

SUPPLEMENTARY INFORMATION

1. Site Details

Site Name:	Park Avenue	Site Address:	Grass Verge at Park Avenue, Maesydre, Acton, Rhosrobin, Wrexham, LL12 7AN
National Grid Reference:	E: 334167 N: 351368		
Site Ref Number:	WRX26874	Site Type: ¹	Macro

2. Pre Application Check List

Was a local planning authority mast register available to check for suitable sites by the operator or the local planning authority?	Yes	
If no explain why: N/A		
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:	4 th May 2023
Name of contact:	Director of Planning
Summary of outcome/Main issues raised: A letter of consultation and drawings were sent on 4 th May 2023. No comments have been made.	

Annual area wide information to planning authority

Has annual area wide information been provided?	N/A
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:		Amber	
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¹ Macro or Micro

Outline of consultation carried out: A pre-application consultation letter and a copy of proposed plans were sent to the Councillors for Acton and Maesydre Ward (Councilors: Becca Martin and Corin Jarvis) by email on 04/05/2023.
Summary of outcome/main issues raised: Cllr Jarvis responded dated, 18/05/2023, stating: "After consultation with residents there has been some comments of objection, but the overwhelming opinion seems to be in favour of improving the signal to the area... at this stage I support the proposal and personally have no objection to the location or aesthetic." Cllr Martin responded dated 17/05/2023, stating: "I've had a number of responses to this location. The general consensus really is that people want better connectivity, they're generally happy that there is the potential for 5g, the current signals are really quite poor etc. However! This location doesn't seem to be the least residentially impactful location. On the same street there are additional locations that would have less impact on residents and the environment (particularly the tree which have TPO's). There's also issues with the road infrastructure around the proposed site, a speeding and accident 'hot spot'."

School/College

Location of site in relation to school/college: N/A
Outline of consultation carried out with school/college: N/A
Summary of outcome/main issues raised: N/A

Civil Aviation Authority/Secretary of State for Defence/Aerodrome Operator consultation

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

Developer's Notice

Copy of Developer's Notice enclosed?	Yes	
Date served:	A developer's notice and a set of plans were sent to the Highways department via email on 18/05/2023. Copies of the developer's notice and proof of delivery are attached as part of this application.	

3. Proposed Development

Background:

Clarke Telecom Ltd act on behalf of the mobile telecommunications operator Signal Infrastructure UK Limited (formerly known as CK Hutchison Networks (UK) Limited). The proposal is to install a radio base station, in order to provide the latest 3G, 4G and new 5G technologies.

As part of Signal Infrastructure UK Limited (formerly known as CK Hutchison Networks (UK) Limited) continued network improvement program, there is a specific requirement for an installation on the grass verge at Park Avenue, to ensure that the latest high quality 3G and 4G service provision is provided in this area of Wrexham. 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 Wrexham. 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 Wrexham.

As part of Signal Infrastructure UK Limited (formerly known as CK Hutchison Networks (UK) Limited) continued network improvement program, there is a specific requirement for a new mast on the grass verge at Park Avenue, to ensure that the latest high quality 3G and 4G service provision can be provided in this area of Wrexham for Signal Infrastructure UK Limited (formerly known as CK Hutchison Networks (UK) Limited). The proposed new column will also ensure that new 5G coverage can be provided at this location for Signal

Infrastructure UK Limited (formerly known as CK Hutchison Networks (UK) Limited). 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 in to 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 Wrexham 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 proposed radio base station is located on the grass verge at Park Avenue, on the east side of the road. The site will sit in front of a row of semi-mature/ mature trees that rise to 12m in height. The surrounding area is mixed use in nature, with a number of commercial buildings directly behind the proposed site. North of the site continues Park Avenue, leading to a 4-arm roundabout with road signage around its perimeter.

The proposal is for the installation of a new +16.0m AGL monopole that will provide improved coverage within the area, including 5G coverage. the proposed street works monopole design has been selected to minimise visual impact upon the street scene by integrating with the existing street furniture, having similar vertical lines and overall appearance to the street lighting columns that are common feature in the built environment. The site has been carefully selected in a position that benefits from surrounding trees providing some screening so as to provide the required new coverage to the area whilst minimising visual intrusion.

Figures 1-3 below illustrate the site and its surroundings.

Figure 1:

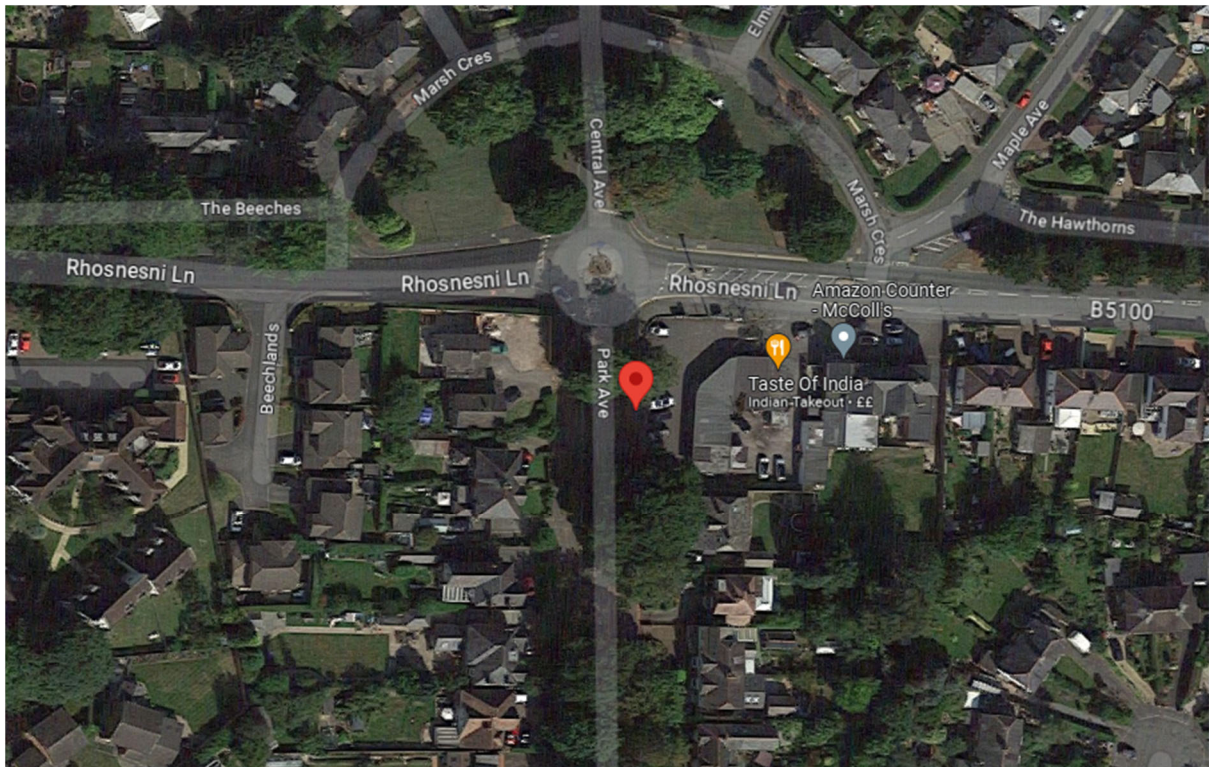


Figure 2:



Figure 3:



Type of Structure:

Description:

Installation of a 16m high slim-line phase 9 monopole, supporting 6 no. antennas, 2 no. equipment cabinets, 1 no. electric meter cabinet, and ancillary development thereto including 1 no. GPS module.

Overall Height: +16.0m AGL

Height of existing building (*where applicable*):

N/A

Equipment Housing: Bowler

Length:

0.66 Metres

Width:

1.9 Metres

Height:

1.827 Metres

Equipment Housing: RBS 6130

Length:

0.7 Metres

Width:

0.65 Metres

Height:

1.1 Metres

Equipment Housing: A/C Transmission Cabinet

Length:

0.6 Metres

Width:

0.5 Metres

Height:

1.585 Metres

Materials (*as applicable*):

Tower/mast etc – type of material and external colour:

Steel – Fir Green – RAL 6009

Equipment housing – type of material and external colour:

Steel – Fir Green – RAL 6009

Design Statement

In line with Planning Policy Wales 11 and the Code of Best Practice, the operator has carefully considered the design of the proposed monopole. 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 3.35m 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 and urban clutter and as such would not be able to operate effectively. The orientation of the antennas has been specifically chosen to allow coverage to the target coverage area whilst utilising the adjacent trees as a partial backdrop to aid in assimilating the site into the surroundings. The monopole is proposed to be fir green which will blend in with the surrounding foliage. However, it can be coloured any other colour that the authority considers appropriate. This is in full accordance with Planning Policy Wales 11 and The Code of Best Practice. The design of the column resembles as closely as possible to other vertical structures within the immediate area such as lighting columns and road signage. These vertical structures will help the proposed installation of this radio base station assimilate with the surrounding area. Therefore, the proposal will not have a significant impact on the surrounding area.

The proposed height at 16m 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.

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

Radio base stations and handsets use electromagnetic fields (EMFs) to transfer information and make communication possible with mobile phones and devices. EMFs are used for television and radio transmissions, by the police, fire and ambulance services, by taxi firms and public utilities. EMFs are also used for a wide range of personal and commercial equipment from electronic car keys, Wi-Fi equipment and baby monitoring devices to shop security tag systems. They are also produced by household electrical appliances like the fridges, vacuum cleaners or electric shavers.

Public Health England (PHE) have noted that “Exposure to radio waves is not new and health-related research has been conducted on this topic over several decades. In particular, a large amount of new scientific evidence has emerged since the year 2000 through dedicated national and international research programmes” <https://www.gov.uk/government/publications/5g-technologies-radiowavesand-health/5g-technologies-radio-waves-and-health>. After a thorough review of the available scientific findings, the World Health Organisation reported: “To date, the only health effect from RF fields identified in scientific reviews has been related to an increase in body temperature ($> 1^{\circ}\text{C}$) from exposure at very high field intensity found only in certain industrial facilities, such as RF heaters. The levels of RF exposure from base stations and wireless networks are so low that the temperature increases are insignificant and do not affect human health” World Health Organisation, Fact Sheet 304, Base stations and wireless technologies, 2006. In addition, the WHO notes that “Based on a recent in-depth review of the scientific literature, the WHO concluded that current evidence does not confirm the existence of any health consequences from exposure to low level electromagnetic fields”. <http://www.who.int/pehemf/about/WhatIsEMF/en/index1.html>

The Advisory Group on Non-ionising Radiation (AGNIR) summarised that “although a substantial amount of research has been conducted in this area, there is no convincing evidence that RF field exposure below guideline levels causes health effects in adults or children.” “Health Effects from Radiofrequency Electromagnetic Fields – RCE 20”, 2012.

Radio base stations are designed to comply with the stringent, precautionary public exposure guidelines set out by ICNIRP (International Commission on Non-Ionizing Radiation Protection). These guidelines have been developed following a thorough review of the science including both thermal and non-thermal effects. UK radio base station installations have been surveyed by independent bodies and found to be hundreds and sometimes thousands of times below these guidelines.

In 2020 ICNIRP updated their safety guidelines noting that: ‘we looked at the adequacy of the ones we published in 1998. We found that the previous ones were conservative in most cases, and they’d still provide adequate protection for current technologies’ https://www.icnirp.org/cms/upload/presentations/ICNIRP_Media_Release_110320.pdf

A declaration of ICNIRP compliance is included with the application documents confirming that the proposed installation will be within the precautionary public exposure guidelines set out by the International Commission on Non-ionising Radiation Protection. PPW provides clear advice regarding health matters at paragraph 5.2.15 and states that:

‘provided that the development meets the International Commission on Non-Ionising Radiation Protection (ICNIRP) guidelines, planning authorities should not consider the health aspects of mobile telecommunications equipment’.

As a result, it is not necessary for health matters to be a consideration as part of this prior approval application.

4. Technical Justification

Reason(s) why site required:



There is a specific requirement for a new column and associated equipment cabinets at this location to allow Signal Infrastructure UK Limited (formerly known as CK Hutchison Networks (UK) Limited) to improve their 3G and 4G coverage and capacity in and around the Wrexham 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.

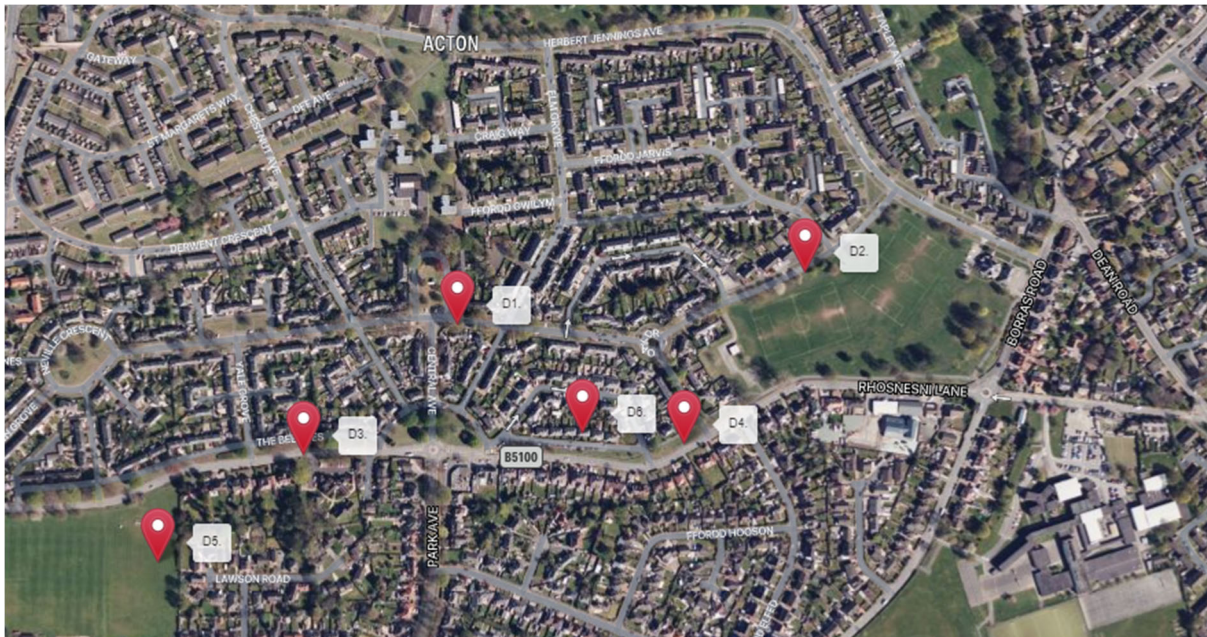
5. Site Selection Process

As explained earlier, the search area is very small for this new installation. The existing sites in this area of Wrexham 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:

- **D1. Streetworks – Oak Drive, Maesydre, Acton, Wrexham, Wales, LL12 7HW, United Kingdom, NGR E: 334188 N: 351525**
This location is immediately surrounded by residential properties and has been discounted as the chosen application site is further away from the residential properties and will therefore have a lesser impact on residential amenity.
- **D2. Streetworks – Oak Drive, Maesydre, Acton, Wrexham, Wales, LL12 7NL, United Kingdom, NGR E: 334552 N: 351575.**
A site in this location would not be able to be built due to the proximity of overhead BT lines.
- **D3. Streetworks – Rhosnesni Lane, Maesydre, Acton, Wrexham, Wales, LL12 7LY, United Kingdom, NGR E: 334024 N: 351391**
The footway at this location is too narrow to accommodate the operator's equipment. As such, this option has been discounted as the physical lack of space would prevent the installation of the necessary equipment to provide the required levels of coverage/capacity to the target area.
- **D4. Streetworks – Rhosnesni Lane, Maesydre, Acton, Wrexham, Wales, LL12 7NA, United Kingdom, NGR E: 334423 N: 351398**
Footpath is a shared pedestrian/cycle lane, and the presence of the operator's equipment would narrow the footpath to insufficient dimensions.
- **D5. Greenfield – Rhosnesni Lane, Maesydre, Acton, Wrexham, Wales, LL12 7LY, United Kingdom, NGR E: 333871 N: 351282**
An installation at this location is considered to be too exposed to surrounding residential properties with limited screening. Due to the highly residential nature of the area, there were no suitable locations to host a Greenfield installation, which would typically comprise of a lattice style structure with an open headframe with equipment cabinets at ground level within a fenced compound.
- **D6. Rooftop – The Hawthorns, Maesydre, Acton, Wrexham, Wales, LL12 7BB, United Kingdom, NGR E: 334317 N: 351411**
The buildings in the search area are predominantly pitched roof. These buildings are not tall enough to host an installation that would be capable of providing the required levels of coverage and capacity to the target coverage area. In addition, their pitched roofs would not be capable of hosting the type of equipment required.

Discount options map:



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

N/A

Land use planning designations:

No planning designations have been identified to date.

Reason site chosen:

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 urban 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.

Public Access Statement

The site is located within the adopted highway. The column is not designed to be climbable, and the equipment cabinets are locked thus the general public access are not able to access the equipment.

Construction and Maintenance Access

Access to the site for construction and maintenance is indicated on the drawings.

Access to the site will be as shown on the submitted proposed plans for maintenance of the site once built.

The site is likely to be visited infrequently approximately once maybe twice a year, and generally for physical maintenance purposes only. Most optimisation work can be completed remotely. Access to the site will be

on foot walking to the site to gain access to the equipment housed within the cabinets. In the event of the antennas within the mast needing to be maintained this will be achieved by siting a cherry picker with a hydraulic platform alongside the base station.

Planning Policy Framework/Development Plan Policy

Assessment of site/proposal in relation to Government guidance and planning policy

National Planning Guidance

Planning policy is provided at the national level by Planning Policy Wales Edition 11. It is a material consideration in planning decisions. Planning Policy Wales 11 is very similar to Planning Policy Wales 10 in relation to telecommunications development and remains largely the same in this respect.

Planning Policy Wales Edition 11 was issued on 28 February 2021. It refreshes PPW 10 incorporating the National Development Framework (published as Future Wales – the National Plan 2040) to set out how the planning system at a national, regional and local level can assist in delivering the Government's requirements through Strategic Development Plans (SDPs) and Local Development Plans (LDPs).

Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars and policy clarification letters, which together with PPW provide the National Planning Policy Framework for Wales. PPW, the TANs, MTANs and policy clarification letters comprise National Planning Policy.

The primary objective of PPW is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required by the Planning (Wales) Act 2015, the Well-Being of Future Generations (Wales) Act 2015 and other key legislation and resultant duties such as the Socio-economic Duty. A well-functioning planning system is fundamental for sustainable development and achieving sustainable places.

PPW sets out Welsh Government Duty. The Well-being of Future Generations (Wales) Act 2015 places a duty on public bodies that they must carry out sustainable development. PPW defines sustainable development as:

'the process of improving the economic, social, environmental and cultural well-being of Wales by taking action, in accordance with the sustainable development principle, aimed at achieving the well-being goals.'

Acting in accordance with the sustainable development principle means that a body must act in a manner which seeks to ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs.'

Paragraph 1.18 of PPW states that legislation secures a presumption in favour of sustainable development in accordance with the development plan unless material considerations indicate otherwise to ensure that social, economic, cultural and environmental issues are balanced and integrated.

Paragraph 2.8 of PPW11 states *'planning policies, proposals and decisions must seek to promote sustainable development and support the well-being of people and communities across Wales. This can be done through maximising their contribution to the achievement of the seven well-being goals and by using the five Ways of Working [consideration of involvement; collaboration; integration; prevention; and long term factors], as*

required by the Well-being of Future Generations Act. This will include seeking to maximise the social, economic, environmental and cultural benefits, while considering potential impacts when assessing proposals and policies in line with the Act's Sustainable Development Principle'.

PPW11 at paragraph 2.27 provides advice relating to the sustainable benefits of development. *'Planning authorities should ensure that social, economic, environmental and cultural benefits are considered in the decision-making process and assessed in accordance with the five ways of working to ensure a balanced assessment is carried out to implement the Well-being of Future Generations Act and the Sustainable Development Principle'.*

The Well-being of Future Generations (Wales) Act sets out 7 well-being goals to help ensure that public bodies are all working towards the same vision of a sustainable Wales. Two of these goals are relevant to telecommunications development: A Prosperous Wales and A Wales of Cohesive Communities.

PPW sets out its goals for 'A prosperous Wales' which includes the development of modern and connected infrastructure to allow everybody to have a good quality of life by living in strong and safe communities, with access to decent jobs. It also acknowledges in Chapter 5 that 'A Prosperous Wales' can be achieved through increased economic activity across all sectors and at all scales. This is realised through the availability of inter alia reliable telecommunications networks. An installation in this location would fully meet this national policy requirement.

PPW states that to foster Cohesive Communities development will need to be well-connected. It goes on to acknowledge in Chapter 5 that Cohesive Communities are created by people who have access to fulfilling work which is easily reached locally through sustainable transportation infrastructure and who can communicate effectively and safely with their friends and neighbours. Having access to a high quality, reliable and advanced telecommunications network fully complies with Chapter 5 of the PPW.

PPW notes the importance of high quality telecommunications. Paragraph 3.61 states that *'adequate and efficient infrastructure' including services such as 'telecommunications is crucial for economic, social and environmental sustainability. It underpins economic competitiveness and opportunities for households and businesses to achieve socially and environmentally desirable ways of living and working'.*

The Welsh Government's continuing strong support for telecommunications is demonstrated within the revised edition 11 of PPW because the telecommunications section is still included within the 'Productive and Enterprising Places' Chapter.

Chapter 5 of PPW11 continues to include telecommunications in the Productive and Enterprising Places which includes telecommunications. It defines Productive and Enterprising Places as *'those which promote our economic, social, environmental and cultural well-being by providing well-connected employment and sustainable economic development. These places are designed and sited to promote healthy lifestyles and tackle the climate emergency'.*

Places which are productive and enterprising contribute to the seven goals of the Well-being of Future Generations Act which include inter alia:

A Prosperous Wales can be achieved through increased economic activity across all sectors and at all scales. This is realised through inter alia reliable communication networks.

A Healthier Wales can be achieved through the reduction in emissions and air pollution.

A more Equal Wales can be achieved through promoting sufficient employment and enterprise opportunities for people to realise their potential and by recognising and building on the existing economic strengths of places to assist in delivering prosperity for all.

Cohesive Communities are created by people who have access to fulfilling work which is easily reached locally through sustainable transportation infrastructure and who can communicate effectively and safely with their friends and neighbours.

A Globally Responsible Wales is promoted by reducing our carbon footprint.

Productive and Enterprising outcomes are acknowledged as being inter alia:

- Promoting physical and mental health and well-being;
- Convenient access to goods and services;
- Minimising the need to travel;
- Not car dependent;
- Good connections;
- Embraces smart and innovative technology; and
- Enables easy communication.

The proposed radio base station would meet all the above objectives.

PPW identifies key issues for the Productive and Enterprising Places theme as being inter alia:

- Readying Wales for further technological innovation in the mobile and broadband sector so it can adapt to future change while ensuring that all parts of Wales have access to modern communication systems;
- Increasing the use of integrated digital communications and technology to create 'smart places' and the implications of this for the way we travel, communicate, work and socialise;
- Supporting and enabling...infrastructure to support progress towards a circular economy.

Providing the digital infrastructure to provide high quality 3G, 4G and 5G in the Ferry Court area is a precursor to enable all the above key issues to be addressed. Without access to mobile connectivity the above cannot come to fruition.

The revised PPW continues to acknowledge that new developments should be electronically connected to enable efficient access to the internet and communications system to drive forward economic competitiveness, increase flexible working opportunities and minimise digital exclusion.

Chapter 5 outlines the benefits of economic infrastructure. Section 5.1 sets the context and notes that infrastructure, be it physical, electronic or digital, plays a pivotal role in maintaining the economic well-being of Wales. It enables people to connect and interact with each other, either in person or electronically, to increase prosperity. It enables effective communication between people and businesses and provides a place for people to work and enjoy our natural and cultural assets. Poor infrastructure can be both a disincentive to investment and growth, and have a detrimental impact on quality of life, prosperity and the well-being of communities. A radio base station in this area of Powys is vital for the economic well-being of the Ferry Court area.

Section 5.2 relates specifically to electronic communications and notes *'affordable, secure electronic communications infrastructure is essential to people and businesses. The availability and exchange of information afforded by telecommunications ensures people are connected to important services, their communities and the wider world and essential for long term prosperity. Fast reliable connections are essential to meet the needs of businesses and other organisations, and to those at home whether accessing new digital services or working. Greater numbers of individuals working from home are a growing trend and*

planning authorities should take this into account when preparing their development plans. Providing access to 4G and the latest 5G services fully meets the PPW in this respect.

Paragraph 5.2.2 acknowledges the importance of high quality communications. It states that *'modern society demands reliable fast and high capacity communication networks to ensure large amounts of data can be easily accessed or exchanged. It is the Welsh Government's objective to offer fast and reliable broadband to every property in Wales and to support the deployment of mobile infrastructure across the country'*. The proposed installation fully meets this Welsh Government objective.

PPW offers guidance on telecommunications stating at paragraph 5.2.5 that *'the planning system should help support telecommunications infrastructure where it is required, whilst taking in to account the status of protected land and buildings as well as amenity considerations to protect what is valued most in our communities and environment'*.

Paragraph 5.2.9 makes it clear that *'planning authorities should not question the need for the telecommunications system nor seek to prevent competition between different operators'*.

Paragraph 5.2.12 goes on to state that *'the sharing of masts and sites is strongly encouraged where that represents the optimum environmental solution... for example in designated or sensitive landscape areas. The design of masts will be an important consideration where sharing is likely to be the preferred approach and efforts to disguise apparatus should be pursued where necessary. Wherever possible, use should be made of existing buildings and other structures to site new equipment...Siting should allow for the greatest possible coverage while, so far as is practicable, minimising the impact on amenity and the external appearance of a building'*. There are no existing buildings or structures within the operators search area which are suitable to provide the necessary coverage to the target coverage area. As such, a ground based installation is proposed. The height is the minimal possible to clear the trees, buildings and urban clutter, whilst providing the latest 3G, 4G and 5G coverage and capacity into the local area. The design is simple, unfussy, functional and vertical and resembles as closely as possible other items of street furniture taking into account the operator's technical requirements for this essential item of digital infrastructure. As noted in the recently revised Code of Best Practice telecommunications poles will be significantly taller than streetlighting columns and other street furniture. A streetlighting column cannot provide 5G mobile broadband service over a relatively wide distance and so while both are acceptable in the streetscene they should be considered under the same principles as each are designed to carry different task and therefore have different technical requirements.

PPW provides clear advice regarding health matters at paragraph 5.2.15 and states that:

'provided that the development meets the International Commission on Non-Ionising Radiation Protection (ICNIRP) guidelines, planning authorities should not consider the health aspects of mobile telecommunications equipment. All new base stations are expected to meet the ICNIRP guidelines' (Paragraph 5.2.15).

Planning authorities should not implement their own precautionary policies, such as imposing a ban or moratorium on new telecommunications development or insisting on minimum distances between new telecommunications development and existing development' (Paragraph 5.2.16)'.

A declaration of ICNIRP compliance has been provided with the application documentation for this proposed radio base station and as such in line with PPW there is no requirement to consider health matters as part of this application.

The National Development Framework – Future Wales The National Plan 2040 (February 2021)

Future Wales forms part of the statutory development plan. It was published on 28 February 2021. Statutory Development Plans (SDPs) and Local Development Plans (LDPs) must be in general conformity with Future Wales. The Planning Act requires the Welsh Ministers to produce and keep up-to-date the National Development Framework (Future Wales). Future Wales must cover a 20 year period accommodating government priorities into a single document, coherent direction, indicating the land use implications for key goals and objectives.

Future Wales sets out the Welsh Government land use priorities and provides a national land use Framework for SDPs and LDPs. It concentrates on development and land use issues of national significance, indicating areas of major opportunities and change, highlighting areas which need protecting and enhancing and helping to co-ordinate the delivery of Welsh Government policies to maximise positive outcomes.

It is a development plan with a strategy for addressing key national priorities through the planning system, including sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being of our communities.

Future Wales is a spatial plan, which means it sets a direction for where we should be investing in infrastructure and development for the greater good of Wales and its people. Future Wales sets the challenge of delivering these improvements to the public, private and third sectors. It makes clear the importance of planning new infrastructure and development in such a way that they are complementary rather than competing priorities, ensuring opportunities are maximised and multiple benefits are achieved.

Julie James MS Minister for Housing and Local Government stated in the Foreword to Future Wales that:

‘By co-locating different land-uses we can minimise the amount of travelling we need to do to reach work, open spaces, shops and public services from our homes. Not only is this environmentally sound planning, it offers great social, economic and cultural benefits too...

...this Government is committed to supporting and delivering more active travel and sustainable transport infrastructure, new renewable energy schemes, improved digital communications infrastructure and new public services and facilities. In all these areas our decisions can contribute towards decarbonisation, healthy and active lifestyles, a resilient and diverse environment and increased economic prosperity and fairness’.

As part of the Overview of Future Wales there is a reflection on the COVID Pandemic and what has been highlighted as important in our lives:

‘There was a collective appreciation of the value of parks and green spaces, walking and cycling routes, local shops and amenities, and the cleaner air that emerged during the lockdown. The essential nature of good broadband and telecommunications connections to enable people to work from home, access services, and to stay in touch with one another has also been highlighted during this period. Good digital communications can have a positive effect on well-being. Among the many important challenges in the recovery period will be ensuring all communities enjoy access to these fundamentally important things’.

The installation of this radio base station will fully meet the Future Wales acknowledged importance of good digital communications to help in the recovery period of the Pandemic allowing customers access to this essential service.

As the national development framework, Future Wales is the highest tier of development plan and is focused on solutions to issues and challenges at a national scale. Its strategic nature means it does not allocate development to all parts of Wales, nor does it include policies on all land uses. However, such is the

importance of good mobile communications for Wales that it has set out two policies to support the provision digital telecommunications service across Wales in the form of Policies 13 and 14.

Policy 13 relates to supporting digital communications. It states that:

'The Welsh Government supports the provision of digital communications infrastructure and services across Wales. Planning authorities must engage with digital infrastructure providers to identify the future needs of their area and set out policies in Strategic and Local Development Plans to help deliver this. New developments should include the provision of Gigabit capable broadband infrastructure from the outset'.

There is currently a hole in coverage service provision for Cignal Infrastructure UK Limited (formerly known as CK Hutchison Networks (UK) Limited). Therefore, the operator aims to provide the latest 4G technology and 5G service in this locality, and to ensure that the coverage in the area is reliable and does not buffer or drop out, a new site is required to provide 5G coverage and fill this hole in coverage to this rural area. Providing high quality 4G and 5G coverage to enable handheld devices to function will fully meet Policy 13 of Future Wales.

Policy 14 relates to planning in Mobile Action Zones and states that the Government will identify areas where there are little to no mobile telecommunication coverage and where this coverage will need to increase:

'The Welsh Government supports increased mobile phone coverage and the associated economic and social benefits it brings. The Welsh Government will identify Mobile Action Zones, showing locations where there is little or no mobile telecommunications coverage. The Welsh Government, planning authorities and mobile telecommunications operators must work together to achieve increases in mobile coverage within Mobile Action Zones'.

The site will ensure that coverage and capacity requirements are maintained. Thus, whilst the Mobile Action Zones have yet to be identified, the proposed installation meets the essence of Policy 14 and its aspiration to provide good quality mobile connectivity to areas where coverage and capacity is very poor.

Page 90 of Future Wales sets out its unequivocal support for telecommunications including mobile telecommunications:

'The Welsh Government supports the roll-out of digital communications infrastructure across Wales. Modern, reliable mobile telecommunications and fast broadband services are essential to our everyday lives, as highlighted by the number of people working and learning from home during the COVID-19 pandemic. Digital communications infrastructure is crucial to the future success and economic competitiveness of Wales' businesses and supports community and individual needs, including access to key services and facilities'.

Clearly, a radio base station in this location would fully meet the Welsh Government drive to improve connectivity throughout Wales due to the well versed socio economic benefits such digital infrastructure is known to bring to an area and it would link up to the next radio base station ensuring that the area in and around Ferry Court to ensure that the latest high quality 3G and 4G service provision is provided. The proposed column will also ensure that new 5G coverage can also be provided at this location. By enhancing 4G and 5G coverage Wales can ensure it isn't left behind as other parts of the country and the UK take for granted wherever they are located whether that be indoors or outside.

It goes on to acknowledge the Welsh Government support for telecommunications development:

'The Welsh Government supports the provision of new and improved digital communications infrastructure across Wales'...

...The Welsh Government, planning authorities and digital communications infrastructure

providers must work together to ensure both mobile telecommunications and fast broadband infrastructure and services are provided...

Mobile Action Plan – Welsh Government (October 2017)

Following on from the Welsh Ministerial Statement, the Welsh Government published its Mobile Action Plan at the beginning of October 2017. It has two main sections which are relevant to telecommunications applications Mobile Connectivity in Wales and Planning.

The Mobile Connectivity in Wales section highlights the importance of mobile connectivity and how it is growing. It notes that the expectations of the mobile signal are rising, with customers wanting mobile connectivity where they live, work and want to travel. Businesses too want to take advantage of the opportunities that connectivity affords them and do not want to endure the lost opportunities that lack of connectivity costs them.

The Welsh Government recognises the growing importance of mobile technologies and wants to create the right environment to encourage further investment in mobile infrastructure and to promote innovation in mobile technologies.

The Mobile Action Plan goes on to state that mobile connectivity not only directly supports the United and Connected theme through connecting people and communities but also supports the other 3 themes by enabling business connectivity, the delivery of public services and learning opportunities. Access to a useable mobile phone signal also **supports all of the Well-Being of Future Generations Act Goals** (emphasis added).

The challenges that Wales faces are highlighted in the Ofcom Connected Nations 2016 report which reveals that for the majority of coverage measures Wales is less well served than the other UK nations. The Ofcom Connected Nations 2019 Report which was republished in March 2020 notes that there is still a wide variation in geographic coverage of mobile operators networks which remains poor in many areas. Indeed, it states that only 58% of Wales is able to receive 4G data services from all operators compared to 81% in England. An installation in this location where there is hole in coverage provision for CK Hutchinson Networks (UK) Ltd will help to address this imbalance.

The mix of significant population in mountainous and very rural areas creates very specific challenges which require significantly more infrastructure to provide coverage than other areas of the UK. If mobile coverage is going to improve there will need to be an increase in the number of mobile infrastructure sites in Wales, including in more scenic areas.

The Action Plan section on Planning acknowledges that the planning system has a key part to play in maximising mobile phone coverage across Wales. It is important that the planning regime is fit for Wales and reflects its topography and population distribution.

Building Better Places: The Planning System Delivering Resilient and Brighter Futures: - Place Making and The COVID Recovery (Welsh Government July 2020)

This document sets out the Welsh Government's planning policy priorities to assist in taking action in the recovery period after the COVID-19 pandemic crisis. The planning system should be centre stage in the consideration of built and natural environmental issues that have arisen from this situation.

It notes that the pandemic crisis has highlighted the need for good quality places for people to live, work and relax in. It has further emphasised how important the quality of our living and working environments are and how much more they matter as we require more flexibility to support new working, living and learning needs.

The Government acknowledges that the COVID-19 crisis has emphasised the importance of considering health and well-being throughout the planning system to ensure communities across Wales are healthy, vibrant and inclusive.

The document sets out a number of priorities and actions for places post COVID-19. It states that in the immediate post COVID-19 phase there will be particular areas of policy which should be the focus of consideration and action, to act as a catalyst for a recovery across the pillars of sustainable development. They fall in to 3 categories:

- *'How we experienced the direct impacts of the COVID-19 lockdown period and the permanent positive changes we need to see in places and as part of new development.*
- *The lessons we have learned over this time and how we can help to make places more resilient and adaptable to future pandemics, should they happen again.*
- *Aiding the recovery post pandemic and restrictions eased to ensure it benefits all parts of society and helps us to decarbonise, tackle climate change, reverse biodiversity decline and improve health and general well-being.'*

The document identifies key issues which bring individual policy areas together to ensure that action is the most effective, inter alia:

- *'Digital places – the lockdown lifeline'*

The report goes on to state:

'This is a once in a generation opportunity for planning to have a positive effect on the future well-being of people in Wales and these policy considerations should be applied immediately to ensure we affect change in the most positive way possible'.

The document expands on Digital Places and the lockdown lifeline. It acknowledges that staying connected through digital means was one of the few opportunities for social interaction with friends and family and has become mainstreamed as part of our working lives throughout the lockdown period. The quality of our mobile phone and broadband connections became linked to our emotional well-being in a way that many people had not appreciated before.

The report goes on to state that with homeworking now likely to be more prevalent across the country, having reliable and good quality communications systems in place is more important than ever before to help the economic and social recovery. The proposed radio base station will be a lifeline for those wanting to work more flexibly and just to go about a more modern way of living and keeping in touch more easily with friends, family and work colleagues.

The Government document notes that the planning system can play a vital role in the position of electronic communications systems...new developments should provide sufficient infrastructure so that our homes and businesses can benefit from high quality service provision from occupation. The planning system can be used to influence the provision of new services in areas where current provision is poor...

The document states that **planning applications for new digital infrastructure should be recognised as essential to the COVID-19 recovery period and should be given priority for determination by planning authorities** (emphasis added). The proposed installation will expand the electronic communications network into this rural area and fill a significant hole in service provision for CK Hutchinson Networks (UK) Ltd. Their customers will be able to access reliable, secure, high quality, advanced 4G and new 5G service provision in this rural area which they currently are unable to do.

The publication goes on to note that the National Sustainable Place making outcomes are set out in PPW and are highly relevant at this time. This includes inter alia: Creating and Sustaining Communities – community based facilities and services; Growing Our Economy in a Sustainable Manner – Fosters economic activity,

enables easy communication and embraces smart and innovative technology and Facilitating Accessible and Healthy Environments – minimises the need to travel, provides equality of access, feels safe and inclusive, good connections, convenient access to goods and services and promotes physical and mental health and well-being.

National Infrastructure Commission for Wales Annual Report 2020 (December 2020)

The Commission's aim is to give everyone the chance to improve their well-being through new and improved infrastructure that boosts economic growth and protects the Environment. It addresses three themes: Digital; Energy and Transport.

The Report acknowledges the importance of Digital Connectivity on pages 3 and 4 stating²:

'Digital connectivity has been vital during the pandemic, enabling many of us to work from home, access services and maintain social contact. Those without good digital connectivity have been greatly disadvantaged.'

...evidence shows households and businesses stand to gain substantial economic benefits from both fibre to the home and 5G. The quality of these communications is critical in determining where new, high growth businesses locate and where young people choose to live...

...we also think that too much attention has been paid to promoting fibre to the home and not enough to mobile broadband provision. We think Wales can and should do more with its mobile infrastructure. Only 3% of all data carried on UK networks is carried on mobile networks today, a much lower proportion than elsewhere in Europe.'

Digital Communication in Wales Report and Recommendations of the National Infrastructure Commission for Wales (December 2020)

The Report presents the findings of the National Infrastructure Commission for Wales investigation into digital communications infrastructure in Wales. The work was undertaken between mid 2019 and mid 2020 but disrupted by the COVID-19 pandemic after March 2020. The report notes that households and businesses have already obtained very significant economic and social benefits from adopting new digital communications technologies like superfast broadband or 4G.

Page 4 of the Report highlights the importance of digital connectivity during the pandemic:

'The pandemic also underlined the critical role that is played by digital communications in modern societies in allowing people to continue to live their lives without regard to the physical distances between them.'

The report goes on to acknowledge that young people and businesses place great importance on connectivity and will move to where there is a good reliable connection:

...'businesses and young people cannot afford to wait in the hope that a fibre connection will become available 10 years from now. They will move to somewhere where fast reliable broadband is already available in the meantime...

...the evidence shows that nations that are leaders in digital communications in one technology cycle tend to remain the leaders for subsequent generations. The opposite is also the case'...

² <https://gov.wales/sites/default/files/publications/2020-12/national-infrastructure-commission-for-wales-annual-report-2020.pdf>

On pages 4 and 5 of the report the Commission sets out that more attention should be paid by policy makers to supporting mobile connectivity:

'...we think too much attention has been paid by policymakers to promoting fibre to the home technology in the UK and not enough on improving mobile broadband provision, including using 4G and 5G connections to provide home broadband services instead of, or ahead of, fibre connections. The UK is behind most other countries in this regard, and only 3% of the total data traffic in the UK is carried over mobile networks today, much less than in most other countries. We think Wales can and should be doing more with this mobile infrastructure'.

Page 5 goes on to note:

'mobile broadband technologies offer benefits which fixed broadband connections cannot offer, both in terms of availability whilst on the move and, importantly, the speed at which the infrastructure itself can be rolled out. 'Home' mobile broadband connections can be a good, low cost option for households in rural areas, either until fibre turns up or on a permanent basis. The latest generation of mobile technology will also support a range of new applications for businesses and public authorities which prioritise significant economic and social benefits over the next 10-15 years. Importantly, the adoption and use of new mobile technologies tends to occur more quickly than with new fixed broadband technologies'.

The Commission's findings fully support home broadband services delivered over 4G and 5G mobile networks. This is because they are best placed for households and businesses to obtain access to significantly better broadband than they have today.

Technical Advice Note 19 Telecommunications (August 2002)

TAN 19 is somewhat dated, published in August 2002, it makes reference to the Stewart Report which is now dated and makes no mention of the 4G network. Therefore, PPW Edition 11 has greater material weight in the determination of telecommunications applications.

Paragraph 32 of TAN 19 states that development plans should cater for telecommunication development by taking account of the strategic requirements of telecommunications networks. Development Plan policies should take account of:

- The Assembly Government's overall policy approach to planning for telecommunications development set out in Chapter 12 of Planning Policy Wales.
- The requirements of the Telecommunications Act 1984.
- The need to minimise the impact of development and in particular the need to protect the best and most sensitive environments.
- The limitations imposed by the nature of the telecommunications network and the technology.

With regard to technical constraints, Paragraph 46 states that *'each telecommunications system has different antennas, siting needs and other characteristics. Planning authorities should have regard to any technical constraints on the location and proposed development. Each application should be determined in accordance with the development plan unless material considerations indicate otherwise. Material considerations include the significance of the proposed development as part of a national network'.*

In terms of environmental considerations, paragraph 56 identifies that an important consideration in determining applications will be the protection from visual intrusion and the implications for subsequent network development. It acknowledges that masts and antennas often require a particular operating height which allows signals to clear trees and urban clutter. Telecommunications development may therefore need particular locations in order to work effectively. But this may conflict with policies for the protection of high quality landscapes and quality in urban areas. High priority should be given to protecting such areas and the need to safeguard areas of particular environmental importance.

Additionally, paragraph 57 considers mast and site sharing, stating that Local Planning Authorities may expect applications to identify that the possibility of erecting antennas on an existing structure has been explored. An authority should, however, bear in mind the technical constraints upon network development in reaching any decision on an application before it (paragraph 58).

Furthermore paragraph 65 identifies the consideration of siting and design in addition to the height, ancillary development and the scope for landscaping and screening. It also states that, *'many antennas have special siting needs because they have a limited range or require line-of-site. Authorities should take full account of these needs.'*

Paragraph 66 goes on to state that 'Local planning authorities should ensure that they understand the constraints the operator faces, whether due to the nature of the technology or the legal requirement to provide a service'.

Paragraph 67 encourages the use of sympathetic design and camouflage to minimise the impact of the development on the environment.

Paragraph 68 relates to design solutions for minimising the visual impact on the area. It states that 'the telecommunications industry is encouraged to continue to develop innovative design solutions, in terms not only of the structure of the masts and antennas but also the materials and colouring. A number of different design solutions are currently available. These include masts designed to look like street furniture'.

Code of Best Practice on Mobile Phone Network Development for Wales (March 2021)

The latest version of the Code of Best Practice on mobile phone network development was published on 10 March 2021³. This document replaces the code of best practice published by the Welsh Government in 2003. It has been produced jointly between Welsh Government, planning authorities and the mobile industry in the light of changes to the planning legislation and policy and is intended to facilitate the smooth roll-out and upgrading of mobile telecommunications apparatus in Wales.

The purpose of the Code is to encourage better communication and consultation between telecommunications operators, local planning authorities and local communities, and to help standardise planning procedures and operator practices to improve consistency of decision making and implementation. The Code also helps explain technical features of mobile systems and provides good practice guidance on the siting and design of new telecommunications development.

The previous Code was issued in 2003. Whilst many of the principles outlined in that document are still relevant today, significant changes in the telecommunications industry have taken place including changes in technology and societal expectations relating to telecommunications and the infrastructure required to support mobile phone networks. The number of mobile devices has continued to grow, both in terms of mobile phones and other internet connected devices. The advent of 4G and new 5G technology has seen a dramatic increase in the amount of digital data used by mobile devices, and the growing demand for services has led to the deployment of more telecommunications infrastructure across Wales.

³ <https://gov.wales/sites/default/files/publications/2021-03/code-of-practice-mobile-phone-network-development.pdf>

The latest version of the Code outlines the importance of current and future mobile technology in modern society, and how it relates to Welsh Government priorities expressed in the programme for Government. The Code also addresses the Siting and Design of mobile infrastructure, particularly considerations pertinent to the introduction of newer technologies and the technical and operational requirements of mobile phone networks in different circumstances.

The revised Code acknowledges the importance of telecommunications in the introduction stating:

'Affordable, secure digital infrastructure is essential to people and businesses. The availability and exchange of information afforded by telecommunications ensures people and businesses are connected to communities and the wider world and are essential for long term prosperity. Modern society demands reliable and fast communication networks to drive economic activity, to allow people to keep in touch and to access public services.'

'Mobile connectivity plays a central role in digitally connecting people and businesses connecting them to the internet, the cloud and to each other...'

'...Modern mobile connectivity can facilitate home working and support inward investment for businesses, which create jobs for local people and minimise 'urban migration', underpin social benefits and provide access to emergency services...'

At Annex A the importance of mobile connectivity is further acknowledged at para 22:

'The introduction of improved connectivity will benefit the whole of the community and is a public benefit socially, economically and commercially. As such planning authorities should encourage improvements in digital connectivity and seek to assist MNOs [Mobile Network Operators] in finding suitable locations for new equipment'

The Code sets out how mobile connectivity meets the 4 strategies of the Welsh Government Programme, Taking Wales Forward: prosperous and secure; healthy and active; ambitious and learning, and united connected stating:

'Mobile connectivity directly supports the United and Connected theme through connecting people and communities but also supports the three others by enabling business connectivity, the delivery of public services and learning opportunities'.

The Code also acknowledges how it helps meet the ambitions set out in the Future Generations and Well-Being Act by enabling communities to connect, supporting participation, enabling education and skills, and providing access to key services.

It is noted that over 95% of households in the UK own at least one mobile phone. As such, the Code acknowledges that the ubiquity of mobile telecommunications means that it is an essential element of modern life and the Welsh Government is committed to supporting the roll out and upgrade of the mobile phone network.

The Code sets out its aims which are fourfold:

- To support the roll out of mobile phone infrastructure and to provide guidance with regards to the complex requirements associated with network deployment;
- Set out an engagement framework for mobile network operators and planning authorities when considering applications for prior approval and/or full planning permission for the improvement of mobile networks;
- Seek to avoid areas of conflict and to minimise any perceived adverse impacts with the provision of telecommunications equipment;
- And support a more collaborative approach to the deployment and improvement of digital connectivity throughout Wales.

The Code sets out how technology has evolved over the years from 2G (voice and text messages) to 3G (internet and other data on the move) to 4G (superfast mobile broadband at speeds roughly equivalent to those you would expect from a fixed broadband connection) to the advent of 5G networks which bring very high speed, high bandwidth and low latency connectivity not just for use with mobile handsets but also for a range of other internet of things (IoT) uses including industrial and real time monitoring.

The Code acknowledges that the mobile phone technology uses differing parts of the radio spectrum to broadcast signals to and from infrastructure such as masts to mobile phone handsets. Different spectrum bands have different characteristics, which affect the extent of coverage and how much data can be carried.

The Code provides guidance on siting and design and the search criteria for a new installation:

- Having existing or ready access to a power supply;
- Access to fibre optic cables;
- An existing vehicular access, and
- Other buildings and development which may provide a level of existing screening.

The Code of Best Practice states that planning authorities should consider these issues and balance the need for a site within a limited search area with the greater public benefit of improved connectivity. It should not be appropriate for planning authorities to seek wider evidence of alternative sites, unless they consider the solution is unacceptable having regard to all material planning considerations.

The Code goes on to note that all telecoms installations are principally guided by the technical need for the site and the technical constraints placed upon broadcasting a signal. The siting and design of such installations must therefore be balanced between perceptions of visual impact and the proposed installations' technical needs and constraints.

The Code acknowledges the main technical and operational criteria as:

- the need to provide an acceptable level of coverage both outdoor and indoor, over the intended geographical area.
- The need for backhaul, a connection to the wider network, is critical. Backhaul is ideally provided via fixed fibre optic cable links or if unavailable, via dish links. If a dish link is proposed, then a clear line of sight to the corresponding connection is required. This may well dictate the overall height of the installation rather than the broadcast requirements of the antennas. On occasion, where mountains and valleys are in the way, it may be necessary to 'bounce' the signal via more than one base station.

The Code acknowledges that where fibre is not available or to provide alternative secondary routing for resilience, installations may require transmission dishes which operate on a 'direct line of sight' basis to other dishes on corresponding installations on the network. To avoid latency, which would adversely affect real time applications because of the volumes of data, sites will have to link directly into other sites that have a fibre connection.

The sequential approach to new site selection is still advocated:

- *'Explore first the possibility of sharing any existing building or other structure;*
- *If no such structure exists, explore opportunities to locate sites within or close to other utilities or commercial development;*
- *If no such scope exists, explore opportunities for sites that are well screened by other development or natural features, such as trees, vegetation and undulating topography;*
- *Residential areas will require service provision and infrastructure may be required in close proximity to housing. However, prior to proposing a new site in a residential area, alternative solutions should be explored initially to ensure the proposal of least impact is progressed, while*

considering technical constraints;

- *Heritage sites and assets may require service provision, and where this is the case infrastructure will be needed within or in close proximity to them. However, prior to proposing a new site in a heritage area, alternative solutions should be explored initially to ensure the proposal of least impact is progressed, while considering technical constraints’.*

The Code like the previous 2003 version still seeks designs to be simple and unfussy, with attention to finishes and colouration that might help minimise appearance. In assessing proposals, the Code states:

‘In assessing proposals, planning authorities should have due regard to the special technical and operational considerations, and not seek to place or make unrealistic design demands. Planning authorities should give consideration to the balance between improved digital connectivity and the perceived visual impact of the development’.

Annex A sets out guidance on site selection and design. The Code acknowledges that many areas in Wales are protected or are heritage assets with many AONB and National Park designations which depend on tourism and Agri-industry for their overall sustainability. It notes that modern mobile connectivity can facilitate home working and support inward investment for businesses, which create jobs for local people and minimise ‘urban migration’, underpin social benefits and provide access to emergency services. These benefits and constraints should be taken in to consideration by LPAs:

‘Planning authorities should understand the relevant benefits and constraints around deployment when considering proposals or taking part in pre-application discussions for proposals in protected areas’.

The Code supports minimising visual impact noting at para 4 *‘where viable, sites should be deployed to make use of screening or backdrop. This could be in the form of buildings or vegetation but antennas must clear any surrounding ‘clutter’ that obstructs the signal and the service. Therefore, while siting should make use of screening, it is vital that the antennas are of a sufficient height’.*

The Code of Best Practice also highlights the difficulties that topography can pose for radio propagation at para 15:

‘A mobile base station cannot provide service around valley walls or through hills it must be able to transmit over them for service provision. The taller a base station or the higher it is sited on a valley wall, the more it will be able to cover.

Planning authorities should be aware of the constraints topography poses when considering siting proposals for mobile base stations and take this into account when assessing proposals’.

The difficulties of site access for build and maintenance are also highlighted in the Code of Best Practice.

Para 22 notes the importance of radio base stations:

‘The introduction of improved connectivity will benefit the whole of the community and is a public benefit socially, economically and commercially. As such planning authorities should encourage improvements in digital connectivity and seek to assist MNOs in finding suitable locations for new equipment.

Para 23 goes on to encourage collaborative working with the MNOs:

‘where proposals are made within sensitive land use designations such as National Parks or conservation areas planning authorities should appreciate the difficulties regarding deployment and seek to find solutions collaboratively’.

Annex A provides more guidance on minimising visual impact such as masts should be coloured to match their backdrop to minimise contrast in an urban or rural setting (Para 24). Para 26 seeks cabinets and equipment

housing to be coloured appropriately to assimilate with the setting. Para 27 goes on to advise that sites will be designed based upon structural requirement, radio functionality and to minimise visual impact. Poles are suggested to be used where there are vertical structures already in place such as flood lighting.

Para 28 notes that site sharing is supported in terms of minimising the number of sites required and reducing proliferation. However, sharing means the mast must be able to support all the equipment for all technologies for the operators. This is a significant amount of equipment both on the mast and at the base for the equipment housing. In order to support this equipment the mast must be robust and will often dictate a larger wider lattice type of design. This is more achievable and desirable in rural areas. If the column and shroud were 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.

Paragraphs 36 to 38 relate to equipment housing principles. The equipment housing must be of a sufficient size to facilitate hosting numerous operating equipment while also allowing air circulation to reduce the potential for overheating. Para 38 states that planning authorities should be understanding of this need when considering proposals.

Local Policy

Section 70 (2) of the 1990 Town and Country Planning Act and 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"*.

Local Planning Authority: Wrexham County Borough Council (CBC)

Development Plan: Wrexham Unitary Development Plan 1996-2011 (2005)

The site is designated as being within the settlement boundary, with urban / commercial / highway uses to the north, east, south and west. The site designation is a not material consideration.

Wrexham CBC does have a specific telecoms policy. This together with Technical Advice Note (TAN) 19 (Telecommunications) is of relevance. The National Planning Policy section of this supporting statement goes into detailed analysis of why this site is in compliance with TAN19.

Policy Analysis:

Policy **CLF8** reads:

"Telecommunications

The development of telecommunications facilities and related infrastructure will be permitted, having regard to technical and operational considerations, where an appraisal has been carried out:-

- a) firstly, of the potential for sharing other masts and sites; if there is no potential
- b) secondly, of the potential to use existing buildings and structures; if there is no potential
- c) thirdly, of the potential to use other sites.

The siting of any development should minimise the impact on the local landscape/ townscape, and should comprise measures of mitigation of any adverse impact, as appropriate."

This proposed development at the site seeks to consolidate all requisite elements (for site sharing) into one location, minimised to ensure the scale and mass of the design is sympathetic to its surrounds (with the use of a slimline monopole to minimise mass; using the backdrop of mature trees to provide a degree of

screening), thus limiting visual impact on the wider character of the area. The proposal will be suitably distant from sensitive receptors, yet providing capacity to ensure that it would deliver the level of service needed in this location. In this regard the proposal would accord with the Development Plan.

It is accepted the scheme would qualify as a visual change, but any perceived harm (to amenity or character) would be materially outweighed by the tangible benefits the development would bring in terms of enhanced digital services to residents, businesses and visitors alike.

It fully accords with the requirements of TAN19.

Online Nation 2021 Report (June 2021)

The importance of the internet and access to smartphones is acknowledged within the latest Online Nation 2021 Report (June 2021). The report notes that the pandemic has highlighted the importance of being online and driven changes in the take-up and use of internet services, as many people have had a critical reliance on the internet for communications, information, entertainment and commerce. Increases in internet use in 2020 were most pronounced in spring and November 2020 lockdowns, as people turned to the internet and were more dependent than ever on online services for video calling for socialising or home-based working, home schooling, keeping in touch, films and gaming, shopping and information about the pandemic.

In September 2020, UK Internet users spent nearly 4 times as much time on smartphones than they did on computers. 68% of the time spent online was via smartphones up 4% from September 2019, this was compared to 18% of time spent on line via computers and 13% via tablets.

By the end of 2020 approximately 94% of UK homes had internet access, up from 89% in 2019. Video calling became an important way for people to keep in touch during the pandemic. Zoom went from a few hundred thousand users in the first few months of 2020 to more than 13 million in April and May 2020. This has dropped to 10.4 million users in March 2021, while platforms used mainly for work and education, notably Microsoft Teams have shown a sustained increase in use (13.7 million users in March 2021m up by 5.3 million year on year).

The report found that most of the time people spend on the internet is via apps on mobile devices. Online services were a crucial way for people to find out information about the pandemic, and for governments to try and track and control the spread of the virus.

The report acknowledged that the internet helped most children continue their education throughout lockdown. Virtually all households with school-aged children had access to the internet at home. 7% did not have fixed broadband and 4% had access only to a mobile phone. 1 in 5 did not have access to an appropriate device for their schoolwork all the time. The Report found that 2020 saw the rapid adoption of digital remote education by teachers, parents and children such as video conferencing, and platforms for setting and collecting work. In the first few weeks of lockdown in spring 2020, two thirds of children in England were not receiving any live or recorded lessons. By January 2021, this was down to just one in ten. The Report suggests that the use of these platforms may continue such as for those who can't attend school due to illness, or to provide additional revision materials.

Nine in ten 8 – 15 year olds who use social-media said it helped them to feel closer to their friends in 2020. The report stated that social video services offer huge benefits for users and the economy. They provide a platform for self-expression through enabling user-generated content (31% of adults and 40% of 13-17 year olds post video content).

Lockdown influenced the types of social video that were most popular such as the first episode of Joe Wickes' PE which was the most viewed YouTube video of 2020, and videos relating to home baking such as sourdough bread increased by 458%.

Social media serves as a means of entertainment and education for many (used by 97% of adult internet users), and as an important method of marketing for businesses (online video advertising grew by 23% in the UK in 2020).

Online retail spend in the UK increased by 48% in 2020 (compared to an average annual increase of 13% in the previous 4 years). Online's share of retail spend increased from approximately 20% in 2019 to 35% in the spring lockdown and 30% in December 2020. By December 2020 11% of the UK grocery market sales were online, up from 5% at the beginning of the year. Online food delivery services also increased in demand. Just Eat being the most popular with its UK orders up 58% higher in the last quarter of 2020 compared to the same period in 2019.

The report found that 91% of households used smartphones to access the internet in 2021, compared to 65% who used tablets and 47% who accessed the internet using computers. The report also noted that 61% of UK adults who access the internet did so using both computers and smart devices.

The Report notes that the smartphone is the most-used device for accessing the internet for all age groups apart from those aged 65 +. It found that in 2020, 85% of internet users aged 16 + used a smartphone to go online, compared to nearly 75% accessing the internet via a computer and just over 50% using a tablet to access the internet. One in ten adults also stated that they only use a smartphone to go online and three in ten used their phone to complete an online form or app on a weekly basis.

Planning Matters

The main issues arising from this planning application 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 new service provision for telecommunications development in this area and other valid material considerations as outlined within the Wrexham LDP, PPW11, Future Wales – The National Plan 2040, the Mobile Action Plan, TAN19 and Building Better Places: The Planning System Delivering Resilient and Brighter Futures: - Place Making and The COVID-19 Recovery, and the Code of Best Practice.

The following paragraphs set out how the proposed radio base station complies with the Wrexham LDP, its vision and its strategic objectives, PPW11, The National Development Framework – Future Wales The National Plan 2040, Building Better Places: The Planning System Delivering Resilient And Brighter Futures, The Digital Communication in Wales Report, TAN19, Code of Best Practice on Mobile Phone Network Development for Wales, and Growth Deal Roadmap.

Siting and Appearance

The siting of the proposed radio base station has been carefully considered. To this end, it is located on Park Avenue, where demand for service provision is high from a range of types of users including residential dwellings and road users. The site set against the backdrop of semi-mature trees and shrubs within the context of numerous pieces of street furniture, including several examples of tall vertical structures including lampposts. These vertical structures will ensure that this installation will not appear prominent nor out of place in the streetscene. This is in accordance with Policy CLF8 of the Wrexham Development Plan.

The equipment cabinets, are designed to resemble other statutory operators' equipment cabinets and which are common place in urban environments such as this one. As such, they will not appear out of place in this location in line with Policy CLF8. They are the minimum number necessary to provide new 5G service provision to the area as well as enabling replacement 2G, 3G and 4G coverage to this cell area. The Government also does not consider them to be harmful in the streetscene as they have given the operator permitted development rights to install equipment cabinets which do not exceed 2.5m³ without needing prior approval or express consent.

The proposed monopole fully accords with PPW11 and the Code of Best Practice. There are no existing telecommunications installations for the operator to share that are suitable and 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. Given the small area where there is a current hole in coverage and predominantly residential nature of the cell area this severely restricts where the operator can site a radio base station.

The siting of the equipment is in a remote location with a hole in mobile coverage at the current time. The search area is very small for this new installation due to operator's requirement to fill the hole in coverage to fix coverage and capacity issues currently being experienced by its users. The existing sites in this area of Wrexham 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 proposed green finish will ensure that it will blend in with the surrounding foliage. This is in accordance with Policy CLF8 of the Wrexham Development Plan, TAN19, PPW11 and the Code of Best Practice.

Furthermore, 3G and 4G signals by their very nature (as they carry high data rates) do not penetrate over long distances, just a few hundred metres, 5G even less so depending on the topography of the land, building clutter and vegetation including trees in the area which can reduce their effectiveness. Therefore, the new 5G radio base station needs to be close to their customer demand which in this case is Wrexham and the surrounding area.

In line with the operators 5G requirements, which is aligned to the latest Government thinking for a prosperous economy and well-connected Wales and the Cardiff Digital Strategy (which sets out the importance of a fully connected Cardiff and aims to be 'Digital by Default' as well as 'Digital First'), there is an urgent need to fill this hole in the latest 5G coverage. In order to achieve these ambitions and those of Building Better Places: The COVID Recovery, Welsh Government clearly states that *'planning applications for new digital infrastructure should be recognised as essential to the COVID-19 recovery period and should be given priority for determination by planning authorities'* (see Appendix 3 for relevant extracts). As such, Cardiff must have the necessary infrastructure in place to bring these requirements to fruition. This ensures that Cardiff does not fall behind other cities across the UK where 5G has already been installed and other towns and cities where 5G roll out is also currently planned in the immediate future.

The Code of Best Practice acknowledges a number of ways in which the environmental and visual impact of a ground based mast can be greatly reduced such as by placing the mast near to similar structures such as lighting columns, having similar, unfussy designs and be of an appropriate colour. The proposed scheme is positioned on Park Avenue where there are numerous vertical structures such as lighting columns. These vertical structures will help the installation assimilate with its surroundings and not appear alien in its setting. The design is simple and unfussy with the antennas located at the top of the monopole within a tight headframe and proposed to be coloured green. Therefore, the proposals fully comply with the requirement to minimise the environmental and visual impact on the surrounding area, in line with the Code of Best Practice, PPW, TAN19, the Code of Best Practice.

The proposed antenna height of 16m is essential to provide new 5G coverage and replacement 2G, 3G and 4G service provision to the surrounding area. 5G radio signals are more sensitive to physical obstructions than older technologies. This is because the higher the frequency band the greater the reduction in signal strength, increasing the likelihood of dropped calls and reduced data rates for internet browsing, for example. Any physical object obstructing the propagation of radio signals causes a reduction in the signal strength reaching a customer's device. A common term for these objects is 'clutter' such as buildings, trees and hills. Generally, the higher the signal frequency the more it will be impacted by clutter.

Since 5G new radio technologies operate in 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 as older technologies. Furthermore, unlike traditional technologies 5G uses adaptive beamforming technologies to increase capacity and data speeds to the user. For effective beamforming the

antenna will normally need to be mounted higher than conventional antennas. These factors all lead to the need for an increase in antenna height in 5G.

It is accepted that the height of the proposed installation is taller than other pieces of surrounding street furniture, and buildings, but this in itself is not a valid reason to conclude that it is not appropriate at a specific location. Telecommunications apparatus by its very nature must be taller than surrounding built and natural form to ensure its efficient operation. To suggest that it is inappropriate because it is taller than nearby lighting columns or buildings are 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. As such, the proposal should not be considered negatively due to it being taller per se than adjacent buildings and linear structures.

In line with PPW, the Code of Best Practice and Policy CLF8 of the Wrexham Development Plan, the operator has chosen the most sensitive design available to provide 5G to this area of Wrexham. As a result, the antennas are located in a stacked formation at the top of the monopole, to minimise its width and appearance in the streetscene. The column will resemble other vertical structures within the wider context of Park Avenue of a similar design and as such will blend in with these other linear structures. The column is proposed to be green, although the column can be finished in any other colour the Council considers appropriate. If the antennas and monopole were any slimmer then the equipment would not be able to fit in the one installation and another radio base station would be required leading to the proliferation of masts contrary to PPW10, TAN19 and the Code of Best Practice.

Paragraph 46 of TAN 19 clearly states that local planning authorities should have regard to any technical constraints on the location and proposed development. As explained above, this is the lowest height that can provide the necessary coverage to the surrounding area of Wrexham. Exposed antennas would provide optimal coverage to the target coverage area, and enable 5G coverage to be provided to this cell area, in line with the Governments push for high quality connectivity throughout Wales. If the antennas were shielded 5G service provision would not be able to be provided and would fail the operators design brief to provide 5G in this area of Cardiff.

TAN19 also advises at paragraph 46 that each application should be determined in accordance with the development plan unless material considerations indicate otherwise. It goes on to state that material considerations include the significance of the proposed development as part of a national network. The operators 5G license legally requires high quality service provision to the vast majority of the UK. This is a key site for Three considered necessary in order to meet their 5G license obligations in Wrexham. As a result the applicant has submitted a number of applications to provide 5G all around the City so that the 5G network can link up to Wrexham and the rest of the UK via its programme to roll-out 5G nationally. Therefore, the application proposal is very significant in order to ensure that the national network is seamlessly linked from cell area to cell area, and that locations such as these in Wales get the connectivity they require in order for the customer to be able to utilise their handsets for the purposes in which they were designed for.

Such is the importance that the Welsh Government places on high quality connectivity and that Wales gets the communications infrastructure it so desperately needs, it has published a Mobile Action Plan, a road map, to ensure that all parts of Wales get the mobile connectivity needed. The Action Plan states that mobile connectivity not only directly supports the United and Connected theme through connecting people and communities but also enables business connectivity, the delivery of public services and learning opportunities. It also acknowledges that access to a useable mobile phone signal also supports all of the Well-Being of Future Generations Act Goals.

As is clearly shown in the enclosed coverage plots, this area of Wrexham is a 'not spot' for 5G service provision. Therefore, this community does not have access to the latest high quality indoor 5G coverage and capacity. Thus, users of their 5G enabled handsets are unable to utilise their devices for the purposes in which they were purchased. This is contrary to the Government aspirations as noted in PPW and more recently in the specifically published Mobile Action Plan to ensure that Wales gets the coverage it needs

throughout the country, which is also aligned to the latest Government thinking for a prosperous economy and well-connected Wales there is an urgent need to fill this hole in coverage.

The proposed installation would infill the current non-existent 5G mobile coverage for Three in and around Wrexham and as such is a vital link in to the operator's network. It is essential to ensure that there are no undue effects on the amenity of neighbouring occupiers and that the proposals connect positively to surrounding communities. A telecommunications installation is a piece of essential infrastructure to enable the mobile network to function. Once installed it will not cause increased activity as the site will only need to be visited approximately twice a year for servicing maintenance. Should the antennas malfunction, then the operator's engineers will fix the antennas by utilising a cherry picker parked at the base of the column. The need to visit the site, once operational, will be very limited. Therefore, there will be no detrimental activity or disturbance to the amenity of nearby occupants.

A radio base station does not cause vibration, does not emit dust, fumes or produce litter, no lights are required for the radio base station operation and therefore it cannot cause light pollution. The column itself will not emit any noise. The only noise will be from a fan within the equipment cabinets which will only be activated on very hot days. This noise will not be audible above background noise, and certainly not sufficient to warrant the proposals refusal.

Economic and Social Benefits

National guidance set out in PPW fully supports telecommunication development. The latest edition of national guidance, PPW10 has moved the telecommunications section in to Chapter 5 which relates to Productive and Enterprising Places. PPW states that these promote our economic, social, environmental and cultural well-being by providing well-connected employment and sustainable economic development. These places are designed and sited to promote healthy lifestyles and tackle climate change. It notes that a Prosperous Wales is realised through the availability of reliable communications networks and that Cohesive Communities is created by people having access to fulfilling work which is easily reached and who can communicate effectively and safely with their friends and neighbours. The key issues are ensuring that all parts of Wales have access to modern communication systems; and increasing the use of integrated digital communications and technology to create 'smart places' and the implications for this for the way we travel, communicate, work and socialise'. An installation in this location to provide 5G will fully meet these expectations.

PPW acknowledges key issues for Productive and Enterprising Places as being increasing the use of integrated digital communications and technology to create 'smart places' and the implications of this for the way we travel, communicate, work and socialise.

The social and economic benefits are a significant material consideration which should be weighed against the perceived impact on the footway and pedestrian safety associated with an installation at this location. PPW clearly acknowledges the benefits of physical, electronic and digital infrastructure citing it as playing a pivotal role in maintaining the economic well-being of Wales. It enables people to connect and interact with each other, either in person or electronically, to increase prosperity. It enables effective communication between people and businesses and provides a place for people to work and enjoy our natural and cultural assets. Poor infrastructure can be both a disincentive to investment and growth, and have a detrimental impact on quality of life, prosperity and the well-being of communities. The proposed installation will meet this criterion.

PPW expands on the benefits of electronic communications further in paragraph 5.2.1 stating that affordable, secure electronic communications infrastructure is essential to people and businesses. The availability and exchange of information afforded by telecommunications ensure that people are connected to important services, their communities and the wider world and essential for long term prosperity.

Paragraph 5.2.2 goes further by explaining the demands on the system. It states that modern society demands reliable fast and high-capacity communication networks to ensure large amounts of data can be

easily accessed or exchanged. It is the Welsh Government's objective to offer fast and reliable broadband to every property in Wales and to support the deployment of mobile infrastructure across the country.

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.

Trials have already begun across the UK to demonstrate the potential of 5G and how it can improve and drive productivity and efficiency. In June 2019, West Midlands 5G partnered with BT and University Hospitals Birmingham to trial the UK's first 5G Connected Ambulance. Real-Time communications between the paramedics and the hospital doctors enabled the effective diagnosis of the patient at an early stage of care. The trial showed how a paramedic performed a remote-controlled ultra-sound scan on a patient in an ambulance over a public 5G network. These trials show how digital connectivity and technology can reduce patient waiting times and save lives (Source: WM5G).

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. As well as assisting hospital outpatient appointments and emergency consultations carried out remotely via video link, connected ambulances, live streaming of CCTV footage etc.

The way 5G works, it is closely connected with the Smart City agenda and will enable centralized control of lots of different street infrastructure owned or managed by councils, such as streetlights, water meters and bus stops. Cardiff is fully committed to being connected and acknowledges the benefits derived from this in its Digital Strategy. As such it needs the 21st century infrastructure to enable this objective to become a reality. A new installation in this location enabling 5G service provision to the Acton area of Wrexham and the wider surrounding area will ensure that this aspiration is fully met.

Reliable mobile connectivity is essential. It is however certainly more significant now since the global pandemic hit. Online Nation 2020 (June 2020) produced by Ofcom to look at what people in the UK are doing online and industry trends amongst other things, found in relation to the increasing importance of mobile connectivity:

- 71% of all measured time spent online was on smartphones.
- 35% of internet users only accessed the internet on mobile devices (smartphone or tablet).
- In 2020, a fifth (22%) of UK adults have a smart speaker in the home and 11% of all UK households own some kind of 'smart home' technology (including devices such as smart home security, smart lighting and smart heating).

Reinforcing the importance of mobile connectivity during the pandemic, the Online Nation 2020 report found:

- **Covid-19 impact: time spent online reaches record levels**
- *In April 2020, internet users in the UK spent an average of 4 hours 2 minutes online each day, 37 minutes more each day per online adult compared with January 2020.*
- *In April 2020, the reach of education (+3 percentage points), health (+5pp) and government (+5pp) sites had all grown since January,*
- *... between January and April 2020; Houseparty increased from 175,000 to 4 million; Zoom reached 13 million adult internet users in April, up from 659,000 in January.*

- *In February 2020, 73% of UK adult internet users used online text messages, 54% use online voice calls, 35% use video calls and 55% use emails, at least weekly. Nine in ten adult internet users used any of those four services at least weekly.*
- **Most internet users use online messaging and calling services and use increased during the coronavirus pandemic**
- *Until early this year, online video calling was used much less than other online communication services, with 35% of online adults using online video calling at least weekly in the 12 months to February 2020.²⁶ In May 2020, this had doubled to 71% of online adult consumers using online video calling services at least weekly, with 38% using them at least daily. Our research suggests that 7% of adult internet users used video calling for the first time as a result of the coronavirus pandemic.*
- **87% of the UK adult population use the internet**
- **Mobile only use has increased dramatically**
- *In 2019, ... the proportion who use only mobile devices has shot up: 35% of internet users accessed the internet solely via a smartphone or tablet in 2019 – a 10 percentage point (pp) increase compared to 2017. Across computers, tablets and smartphones, 71% of time spent online in September 2019 was on smartphones.*

In March 2020, when Ofcom finalised the rules for the next mobile airwaves auction, Philip Marnick, Spectrum Group Director at Ofcom noted '*Demand for getting online, on the move is soaring, with **mobile customers using nearly 40% more data year on year**. So, releasing these airwaves will bring a much-needed capacity boost – helping mobile customers get a better service. We're also releasing more airwaves to help cement the UK's place as a world leader in 5G.*'

The Connected Nations December 2020⁴ report is published as the UK continues to address the challenges of the coronavirus (Covid-19) pandemic; a time when people, families and businesses have come to rely on their phone and broadband connections as never before. We report on how the networks have performed during this period and how the availability of services has evolved.

The report sets out in its findings:

- **The UK's fixed and mobile networks have generally coped well with increased demands during the pandemic.** A shift to more people being at home drove increased demand on broadband networks during the day, although peak usage remained in the evening. Mobile networks also experienced increases in voice traffic.
- **The number of mobile base stations providing 5G services has risen ten-fold, to around 3,000 across the UK.** 87% of these are in England, 7% in Scotland and 3% in both Wales and Northern Ireland.
- **Mobile coverage is generally stable.** The four mobile network operators (MNOs) – EE, O2, Three and Vodafone - each estimate they provide outdoor coverage to 98%-99% of premises. Their networks' coverage of the UK landmass ranges from around 79% to around 85%. The Shared Rural Network programme agreed in March 2020 will extend coverage beyond this by 2025.
- **A small, but significant number of properties are still struggling to get connected.** We estimate that 43,000 premises cannot access either a decent fixed broadband service, or good 4G coverage, indoors.
- **Mobile data consumption continues to rise, increasing by 42% compared with last year.** 83% of the total data traffic was consumed in England with about 10% in Scotland, 4% in Wales and 3% in Northern Ireland (largely in line with UK population distribution). Reflecting this growth, the traffic carried in England in June exceeded that carried across the whole UK in February.

⁴ <https://www.ofcom.org.uk/research-and-data/multi-sector-research/infrastructure-research/connected-nations-2020/main-report>

The report acknowledges that being connected has never been more important in the UK. *“People have been relying on phone and broadband services more and more over recent years, and the Covid-19 pandemic during 2020 has brought this reliance into even sharper view. In March 2020, life changed suddenly for millions of people across the UK. Fast, reliable broadband and mobile connections were essential to allow them to work from home, keep up with schoolwork, access medical appointments and public services, stay in touch with friends and family, order shopping online, and keep themselves entertained”.*

The report acknowledges that “during the first COVID 19 lockdown, UK MNOs coped successfully with the changes in data and voice traffic volumes and distribution as many people began working from home and schools were shut during the Covid-19 spring lockdown. New peaks were reached for most of the network metrics reported by MNOs just before or during the week lockdown measures were first introduced across the UK in March 2020. Although these peaks generally reduced with the gradual easing of lockdown, they have remained higher than they were before (in line with the historical trend for incremental growth in data consumption)”.

The report further notes that the *“MNOs all experienced some form of congestion on their networks in this period, but successfully mitigated this, in part by increasing interconnect capabilities between themselves. Some operators applied further temporary upgrades to their voice and data capabilities in order to cope with increased demands during this period, for example deploying temporary base stations in and around hospitals (particularly at the Nightingale hospitals) to provide additional capacity”.*

“Compared to periods before the spring lockdown, mobile voice traffic increased by 10-45% across the operators. One operator observed an increase in average call duration from about 2.5 minutes (pre-lockdown) to 4 minutes in the week lockdown measures were introduced. These call lengths and volumes spiked in March, before gradually stabilising. Within this general trend for growth, we can also observe drops in average call duration and data traffic around 8pm for the 10-week period from 26 March 2020, coinciding with the nation coming together to applaud the efforts of the NHS during the Covid-19 crisis. Increased amounts of voice traffic were also offloaded to Wi-Fi, although with significant variations between operators”.

It is clear from the above that reliance on mobile connectivity was increasing before COVID 19 and has increased since the pandemic. It is fair to say the increased use of and expectation for reliable mobile digital connectivity will see this upward trend continue. Residents, businesses and commuters will all be significantly affected if the critical replacement infrastructure which will bring 5G to this area of the Capital is not permitted.

It is therefore imperative that the operator continues to invest in ensuring that the latest technologies are available on its network, so that customers are able to continue to use their handheld devices wherever they are, for whatever reason, for the purposes in which they were purchased.

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 Wrexham achieve its ambition of being a world-leading digital city and one which its businesses, public service providers and citizens are using 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, and pollution; to improve living standards and well-being; and to improve the quality and value for money of public services.

The PPW strongly supports sustainable development as does the Well-being of Future Generations (Wales) Act. 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 PPW, and the Well-being of Future Generations (Wales) Act.

The proposed scheme fully complies with national guidance set out in PPW. Filling a significant coverage and capacity hole in the communications network is essential for sustainable economic growth. This is specifically in line with achieving two of the well-being goals of 'A Prosperous Wales' and 'A Wales of Cohesive Communities'. It is acknowledged in PPW particularly at paragraph 5.2.1 stating that affordable, secure electronic communications is essential to people and businesses. Furthermore, physical, electronic and digital infrastructure is pivotal in maintaining the economic well-being of Wales.

The environmental considerations of the proposed development should be considered in light of the strong economic and social benefits of providing high quality indoor 2G, 3G and 4G service provision and new 5G coverage to residents, businesses and visitors alike to the Wrexham area. It is therefore vitally important that the whole of Cardiff has the necessary infrastructure to support the important role of the capital city, locally, regionally and nationally.

The new installation will provide high quality 5G mobile communications in an area where currently there is no such coverage, supporting the Government's aim of '*facilitating the development of an advanced broadband telecommunications infrastructure throughout Wales*'. This fully meets the aspirations of PPW, TAN19, the Code of Best Practice, the Welsh Government's Mobile Action Plan and Building Better places: The Planning System Delivering Resilient and Brighter Futures: - Place making and the COVID-19 Recovery. The new site will ensure that the expansion of the electronic communications network is facilitated and that high quality communications infrastructure is provided to the immediate area. This is in full accordance with the operator's 5G license obligations.

We all need high quality communications. In the modern world, a huge amount of time is spent using communications services: for work, to stay in touch with family and friends and in order to go about our daily lives. This is acknowledged in national planning guidance as well as the latest Ministerial Written statement from the Skills and Science Minister Julie James stated '*ensuring Wales has the mobile connectivity to allow people and 'things' to connect reliably wherever they are located will become essential*'. The Government's pledge to improve connectivity in Wales has been strengthened by its publication of the Mobile Action Plan. Our ability to access and use reliable mobile and broadband connections has become fundamental to the way we live and work, and the ability of businesses of all sizes to thrive. The importance that the Welsh Government attaches to new digital infrastructure is acknowledged in Building Better Places – The COVID-19 Recovery where it acknowledges that such development is essential to the COVID-19 Recovery.

Being able to use e-mail, VoIP, video calls using hand held devices is becoming increasingly important for business and domestic use as the up take in smartphones increases. Without new 5G connection and improved 3G and 4G service provision the Wrexham area and surrounding areas of Wrexham would fall behind the rest of the UK and would not meet the growing demand for such services by businesses or domestic users alike or the Governments aspirations that Wales is connected with the mobile service it needs. Therefore, the provision of high quality new 5G services and the retention and improvement of 3G/4G coverage would take the opportunity of achieving the best for the Wrexham area now and in the future, supporting the economy to be both prosperous and sustainable and all communities to be successful. This is in full accordance with the aspirations of PPW and the well-being goals set out in the Well-Being of Future Generations (Wales) Act 2015.

5G will provide faster and more reliable connectivity leading to greater opportunities. We will experience new technologies that will help us become more efficient and save costs as an individual or business. Advanced healthcare facilities performing surgeries remotely will be made possible along with freeing up more GP time through better online facilities improving health and social care. It will allow the greater Internet of Things (IOT) transformation, with better connected devices, the IOT will enable us to control devices more independently, it will help councils and businesses deliver services more efficiently including transport and logistics with connected parcels and fleet tracking; environmental monitoring with sensors monitoring air

quality and water pollution in real time; smart retailing; industrial applications, enabling business to improve productivity e.g. through predictive maintenance and real-time analytics.

A National Needs Assessment – A Vision for UK Infrastructure was 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:

‘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’ (page 66 A National Needs Assessment)’.

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 providing new 5G coverage to this urban area of Cardiff, where the economic benefits will outweigh social and environmental considerations

As such there are no grounds for withholding planning permission for the installation of a telecommunications installation at this location. Furthermore, after detailed consideration of the target service area and other potential sites (see below for the discounted options considered) this is the best viable siting and design from which to provide this vital service to local residents, businesses and visitors. There are strong economic and social benefits attached to the service and connectivity the proposed scheme will provide and these significant benefits will outweigh any minimal perceived harm to the amenity of the surrounding area.

Summary

The operator is limited in siting options as there is a requirement to fill the current hole in coverage and to provide improved 3G/ 4G coverage and capacity for this area of Wrexham whilst also providing new 5G services. The requirement is to fill the hole in coverage to provide the latest technology whilst improving the provision of coverage and capacity to the surrounding local area.

Site selection was progressed in accordance with the applicant’s licence obligations, advice in the NPPF and the Code of Practice and represents the least environmentally intrusive, technically suitable, available option.

The siting of the proposed radio base station has been carefully considered. The proposed height at 16 metres is essential in order for the antennas to clear the surrounding urban clutter and ensure the antennas are able to reach the target coverage area, to provide new high quality, reliable 3G, 4G and 5G service provision to Wrexham. This will fully meet the national Governments aim of *‘ensuring that everyone is connected to the information superhighway’* and the national policies set out in the NPPF. If the height of the column were to be reduced then the antennas would not be able to operate effectively, leading to a degraded service for the operator’s customers especially for the higher frequency technologies including the latest 4G technology and new 5G service provision.

The social and economic benefits of providing reliable and high quality mobile broadband connections including 5G support growth in productivity, efficiency and labour force participation across the whole economy. This is fully supported by the NPPF. These benefits are strong material considerations which any perceived loss of visual amenity to the surrounding area.

It has been shown that the proposed 5G service provision is essential for sustainable economic growth and plays a vital role in enhancing the provision of local community facilities and services, where new digital infrastructure is recognised by the Welsh Government as essential to the COVID-19 recovery and should be

given priority for determination by planning authorities. Hence, the proposals are in full accordance with Building Better Places: The Planning System Delivering Resilient and Brighter Futures: Place Making and the COVID-19 Recovery.

Site selection was progressed in accordance with the applicants licence obligations, advice in the revised PPW11 and the Code of Best Practice and represents the least environmentally intrusive, technically suitable, available option.

As acknowledged in Future Wales, modern, reliable mobile telecommunications and fast broadband services are essential to our everyday lives, as highlighted by the number of people who worked and learnt from home during the COVID pandemic. Digital communications infrastructure is crucial to the future success and economic competitiveness of Wales's businesses and supporting community and individual needs including access to key services and facilities. The social and economic benefits are strong material considerations which outweigh any minor loss of visual amenity to the surrounding area.

Confirmation that submitted drawings have been checked for accuracy

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