Development Control
Gloucester City Council
PO Box 3252, Gloucester, GL1 9FW
01452 396396
development.control@gloucester.gov.uk
www.gloucester.gov.uk/planning

Application to determine if prior approval is required for a proposed: Development by or on behalf of an electronic communications code operator for the purpose of the operator's Electronic Communications Network in, on, over or under land controlled by that operator or in accordance with the electronic communications code

The Town and Country Planning (General Permitted Development) (England) Order 2015 (as amended) - Schedule 2, Part 16, Class A

Publication of applications on planning authority websites

Please note that the information provided on this application form and in supporting documents may be published on the Authority's website. If you require any further clarification, please contact the Authority's planning department.

Site Location

Disclaimer: We can only make recommendations based on the answers given in the questions.

If you cannot provide a postcode, the description of site location must be completed. Please provide the most accurate site description you can, to help locate the site - for example "field to the North of the Post Office".

Number

Suffix

Property Name

Address Line 1

Land off Greenhill Drive

Address Line 2

Tuffley

Address Line 3

Town/city

Gloucester

Postcode

GL2 5PA

Description of site location must be completed if postcode is not known:

Easting (x)

381380

Northing (y)

215040

Description

Proposed upgrade to existing telecommunications equipment and associated ancillary development

Applicant Details

Name/Company

Title

First name

Surname

Cellnex UK Ltd

Company Name

Cellnex UK Ltd

Address

Address line 1

Crawley Court

Address line 2

Address line 3

Town/City

Winchester

Country

Postcode

SO21 2QA

Are you an agent acting on behalf of the applicant?

- [x] Yes
- [ ] No

Contact Details

Primary number

***** REDACTED ******

Secondary number

Fax number

Email address

***** REDACTED ******

Agent Details

Name/Company

Title

First name

Sam

Surname

Wismayer

Company Name

WHP Telecoms Limited

Address

Address line 1

1a Station Court

Address line 2

Station Road

Address line 3

Guiseley

Town/City

Leeds

Country

UK

Postcode

LS20 8EY

Contact Details

Primary number

***** REDACTED ******

Secondary number

Email address

***** REDACTED ******

Electronic communications apparatus

Please specify the type of apparatus to be installed or altered (e.g. call box, mast)

Proposed upgrade to existing telecommunications equipment and associated ancillary development

Please provide further details of the apparatus (e.g. height, size, colour etc)

Please refer to drawings

Are you replacing an existing installation?

◯ Yes
⊘ No

Additional information

Are you submitting a declaration confirming that the apparatus is in full compliance with the requirements of the radio frequency (RF) public exposure guidelines of the International Commission on Non-Ionizing Radiation Protection (ICNIRP)? The emissions from all mobile phone network operators' equipment on the site must be taken into account when determining compliance.

⊘ Yes
◯ No

Are you also providing a completed Supplementary Information Template (as set out in Appendix D of the Code of Best Practice on Mobile Phone Network Development in England)?

⊘ Yes
◯ No

Neighbour and Community Consultation

Have you consulted your neighbours or the local community about the proposal?

⊘ Yes
◯ No

If Yes, please provide details

Please refer to Planning Statement

Site Visit

Can the site be seen from a public road, public footpath, bridleway or other public land?

- [x] Yes
- [ ] No

If the planning authority needs to make an appointment to carry out a site visit, whom should they contact?

- [x] The agent
- [ ] The applicant
- [ ] Other person

Pre-application Advice

Has assistance or prior advice been sought from the local authority about this application?

- [ ] Yes
- [x] No

Declaration

I / We hereby apply for Prior Approval: Development for electronic communications network as described in this form and accompanying plans/drawings and additional information. I / We confirm that, to the best of my/our knowledge, any facts stated are true and accurate and any opinions given are the genuine options of the persons giving them. I / We also accept that: Once submitted, this information will be transmitted to the Local Planning Authority and, once validated by them, be made available as part of a public register and on the authority's website; our system will automatically generate and send you emails in regard to the submission of this application.

- [x] I / We agree to the outlined declaration

Signed

Julia Marshall

Date

12/04/2022

NOTES

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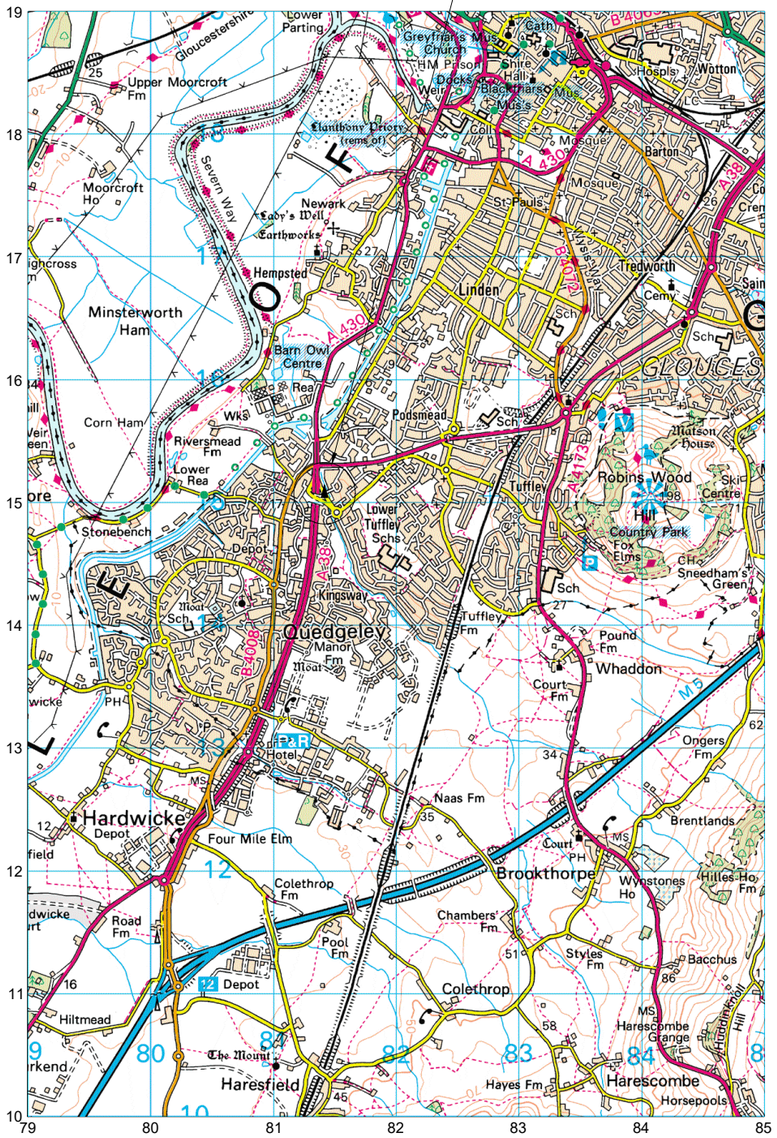
O.S. LANDRANGER MAP No. 162

THE SITE



LOCATION PLAN
SCALE 1:50,000

THE SITE

SITE ACCESS

LOCATION PLAN
SCALE 1:1250

	PROJ No				
	PROJ No				
	PROJ No				
2	PROJ No 244415 LOCATION PLAN	17/03/22	TCS	TCS	
1	PROJ No N/A LEGAL PLAN	27/11/19	HF	HF	
ISS	REVISION	DATE	DRN	APP	

cellnex
driving telecom connectivity

CELLNEX UK
R+, 4TH FLOOR, 2 BLAGRAVE STREET, READING, RG1 1AZ [redacted]

SITE No 161051
QUEDGELEY 2
LAND OFF GREENHILL DRIVE
TUFFLEY
GLOUCESTER
GLOUCESTERSHIRE
GL2 5PA

NGR SO 81380 15040

OS GRID 381380 215040

TITLE
LOCATION PLAN

SCALE SEE DRAWING

DRAWN	HF	26/11/19
APPROVED	TCS	17/03/22

DRG No. 161051-00-004-ML002
Sheet 1 of 1
Rev 2

A3

WHP Telecoms Ltd, 1a Station Court, Station Road, Guiseley, Leeds LS20 8EY

Our ref: 244415

Date: 13th April 2022

The Director of Planning
Development Control
Gloucester City Council
PO Box 3252
Gloucester
Gloucestershire
GL1 9FW

Dear Sir/Madam,

Cellnex UK and EE Ltd and Hutchison 3G UK Ltd

Submission of an Application for a Prior Approval Determination

Proposed Alterations to Existing Base Station installation at Land off Greenhill Drive, Tuffley, Gloucester, Gloucestershire, GL2 5PA

On behalf EE Ltd and Hutchison 3G UK Ltd, in conjunction with Mobile Broadband Network Limited (MBNL), we submit herewith an application for a prior approval determination for the installation of a 5G mobile base station at the above site. This application follows the completion of our pre-application engagement exercise, reflecting so far as is practicable the guidance and comments offered.

The application is submitted in accordance with the requirements of Part 16 of Schedule 2 to the Town and Country Planning (General Permitted Development) (England) Order 2015, as amended, and seeks a determination as to whether the Authority's approval will be required for the siting and appearance of the development.

The application comprises:

i. The written description of the development: Proposed upgrade to the existing Telecommunications Installation as captured on the enclosed drawings.

ii. An O.S. site plan scale (1:1250) drawing reference number 244415 (161051-00-004_ML002 Rev2) showing the location where the apparatus will be installed.

iii. Electronic payment of £462.00 in respect of the application fee.

iv. The Developer's Notice served on the landowner.

v. The Developer's contact details.

The following information is also provided to assist with your determination of the application:

vi. Drawing reference numbers: 244415 (161051-06-000_MD008 Rev8; 161051-06-002_MD008 Rev8; 161051-06-103_MD008 Rev8, 161051-06-153_MD008 Rev8, 161051-06-157_MD008 Rev8) providing further details of the siting, layout and design of the development.

vii. A certificate of ICNIRP compliance

viii. 5G Health and Safety document

ix. National Policy – Delivering Ultra Fast Broadband Mobile Connectivity

x. 5G Technical Support document

xi. 5G – Helping tackle climate change document

Developer's Contact Details

All correspondence and queries relating the determination of this application should be submitted to the undersigned.

However, in accordance with the requirements of The Town and Country Planning (General Permitted Development) (England) Order 2015, as amended, any correspondence to the developers should be sent to:

For Cellnex:

Email: [redacted]

For EE and Hutchison 3G UK Ltd:

MBNL, Sixth Floor, Thames Tower, Station Road, Reading, RG1 1LX

MBNL: [redacted]

EE: [redacted]

Three: [redacted]

The Scope of the Prior Approval Determination

The permitted development rights granted by Part 16 of Schedule 2 to the Town and Country Planning (General Permitted Development) (England) Order 2015, as amended (the GPDO), exist to facilitate the establishment of modern communications apparatus and infrastructure such as 5G, judged by successive governments to be important to a modern economy and in attaining sustainability objectives.

The permitted development granted subject to the prior approval procedure is similar to the grant of outline planning permission, with details of precise siting and appearance being reserved. This is explained at paragraph 8.4 of the Code of Best Practice on Mobile Network Development in England, November 2016. The National Planning Policy Framework is also accordingly clear that permitted development rights should not generally be withdrawn.

As a consequence, the scope of determination does not extend to whether the site selected is needed, as the development is acceptable in principle due to the rights conveyed by the GPDO. Likewise, whilst information on alternative sites may be supplied by way of background and context, the extent of control on siting is limited to the precise siting on a site and not the general location.

As the principle of development at the application site is permitted by the GPDO, this support letter focuses on the statutory criteria of detailed siting and appearance. In so doing, this is considered against current town and country planning guidance, including the development plan which are material considerations, and with reference to the operational requirements of the operator and the attempts to accommodate the particular requirement.

The Proposed Development

The operators already provide coverage from the existing base station at this site but have a requirement to install the 5G electronic communications apparatus referred to in this letter and shown in the submitted drawings in order to provide improvements to its network.

The deployment of 5G will utilise the Mobile Network Operators (MNOs) existing 3G and 4G networks such as the base station already existing at the application site. As such, the application site is likely to carry different mobile connectivity services in parallel, with high data uses operating through the new 5G higher capacity network apparatus subject of this application. As a consequence, this particular technical requirement is not one that can be met on an alternative site.

There is significant UK Government support for the delivery of 5G, particularly as this new connectivity will be a step change from earlier generations of mobile connectivity and will be critical to economic growth and sustainable communities. We explain this in more detail in the document ***'National Policy – Delivering Ultra Fast Mobile Connectivity'*** which supports this application. In addition, modern connectivity, such as 5G, will be essential to help the Government meet its wider sustainability and climate change targets and we explain this in more detail in our accompanying document '***5G – Helping tackle climate change'***.

The amount of development, its design and the location of the apparatus at this existing electronic communications site has been guided by the technical and operational requirements of the operators 5G systems having proper regard to minimise appearance.

Unlike earlier generations of mobile connectivity, 5G has more significant technical and operational requirements and this has implications on the amount, height, position and design of the new base station apparatus. To help explain this important detail, we have set this out in more detail in our accompanying ***'5G Technical Support'*** document 'which should be carefully considered.

Having regard to the nature and appearance of the structure as a whole, the proposed works should have no adverse impact, or no more than a minimal adverse impact, on its appearance. The 5G electronic communications apparatus proposed should not materially affect the overall appearance of the existing site to any noticeable or adverse degree from any public vantage points.

The apparatus proposed will not bring about any additional requirements with regard to access. Access to this operational site will, therefore, remain the same as the current arrangements.

In accordance with all relevant health and safety regulations and guidelines, access to the site is restricted to authorised personnel and access for maintaining or servicing all the apparatus can only be carried out by properly trained and qualified staff. Such routine operations will continue to be carried out roughly once a quarter, with no requirement to increase this arising out of the development proposed. The application does not therefore give rise to any public issues associated with access.

As the apparatus proposed will lead to significant improvements to a public service provided in the local area, the application merits support and accords in all respects with national policy as set out in our supporting document ***'National Policy – Delivering Ultra Fast Mobile Connectivity'***, especially the National Planning Policy Framework. The proposal looks to meet all relevant policy***.***

This letter and the enclosures also provide due notification, as may be required, under the relevant conditions of the Electronic Communications Code (Conditions and Restrictions) Regulations 2003, as amended. In particular, you are given notice of the intention to install the electronic communications apparatus described in more detail in the application documentation (including the scale drawings) and to be located as shown on the application plans. No fee is required for this separate statutory notification.

Health and Safety

In support of the application, we include a separate document called '***5G Health and Safety'*** which sets out in more detail the associated health and safety considerations. Every installation on a site owned or managed by Cellnex will be compliant with international standards adopted by the UK Government. A certificate confirming compliance with the relevant ICNIRP guidelines on public exposure has been supplied with this application.

The ICNIRP guidelines seek to protect against the well-known thermal effects of radio emissions and include a significant precautionary factor. These guidelines apply to all forms of electronic communications and mobile technology is one of the lowest powered of these.

National planning policy remains clear, provided an application is certified as ICNIRP compliant, local planning authorities should not seek to effectively set different guidelines through the refusal of planning permission.

We would be willing to meet with you or assist with any visits to the site and the surrounding area, if this is beneficial to the determination of the application.

Finally, your attention is drawn to the statutory 56 days period for the determination of this application of this nature upon which detailed advice is given at paragraph 8.2 onwards of the Code of Best Practice on Mobile Network Development in England.

We trust everything is in order, but if you do require any further information or clarification, please do not hesitate to contact me.

Yours faithfully

[redacted]

Sam Wismayer BSc (Hons)

[redacted]

On behalf of Cellnex UK Limited

WHP Telecoms Ltd, 1a Station Court, Station Road, Guiseley, Leeds LS20 8EY

Our ref: 244415

Date: 11th April 2022

FAO: The Estates Department
Gloucester City Council
Herbert Warehouse
The Docks
Gloucester
GL1 2EQ

Dear Sir/Madam,

Cellnex UK and EE Ltd and Hutchison 3G UK Ltd

Installation of 5G Electronic Communications Apparatus at Land off Greenhill Drive, Tuffley, Gloucester, Gloucestershire, GL2 5PA

Please find enclosed a Notice informing you that Cellnex UK Ltd on behalf of EE Ltd and Hutchison 3G UK Ltd, in conjunction with Mobile Broadband Network Limited (MBNL), will be submitting an application to Gloucester City Council for a prior approval determination for the installation of electronic communications apparatus at this site.

This Notice is provided in accordance with Paragraph A.3(1) of Part 16 of Schedule 2 to the Town and Country Planning (General Permitted Development) (England) Order 2015, as amended, which requires landowners to be informed of the submission of the application.

You will see from the Notice that you may make representations about the application direct to the Local Planning Authority should you wish to do so.

Yours faithfully,

[redacted]

Sam Wismayer
[redacted]

Developer's Notice

Proposed development at: Land off Greenhill Drive
Tuffley
Gloucester
Gloucestershire
GL2 5PA

National Grid Reference: Easting 381380 Northing 215040

I hereby give notice, in accordance with paragraph A.3(1) of Part 16 of Schedule 2 to the Town and Country Planning (General Permitted Development) (England) Order 2015, as amended, that Cellnex UK Ltd on behalf of EE Ltd and Hutchison 3G UK Ltd, in conjunction with Mobile Broadband Network Limited (MBNL), will be applying to Gloucester City Council for a determination as to whether the prior approval of the authority will be required for the siting and appearance of the following permitted development:

Proposed upgrade to existing telecommunications equipment and associated ancillary development.

The application will be made to:

The Planning Department
Development Control
Gloucester City Council
PO Box 3252
Gloucester
Gloucestershire
GL1 9FW

The local planning authority has 56 days from the date it receives the application to consider whether prior approval will be required for the siting and appearance of the development proposed and, if so, to grant or refuse such approval and to communicate its decision to the applicant. The application will be made available for public inspection at the offices of the local planning authority during usual office hours.

Any person who wishes to make representations about the siting and appearance of the proposed development may do so in writing to the local planning authority at the above address. A period of at least 14 days, from the date of this notice, will be allowed for any such representations to be received by the Local Planning Authority.

Name: Sam Wismayer

Signed: [redacted]

On Behalf of: Cellnex UK Limited

Date: 11th April 2022

Town Planning Statement

5G Electronic Communications Base Station

At the Existing Cellnex Site

Land off Greenhill Drive
Tuffley
Gloucester
Gloucestershire
GL2 5PA

Site Reference 244415

CELLNEX AND MBNL

13th April 2022

1. INTRODUCTION

This statement is submitted in support of an application for prior approval for a 5G mobile base station for the mobile network operators (MNOs) EE Ltd and Hutchison 3G UK Ltd, in conjunction with Mobile Broadband Network Limited (MBNL). The application site is operated by Cellnex, a radio site infrastructure provider.

1.1 The application includes:

- A description of the site and surrounding area
- A description of the proposal
- A statement of community engagement
- A review of planning policy considerations
- A review of design and access considerations

1.3 A number of other accompanying documents have been submitted in support of the application and these are referred to and should be read in conjunction with this statement.

2. THE SITE AND SURROUNDING AREA

2.1 The proposal relates to the upgrading of an existing 18m greenfield monopole with an open antenna headframe above and associated ancillary equipment housed within a 3.6m chain link fenced compound at land off Greenhill Drive, Tuffley, Gloucester, Gloucestershire, GL2 5PA. The upgrade will involve the removal of the existing monopole to be replaced by a 25m monopole with an open antenna headframe to a top height of 25m.

2.2 The site is situated within a field adjacent to a block of woodland and to the east of the A38 dual carriageway and to the north of Greenhill Drive. The site has been selected in a position capable of providing the required essential new 5G and improved 2G / 3G / 4G coverage whilst being as far away as technically possible from the views of residential properties. The site benefits from the screening effects associated with a backdrop of mature tree planting and these masking effects will be further enhanced by tree planting on the western side of the A38 and defining local field and road boundaries. It is important to note that in addition to being the sequentially preferable solution, the upgrading of an existing site will fit in within the existing network configuration thereby eliminating the need to introduce additional base stations within the cell search area.

2.3 The proposed upgraded replacement equipment will represent a relatively small change when viewed in the context of the existing facility and will be a significantly less visually intrusive solution than introducing an entirely new and separate ground-based installation within the locale.

3. THE PROPOSAL

3.1 The development proposed is shown in detail in the drawings submitted and is for a new 5G electronic communications base station. The deployment of 5G will utilise the MNOs existing 3G and 4G networks such as the base station already existing at the application site. As such, the application site is likely to carry different mobile connectivity services in parallel, with high data uses operating through the new 5G higher capacity network apparatus subject of this application.

3.2 Unlike earlier generations of mobile connectivity, 5G has more significant technical and operational requirements and this has implications on the amount, height, position and design of the new base station. To help explain this important detail, we have set this out in the accompanying "**5G Technical Support"** document, which must be read in conjunction with this planning statement.

3.3 The principal elements of the proposed development at the application site reflect these various siting and design factors within the technical support document as illustrated on the supplied drawings**:**

- **The removal of an existing monopole and associated antenna support structures.**
- **The installation of a replacement upgraded monopole and associated antenna support structures.**
- **The installation of sector / dish antennas on the mast with ancillary antenna support apparatus**
- **The removal and installation of ground-based radio housing equipment within an existing cabin and fenced compound**
- **The installation of cabling and associated development**

3.4 As necessary, any uncontaminated earth and materials excavated will be reused for fill and levelling.

3.5 The radio equipment housing will need to be mechanically ventilated to avoid overheating of equipment. The ventilation equipment is only likely to operate during

the day during hot weather. If it is considered specific noise attenuation measures to be necessary, we would be pleased to discuss practicable solutions.

3.6 Section 6 of the Code of Best Practice on Mobile Network Development in England, published in November 2016, explains how mobile networks operate. In the annual network rollout information supplied, the operators will have explained their network requirements for 5G and the anticipated use of existing sites, including those owned by site infrastructure providers like Cellnex.

3.7 The application site has been selected by the operator as this will provide the required level of 5G network coverage while properly meeting national town planning policy objectives for the shared use of existing electronic communications masts and sites, in this case operated by Cellnex.

4. PRIOR ENGAGEMENT

4.1 The recently revised National Planning Policy Framework (NPPF) and the Code of Best Practice on Mobile Network Development in England require a consultative approach to network development with the planning authority and local community, reflecting the particular sensitivities of any given site. The proposal received an Amber rating when assessed against the traffic light rating model (see Appendix B of the Code of Best Practice).

4.2 The pre-application consultation in relation to the application site was undertaken with your Authority and Ward Councillors (Sylvia Evans and Steve Morgan) and Clearwater Academy (The Headteacher). At the time of submission there has been no response to this pre-application consultation and accordingly we would be pleased to address any necessary matters within the determination period of the application.

5. PLANNING POLICY

5.1 The relevant planning policy and best practice framework is found principally within:

- National Policy, especially the National Planning Policy Framework (NPPF)
- The local policy framework set out in the adopted Development Plan;
- The Code of Best Practice on Mobile Network Development in England.

5.2 From these documents can be discerned the general policy background that exists for electronic communications development, site specific policies and the key considerations relevant to the siting and design of appropriate electronic communications development. As planning authority, you will be familiar with this framework and so in the interests of brevity, we do not rehearse it back to you in detail but address instead the principal themes to demonstrate that the application accords with them.

National Support for Modern Communications

5.3 There is significant UK Government support for the delivery of 5G, particularly as this new connectivity will be a step change from earlier generations of mobile connectivity and will be critical to economic growth and sustainable communities. Our accompanying document of national policy '***National Policy - Delivering Ultra Fast Broadband Mobile Connectivity'*** sets out how 5G mobile connectivity will underpin the UK Digital Economy and the significant social, economic and sustainability benefits of advanced modern connectivity. To deliver improvements to existing services and supporting future mobile technologies, it is essential that the planning system looks to support and facilitate new 5G base station installations such as that proposed to meet the Government's Digital Strategy. In addition, modern connectivity, such as 5G, will be essential to help the Government meet its wider sustainability and climate change targets and we explain this in more detail in our accompanying document '***5G – Helping tackle climate change'***.

Balancing operational and environmental considerations

5.4 The special operational and technical factors that require specific siting of a 5G base station should be balanced by the need to minimise environmental and visual impact.

5.5 However, paragraphs 3.2 – 3.3 of the Code of Best Practice explain that there is now far greater emphasis that visual impact should not override significant radio planning requirements to achieve mobile coverage to a particular area, particularly with the need to support the massively growing and intensifying demand for mobile communications across the UK. Indeed, in terms of looking to meet operational needs for 5G, the Code of Best Practice emphasises that the NPPF now applies a reduced policy test compared to previous guidance. This helps clarify than an operator is only required to satisfy the normal test of acceptability having regard to all material planning circumstances, rather than looking for the 'optimum' solution as required under the former PPG8.

5.6 In balancing these requirements, the starting point for the 5G networks is to use existing electronic communications sites owned by other operators or radio site management companies, such as Cellnex. This policy objective is backed with the statutory obligation placed upon operators to share apparatus, where practicable out under General Condition 3(4) of the Electronic Communications Code (Conditions and Restrictions) Regulations 2003, as amended.

5.7 In this instance, the installation of apparatus at this existing site owned or managed by Cellnex, where there are existing operations aligns with this longstanding policy.

5.8 As a matter of principle, the development proposed is in accordance with the relevant policy framework and should therefore be acceptable. In the next section, the Design Considerations are reviewed to demonstrate that the detail of the development is also acceptable and that in accordance with the presumption in favour, planning permission should be granted.

5.9 As a matter of principle, the development proposed is in accordance with the relevant policy framework and should therefore be acceptable. In the next section, the Design Considerations are reviewed to demonstrate that the detail of the development is also acceptable and that in accordance with the presumption in favour, planning permission should be granted.

Local Policy Considerations

5.10 At local level, the proposal has been considered against the Gloucester, Cheltenham and Tewkesbury Joint Core Strategy 2011 – 2031 (Adopted December 2017) Policy SD4: Design Requirements, Policy SD14: Health and Environmental Quality and Policy INF6: Infrastructure Delivery

Policy SD4: Design Requirements states:

1. *Where appropriate, proposals for development - which may be required to be accompanied by a masterplan and design brief - will need to clearly demonstrate how the following principles have been incorporated:*
    i. *Context, Character and Sense of Place; New development should respond positively to, and respect the character of, the site and its surroundings, enhancing local distinctiveness, and addressing the urban structure and grain of the locality in terms of street pattern, layout, mass and form. It should be of a scale, type, density and materials appropriate to the site and its setting. Design should establish a strong sense of place using streetscapes and buildings to create attractive and comfortable places to live, and having appropriate regard to the historic environment.*
    ii. *Legibility and Identity; New development should create clear and logical layouts that create and contribute to a strong and distinctive identity and which are easy to understand and navigate. This should be achieved through a well-structured and defined public realm, with a clear relationship between uses, buildings, routes and spaces, and through the appropriate use of vistas, landmarks and focal points*
    iii. *Amenity and space; New development should enhance comfort, convenience and enjoyment through assessment of the opportunities for light, privacy and external space, and the avoidance or mitigation of potential disturbances, including visual intrusion, noise, smell and pollution.*
    iv. *Public realm and landscape; New development should ensure that the design of landscaped areas, open space and public realm are of high quality, provide a clear structure and constitute an integral and cohesive element within the design. The contribution of public realm designs, at all scales, to facilitate the preferential use of sustainable transport modes should be maximised.*
    v. *Safety and security; New development should be designed to contribute to safe communities including reducing the risk of fire, conflicts between traffic and cyclists or pedestrians, and the likelihood and fear of crime.*
    vi. *Inclusiveness and adaptability; New development should provide access for all potential users, including people with disabilities, to buildings, spaces and the transport network, to ensure the highest*

standards of inclusive design. Development should also be designed to be adaptable to changing economic, social and environmental requirements.

vii. *Movement and connectivity; New development should be designed to integrate, where appropriate, with existing development, and prioritise movement by sustainable transport modes, both through the application of legible connections to the wider movement network, and assessment of the hierarchy of transport modes set out in Table SD4a below. It should:*

- *Be well integrated with the movement network within and beyond the development itself*
- *Provide safe and legible connections to the existing walking, cycling and public transport networks; • Ensure accessibility to local services for pedestrians and cyclists and those using public transport*
- *Ensure links to green infrastructure;*
- *Incorporate, where feasible, facilities for charging plug-in and other ultra-low emission vehicles;*
- *Be fully consistent with guidance, including that relating to parking provision, set out in the Manual for Gloucestershire Streets and other relevant guidance documents in force at the time.*

2. *Detailed requirements of masterplans and design briefs, should the Local Planning Authority consider they are required to accompany proposals, are set out in Table SD4d. These requirements are not exhaustive.*

This policy contributes towards achieving Objectives 4, 5, 6, 7, 8 and 9

Policy SD14: Health and Environmental Quality states:

1. *High-quality development should protect and seek to improve environmental quality. Development should not create or exacerbate conditions that could impact on human health or cause health inequality.*
2. *New development must:*

i. *Cause no unacceptable harm to local amenity including the amenity of neighbouring occupants;*
ii. *Result in no unacceptable levels of air, noise, water, light or soil pollution or odour, either alone or cumulatively, with respect to relevant national and EU limit values;*
iii. *Result in no exposure to unacceptable risk from existing or potential sources of pollution. For example, by avoiding placing sensitive uses in locations where national or EU limit values are exceeded, or by incorporating acceptable mitigation measures into development;*
iv. *Incorporate, as appropriate, the investigation and remediation of any land contamination within the site;*
v. *Ensure that any risks associated with land instability are satisfactorily resolved;*
vi. *Take into account the quality and versatility of any agricultural land affected by proposals, recognising that the best agricultural land is a finite resource;*
vii. *Have regard to any areas of tranquillity that are identified in adopted or emerging District plans and neighbourhood plans;*
viii. *Avoid any adverse impact from artificial light on intrinsically dark landscapes.*

3. *Proposals for development at Strategic Allocations, and other development proposals as appropriate, must be accompanied by a health impact assessment. This policy contributes towards achieving Objectives 4, 6 and 9*

Policy INF6: Infrastructure Delivery states:

1. *Where infrastructure requirements are generated as a result of individual site proposals and / or having regard to cumulative impact, new development will be served and supported by adequate and appropriate on- and / or off-site infrastructure and services. In identifying infrastructure requirements, development proposals will also demonstrate that full regard has been given, where appropriate, to implementing the requirements of the Joint Core Strategy Infrastructure Delivery Plan*

2. *Where need for additional infrastructure and services and / or impacts on existing infrastructure and services is expected to arise, the Local Planning Authority will seek to secure appropriate infrastructure which is necessary,*

directly related, and fairly and reasonably related to the scale and kind of the development proposal, including:

i. *Broadband infrastructure;*
ii. *Climate change mitigation / adaptation;*
iii. *Community and cultural facilities and initiatives;*
iv. *Early Years and Education;*
v. *Health and well-being facilities and sport, recreation and leisure facilities;*
vi. *The highway network, traffic management, sustainable transport and disabled people's access;*
vii. *Protection of cultural and heritage assets and the potential for their enhancement;*
viii. *Protection of environmental assets and the potential for their enhancement;*
ix. *Provision of Green Infrastructure including open space;*
x. *Public realm;*
xi. *Safety and security including emergency services*

This list of potential infrastructure items is neither exhaustive, sequential nor are its elements mutually exclusive

3. *Priority for provision will be assessed both on a site-by-site basis and having regard to the mitigation of cumulative impact, together with implementation of the JCS Infrastructure Delivery Plan*
4. *Planning permission will be granted only where sufficient provision has been made for infrastructure and services (together with their continued maintenance) to meet the needs of new development and / or which are required to mitigate the impact of new development upon existing communities. Infrastructure and services must be provided in line with an agreed, phased timescale and in accordance with other requirements of this Plan.*

This policy contributes towards achieving all the JCS Strategic Objectives.

5.11 In accordance with the relevant Gloucester, Cheltenham and Tewkesbury Joint Core Strategy 2011 – 2031 policies the proposal is for a sensitively designed upgrade of an existing shared installation. In line with the emphasis policies SD4 and SD14 place on the importance of high-quality design, it is considered that the proposed upgrade of a shared facility will not overly intrude into the locality and any associated visual impact

will not outweigh the continued need and future demands to provide coverage to the surrounding area. The existing site is situated within a block of woodland to the east of the A38 dual carriageway and is well screened by surrounding mature tree planting from the nearest residential properties. The removal and replacement of the existing installation with an upgraded facility will be a considerably less visually intrusive coverage solution than introducing a new separate ground based or rooftop base station. The visual effects have been further reduced by specifying the narrowest available profile of antenna headframe and by keeping the height and bulk of the antennas down to the absolute minimum capable of providing the required upgraded coverage. It is also worth stating that the visual effects of the ancillary equipment enclosure upgrades will be minimal within the existing compound and cabin.

5.12 In accordance with Policy SD4, the proposal is for the upgrading of an existing installation site and represents the least intrusive coverage solution available within the target area. The provision of improved connectivity also accords with Policy INF6: Infrastructure Delivery by facilitating the provision of essential communications infrastructure thereby supporting economic growth and community needs.

5.13 The proposed development is therefore considered to strike the best balance between meeting the specific network requirements for the operators and minimising environmental impact.

6. DESIGN CONSIDERATIONS

6.1 The development proposed is exempt from the requirement to provide a design and access statement under Article 9 of The Town and Country Planning (Development Management Procedure) (England) Order 2015. However, to assist your consideration of the detail, this section provides a description of the process adopted in the design of the proposals and explains the access considerations. Due regard has been given to the factors listed in Appendix A of the Code of Best Practice.

Physical Context

6.2 The proposed upgrade site has been carefully selected in a well screened position housed within a block of woodland in close proximity to a busy road network. The site has been carefully selected in a position capable of providing the required essential 5G coverage whilst being as far away as technically possible from the views of residential properties. The upgrading of a shared existing facility has eliminated the need to provide two new and entirely separate additional base stations within the target area. The existing facility benefits from the screening effects associated with a backdrop of mature tree planting and these masking effects will be further enhanced by banks of trees along the western side of the A38 and to the east defining the boundaries of Greenhill Drive.

6.3 Whilst it is acknowledged that there are residential properties in the vicinity at Quedgeley Court Park, the visual envelope of the proposed upgraded facility will be constrained by the surrounding tree planting. It is also worth noting that the visual effects will be further softened due to the upgraded ancillary equipment being out of sight within the existing fenced compound and equipment cabin. The removal and replacement of an existing installation with an upgraded monopole and antenna headframe represents a significantly less visually intrusive coverage solution than introducing a new and entirely separate ground-based installation within the target area.

Amount, Design, Layout and Scale of the Development

6.4 The scale, layout and design of the development has been guided by the special technical and operational factors affecting the need to provide coverage to the local area, having regard to the need to minimise visual impact, already referred to above

explained in detail in the ***'5G Technical Support'*** document. With regard to the main component elements of the development proposed:

- The design of the proposed upgrade to the existing mast has been led by operational and technical factors associated with the provision of 5G coverage. In addition to being the sequentially preferable solution the upgrading of an existing facility will fit in within the existing network configuration thereby eliminating the need to introduce additional base stations within the cell search area.

- The required upgraded equipment cannot be hidden within the existing mast structure / compound, but any impacts on the landscape and visual amenity will be limited and moderated by confining height to what is required for operational reasons. Compared to other forms of vertical infrastructure also found in the landscape, the visual effects of proposed replacement of an existing monopole with an upgraded installation will be relatively minor the existing facility is much lower than the television broadcast masts owned and operated by Arqiva; it is lower and does not form a string of structures that march across the countryside like pylons; and it does not move like wind turbines, which are typically higher and are usually developed in clusters.

- Alternative designs like shareable tree masts have been considered, but they cannot accommodate the amount of apparatus necessary to support 5G. Even if a tree mast could be designed to support such apparatus, it would still amount to an engineering solution unlikely to replicate the natural features and character of a tree and would appear as a prominent and incongruous feature in the wider landscape.

Antenna Array

- The numbers of antennas and dishes and their size has been kept to the minimum necessary to provide coverage and to link this site back into the operator's 5G network. The design of these features is very much driven by operational and technical factors.

Equipment Cabinets

- The number of radio equipment cabinets and their size has been limited to what is required to meet the operator's current and foreseeable

network requirements. The location and design of the equipment cabinets, and the electronic communications equipment housed within them, reflects their functionality and the technical and operational requirement to be in reasonable proximity to the antenna systems and dishes that they support. This avoids exceptionally large runs of feeder cables and associated supporting trays, and the subsequent loss of signals.

Access Considerations

6.5 Access to the site will be provided from the adjacent highway with on street parking available in close proximity. The existing installation has been sited away from the highway and pavement area in a position that will avoid impeding pedestrian flow or the safety of passing motorists.

6.6 Once constructed, the development will be unmanned requiring only periodic visits, typically once every two to three months for routine maintenance and servicing.

6.7 In accordance with all relevant health and safety legislation and guidelines, access to the site will be restricted to authorised personnel and the routine maintenance and servicing of the apparatus will only be carried out by properly trained and qualified staff. Electronic communications base stations are specifically designed to prevent unauthorised access by members of the public and, therefore, there is no requirement to incorporate inclusive access arrangements into the proposed layout and design of the development.

Landscaping

6.8 The proposed siting of the development has been very carefully chosen to minimise environmental impact. Any potential impact of the development is principally associated with radio mast, which is the most visible component of the base station, and which cannot be fully screened for operational reasons. The height of the mast means that any attempt to screen it in its entirety would be unrealistic in any event.

6.9 The mast benefits from the screening effects associated with nearby tree planting housed within local verge areas, which will mitigate its impact in views from public vantage points nearby.

At ground level, the compound will be set amongst existing natural screening that will minimise its visual impact. For this reason, additional landscaping is not considered appropriate and has not been included within the scheme.

Appearance

6.10 The sensitive approach to siting and design should minimise the appearance of the development proposed. In addition, as indicated above the local topography and natural features should help minimise views. Insofar as the mast and compound may be visible, they should look straight forward in appearance and reflect their function. To that extent they should in time become accepted features of the local environment as with other forms of communications networks and essentially public utility infrastructure, such as roads and railways.

7. HEALTH AND SAFETY

7.1 In support of the application, we include a separate document called ***'5G Health and Safety'*** which sets out in more detail the associated health and safety considerations. Every installation on a site owned or managed by Cellnex will be compliant with international standards adopted by the UK Government. A certificate confirming compliance with the relevant ICNIRP guidelines on public exposure has been supplied with this application.

7.2 The ICNIRP guidelines seek to protect against the well-known thermal effects of radio emissions and include a significant precautionary factor. These guidelines apply to all forms of electronic communications and mobile technology is one of the lowest powered of these.

7.3 National planning policy remains clear, provided an application is certified as ICNIRP compliant, local planning authorities should not seek to effectively set different guidelines through the refusal of planning permission.

8. SUMMARY AND CONCLUSIONS

8.1. In summary, the application is in respect of electronic communications base station necessary to improve a vital network that provides public services.

8.2. The service provided by the operator is in the public interest and is in very high demand with 5G being the next and highly significant advancement in mobile connectivity. In the UK there are now more than 92.5 million subscriptions to mobile networks and mobile services now exceed fixed landlines in terms of customer numbers and usage.

8.3. The public interest of the system is clear from the considerable benefits that will flow and it makes a significant and major contribution towards sustainable objectives.

8.4. The operator's requirement is in the context of network needs associated with a 5G cellular system. These impose particular locational and siting requirements which are even greater with 5G. The technical justification clearly demonstrates the need for this apparatus proposed within the context of the operator's surrounding network.

8.5. The operator has followed national and local planning policy and best practice guidance in the siting and design of its apparatus in recognition of the need to minimise visual impact. This has included:

- Network planning based upon existing sites, including those controlled by Radio Site Management companies like Cellnex.
- Siting at an existing electronic communications site to minimise new sites and help avoid the unnecessary proliferation of new radio masts and sites for them.
- Engagement in accordance with the Code of Best Practice procedures.
- An examination of design options to try and minimise potential visual impact.

8.6. The proposed antennas will comply with all relevant health and safety requirements and will be compliant with the ICNIRP guidelines. There are no exceptional circumstances in this case and therefore no need to consider health effects and related concerns such as the perception of risk further.

8.7. This statement and the other accompanying material have demonstrated that the proposal is in accordance with local Development Plan policy and national policy set out in particular within the NPPF. In particular, it is a form of development that is

specifically encouraged as a matter of principle and in its detail complies with the policy objective of minimising potential environmental impact.

8.8. In conclusion, the application is for sustainable development, acceptable as a matter of principle and appropriate in its detail and so one which the presumption in favour of granting approval applies.

DECLARATION OF CONFORMITY

PUBLIC RF EXPOSURE GUIDELINES

(FORMERLY KNOWN AS "ICNIRP DECLARATION")

Cellnex UK Ltd
4th Floor, R+
2 Blagrave Street
Reading
RG1 1AZ

Declares on behalf of EE_MBNL that the proposed equipment and installation as detailed in the attached planning / GPDO application, and any existing equipment at:

QUEDGELEY 2
Land Off Greenhill Drive
Tuffley
Gloucester
Gloucestershire
GL2 5PA

Site ID: 161051

Plan View Drawing Reference: 161051-02-100-MD008
Elevation View Drawing Reference: 161051-02-150-MD008

is designed to be in full compliance with the requirements of the radio frequency (RF) public exposure guidelines of the International Commission on Non-Ionizing Radiation Protection (ICNIRP), and the EU Council recommendation of 12 July 1999* "on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz)" in all areas legitimately accessible to the public.

*Reference: 1999/519/EC

Date: 4 April 2022

Signed: [redacted]

Name: Steve Pettit

Position: Site design lead

Company: Cellnex

5G

Health and Safety

1.0 Introduction

1.1 Cellnex sites transmit nothing more than ordinary radio waves.

1.2 Radio waves are electromagnetic fields, and unlike ionising radiation (such as X-rays or gamma rays), can neither break chemical bonds nor cause ionisation in the human body.

1.3 In the UK, radio waves have been used by a whole range of public and commercial communication networks since the dawn of radio in 1922, when the BBC opened its first regular public broadcasting station (in the world) in London. Radio waves have underpinned the UK's growth, prosperity and social inclusion. Radio waves have ensured the safety of our communities and supported national security. The UK's public radio and television broadcasting networks have been transmitting non-ionising radio waves in the UK since the 1920s.

1.4 Cellnex sites support a range of wireless communication services that rely on radio waves, particularly mobile communication base stations, that operate in the wider public interest.

1.5 The health effects of exposure to radio waves have been researched extensively over several decades, and very many publications can be found in scientific journals and elsewhere. Coordinated research around the world has addressed concerns about the growth of mobile communications technologies from around the year 2000.

1.6 Through extensive studies providing peer reviewed evidence, no causal link has been discovered between mobile connectivity and a risk to health.

2.0 Mobile Connectivity and 5G

2.1 Mobile phones are now ubiquitous throughout our society and many companies, industries, organisations and individuals rely upon such essential connectivity. Mobile communications technology has developed through several generations and there are now many mobile communication sites,

known as ‘base stations’, installed throughout the UK, providing services to users of mobile phones and other connected devices.

2.2 5G reflects the next technological revolution, which will bring significant social, economic and environmental benefits to the country. This is likely to include autonomous vehicles, interconnected industrial machinery and robotics used in logistics, medicine, manufacturing, agriculture and health care services. This list will be ever expanding, such is the significance of 5G.

2.3 In order to prepare the UK for this connectivity revolution, 5G is being deployed throughout the UK by the mobile network operators (MNOs). In the UK the MNOs are BT/EE, Vodafone, O2 and Three. Initially the MNOs will be deploying 5G in cities and towns and along major transport routes, but eventually this will be deployed to the whole of the UK.

2.4 Radio frequency is a scarce resource and is highly regulated to ensure efficiency of use and avoid interference between uses. The MNOs can only use spectrum allocated to them by Government, via Ofcom the industry regulator. In allocating spectrum for particular uses, Ofcom will have regard to internationally agreed standards, to allow international use and roaming.

2.5 To ensure effective use, frequency is generally allocated via auction, with conditions to ensure wide geographical coverage and high quality service. In the UK the current mobile networks operate at frequencies of around 900Mhz and between 1.8GHz and 2.1GHz.

2.6 With regard to 5G, Ofcom has designated the following frequencies, which fall into three main categories:

- Low frequency spectrum (the 700 MHz band), with likely emphasis on rural areas as the signal can cover larger areas

- Mid-frequency spectrum (the 3.4–3.8 GHz band) for large bandwidths to provide necessary network capacity and to enable higher speeds – the first deployments of 5G mobile services are likely to use this band in towns and cities; and

- Higher frequency spectrum (26 GHz band), sometimes known as millimetre wave ("mmWave") - providing ultra-high capacity but with very small coverage ranges.

2.7 All these frequencies have been 'reallocated' from previous uses such as terrestrial television broadcasting, defence and satellite communications. So, these frequencies are not new and have been used for many years in wireless communications services across the UK, now simply reallocated for mobile connectivity.

2.8 Similar to previous generations of mobile installations, 5G will consist of various types of infrastructure necessary to allow the network to operate, including antennas, radio towers, masts and dedicated in-building systems. This is no different to other forms of essential public infrastructure which are now common place in our cities, town and rural areas.

2.9 5G networks will work in conjunction with existing networks such as 4G, but will have site specific siting requirements to reflect the apparatus to be used. In many cases, existing 'macro' (main) 3G/4G mobile base stations will be first upgraded to allow for new 5G equipment and service provision. 'Small cell' technology will also become a growing feature of 5G networks, particularly in dense urban areas likes cities and towns, mainly offering additional data capacity necessary to support a range of uses, including innovative new uses like Connected Autonomous Vehicles and new connected medical applications.

3.0 Health and safety compliance

3.1 Throughout the history of mobile connectivity there have been concerns raised with regards to the Health and Safety of these systems. A great deal of research has been undertaken throughout the world into the effects of electromagnetic radiation and radio signals and to date there has been no evidence to indicate that the systems so far operated and those intended to be operated have caused any discernible adverse health effects.

3.2 Over 50 years of scientific research has already been conducted into the possible health effects of the radio signals used for mobile phones, base stations and other wireless services including frequencies planned for 5G.

3.3 Cellnex does not set its own health and safety standard but relies on these guidelines covering the safety of radio transmissions, which have been adopted by the UK Government on the advice of Public Health England (which is the statutory adviser on the safety of radio transmissions across all of the UK. Advice by other Government Public Health bodies in Scotland, Wales and Northern Ireland will therefore largely adopt the same guidance.

3.4 Public Health England (PHE) guidance on the health and safety of mobile phone base stations can be found below

> https://www.gov.uk/government/publications/mobile-phone-base-stations-radio-waves-and-health/mobile-phone-base-stations-radio-waves-and-health

3.5 This has since been updated to reflect considerations relating to 5G mobile connectivity:

> https://www.gov.uk/government/publications/5g-technologies-radio-waves-and-health/5g-technologies-radio-waves-and-health

3.6 Significantly, PHE advises that:

> *"independent expert groups in the UK and at international level have examined the accumulated body of research evidence. Their conclusions support the view that health effects are unlikely to occur if exposures are below international guideline levels".*
>
> *"It is possible that there may be a small increase in overall exposure to radio waves when 5G is added to an existing network or in a new area. However, the overall exposure is expected to remain low relative to guidelines and, as such, there should be no consequences for public health".*

3.7 PHE's main advice about radio waves from mobile base stations is therefore that the guidelines of the International Commission on Non-Ionising Radiation Protection (ICNIRP) should be adopted for limiting public exposure to mobile communication network apparatus.

3.8 ICNIRP is formally recognised as an official collaborating non-governmental organisation by the World Health Organisation (WHO) and the International Labour Organization (ILO). ICNIRP is also consulted by the European Commission. The ICNIRP guidelines apply to frequencies up to 300 GHz and cover exposures arising from new 5G base stations (including mmWave technology) as well as from older technologies.

3.9 It is worth noting that the ICNIRP Guidelines were adopted by the UK in 2004, because they contain a greater 'precautionary factor' than the previous UK guidelines by an additional factor of 100%. This was a key part of the UK Government's response to the Stewart Report on Mobile Phones and Health, published in 2000, which recommended a precautionary approach. Another key part was the establishment of a research programme that forms part of the large body of peer reviewed scientific research that has built up over the last 50 years and which has not found any causal link with any health effects, other than the well understood thermal effects.

3.10 It should also be appreciated that mobile installations are low powered, typically operating between a few watts to a maximum of 100 watts, depending on the type of installation and whether it hosts one or all of the MNOs. Mobile technology also uses Adaptive Power Control to operate at the lowest levels necessary to provide an effective service – power outputs therefore increase and decrease accordingly to public usage. Mobile installations therefore generally comply with the ICNIRP guidelines by a factor of hundreds and in many cases thousands.

3.11 Whilst it is true that some of the 5G frequencies will operate at higher powers, they will remain low powered and still have to operate within the ICNIRP guidelines which have been recently amended in 2020.

3.12 ICNIRP provides a series of Frequently Asked Questions and explains that the new guidelines cover exposures from 5th Generation (5G) mobile telecommunications.

https://www.icnirp.org/en/rf-faq/index.html

3.13 The new guidelines states that:

"ICNIRP (2020) has made a number of changes……will ensure that 5G is ***not able to cause harm****".*

3.14 The ICNIRP guidelines consider both thermal and non-thermal effects of radiofrequency electromagnetic fields (RF EMF):

"ICNIRP considers all potential adverse health effects, and sets restrictions to ensure that none occur, regardless of the mechanism of interaction between the exposure and the body. The lowest exposure levels that can cause adverse health effects are due to thermal mechanisms, and so restrictions have been set based on the thermal effects, as these will protect against any other effects that could occur at higher exposure levels".

3.15 In common with previous generations and all forms of electronic communications, 5G installations will have health and safety (ICNIRP) compliance zones where the public will be excluded and these may vary depending on base station type, e.g. macro or small cell, and antenna use and type. The larger antennas likely to be required on some macro base stations may bring particular siting and design considerations, especially where they are an addition to existing configurations. For example, this may require antennas to be sited higher off roof level and / or for a greater fenced area to keep out members of the public. The key constant to emphasise however, is that ICNIRP compliance would be retained in all nearby areas accessible by the public and given the way power outputs drop exponentially, then that is likely to remain within a considerable margin.

3.16 If for whatever reason existing compliance zones or new ones required due to the introduction of 5G technology cannot be created, then the site would be deemed unsuitable. However, as the same frequencies allocated for 5G have been used previously for television broadcasting, defence and satellite purposes and at significantly higher power outputs, this is not likely to be widespread as those former uses complied with the same applicable guidelines.

3.17 Previous generations of mobile connectivity have been subject to an Ofcom 'testing programme' to assess Electromagnetic Field (EMF) measurements at mobile base station sites across the UK. Ofcom has now continued such testing to base stations now providing 5G and to date has assessed 22 5G sites in 10 UK cities. A link to that report is provided below:

https://www.ofcom.org.uk/__data/assets/pdf_file/0015/190005/emf-test-summary.pdf

3.18 Consistent with its testing programme for previous generations of mobile connectivity, Ofcom advises that the measured EMF levels from 5G-enabled mobile phone base stations:

- Remain at small fractions of the levels identified in the ICNIRP Guidelines, the highest level recorded being approximately 1.5% of the relevant levels

- 5G currently contributes a small amount to the EMF levels measured at each location.

3.19 In summary, every installation on a site owned or managed by Cellnex will be compliant with these international standards adopted by the UK Government and will be certified as such with all applications for planning permission. The ICNIRP guidelines seek to protect against the well-known thermal effects of radio emissions and include a significant precautionary factor. These guidelines apply to all forms of electronic communications and mobile technology is one of the lowest powered of these. National planning policy remains clear that provided an application is certified as ICNIRP compliant, then local planning

authorities should not seek to effectively set different guidelines through the refusal of planning permission.

4.0 Monitoring and Future Research

4.1 It should be noted that exposure measurements made by one of PHE's predecessor organisations found that "*many exposure measurements have been made in the UK at publicly accessible locations near to base stations, and these have consistently been well within the ICNIRP guideline levels".*

4.2 Notwithstanding this, Public Health England (PHE) continues to monitor the health-related evidence applicable to radio waves, including in relation to base stations, and is committed to updating its advice as required.

4.3 Cellnex will clearly consider any new guidance as and when produced by PHE or other relevant advisors.

5.0 Additional Resources

5.1 The following resources may also be helpful:

- The ICNIRP guidelines, can be found here: www.icnirp.org/
- ICNIRP FAQs: https://www.icnirp.org/en/rf-faq/index.html
- Public Health England – 5G: https://www.gov.uk/government/publications/5g-technologies-radio-waves-and-health/5g-technologies-radio-waves-and-health
- Radio spectrum in the UK is regulated by Ofcom: www.ofcom.org
- Ofcom 5G: https://www.ofcom.org.uk/spectrum/information/innovation-licensing/enabling-5g-uk
- Ofcom EMF measurements near 5G mobile phone base stations: https://www.ofcom.org.uk/__data/assets/pdf_file/0015/190005/emf-test-summary.pdf
- UK Government Parliamentary Briefing Note: https://commonslibrary.parliament.uk/research-briefings/cbp-7883/

- The Health and Safety Executive website describes the responsibilities of mobile communications network operators in relation to radio transmissions: https://www.hse.gov.uk/radiation/nonionising/emf.htm
- The NHS has also published advice: https://www.nhs.uk/conditions/mobile-phone-safety/
- The UK MNOs publish their policies in relation to mobile phones, masts and public health on their websites.
- https://www.vodafone.com/content/sustainabilityreport/2015/index/operating-responsibly/mobiles-masts-and-health.html
- https://www.telefonica.com/en/web/responsible-business/environment/electromagnetic-fields/faqs_en
- https://ee.co.uk/our-company/corporate-responsibility/building-trust/responsible-network
- http://www.three.co.uk/About_Three/Responsible_Business
- Mobile UK is an organisation that represents the UK MNOs. It to, publishes health and safety information: http://mobileuk.org/health-and-safety.html

Cellnex

NATIONAL POLICY

DELIVERING ULTRA FAST BROADBAND MOBILE CONNECTIVITY

Background

1. Telecommunications is a public utility that was provided by the Post Office until the decision was taken in the early 1980's to privatise this service. This was achieved through the Telecommunications Act 1984 (the 1984 Act) and it was under Section 7 that the original mobile network operators (MNOs) were granted licenses. The Communications Act 2003 (the 2003 Act) ended the licensing regime established by the 1984 Act, but the operators retained their special status as Electronic Communications Code Network Operators (Code Operators, previously Telecommunications Code Systems Operators). The 2003 Act widened the opportunity for operators to become Code Operators, a key criteria being the public benefit of the network provided.

2. Although the MNOs are private companies, they all therefore provide a public service and one which is recognised as being essential to a modern economy. Setting aside the large contribution made by the electronic communications industry to the economy through direct employment and the sale of products and services, the local benefits will be varied and considerable. In addition, as the technology continues to improve, and the range of services become more varied and innovative, the benefits will also expand at a fast pace. A connected and modern smart phone is now able to access thousands of applications, which means that it is almost impossible to now quantify or specify all the potential benefits.

Growth of Mobile Connectivity

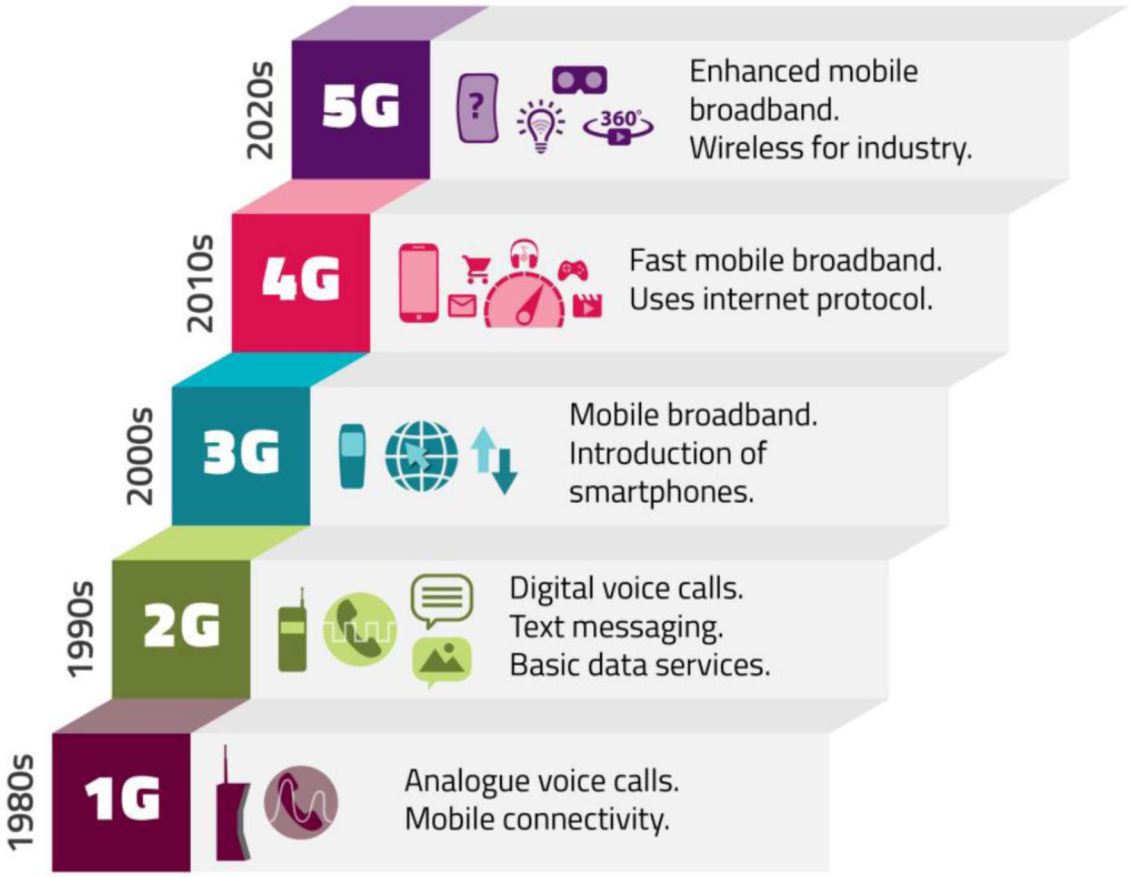
3. Since the first mobile phone call was made in the UK in 1985, the mobile industry has delivered huge benefits to consumers and the wider UK economy. New mobile technologies - or generations - have been introduced roughly every 10 years, each offering improved services compared with previous generations. However, the existing 4G network rollout has been relatively rapid and MNOs are now deploying 5G which has meant that the timescales between mobile technologies has now reduced even further:
    - 1G: the first generation of 'cellular' mobile phones, which used analogue radio transmission and supported voice calls;

- 2G: the second generation of mobiles, which used digital transmission and allowed for digital phone calls and messaging;

- 3G: the third generation of mobile communications enabled faster data services than those available on 2G networks, which led to the first consumer friendly mobile broadband internet experience for users; and

- 4G: the fourth generation of mobile communications is a more data-oriented network than its predecessors and is the first all-Internet Protocols mobile communications system. The main advantage of 4G services compared with previous generations are that they offer faster download speeds and quicker response times (latency).

- 5G: this next generation of mobile connectivity will deliver a step change of ultrafast, ultra-low latency, reliable, mobile connectivity, that is able to support ever larger data requirements, as well as wide-ranging new applications including machine to machine applications - intelligent machines that require no human input (e.g. advanced manufacturing). 5G will deliver these flexible networks by making use of multiple bands of spectrum.



Source: Figure 2 from Ofcom's "Enabling 5G in the UK" (March 2018)

4. New generations of mobile connectivity reflect the insatiable public demand for mobile connectivity across the UK. They are supported by Government due to the significant economic and social benefits. There are many reports highlighting the significant growth and benefits of mobile connectivity. More recently, Ofcom's Communications Market Report August 2019 and Connected Nations Report Spring 2019, together with Deloitte's Global Mobile Consumer Survey 2018 advise:

   - ***Financial contribution*** - the UK telecoms sector continues to make an important contribution to the overall economy, generating £33.8bn in operator-reported revenue in 2018. The Gross Value Added (GVA) benefits of 5G will be multiples of this. There are around 92.5 million active mobile subscriptions at the end of 2018, completely outstripping fixed phone lines.

- ***Ubiquitous use*** - Smartphones have become universal in their use, growing from 52% in 2012 to 87% in 2018. Smartphone penetration has seen growth across all age groups and the 55-75 category has seen the most growth increasing from 40% in 2013 to 77% in 2018. Smartphones are the most frequently used devices in the UK: 95% of smartphones owners aged 16-75 used their device in the last day and so are simply now a key part of modern life.

- ***Demand*** – The average mobile data consumption has increased rapidly in 2018, with the average monthly use per mobile data connection increasing by 25% to 2.9GB. This will continue to grow, not just through smartphone use and new "apps", but the 5G network will facilitate a whole range of data intensive uses like autonomous vehicles, remote reporting, smart medical and other public service functions.

5. The financial contribution to the UK economy is significant. In May 2018, the Financial Times article "*UK digital technology sector outpacing wider economy"* explained that the digital tech sector was worth £184bn to the UK economy in 2017, up from £170bn in 2016. This has significantly increased on those figures within the UK Government's Information Economy Strategy (June 2013), that estimated that the digital sector alone contributed around £105 billion in GVA to the UK in 2011.

6. The Department for Culture, Media & Sport (DCMS) indicate in its Sectors Economic Estimates August 2017, that the GVA contribution of telecoms sector represented 1.8% of the total UK GVA in 2017, so a significant contributor to the UK Economy and having grown 31% over the period 2010 - 2017. The roll-out of 4G in the UK has been estimated to deliver £75 billion of additional GDP over ten years (http://www.ibtimes.co.uk/4g-everything-everywhere-75bn-lte-economy-334922). New research from Barclays Corporate Banking (April 2019) suggests that 5G could supercharge the UK economy by up to £15.7 billion per year by 2025.

7. Together with these significant economic benefits of advanced mobile connectivity, most communities and local authorities will now understand the

other principal benefits of mobile connectivity, which can be categorised under sub-headings, with examples (which overlap to some extent) as follows:

Local and national competitiveness

- Central and local government are harnessing applications and on-line services to help businesses as well as communities – for example, DEFRA now requires a variety of forms to be completed on line, rather than in written form.
- Mobile communications, especially high speeds can help extend business opportunities into peripheral areas, both directly and indirectly.
- An example of a direct benefit would be a business reliant on mobile communications being able to establish within an area, so creating local employment opportunities.
- Indirect-benefits, might include visitors to the local area being able to search and make reservations or bookings at local restaurants or hotels, or people selecting an area to visit over another because of the availability of services
- Local tradesmen and others who provide services such as doctors and vets can provide a more responsive and flexible service, which can save costs.

Improving Social Well - Being

- Mobile communications can help social well – being by simply ending or reducing a sense of isolation.
- Mobile communications can bring about far greater personal convenience and security, for example, teenagers can keep in parental contact when out in the evening.
- Mobile communications can provide much greater freedom to carers, who can remain in contact in case of emergency.

- Mobile communications are required to enable people to remain connected and to access social networking sites. For young people in particular this is important so that they can feel included amongst their peer group.

- Mobile communications can access a range of applications to benefit people's lifestyles and interests.

- Mobile communications can help parents interact with children far away, for example, a divorced father can play a game on line with a child many miles away.

- Reliable mobile connectivity gives people the choice to elect not to have a fixed line. At a time when nearly everyone has a mobile, a low income household with no or little mobile connectivity may still have to pay for both. Better mobile connectivity and availability can mean that a household can save on the fixed line costs, which to them would be an appreciable saving.

Encouraging Sustainable Lifestyles

- Mobile phones can help minimise unnecessary journeys, so increasing productivity and reducing travel demands.

- Mobile phones can help facilitate modern forms of working, including greater homeworking, particularly beneficial to more rural communities. This can bring about an improved balance between home and working life. At the same time, it can help minimise private car movements and so help reduce peak period congestion and pollution. This is a particularly important benefit when transport policy to reduce travel and CO^2 emissions seems to be failing.

Improving Health and Safety

- Most 999 calls in the UK, including requests for Coastguard assistance and Mountain Rescue are now made using mobile phones.

- Last year on an average day in Great Britain 5 people were killed on our roads. A far greater number are saved from fatal or permanent injury through prompt paramedical assistance in the critical early period following an accident. This is made possible by 999 calls placed almost immediately following an accident. The current level of fatalities is almost

half what is was at the Millennium and improved mobile connectivity is likely to be a factor in this.

- Ambulances responding to heart attack victims will often have mobile connected ECG machines that can send real time data back to specialist hospital units, so they can advise paramedics on the scene, direct the victim to the most appropriate unit and enable pre-operation preparations to commence on the victim and at the hospital.

- There are an increasing range of health and well-being applications, from fitness bands to heart and other monitoring such as alerts for diabetics and those with kidney problems to take medication or seek help. These are increasing with 4G services and with 5G are anticipated to be more linked with primary health care records and services.

- Mobile phones can be used to summons assistance from the breakdown services in the secure environment of a locked car. This is particularly important to the vulnerable.

Delivering the UK Digital Strategy

8. From the above, it is clear why the Digital Economy in all its forms, including fixed and mobile communications networks, is a significant priority for the UK and Devolved Governments and reflected in their various 'Digital Strategies'.

9. In terms of mobile connectivity, the UK Government is focused on supporting mobile connectivity and next generation technologies within a more facilitating legislative framework. So, this has seen, for example, the introduction of the new Electronic Communications Code allowing more economic access to sites, further relaxation of permitted development rights and greater protection to existing network infrastructure including digital connectivity forming part of the UK's Critical National Infrastructure.

10. All four MNOs have now acquired, through Government spectrum auctions, frequencies that will be used to allow capacity improvements to existing networks and those suitable for deploying. Other spectrum, such as that to be released by clearing terrestrial television from the 700MHz spectrum will also allow 5G, mostly likely geared more towards low capacity wide area coverage, with a particular focus on rural connectivity. The 26GHz and above radio spectrum is likely to be used, in the future, for very dense and high capacity 5G coverage in towns and cities.

11. All of this means that we can expect to see significant Government emphasis and MNO delivery priorities towards:

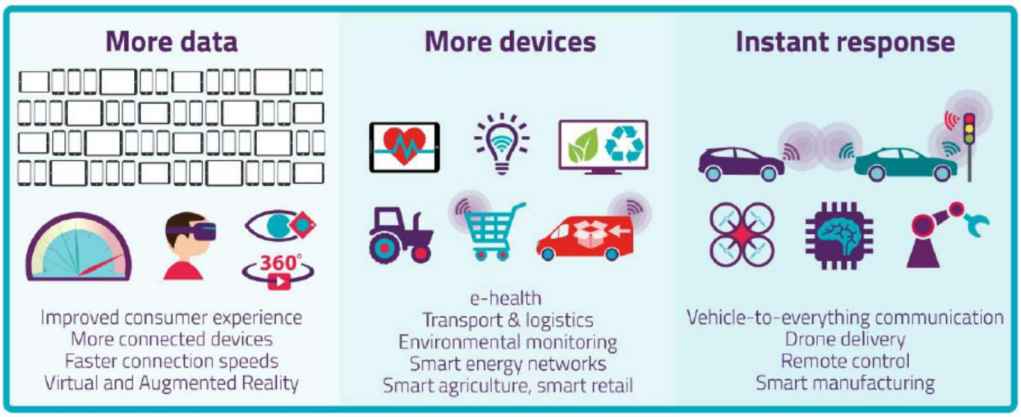
- Improvements, resilience (power / security) and additional capacity to the existing mobile networks – particularly 4G

- Bridging the 'digital divide' between those areas that have mobile connectivity (and choice of service) and those with poor, partial or even non-existent (not spot) coverage. This likely to be focused on rural areas and more peripheral locations of Scotland and Wales

- Deploying next generation 5G - initially built around existing MNO mobile base stations, although new sites will be needed for a number of reasons including resilience and capacity. Dense urban coverage and additional capacity is likely to require new 'small cell' radio technology and use of fixed line fibre networks.

12. 5G, which is now being deployed, is a huge step change and the Government recognises that the successful and early deployment of full 5G networks will require a major change in mobile infrastructure investment and the need for further evolution of regulatory frameworks, including support of the town planning system.

13. Ofcom's "Enabling 5G in the UK" (March 2018) advises that Ofcom shares the Government's ambition for the UK to become a world leader in 5G. Figure 1 of Ofcom's document below explains some of the expected benefits of 5G:



Source: Figure 1 Ofcom Enabling 5G in the UK (March 2018)

14. The Department for Digital, Culture, Media & Sport (DCMS) '*Future Telecoms Infrastructure Review'* states that the Government has set an ambitious target that the majority of the population will be covered by a 5G signal by 2027.

15. 5G is expected to enable both an evolution of existing mobile services and potentially revolutionary new services. The Government advises that 5G is the first generation of mobile technology that has been designed to support multiple applications, from mobile broadband and entertainment services, to industrial applications such as robotics and logistics. These applications will be delivered through different combinations of the three broad capabilities of 5G:

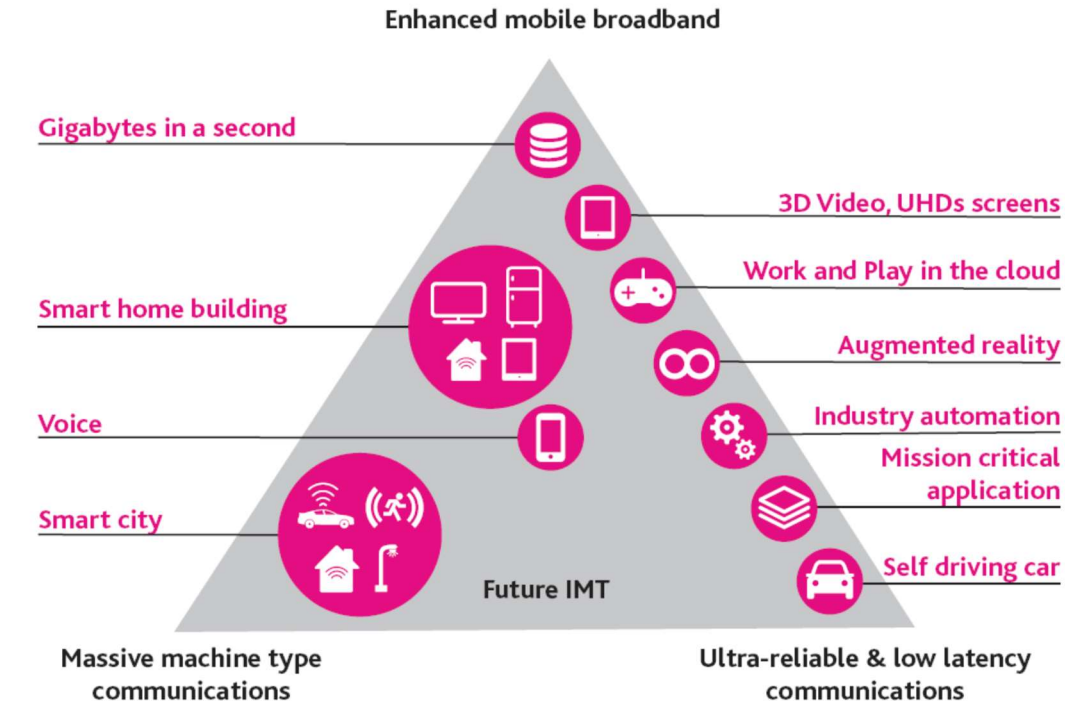
- improved mobile broadband (wireless broadband)

- considerable 'machine-type communications', with the amount of devices able to be connected many multiples of 4G

- ultra-reliable, low latency communications (near real-time communications with 99.999% reliability) essential for certain applications of 5G.

16. The diagram below shows the likely capabilities of 5G, allowing sustainable smart cities and towns with self-driving vehicles on smart motorways, through to the use of smart services and devices, which will transform industrial production, the medical sector and bring efficiencies and reliability.

Figure 4: Capabilities of 5G



Source: International Telecommunications Union (2015), 'IMT Vision – Framework and overall objectives of the future development of IMT for 2020 and beyond'

Source: DCMS 'Future Telecoms Infrastructure Review'

17. Developing on this, the Government expects to see a more converged telecoms sector. Fixed fibre networks and 5G are complementary technologies. In some places, 5G may provide a more cost-effective way of providing ultra-fast connectivity to homes and businesses.

18. In turn, over the next few years, the UK can expect some major new mobile deployments and associated infrastructure based around:

- **Upgrades** - equipment upgrades and increases at existing mobile communication sites, especially to facilitate 5G which has significantly different operational, siting and design considerations and implications

- **New Sites** - new sites within rural areas, supporting a better "rural grid" to meet greater coverage obligations on MNOs as part of tighter and more focused spectrum auctions (including 5G). Additional focus on transport routes, road and rail corridors to allow seamless connectivity.

- **Special Programmes** - new sites, likely focused towards rural and peripheral areas, as part of highly focused public intervention programmes by Governments

- **Small Cell network solutions** – delivering the capacity mobile operators and building owners need to meet rising demand in a variety of urban areas, both indoor and outdoor. These are likely to be based around superfast 5G apparatus installed onto street furniture and the sides of buildings

- **In building Solutions**, particularly to areas of high footfall and use like office buildings, airports and public stadiums

- **Distributed Antenna System (DAS)** - a network of antennas that can be installed throughout a building or outdoor area to enhance mobile coverage for the benefit of users inside and nearby

Support from the Planning System

19. The improvement of existing mobile networks and the delivery of 5G (and future generations of connectivity) requires a supportive legislative and policy framework, including the UK town planning systems.

20. National policy of all Governments, reflected in the National Planning Policy Framework (NPPF) in England, Scottish Planning Policy (SPP), Planning Policy Wales and the Strategic Planning Policy Statement for Northern Ireland, is to support the provision of advanced mobile connectivity to help underpin and

sustain national, regional and local economies. Mobile connectivity has become akin to the "fourth utility", with commensurately high public reliance and expectation of an ubiquitous service. Within **Appendix 1** we set out the main Government policy and objectives across the UK to support mobile connectivity.

21. What is wholly consistent within this overarching national planning policy support towards better connectivity, is that local planning authorities should not challenge whether a particular service is needed, but only the site-specific matters and justification considered against local policy and guidance. However, local planning authorities should recognise that without the deployment of next generation mobile connectivity like 5G, it is unlikely that the local planning authority will be able to meet other key policy objectives such as building sustainable communities, attracting new inward investment and delivering smart services.

22. It is very evident that the UK town planning systems have a major responsibility in helping to deliver these network changes and improvements in the public interest. The supportive national policy framework will also have to be reflected at local level through an appropriate policy framework that can be translated into balanced and positive development management decisions. This will require meaningful engagement with the industry and as well as effective decision making by local planning authorities. It will inevitably require proper balancing between operational and environmental considerations, particularly in the most sensitive of locations (like protected areas) where rural communities exist and aspire to have similar levels of mobile connectivity comparable to other urban areas of the UK. Although radio signals are invisible, the systems cannot operate without the necessary infrastructure system, which is no different from other forms of public communications infrastructure. For example, a railway network very obviously requires tracks, stations and parking facilities, whereas a mobile network requires a series of base stations, with communication masts, radio equipment housing and other associated development.

Cellnex

Appendix 1: Key National Policy Context

The following presents key strategic and planning policy of UK Government and Devolved Governments, applicable to the consideration of better mobile connectivity and which form a ***material planning consideration***.

MOBILE CONNECTIVITY	
Publication	**Key Objectives**
EU	
EU Regulatory Framework for Electronic Communications **(Commission of the European Union, 2009)**	• The Regulatory Framework for Electronic Communications providing a reform package for strengthening the European electronic communications market including mobile connectivity
Directive of the European Parliament and of the Council **establishing the European Electronic Communications Code (Recast) COM/2016/0590**	• The European Commission proposed a new European Electronic Communications Code to reflect changes in the market, simplifying the process of investing in new top-quality infrastructures both locally and across national borders.
UK WIDE	
DCMS Digital Britain June 2009	• To support the UK Digital Economy in all its forms, including moving away from GSM coverage to next generation mobile technologies
Ofcom Mobile Data Strategy 2016	• Identifies a need for a long-term strategy to address the increasing use of data by mobile devices such as smartphones, tablets and laptops • Accelerate availability of the 700 MHz band and increase the amount of spectrum available to mobile • Announced initiatives which will help improve reach, cost and availability of fibre and copper and help improve backhaul
UK Digital Strategy 2017 - Connectivity - building world-class digital infrastructure for the UK (March 2017)	• World-class digital connectivity is increasingly vital for businesses in the UK • The UK's digital infrastructure must be able to support this rapid increase in traffic, providing coverage with sufficient capacity to ensure data can flow at the volume, speed and reliability required to meet the demands of modern life

	• CBI survey, 81% of firms said that they see more reliable mobile connectivity as essential • 5G is the next generation of mobile connectivity – wants to see the UK take a leading role in the development and roll-out of 5G.
DCMS / HM Treasury - Next Generation Mobile Technologies: A 5G Strategy for the UK – March 2017	• States that digital connectivity was once a nice to have, perhaps even a luxury - it is now essential • UK Government has a clear ambition for the UK to be a global leader in the next generation of mobile technology – 5G • 5G will support transport and logistics; financial services; health and social care; retail; digital creativity and information services; and production, manufacturing and robotics • Lower latency (i.e. quicker reaction times) expected to be a feature of 5G networks could make it possible to support the large-scale use of driverless vehicles for the first time. • In connectivity "hot-spots", additional capacity will likely be provided by hundreds of thousands of small cell radios with short-range, high speed connectivity that support the existing network. • For technological progress in the mobile market this will require a flexible regulatory framework that keeps pace with developments. • Local areas have a critical role to play in facilitating the deployment of mobile telecommunications infrastructure and are already doing so in many areas. • Government wishes for local areas to develop broader plans to deliver local mobile connectivity. • Flexible and fit for purpose planning regulations will be required to support the deployment of 5G networks.
DCMS Mobile Infrastructure Project Impact and Benefits Report	• 75 mobile masts to 7,199 premises which previously had no mobile signal • Government evaluation showed that communities greatly appreciate the improved mobile connectivity and that it brings a variety of benefits to those communities. • MIP helped to reduce the digital divide and add public value, • MIP confirmed the need for Government to work more closely with mobile operators to ensure they are able to roll out their networks into rural areas. • Challenges associated with mast site acquisition, experienced during MIP, have helped bring about new legislation to relax the planning regime.
Digital Economy Act 2017	• Substantially different from, and shorter than, the Digital Economy Act 2010, whose provisions largely ended up not being passed into law.

	• Introduced a Universal Service Obligation which allows users to request broadband speeds of at least 10 Mbps. The obligation is to be introduced by 2020, and Ofcom are empowered to subsequently increase the minimum broadband speed requirement. Although largely directed towards fixed line, mobile broadband connectivity will form part of the overall delivery strategy • Updates the Electronic Communications Code in order to make it easier for electronic companies, like MNOs, to erect and extend mobile masts to improve mobile connectivity
Electronic Communications Code 2017	• Updated to make it easier for network operators to install and maintain apparatus such as phone masts, exchanges and cabinets on public and private land
Ofcom – Enabling 5G in the UK – March 2018	• Ofcom has a role to play alongside Government and industry in enabling the development and rollout of 5G, and unlocking its benefits • Ofcom shares the Government's ambition for the UK to become a world leader in 5G • To release different types of spectrum bands for 5G • Work with Government and policy-makers to ensure access to sites is not a barrier to 5G • Ensuring access to appropriate connectivity between 5G base stations and the core network • Sets out the expected uses of 5G • The deployment of 5G is likely to mean that consumers benefit from more choice and innovation in communications services • The services enabled by 5G may change the way consumers behave, for example including the degree of competition and potential substitution between fixed and mobile broadband.
Deloitte (for DCMS) - the Impacts of mobile broadband and 5G – June 2018	• Commissioned by the DCMS to take a focused review on the economic and social impacts of mobile broadband and potential impacts of 5G
DCMS – Future Telecoms Infrastructure Review – July 2018	• UK to have high quality mobile connectivity where people live, work and travel • In the longer-term, the Government expects to see a more converged telecoms sector – especially with technology synergies between 5G and fixed networks • Wide-scale deployment of next generation technologies like 5G and full fibre will be key to the UK remaining globally competitive

	• Wide-scale deployment of these next generation technologies will underpin the UK's modern Industrial Strategy. • Want to be a world-leader in 5G, with the majority of the population covered by 5G networks by 2027. • Government will create a supportive market and policy condition [to support next generation technologies]. • Government recognises the need to keep planning regulation under review and to listen to suggestions from industry for how new technology is best supported in the planning regime.
House of Commons Library Briefing Paper – 5G – February 2019	• Sets out a detailed briefing note on 5G, its benefits and Government policy • Government set a target that the majority of the population will be covered by a 5G signal by 2027.
ENGLAND	
National Planning Policy Framework – revised February 2019	• States that advanced, high quality communications infrastructure is essential for sustainable economic growth. • Planning policies and decisions should support the expansion of electronic communications networks, including next generation mobile technology (such as 5G) • Policies should set out how high-quality digital infrastructure, providing access to services from a range of providers, is expected to be delivered and upgraded over time • The number of radio and electronic communications masts, and the sites for such installations, should be kept to a minimum consistent with the needs of consumers, the efficient operation of the network and providing reasonable capacity for future expansion. • Use of existing masts, buildings and other structures for new electronic communications capability (including wireless) should be encouraged. • Where new sites are required, equipment should be sympathetically designed and camouflaged where appropriate
SCOTLAND	
Infrastructure Investment Plan 2011	• Sets out why Scottish Government needs to invest, how they will invest and what strategic, large scale

	investments they intend to take forward within each sector over the next 10 to 20 years. • Moving Scotland to a position where it is keeping pace with international comparators • Plan will consider the current connectivity infrastructure in Scotland, including information on the mix of potential technologies.
Scotland's Digital Future – A Strategy for Scotland - 2011	• Presents a strategic vision to achieve the digital ambitions of the Scottish Government including better mobile connectivity
Scotland's Digital Future – Infrastructure Action Plan - 2012	• The key aim of the Infrastructure Action Plan is to enhance Scotland's digital infrastructure in terms of ease of access, geographical coverage, price and choice of provision for consumers. • Improving mobile coverage across Scotland is also an important element of the plan to ensure people have good access, wherever they are, to telephone and data services from hand held platforms such as mobile and smart phones, and tablets • continue to work with the UK Government and Ofcom to promote an appropriate and adaptable regulatory environment that is an enabler to achieving ambitions; notably in relation to rural mobile coverage
National Planning Framework 3 – June 2014	• The NPF3 is aimed at encouraging a more positive approach to town planning. While the NPF builds environmental protection into the definition of sustainable economic development, there is also a very clear emphasis that local planning authorities should be looking for ways to help development come forward and not reject applications simply on environmental grounds. • The NPF3 recognises that this is especially relevant where a development might have other significantly important benefits such as being essential to meet, for example, sustainable economic growth or a national need which can include new mobile electronic communications infrastructure
Scottish Planning Policy – June 2014	• Key Outcome 4 is to have a more connected place – supporting better transport and digital connectivity • States that the planning system should support the need for networks to evolve and respond to technology improvements and new services; • For development management consideration should be given to how proposals for infrastructure to deliver new services or infrastructure to improve existing services will contribute to fulfilling the objectives for digital connectivity set out in the Scottish Government's World Class 2020 document

	• For developments that will deliver entirely new connectivity – for example, mobile connectivity in a "not spot" – consideration should be given to the benefits of this connectivity for communities and the local economy • Planning authorities should not question the need for the service to be provided nor seek to prevent competition between operators • Infrastructure provision which is sited and designed to keep environmental impacts to a minimum

Scotland's Future - Connecting Rural Scotland - July 2014	• A plan to improve rural connectivity in different forms but including:
	  • Development of mobile and broadband technologies which have a central role to play in overcoming the challenges distance can introduce to rural life, but where coverage across rural Scotland is not good enough
	  • Removing barriers to investment in mobile networks

Mobile Action Plan – June 2016	• Action plan outlining steps that the Scottish Government and public-sector partners will take to improve mobile connectivity across Scotland including:
	  • Identify where the gaps will be after commercial rollout and jointly design technology solutions and business models that will allow services to be delivered by operators in a sustainable way - will range from interventions such as business rates relief through to more direct interventions, such as investing in the construction of new or enhanced infrastructure
	  • Further reform of the planning system and proposals for the further relaxation of planning controls to support commercial investment in digital connectivity.
	  • Maximise the wider coverage benefits of the Extended Area Services (EAS) project within the wider ESMCP and to ensure that, where possible, these new masts are future-proofed and open to all operators
	  • Explore the potential for a national 4G mobile infill initiative
	  • A clearer understanding of what additional rural backhaul capacity may be required in Scotland to underpin longer term investment by the MNOs and also the capacity requirements to make Scotland "5G-ready

Realising Scotland's full potential in a digital world: A	• The Strategy lists a wide range of actions that need to be taken in order to achieve the vision it presents. These actions including:

Digital Strategy for Scotland (The Scottish Government, 2017)	• Actions to deliver high quality connectivity across the whole of Scotland • Actions to promote diversity in digital • Actions to support people and communities • Actions to promote digital inclusion and participation • Urges UK Government and Ofcom to apply the "outside-in" principle when auctioning spectrum for 5G deployment and ensure that operators deliver coverage to the most rural areas before they deploy in urban centres
Scottish 4G Infill Programme March 2017	• The Scottish 4G Infill Programme is funding new mobile masts in locations with no existing 4G mobile coverage to improve mobile connectivity for communities and businesses.
Planning (Scotland) Act 2019	• The Act sets out high level changes to the overall framework under which planning operates; the detail of how the new provisions will work in practice will be contained within secondary legislation and guidance.
Digital Scotland - Forging our Digital Future with 5G: A Strategy for Scotland 2019	• Emphasises that the Scottish Government must act collectively to ensure that all of Scotland – including rural areas – benefits from this revolution • The Scottish Government's aspiration is for Scotland to be at the forefront of this revolution and, ultimately, to establish the whole country as a leading 5G digital nation • 5G is so much more than an upgrade of previous generations of mobile connectivity • Enhanced connectivity will make Scotland more productive and efficient as a country and play a vital role in the transition to a zero-carbon economy and tackling the climate emergency, e.g. through reduced emissions • 5G will be transformational for businesses, public services and for individual citizens • 5G also has the potential to help sustain remote and rural areas • The technical capability of 5G will satisfy the needs of a wide range of innovative so-called 'use cases' – in terms of extended bandwidth, reliable ultra-low latency, and/or a high density of connected devices • Facilitating 5G by preparing local authorities to support 5G deployment through being '5G ready' in terms of asset management and planning regulations as examples • Continue to support 5G Rural First initiative and possible neutral host network • Ensure the Scottish policy environment supports 5G rollout such as encouraging infrastructure sharing • To undertake a wide review of permitted development rights including those for electronic communications

	• To publish revised guidance which will replace the existing Planning Advice Note 62: Radio Telecommunications
WALES	
Planning Policy Wales	• Planning Policy Wales (PPW) acknowledges that widespread access to affordable, secure electronic communications infrastructure is important to both communities and businesses.

Mobile Action Plan 2017	• A detailed Action Plan to establish better mobile connectivity in Wales:
	  • To create the right environment to encourage further investment in mobile infrastructure and to promote innovation in mobile technologies including:
	  • 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. A balance will need to be struck between mobile connectivity and the impact on the landscape.
	  • Statistics from Ofcom for television transmission are useful in highlighting the scale of the challenge. To reach 1 million people in England it requires 12 masts, in Northern Ireland it requires 25, Scotland requires 45 and Wales needs 67.
	  • Will look to consolidate the code of best practice and Technical Advice Note (TAN19) on mobile network infrastructure development.
	  • A reduction in non-domestic rates could be used to encourage investment in mobile infrastructure
	  • Welsh Government to continue to support emerging technology initiatives throughout the country including solutions to support rural businesses.
	  • Welsh Government will scope the extent of any public intervention to allow infill solutions where there is no usable and reliable mobile signal.
	  • Ensure much greater mobile connectivity along the road networks
	  • Examining the scope for future changes to the Permitted Development Rights Order for operators

Draft National Development Framework 2019	• Will set out the support got national economic, transport, environmental, housing, energy and cultural strategies and ensure they can be delivered through the planning system

	• Committed to ensuring all parts of Wales are supported by the telecoms infrastructure they need • Work with mobile network operators, infrastructure providers and local authorities to increase digital connectivity in the Mobile Action Zones identified
NORTHERN IRELAND	
DETI: Telecommunications Action Plan	• Sets out Executives wider strategy to support all forms of digital connectivity including mobile
Telecoms 2015 – 2017 - Continuing to Connect	• States that rural areas must also be beneficiaries of the Mobile Infrastructure Project UK, facilitated through DETI • DETI fully recognises the important role that good telecommunications plays in economic growth and will continue to work with the telecommunications industry and others, to ensure that appropriate infrastructure is in place to meet future demand
Regional Development Strategy 2035 (2010)	• Implement a balanced approach to telecommunications infrastructure that will give a competitive advantage • Improve telecom services in smaller rural areas to minimise the urban/rural divide, including mobile connectivity
Strategic Planning Policy Statement for Northern Ireland – September 2015	• Modern efficient telecommunications infrastructure that will give Northern Ireland a competitive advantage. • High quality communications infrastructure considered essential for sustainable economic growth • Ensure that the visual and environmental impact of telecommunications and other utility development is kept to a minimum

5G

TECHNICAL CONSIDERATIONS

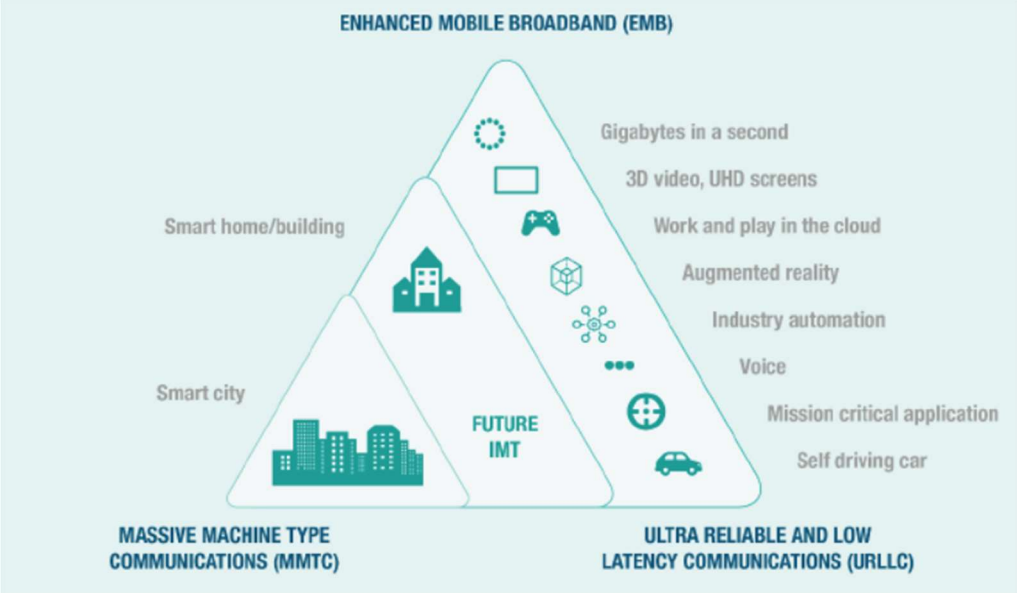
1.0 Implementing the UK Digital Strategy

1.1 Mobile and other forms of digital connectivity were once handy to have, perhaps even a luxury. However, as clearly recognised by UK Government in its Digital Strategy, they are now an essential part of everyday life.

1.2 Advanced digital connectivity provides new business opportunities, allows the UK to be competitive in changing global markets and supports people in their everyday lives. From the first generation of analogue phones to modern 4G enabled smart phones, the UK public has embraced the benefits provided by better mobile connectivity. The UK Government's Digital Strategy ambition is for the UK to be the global leader in the next generation of mobile technologies and digital communications like 5G and for the UK population to have access to world leading technology and lifestyles associated with those benefits.

1.3 Next generation smart devices utilising 5G, will benefit from enhanced mobile connectivity and facilitate the expanding range of services available to communities. From the first generation which provided voice calls, second generation that allowed basic data such as texting and the third and fourth generation networks which have offered progressively better internet and video access and the development of a myriad of "apps", the development of mobile connectivity continues at pace.

1.4 5G brings a revolutionary approach to managing the spectrum and greatly increasing data speeds and will deliver ultra-fast wireless broadband connections. The public advantages and opportunities this presents will be revolutionary - near-instant downloads of HD films, smart medical devices and smart cities, connected autonomous vehicles and traffic management, smart manufacturing with heterogenous autonomous machines, direct machine to machine communication, automated agriculture, far greater security provision, more stable and reliable connectivity and advances in further application development and many uses not yet identified.



1.5 It is estimated that 5G will directly contribute to an additional £7 Billion a year to the UK economy in just six years from roll-out and the significance of 5G is reflected in a range of Government policy:

> *"This Government has a clear ambition for the UK to be a global leader in the next generation of mobile technology – 5G. Good digital infrastructure is a building block of the Government's modern Industrial Strategy - it creates new opportunities for growth by allowing business to be done on the move; unleashing dynamic business models; and opening up new opportunities and markets. It also supports us in our everyday lives - connecting us with friends, family and colleagues; helping us to stay safe; and giving us access to information and services that we increasingly take for granted. 5G promises a step-change in mobile connectivity with enormous potential to boost productivity and grow the economy, and we want the whole country to benefit. So, we will take a leading role in its development and roll-out, putting the UK at the forefront of the 5G revolution".*
>
> Department for Culture, Media & Sports - Next Generation Mobile Technologies: A 5G Strategy for the UK

1.6 The Mobile Network Operators (MNOs) deployment of 5G will start with our major centres and transport networks. The next phases will see coverage

extend across the whole of the UK, in line with coverage obligations and public demand for the services and benefits.

1.7 The deployment of 5G will begin through utilising the MNOs existing 3G and 4G networks and so for a period of time, sites are likely to carry different services in parallel, with intelligence applied to ensure high data uses operate through the higher capacity networks. Although 5G will undoubtedly bring new opportunities and huge benefits to society, this can only be delivered with additional infrastructure and that will mean new structures, antennas and ancillary equipment.

1.8 The success of 5G will be hugely dependent on its network resilience, especially if it is to be used for many of the planned services mentioned in paragraph 1.4, such as connected autonomous vehicles and smart medical services. Consequently, the network is likely to have a degree of duplication and overlap of sites to ensure full and reliable coverage, network capacity and operational resilience.

1.9 New mobile technologies - or generations - have been introduced roughly every 10 years, each offering improved services compared with previous generations. However, the existing 4G network rollout has been relatively rapid and indeed 5G deployment will mean that the timescales between mobile technologies has now reduced further. Although this has huge benefits as indicated above, it does mean that the UK legislative systems, including planning systems, have to continually adapt to these changing circumstances.

1.10 With each mobile generation, the types, amount and scale of apparatus needed to deliver new mobile connectivity change, and this will be even more evident with 5G. Government policy and permitted development rights will become more focussed on assisting the timely delivery of 5G, allowing the public benefits from the advances of this technology to be achieved.

1.11 In turn all of this will be reflected in operator delivery obligations and timescales. Parity of new mobile services will also become more evident – reflecting concerns about digital divides and that connectivity should be universally available, bringing with it challenges of delivering new or improved services into geographically more peripheral population areas:

"Getting 5G deployment right will be critical in a future where connectivity is becoming integral to almost all parts of the economy, and the UK will put its future growth and competitiveness at risk it if falls behind".

'Connected Future' National Infrastructure Commission 2016

1.12 However, the one constant in the regulatory and policy framework is the continued emphasis on reusing and sharing existing sites as the best way of avoiding the unnecessary proliferation of new sites and so minimising potential environmental impact.

2.0 National policy support

2.1 Currently all the UK planning systems support advanced modern mobile connectivity, reflecting the UK Government's Digital Strategy and significance of 5G to the UK economy. 5G and associated benefits are described in more detail in the accompanying Cellnex document ***'National Policy – Delivering Ultra Fast Broadband Mobile Connectivity'***. Planning reform across all UK regions is now starting to reflect the specific support for next generation mobile technologies in particular 5G. For example, in England, the National Planning Policy Framework February 2019 states:

"Advanced, high quality and reliable communications infrastructure is essential for economic growth and social well-being. Planning policies and decisions should support the expansion of electronic communications networks, including next generation mobile technology (such as 5G) and full fibre broadband connections".

2.2 In relation to mobile connectivity, there is very clear emphasis on supporting advanced digital communications, but at the same time the importance of striking an appropriate balance with environmental considerations is still recognised, with emphasis on appearance and design as well as sharing existing sites.

2.3 5G installations will in many cases be larger than the latest generations, because of the greater amounts of apparatus to support. This will take us back to ground-based mast heights used more typically with the first generation, i.e.

20 to 45 metres. However, this has to be viewed in the context of other, often much larger forms of essential public infrastructure that currently exist in urban and rural areas such as pylons, wind turbines, railway and road communications, street furniture, CCTV, and heating infrastructure. It is obviously a regrettable feature of a modern society that there will be some inevitable and unavoidable visual impacts associated with the public infrastructure necessary to serve us.

2.4 The delivery of 5G mobile connectivity will therefore bring about the need for new infrastructure but no more and often less than might be expected to deliver other essential public services. The regulatory and policy framework encourages minimising the potential impacts, but as with previous generations this will be tempered by the special technical and operational requirements that appertain. With 5G these will be considerable and more so when compared to previous generations of mobile base station deployment which are explained below.

3.0 Special operational, technical and siting considerations

3.1 The rollout of 5G equipment will initially be concentrated at a “macro” level, that being the upgrade of existing main base station or macro installations, coupled with the development of new macro installations. The potential for Small Cells, being micro base stations often utilising public infrastructure (like lamp posts) to provide dense urban 5G coverage (and capacity) will evolve as the technology is taken up. Initially this will be concentrated towards main cities and towns with greatest mobile phone demands.

3.2 Many existing macro installations are on rooftops and stand-alone towers. These will need to be upgraded and, in some cases, redeveloped to accommodate the new equipment and antennas.

3.3 Where a mobile operator already operates from a rooftop or mast and is therefore already providing mobile services to the local area, the 5G apparatus will be an upgrade of existing services and likely to provide coverage over the same area. As the reuse of existing sites accords with the regulatory and policy framework, there is no need to consider alternative sites, as made clear for

instance in paragraph 115(c) of the NPPF (England). In any event, to do so might also conflict with the existing network architecture and relocation might therefore be difficult, complex and time consuming to achieve.

3.4 In other cases where the operator has no existing base station in the area, the new 5G installation will be located and designed so that it can integrate into the wider 5G network under deployment. This may be for coverage or other reasons such as network resilience as previously explained, but because of the increased density of sites, there may have to be achieved within tight siting parameters.

Operational considerations

3.5 Whether it is the upgrade of an existing mobile base station or provision of a new site, a combination of the following operational considerations will apply:

- The need to provide an acceptable level of coverage over the target coverage area by the sector antennas and to meet expected demands and network resilience (antennas can only handle certain call and data levels)
- The need for a dense and superfast fixed fibre network, necessary for a 5G base station to rapidly process calls and data instructions and connect to the wider network
- Where necessary, point-to-point radio transmission dish antennas with heights required to allow direct line of sight
- Proximity to a suitable and reliable power source
- Positioning to meet public and occupational exclusion zones to meet ICNIRP guidelines (International Commission for Non-Ionising Radiation Protection)
- Demarcation and safety handrailing, protected cable routes, climbing access and some small signage
- An accessible route for construction and future maintenance access – pedestrian or vehicular

- A reasonable degree of security and associated signage
- A sympathetic and willing site provider
- For new ground-based masts, sufficient buffer space to allow for drop and exclusion zones
- Suitable ground and rooftop conditions to accommodate load bearing apparatus

More apparatus requirements

3.6 As 5G will operate across multiple radio spectrums it will require additional antennas and new equipment cabinets. Each generation of mobile base station has introduced slightly different antenna requirements, technical and siting considerations. Generally, each generation of mobile connectivity has seen the number of antennas required being reduced, particularly due to the sharing capability of newer antenna systems and network consolidation agreements between some of the MNOs. 5G is likely to require more antennas due to the need to ensure resilient coverage and in some locations, particularly towns and cities, the operators may need additional antennas simply to meet network capacity requirements.

3.7 Previous mobile generations used sector or omni directional antennas sited high to provide geographical coverage over the cell area in a blanket fashion. In urban areas, the 5G frequencies allocated by Government will not travel as far, which means the network will have to be denser. To ensure efficiency the antennas will be more “intelligent”, more optimised and highly ‘directional’. 5G antennas will therefore be highly advanced, in many cases using multiple-input multiple-output technology (MIMO) which essentially allows new antenna technology to be “smarter” and better track and communicate simultaneously with multiple mobile users.

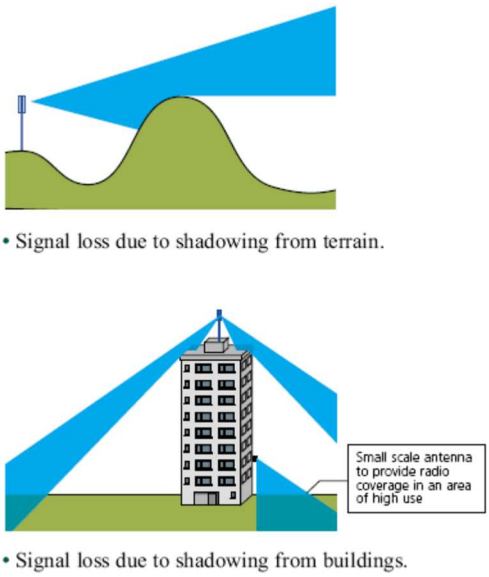
Greater height and siting implications

3.8 This has implications for siting and design. On building rooftops in particular, 5G antennas will need to be much closer to the building edge to avoid

shadowing and antenna ‘clipping’ off the edge of the buildings and to allow the smart “tracking” features of the antennas.

Source: Cellnex Blackheath Telephone Exchange – roof edge 5G antenna configuration

3.9 Clipping of signals is already an important operational factor reflected in planning guidance such as this diagram from Annex C of Planning Advice Note 62 in Scotland, but now more prevalent to 5G:



Source: Annex C of Planning Advice Note 62 in Scotland

3.10 If this is not possible, then the antennas may have to be located higher on structures in the centre of the roof, but raised to a height to avoid the same 'clipping' issues. For antennas on ground-based masts, they will also have to be sufficiently high and clear of obstacles that can degrade signal propagation and be sited close to the target area.

Larger apparatus and redevelopment requirements

3.11 As new 5G antennas will also continue to provide other services like 3G and 4G (the antennas allow shared frequencies and shared services), they will normally be larger and so greater in appearance (although there is an expectation that 5G antenna technology and design will evolve and may reduce over time).

Source: Cellnex Trowell Services – 5G antenna and feeders

3.12 In turn, larger and heavier 5G antennas, are likely to require more supporting steelwork on rooftop installations. Necessary antenna supporting apparatus will also require additional supports.

3.13 Where 5G antennas are to replace those on an existing mast, the additional structural and wind loading of the new 5G antennas (and necessary support apparatus) may necessitate redevelopment of the existing structure.

More antenna support apparatus

3.14 As new 5G antennas will provide other services like 3G and 4G and antennas can be shared by more mobile operators (as part of radio network sharing agreements), they will also require a greater range of ancillary apparatus to combine the different radio frequencies and also help regulate signal / power loss between the equipment in the equipment housing and the antennas themselves.

3.15 This ancillary apparatus will be mainly small units normally behind or very close to the antennas. In some cases, they may be grouped on purpose-built support apparatus, but however configured it will necessitate higher and larger structures to support these additional complements.

Source: Blackheath Telephone Exchange – 5G antenna support apparatus

Greater reliance on fibre connectivity

3.16 Unlike earlier networks, 5G will rely more on dense fixed line fibre networks as these are both reliable and very high capacity. As a consequence, fibre routes and the opportunity to extend them will significantly influence siting and design of new installations.

3.17 In some cases, network requirements may also require dish antennas (transmission dishes) that operate on a direct 'line of sight' basis, a bit like a search light beam, to other dishes on corresponding installations on the network. This is likely to be the case where the 5G base station also incorporates planned other mobile services such as 4G. Fibre and dish "backhaul" requirement for 5G are very important as:

- They link the base station to the wider national network, which in turn is linked to other national and international networks
- 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
- Likely to provide telemetric monitoring to ensure the site is working properly, with some faults able to be fixed remotely.

3.18 Base stations also require cabinets to house the electronic communications radio equipment and an electricity meter cabinet for the necessary power connection. For 5G base stations sited on buildings, these cabinets are normally located at roof level to reduce feeder lengths, which if too long can affect radio signals and antenna performance.

Additional rooftop siting constraints

3.19 Additionally, on rooftops, the following considerations will also apply:

- Antennas have to be positioned to avoid radio interference with any existing equipment already installed on the building.
- All apparatus has to be maintainable in accordance with general health and safety requirements including the Construction Design Management regulations.
- All apparatus has to be installed in a structurally feasible manner.

- On a rooftop, all apparatus has to be clear of existing features such as access points, air conditioning units, roof lights, or other electronic communications apparatus.

- Apparatus has to be installed in accordance with the requirements of the building owner.

ICNIRP compliance implications

3.20 As some 5G apparatus will operate at higher power levels than earlier generations, it will need to be elevated higher off building rooftops, to ensure public exclusion zones can be maintained (see "***5G - Health and Safety*** for more information***)***".

3.21 Rooftop installations, whether new or existing will all be subject to this constraint and so require more prominently sited apparatus, which is a factor to bear in mind when considering alternative sites.

Interference considerations

3.22 The mobile network operators are also under a legal obligation to comply with the conditions of their licences granted by Ofcom. These conditions ensure compliance with legal obligations in respect of avoiding interference between themselves, with other radio systems, other electrical equipment, instrumentation and air traffic systems. The conditions of the licence are mandated by Ofcom who are responsible for the regulation of the civilian radio spectrum. Ofcom also has powers to investigate and remedy any reported significant interference.

4.0 Town Planning implications

4.1 All of this presents more complex issues for both the mobile operators, site owners and also additional considerations for Local Planning Authorities, as previously 2G, 3G or 4G systems could generally be accommodated without

the need for the same extent of extra supporting structures, support apparatus and antenna heights.

4.2 All new proposals will still have to operate within the prevailing ICNIRP (International Commission for Non-Ionising Radiation Protection) guidelines and that will influence siting and design to a greater extent than before.

4.3 The special technical and operational factors that apply to 5G will therefore affect siting and design considerations greater than before. This document should help explain these key considerations and how they are material considerations that must be reflected in town planning decisions.

4.4 All that said, it is recognised that any proposal must strike an acceptable balance with environmental considerations and the Government recognises that the best way to achieve this is still through sharing and the reuse of existing infrastructure.

4.5 In weighing the balance, it is also necessary to take into account the now massive and still growing public demand for mobile connectivity and the revolutionary nature of the many and considerable public benefits that 5G will deliver to support a prosperous economy and to make our lives safer and more convenient.

Cellnex

5G

HELPING TO TACKLE CLIMATE CHANGE

CLIMATE CHANGE

Background

1. Countries around the world have set aggressive targets for cutting greenhouse gas emissions. In 2019, the UK Government adopted one of the toughest climate change targets with a commitment to meet net zero emissions by 2050.

2. To achieve this ambitious but very important target, it means the UK emitting as much as it is removing from the environment and essentially an end to the UK's contribution to global remissions in 2050.

3. However, this is not just about reducing fossil fuel use, recycling, better managing our resources and wastage and electrifying our transport. That alone will be insufficient. It has to go much further than that. It's about changing how we act as individuals, how communities might adapt and embrace new sustainable living and working practices and how public services and industry might adopt technology to support responsible practices, more efficiency and reduce resource use. This in turn requires our cities, towns and villages to evolve and become "smarter", efficient and more self-sustaining. We have to look more closely at advanced modern technologies like 5G to achieve this.

4. Technical advancements in electronic communications will be a key driver and help underpin and support many of these necessary changes. 5G mobile connectivity will be essential to meet these changes. The Department for Digital, Culture, Media & Sport's (DCMS's) July 2018 Future Telecoms Infrastructure Review stated that is the Government's aim for the "majority of the UK" to have 5G mobile coverage by 2027", so we have to move fast and if anything, the seriousness of the current climate concerns will pull this date forward.

So, how will 5G help tackle climate change?

5. Mobile communication networks in themselves rely on power and as data usage increases, the energy to power these networks will inevitably also increase. However, mobile communication networks themselves contribute a very small percentage of CO2 emissions globally and many operators now look to utilise power from renewable resources.

6. More importantly, however, is that these network carbon emissions have to be offset against the enormous contribution mobile communications networks will have to reducing carbon emissions across all aspects of life as we explain further. These benefits will significantly offset the carbon footprint of running the networks.

7. 5G is the next generation of mobile connectivity and will deliver a step change of ultrafast, ultra-low latency, flexible and reliable mobile connectivity, that is able to support wide-ranging new "applications", including machine to machine applications, that will help to drive forward and support our daily activities and help the UK meet zero carbon targets.

8. 5G and associated “Internet of Things” (IoT) capability, with the UK blanketed with ultra-fast mobile connectivity, will bring about a growth of new services and greater dependability. This will help underpin UK’s sustainability and carbon reduction policy by, as examples:

- Reducing energy consumption for the mobile network through more efficient network operations – in simple terms, due to much lower energy required to transmit the same volumes (or more) of data, 5G should outperform 4G by an order of magnitude and 2G/3G networks by many times. It is a much cleaner network technology.

- 5G will allow previous generations of mobile connectivity to be switched off over time, removing the power requirements of older and less efficient networks

- 5G will drive new handsets, which will need to be more power efficient and using more refined ‘Adaptive Power Controls’, so network energy usage is better managed

- 5G will offer significant improvements in capacity and data speeds, which means a level of connectivity that can genuinely support and better manage critical services such as health, power, public services and transport – in turn advancing new technologies that might allow more efficient working practices and reduce carbon footprints for consumers, services and industry. To name a few these might include:

    - Parking space availability applications, with locational notifications to smart phone, so avoiding the need to travel around city centres trying to find a space and helping to improve air conditions

    - Taxing sharing services, where groups of individuals might plan shared taxi rides around a city centre, avoiding unnecessary route duplication

    - Crowdsourced bus services i.e. the sharing of anonymised data with privately run bus operators to suggest new routes which are determined by community demand. This leads to more efficient public transport and helps to reduce private car usage (already available in cities like Singapore)

- Monitoring of remote service vehicles like rubbish vehicles to optimise refuse and waste services

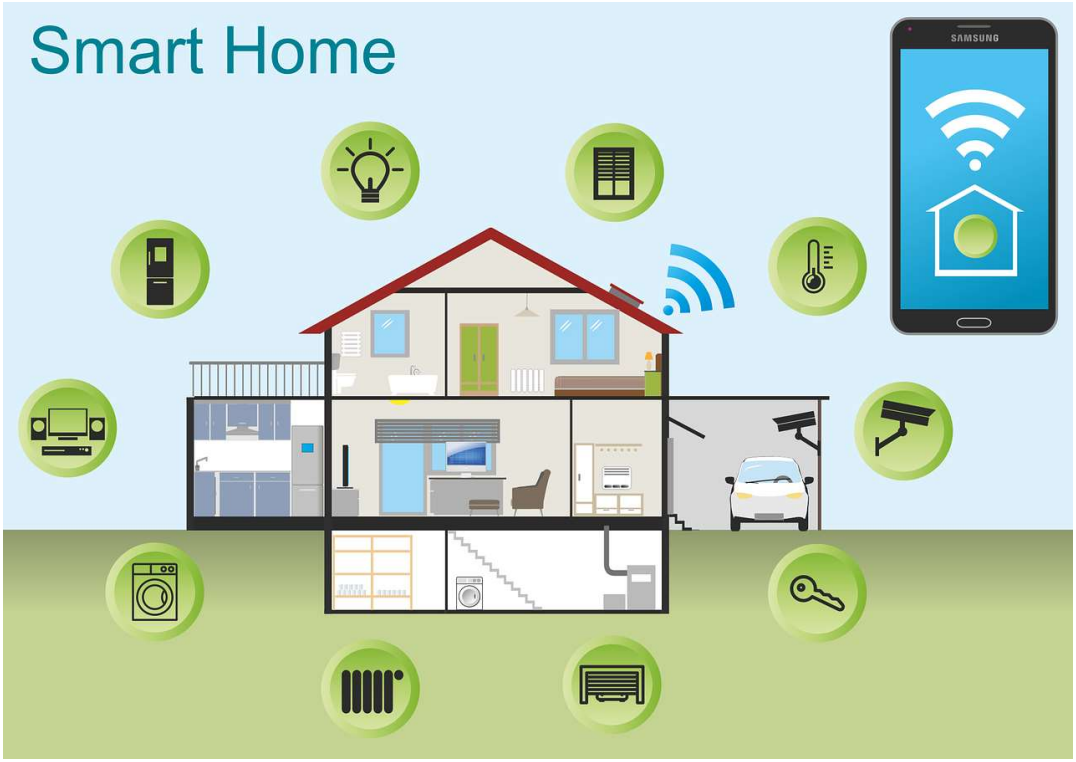
- Maintenance and repair notifications from domestic and industrial machinery like washing machines i.e. a replacement part is ordered well in advance of failure, allowing more efficient replacement

- Implanted communication advices that support “telehealth” applications such as allowing remote monitoring of public health services and patients e.g. pace makers, oxygen tanks, respirators, environmental monitors in patients homes – that allow advanced replacement as part of a more efficient and timely services and reduce unnecessary checks and travel

- “Connected” ambulances with 5G capability which can forward in advance medical conditions of patients, so allowing the triage of medical responses by Emergency Department staff and supporting more efficient health care services and resource planning

- Remote consultations with 5G allow medical appointments to take place remotely via high-quality video calls, more reliably than is currently possible – so meaning that patients do not need to make unnecessary travel

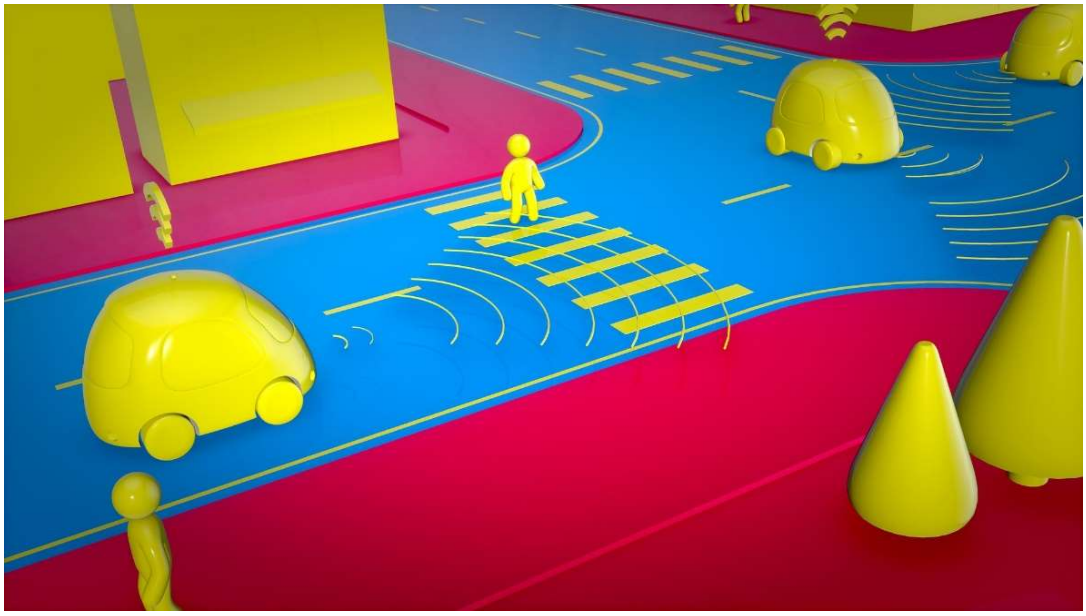
- An ability to support a far larger number of connected devices (including IoT devices) and smart “applications” and supporting new green technologies and businesses including our ability to control our homes – for examples, being able to turn heating on when needed and in advance of arriving home or turn off remotely so to minimise energy waste



- An extension in the battery life of ‘sensors’ that will underpin many 5G and IoT services, thanks to lower power requirements

- Greater reliability and dependability, through massive resilience in the networks, so allowing smart city features like smart motorways that adapt to traffic levels or environmental conditions i.e. regulating car speeds during congestion periods or in times of poor air conditions

- Connected and autonomous vehicles (CAVs) that can use communications technologies to send and receive information to and from other vehicles and/or surrounding road infrastructure. They also use sensors and software to operate without human intervention but can allow driver assistance or report vehicle maintenance and safety. This could be faulty emissions, sending data about a vehicle's performance back to the manufacturer to identify faults more quickly or to a garage.



- Bringing high speed blanket connectivity to areas with little connectivity exists – so supporting different approaches to how and where we live and work (such as supporting more rural enterprises) and influencing travel choices through remote working:

    - For example, a worker who would normally travel 20 miles to and from work each day (40 miles) and could; through 5G, work from home two days a week, would reduce travel emissions by 80 miles a week (which could be around 3700 miles a working year). That would be a reduction of over 80 gallons of petrol (based on @ 45 mpg) and associated carbon emissions

- More efficient production techniques and just in time services through real time monitoring and reduction of waste

- Allowing real time energy consumption information or accurately predict or react to known activity periods that might allow smarter energy management and production

- Switching on machinery when energy generation exceeds demand – a night time economy or service industry

How should the planning system help?

9. To maximise the reduction in greenhouse gas emissions, that can be achieved by smart cities, towns and rural areas, local planning authorities will need to facilitate the timely roll-out of 5G.

10. National policy of all Governments, reflected in the National Planning Policy Framework (NPPF) in England, Scottish Planning Policy (SPP), Planning Policy Wales and the Strategic Planning Policy Statement for Northern Ireland, is to support the provision of advanced mobile connectivity. We expand more on the huge policy support for 5G and associated economic and social benefits in our accompanying document ***'National Policy - Delivering Ultra Fast Broadband Mobile Connectivity'***.

11. Policymakers can also play a role in ensuring that the public sector is an early adopter of 5G. This will spur the proliferation of use cases and generate economies of scope in the use of 5G.

12. In terms of supporting 5G, local planning authorities must also understand the nature of 5G technology and the specific network requirements, which will bring about new apparatus needs, specific sites (coverage and capacity), height requirements and generally larger apparatus. We explain this further within our accompanying supporting document ***'5G Technical Support'.***

Cellnex

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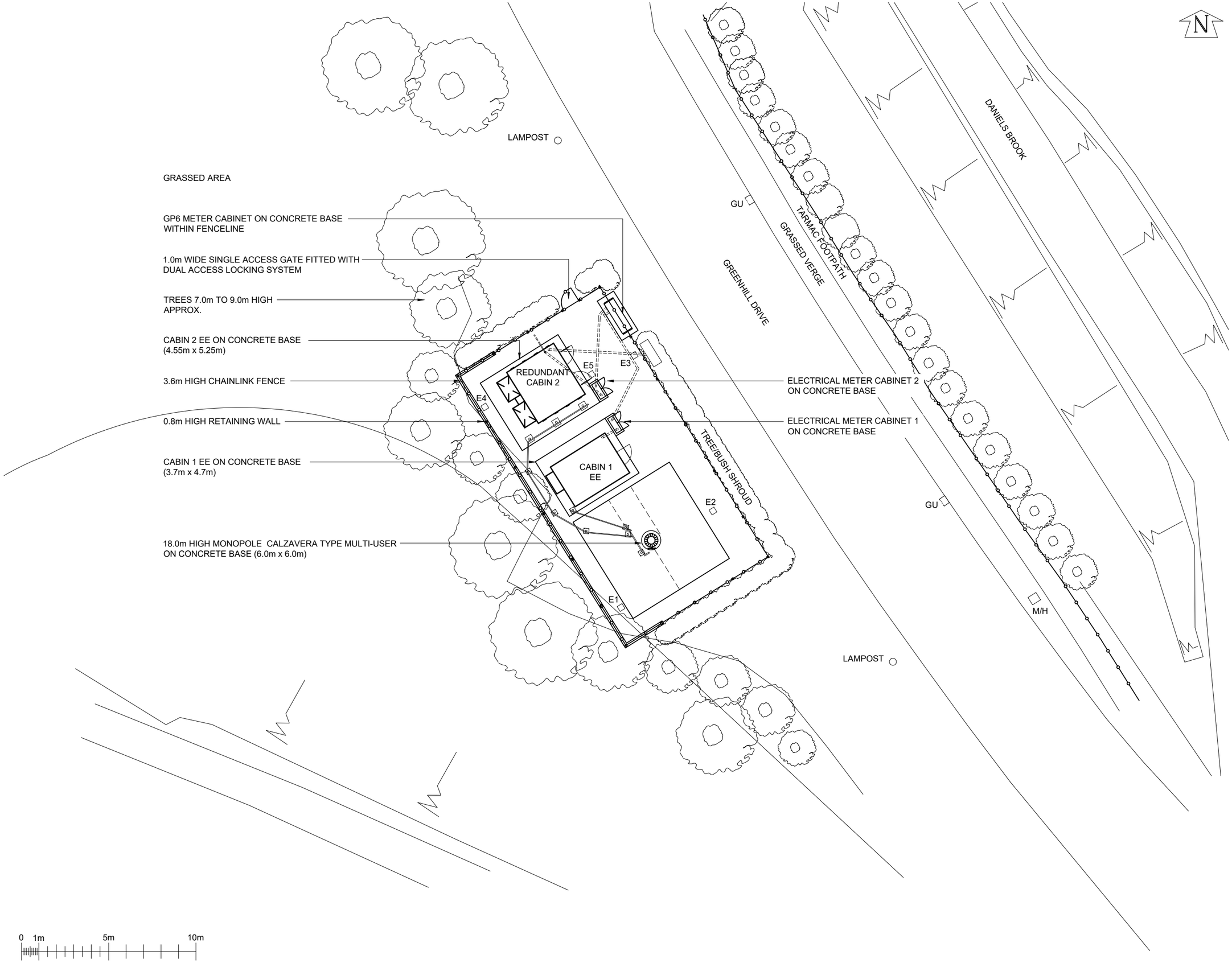

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5	PROJ No 155666 AS BUILT	11/06/15	WHP	HF
4	PROJ No 155666 AS BUILT	09/06/15	WHP	HF

PROJECT No. 244415

CELL No. GLO004

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SITE No 161051
QUEDGELEY 2
LAND OFF GREENHILL DRIVE
TUFFLEY
GLOUCESTER
GLOUCESTERSHIRE
GL2 5PA

NGR SO 81380 15040

OS GRID 381380 215040

TITLE
SITE PLAN
EXISTING

SCALE 1:200

DRAWN	IM	19/08/11
APPROVED	WHP	16/02/22

DRG No. 161051-06-000-MD008 | Sheet 1 of 1 | Rev 8

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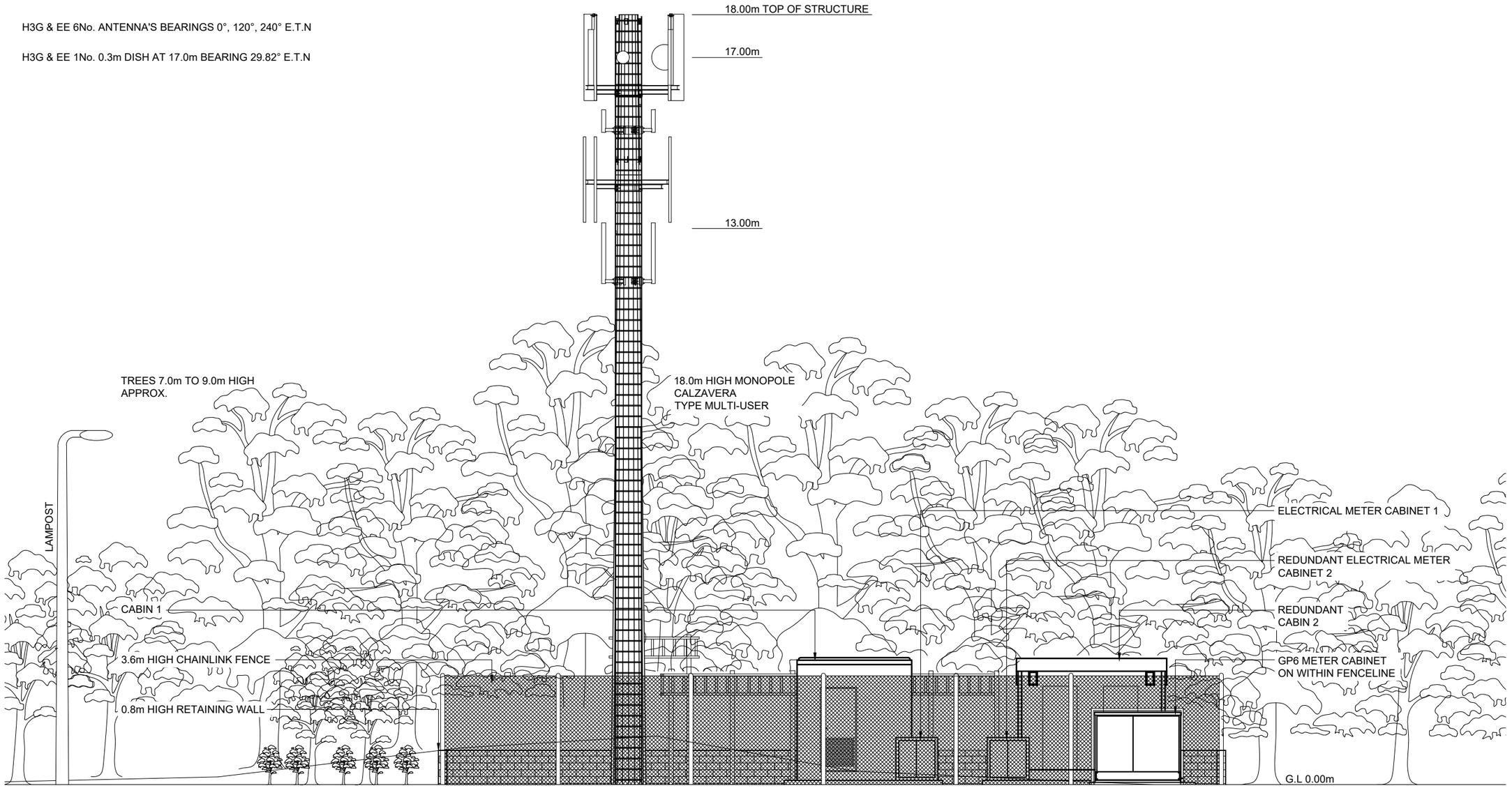
NOTES

H3G & EE 6No. ANTENNA'S BEARINGS 0°, 120°, 240° E.T.N

H3G & EE 1No. 0.3m DISH AT 17.0m BEARING 29.82° E.T.N



NORTH EAST ELEVATION

0 1m 2m 3m 4m 5m
0.5m

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QUEDGELEY 2
LAND OFF GREENHILL DRIVE
TUFFLEY
GLOUCESTER
GLOUCESTERSHIRE
GL2 5PA

NGR SO 81380 15040

OS GRID 381380 215040

TITLE
ELEVATION
EXISTING
NORTH EAST

SCALE 1:100

DRAWN	IM	19/08/11
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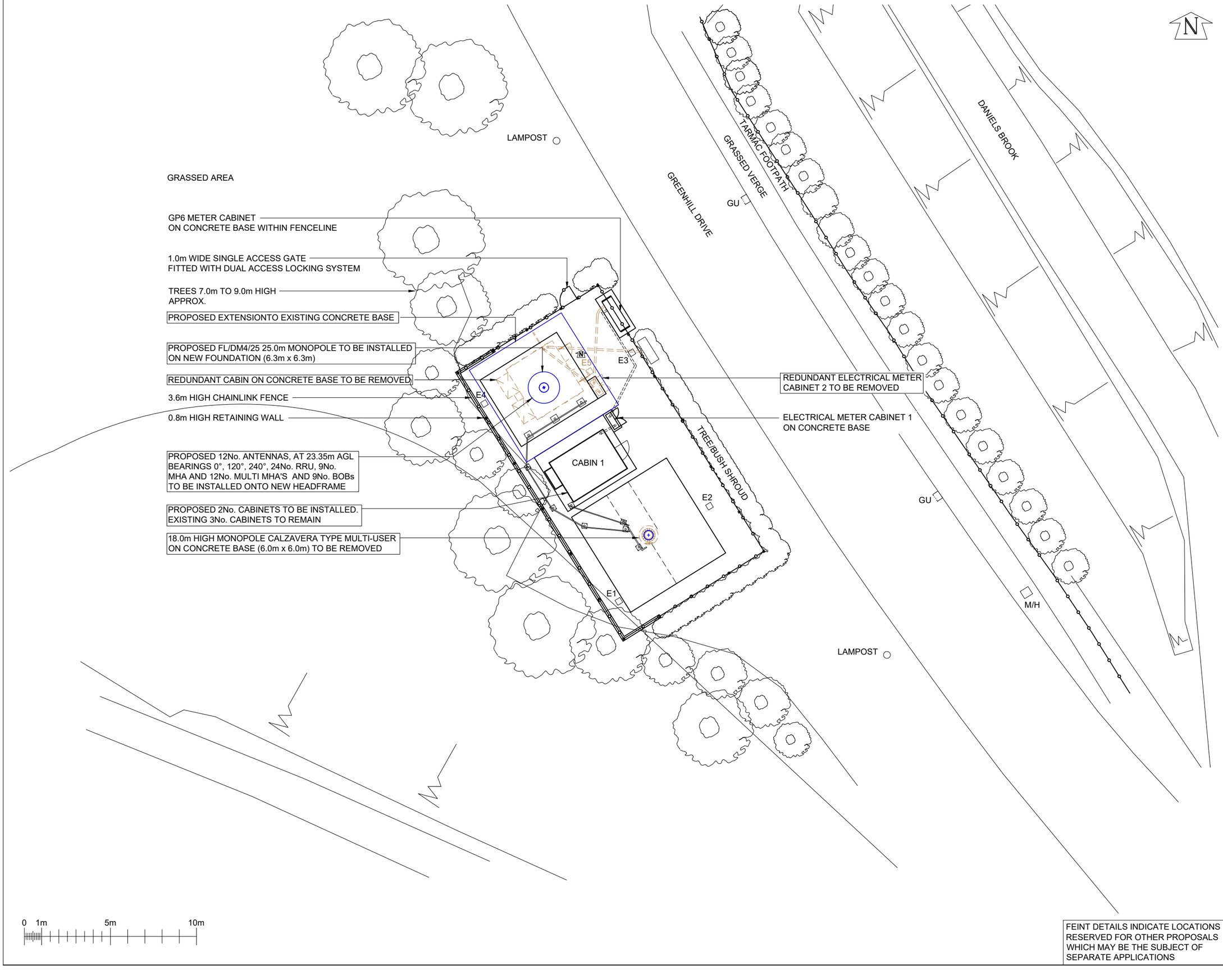
NOTES



FEINT DETAILS INDICATE LOCATIONS RESERVED FOR OTHER PROPOSALS WHICH MAY BE THE SUBJECT OF SEPARATE APPLICATIONS

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CELL No.	GLO004			
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LAND OFF GREENHILL DRIVE
TUFFLEY
GLOUCESTER
GLOUCESTERSHIRE
GL2 5PA

NGR SO 81380 15040

OS GRID 381380 215040

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PLANNING APPLIACTION
SITE PLAN

SCALE 1:200

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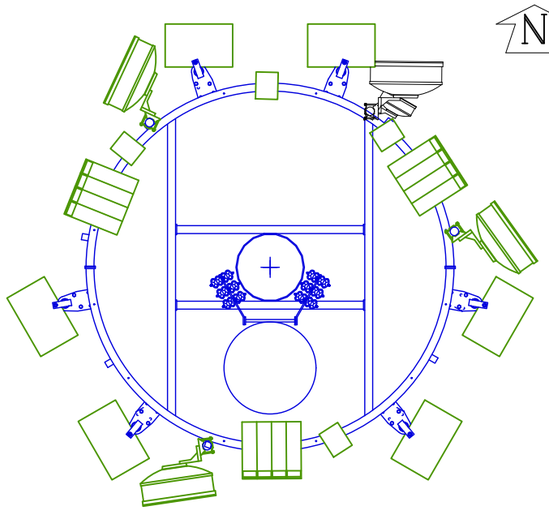
NOTES

PASSIVE INFRASTRUCTURE EQUIPMENT CAPACITY		
A	B	C
H2a - 3.3 stacked	H2a - 3.3 stacked	H2a - 3.3 stacked



1No. 0.6m DISH AND 1 No. 0.3m DISH AT 17.0m TO BE RELOCATED ONTO NEW HEADFRAME

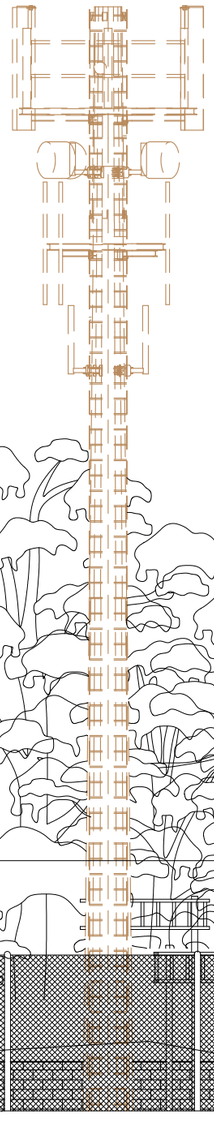
PROPOSED 3No. DISHES TO BE INSTALLED ONTO NEW HEADFRAME

PROPOSED 12No. ANTENNAS, AT 23.35m AGL BEARINGS 0°, 120°, 240°, 24No. RRU, 9No. MHA AND 12No. MULTI MHA'S AND 9No. BOBs TO BE INSTALLED ONTO NEW HEADFRAME

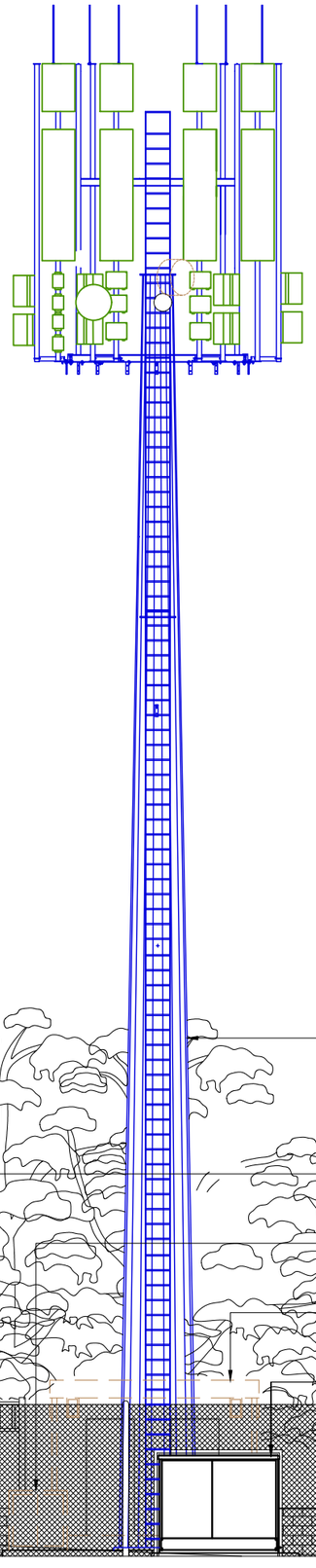
TOWER PLAN AT 23.35m

SCALE 1:50

0 0.5m 1m 2m



18.00m TOP OF STRUCTURE



25.0m TOP OF STRUCTURE

23.35m

21.00m

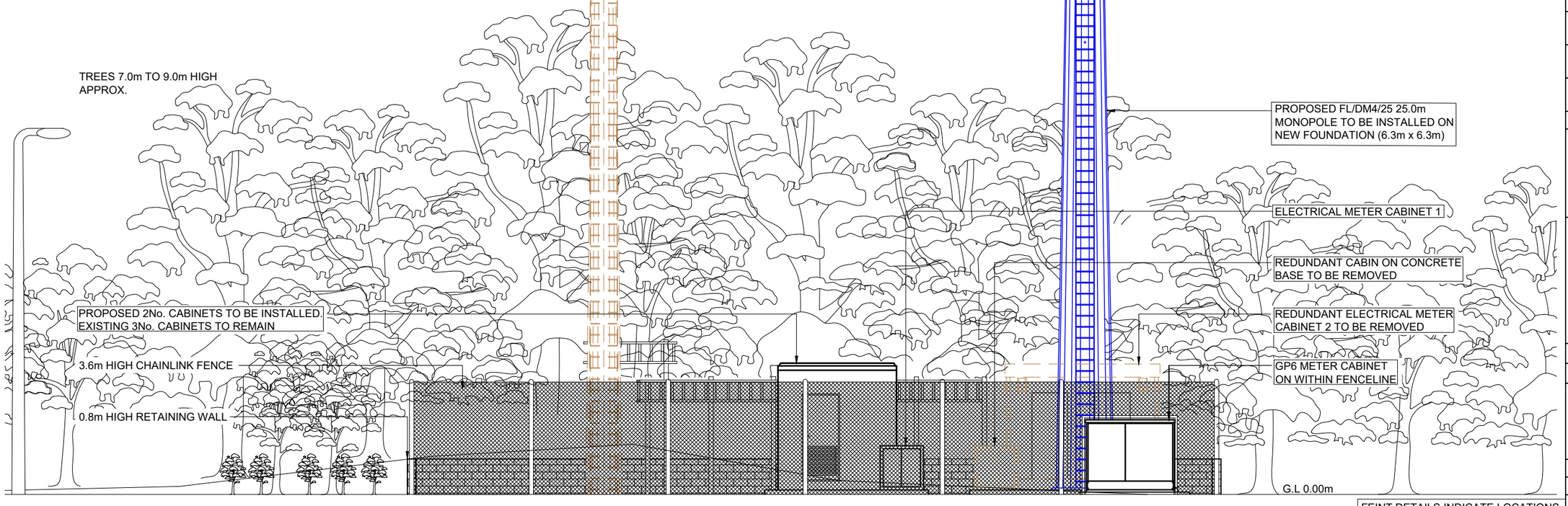
PROPOSED 12No. ANTENNAS, AT 23.35m AGL BEARINGS 0°, 120°, 240°, 24No. RRU, 9No. MHA AND 12No. MULTI MHA'S AND 9No. BOBs TO BE INSTALLED ONTO NEW HEADFRAME

1No. 0.6m DISH AND 1 No. 0.3m DISH AT 17.0m TO BE RELOCATED ONTO NEW HEADFRAME

PROPOSED 3No. DISHES TO BE INSTALLED ONTO NEW HEADFRAME

6No. ANTENNAS AT 17.0m MEAN BEARING 0°, 120° & 240° E.T.N. TO BE REMOVED

EXISTING 18.0m MONOPOLE TO BE REMOVED



0 1m 5m 10m

NORTH EAST ELEVATION

FEINT DETAILS INDICATE LOCATIONS RESERVED FOR OTHER PROPOSALS WHICH MAY BE THE SUBJECT OF SEPARATE APPLICATIONS

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CELL No.	GLO004

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R+, 4TH FLOOR, 2 BLAGRAVE STREET, READING, RG1 1AZ

SITE No 161051
QUEDGELEY 2
LAND OFF GREENHILL DRIVE
TUFFLEY
GLOUCESTER
GLOUCESTERSHIRE
GL2 5PA

NGR	SO 81380 15040
OS GRID	381380 215040

TITLE
PLANNING APPLICATION
ELEVATION
NORTH EAST

SCALE	1:200	
DRAWN	IM	19/08/11
APPROVED	WHP	16/02/22

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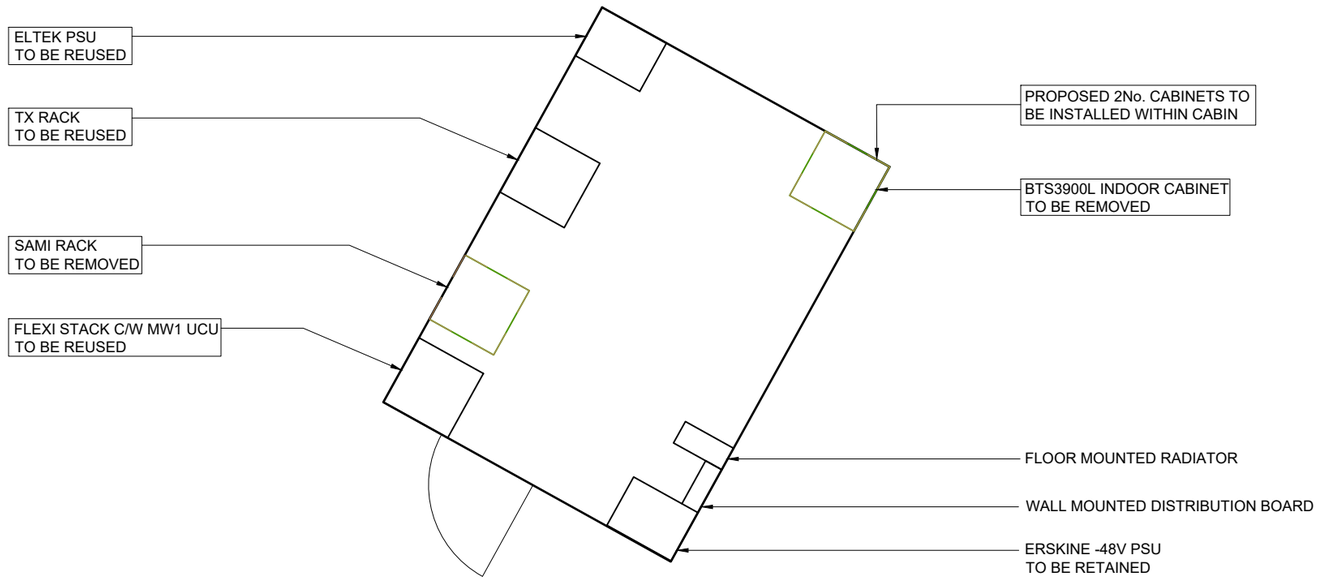

CABIN LAYOUT

0 0.5m 1m 2m

FEINT DETAILS INDICATE LOCATIONS RESERVED FOR OTHER PROPOSALS WHICH MAY BE THE SUBJECT OF SEPARATE APPLICATIONS

NOTES

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[redacted]

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LAND OFF GREENHILL DRIVE
TUFFLEY
GLOUCESTER
GLOUCESTERSHIRE
GL2 5PA

NGR SO 81380 15040

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TITLE
CABINET/INTERNAL ROOM LAYOUT

SCALE	1:50	
DRAWN	IM	19/08/11
APPROVED	WHP	16/02/22

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