

SUPPLEMENTARY INFORMATION

1. Site Details

Site Name:	Roughwood Drive	Site Address:	Land at Roughwood Drive Roughwood Drive Kirby Liverpool L33 9UN
National Grid Reference:	E341920 N:399750		
Site Ref Number:	KSY25680	Site Type: ¹	Macro

2. Pre Application Check List

Site Selection (for New Sites only)

(Would not generally apply to upgrades/alterations to existing site including redevelopment or replacement of an existing site to facilitate an upgrade or sharing with another operator)

Was a local planning authority mast register available to check for suitable sites by the operator or the local planning authority?		No
If no explain why: No mast register available.		
Were industry site databases checked for suitable sites by the operator:	Yes	
If no explain why: N/A		

Site Specific Pre-application consultation with local planning authority

Was there pre-application contact:	Yes
Date of pre-application contact:	06/03/2023
Name of contact:	Alan Kilroe
Summary of outcome/Main issues raised: The applicant has engaged in pre-application discussions with the LPA but radio planners are unable to utilise the LPAs preferred option.	

¹ Macro or Micro

Annual area wide information to planning authority

Has annual area wide information been provided?	No
If no explain why:	
Summary issues raised:	
The relevant information is being collated and will be distributed accordingly in due course.	

Community Consultation

Rating of Site under Traffic Light Model:	Red	Amber	Green
Outline of consultation carried out:			
Pre-consultation letters and a set of plans have been sent to the local ward councillors. Emails have been sent to Northwood Ward councillors on 03/03/2023. No further comments have been received at the time of submission of this application.			
Summary of outcome/main issues raised (include copies of relevant correspondence):			
No comments have been received to date.			

School/College

Location of site in relation to school/college (include name of school/college):	
Located within close proximity to Eastcroft Park Primary School.	
Outline of consultation carried out with school/college (include evidence of consultation):	
Email sent to Head Teacher and Board of Governors at both schools on 03/03/2023.	
Summary of outcome/main issues raised (include copies of main correspondence):	
No comments have been received to date.	

Civil Aviation Authority/Secretary of State for Defence/Aerodrome Operator consultation (only required for an application for prior approval)

Will the structure be within 3km of an aerodrome or airfield?	Yes	No
Has the Civil Aviation Authority/Secretary of State for Defence/Aerodrome Operator been notified?	Yes	No

Details of response:

N/A.

Developer's Notice

Copy of Developer's Notice enclosed?	Yes	
Date served:	22.06.2023	
	Copy of Developer's Notice and Proof of Delivery Attached as part of submittal pack.	

3. Proposed Development

The proposed site:
Clarke Telecom Ltd act on behalf of the mobile telecommunications operator CK Hutchinson Networks (UK) Ltd) (commonly known as Three). The proposal is to install a radio base station, in order to provide the latest 3G, 4G and new 5G technologies. As part of CK Hutchinson Networks (UK) Ltd continued network improvement program, there is a specific requirement for an installation on the footway of Roughwood Drive to ensure that the latest high quality 3G and 4G service provision is provided in this area of Knowsley. The proposed column will also ensure that new 5G coverage can be provided at this location. This ensures that coverage and capacity requirements are maintained and enhanced. Mobile telecoms networks are now ubiquitous throughout the UK. It is an expectation that an individual can connect and use their mobile phone whenever and wherever they are. With the advent of new technology, under the banner of 5G, further advances are proposed and Central Government has seen the telecoms industry, and in particular 5G, to be at the forefront of economic development. This site will enable 5G coverage to be provided to this area of Knowsley. The Government recognises that widespread coverage of mobile connectivity is essential for people and businesses. That is why the Government is committed to extending mobile geographical coverage further across the UK, with continuous mobile connectivity provided to all major roads and to being a world leader in 5G. This will allow everyone in the country to benefit from the economic advantages of widespread mobile coverage. As well as improved mobile signal, 5G networks are also crucial to drive productivity and growth across the sectors that local areas are focusing on through their emerging Local Industrial Strategies. Enabling and planning for 5G implementation is central to achieving the Government's objective to deliver prosperity at the local level and enable all places to share in the proceeds of growth.

5G service provision will bring faster, more responsive and reliable connections than ever before. More than any previous generation of mobile networks, it has the potential to improve the way people live, work and travel, and to deliver significant benefits to the economy and industry through the ability to connect more devices to the Internet at the same time, the 'Internet of Things'. This will enable communities to manage traffic flow and control energy usage, monitor patient health remotely, and increase productivity for business and farmers, all through the real-time management of data.

The demand for mobile data in the UK is increasing rapidly, and as households and businesses become increasingly reliant on mobile connectivity, the infrastructure must be in place to ensure supply does not become a constraint on future demand.

The radio base station will also meet the extra demands on the network in this area as more people use internet enabled handheld devices. It is a densification project for the operator's network to fill holes in service provision including coverage and capacity. This will enable the operator's customers to be able to use their handheld devices without calls being dropped or buffering occurring where there is a gap in the operator's network coverage and capacity ability. A site in this location will fill the gap in service provision and provide high quality, reliable, advanced 3G, 4G and 5G to this urban area of Knowsley.

The application site is located on the footway, adjacent to the public highway. The surrounding area is suburban in character being located on the edge of the built-up area.



Image 1: The Application Site (Source: Google Maps)

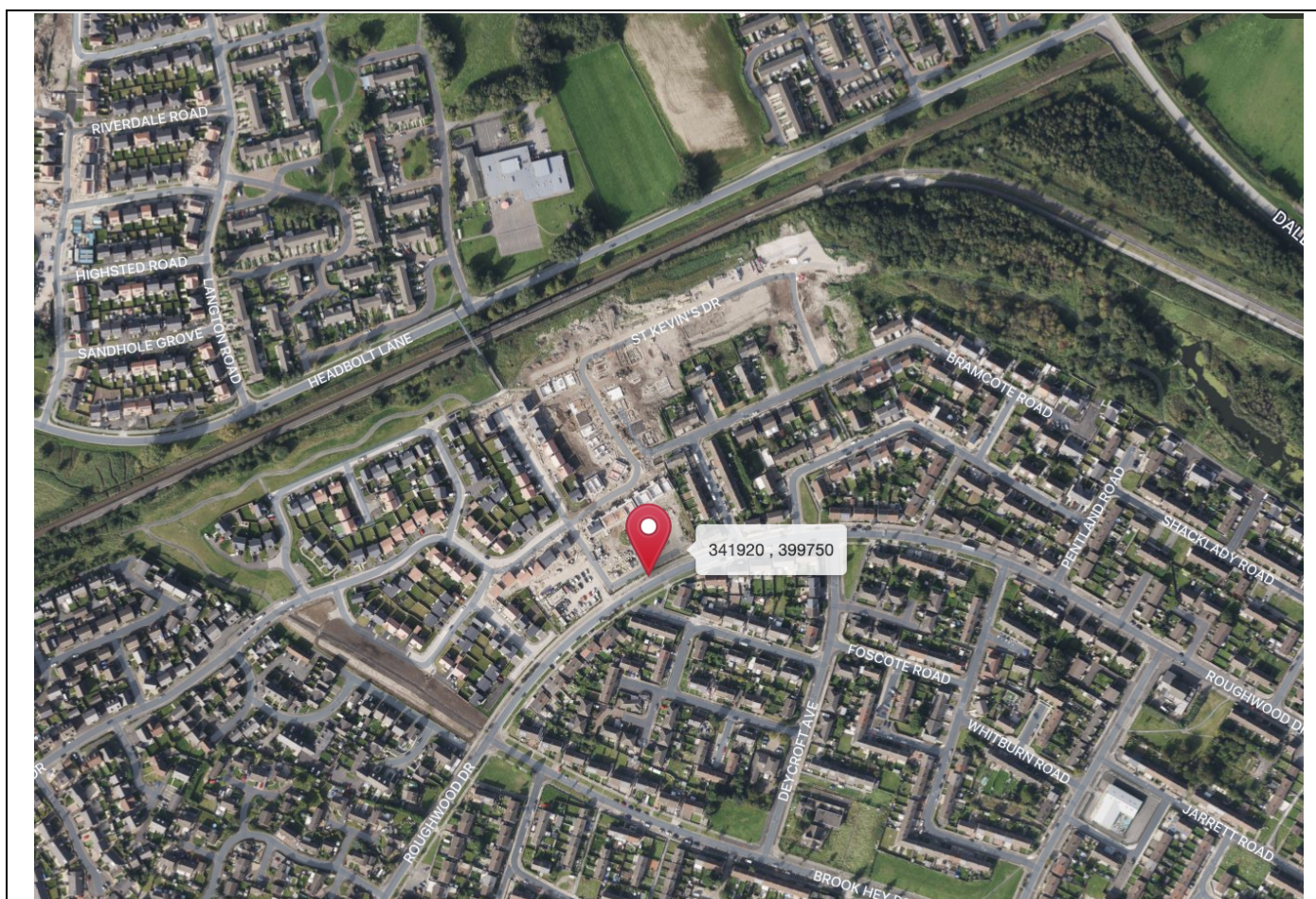


Image 2: Aerial view of the application site (Source: Grid Reference Finder)

Linear urban structures including lighting columns line both sides of Roughwood Drive at regular intervals.

Enclose map showing the cell centre and adjoining cells if appropriate:

As part of CK Hutchinson Networks (UK) Ltd continued network improvement program, there is a specific requirement for a new mast on the footway of Roughwood Drive, to ensure that the latest high quality 3G and 4G service provision can be provided in this area of Knowsley for CK Hutchinson Networks (UK) Ltd. The proposed new column will also ensure that new 5G coverage can be provided at this location for CK Hutchinson Networks (UK) Ltd. This ensures that coverage and capacity requirements are maintained.

The proposed new mast has been sited and designed in order to provide 5G coverage and to fill the hole in coverage for this mobile network. At present it is paramount that digital connectivity is supported and maintained throughout the country. In particular the current massive shift in user demand from city centres and places of work to residential areas and suburbs requires an improvement in coverage and capacity throughout the whole network. The current proposal

therefore provides such additional capacity to the network whilst still promoting the improved 5G technology.

The 3G and 4G provision allows internet access, video calling, data downstreaming, accessing social media networks and emailing to name just a few of the benefits. Therefore, to maintain high quality indoor 3G and 4G services into this area would promote activity in line with the general population demand as the ownership of smart devices increases. 5G service provision will bring faster, more responsive and reliable connections than ever before.

The search area is very small for this new installation. The existing sites in this area of Knowsley are struggling to cope with demand and an increase in capacity is required; therefore, a new site is required to provide reliable, high quality 3G, 4G and 5G technology.

Type of Structure (e.g. tower, mast, etc): Phase 9 Streetpole

Description:

The proposal relates to the installation of a 20m high slim-line monopole, supporting 6 no. antennas and 3 no. equipment cabinets.

Overall Height: 20m

Height of existing building (where applicable):	N/A.
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Equipment Housing:

Length:	650mm
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Width:	770mm
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Height:	1100mm
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Equipment Housing: Bowler

Length:	900mm
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Width:	660mm
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Height:	1827mm
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Materials (as applicable):

Tower/mast etc – type of material and external colour:	Steel: Grey
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Equipment housing – type of material and external colour:	Steel: Green
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Reasons for choice of design, making reference to pre-application responses:

This proposal is for the installation of a new site to boost the capacity on the network in this location for the operator. The site needs to cover a certain target coverage area as the operator is experiencing capacity issues in this area. As demonstrated in the Alternative Sites section, the area surrounding the proposed site has been fully investigated, and it was considered that the application site was the most viable and suitable location for the proposed equipment. The search area for the proposed site is small due to the operator's requirement to fill the hole in coverage to fix coverage and capacity issues currently being experienced by its users.

The operator has carefully considered the design of the new proposed column. The operator is proposing the most sensitive design currently available to provide the necessary coverage and capacity to the surrounding area. Due to all the technologies that will be available at this location 3G, 4G and 5G, 6 antennas need to be installed at the top of the slim-line monopole. These are split into a dual stack formation where 3 antennas will be located at the top and the other 3 will be located underneath. The 3 upper antennas will provide new 5G service provision. The 3 lower antennas will provide 3G and 4G technology for the operator to the surrounding area. This makes the lower set of antennas 1.35m lower than the top of the pole. Thus if the column were to be any lower, the antennas would not be able to clear the buildings, trees and urban clutter and as such would not be able to operate effectively.

The proposed height at 20m is essential in order to provide coverage to the target coverage area. 5G new radio technologies operate in higher frequency bands than older technologies. Since it operates at higher frequencies where attenuation of the radio signal is naturally higher and the effects of clutter are greater it will normally require a higher structure to achieve the same coverage footprint. To increase capacity and data speeds to the user, the antenna will normally need to be mounted higher than conventional antennae. These factors drive a requirement for an increase in antenna height in 5G.

The new antennas are all unshrouded for technical reasons. However, they have been designed to be as tight as possible and virtually the same width as the main column, to minimise their visual appearance. The higher the radio frequency the more signal attenuation there is. The higher frequency 5G antennas are unable to operate effectively through the Glass Reinforced Plastic that the shroud is made up of and as such if these antennas were to be shielded then they would not be able to provide the necessary coverage to the target coverage area. An additional installation would be needed elsewhere within the cell area, leading to the proliferation of masts.

This is the slimmest design possible which will enable all the multi technologies to be supported from this site. If the column and shroud width were to be any slimmer then the technology would not fit in the one column and another radio base station would be required, which would lead to the proliferation of masts contrary to national Government guidance set out in the NPPF and The Code of Practice. Similarly, if the column were to be a uniform width throughout then the overall width would have to increase which would appear more visually prominent in the streetscene, than the proposed design.

The proposed design is more visually sensitive and much easier to assimilate into a streetscene than lattice towers or more traditional monopoles with bulky headframes. These non-stealth designs are preferred by operators as they are structurally capable of hosting more equipment and give greater scope for antenna orientation and are thus more efficient structures. However, such designs would appear alien in this location. Therefore, the operator has compromised on obtaining maximum coverage in order to better assimilate in to the streetscene.

The design of the column resembles as closely as possible to other vertical structures within the immediate area such as lighting columns. These vertical structures will help the proposed installation of this radio base station assimilate with the surrounding area.

The design of the column is a simple, functional, vertical structure which will not appear incongruous within the streetscene. The presence of other linear urban structures such as lighting columns will assist with assimilation in the streetscene. The column is proposed to be coloured grey to match the often grey sky; however the column can be coloured any other colour the LPA consider appropriate.

The equipment cabinets are small for telecommunications apparatus and proposed to be coloured green. They have been positioned at the rear of the footway alongside the proposed monopole. They will assimilate with the existing statutory undertaker equipment cabinets in this area of Knowsley.

It is therefore considered that the proposal before you strikes a good balance between environmental impact and operational considerations. The proposed height and design represents the best compromise between the visual impact of the proposal on the surrounding area and meeting the operator's technical requirements for the site. Taking all matters into account it is considered that this proposal, to provide the latest 3G and 4G service provision and new 5G coverage providing high quality dense coverage and capacity, would not appear out of place within the streetscene.

Health and Safety - including ICNIRP compliance

International Commission on Non-Ionizing Radiation Protection Declaration attached (see below)

International Commission on Non-Ionizing Radiation Protection public compliance is determined by mathematical calculation and implemented by careful location of antennas, access restrictions and/or barriers and signage as necessary. Members of the public cannot unknowingly enter areas close to the antennas where exposure may exceed the relevant guidelines.

When determining compliance, the emissions from all mobile phone network operators on or near to the site are taken into account.

In order to minimise interference within its own network and with other radio networks, CK Hutchinson Networks (UK) Ltd operates its network in such a way the radio frequency power outputs are kept to the lowest levels commensurate with effective service provision.

As part of CK Hutchinson Networks (UK) Ltd network, the radio base station that is the subject of this application will be configured to operate in this way.

All operators of radio transmitters are under a legal obligation to operate those transmitters in accordance with the conditions of their licence. Operation of the transmitter in accordance with the conditions of the licence fulfils the legal obligations in respect of interference to other radio systems, other electrical equipment, instrumentation, or air traffic systems. The conditions of the licence are mandated by Ofcom, an agency of national government, who are responsible for the regulation of the civilian radio spectrum. The remit of Ofcom also includes investigation and remedy of any reported significant interference.

The telecommunications infrastructure the subject of this application accords with all relevant legislation and as such will not cause significant and irremediable interference with other electrical equipment, air traffic services or instrumentation operated in the national interest.

4. Technical Justification

Enclose predictive coverage plots if appropriate, e.g. to show coverage improvement. Proposals to improve capacity will not generally require coverage plots.

Reason(s) why site required e.g. coverage, upgrade, capacity

There is a specific requirement for a new column and associated equipment cabinets at this location to allow CK Hutchinson Networks (UK) Ltd (commonly known as Three) to improve their 3G and 4G coverage and capacity in and around the Knowsley area and be able to provide new 5G service provision to this cell. This ensures high quality indoor service provision is provided.

The dynamic nature of technological advances in the telecommunications industry coupled with ever increasing demand from subscribers dictates a continual reinvestment programme on the part of the operators. As a result, and in line with their licence requirements, mobile operators are constantly developing their networks including filling holes where there is currently a lack of service provision.

Cellular networks are made up of several individual cell areas, each of which has a base station within it. A good analogy for describing a cellular network is that of a patchwork quilt with each cell area being one of the many patches that are sewn together making up the network 'quilt'.

Notably, there are 3 main elements to a radio base station; the cabin or cabinets contain the equipment used to generate the radio signals(s), the supporting structure that holds the antennas in the air or fixes them to a building or structure and the antennas themselves, which emit the radio signals (along with the necessary amplifier or receiver units). Other elements necessary for the base station to function are a power source, feeder cables that link the equipment housing to the antennas and the various support structures, grillages and fixings, often referred to in general terms as '*development ancillary to*' the base station.

These base stations then receive and transmit to mobile devices using radio waves. The antennas operate like an aerosol spray with signal transmitted along a central orientation and dissipating with distance. The dishes operate on a direct line of sight basis, linking with dishes on other base station sites elsewhere within the wider network. The dish links also link the base station to a master control centre that manages the call handover process that occurs when a mobile user moves from one cell area to another. They also provide telemetric monitoring to ensure the site is working properly and offer remote maintenance.

In the early days of mobile communications, peripheral locations, high-level topographies and large-scale masts were often identified in order that transmission from a new base station could cover an expansive geographical area. However, whilst this approach was viable for early

network generations, the number of mobile handset users has dramatically increased with time, as have the advancements in mobile technology itself. As a result, the cellular network construction and operational criteria have changed too. Because modern networks use higher frequencies with faster data rates whilst serving significantly increased numbers of mobile device users, typical network cell areas (i.e. the geographical area targeted for coverage for which a base station development provides a solution), are now smaller in their geographical expanse and tend to be directly proportionate to the number of users within it. They are also therefore greater in their number with base stations operating at a lower power output than their predecessors.

Mobile phone base stations operate on a low power and accordingly base stations therefore need to be located in the areas they are required to serve. Increasingly, people are also using their mobiles in their homes and this means the operator needs to position base stations in, or close to, residential areas.

Mobile connectivity and service is required where customers live, work and play. 5G coverage and superfast mobile broadband data capacity demand will continue to increase exponentially with the introduction of IoT (Internet of Things), machine to machine connectivity, automated transport/industry and other 'smart' applications. To this end the existing shared infrastructure within the built environment has had to be reviewed and adapted as appropriate.

In the UK, rollout is now commencing. The main benefits of 5G are that it will be much faster and have higher capacity than 4G, with download speeds in excess of 1Gbps. To place this in context, customers will be able to download - not merely stream - a full HD movie in less than 10 seconds on a 5G network. The same task would take closer to 10 minutes on 4G.

The case for 5G is compelling as it will bring faster, more responsive and reliable connections than ever before.

The Local Government Association (LGA) has produced a Councillor's Guide to Digital Connectivity and sets out some of the benefits of 5G technology:

- Faster mobile broadband and a more consistent experience in congested areas with a very high number of devices.
- Industrial applications, enabling businesses to improve their productivity, for example through predictive maintenance and real-time analytics.
- Internet of Things (IoT) services, many of which will help council's and businesses deliver services more efficiently including:
 - Transport and logistics: connected parcels and fleet tracking.
 - Health and social care.
 - Environmental monitoring: sensors monitoring air quality and water pollution in real-time.
 - Smart agriculture and smart animal farming, smart retailing.
 - Connected and autonomous cars: allowing cars to communicate with each other, other road users and even the road infrastructure.

Good connectivity allows people to access a wide range of essential services including emailing; downloading apps; social media; helping with homework; researching local events, businesses or transport timetables; managing personal finances; shopping; contacting local authorities; arranging medical appointments; general business functions; and much, much more.

5. Site Selection Process

As explained earlier, the search area is very small for this new installation. The existing sites in this area of Knowsley are struggling to cope with demand and an increase in capacity is required; therefore a new site is required to provide reliable, high quality 3G, 4G and 5G technology. The new site needs to be sited in a place where it will work alongside the existing sites in the area to provide the necessary capacity in the network, which will ensure that reliable network coverage is provided in this urban area.

Alternative sites considered and not chosen:

Type of Installation	Address	NGR	Reason for discount
Streetworks	Roughwood Drive L33 9UN	E: 341907 N: 399742	An installation at this location is considered to be to prominent in the streetscene and other alternatives exist which are more appropriate in order to deliver the required coverage to the target area. This site has therefore been discounted for this reason.
Streetworks	Roughwood Drive L33 9UN	E: 341899 N: 399739	It is not possible to install the proposed equipment in this location due to existing unresolvable underground services beneath the footway. As such this option has been discounted.
Streetworks	Gillmoss Place L32 1BY	E: 341909 N: 399754	A mast at this location would not provide the required level of coverage to the target area due the substantial tree cover that would inhibit the signal and would not deliver the required coverage to the target area. This site has therefore been discounted for this reason
Streetworks	Roughwood Drive, Kirkby, Knowsley, Liverpool City Region, England, L33 9UN, United Kingdom	E:341791 N:399610	An installation at this location is considered to be to prominent in the streetscene and other alternatives exist which are more appropriate in order to deliver the required coverage to the target area. This site has therefore been discounted for this reason.

Streetworks	BROOKHEY DRIVE/ROUGHWOOD DRIVE, Brookhey Drive, Kirkby, Knowsley, Liverpool City Region, England, L33 6UW, United Kingdom	E:341862 N:399586	An installation at this location is considered to be too prominent in the streetscene and other alternatives exist which are more appropriate in order to deliver the required coverage to the target area. This site has therefore been discounted for this reason.
Streetworks	Deycroft Avenue, Kirkby, Knowsley, Liverpool City Region, England, L33 9TD, United Kingdom	E:342010 N:399560	An installation at this location is considered to be too prominent in the streetscene and other alternatives exist which are more appropriate in order to deliver the required coverage to the target area. This site has therefore been discounted for this reason.
Streetworks	Deycroft Avenue, Kirkby, Knowsley, Liverpool City Region, England, L33 9TD, United Kingdom	E:342067 N:399713	An installation at this location is considered to be too prominent in the streetscene and other alternatives exist which are more appropriate in order to deliver the required coverage to the target area. This site has therefore been discounted for this reason.
Streetworks	Headbolt Lane, Kirkby, Knowsley, Liverpool City Region, England, L33 1AU, United Kingdom	E:341771 N:399958	This location has been discounted as it is outside the optimal search area for the network

If no alternative site options have been investigated, please explain why:

N/A

Additional relevant information (include planning policy and material considerations):

National Planning Guidance

Planning policy is provided at the national level by the National Planning Policy Framework (NPPF). It is a material consideration in planning decisions.

It is not necessary to quote extensively from this document but the following points are highlighted.

National Planning Policy Framework (July 2021)

The Government's National Planning Policy Framework (NPPF) was published on 24 July 2018 and updates the 2012 version. In February 2019 the NPPF was revised again, with minor alterations to wording relating to housing supply and not any parts relating to telecommunications. The NPPF was updated in July 2021, in order to strengthen sections including requirements on improved design quality, a new requirement for Councils to produce local design codes or guides, an emphasis on using trees in new developments, revised policies on plan-making, removing statues and opting out of PD rights relating to residential conversions.

The Government's latest thinking continues to strongly support communications infrastructure. The NPPF remains very supportive of high quality communications. Indeed, a whole chapter is dedicated to high quality communications, emphasising the importance that the Government attaches to digital connectivity. Paragraph 114 states that advanced, high quality and reliable communications infrastructure is essential for economic growth and social well-being. This wording echoes guidance set out in paragraph 42 of the 2012 version of NPPF. However, it also includes the importance of *reliable* communications infrastructure for both economic growth *and social well-being*.

The NPPF continues to support the expansion of electronic communications networks at paragraph 114. It notes that 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. The economic and social benefits of providing high quality and reliable communications infrastructure are well documented and can be found later in this Supporting Information Statement.

The NPPF makes reference to 5G:

'Planning policies and decisions should support the expansion of electronic communications networks, including next generation mobile technology (such as 5G)...

With the above in mind, the Government is already forward thinking the evolution of data networks and seeks planning decisions to take account of this. 5G technology provides increased speed of data and more capacity in the network, to ensure that handheld devices can continue to be used for the purposes in which they were purchased. This will bring even greater economic and social benefits to the area.

Paragraph 115 of the NPPF retains the requirement to minimise the number of installations consistent with the efficient operation of the network but also includes being consistent with the needs of consumers and providing reasonable capacity for future expansion.

Paragraph 118 of the NPPF retains the guidance set out in paragraph 46 of the 2012 NPPF version which relates to determining applications on planning grounds only. They should not seek to prevent competition between different operators, question the need for an electronic communications system, or set health safeguards different from the International Commission guidelines for public exposure.

At the heart of the NPPF is the retained presumption in favour of sustainable development (para 11). For decision-taking this means approving development proposals that accord with an up-to-date development plan without delay or where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date, granting permission unless the application of policies within the revised Framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed or any adverse impacts of granting permission would significantly and demonstrably outweigh the benefits, when assessed against the policies in the revised Framework taken as a whole.

The NPPF continues to provide guidance on decision-making. At paragraph 38 it states that:

'Local planning authorities should approach decisions on proposed development in a positive and creative way. They should use the full range of planning tools available, including...permission in principle, and work proactively with applicants to secure developments that will improve the economic, social and environmental conditions of the area. Decision-makers at every level should seek to approve applications for sustainable development where possible'.

The NPPF builds on the aspiration to build a strong, competitive economy. Paragraph 81 states:

'Planning policies and decisions should help create the conditions in which businesses can invest, expand and adapt. Significant weight should be placed on the need to support economic growth and productivity, taking in to account both local business needs and wider opportunities for development. The approach taken, should allow each area to build on its strengths, counter any weaknesses and address the challenges of the future. This is particularly important where Britain can be a global leader in driving innovation⁴²'...

Footnote 42 of the NPPF states:

'The Government's Industrial Strategy sets out a vision to drive productivity improvements across the UK, identifies a number of Grand Challenges facing all nations, and sets out a delivery programme to make the UK a leader in four of these: artificial intelligence and big data; clean growth; future mobility and catering for an ageing society. HM Government (2017) Industrial Strategy: Building a Britain fit for the future'.

Code of Practice for Wireless Network Development in England (March 2022)

The Code of Practice provides guidance to Code Operators (referred to as 'operators' throughout the Code of Practice), including the Mobile Network Operators and wireless infrastructure providers, their agents and contractors, local planning authorities, and all other relevant stakeholders in England on how to carry out their roles and responsibilities when installing wireless network infrastructure. It is also a useful tool for other interested stakeholders such as community groups, amenity bodies and individuals with an interest in mobile connectivity.

The aim of the Code of Practice is to support the government's objective of delivering high quality wireless infrastructure whilst balancing these needs with environmental considerations. It also has an important role in making sure that appropriate engagement takes place with local communities and other interested parties.

The Code of Practice covers all forms of wireless infrastructure development, including mobile masts and cabinets. It is recommended that other wireless communications operators follow the principles of this Code of Practice, where appropriate.

Unlike previous iterations this Code of Practice has been led by the Department for Digital, Culture, Media and Sport (DCMS) and developed in collaboration with representatives of the mobile network industry, other government departments and public bodies, local planning authorities, and protected landscapes. This document replaces the previous Code of Best Practice on Mobile Network Development, which was published in 2016 and is now published by DCMS.

The Code of Practice sets out the legal and policy framework for the delivery of wireless infrastructure development.

Paragraphs 8 – 12 of the Code of Practice set out the importance of connectivity:

'8.Digital connectivity is vital to enable people to stay connected and businesses to grow. Fast, reliable digital connectivity can deliver economic, social and well-being benefits for the whole of the UK.

9.As the demand for mobile data in the United Kingdom is increasing rapidly, it is important that everyone has access to dependable and consistent mobile coverage where they live, work and travel.

10.The Future Telecoms Infrastructure Review (FTIR) and the National Infrastructure Strategy set out the government's long-term strategy for meeting its digital connectivity targets and delivering high quality, reliable digital infrastructure that works across the UK².

11.The government has committed to extending mobile coverage across the UK. The government has committed to extending mobile coverage across the UK. The government's Levelling Up White Paper has set a mission that the UK will have nationwide 4G coverage, with 5G coverage for the majority of the population by

2030. In support of this, the government and the UK's mobile network operators agreed a £1 billion Shared Rural Network deal to extend 4G mobile geographical coverage to 95% of the UK by the end of the programme.

12. Next Generation Mobile Technologies: A 5G Strategy for the UK, and the update to this, set out the government's ambition for the UK to be a global leader in 5G to take early advantage of its potential and help to create a world-leading digital economy that works for everyone. The government also wants businesses and communities to benefit from investments in 5G as soon as possible. Through the government's 5G Testbeds and Trials programme we have seen its value to manufacturing, farming, transport networks and healthcare.

The Government recognises the key role that the Planning System plays in delivering the digital infrastructure that we need, in a sustainable and well-designed way, especially as households and businesses become increasingly reliant on mobile connectivity.

The Code of Practice sets out 'How wireless networks function'.

Para. 16 states "Cellular wireless networks use base stations to provide an area of radio coverage. Wireless technology uses the radio spectrum to broadcast radio waves between base stations and devices. Different radio frequencies have different characteristics which, along with the density of cell site locations, affect the extent of coverage and how much data can be carried over the network. Depending on the radio frequencies used, base stations can deliver coverage over a wide area or provide extra network capacity in areas where there is a high demand for network bandwidth".

Para. 17 sets out that "Wireless technology continues to evolve rapidly, and mobile devices are now capable of much more. Second generation (2G) technology gave us voice calls and text messages, 3G led to the launch of smartphones, and 4G, which enabled faster browsing, allowed us to do things like watching videos on the move. 5G, the latest generation of wireless technology, is much faster than previous generations of wireless technology and can offer greater capacity and lower latency, allowing thousands of devices in a small area to be connected at the same time. 5G networks, and future mobile generations, will be vital for a range of Internet of Things uses (IoT) and Smart City applications".

The Code of Practice establishes 'Principles and commitments' by which operators should develop their networks and that Local Planning Authorities should demonstrate their support by.

Paragraph 18 of the Code of Practice sets out the principles and commitments that operators should follow when developing their networks inter alia:

- Site sharing and use of existing structures: make use of existing structures, sites and masts wherever possible to reduce the need for new development.
- Consultation with local planning authorities, local communities and other stakeholders.
- Standardised and high-quality approach to planning applications, and the

notification procedure: provide standardised supporting documentation for planning applications (where appropriate) within the context of national and local requirements.

- Compliance with guidance laid out in the International Commission on Non-ionizing Radiation (ICNIRP) public exposure levels guidance.

The Code of Practice also sets out the requirements of the LPA in relation to the deployment of digital infrastructure:

- Incentivising connectivity: support the expansion of telecommunications networks, and take a 'joined-up' approach to the wireless infrastructure planning process, including ensuring that Local Plans effectively support the deployment of digital infrastructure.
- Facilitating sites: engage with operators when new sites have been proposed and discuss site requirements.
- Engagement with operators: respond positively to requests for engagement and make decisions in line with national policy and Local Plans. For planning applications, find solutions to issues and ensure timely decisions are made.

The added emphasis on support from Local Planning Authorities in the deployment in digital infrastructure is even more evident in the revised Code of Practice. The Code of Practice recognises the importance of collaboration and partnership to help drive network coverage across the country. It goes on to state that *'In all instances, it is important for all parties involved in the process to take a positive approach to consultation and engagement'*.

Siting and Design Principles

The government's objective is to deliver high quality, reliable wireless infrastructure whilst ensuring the impact of new network development is kept to a minimum. The siting and design of wireless network infrastructure is central to achieving this. The Code of Practice acknowledges that *'good siting and design principles should apply to all wireless network development and take into account any site specific considerations and context. Both can create better places in which to live and work and help make development acceptable to communities'*.

The Code provides guidance on siting and appearance principles. It sets out several design principles in respect of telecommunications development and acknowledges that the options for design used by an operator will be affected by site conditions including requirements to link the site to the network, landscape features and coverage and capacity requirements. The guidance includes at Para. 22 *'the choice over the site selection and design of equipment is primarily dependent upon the coverage and capacity requirements and technical constraints of a specific location, although operators should make efforts to reduce visual impacts where possible'*.

Para. 23 confirms that there should be a *'presumption in favour of facilitating sustainable network development'* and, as such, operators and local planning authorities, as well as all other bodies involved in the deployment process, should work together to ensure connectivity needs are met and find viable solutions to deployment issues (emphasis added).

Paragraphs 24 - 27 sets out general siting and site selection principles which Operators should consider. The Code of Practice acknowledges at Para. 24 that 'Operators use a range of sophisticated, computer-based planning tools to predict levels of signal strength and coverage from sites for 2G, 3G, 4G and now 5G. Once an operator has identified a requirement for a new cell site, a suitable site needs to be found. Elements that make a site favourable include: having existing or ready access to a power supply, access to fibre optic cables, vehicular access, and, other buildings and development which may provide a level of existing screening. Operators will typically look to upgrade existing infrastructure prior to considering a new deployment, in particular for initial 5G deployment'.

Para 25 notes that 'When selecting sites for mobile infrastructure, operators should examine local plans and designations for the area, as well as carrying out an in-person site search to identify potential options which meet their requirements. Operators should follow these general siting and site selection principles:

- Installation on existing buildings and structures;
- Erecting new ground based masts;
- Camouflaging or disguising equipment where appropriate;
- Using small scale equipment (although small cells themselves are generally used to address capacity issues as opposed to providing coverage); and
- Mast and/or site sharing (including redevelopment of a site to enable upgrade or sharing with another operator)'.

Para. 26 highlights that the installation of all wireless infrastructure requires a balanced approach between the technical needs and constraints of the proposed site and the potential impact of the development. The three key technical and operational considerations for installation sites are:

- **Coverage:** wireless infrastructure needs to provide an appropriate level of coverage over the intended geographical area. This involves ensuring that antennas are elevated sufficiently (often via masts) to provide clear lines of sight for signals.
- **Capacity:** where existing network infrastructure can no longer meet the demand for network capacity in a particular area, additional sites may be required within that coverage area to meet the demand. This is more likely to be required in densely populated areas or areas of high footfall.
- **Backhaul:** the radio access network requires a connection to the core network. Backhaul is sometimes provided by a microwave link, which requires a clear line of sight between the two ends of the link.

Para 27 requires that Local Planning Authorities consider these issues and consider the need for a site within a limited search area alongside the public benefit of improved connectivity. Para. 27 further considers that in general, it should not, therefore, be appropriate for planning authorities to seek wider evidence of alternative sites (beyond that required by the NPPF), unless they consider

the proposed development is unacceptable having regard to the relevant material planning considerations

In respect of 'Design', the Code of Practice at Para 28 acknowledges that the siting of wireless infrastructure will influence which design options are most appropriate for reducing the visual impact including

- **Protecting visual amenity**
- **Mitigating visual impacts**

Para. 29 acknowledges that these factors along with location and the coverage and capacity requirements can influence the type of infrastructure structure that is deployed and requires that *'planning authorities should be aware of these constraints when considering proposals. In particular:*

- *In urban areas, where there is a high level of demand for mobile data, mobile base stations are likely to need to be deployed more densely. In these settings you can expect to see more use of streetwork monopoles and rooftop installations and, in future, we are likely to see a larger number of smaller units (so-called "small cells") deployed on buildings and on street furniture.*

The Code of Practice establishes radio equipment housing (cabinets) principles. It states at Para. 30 states that *"cabinets protect radio transmitters and receivers, provide the power source for mobile equipment, and are connected to antennas via cables. Equipment cabinets are likely to be needed at most sites. The cabinets must be of sufficient size to facilitate hosting various operating equipment whilst also allowing air circulation to reduce the potential for overheating"*. The Code of Practice establishes the planning and visual considerations for siting radio housing. These include:

- Colouring
- Siting on highways and footways:
- Highway safety:
- Listed buildings/ scheduled monuments and Conservation Areas:
- Access
- Trees

The Code of Practice notes that new ground-based masts will sometimes be required to accommodate the ever-increasing coverage and capacity needs of the country. 4G and 5G are likely to require further network densification in order to meet growing customer demand for data. Where higher frequencies are used, with lower signal propagation characteristics, apparatus will need to be located in closer proximity to user devices. The type of mast deployed will depend upon the location and setting, as well as the coverage requirements of the site. The Code acknowledges that there are many ways by which the potential for environmental and visual impact of a ground-based mast can be reduced.

Paragraph 39 advises that all new masts should be sited, so far as practicable, so as to minimise their impact on their setting, including the landscape and any buildings. This includes siting next to similar structures – e.g. streetworks masts should ideally be sited in line, and in harmony, with existing vertical structures such as lighting columns, to minimise their visual impact. Placing a mast within or adjacent to an existing group of trees, vegetation and other natural features can reduce visual impact. Antennas will however, need to be sufficiently elevated to clear the tree-line.

Paragraph 40 relates to colouring and camouflage and states that where appropriate masts should be coloured to match their backdrop to minimise contrast in an urban setting. Streetworks monopoles can utilise design features such as shrouding or banding to protect visual amenity, though, for some 5G infrastructure, camouflage design solutions may not be practicable. Simple designs should be encouraged. Masts which have a complex design are more likely to dominate and be in discord with the landscape and have adverse visual impacts.

The Code of Practice states again in paragraph 64 that there are three primary technical and operational considerations for installation of radio base stations which are: ensuring that wireless infrastructure provides an appropriate level of coverage over the intended geographical area; ensuring that sites have sufficient capacity to meet user demand; and, requiring a connection to the wider network 'backhaul'. Paragraph 65 notes that planning authorities should take account of these constraints on network deployment and siting and design, when considering proposals.

Paragraphs 66 and 67 of the Code of Practice set out the 5G network deployment considerations:

'66. With the introduction of 5G, more equipment will be required to provide coverage and capacity. 5G, as well as 4G, are data-driven technologies, and high volumes of data will be transmitted between base stations and wireless devices. 5G will require a denser network of base stations than previous generations, including more fixed line fibre optic cable for reliable and high capacity backhaul. The siting of 5G installations will be more constrained and guided by these special technical and operational considerations.

67. Due to the scale and technological constraints of 5G equipment, in some cases previous camouflage design solutions, such as tree mast designs and concealing antennas in flagpoles, may not be practicable or suitable. In these cases, simple designs with particular attention to colouration and finishes may help reduce visual impacts on a site-specific basis.

Local Policy

Section 38 (6) of the Planning and Compulsory Purchase Act 2004 states that "If regard is to be had to the development plan for the purpose of any determination to be made under the planning Acts the determination must be made in accordance with the plan unless material considerations indicate otherwise".

The Local Plan for Knowsley is the Knowsley Local Plan Core Strategy, adopted January 2016.

Additionally, the Liverpool City Region's 'Plan for Prosperity' offers guidance on the ambition of the Combined Authority to expand the region's economy.

Knowsley Local Plan Core Strategy (KLPCS)

Introduction by Cllr Michael Murphy:

'Welcome to the Knowsley Local Plan Core Strategy. This Plan sets out the vision, objectives and policies which will guide development within Knowsley up to the year 2028.

Knowsley is a place with huge ambition to deliver significant and accelerated economic growth. This Local Plan Core Strategy is a key delivery mechanism for achieving Knowsley's aspirations in facilitating growth and investment through identifying sites for new development whilst ensuring that this new development is positively managed.

This Plan will meet the needs and demands of existing business while attracting new economic investment to the borough in delivering a stronger and more diverse local economy. It will deliver a wide range of new high quality housing, to rebalance the housing market in order to meet the needs and aspirations of both existing and new residents. It will facilitate the regeneration of existing town centres, business parks and residential areas, to ensure they are sustainable, vibrant and welcoming.

Knowsley has a number of unique environmental assets which the Plan will help to protect and enhance, including sites of biodiversity and geological value, together with buildings, structures and areas of historic importance. The Plan will deliver physical and community infrastructure to ensure that existing communities and new development are well served by a range of local amenities. It also seeks to ensure that new development is well designed and embraces sustainability principles to improve health and wellbeing and reduce environmental risk and the impacts of climate change.'

Policy CS2 Development Principles:

New development in Knowsley and the preparation of subsequent stages of the Local Plan will be expected to support the following development principles:

Principle 1: Promote sustainable economic development, tackle the causes of deprivation and disadvantage and narrow the gap between the richest and poorest neighbourhoods by:

a) Meeting needs for new housing, employment, retail and other service provision;

- b) Improving business productivity and employment levels in Knowsley;
- c) Reducing economic, environmental, education, health and other social inequalities between Knowsley and other parts of the UK; and
- d) Providing opportunities for positive lifestyle choices and health improvement for people of all ages.

Principle 2: Reduce carbon emissions and adapt to the effects of climate change by:

- a) Contributing to reductions in carbon dioxide emissions from all sources, in line with national targets;
- b) Ensuring an ability to adapt to future changes to national targets for carbon dioxide and other greenhouse gas emissions, including recognising the role of new technology;
- c) Identifying and applying measures offering effective mitigation and adaptation to likely environmental, social and economic impacts of climate change; and
- d) Meeting appropriate minimum standards for sustainability.

Principle 3: Reduce the need to travel and increase accessibility by:

- a) Selecting locations that reduce the need to travel, especially by car, and enable people as far as possible to meet their needs locally;
- b) Assisting the Council in achieving a shift towards more sustainable modes of transport for people, goods and freight;
- c) Encouraging safe and sustainable access for all, particularly by promoting the use of public transport, walking and cycling between homes and employment; and
- d) Supporting the provision and retention of shared space, community facilities and other local services (such as local shops, health facilities, education Knowsley Local Plan: Core Strategy January 2016 Chapter 5 Spatial Strategy Page 51 provision, meeting places, sports venues, cultural buildings, public houses and places of worship).

Principle 4: Recognise environmental limits, protect and enhance environmental assets, enhance local character and promote quality of place by:

- a) Understanding and respecting the character and distinctiveness of places and landscapes;
- b) Protecting and enhancing the historic environment;

- c) Promoting good quality design and ensuring that development respects its setting taking into account relevant design requirements, and best practice;
- d) Maximising opportunities for the regeneration of previously developed land, including derelict or unsightly areas to improve the image of Knowsley and use land resources efficiently;
- e) Mitigating potential negative impacts of traffic growth and road traffic on highway safety, air quality, noise and health;
- f) Supporting policies relating to Green Infrastructure and the greening of towns and cities;
- g) Maintaining or enhancing the tranquillity of open countryside and rural areas;
- h) Maintaining or enhancing the quantity and quality of biodiversity and habitats, including potential impacts on nationally and internationally important sites for biodiversity;
- i) Addressing any issues of unstable land, resulting from Knowsley's legacy of minerals extraction; and;
- j) Minimising negative impact upon flood risk, air quality, water quality, land quality, soil quality, and noise or vibration levels and ensuring any negative impacts are appropriately mitigated. Development that will have an unacceptable impact upon any of the above will only be permitted where the benefits of the proposal clearly outweigh the harm.

Principle 5: Make the most efficient use of available resources and infrastructure by prioritising locations consistent with the spatial strategy, which:

- a) Do not require major investment in new infrastructure, including transport, water supply and sewerage, or where this is unavoidable, incorporate appropriate development phasing and delivery assistance;
- b) Ensure environmental protection is enhanced through the phasing of new development and delivery of supporting infrastructure, including working with neighbouring authorities and key partner agencies where appropriate;
- c) Support prudent and efficient management of natural and man-made resources; and
- d) Promote sustainable construction and efficiency in resource use (including reuse and recycling of materials).

Policy CS4 Economy and Employment Overall Employment Development Strategy:

- 1) Planning, site assembly and other available interventions will be used to:
 - a) Support sustainable economic growth and meet the development needs of established and emerging employment sectors, including the Liverpool City Region key economic sectors;

- b) Provide sufficient land to meet employment development needs to 2028;
- c) Enhance the quality and efficiency of land use within existing employment areas;
- d) Improve accessibility to an appropriate range of jobs, for example by encouraging mixed use employment/residential schemes where appropriate and improving transport linkages between housing and employment areas;
- e) Address skills and educational barriers to employment;
- f) Encourage recruitment targeted towards communities living in and around the development site;
- g) Support new start up businesses including social enterprise;
- h) Encourage homeworking through improvements to digital communications and telecommunications infrastructure;
- i) Support the diversification of the rural economy; and
- j) Support the appropriate development of tourism facilities.

Liverpool City Region 'Plan for Prosperity'.

Mayor of the Liverpool City Region, Steve Rotherham states:

'Our region is already on a remarkable journey of transformation. Propelled by our ambition to build the fairest, strongest, cleanest, and most prosperous place possible, we are laying the foundations for a brighter future for our 1.6m residents.

This cannot be about economic wealth alone. It has to be about the social value we create, the opportunities we unlock for local people, and the improvements to health, life chances and wellbeing. Our ultimate aim is to unleash our full potential, to build a place where no one is left behind.

The same relentless focus on fairness, innovation and social justice that has helped shape our past will be key to unlocking our future prosperity. Where trains, docks and canals spurred our success in the First Industrial Revolution, our advantages in wind, tidal and hydrogen and renewable energy will make us leaders in the Green Industrial Revolution.'

'Integrated Infrastructure for a Connected City Region' states the Combined Authority's ambitions for infrastructure:

'We will connect all homes, businesses, and communities to the ultrafast gigabit capability The Combined Authority, through a joint venture (see LCR Connect case study below) is developing a core fibre network throughout the city region. The route, at over 220km long, will span all local authority areas providing the enabling infrastructure for full fibre connectivity.

Combining this level of connectivity with our world-leading High-Performance Computing and AI capabilities, the Liverpool 5G testbed, and the Civic Data Co-operative, is an all-encompassing "Smart City Region" approach. This presents a transformational opportunity to create an integrated data ecosystem and innovation platform with huge potential, supporting the development of our data and AI ambitions.

It will also be key to enabling an increase in hybrid working across significant segments of the workforce.

UK Wireless Infrastructure Strategy, April 2023

In April 2023, the UK Government published the 'UK Wireless Infrastructure Strategy'¹, a plan for delivering world-class digital infrastructure which the government identifies as an essential enabler for its 5 priorities of building a better, more secure, more prosperous future for the UK, including growing the economy, and creating better-paid jobs and opportunity right across the country. In her foreword, the Rt Hon Michelle Donelan MP, Secretary of State for Department for Science, Innovation and Technology, provides context for the strategy:

*"5G will be the cornerstone of our digital economy. With higher capacity and lower latency, standalone **5G will drive growth** in the industries of today and tomorrow, including in emerging sectors like artificial intelligence where Britain leads the world. Just take smart ports, where 5G-enabled remote operation can help us to move containers more quickly, efficiently, and safely, boosting our international competitiveness. **5G can improve our public services**, too, in everything from education to social care. In transport, for example, we can use 5G to power forward progress in everything from real time travel information to augmented reality navigation and self-driving buses and taxis.... This is an incredible opportunity; widespread adoption of **5G could see £159 billion in productivity** benefits by 2035".*

The Future Telecoms Infrastructure Review, 2018 sets out the ambition of the Government for the UK to become a world leader in 5G technology and ensuring world class connectivity for all. This ambition was reaffirmed in the 'UK Wireless Infrastructure Strategy', published in April 2023 which states in the Executive Summary:

"The next decade will see seismic changes both in terms of what wireless connectivity can deliver and how we can use it. The economic and social benefits from these changes promise to be vast, from supercharging growth to accelerating our transition to net zero. But these benefits can only be achieved with concerted action from government, industry, and others".

The Foreword of the 'UK Wireless Infrastructure Strategy' by Julia Lopez MP 'Minister of State for Department for Science, Innovation and Technology' states inter-alia:

"The more our lives are conducted online, the more access to the internet becomes critical for social and economic opportunity.

This is why delivering world-class digital infrastructure to all Britons is a fundamental mission of this government - and our efforts to build it the modern equivalent in scale and ambition to the Victorians' construction of the railways. Our plan is for every corner of our country to get lightning fast connectivity, not only to give people real choices about where to live and work today but so they will not be left out of future technological revolutions because of poor infrastructure.

It is this sense of purpose that underpins Project Gigabit, our flagship £5 billion programme to reach hard-to-reach communities across the UK with gigabit-capable broadband. It is complemented by a staggering competition now underway between commercial suppliers to supply Britons with great connectivity.

Extraordinary progress is being made on coverage. When I began my role in September 2021, gigabit coverage was just over 50%. Now, it stands at almost 75%. With £1bn of Project Gigabit's funding now available to suppliers, our contracts are not just delivering better internet but skilled jobs everywhere from Blandford to Berwick. By the end of next year, we hope to have every part of our country under contract.

Which is why the time is right to turn our sights to mobile connectivity, where the same sense of mission is needed to deliver the kind of wireless infrastructure that will transform how we live our lives and run our economy. This is not simply a matter of improving download speeds as people browse the internet on their phones or dial into work calls. It is far more transformative than that'.

The UK Wireless Strategy states that '4G technology revolutionised the way people use their mobile phones. What today is considered normal, a decade ago was ground-breaking. We have seen the growth of streaming services, like Netflix and Spotify, and gained constant access to high-quality, user-produced content for free on platforms like YouTube, transformed the way we shop online, travel around cities through access to apps like Uber and Bolt and use public services, such as booking NHS appointments through apps'.

The UK Government in the UK Wireless Infrastructure Strategy' recognises that 'growth in the digital sector is nearly 6 times faster than across the economy is a whole.

Connected Nations Report 2022

The Connected Nations Report 2022 was published in December 2022. The report confirms in line with the UK Wireless Infrastructure Strategy (April 2023) in respect of delivering a basic 5G signal for the majority of the population by 2027, 5 years early that 5G rollout is expanding, stating:

"5G rollout is expanding EE, Virgin Media O2, Three and Vodafone have continued to extend their 5G networks across the UK, and we are reporting individual mobile network operator (MNO) coverage for the first time, based on the High to Very High Confidence range which we established in 2021. These ranges cover an increasing probability that the coverage predicted by MNOs will

translate into coverage on the ground. As noted above, the level of coverage provided outside of premises by at least one mobile network operator across this range is now at 67-77% (up from 42-57% last year). The coverage provided outside of premises from individual MNOs ranges from 39-58% at High Confidence, with a range of 31-45% at our Very High Confidence level. Though most 5G sites are focused around busy urban areas - providing additional capacity to existing mobile data services - we're now seeing coverage extending into smaller towns and other high footfall locations. The distribution of this investment remains broadly similar to last year, with 86% of sites in England, 8% in Scotland, 4% in Wales and 2% in Northern Ireland".

Connected Nations 2023

The Connected Nations 2023 was published in May 2023. This is the first interim update to their Connected Nations 2022 report. It is based on mobile coverage and fixed broadband availability across the UK as of January 2023. Ofcom is a measure mobile coverage in a way that reflects the likely experience of people using their mobile phones. The report acknowledges that there has not been a significant increase in coverage since the December 2022, but the industry continues to develop its coverage footprint.

"4G: Coverage of 4G mobile networks across the UK has not seen significant changes over the last reporting periods. Around 92% of the UK landmass is predicted to have good outdoor 4G coverage from at least one operator, and this area includes nearly all of the premises in the UK. This is expected to rise to 95% by end of 2025 as a result of the SRN.

4G not-spots: The UK has both geographic and road not-spots (that is, areas where good 4G services are not available from any mobile operator). Geographic not-spots have remained the same since our December 2022 report at 8%. Road coverage remains largely the same with just 4% of all roads estimated to be an in-vehicle not-spot. This varies significantly across individual nations, particularly in Scotland and also in Wales. Wales has benefited by a percentage point drop in geographic notspots since our December report, which we attribute to the SRN scheme.

Calls and text coverage: As with 4G, predicted coverage for calls and text services remains largely unchanged over the previous reporting periods. The range of predicted coverage by MNOs varies from 85-93% of the UK landmass, depending upon operator. In addition, 99% of all UK premises are predicted to have coverage for outdoor voice calls from all MNOs.

Calls/text not-spots: Areas where people are unable to make a call or send a text from any operator (not-spots) is similarly unchanged, with around 4% of the UK geography estimated as a not-spot, and around 2% of the UK's roads estimated to be a not-spot for calls and texts made or received in vehicle. As with 4G, there are marked variations for individual nations; for example, geographic notspots across Scotland remain higher than for the rest of the UK, at around 10%.

5G: We continue to report on 5G coverage (outdoors premises) from 'All MNOs' and from 'At least one MNO', with coverage confidence levels ranging from high to very high. Coverage from 'At least one MNO' now ranges from 73% (very high confidence) to 82% (high confidence) of premises outdoors, up from 67% and 78% respectively when we reported in our December 2022 report".

Online Nation 2022 Report

The 'Online Nation 2022 Report' produced by Ofcom confirms the following:

- UK adults spend almost 4 hours a day online, 3 hours of which are spent on smartphones. (UK young adults (i.e., 18-24 year olds spend approximately 5 hours online and UK adults aged 55+ spend approximately 3 hours online)
- 73% of time spent online/day by UK adults was via a smartphone
- 1 in 5 people use only a smart phone for online access compared with 1 in 10 in 2020

With regards to increased usage of smartphones only for online access the report suggests:

"More people are using only a smartphone to go online. People were more likely in 2021 than in 2020 to only use a smartphone to go online (21% vs 11% in 2020)^[2]. There could be many reasons, but this may be because people were spending more time at home in late 2020 and early 2021 than in late 2021, and therefore used a wider range of devices. It may also reflect the larger screen size and better-optimised app functions of many smartphones, making them easier and potentially more cost-effective to use as a sole device for accessing the internet.

The Report goes on to states that:

"In September 2021 73% of the time spent online by UK online adults per day was on a smartphone. UK online adults are also spending slightly more time using tablets than computers, demonstrating that there is a clear preference for using mobile devices to go online. Those aged 25 to 34 spend the highest proportion (85%) of their online time using a smartphone, followed by 35-44s (80%); 15-24s (78%); 45-54s (74%) and those aged 55+ (55%).^[3]"

Therefore, without the improved network coverage and capacity that the proposed essential infrastructure will bring, Vodafone's network users living, working and travelling in the local area, and those of the associated MVNOs, will not benefit from reliable mobile digital connectivity when using their smartphones for business, education and personal purposes.

Levelling Up the United Kingdom (February 2022)

The Department for Levelling Up, Housing and Communities (DLUHC) published the 'Levelling Up the United Kingdom White Paper' on 02 February 2022. Levelling up is a moral, social and economic programme for the whole of government. The Levelling Up White Paper sets out how the Government spread opportunity more equally across the UK.

The 'Levelling Up the United Kingdom White Paper' champions that

'the United Kingdom is an unparalleled success story – a multi-cultural, multi-national, multi-ethnic state with the world's best broadcaster; a vibrantly creative arts sector; a National Health Service which guarantees care for every citizen; charities and voluntary groups which

perform a million acts of kindness daily; globally renowned scientists extending the boundaries of knowledge every year; entrepreneurs developing the products and services which bring joy and jobs to so many; and millions of citizens whose kindness and compassion has been so powerfully displayed during the COVID-19 pandemic.

But not everyone shares equally in the UK's success. While talent is spread equally across our country, opportunity is not. Levelling up is a mission to challenge, and change, that unfairness. Levelling up means giving everyone the opportunity to flourish. It means people everywhere living longer and more fulfilling lives, and benefitting from sustained rises in living standards and well-being.

This requires us to end the geographical inequality which is such a striking feature of the UK. It needs to begin by improving economic dynamism and innovation to drive growth across the whole country, unleashing the power of the private sector to unlock jobs and opportunity for all. While there are world-leading and enterprising businesses and innovators right across the UK, economic growth and the higher productivity which drives it has been over-concentrated in specific areas, particularly the South East of England. A long tail of low-productivity businesses and places explain why UK productivity growth is too low compared to competitors. It is vital that we preserve and enhance the economic, academic and cultural success stories of the UK's most productive counties, towns and cities. But it is equally critical that we improve productivity, boost economic growth, encourage innovation, create good jobs, enhance educational attainment and renovate the social and cultural fabric of those parts of the UK that have stalled and not – so far – shared equally in our nation's success'.

The 'Levelling Up the United Kingdom White Paper' states that:

'The UK Government has made progress towards spreading opportunity around the country since 2019, alongside mitigating the worst effects of the pandemic, with:

- £5bn for Project Gigabit to bring gigabit-capable broadband to 85% of the UK by 2025, and the £1bn Shared Rural Network deal with mobile operators delivering 4G coverage to 95% of the UK by the end of 2025;
- five-year consolidated transport settlements amounting to £5.7bn in eight city regions outside London, £5bn of funding for buses and active travel over this Parliament; and £96bn for the Integrated Rail Plan delivering faster, more frequent and more reliable journeys across the North of England and the Midlands;

Levelling up is not about making every part of the UK the same or pitting one part of the country against another. Nor does it mean dampening down the success of more prosperous areas. Indeed, by extending opportunity across the UK we can relieve pressures on public services, housing and green fields in the South East. And levelling up can improve well-being in the South East by improving productivity in the North and Midlands. So, it is about the success of the whole country: realising the potential of every place and every person across the UK, building on their unique strengths, spreading opportunities for individuals and businesses, and celebrating every single city, town and village's culture. This will make the economy stronger, more equal and more resilient, and lengthen and improve people's lives.

The economic prize from levelling up is potentially enormous. If underperforming places were levelled up towards the UK average, unlocking their potential, this could boost aggregate UK GDP by tens of billions of pounds each year. Levelling up skills, health, education and wellbeing would deliver similarly-sized benefits. Accumulated over time, those gains could easily surpass annual UK GDP. Success in levelling up is about growing the economic pie, everywhere and for everyone, not re-slicing it.

The United Kingdom's Geographical Disparities: Drivers and Potential Policy Approaches

What does the economic and social geography of the United Kingdom look like? The UK has larger geographical differences than many other developed countries on multiple measures, including productivity, pay, educational attainment and health. Urban areas and coastal towns suffer disproportionately from crime, while places with particularly high levels of deprivation, such as former mining communities, outlying urban estates and seaside towns have the highest levels of community need and poor opportunities for the people who grow up there. These disparities are often larger within towns, counties or regions than between them. They are hyper-local and pockets of affluence and deprivation may exist in the same district. Indeed, many of the worst areas of deprivation are found in the UK's most successful cities. While change is possible, in some cases, these differences have persisted for much of the last century. And some of the UK's most successful cities – such as Birmingham, Manchester, Leeds, Glasgow and Cardiff – lag behind their international comparators when it comes to productivity and incomes. What are the current and future drivers of geographical disparities? Over the past century, many trends have combined to create the spatial patterns seen across the UK today. Globalisation, technological progress, advances in transport, logistics and power, and the shift from heavy industry to knowledge-intensive sectors, as well as the rise of foreign holidays and shift from technical training to university education, have had a large and lasting impact on the economic geography of the UK. These dynamics of the global economy have benefited the UK overall, improving productivity, increasing wealth and driving up living standards through more innovation and competition. These dynamics, however, have not had the same positive economic and social impacts across the UK. While London and much of the South East have benefited economically, former industrial centres and many coastal communities have suffered. This has left deep and lasting scars in many of these places, damaging skills, jobs, innovation, pride in place, health and wellbeing. What are the factors that will help drive levelling up? Levelling up requires a focused, long-term plan of action and a clear framework to identify and act upon the drivers of spatial disparity. Evidence from a range of disciplines tells us these drivers can be encapsulated in six “capitals”.

- Physical capital – infrastructure, machines and housing.
- Human capital – the skills, health and experience of the workforce.
- Intangible capital – innovation, ideas and patents.
- Financial capital – resources supporting the financing of companies.
- Social capital – the strength of communities, relationships and trust.
- Institutional capital – local leadership, capacity and capability

This White Paper sets out that the new policy regime is based on five mutually reinforcing pillars. Firstly, the UK Government is setting clear and ambitious medium-term missions to provide

consistency and clarity over levelling up policy objectives. These missions will serve as an anchor for policy across government, as well as catalysing innovation and action by the private and civil society sectors. These missions are ambitions that the UK Government has for all parts of the UK. Delivering on them, while being fully respectful of the devolution settlements, will require close and collaborative work with the devolved administrations. The missions are rolling decade-long endeavours and will be reviewed periodically by the UK Government. One mission relates to:

“Digital Connectivity Mission: By 2030, the UK will have nationwide gigabit-capable broadband and 4G coverage, with 5G coverage for the majority of the population” (my emphasis).

The White Paper notes the pivotal role that ‘Digital Connectivity’ has in boosting productivity, pay, jobs, and living standards by ‘Growing the Private Sector’.

To help drive these improvements, the UK Government is setting four core missions, spanning living standards; research and development (R&D); transport infrastructure; and digital connectivity.

Para. 3.2.4 of the White Paper states ‘By 2030, the UK will have nationwide gigabit-capable broadband and 4G coverage, with 5G coverage for the majority of the population. This mission is focused on improving digital connectivity’.

The case for ‘Digital Connectivity’ action states:

‘The COVID-19 pandemic demonstrated the importance of digital infrastructure right across society, from ensuring business continuity to reducing isolation. Improved digital connectivity has the potential to drive growth and productivity across the UK and widen job opportunities through remote working. However, there are significant spatial disparities in the quality of broadband and mobile networks, with rural areas likely to experience worse digital connectivity than urban areas. Infrastructure is only part of the picture: economic benefits will only materialise if businesses and workers have the skills to take advantage of improved infrastructure.

More broadly, high quality digital infrastructure can deepen local labour markets through remote working, making it more attractive for both workers and companies to locate regionally. It also allows for the development of high-value sectoral clusters, which can drive growth and jobs in new areas. Existing specialisms in the UK regions have the potential to generate strong tech clusters, such as fintech in Scotland and Wales, e-Commerce in the North West and Northern Ireland, and Agri-Tech in Yorkshire and the Humber. The sector also provides opportunities for raising living standards – median earnings for the sector are 50% higher than the UK average.

The policy programme for ‘Digital Connectivity’ states:

‘In 2020, the UK Government published the National Infrastructure Strategy, committing to providing £5bn in public funding to roll out gigabit broadband to at least 85% of the country by 2025, and subsequently to as close to 100% as possible, working with the private sector.

Public investment will target premises that are hardest to reach and which would otherwise not be provided for by the private sector, ensuring no areas are left behind. Gigabit coverage has increased from 10% to over 60% in less than two years. Since 2019, coverage has improved across the UK, and the UK Government anticipates the following additional improvements to be delivered as a minimum by 2025.

The UK Government has also agreed a £1bn deal with mobile operators to deliver the Shared Rural Network programme. This will see operators collectively increase 4G coverage to 95% by 2025. As a result of this collaboration, the vast majority of the UK will soon benefit from improvements to digital connectivity.

5G has the potential to radically change the way people live and make businesses more productive and competitive. The UK Government's ambition is for the majority of the population to have access to a 5G signal by 2027. Since 2017, the UK Government has provided £200m in funding for 5G Testbeds and Trials, supporting over 200 startups and SMEs across a range of sectors – including healthcare, manufacturing, Agri-Tech and creative industries – to better understand how to use the technology to develop new solutions and services (emphasis added).

In 2022, the UK Government will publish the Wireless Infrastructure Strategy. This will review how far the private sector will go to deliver wireless infrastructure – including 5G – across the country, and determine whether there are any market failures in places that need to be addressed, and how the UK Government could tackle these.

The West Midlands 5G (WM5G) Testbed started in 2018 with the mission of testing and proving the benefits of 5G to public and private sector productivity, creating jobs and boosting growth. The UK Government has invested £21m over three years, alongside investment from local government and the private sector. By working with local authorities and Mobile Network Operators (MNOs), WM5G has accelerated 5G deployment by over six months, resulting in the West Midlands being amongst the best connected places for 5G in the UK. In addition, WM5G has delivered a number of UK firsts, including a 5G road sensor network, 5G connected ambulance and capsule endoscopy trials, and a 5G application accelerator programme called 5sprinG, which has already upskilled over 400 organisations on the benefits of 5G and allowed over 60 startups to develop new 5G products and services. We must ensure that people have sufficient digital skills to reap the benefits and prosperity arising from the digital economy. In 2020, the UK Government introduced a new digital skills entitlement, giving adults with low or no digital skills in England free access to new digital skills qualifications based on employer-supported national standards. The UK Government continues to work with local leaders to develop Local Digital Skills Partnerships. These collaborative partnerships are now operating in seven regions across England, with an eighth formally launching in Hull and East Yorkshire in early March. The UK Government will work with devolved administrations to consider how best to share the insights and evaluation of the programme to help build digital skills capability across the UK'.

The current proposals will facilitate the development of an advanced broadband telecommunications infrastructure in line with National Government guidance contained within

the NPPF which supports infrastructure especially where growth takes place. Maximising access and maintaining choice in telecommunications should enable people to maintain and enhance economic, social and civic connections. Universal accessibility to telecommunications is vital to help overcome isolation or exclusion of urban life. Accelerating the extension of new communications modes should help to avoid new pockets of exclusion developing.

Further to the Government's commitment to improve digital connectivity, on 04th April 2022 the new permitted development rights for telecommunication operators came into force (SI 2022 No.278). The Explanatory Memorandum to the Town and Country Planning (General Permitted Development) (England)(Amendment) Order 2022 confirms that '*permitted development rights have an important role to play in the planning system. They provide a more streamlined planning process with greater planning certainty, while at the same time allowing the local consideration of key planning matters through a light-touch prior approval process*'.

Planning Assessment

The main issues arising from this prior approval notification are whether the proposed mast and cabinets due to their scale and siting would be a visually obtrusive feature which would be detrimental to the character and appearance of the area. Whether any perceived harm would outweigh the significant social and economic benefits associated with the increased service provision attributed to the proposal and other valid material considerations as outlined within NPPF and the KLPCS.

Siting

The siting of the proposed radio base station has been carefully considered. To this end, it is located within the footway of Roughwood Drive where the equipment will be viewed in the context of existing street furniture. This is in full accordance with policy CS2 of the KLPCS as it will not appear unduly prominent within the streetscene.

The surrounding area is commercial in character. There are a number of existing vertical features in the immediate area including streetlighting columns. These structures will help the column and associated cabinets from appearing prominent in the streetscene. Consequently, the visual impact of the proposed radio base station will be minimised within the streetscene. This is again in accordance with policy CS2 of the KLPCS.

The proposed equipment cabinets, do not require planning permission, as they can be installed under the operators permitted development rights. In order to remain fully transparent, they have been included on the plans and in the description. The operator's equipment cabinets are similar to those of other statutory undertakers which are commonplace in urban areas including BT Openreach. Their limited height and scale will ensure that these cabinets will not be detrimental to the visual amenity of the area and are proposed to be finished in a dark green colour but can be coloured any colour the LPA desires.

In line with the requirements of NPPF, there are no existing telecommunications installations for the operator to share, that would provide the necessary coverage to the target coverage area. Similarly, there are no buildings which are suitable and available that the operator could utilise to operate their equipment. The discounted options are set out previously and their reasons for being discounted are fully explained.

3G and 4G signals by their very nature (as they carry high data rates) do not penetrate over long distances, (5G even less so), just a few hundred metres, depending on the topography of the land, building clutter and vegetation including trees in the area which can reduce their effectiveness. Therefore 3G, 4G and 5G radio base stations need to be close to their customer demand which is normally in residential areas. As this is a column for H3G, whose network configuration is well established in the area, the operator's search area is naturally smaller, than would otherwise be the case if the operator wasn't already providing service provision from this location. This severely limits the options for siting a new installation in the area.

Mobile phone base stations operate on a low power and accordingly base stations therefore need to be located in the areas they are required to serve. Increasingly, people are also using their mobiles in their homes and this means we need to position base stations in, or close to, residential areas.

The proposed new mast has been sited and designed in order to provide 5G coverage and to support the existing mobile network.

Appearance

The design of the monopole has been carefully considered. To this end, it is a simple, functional slim-line monopole, with the main column being split in to two sections. The lower section is wider than the upper section in order to safely support the antennas at the top of the column. The mast will be coloured grey which has been well established as the best colour for minimising impact upon urban streetscapes. The cabinetry will be coloured green, although they can be coloured any other colour the LPA consider appropriate. This is in line with policy CS2 of the KLPCS.

In order to reduce the visual impact on the surrounding area the antennas have been positioned in a dual stack formation, with 3 antennas at the top of the mast and the other 3 antennas are proposed to be located underneath. The antennas are positioned as tight as possible and will only be marginally wider than the main column width, rather than being a bulky headframe, as such will not appear dissimilar to a shrouded design.

If the column was to be any slimmer, then the multi technologies would not be able to fit in the same installation and an additional radio base station would be required which would be contrary to national planning guidance. It would also not be structurally capable of supporting all the technologies including the latest 4G coverage and new 5G service provision. If the column were to be the same width throughout then it would have to be as wide as the antennas at the top of the column. This would appear more visually prominent in the streetscene than the current proposals.

It is essential that the 5G antennas are unshrouded. As the radio frequencies get higher, required for data carrying, the antennas are less able to propagate through immediate blockages including Glass Reinforced Plastic, which is what the shroud is made from. This affects the 5G antennas more so than any other technology. The result being they cannot operate effectively close to Glass Reinforced Plastic or any other blocking material. Therefore there is a technical reason why the 5G antennas need to be unshrouded. The latest 4G technology are also affected more so than older technologies by propagation, and are therefore less efficient if they are shrouded. As such, the other antennas also need to be unshrouded to ensure that the latest technologies are provided to the surrounding area, helping this area have integrated 21st Century infrastructure for digitally driven, clean and inclusive growth in line with central Government aspirations for the UK to be a world leader in 5G.

As previously explained in this supporting statement, the latest 4G and new 5G radio technologies operate in higher frequency bands than older technologies. At higher frequencies, attenuation of the radio signal is naturally higher and the effects of clutter are greater. It therefore follows that these antennas require a higher structure to achieve the same coverage footprint. As a result, to increase capacity and data speeds to the user, the antenna will normally need to be mounted higher than conventional antenna. This is the case in this situation. If the column were to be any lower, the antennas would not be able to provide the necessary 5G coverage to the target coverage area and would not be able to clear the urban clutter. As a result, the antenna signal would not be able to operate effectively. A lower height would lead to a poor user experience for a large part of the target coverage area. As such, this would fail the operators design brief and an additional installation would have to be found leading to the proliferation of masts contrary to national planning guidance contained in the NPPF.

The presence of the linear structures including the road signage and lighting columns in the immediate area will ensure that the proposed column will not appear incongruous within the streetscene. Thus, there will be no detrimental loss of visual amenity to the area or environmental intrusion in line with policy CS2.

The telecommunications mast is proposed to be a slim-line simple, vertical, functional structure. The column is relatively slender and similar in design to the existing vertical structures in the immediate area along Roughwood Drive albeit taller in height. As a result this installation would not appear incongruous within the streetscene in line with the requirements of Policy CS2.

The installation of a 20m slim-line column designed to be as similar as possible to the other linear structures found in the immediate area will be no more at odds with the streetscene and character of the area than the other vertical structures within the immediate locale.

It is accepted that the height of the proposed installation is taller than other pieces of surrounding linear structures but this in itself is not a valid reason to conclude that it is not appropriate at a specific location. Indeed, Inspectors at appeal have noted that by their very nature to be effective masts are required to be taller than surrounding structures.

Telecommunications apparatus by their very nature must be taller than surrounding built and natural form to ensure its efficient operation. The Code of Best Practice explains this requirement

fully in paragraph 3.1, *'radio signals operate like light and must "see" over the target coverage area...'* To suggest that it is inappropriate development because it is taller than adjacent lighting columns or road signage is no more relevant than suggesting that street lighting columns are inappropriate because they are taller than road signage or traffic lights. They are all essential pieces of infrastructure within a streetscene that carry out differing functions and therefore cannot be considered on the same merits. Should a street lighting column be capable of the provision of high quality 2G/3G/4G and 5G telecommunication services for two separate operators then this would be a reasonable consideration, but this is clearly not the case. As such, the proposal should not be considered negatively due to it being taller per se than other vertical structures. Reasonable consideration of the proposal in the context of nearby street furniture can only conclude that the presence of other vertical structures in the immediate area only seeks to provide a setting wherein a base station may appear more congruous from which to provide an important service to a wider area.

The proposed height at 20m is essential in order to clear the urban clutter in the area and provide equivalent replacement coverage as well as new 5G services to this area of Knowsley. If the column height were to be reduced in this location, this would result in a degraded service due to the blocking effect from the surrounding urban clutter. This would especially be the case for the higher frequency technologies including 5G service provision. Thus if the column were to be any lower, the antennas would not be able to clear the trees and urban clutter and as such would not be able to operate effectively. As such, an additional installation would be required which would lead to the proliferation of masts contrary to the NPPF.

This is a prior approval application where the principle of this type of development is already established by the Government under the Town and Country Planning (GPDO) Order 2015 (as amended) which states that this type of development is permitted subject to the prior approval of the siting and appearance of the installation. This is therefore akin to an outline planning permission. Given the nature of the area which contains a number of vertical structures of various heights the proposed radio base station would not appear prominent nor out of place.

NPPF states at paragraph 113 the number of radio and electronic communications masts, and the sites for such installations, should be kept to a minimum consistent with the needs of consumers, the efficient operation of the network and providing reasonable capacity for future expansion. It accepts that new sites might be required for 5G networks (para 113). This is the case in this instance, in order to provide a new 5G service in this locality, the operator is unable to utilise the existing structure, as it is not designed to be able to support all the latest technologies, and must therefore erect a new column and cabinets in order to maintain, upgrade and provide the latest and new technologies to the surrounding area. The operator, as already explained above, is unable to shroud the antennas, but the design is as slim as possible and will remain a simple, functional, vertical structure in the street scene similar to the linear forms of essential infrastructure along Roughwood Drive.

The equipment cabinets are designed to appear like other statutory undertakers equipment cabinets often found in urban areas. They are small for telecommunications equipment. The proposed equipment cabinets are the least amount of cabinets that can be installed in this location and enable the radio base station to operate. If the number of cabinets were to be

reduced then there would not be sufficient room to house all the operators' equipment. In any event, these cabinets are permitted development under the operators permitted development rights. They have only been included in the description and on the plans in order to remain fully transparent. In order to help blend in with their surroundings they are proposed to be coloured grey, although they can be coloured any other colour that the council considers to be appropriate.

The design of the radio base station is one of the most sensitive designs available to the operators, designed to resemble typical existing urban linear street furniture, and that will allow two telecommunications operators to operate from a single site. This is in line with the requirements of NPPF which supports equipment which is sympathetically designed and camouflaged where appropriate [paragraph 113], The Code of Best Practice as well as the aspirations of CS2 of the KLPCS.

The proposed new site accords with NPPF because the equipment will resemble other linear structures within the area, will expand the network, and ensure high quality communications infrastructure is maintained. Placing masts near similar structures such as lighting columns, utilising simple and unfussy designs is acknowledged in the Code of Best Practice on Mobile Network Development in England to be less likely to dominate and be in discord with the streetscene and as a result less likely to have a detrimental impact on the visual amenity of the surrounding area.

Lack of 5G Coverage – Material Consideration

Mobiles can only work with a network of base stations in place where people want to use their mobile phones or other wireless devices. Without base stations, the mobile phones and other devices we rely on simply won't work.

In accordance with the NPPF, the proposed installation is significant to enable continuous coverage of the telecommunication network, ensuring that Knowsley continues to get the mobile coverage it needs for H3G customers as well as new 5G coverage. The design of the new column will also enable EE to utilise the same installation when it is ready to roll out 5G in this area, with minimal design changes. This proposal therefore also aligns closely with policy CS4 of the KLPCS and the 'Plan for Prosperity'.

The current proposals will facilitate the development of an advanced broadband telecommunications infrastructure in line with National Government guidance contained within the NPPF which supports infrastructure especially where growth takes place. Digital growth plays a fundamental role in driving economic growth.

Without this new column the operator's customers would experience increasing numbers of dropped calls and buffering unable to access the internet on their handheld devices. They would also not be able to access the 5G network, a demand which is increasing rapidly as customers update their handheld devices to ones that are 5G compatible. If the 5G network is not available then the customers' would not be able to utilise these handheld devices for the purposes in which they were purchased. This is contrary to the aspirations of Central Government which aspires to

everyone having access to the superfast highway network wherever they are and contrary to the Liverpool City Region 'Plan for Prosperity'.

The proposed installation will help improve the area's economic prosperity, strengthen the urban economy's by supporting local businesses to start, grow, adapt and diversify. It will support a better environment for today and tomorrow by reducing the need to travel and in turn minimise carbon emissions, a key ambition of the Plan for Prosperity. The radio base station will support the delivery of healthcare provision and accessibility by enabling people greater access to online services, NHS appointment reminders, reminders to take medicines, make appointments etc.

The way 5G works, it is closely connected with the Smart City agenda and will enable centralised control of lots of different street infrastructure owned or managed by councils, such as street lights, water meters and bus stops. As such 21st century infrastructure is needed to enable this objective to become a reality. A new installation in this location enabling 5G service provision to the Knowsley area will ensure that this aspiration is fully met.

The Councillor's Guide to Digital Connectivity notes that a survey conducted by the Confederation of British Industry found that 81% of firms said that they see more reliable mobile connectivity as essential. Studies have also shown that mobile broadband is associated with positive impacts nationally, such as higher GDP and increased employment.

Therefore the Government fully supports high quality communications infrastructure, even more so with the advent of 5G. The NPPF continues to strongly support telecommunications connectivity and states at paragraph 112 that local planning authorities should support the expansion of electronic communications networks. It acknowledges that advanced, high quality and reliable communications infrastructure is essential for economic growth and social well-being.

The demand for mobile data in the UK is increasing rapidly, and as households and businesses become increasingly reliant on mobile connectivity, the infrastructure must be in place to ensure supply does not become a constraint on future demand.

An installation in this location will fill the current gap in the latest high quality 5G service provision and enable H3G to maintain access to their handheld devices wherever they are for the purposes in which they were purchased. This is fully in line with the Government's aspirations that everyone has access to the superfast communications network, the NPPF, and the Plan for Prosperity.

Access to the internet in whatever medium now impacts every facet of our lives but only benefits those who can access and use it. The benefits of internet connectivity are key for both residents and businesses alike and a new column in this location providing the latest 2G, 3G, 4G and 5G technologies will support and promote the growth of the digital sector, increasing digital inclusion, so all people can access services, education and training.

In line with guidance contained within the NPPF, CS2 of the KLPCS which supports investment in the telecommunications systems a new column in this location will enable fast, reliable, secure internet accessibility wherever the user is located. An installation in this location would fully meet the latest

operators' coverage and capacity requirements for 3G, 4G and new 5G provision. This would be wholly in line with the Government's latest aspirations to strongly support advanced, high quality and reliable communications infrastructure, essential for economic growth and social well-being. Where the NPPF notes that decisions should support the expansion of electronic communications networks. An installation outside this search area, regardless of whether there are existing sites, would not allow the operator to provide their desired level of coverage and therefore would not adequately maintain and provide new coverage and capacity.

The Code of Best Practice acknowledges that upgrading and improving mobile networks will not be possible without the necessary infrastructure on which we rely. With increasing consumer demand and the Government's aspirations for high quality communications infrastructure it is ever more important to improve connectivity and capacity.

In the Code of Best Practice it acknowledges 'the pressure on networks to upgrade and improve networks through changes to existing sites and the development of new sites is constant. With the increasing consumer demand and the Government's ambitious aspirations it is becoming more important to improve connectivity and capacity. This is due to the ever increasing demand for data hungry applications to be available to a range of connected devices, such as smartphones and tablet computers. However, The Code notes that upgrading and improving mobile networks will not be possible without the necessary infrastructure on which they rely'. Therefore there is a significant need to locate the equipment in this area.

Economic and Social Benefits

The NPPF strongly supports sustainable development as does the KLPCS. Mobile communication plays a significant role in sustainable development. Being able to access the internet via a mobile device allows people to access a wide range of central and local government services, buy groceries, manage finances, apply for jobs/university, and carry out school projects, send emails, download applications, send and receive instant messages, streaming and downloading data to name just a few of the benefits of being able to use an internet enabled handheld device. It also allows people to work from home or on the move without needing to return to the office. This reduces travel time, carbon emissions and increases the speed in which information is processed/shared. The proposals therefore fully comply with the NPPF and the Plan for Prosperity to minimise the effects of climate change reducing the need to travel and therefore the carbon footprint.

In such instances, as described above, the NPPF supports development that improves the economic, social and environmental conditions in the area. Enhancing the 2G, 3G and 4G coverage and capacity in this area and providing new 5G services will fully meet this national policy objective.

Mobile connectivity is essential to the future success of the economy. The combined value of 4G and 5G mobile connectivity is estimated to add £18.5bn to the economy by 2026 (Councils and Connectivity Sept 2018). Mobile connectivity is essential to creating a better society. Digital inclusion can help people gain employment, become more financially secure and improve health

and well-being. Mobile connectivity is essential to fulfilling the potential of new technologies. Innovations such as artificial intelligence and connected cars will change how we work, spend our leisure time and run our public services.

Providing the latest digital infrastructure to enable improvements in digital technology empowers and enables residents to have the highest quality of life, supports the creation of high-quality jobs and achieves the maximum productivity levels. It will help businesses, public service providers and citizens to use digital technology by default and to the fullest to grow their businesses and improve productivity to access skills, training and employment opportunities to address global challenges that have a local impact such as ill health, social isolation, homelessness and pollution; to improve living standards and well-being; and to improve the quality and value for money of public services.

There is a demand for mobile connectivity in areas where geography, logistics or economics – or a combination of all 3, make it difficult. Mobile network capacity needs to grow to meet the demand of mobile users, who are consuming ever increasing amounts of data.

Paragraph 38 of the revised NPPF states that:

'Local planning authorities should approach decisions on proposed development in a positive and creative way. They should use the full range of planning tools available, including...permission in principle, and work proactively with applicants to secure developments that will improve the economic, social and environmental conditions of the area. Decision-makers at every level should seek to approve applications for sustainable development where possible'.

Providing improved 2G, 3G, 4G and new 5G coverage and capacity in this area fully meets this part of the NPPF. The social and economic benefits are a significant material consideration which should be weighed against the visual impact associated with a radio base station in this location. HM Treasury outlined such benefits in its report *'Fixing the Foundations: Creating a More Prosperous Nation'* – July 2015. Paragraph 7.1 of the plan stated that reliable and high quality fixed and mobile broadband connections support growth in productivity, efficiency and labour force participation across the whole economy. They enable new and more efficient business processes, access to new markets and support flexible working and working from home.

Paragraph 7.2 goes on to highlight strong support for high quality communications infrastructure. It states

'by reducing red tape and barriers to investment, the Government will support the market to deliver the internationally competitive fixed and mobile digital communications infrastructure the UK's businesses need to thrive and grow, and which will enable the UK to remain at the forefront of the digital economy. The Government is working with business so that the market can play the lead role in delivering against the ambitions set out in the Digital Communications Infrastructure Strategy, published March, of near universal 4G and ultrafast broadband coverage.'

The Government recognises that widespread coverage of mobile connectivity is essential for people and businesses. People expect to be connected where they live, work, visit and travel. That is why the Government is committed to extending mobile geographical coverage further across the UK, with continuous mobile connectivity provided to all major roads and to being a world leader in 5G.

This will allow everyone in the country to benefit from the economic advantages of widespread mobile coverage. As well as improved mobile signal, 5G networks are also crucial to drive productivity and growth across the sectors that local areas are focusing on through their emerging Local Industrial Strategies. Enabling and planning for 5G implementation is central to achieving the Government's objective to deliver prosperity at the local level and enable all places to share in the proceeds of growth.

The Government is determined to ensure the UK receives the coverage and connectivity it needs. To this end, the Government wants to be a world leader in 5G, the next generation of wireless connectivity, and for communities to benefit from the investments in the new technology.

Further to the Government's commitment to improve connectivity, on 24th November 2016 the new permitted development rights for telecommunication operators came in to force, designed to lift the restrictions on mobile operators such is the significance and weight the Government place upon the benefits attached to modern connectivity.

In October 2016, there was also the BIG Infrastructure Group (as Chaired by MP Grant Shapps) Report release calling on operators to improve their network. This is signed and has comments from numerous MP's nationally.

A National Needs Assessment – A Vision for UK Infrastructure was also published in October 2016 ([https://www.ice.org.uk/getattachment/media-and-policy/policy/national-needs-assessment-a-vision-for-uk-infrastr/National-Needs-Assessment-PDF-\(1\).pdf.aspx](https://www.ice.org.uk/getattachment/media-and-policy/policy/national-needs-assessment-a-vision-for-uk-infrastr/National-Needs-Assessment-PDF-(1).pdf.aspx)). It sets out the infrastructure needs for the UK which includes the importance of digital technology. An extract of this assessment can be found below:

'A lack of digital connectivity has a detrimental effect on business operations, productivity and output and hence competitiveness in the global market place. Securing digital connectivity is thus critical to the UK's long term prosperity. A key challenge for the digital sector is a persistent digital divide between those who have access to the latest technologies and those who do not, with resulting social and economic exclusion, particularly as dependence on e-services and digital communications increases'

The Assessment goes on to note that *'Universal digital connectivity would serve as an equaliser of economic opportunity in that it enables participation in a modern digital economy'*. Therefore this Needs Assessment further explains the consequences of a lack of coverage and the effects this has on social and economic prosperity. This clearly highlights the importance of maintaining and enhancing high quality 2G, 3G and 4G coverage and capacity in Knowsley as well as providing

new 5G in this area, where the social and economic benefits will outweigh the environmental considerations.

Ministers from the DCMS and MHCLG wrote to all CEOs of Council's in England (March 2019) setting out its position in respect of supporting investment in high-quality, reliable digital connectivity '**Collaborating for digital connectivity**'. The Government acknowledges that such infrastructure is essential for communities to benefit from faster economic growth and greater social inclusion. Ministers state:

'It is essential to keep pace with growing demand for internet bandwidth and mobile data from local businesses, residents and those who visit our communities. As outlined in the Future Telecoms Infrastructure Review, the Government would like to see nationwide full fibre coverage by 2033. We would also like the UK to be a world leader in 5G, with the majority of the population covered by a 5G signal by 2027. We are writing to ask for your help in supporting the investment necessary to achieve these objectives'.

'Recent years have seen substantial investment in mobile and fixed digital infrastructure across the UK.

While mobile coverage across the UK has been significantly improving, there are still too many areas where coverage is poor. The UK has now achieved 95% superfast broadband coverage but still only 6% full fibre coverage.

We need to create the market and policy conditions necessary to support the large-scale commercial investment required to extend and future-proof digital connectivity. A key part of this is making it easier for operators to deploy infrastructure.

Local authorities have an essential role to play as site providers. As Chief Executives, you can support investment in digital communications infrastructure by ensuring your organisations have policies and procedures in place that promote effective engagement with the digital communications industry and minimise barriers to deployment'.

In November 2019, Matt Warman MP wrote to all CEOs of Council's in England setting out the case for '**5G - The Next Mobile Generation**'. The letter stated:

"More than any previous generation of mobile networks, 5G has the potential to transform the way we live and improve economic productivity. Networks will have the capacity for millions more devices to be connected at the same time, enabling businesses and communities to operate more efficiently. It will allow cities and communities to manage traffic flow, monitor air quality and control energy usage through real-time management of high volumes of data".

A recent report estimated that local authorities will share collectively an annual £2.35 billion of efficiency savings, from reduced social care costs for the elderly through 5G monitoring, to savings through smarter street lighting.¹ We want the UK to take early advantage of these benefits, so it is good news that all of the four main mobile network operators - EE, O2, Three

and Vodafone - have started to deploy 5G networks. We expect 5G to go live in up to 50 cities and towns by the end of 2020. In order to support the deployment of 5G and extend mobile coverage, particularly in rural areas, the Government recently published a consultation on the principle of proposed reforms to permitted development rights, which closes on 4 November.

The National Planning Policy Framework ("the Framework") for England² supports the expansion of high quality communications, including next generation mobile technology, such as 5G. The Framework states that planning applications for mobile base stations should include a statement of compliance with international guidelines on limiting exposure to electromagnetic fields known as the International Commission on Non- Ionizing Radiation Protection guidelines ("the ICNIRP guidelines"³). It also states: "Local planning authorities must determine applications on planning grounds only. They should not seek to prevent competition between different operators, question the need for an electronic communications system, or set health safeguards different from the International Commission guidelines for public exposure."

An installation in this location will ensure that the expansion of the electronic communications network is facilitated and that high-quality communications infrastructure is provided to the immediate area.

Health and Safety

The proposed installation conforms to current government planning guidelines regarding potential health effects arising from telecommunications development. The operator has attached a declaration that the site conforms to ICNIRP guidance. This is in full accordance with NPPF.

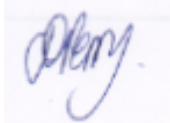
The publication of the National Planning Policy Framework continues to highlight the Governments view that the planning system is not the appropriate mechanism for determining health safeguards. It sends a clear message to local planning authorities stating that they must 'determine applications on planning grounds. They should not seek to prevent competition between different operators, question the need for the telecommunications system, or determine health safeguards if the proposal meets International Commission guidelines for public exposure'. This is reiterated in the Code of Best Practice.

Notably, Ofcom have now undertaken 5G audits in the major cities and the results indicate that the exposure level are a small fraction of the limits. This further reinforces the PHE guidance in respect of 5G which states: "It is possible that there may be a small increase in overall exposure to radio waves when 5G is added to an existing network or in a new area. However, the overall exposure is expected to remain low relative to guidelines and, as such, there should be no consequences for public health." (<https://www.gov.uk/government/publications/5g-technologies-radio-waves-and-health>)

In this instance, it is not necessary to consider health effects further, as recommended by NPPF. The operator is committed to ensuring that all new and existing installations are ICNIRP compliant, and consequently it is considered that there is no basis for this application to be refused on health

and safety grounds or for reasons relating to public concerns about health and safety. ICNIRP compliance certificates are enclosed with this application.

Confirmation that submitted drawings have been checked for accuracy

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