SUPPLEMENTARY INFORMATION

1. Site Details

Site Name:	Royal National Hotel	Site Address:	Royal National Hotel 50 Woburn Place Bloomsbury London WC1H 0DG
National Grid Reference:	E: 530025, N: 182180		
Site Ref Number:	CTIL 136476	Site Type:1	Root top upgrade

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?		No
If no explain why: After a phone call to the LPA it was established that the LPA do no hold this information.		
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:	November 2018
Name of contact:	The Director of Planning
Summary of outcome/Main issues raised: Prior to the submission of this application the applicant initiated pre-consultation discussions with the local planning authority. This provides an opportunity for the LPA to discuss development proposals and identify site specific issues. Strategic level pre-rollout meetings are held with the LPA to discuss the necessities of the project, benefits and best practice going forward.	

[1] Macro or Micro

Community Consultation

Rating of Site under Traffic Light Model:			Green
Outline of consultation carried out: Prior to the submission of this application the applicant initiate pre-consultation discussions with the local planning authority. This provides an opportunity for the LPA to discuss development proposals and identify site specific issues. No comments were received in respect to the consultation submitted at the time of submission. Further consultation with the local Ward Councillors for London Borough of Camden Council Council (Councillor Rishi Madlani, Councillor Adam Harrison, Councillor Sabrina Francis).			
Summary of outcome/main issues raised: No responses had been received from any of the Ward Councillors at the time of submission.			

School/College

Location of site in relation to school/college: There are no schools in close proximity as defined by the search criteria within the CoBP.
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 (only required for an application for prior approval)

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:	26/11/2018		

Proposed Development

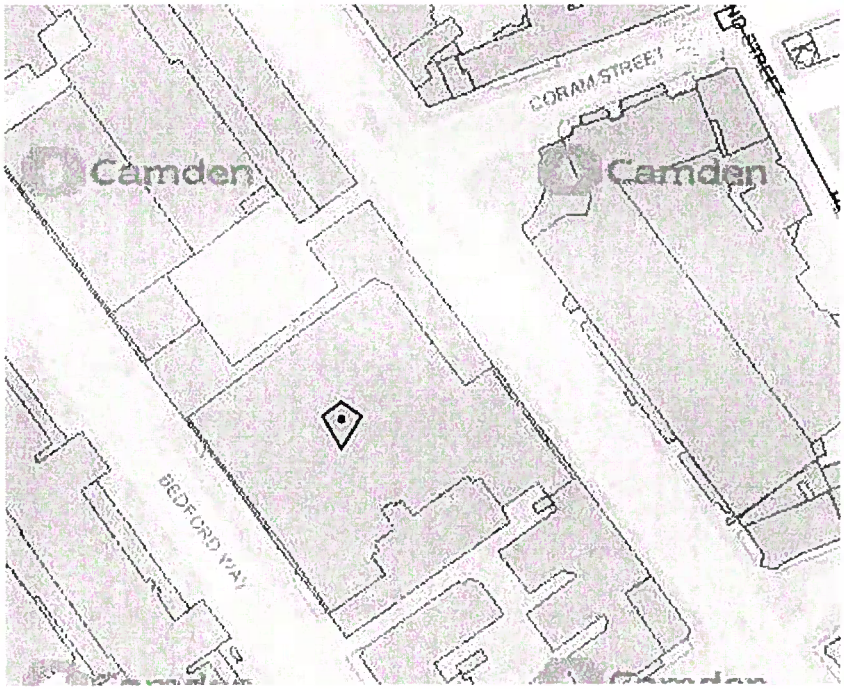
The proposed site:
The proposed site is located at Royal National Hotel, 50 Woburn Place, Bloomsbury, London WC1H 0DG. The site is designated as being in the settlement boundary, with urban uses to the north, east, south and west. The site is in the Bloomsbury CA and the land designation that this site is located in is considered to be a material consideration. Given the Article 2 (3) status a GPDO application has been submitted to the LPA. The proposal will however, have no detrimental impact on the Conservation Area. The applicant is confident that the proposal will both preserve and enhance the Conservation Area with improved coverage and connectivity. The London Borough of Camden does not have a specific telecoms policy. Therefore the NPPF is of relevance. The National Planning Policy section of this supporting statement goes into detailed analysis of why this site is in compliance with the NPPF. The current roof equipment is being upgraded with minimal visual impact, indeed the visual implications of this upgrade are negligible. The sharing of base stations between multiple operators is one of the key strategic policy principles contained within the NPPF. VF and TEF have a network sharing agreement and thus these installations are fully compliant with the NPPF. Central Government attaches great importance to the design of the built environment and outlines this within Section 7 (para. 56) of the National Planning Policy Framework. It states: *"Good design is a key aspect of sustainable development, is indivisible from good planning, and should contribute positively to making places better for people".* In keeping with the National Planning Policy Framework (NPPF). guidelines of using: *"high quality communications infrastructure*", the proposed design has been selected to minimise visual impact upon the street scene by integrating with the existing built environment. The presence of the roof top equipment sets a clear precedent for telecommunications development in this location and indicates that the principle of this proposal is acceptable in terms of siting. As stated above the National Planning Policy Framework advocates site sharing, and as such we believe that there are no sequentially preferable locations within the defined site search area. The design of the proposed equipment is considered to be the least visually intrusive option available. Although it is accepted that there will be very marginally intensification in the amount of equipment it is felt that such a minor increase would not detract from the character of the area in which the proposal sits. Any other proposal to satisfy the identified requirement would result in the addition of a separate ground based column elsewhere in close proximity to the existing structure. In our opinion, such a proposal would, in this instance, unnecessarily add to the clutter in the streetscene and result in a greater visual impact.

Site Ref	136476	Site Address:	Royal National Hotel, 50 Woburn Place, Bloomsbury, London, WC1H 0DG

Local Planning Authority: London Borough of Camden

Development Plan: Camden Local Plan (2017)

Fig.1 – CA Map Extract (reference only)



Site and its surrounds

Policy Relevant to the Development Site:

The site is designated as being in the settlement boundary, with urban uses to the north, east, south and west. The site is in the Bloomsbury CA and the land designation that this site is located in is considered to be a material consideration.

The London Borough of Camden does not have a specific telecoms policy. Therefore the NPPF is of relevance. The National Planning Policy section of this supporting statement goes into detailed analysis of why this site is in compliance with the NPPF.

Policy Analysis:

Policy D2 states:

Conservation areas are designated heritage assets and this section should be read in conjunction with the section above headed 'designated heritage assets'. In order to maintain the character of Camden's conservation areas, the Council will take account of conservation area statements, appraisals and management strategies when assessing applications within conservation areas.

The Council will:

e. require that development within conservation areas preserves or, where possible, enhances the character or appearance of the area;
f. resist the total or substantial demolition of an unlisted building that makes a positive contribution to the character or appearance of a conservation area;
g. resist development outside of a conservation area that causes harm to the character or appearance of that conservation area; and
h. preserve trees and garden spaces which contribute to the character and appearance of a conservation area or which provide a setting for Camden's architectural heritage.

The proposed works on this existing site would not be to the detriment of the surrounding area or its character (the visual change would be limited), and yet would provide the requisite coverage needed in the area as well as facilitate site sharing, so according with the principles of the policy.

It accords with the requirements of the NPPF and the objectives of the London Plan (Policy 4.11 Encouraging a Connected Economy (March 2015))

Enclose map showing the cell centre and adjoining cells if appropriate:
This can be emailed to the LPA on request.

Type of Structure:	
Description: Proposed removal of existing 6No. VF Antennas and 2No. VF dishes from Stub Tower. Proposed 1No. VF GPS Module fixed to CHS support pole. Proposed 2No. VF Antennas C/W offset brackets and CHS support poles on new climbable support pole fixed to wall. Top of proposed VF Antennas +33.9m AGL. U/S of proposed VF Antennas +32.1m AGL. U/S of proposed VF Antennas +32.0m AGL. Proposed 6No. VF ERS and 2No. VF DCDU's to be fixed to wall via 1100 ERS rail. Proposed 2No. VF Antennas C/W offset brackets and CHS support pole on new CHS climbable pole fixed to wall via existing Steel supports (behind). Proposed 2No. VF Antennas C/W offset brackets and CHS support pole on new CHS climbable pole fixed to wall. Proposed 6No. VF ERS and 2No. VF DCDU's to be fixed to wall via 1100 ERS rail.	
Overall Height: N/A	
Height of existing building:	+30.0m AGL
Equipment Housing:	
Length:	Metres
Width:	Metres
Height:	Metres
Materials:	
Tower/mast etc – type of material and	See drawings

external colour:	
Equipment housing – type of material and external colour:	See drawings

Reasons for choice of design, making reference to pre-application responses:
The sharing of base stations between multiple operators is one of the key strategic policy principles contained within the NPPF. Telefónica UK Limited has entered into an agreement with Vodafone Limited pursuant to which the two companies plan to jointly operate and manage a single network grid across the UK. These arrangements will be overseen by Cornerstone Telecommunications Infrastructure Ltd (CTIL) which is a joint venture company owned by Telefónica UK Limited and Vodafone Limited. Central Government attaches great importance to the design of the built environment and outlines this within Section 7 (para. 56) of the National Planning Policy Framework. It states: *"Good design is a key aspect of sustainable development, is indivisible from good planning, and should contribute positively to making places better for people".* As stated above the National Planning Policy Framework advocates site sharing, and as such we believe that there are no sequentially preferable locations within the defined site search area.

Technical Information

International Commission on Non-Ionizing Radiation Protection Declaration attached (see below) International Commission on Non-Ionizing Radiation Protection public compliance is determined by mathematical calculation and implemented by careful location of antennas, access restrictions and/or barriers and signage as necessary. Members of the public cannot unknowingly enter areas close to the antennas where exposure may exceed the relevant guidelines. When determining compliance the emissions from all mobile phone network operators on or near to the site are taken into account. In order to minimise interference within its own network and with other radio networks, (Vodafone Limited) operates its network in such a way the radio frequency power outputs are kept to the lowest levels commensurate with effective service provision	Yes	

As part of (Vodafone Limited)'s network, the radio base station that is the subject of this application will be configured to operate in this way. All operators of radio transmitters are under a legal obligation to operate those transmitters in accordance with the conditions of their licence. Operation of the transmitter in accordance with the conditions of the licence fulfils the legal obligations in respect of interference to other radio systems, other electrical equipment, instrumentation or air traffic systems. The conditions of the licence are mandated by Ofcom, an agency of national government, who are responsible for the regulation of the civilian radio spectrum. The remit of Ofcom also includes investigation and remedy of any reported significant interference. The telecommunications infrastructure the subject of this application accords with all relevant legislation and as such will not cause significant and irremediable interference with other electrical equipment, air traffic services or instrumentation operated in the national interest.		

3. Technical Justification

The National Planning Policy Framework clearly states that authorities should not question the need for the service, nor seek to prevent competition between operators. Notwithstanding this fact, the Applicant considers it to be important to explain the technical justification for the site and how the facility fits into the overall network.

In February 2013, Vodafone and Telefónica were successful in their bids for 4G spectrum. 4G (sometimes called LTE (Long Term Evolution)) is the next major enhancement to mobile radio communications networks and will allow customers to use ultra-fast speeds when browsing the internet, streaming videos or sending emails. It also enables faster downloads. To meet this demand and improve the quality of service, additional base stations or upgrades to the equipment at an existing base station may be needed.

The site is required to provide enhanced coverage and capacity for Vodafone. This will improve coverage and capacity in the Bloomsbury area. The cell search areas for 3G and 4G are extremely constrained with a typical cell radius of approximately 250m meaning that it would not be feasible to site the column outside of this locale.

Further detail regarding the general operation of the network can be found in the accompanying document entitled 'General Background Information on Radio Network Development for Planning Applications'. This information is provided to assist the local planning authority in understanding any technical constraints on the location of the proposed development.

The radio coverage plots can be e-mailed to the LPA on request.

RADIO PLANNING AND PROPAGATION

When planning cellular telecommunications networks it is important for engineers to predict, with a high degree of confidence, the behaviour of cellular transmissions. This then enables the operator to calculate how many cell sites are needed to provide the level of coverage required by the services they offer under the terms of their licence.

The strength of radio signals detected at a receiving device naturally reduces the further away it is from the transmitter. In general the reduction (or decay) in signal power is affected by a number of variables. The main factors are

- frequency,
- distance (from transmitter),
- terrain (such as hills),
- clutter (such as buildings, foliage, vehicles, and water)
- and atmospheric conditions (such as rain).

A reduction in the strength of the radio signal increases the likelihood of dropped calls and reduced data rates for internet browsing, for example.

Clutter

Any physical object obstructing the propagation of radio signals causes a reduction in signal strength reaching a customer's device. A common term for these objects is 'clutter'. The more obvious examples are buildings and geographical terrain such as hills and trees.

Buildings cause a varying amount of signal reduction depending on their height, construction, thickness of walls, amount of windows etc. Glass causes a lower reduction in signal than brick/concrete walls.

Customers will inadvertently be aware of this by finding that sometimes they need to go near windows, a higher floor of a building or even outside in order to achieve a stronger signal for their mobile devices.

Tree Clutter

The effects of trees on signal degradation should never be underestimated. Signal absorption and shadowing effects vary according to vegetation and density, and are caused by the main tree trunk, branches and leaves.

Cell sites located in or near trees will have signals significantly reduced. As a result a number of extra sites may need to be built locally in order to counter-effect this.

Signal variation throughout the seasons is also a practical concern. Leaves on trees in the spring

and summer can cause shadowing and reduce radio voice quality and increase the number of dropped calls.

As a result the bottom of an antenna should be a) above the top level of the trees, b) allow greater height due to the antenna downtilt at build or for future requirements and c) allow some room for future growth of the trees.

In the case where the cell site utilises point-to-point microwave backhaul transmission the microwave dish should not be obscured at all.

Propagation Models

In essence these are mathematical formulae used to characterise radio wave propagation, in order to determine the received signal strength at a receiving device.

The most well-known propagation model used for mobile telecommunications is 'Okamura-Hata'. More specific studies have been performed to investigate specific clutter and terrain such as dense-urban and urban environments. Resulting from these are propagation models for specific clutter types.

Coverage Planning Tools

Radio planning engineers plan cellular networks using highly sophisticated computer programs that incorporate the above propagation models. Armed with data on cell site location, cell site configuration, maps, terrain etc they are used to predict areas of coverage deficiency (so called 'coverage holes'), new site requirements and configurations.

Network Changes

Over time the topography and clutter in an area is subject to change. For example, building developments, housing and tree growth can all change. As a consequence the signals received from local phone masts can degrade, as they are dependent on these factors. These reasons along with customer complaints, network consolidation (mast sharing) and new technologies (4G) require a re-evaluation of a network operator's telecommunications infrastructure.

Mast sharing can result in some masts no longer being needed. As a result they are decommissioned and physically removed.

Technical surveys undertaken for reasons above may highlight that antenna height increases are required – this is more likely for sites with low antenna heights around 15m AGL, particularly street furniture sites. More details on these reasons below.

While thus far this document is generic to mobile telephony masts it should be noted that each mast has to be dealt with on a case-by-case basis.

Site Height increases

There are a number of reasons why an operator may request a certain height on a proposed structure.

The main ones are described below:

Coverage

The antennas inside, for example, street furniture sites are generally of 2 physical build designs – 'Single Stack' and 'Dual Stack'. The former describes when the set of antennas are all at the same height. The latter describes a site with 2 sets of antennas one above the other.

The 'Dual Stack' is by far the preferred option. This is due to a number of factors including greater flexibility & control for different technologies and providing optimum service performance to customers.

Network Consolidation between Vodafone and Telefonica and new 4G technologies facilitate a Single Stack structure being upgraded to a Dual Stack structure. In a straight swap scenario at equal height the new lower aperture antennas would be lower than they were originally - resulting in significantly reduced coverage.

Clutter changes

A more extreme example is when the local clutter or tree lines have changed, or are such that the mobile signals are blocked, resulting in lower quality calls and downloads for mobile device users. To provide sufficient services to customers height increases on existing masts or additional new masts are required. The former is the preferred option however, in many cases new masts are often required due to clutter issues.

ICNIRP Compliance

The addition of new technologies and mast sharing affects ICNIRP compliance – a higher minimum mast height is required in some cases.

4. Site Selection Process

If no alternative site options have been investigated, please explain why: This site is an upgrade.
Environmental Information (refer to Section 2 of Site Finder Report): This site is an upgrade.
Land use planning designations (if Heritage Statement is required then include here or make reference to attached Heritage Statement): The proposed site is located at Royal National Hotel, 50 Woburn Place, Bloomsbury, London WC1H 0DG. The site is designated as being in the settlement boundary, with urban uses to the north, east, south and west. The site is in the Bloomsbury CA and the land designation that this site is located in is considered to be a material consideration. Given the Article 2 (3) status a GPDO application has been submitted to the LPA. The proposal will however, have no detrimental impact on the Conservation Area. The applicant is confident that the proposal will both preserve and enhance the Conservation Area with improved coverage and connectivity.

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

This specific proposal forms part of an integral requirement for 02 and Vodafone to expand their respective telecommunications network across Bloomsbury specifically in this instance to enhance coverage levels and network capacity within the WC1H area.

Telefónica O2 UK Limited has entered into a network sharing agreement with Vodafone Limited pursuant to which the two companies plan to share network equipment on a number of sites across the UK. A joint project team has been created, called CTIL comprising Vodafone and O2 employees, to oversee these arrangements. This agreement allows both organisations to consolidate the number of base stations required through sharing which is in accordance with Government Policy, and therefore significantly reduce the environmental impact of network development

This partnership has resulted in the development and production of an array of "dual user" structures and cabinets, which have the ability to accommodate both operator's antenna systems and radio equipment.

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

A further limiting factor is that the position has to be one that fits in with the existing network. Sites have to form a patchwork of coverage cells with each cell overlapping to a limited degree with the surrounding base stations to provide continuous network cover as users move from one cell to the other. However if this overlap is too great unacceptable interference is created between the two cells.

DEVELOPMENT PLAN POLICY.

Development plan considerations have a special significance in law. Section 54A of the Town and Country Planning Act 1990 (The Act), and re-iterated in Section 38 of the Planning and Compensation Act 2004, it is stated that:

"Where in making any determination under the Planning Acts regard is to be had to the Development Plan, determination shall be made in accordance with the Development Plan unless material considerations indicate otherwise."

NATIONAL PLANNING POLICY

PPG8 and PPS1 have been replaced by the National Planning Policy Framework (NPPF) (March 2012). This document condenses the advice outlined previously although the broad principles of promoting the expansion of electronic communication networks remain the same:

The Government remain committed to promoting telecommunications and place emphasis on the importance of telecommunications to the wider economy. The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these

are expected to be applied at the Local level. It provides a framework within which local people and their accountable Councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.

The purpose of the planning system is to contribute to the achievement of sustainable development. There are three dimensions of sustainable development, each of which give rise to the need for the planning systems to perform a number of roles including;

- Economic Role – contributing to building strong, responsive and competitive economy;
- Social Role – Supporting strong vibrant and healthy communities; and
- Environmental Role – Contributing to protecting and enhancing our natural, built and historic environment.

The NPPF contains at its core a presumption in favour of sustainable development which runs through both plan-making and decision-making processes.

Paragraph 19 states that:

"The Government is committed to ensuring that the planning system does everything it can to support sustainable economic growth. Planning should operate to encourage and not act as an impediment to sustainable growth. Therefore significant weight should be placed on the need to support economic growth through the planning system".

It continues in Paragraph 20 to confirm Central Government advice that:

"To help achieve economic growth, local planning authorities should plan proactively to meet the development needs of business and support an economy fit for the 21st century". The following paragraph states "Planning policies should recognise and seek to address potential barriers to investment, including a poor environment or any lack of infrastructure"

Section 4 of the NPPF (Paragraph 29) encourages the "smarter use of technologies" to reduce the need to travel and promote sustainable transport methods in accordance with the central sustainable development thread which travels through the Framework.

The most pertinent section of the NPPF to the proposed development is that contained within Section 5: Supporting High Quality Communications Infrastructure.

There is recognition from Central Government in Paragraph 42 that:

"Advanced, high quality communications infrastructure is essential for sustainable economic growth" which will in turn play a vital role in developing provisions within the local community of both facilities and services.

Paragraph 43 identifies the need to:

"keep the number of radio and telecommunications masts and the sites for such installations to a minimum consistent with the efficient operation of the network".

In doing so, Central Government encourages the use of existing masts, buildings and other structures unless the need for a new site can be justified. Where such new sites are required, it is suggested that, where appropriate, equipment should be sympathetically designed and

camouflaged.

Paragraph 45 defines the evidence that should be supplied to justify the proposed development. This should include:

- "The outcome of consultations with organisations with an interest in the proposed development, in particular with the relevant body where a mast is to be installed near a school or college or within a statutory safeguarding zone surrounding an aerodrome or technical site; and
- for an addition to an existing mast or base station, a statement that self-certifies that the cumulative exposure, when operational, will not exceed International Commission on non-ionising radiation protection guidelines; or
- for a new mast or base station, evidence that the applicant has explored the possibility of erecting antennas on an existing building, mast or other structure and a statement that self-certifies that, when operational, International Commission guidelines will be met."

Confirmation that Local planning authorities must determine applications on planning grounds is also contained in Paragraph 46. In determining applications, it is the contention of Central Government that LPAs should not seek to prevent competition between different operators, question the need for the telecommunications system, or determine health safeguards if the proposal meets International Commission (ICNIRP) guidelines for public exposure.

Central Government attaches great importance to the design of the built environment and outlines this within Section 7 (para. 56). It states:

"Good design is a key aspect of sustainable development, is indivisible from good planning, and should contribute positively to making places better for people".

In respect to good design, decision making should aim to ensure that any proposal deemed appropriate would "function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development" and "respond to local character and history, and reflect the identity of local surroundings and materials, while not preventing or discouraging appropriate innovation".

In determining planning applications "great weight should be given to outstanding or innovative designs which help raise the standard of design more generally in the area". Paragraph 63.

It is the intention of the NPPF that:

"Local planning authorities should not refuse planning permission for buildings or infrastructure which promote high levels of sustainability because of concerns about incompatibility with an existing townscape, if those concerns have been mitigated by good design (unless the concern relates to a designated heritage asset and the impact would cause material harm to the asset or its setting which is not outweighed by the proposal's economic, social and environmental benefits)". Paragraph 65.

Paragraph 66 clarifies that:

"Applicants will be expected to work closely with those directly affected by their proposals to evolve designs that take account of the views of the community. Proposals that can

demonstrate this in developing the design of the new development should be looked on more favourably".

LOCAL PLAN POLICY

The relevant Local Plan policies London Borough of Camden Council – adopted Local Plan first review alteration) are highlighted below. The telecoms policies that are not relevant to this application have been removed.

Conclusion

We consider the development complies with both central government and local planning policy guidance where the underlying aim is to provide an efficient and competitive telecommunication system for the benefit of the community while minimising visual impact.

Taking into account the factors of technical constraints, available sites and planning constraints we consider that this site and design clearly represents the optimum environmental solution.

On the basis of a recognised need to expand and promote telecommunications networks across the region, it is considered that the proposal fully accords with the requirements of the National Planning Policy Framework and the Council's Local Plan Policies.

Confirmation that submitted drawings have been checked for accuracy

Name: (Agent)	Principal Planner Damian Hosker BA(Hons) MA MRTPI	Telephone:	01132583565 07771527070
Operator:	CTIL – Vodafone		
Address:	WHP Ponderosa Scotland Lane Horsforth Leeds LS18 5SF	Email Address:	d.hosker@whptelecoms.com
Signed:		Date:	28/11/2018
Position:	Principal Planner	Company: (on behalf of CTIL and above operator)	

General Background Information for Telecommunications Development

This document is designed to provide general background information on the development of the Vodafone networks. It has been prepared for inclusion with planning applications and supports network development proposals with generic information.

1.0 INTRODUCTION

Over 25 years ago under the Telecommunications Act 1984, a licence was granted to Vodafone to provide wireless (or mobile) phone services utilising unused radio frequencies adjacent to those transmitted for over 50 years by the television industry. Initially, because this wireless technology was new and the number of potential customers unknown, a number of tall masts were used to provide basic radio coverage to the main populated areas. The design strategy used was similar to that used by local radio/television i.e. tall masts to cover large distances over all types of topography.

It is important to note that in recent years form has followed function and digital technology has resulted in the development of smaller equipment. In addition, smaller radio coverage areas have resulted in antenna/mast heights being generally reduced. The industry has also been able to develop low impact designs for use in sensitive planning areas such as in Conservation Areas, on Listed Buildings, and in National Parks etc. The wireless telegraph pole solution is just one example of a design which has minimised impact on visual amenity of the local neighbourhood.

2.0 DIGITAL NETWORKS

The Vodafone 2G digital networks were developed in the early 1990s. This digital technology is often referred to as GSM (Global System for Mobile Communications) which is the common European operating standard enabling phones to inter-connect to other networks throughout Europe and Internationally.

In April 2000, Vodafone were successful in their bids for two of the five licences available to provide a 'Third Generation' mobile telecommunications service known as 3G or UMTS.

In addition to voice services, this technology enables Vodafone to offer high resolution video and multi-media applications. Among other things this enables office services, virtual banking, e-retailing, video conferencing and high quality broadband internet access to be provided to users on the move. This is all made possible by higher rates of data transfer allowing wireless broadband access to the Internet for mobile phones and laptop computer data card users.

The 3G radio base station is designed to provide a service via cells in a similar way as the GSM (2G) system but with a few differences. Due to the increased data transfer, the location of base station sites is even more critical. Base stations must be located where the local demand exists in order to provide the required levels of service, otherwise the network will not function.

In February 2013, Vodafone were successful in their bids for 4G spectrum. 4G (sometimes called LTE (Long Term Evolution)) is the next major enhancement to mobile radio communications networks and will allow customers to use ultra-fast speeds when browsing the internet, streaming videos or sending emails. It also enables faster downloads. To meet this demand and improve the quality of service, additional base stations or upgrades to the equipment at an existing base station may be needed.

Vodafone will ensure they comply with planning policy guidance by ensuring apparatus is installed on existing buildings and structures, including masts wherever possible. However, in spite of these efforts, there are likely to be instances where there is a need to install additional base stations to provide contiguous service. This is largely due to the characteristics of radio propagation at these frequencies, demands on the service and the high data transfer rates.

It is very important to note that mobiles can only work with a network of base stations in place where people want to use their phones (or other wireless devices). Without base stations, the mobile phones we rely on simply won't work.

2.1 How the cellular radio network works

The building blocks of the mobile telecommunications network are called radio base stations which transmit and receive calls to and from mobile phones using radio waves, similar to those used in domestic television and radio equipment. Radio base stations are often associated with free-standing masts, however they can be located on, or even inside, existing buildings and other structures. Vodafone use "radio frequencies" to transmit and receive calls at 900 MHz or 1800 MHz for 2G whilst 3G uses slightly higher frequencies within the 2100 MHz range. 4G will use frequencies within the 800 MHz and 2600 MHz ranges.

2.2 How radio signals are transmitted

The radio signals are transmitted from antennas which are part of the radio base station and cover an area known as a "cell", hence the term "cellular phone". The size of the cell is dependent on a number of factors including: the height at which the radio base station is positioned; the topography of the surrounding landscape; anticipated demand; and the population density in the area.

Radio signal transmission from a radio base station can be likened to water being distributed from a garden sprinkler. The area immediately adjacent to the sprinkler remains almost "dry". However the grass gets progressively wetter moving further away from

the sprinkler, until a wettest point is reached. Then the further away from the centre, the ground becomes progressively drier. Radio base stations provide network services in a similar manner. The area immediately beneath the antennas receives limited or, occasionally, no signal. Moving further away, the signal steadily improves until it reaches an optimum level and then gets progressively weaker.

In order to use mobile phones whenever and wherever we are, a network of radio base stations is required to maintain a continuous signal or 'network service' across a geographical area. The network is designed so that the cells from each radio base station slightly overlap. Travelling even a short distance may take us through a number of cell areas. Mobile phones are designed to monitor the strength of signal from surrounding radio base stations and automatically select the clearest signal, which often comes from the nearest site. As you approach the edge of the cell area, the phone will automatically select the adjoining radio base station, to provide a continuous service. This process is known as 'call handover'.

2.3 Factors affecting network services

The siting of a radio base station is largely dependent on the characteristics of the radio signals which they transmit. Physical features such as buildings or landscape can obstruct the signals. In open rural areas one base station can typically cover several kilometres in radius. However in urban areas where surrounding buildings will obstruct the signal, this range can be reduced to as little as a few hundred metres.

2.4 Network Capacity

Radio base station sites can only receive and transmit a limited number of simultaneous calls to and from mobile phones. In areas where the use of phones is particularly high, such as major towns or cities, many sites will reach the maximum number of calls they can process. When a customer attempts to make a call in an area where the network has reached its full capacity, the 'network busy' message is displayed on their mobile phone. In order to continue to meet customer demand and improve the quality of services in these areas, there is a need to increase the capacity of the network to allow more calls to be made.

2.5 Technical Requirements

Vodafone radio engineers identify the need for a new radio base station where the existing signal strength is insufficient to support network requirements, or where demand on the system is such that we need to increase capacity. The location of each radio base station is determined by the following factors:-

- The proximity of adjacent radio base stations and the signal coverage from them.
- The terrain height of the area and surrounding topography.
- The height and density of the buildings and structures within the area.
- The potential customer demand within the area.
- The service type that is required.

3.0 SITE SELECTION PROCESS

The following site selection procedures apply to each new installation to identify and sequentially discount alternative site options:-

1. Following a technical review which identifies need, Vodafone radio engineers undertake a desktop analysis to identify the best way of meeting the site requirement. This is completed by using computerised radio propagation modelling tools. These tools show every site on the existing networks and identifies those areas where insufficient signal level exists or where there is a need to increase capacity.

2. The desktop search also identifies other operators' existing telecommunications installations. This interrogation of databases ensures any mast-sharing opportunities are maximised. Where available the LPA's mast register is also reviewed.

3. The radio engineers define a search area, which is then issued to an acquisition agent who undertakes a detailed ground search with the radio engineer to identify suitable options.

4. The acquisition agent will obtain site-specific details to identify those sites that are viable options. The possible options are short-listed according to those that combine the following: location within or close to the search area, a willing landlord with acceptable commercial terms, adherence to planning and environmental policy, and other site specific issues such as initial power and link availability. These options are then returned to the radio engineers for a computer modelling assessment, taking into account the ground height, potential available antenna height and surrounding obstructions.

5. Discussions are offered to the local planning authority to consider local policies and any protected areas and to agree additional public consultation if required. These discussions are used to identify a 'preferred' option.

6. A plan for local consultation is drawn up, and where appropriate, a consultation exercise is undertaken with the local community.

7. Finally a site survey provides a full structural analysis of the site including confirming power routes and how the site will be linked into the network. Terms with the landlord are then finalised, detailed plans prepared and the application submitted.

Vodafone are committed to ensuring the number and visual impact of any additional sites is minimised.

4.0 PLANNING POLICY GUIDANCE ON TELECOMMUNICATIONS

The National Planning Policy Framework (NPPF) was published on 27th March 2012. The NPPF supports high quality communications infrastructure and recognises it as a strategic priority. At para. 42 it states that: "Advanced, high quality communications infrastructure is essential for sustainable economic growth. The development of high speed broadband technology and other communications networks also plays a vital role in enhancing the provision of local community facilities and services."

The NPPF goes on to state at Para. 46 that: "Local planning authorities must determine applications on planning grounds. They should not seek to prevent competition between different operators, question the need for the telecommunications system, or determine health safeguards if the proposal meets International Commission guidelines for public exposure."

5.0 SITE / MAST SHARING

Vodafone actively encourage and support site sharing for both commercial and environmental reasons. All operators are required to explore site-sharing opportunities under the terms of their licences. Vodafone have implemented a number of measures to identify and maximise site-sharing opportunities.

6.0 COUNCILS

6.1 Moratoria

Local authorities should make suitable council owned property available to network operators for base station development. If suitable council sites are not made available, operators may have to look for alternative sites which the local community might find less acceptable.

Moratoria may also increase the number of new sites needed as council owned buildings are often better suited for base stations e.g. tall buildings. The operators believe it is preferable to deal with proposed developments on council property on a case by case basis.

6.2 Mast register

Guidance in the Code of Best Practice on Network Development recommends that local authorities develop a register of local base stations.

Local Planning Authorities should ensure that any mast register is kept up to date

7.0 CONSULTATION WITH SCHOOLS

The operators fully comply with Government Guidance on pre application consultation with schools and colleges. They provide evidence to the local planning authority that they have consulted the relevant body of the school or college.

The Code of Best Practice on Mobile Network Development gives guidance on the factors operators should consider when determining whether consultation is required, as each development is different. These factors are equally applicable for Local Planning Authorities who carry out their own consultation once the application has been submitted.

A recent report stated that there is no scientific basis for siting base stations away from schools (NRPB report, January 2005)

8.0 LEGAL CASES

The following legal cases may be helpful;-

8.1 Harrogate case November 2004

The Court of Appeal gave a judgment that Government Planning Guidance in PPG8 (now replaced by the NPPF) is perfectly clear in relation to compliance with the health and safety standards for mobile phone base stations. The Court of Appeal and the High Court both upheld Government policy in response to a planning inspector's decision that departed from that policy and failed to give adequate reasons for doing so.

8.2 Winchester case November 2004

The Court of Appeal decision upheld an earlier decision by Mr Justice Sullivan that a mobile phone network operator should not use its compulsory acquisition powers as part of its day to day radio base station siting processes.

The Court of Appeal agreed with Mr Justice Sullivan that these far-reaching statutory powers were never intended for use in day to day planning situations and should be used by an operator only as a last resort when there is no other siting alternative.The House of Lords on 16 March 2005 refused leave to appeal the Court of Appeal ruling.

8.3 Bardsey case January 2005

The Court of Appeal confirmed that the permitted development regime for mobile phone base stations is compliant with the Human Rights Act.

This was a case in which a local planning authority failed to comply with its obligations to act within the 56 day period provided under the permitted development regulations.

9.0 FURTHER INFORMATION

We trust the above answers your main queries regarding our planned installation.

The enclosed site-specific details will identify any alternative discounted options and reasons why they were rejected and how the proposed site complies with national and local planning policies.

The Local Government Ombudsman's Special Report on Telecommunication Masts gives some positive recommendations and advice to Local Planning Authorities in determining Prior Approval applications. A copy of the report is available at http://www.lgo.org.uk/pdf/phone-masts-sr.pdf