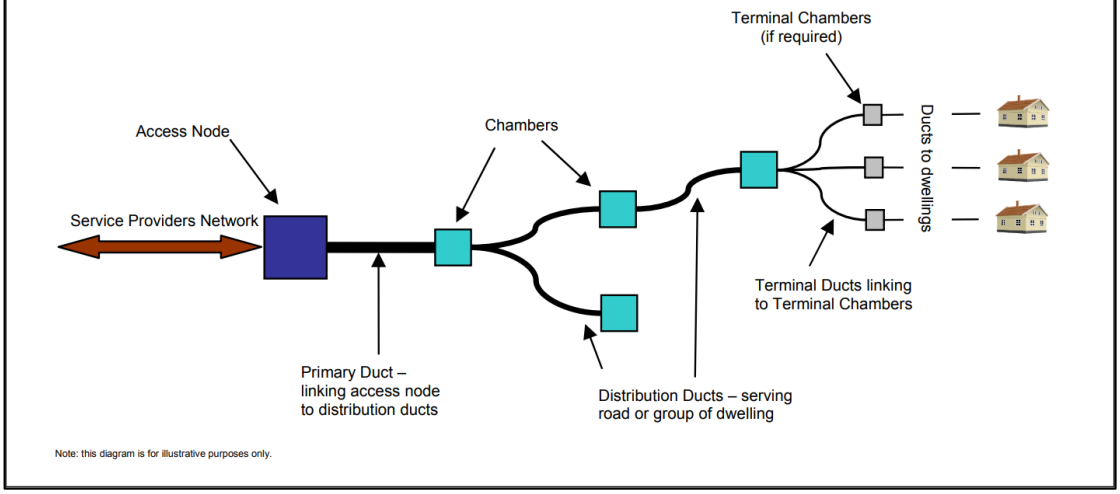
Section 2.2.2 of the guidance details the following requirements that need to be considered in the design and implementation of external infrastructure:

- *Access node – to provide an interface between the external infrastructure and the data service provider's network. Depending on the network technology and the data service provider's requirement the access node may be implemented in a street cabinet or a chamber. The access node may be required to accommodate active (powered) network equipment.*
- *Street cabinets (not shown in the figure) – may be required for cable joints, cable distribution points and possibly to house active (powered) network equipment. Cabinets should be of sufficient size for additional ducting, at least one additional duct, for future requirements.*
- *Chambers – for cable installation, cable routing, cable jointing and some passive distribution points. Chambers may also be required to accommodate active (powered) network equipment that is designed specifically for such an environment although most data service providers are likely to favour street cabinets.*
- *Terminal chambers – chambers that may be required to connect the wider external infrastructure with dwellings or groups of dwellings. Terminal chambers should be located outside the dwelling plot as stated in paragraph 2.2.7 and illustrated in Figure 2.1.*
- *Ducts – pipes to facilitate the installation and later replacement of cables. This may also include micro or inner ducts.*

The figure on the following page presents an overview of the elements forming external infrastructure. Further details, including on ducts, are detailed within the guidance note.

[21]https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/11496/dataducting.pdf

Figure 2.1: Elements forming external infrastructure



Elements forming external infrastructure

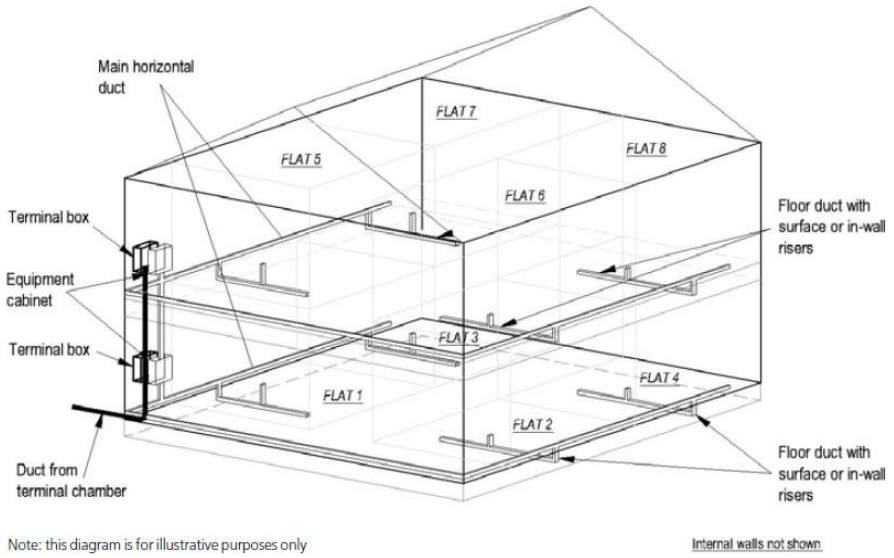
Internal Infrastructure Requirements Overview

Section 2.3.2 of the guidance details the following requirements that likely need to be considered for internal infrastructure:

- *Data sockets at 'useful locations' throughout the dwelling.*
- *A 'readily accessible' location where network equipment can be installed with a simple 'user-friendly' method of connecting the network equipment to 'live' data sockets.*
- *Mains electricity sockets that are located near the data sockets.*

The figure on the following page presents an overview of duct distribution in a multi-occupancy building. Further details, including on ducts, are detailed within the guidance note.

Figure 2.10: Duct distribution in multi-occupancy building



Duct distribution in multi-occupancy building

PAGERPOWER

Urban & Renewables

Pager Power Limited
Stour Valley Business Centre
Sudbury
Suffolk
CO10 7GB

Tel: +44 1787 319001 **Email:** info@pagerpower.com **Web:** www.pagerpower.com