The Scottish Government

Bidwells LLP and FarrPoint Ltd

Research on Permitted Development Rights and Planning Guidance for Electronic Communications Infrastructure

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- Members of the client Steering Group comprising representatives of the Scottish Government's Building Standards Division (BSD), Planning and Architecture Division (PAD), and the Scottish Government's Directorate for Digital (DD).

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1 Executive Summary

1.1 Introduction

1.1.1 The Scottish Government appointed Bidwells LLP and FarrPoint Ltd to explore the possible extension of existing Permitted Development (PD) rights for electronic communications infrastructure for fixed and mobile systems, and to make detailed evidence based recommendations on the scope for further changes.

1.1.2 Class 67 of Schedule 1 to the Town and Country Planning (General Permitted Development) (Scotland) Order 1992 (GPDO) grants planning permission (known as PD rights) for certain developments by Electronic Communications Code Operators subject to restrictions and conditions – removing the need to apply for planning permission.

1.1.3 The Electronic Communications Code ('the Code') enables electronic communications network providers to construct electronic communications networks. The Code enables these providers to construct infrastructure on public land (streets), to take rights over private land, either with the agreement with the landowner or applying to the County Court or the Sheriff in Scotland, and to make use of PD rights. The Code has effect in all cases subject to the conditions and restrictions set out in the Electronic Communications Code (Conditions and Restrictions) Regulations 2003.

1.2 Aims of this research project

1.2.1 The aims of this research project are threefold:

- Produce evidence based recommendations on the scope for legislative changes to further increase PD rights for electronic communications infrastructure;
- Identify and report on good practice case studies in handling planning applications for electronic communications infrastructure;
- Make suggestions on which aspects of the Planning Advice Note: Radio Telecommunications (PAN 62) can usefully be retained, and on the need for and content of any new advice required.

1.3 Methodology

1.3.1 The research recommendations are based on findings from the following in relation to electronic communications infrastructure:

1.3.1.1 Literature review to capture the state of the industry, emerging trends, the Scottish Government telecoms policy, planning regime, PD rights and associated guidance (PAN 62);

1.3.1.2 Analysis of a sample of submitted planning applications for years 2013-14 and 2014-15;

1.3.1.3 Captured industry needs for extensions to PD rights and associated rationale/justification;

1.3.1.4 Views of Planning Authorities (PA) and Stakeholders on industry requests for PD rights extensions;

1.3.1.5 Industry, PAs and Stakeholders' views on which aspects of PAN 62 can usefully be retained, and on the need for and content of any new advice required;

1.3.1.6 Examples highlighted by industry and PAs on best practice.

1.4 Context

1.4.1 The Scottish Government has a vision for world-class, future proofed infrastructure that will deliver digital connectivity across Scotland. This will be driven by many factors, including technology, the market, targeted government initiatives and an effective regulatory and legislative landscape. The Scottish Government has a key role to play in encouraging and incentivising investment in digital infrastructure in Scotland, to achieve policy objectives and meet increasing consumer demand for connectivity.

1.4.2 The Scottish Government recognises the importance of mobile coverage for Scotland economically, socially and in terms of resilience. The Scottish Government is committed to working in collaboration with industry to improve mobile coverage in Scotland, particularly in hard to reach areas or those parts of Scotland likely to be out with the commercial rollout of 4G services. This research work is part of a wider package of measures under consideration to encourage the provision of mobile services in remote and rural areas.

1.4.3 The UK Government on 17th March 2016 announced a significant package of planning relaxations to support the deployment of mobile infrastructure in England, and to seek views on the complementary changes needed to the Electronic Communications Code (Conditions & Restrictions) Regulations 2003. Scotland has to be mindful of these outcomes, to ensure that the Scottish planning system is flexible and encourages suitable build in the right areas in line with Scottish Government objectives.

1.4.4 This research work has captured a need from industry for certainty and flexibility to be provided through the planning system to enable the optimal deployment of electronic communications infrastructure. Mobile Network Operators (MNOs) have emphasised the need for PD rights extensions to enable greater height increases to existing masts and for construction and installation of new ground based masts for improving mobile coverage, particularly in rural areas.

1.4.5 This study has identified a high planning application approval rate for electronic communications infrastructure based on PA's and industry feedback, and the sample of planning applications analysed. The Code of Best Practice on Mobile Network Development in England (but also applied by operators to proposals in Scotland) is considered by mobile and wireless operators to offer effective guidance towards achieving a successful planning outcome. A separate code applies to fixed line operators. The research work has captured two case studies (see Section 8) demonstrating how a successful planning outcome can be achieved through applying best practice and effective engagement between the PA, applicant and other relevant bodies/organisations. Such evidence suggests that proposals following best practice are in the main appropriate, with an argument to be made that electronic communications infrastructure could benefit from further extensions of PD rights.

1.4.6 The findings of this research work based on the views of PA's, Stakeholders, industry and the lack of objections noted in the planning application sample analysed would suggest that public concern has reduced since the publication of PAN 62 (2001). The need for connectivity and the resultant social and economic benefits may be changing the perception of the public on the value of telecoms infrastructure. However, no firm conclusion can be drawn based on the extent of research work conducted.

1.5 Recommendations

1.5.1 This research work has established scope for further PD rights extensions to Class 67 of the GPDO as amended by the Town and Country Planning (General Permitted Development) (Scotland) Amendment Order 2014, and makes the following recommendations:

1.5.1.1 **Extension of the time period for emergency works from 12 months to 18 months**. To reflect the timescales required to fully address, emergency issues and to reduce the impact of loss in service;

1.5.1.2 **Further height increase (plus 10% of existing height in addition to existing 5 metres) for alterations and replacement of existing masts up to 20 metres in height; with relocation distance increased from 4 metres to 6 metres**. To provide greater flexibility to Electronic Communications Code Operators for mast alterations/replacements and to further encourage development to existing mast site locations where the principle has already been accepted. The changes should apply to both designated and non designated areas.

1.5.1.3 **PD rights for construction or installation of ground based masts up to a height of 25 metres in non-designated areas (subject to a suitable prior notification/prior approval mechanism on siting and appearance of the proposal)**. To provide flexibility to Electronic Communications Code Operators to ensure that optimal infrastructure is installed for maximising coverage and to address the need for new ground based masts, particularly in rural areas where fewer alternative options are available for hosting equipment.

1.5.1.4 **Extension of PD rights for installation, alteration or replacement of small antennas on buildings (in designated areas) and dwellinghouses (in both designated and non designated areas)**. To support the requirement for small cell deployment as a low intrusive means of providing additional capacity/coverage in urban and rural areas.

1.5.2 The research work highlights the following areas where establishing the scope for PD rights requires further definition and scoping before a conclusion can be made:

1.5.2.1 Installation, alteration or replacement of electronic communications apparatus on rooftops, particularly in designated areas;

1.5.2.2 Construction or installation of ground based masts in designated areas;

1.5.2.3 Addition of support equipment to ground based masts that may not necessarily require any alterations to the mast.

1.5.3 The recommendation for PD rights for construction or installation of new masts emphasises the need for control to be maintained by PA's on siting and appearance. This research work has investigated two broad mechanisms to enable this control, specifically prior approval; or prior notification/prior approval. The prior notification/prior approval process (although not without its drawbacks as highlighted by studies analysed as part of the literature review) is considered to be the most appropriate on the following basis:

1.5.3.1 A prior notification application demonstrating the appropriateness of the development (adopting best practice) together with a timely PA assessment offers the potential for utilisation of PD rights to be approved within a 28-day period.

1.5.3.2 PA's retain control for consultation with statutory bodies and possible refusal of the application if necessary by invoking the prior approval process.

1.5.4 A prior notification/prior approval process, which is not currently in place in relation to electronic communications infrastructure in Scotland will have to be carefully introduced and continue to be monitored.

1.5.5 Future amendments to Class 67 of the GPDO should look to capture the intention of the most recent guidance (e.g. Planning Circular 2/2015), particularly in relation to ancillary development and emergency works, to ensure consistency in interpretation across PA's and industry.

1.5.6 There is a need for Local Development Plans (LDPs) to reflect the emphasis placed on electronic communications infrastructure in the Scottish Planning Policy (SPP) in a consistent manner and a need for better, mutual understanding between PA's/Stakeholders and industry in alignment with Scottish Government objectives. This must be reflective of the current industry needs and constraints, supportive of Scottish Government objectives, and recognition of the types of development needed.

1.5.7 The research work recommends a code of best practice is introduced in Scotland as a replacement for the out of date PAN 62, complementing the SPP and providing up to date (and evolving) advice on good practice to operators, PA's, Stakeholders and the public. A code of best practice should reflect the different designations and agencies/authorities in Scotland, with all relevant parties involved in its development.

1.5.8 This research work highlights the contribution of non Code Operators to Scottish Government's digital objectives. This research work proposes no changes to the current planning system for non Code Operators, but recommends that consideration is given by PA's to the activity of these operators and need for such development.

2 Introduction

2.1 Context

2.1.1 Improving Digital Infrastructure is part of the Scottish Government's Programme for Government [1] and forms a core element within Scottish Government world class digital connectivity vision for Scotland.

2.1.2 The Scottish Government recognise the importance of mobile coverage for Scotland economically, socially and in terms of resilience. The Scottish Government is committed to working in collaboration with industry to improve mobile coverage in Scotland, particularly in hard to reach areas or those parts of Scotland likely to be out with the commercial rollout of 4G services.

2.1.3 The Scottish Planning System has a role to play in supporting this aim. National Planning Framework 3 (NPF3) [2] highlights the importance of digital infrastructure, across towns and cities and, in particular, in Scotland's more remote rural and island areas. Scottish Planning Policy (SPP) [3] sets out the Scottish Government's support for development which helps deliver world-class digital connectivity and infrastructure provision which is sited and designed to keep environmental impacts to a minimum.

2.1.4 A wide range of electronic communications infrastructure benefits from PD rights - which grant a Scotland wide planning permission for certain developments, removing the need for a planning application. Submitting a planning application gives the opportunity for a proposed development to be considered in its local setting. However, considering applications for minor and uncontroversial development is not an efficient way of regulating development.

2.2 Scope

2.2.1 Bidwells LLP and FarrPoint Ltd have been appointed by the Scottish Government to explore the possible extension of existing PD rights for electronic communications infrastructure for fixed and mobile systems, and to make detailed evidence based recommendations on the scope for further changes. Consideration is given to the likely planning considerations in the context of Scottish Government's digital objectives, anticipated evolution of electronic communications technology and infrastructure, together with the public perception of such infrastructure.

2.2.2 The research also considers the continuing relevance of PAN 62 [4]. This document was published in 2001 and contains information and good practice guidance for PA's on radio communications and their rollout. There is a need to review this guidance to identify what content remains relevant and on the need for and content of any new guidance required.

2.2.3 Finally, two case studies (see Section 8) have been prepared on best practice on handling planning applications for electronic communications infrastructure.

2.3 Objectives

2.3.1 The detailed research objectives are:

I. To report on electronic communications network operators' current and foreseeable future needs as regards types of equipment for their infrastructure.

II. To report on the public perception of masts and other electronic communications infrastructure and to identify the most common reasons for public objections to planning applications for such development.

III. To report on the likely planning considerations arising in connection with anticipated planning applications (i.e. for the sorts of equipment operators will be installing described in (I) above), were the status quo regarding PD rights maintained.

IV. In light of the above, to produce detailed recommendations on the scope for further changes to extend PD rights for Electronic Communications Code Operators. These are to cover the grant of planning permission in Class 67(1) of the Town and Country Planning (General Permitted Development) (Scotland) Order 1992 [14] (GPDO), as well as on the specific restrictions and conditions to be applied. Specific consideration to be given to, *inter alia,* new ground based masts and changes to existing masts; restrictions on Electronic Communications Code Operator's development in designated areas; and on any changes in relation to the wider range of electronic communications infrastructure.

V. To report on the rationale and justification for the above recommendations, and their likely impacts, including: the sectors and groups likely to be affected by the changes and how they will be affected; the likely benefits and costs (additional and savings) associated. Findings to be reported in a format suitable for use by Scottish Government in any future Business and Regulatory Impact Assessment [5] that would be required in support of any proposed changes to legislation which may impact on businesses or the third sector.

VI. To provide recommendations on: a) what existing content, if any, in PAN 62 remains relevant and could usefully be retained; and b) on the need for and suggested content and scope of any additional guidance required.

VII. To identify and report on two good practice case studies in handling planning applications for key electronic communications infrastructure, in particular effective engagement between all parties (the developer, the PA, relevant agencies, and the public).

VIII. To consider current and emerging approaches as regards planning on this topic in other parts of the UK (given the similarities in the planning systems).

3 Research Approach

3.1 Introduction

3.1.1 This section of the report provides an overview of the work stages undertaken to inform the research on PD rights and planning guidance for electronic communications infrastructure.

3.2 Information Gathering

Review of the Legislative and Planning Context

3.2.1 A review has been undertaken of the relevant policies, strategic documents and initiatives that set the background to the current position and future plans of Scottish Government.

3.2.2 The review includes an analysis of the responses to the 2014 Scottish Government Consultation on 'Changes to PD rights for Development by Telecommunications Code Operators' [6], as well as a sample of submitted and determined planning application decisions for telecommunications development in the periods 2013-14 and 2014-15.

3.2.3 Consideration has been given to a written statement released on 17th March 2016 [56] confirming that the UK Government intends to bring forward provisions in England to provide greater freedoms and flexibilities for the deployment of mobile infrastructure. The statement outlines changes to PD rights that are stated to be vital for continued economic prosperity and social inclusion for all; and to help ensure that MNO's have the confidence to invest in their network coverage and boost capacity for both voice and data.

3.3 Engagement Strategy

Industry / Stakeholder Identification

3.3.1 The following industry consultees were identified and agreed with the Scottish Government: Airwave, Arqiva, British Telecom (BT), CityFibre, Cornerstone Telecommunications Infrastructure Limited (CTIL), Everything Everywhere (EE), Fujitsu, Highlands and Islands Enterprise (HIE), Mobile Broadband Network Limited (MBNL), Network Rail, O2(Telefonica), Scottish Southern Energy (SSE), Three, Virgin Media, Vodafone, Wireless Infrastructure Group (WIG).

3.3.2 In addition to the PA's (including the two National Park Authorities (NPA)), a list of Statutory and Non Statutory Stakeholders to be consulted was agreed with the Scottish Government (as listed in Annex B).

Consultation

3.3.3 The industry and PA/Stakeholder engagement strategy has been primarily based around questionnaires sent to the agreed list of contacts.

3.3.4 While it is important that cognisance is given to the views of the public concerning telecommunications infrastructure development, a full survey was not possible within the timeframe of this research work. Accordingly, public concern has been primarily assessed via the following sources:

- Literature review;
- Anecdotal evidence from consultees;
- Review of submitted planning applications, specifically objections raised; and
- Community Broadband Scotland (CBS) representing community groups.

3.3.5 A questionnaire was sent to industry consultees with the aim of capturing the needs of the communication industry and ways in which PD rights can best support this. This included a request for evidence in support of the positive impact of any requested extensions to PD rights.

3.3.6 The questionnaire was split into three specific parts as follows:

- Part A: Effectiveness of current PD rights and Planning Guidance for electronic communications infrastructure.
- Part B: The nature of the communications infrastructure and scope for legislative changes to further increase PD rights to deliver Scottish Government's vision for world class digital connectivity.
- Part C: Additional Suggestions.

3.3.7 A total of eight questionnaires were received capturing the views of Arqiva, EE, HIE, O2(Telefonica), Three, Vodafone, WIG, CTIL, MBNL and BT.

3.3.8 The PA/Stakeholder questionnaire was similar in style to that sent to industry, but tailored based on an analysis of industry 'requests'. The questionnaire captured industry needs and recommendations for extension of PD rights, with the objective of capturing PAs/Stakeholders views on these industry needs.

3.3.9 The questionnaire was circulated to Heads of Planning Scotland (HOPS) Development Management sub-committee contacts and to the Stakeholders listed in Annex B. A total of 19 PA's (including one NPA) and five Stakeholders (two statutory) responded. Three out of the five Stakeholders did not complete the full questionnaire, with a summary of their views received by e-mail/letter.

3.4 Road Testing

3.4.1 Following an analysis of feedback from the PA/Stakeholder questionnaire responses, a workshop was held with representatives from PA's/Stakeholders to further discuss industry requirements and to 'road test' the scope for legislative changes to extend PD rights for electronic communications infrastructure.

3.4.2 Thereafter, dialogue was conducted with industry to gather further evidence on industry requests for analysis when developing recommendations.

3.5 Case Studies

3.5.1 To help guide future deployment, two case studies on best practice on handling of planning applications for electronic communications infrastructure have been prepared and are included in Section 8.

4 The Telecoms Industry and Evolving Requirements

4.1 Introduction

4.1.1 This section sets the scene in terms of key telecoms deployment activity and emerging trends, with the aim of highlighting the type of development and infrastructure build required currently and in the foreseeable future.

4.2 Scotland's Digital Objectives

4.2.1 Scotland's Digital Future - Infrastructure Action Plan [7] outlines the Scottish Government's commitment to a world-class, future proofed infrastructure that will deliver digital connectivity across Scotland. This will be driven by many factors, including technology, the market, targeted government initiatives and an effective regulatory and legislative landscape. The Scottish Government is committed to ensuring that the right mechanisms, partnerships and commercial models are in place to deliver world-class infrastructure in a sustainable way and in partnership with industry.

4.2.2 Improving mobile coverage across Scotland is an important element of the Infrastructure Action Plan to ensure people have good access, wherever they are, to voice and data services from hand held platforms such as mobile and smart phones and tablets. The Scottish Government is committed to working in collaboration with industry to improve mobile coverage in Scotland, particularly in hard to reach areas and is considering how the range of legislative levers available can be used to assist this process.

4.2.3 The Digital Scotland 2020: Achieving World-Class Digital Infrastructure report [8] provides an assessment of what world-class looks like elsewhere; the characteristics of those countries and regions that have or are delivering world-class digital infrastructure; and what lessons could be learned and applied to Scotland in order for it to be world-class.

4.3 Key telecoms deployment activity and trends

4.3.1 Broadband Fixed Access

4.3.1.1 BT is currently deploying Fibre to the Cabinet (FTTC) as part of the Digital Scotland Superfast Broadband Programme to deliver fibre broadband into areas that have no commercial plans for delivery. The objective is to achieve 95% of premises in Scotland having access to fibre broadband by the end of March 2018. The programme is resulting in extensive deployment of street cabinets hosting electronic equipment for delivering high speed broadband over existing copper lines to premises (see Table 11 for specification of the types of cabinet deployed). A typical approach involves the placement of a new street cabinet hosting the electronics nearby the existing copper Primary Cross Connection Point (PCP) with copper tie cables connecting the two cabinets. New cabinets are typically connected by underground optical fibre. BT is currently investigating new copper based technologies such as G.fast to provide higher speeds across the existing copper lines. To achieve speed upgrades from such advances will require shorter copper line lengths and deeper penetration of fibre.

4.3.1.2 Virgin Media's commercial fibre broadband network is being expanded to reach 60% UK coverage by 2020. The visual infrastructure associated with Virgin Media's cable network is street cabinets for hosting the electronics required to multiplex the signal to the cable network. Cabinets are typically connected by underground fibre.

4.3.1.3 There are a number of providers with business models based on Fibre to the Premise (FTTP) capable of delivering 1Gbps ultra-fast connections. For example, CityFibre has announced Gigabit City deployments in Glasgow, Edinburgh and Aberdeen. Such providers are delivering wholesale access to fibre infrastructure. Further penetration of FTTP will be required to meet the Scottish Government's vision for world class infrastructure. FTTP solutions consist of underground fibre connecting premises to a central location, typically a building where access equipment is hosted. This architecture, assuming underground fibre, offers the least impact in terms of visible electronic communication infrastructure.

4.3.1.4 Remote areas offer unique challenges for delivery of broadband, with a number of providers (often non Code Operators) actively deploying solutions using technologies such as:

- Fibre;
- Fixed Wireless Access (FWA);

- White Space;
- 4G Long Term Evolution (LTE);
- Satellite

4.3.1.5 Wireless technologies, particularly FWA are often adopted to deliver broadband connectivity in such areas due to topography and distribution of premises. This technology requires antennas to be positioned at height in strategic locations to offer the required extent of coverage/capacity to premises and for point to point backhaul connections to other network nodes. Flat panel antennas are typically used, with a minimum three such antennas required to provide 360-degree coverage. Antennas for point to point radio connections usually take the form of dish antennas, with diameter varying depending on bandwidth, availability and link distance required. Typical mounting locations of antennas include buildings, dwellings and ground based masts. Associated with the antenna systems is equipment housing for hosting the electronic equipment, and other ancillary equipment such as cabling, power units etc. Ground based masts can come in many forms depending on factors such as ground conditions, loading and equipment requirements. Slim line lattice and pole type structures are common, with the structure and associated equipment housing located within perimeter fencing. There may also be the option for mast share on existing masts where coverage, wholesale access, economics and capacity allow.

4.3.1.6 Local councils and community groups are being pro-active with investigating options and encouraging delivery of broadband connectivity to priority/hard to reach locations. Typical site build is demonstrated in Annex F: Example 1 and Example 2.

4.3.2 Mobile

4.3.2.1 There are currently four MNO's active in the UK, namely O2(Telefonica), EE, Three, Vodafone. The current mobile coverage levels are captured in the Ofcom Connected Nations 2015 report [9], with Scotland having 90% (2G), 79% (3G) and 37% (4G) coverage of premises, which falls below the UK average of 93% (2G), 88% (3G) and 46% (4G). The Ofcom Infrastructure Report 2014 [10] provides a visualisation tool for much of the reports data to allow users to assess the coverage and performance of the infrastructure in their area and compare it to others.

4.3.2.2 EE launched a commercial 4G service to some areas of the UK in advance of the other MNO's using the 1800 MHz spectrum. Smartphone prevalence has resulted in a high demand for mobile data connectivity, with 4G services now available from all four MNO's, with coverage extending beyond high population centres.

4.3.2.3 Ofcom attached a coverage obligation to one of the 800 MHz lots of spectrum in the 2013 auction. The winner of this lot was O2(Telefonica). This MNO is obliged to provide a mobile broadband service for indoor reception to at least 98% of the UK population (expected to cover at least 99% when outdoors) and at least 95% of the population of each of the UK nations – England, Northern Ireland, Scotland and Wales - by the end of 2017 at the latest. Other MNO's have indicated they intend to match the 98% coverage. Variations to the 4G licences in February 2015 committed the four MNO's to provide voice coverage across 90% of the UK's landmass by the end of 2017.

4.3.2.4 A series of joint venture and sharing arrangements between MNO's has resulted in there being effectively two organisations planning and building mobile networks in the UK. These are MBNL, a joint venture management company created by Three and EE; and CTIL, a partnership between O2(Telefonica) and Vodafone.

4.3.2.5 The Code of Best Practice on Mobile Network Development in England [11] sets out how mobile networks function. Antennas can vary in size and form, however sector antennas are typically used, with up to six antennas installed per mobile base station. Microwave dish antennas may be required for backhaul connectivity to a network node, however the increased data capacity required for 4G and beyond is driving the need for fibre connectivity. Typical mounting locations of antennas include rooftops and ground based masts. Ground based lattice mast type structures are common particularly in non urban/non streetscape type environments, with the structure and associated equipment housing located within perimeter fencing. In urban/streetscape environments, typically standalone monopoles are installed with adjacent equipment housing, all designed to fit in with other street furniture as much as possible. Typical monopole and lattice type structures for mobile networks are demonstrated in Annex F, Examples 4 and 6; Examples 3 and 5 respectively. Deployment of mobile apparatus on a rooftop is demonstrated in Annex F, Example 8.

4.3.2.6 There has been significant takeover activity in the mobile market with Three in the process of a takeover bid to acquire O2(Telefonica) and BT having acquired EE. What this means in terms of rollout plans is unclear, however what is certain is that the need for capacity will continue to drive deployment in urban areas and the need for coverage in line with coverage obligations will drive deployment in rural areas.

4.3.2.7 The UK Government initiated the £150m Mobile Infrastructure Project (MIP) that aimed to fund mobile phone masts in areas where mobile coverage is poor or non-existent. This was contracted to Arqiva who had to commission masts for use by all four MNO's. A total of 85 locations were identified in Scotland as potential sites, however significantly fewer were deployed at the end of MIP in March 2016. Examples of the proposed infrastructure and considerations for siting are provided in the design and siting guidelines [12]. Arqiva has also been appointed by the UK Government to build the Smart Meter communications network in the north of England and Scotland. The deployment programme is between 2014 and 2020, with smart electricity and gas meters being installed in homes and small businesses across the UK. Typical mast build and apparatus is shown in Annex F, Example 7.

4.3.2.8 A notable programme that will see significant activity by EE over the next five years is the Emergency Services Network (ESN) that will be supported on 4G mobile infrastructure (the replacement for Airwave Tetra based national radio network). This demonstrates the need for data capacity and functionality that mobile networks and devices can provide and will certainly require additional mast build by EE in Scotland and wider UK to provide increased coverage to roads and potentially out to sea.

4.3.2.9 A key development to provide increased capacity and ubiquitous mobile broadband in a MNO's network will be the use of 'small cells'. A number of deployment approaches will be adopted depending on the context e.g. Indoor/Outdoor (office, airports, shopping centres, stadiums etc.), outdoor (e.g. dense urban) to enable micro, metro and pico-cells. Although there are currently uncertainties around the business model for small cells and a number of deployment challenges to be addressed such as availability of cost effective backhaul, site acquisition, power etc., it is likely that small cells deployment will play a key role, particularly in urban areas, but also to extend coverage to small rural communities where backhaul is available.

4.3.2.10 A number of notable trials have taken place in the UK for small cells. For example, EE is currently deploying Parallel Wireless rural micro network solution for their rural wireless 4G rollout. The system typically involves a dwelling in a rural area being chosen to install 2-3 antennas, to provide:

- A mesh antenna for providing coverage to other mesh sites in the area;
- Coverage antennae to provide 3G/4G coverage within the vicinity; and

- Backhaul antenna for connecting to the main base station.

4.3.2.11 The size, form and mounts of small cell antennas varies depending on the requirement, location and environment on which they are installed. A number of Councils in Scotland have entered into wireless concession contracts that provide exclusive use of Council assets (such as lampposts etc.). These contracts have enabled Public WiFi provision in support of Council strategic objectives for increased Internet access and digital participation, and provides the opportunity for existing structures to be used for 4G small cell deployment.

4.3.2.12 By 2025, the expectation is that 5G networks will be deployed in the UK and across the world. Standards should be put together and manufacturing of network equipment commenced by 2017 to 2020. Over £70 million of public and private funding has already been secured by the 5G Innovation Centre at the University of Surrey involving a worldwide consortium of mobile and fixed operators and equipment suppliers. Industry has reached some consensus on the use cases for 5G, with Machine to Machine communications, Internet of Things (IoT), Smart City, high speed mobile broadband being proposed. Much is up for debate in terms of standardisation and spectrum allocation; the outcome of which is likely to have an impact on type, size and number of mobile structures and antenna systems depending on application.

5 General Permitted Development Order and Related Legislation

5.1 Introduction

5.1.1 This section identifies the PD rights legislation together with other relevant legislative and guidance restrictions applicable to electronic communications infrastructure in Scotland. Relevant UK planning legislation, policy and guidance are also referenced.

5.1.2 A review of planning applications across two sample periods (2013-14 & 2014-15) has been undertaken as part of the research, the findings of which are discussed in this section. Consideration is also given to the level of importance being placed on electronic communications infrastructure by PAs based on a sample review of 3 no. Local Development Plans (LDP).

5.2 Scotland's Legislative Landscape

5.2.1 As defined in Section 26 of the Town & Country Planning (Scotland) Act 1997 [13], planning permission is required for the "carrying out of building, engineering, mining or other operations in, on, over or under the land, or the making of any material change in the use of any buildings or other land."

5.2.2 Certain forms of development benefit from a general planning permission usually referred to as PD rights. Generally, this is because the scale and nature of the development is considered to be of a minor, non-contentious nature.

5.2.3 The Scottish Government considers that PD rights should:

- Maintain effective control of developments which, because of environmental consequences or relationship with other uses, need to be subject to specific planning control, and
- Be wide enough to cover, in an appropriate way, those developments which in general do not damage amenity and therefore do not require an application for planning permission.

5.2.4 The types of development that can be considered as PD, and the qualifying criteria, are set out in the Town and Country Planning (General Permitted Development) (Scotland) Order 1992 [14], usually referred to as the 'GPDO'. Planning authorities can advise if a development is PD or if a planning application is required. Class 67 of the GPDO grants planning permission for Electronic Communications Code Operators subject to restrictions and conditions.

5.2.5 There have been several amendments to Class 67 of the GPDO since it was published in 1992. Annex C: Table 1 provides a chronology of applicable legislation in Scotland. In 2001 [15], significant changes were made to Class 67 to reduce PD rights, in recognition of public concerns at that time. In particular, PD rights were removed for ground based masts and wide ranging restrictions in designated areas added. Since 2001, public acceptance of masts, the need to invest in digital infrastructure, and continuing changes to technology has meant that subsequent changes to Class 67 PD rights in Scotland have tended to extend PD rights.

5.2.6 Annex C:Table 2 identifies national policy and guidance dating back to 2001 in line with the publication of PAN 62 [4]. A number of key trends have resulted in a dramatically changed landscape in the intervening period since PAN 62 was published. Consequently, this research assesses the relevance of PAN 62 and the need for and content of any new guidance required.

5.2.7 The most recent consultation undertaken by the Scottish Government on PD rights for electronic communications infrastructure was April 2014 [6], the outcome of which formed the basis of the Town and Country Planning (General Permitted Development) (Scotland) Amendment Order 2014 (GPDO 2014) [16]. The consultation included proposed amendments to the GPDO, in the following areas:

- PD rights for new and replacement telegraph poles in designated areas;
- Increase the height and/or base area of existing masts and allowing additional equipment to be added to masts;
- Antennas mounted on buildings - change references to 'antenna' to 'antenna systems';
- Standardise the different PD rights that apply to apparatus and antennas on buildings depending on the height of the building;
- Increase the height of antenna on buildings;
- Amend definition of small antennas. Increase the number of small antennas permitted on domestic buildings;
- Ancillary equipment;

- Emergency apparatus;

- Amendment to Class 68.

5.2.8 A total of 32 consultation responses were received to the 2014 consultation, 31% of which were from PA's, 22% from the telecoms sector, 4% from the business sector, 6% from members of the public, 9% from the Natural Heritage bodies, 19% from Cultural Heritage bodies and 9% from Built Environment professionals.

5.2.9 The principal reason for any objections or disagreement with the proposals advocated was consistently related to the visual impact of the development. The outcomes arising from this consultation has provided a useful context of the views raised at the time by PA's, Stakeholders, industry and the public, and have been factored into the research work.

5.3 GPDO 2014 (Class 67), Part 20 – Development by Telecommunications Code System Operators

5.3.1 This section summarises the current types of development that are PD, and the qualifying criteria, as set out in the GPDO [14], as amended and implemented by (General Permitted Development) (Scotland) Amendment Order 2014 [16].

Grant of Planning Permission - Class 67(1)

5.3.2 Class 67 (1) sets out the grant of planning permission to development by or on behalf of an Electronic Communications Code Operator for the purpose of the operator's electronic communications network in, on, or over

(a) the construction, installation, alteration or replacement of any electronic communications apparatus;

(b) the use of land in an emergency for a period not exceeding 12 months to station and operate moveable electronic communications apparatus required for the replacement of unserviceable electronic communications apparatus, including the provision of moveable structures on land for the purposes of that use; or

(c) development involving the construction, installation, alteration or replacement of structures, equipment or means of access which are ancillary to and reasonably required for the construction and subsequent use of equipment housing.

Restrictions on the Grant of Permissions – Class 67(2)

Designated Areas

5.3.3 Class 67 (2) (a) specifies that development is not permitted by this Class in designated areas (defined as a National Scenic Area (NSA), National Park, Natural Heritage Area, conservation area (CA), historic garden or designed landscape (HGDL), site of special scientific interest (SSSI), historic battlefield or European Site, or on a Category A listed building or a scheduled monument (SM) or within the setting of such building or, as the case may be, monument), unless the development –

(i) is carried out in an emergency; or

(ii) would result in there being not more than two small antennas on a building; or

(iii) involves the installation of telegraph poles, the replacement or alteration of existing telegraph poles, the installation of new overhead lines on such poles or is ancillary to such development; or

(iv) is development of or description of development which is permitted by virtue of paragraph Class 67 (2)(c) or is ancillary to such development.

Ground Based Masts

5.3.4 Class 67 (2) (c) applies PD rights to replacement or alteration of an existing mast which is ground based or the installation of apparatus on such a mast (with Class 67 (2) (a) (iv) specified above extending these rights to designated areas), based on the following restrictions—

(i) an increase in the overall height of the original structure of—

(aa) in the case of an existing mast where the overall size of the structure is 50 metres or less in height, 5 metres or below; or

(bb) in the case of an existing mast where the overall size of the structure is more than 50 metres in height, 15% or less of the original height of the structure;

(ii) an increase in the overall width of the structure (measured horizontally at the widest point of the original structure) of no more than the greater of—

(aa) one metre; or

(bb) one third of the original width of the structure; or

(iii) a change in location of 4 metres or less from the location of the existing mast.

5.3.5 Class 67 (2) (b) states that development is not permitted by this Class if it involves construction or installation of a ground based mast.

Ground Based Equipment Housing and Apparatus

5.3.6 PD rights that apply to ground based equipment housing and apparatus are stated in (2) (d) (e) and (2) (n) (o) (p) respectively. Such rights do not apply to designated areas; also (2) (a) (iv) refers to development of or description of development which is permitted by virtue of paragraph (2) (c) or is ancillary to such development.

Electronic Communications Apparatus on a Building or other Structure (other than a Ground Based Mast)

5.3.7 Class 67 (2) (f) and 2 (g) states PD rights to electronic communications apparatus on a building or other structure (other than a ground based mast). While equipment housing and antennas fall within the definition of electronic communications apparatus, additional controls apply to them elsewhere under Class 67(2) – see 'equipment housing', 'small antennas' and 'antennas on buildings and other structures'.

Equipment Housing on a Building

5.3.8 Class 67 (2) (i) and (j) cover, respectively, the construction or installation and replacement or alteration of equipment housing on a building.

Small Antennas on a Dwelling House

5.3.9 No apparatus is allowed on a dwellinghouse unless it is a small antenna with associated restrictions stated in Class 67 (2) (k) and (2) (l).

Small Antennas on Buildings other than Dwelling Houses

5.3.10 Class 67 (2) (m) covers 'small antennas' on buildings other than dwelling house (or within the curtilage of such dwellinghouse). PD rights allows the installation of up to eight 'small antennas' on such a building. However, the limitations set out in (2) (a) mean that within a designated area, the PD rights are restricted to the installation of two 'small antenna'.

Antenna Systems on Buildings and Other Structures

5.3.11 Current PD rights relating to the installation, alteration or replacement of an antenna systems on buildings or other structures (excluding a ground based mast) is specified in Class 67 (2) (q) and (2) (r). This specifies that antenna system located more than 15 metres above ground level, antennas up to 6 metres in height or 1.3 metres wide can be installed under PD rights. For lower development, i.e. an antenna system located fewer than 15 metres above ground level, antennas have to be smaller – not more than 3 metres in height or 0.9 metres wide – in order for PD rights to apply. Regardless of the height above ground level the height of the antenna system and supporting apparatus cannot exceed 6 metres. A total of no more than four antenna systems (other than small antennas) may be installed on a building or structure (other than a ground based mast) under Class 67.

Access tracks

5.3.12 Development is not permitted by this Class if it involves the construction of an access track of more than 50 metres in length.

Conditions Attached to the Permissions – Class 67(3 - 6)

5.3.13 Class 67(3) specifies the notice (in writing) and information required to be provided to the PA except in a case of emergency no fewer than 28 days before development (consisting of the construction or installation of one or more antennas or of equipment housing) is begun of the developer's intention to carry out such development.

5.3.14 Class 67(4) specifies the submissions (in writing) required to be made to the planning authority at the same time as the notice provided in Class 67(3) in relation to construction or installation of one or more antennas. These submissions include a detailed description of the equipment and its location, and full compliance with the requirements of the radio frequency public exposure guidelines of the International Commission on Non-ionising Radiation Protection (ICNRP).

5.3.15 Class 67(5) specifies that development under Class 67 (1) (a) and (c) is permitted subject to the condition that any antenna or supporting apparatus installed, altered or replaced on a building in accordance with that permission shall, so far as is practicable, be sited so as to minimise its effect on the external appearance of the building.

5.3.16 Class 67(6) specifies the conditions associated with the permissions relating to any such apparatus or structure comprising such development being removed from the land, building or structure on which it is situated.

5.4 Other restrictions on PD in relation to electronic communications infrastructure

5.4.1 PA's have powers under Article 4 of the GPDO to direct that certain classes of PD do not apply locally, therefore introducing the necessity to obtain planning permission before work can proceed. Such Article 4 directions are often made when the character of an area of acknowledged importance would be threatened.

5.4.2 Listed Building Consent: Section 14(2) of the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 [17], requires PAs to have special regard to the desirability of preserving the building, or its setting, or any features of special architectural or historic interest which it possesses when determining a planning application.

5.4.3 Scheduled Monument Consent: Scheduled monuments of national importance are protected under the Ancient Monuments and Archaeological Areas Act 1979 [18]. The role of the planning system in the protection of both the site and the setting of scheduled monuments including the setting of category A listed buildings is reflected in the statutory consultation requirements set out in the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013 [19], and in the notification requirements of the Town and Country Planning (Notifications of Applications) (Scotland) Direction 2009 [20].

5.4.4 Scottish Historic Environment Policy, December 2011 (SHEP) [21] should be read in conjunction with the above cultural heritage legislation.

5.4.5 Regulation 60, on General Development Orders, of the Conservation (Natural Habitats, & c.) Regulations 1994 [22] imposes conditions on all PD which are likely to have a significant effect on European Sites (Natura), and is not directly related to the management of that site. It states that development shall not begin until the developer has received written notification of the approval from the PA. This suggests a prior notification process at the least, and an appraisal of the likely significant effects by the PA.

5.4.6 European Sites designated or classified by the Scottish Ministers in compliance with EC Birds or Habitats Directives of 1979 and 1992.

5.4.7 The Nature Conservation (Scotland) Act 2004 [23] makes provisions in relation to the conservation of biodiversity; to make further provision in relation to the conservation and enhancement of Scotland's natural features; to amend the law relating to the protection of certain birds, animals and plants; and for connected purposes.

5.4.8 SSSI Consent: Owners and occupiers of land within a SSSI must apply to Scottish Natural Heritage (SNH) for consent to carry out certain operations that have been notified to them.

5.4.9 Environmental Impact Assessment procedures (where applicable). The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011 [24].

5.5 Other UK Relevant Planning Legislation, Policy and Guidance

5.5.1 Separate legislation grants PD rights for Electronic Communications Code Operators in different parts of the UK. In 2015, the UK Government's Department for Communities and Local Government issued a Call for Evidence regarding its 'Review of How the Planning System in England Can Support the Delivery of Mobile Connectivity' [25] and a Consultation on Reforming the Electronic Communications Code [26].

5.5.2 A written statement on 17th March 2016 [56], states the UK Government's intention to bring forward provisions in England (to come into effect in Summer 2016) to provide greater freedoms and flexibilities for the deployment of mobile infrastructure. To complement these changes, the UK Government plans on working with the industry and interested parties to strengthen the sector-owned Code of Practice to ensure best practice is always applied when it comes to the siting and design of mobile infrastructure.

5.5.3 DCMS has initiated consultation with key stakeholders for six weeks commencing 17 March on changes to the Electronic Communications Code (Conditions and Restrictions) Regulations 2003 ('the Code Regulations') [27] to complement planning legislation. These changes will apply to the whole of the UK. The Code regulations deal with the operational aspects of the way in which telecoms operators exercise their permitted development rights and include requirements to consult with planning authorities. These requirements will be revised to ensure that there is consistency in how operators consult planning authorities where there is no prior approval. The changes to the Code regulations will apply throughout the United Kingdom, as telecommunications is a reserved matter.

5.5.4 Scottish Government has to be mindful of these outcomes, to ensure that Scotland remains an attractive proposition for investment in telecoms networks and does not unnecessarily restrict development and innovation in Scotland compared to other parts of the UK. The developments in England have therefore been given focus in this section.

5.5.5 Annex D: Table 3, Table 4 and Table 5 set out the legislation, guidance and recent consultation in England specific to electronic communications infrastructure. In contrast to the position in Scotland, England has retained PD rights for ground based masts up to 15 metres (plus additions to existing masts). However, a prior approval system applies. Further, England has granted a temporary extension to PD rights in Article 2(3) land areas to support the rollout of the superfast broadband programme. In Scotland, there are no PD rights for new masts, however PD rights allow the extension of existing masts without any prior notification or approval applying.

5.5.6 A Code of Best Practice on Mobile Network Development in England (2013) [11] highlights the role of connectivity in society; sets out the respective roles of national government, local authorities, and network operators in telecommunications planning; and sets out good practice in the planning process and detailed guidance. The Code of Best Practice applies to all forms of wireless development, but is most relevant to proposals for new masts or base stations and significant additions or extensions to existing sites. A separate Code of Best Practice applies to fixed line operators [28].

Prior approval in relation to electronic communications infrastructure in England

5.5.7 Certain development permitted by Paragraph A.2(4) Part 16 of Schedule 2 to the GPDO 2015 is conditional on the operator making a prior approval application to the PA for its siting and appearance.

5.5.8 The prior approval procedure currently applies to, the construction, installation, alteration or replacement of any of the following (except in case of emergency):

- A ground based mast of up to and including 15 metres in height;
- A mast of up to and including 15 metres in height installed on a building or structure;
- Antennae (including any supporting structure) which exceeds the height of the building or structure (other than a mast) by 4 metres or more at the point where it is installed or to be installed;
- A public call box;
- Radio equipment housing with a volume of 2.5 cubic metres;
- Development ancillary to radio equipment housing (for example, fences or access roads).

5.5.9 Development on land known as Article 2(3) land as defined in Part 1, Schedule 1 of GPDO 2015 [39] is subject to the prior approval process.

5.5.10 The construction, installation or replacement of telegraph poles, cabinets or lines for fixed-line broadband services on Article 2(3) land does not require prior approval provided that the development is completed by 30 May 2018 (Class A.2(5), Part 16, Schedule 2, GPDO 2015).

5.5.11 In determining the application, the PA can only consider the siting and appearance of the proposed development. The principle of the development cannot be a consideration as the development is PD by the GPDO 2015 [39]. The developer is obliged as part of this process to give notice of the proposed development to any owner or tenant of the land in question prior to the submission of an application.

5.5.12 The PA has 56 days from the date of receipt of the prior approval application to advise the operator whether prior approval is required or whether the application for prior approval has been refused. This 56-day period cannot be extended and failure to comply with the 56-day period means that approval is deemed to be granted.

5.6 Review of Planning Applications for 2013-14 and 2014-15

Overview

5.6.1 A list of application references has been provided by the Scottish Government for all applications received in periods 2013-14 and 2014-15 for electronic communications infrastructure. A total of 405 applications were received by PA's in this time period.

5.6.2 A detailed review of a sample of submitted planning applications has been undertaken to establish the level and type of electronic telecommunications infrastructure development activity taking place across Scotland's urban and rural regions, to ascertain the level of public engagement and the concerns raised, and the effectiveness of GPDO legislation.

5.6.3 The review considered and analysed up to three planning applications per PA in each period (where available[1]). These applications were selected randomly from the list of application references provided by the Scottish Government. The sample contained a total of 75 applications for 2013-14 and 78 applications for 2014-15. The types of development and percentage split noted from the sample are:

- Alteration or replacement of existing ground based mast (15%);
- Installation of a new ground based mast (21%);
- Installation, alteration or replacement of rooftop apparatus (8%)
- Equipment housing (e.g. cabinet installation) (56%)

[1] The research sought to consider and analyse three applications from each PA per period. In some instances, however, less than 3 applications had been received by a PA.

5.6.4 The operator activity in relation to these applications gives a good representation of market activity over the sample period.

5.6.5 Out of the application samples where detail was available, 84% were determined within an 8-week period and 98% were approved (the rejected applications were all in relation to cabinets).

Types of Development

5.6.6 Alterations or replacement of existing ground based mast

5.6.6.1 A total of 23 applications were identified for this type of development from the sample, with 100% approved. The majority of applications were submitted by CTIL as the consolidation company for O2(Telefonica)/Vodafone. The key driver is for the consolidation and sharing of O2(Telefonica) and Vodafone masts, equipment and backhaul. An existing mast by one of the operators in the partnership is either chosen to provide coverage to both operators' customers in that area (often resulting in the decommissioning of mast(s) as required), or each operator examines their existing network coverage and where deficiencies are identified then look to the partner network with a view to using an existing installation/location to provide an improved/or available service. This results in the alteration or replacement of an existing mast and associated antennas and equipment housing to meet both operators' requirements.

5.6.6.2 From the application sample in 2013-2014, mast height increases proposed by O2(Telefonica)/Vodafone varied from no change to maximum 2.7 metres; with minimal change in structure type and relocation distance, although two applications required a change in relocation distance greater than 4 metres (maximum 9 metres). Other operators submitting applications for alterations to existing masts in 2013-14 were SSE (increase of 0.5 metre height), Scottish Hydro Electric (increase of 3 metre height to an existing mast).

5.6.6.3 These developments, if proposed post effective date of GPDO 2014 changes (30th June 2014) would have been PD (with the exception of the two applications which required a relocation distance greater than 4 metres). This would suggest that the 2014 changes have had an impact on reducing the need for planning applications for mast alterations and replacements.

5.6.7 New ground based mast

5.6.7.1 A total of 33 applications were identified for this type of development from the sample, with 100% approved.

5.6.7.2 In 2013-14, approximately 50% of the applications were received from O2(Telefonica)/Vodafone, with the remainder from non Code Operators: Aberdeenshire Council for two masts in support of the Hilltop Wireless Programme and community related mast build (Development Coll, Locheilnet, Wester Ross Radio).

5.6.7.3 In 2014-15, Arqiva was active according to the sample, with 50% of new mast build in this period relating to the Smart Metering programme. Other applications were submitted by Openreach (x1), EE (x1), CloudNet IT Solution (x2) (relating to broadband connectivity).

5.6.7.4 The types of structures and associated equipment housing proposed varied depending on operator, location and use. The mast build by Arqiva varied from 12 metre monopole type structures up to 27 metre lattice towers. The MNO developments mainly consisted of monopole structures and equipment housing deployed in urban/suburban type environments with heights varying from 15 to 20 metres. O2(Telefonica)/Vodafone submitted an application for a taller structure consisting of a 27 metre mast located in a rural context, with ancillary equipment and fencing.

5.6.8 Installation, alteration or replacement of rooftop apparatus

5.6.8.1 A total of 10 rooftop installations were identified for this type of development from the sample, with 100% approved. The operators installing apparatus on rooftops included CTIL (O2(Telefonica)/Vodafone), EE and Arqiva (in support of the Smart Metering network or wholesale operations).

5.6.9 Cabinets

5.6.9.1 A total of 87 applications were identified for this type of development from the sample, with 96% approved. Approximately 92% of applications for cabinet installation were made by Openreach in support of the Superfast Broadband rollout. The other applicants included EE, O2(Telefonica), Geo Networks Limited, Vodafone.

Locations (designated and non designated)

5.6.10 A total of 6% of new ground based masts, 30% of alterations/replacements of ground based masts, 50% of installations/alterations/replacements of rooftop apparatus, 91% of cabinets were in designated areas from the sample. The majority of named designations (i.e. not 'other') were for CA's, however other designations included historic gardens and designed landscapes; Ramsar, SSSI, Special Protection Areas (SPA), Special Areas of Conservation (SAC), historic battlefields, green belt, prime agricultural land.

Objections

5.6.11 Overall, there is a lack of public objection to the applications in the sample, with a total of 23 objections, with six related to one application for a new ground based mast. 65% of total objections were for cabinets. Reasons for objections in relation to the different types of electronic communications infrastructure are noted below:

- Cabinets –
    - Attachment of DSLAM to a member of the public's property;
    - Potential adverse effect on enjoyment & use of neighbouring property;
    - Adverse effects of radio waves;
    - Would compromise the entrance of a site which is located immediately behind the location of the proposed development; location, associated danger & inconvenience to the public;
    - Economic impact on public art investment for the town.
- Masts, antennas –
    - reduction in pavement;
    - health effects;
    - power output;
    - traffic safety;
    - mobile coverage;

- development contrary to Local Plan.
- Concern living next to a mast;
- Lattice mast and associated equipment;
- Visual impact;
- Health;
- Felling of trees.

Reasons for Refusal

5.6.12 A total of three applications (cabinets) were refused from the sample, all by delegated powers. The reasons for refusal include:

- Siting and design of would adversely affect the character and appearance of a CA;
- Impact on setting of adjacent listed buildings;
- Visual clutter;
- Design and scale that is detrimental to the visual amenity of the area;
- Form, size and positioning appears conspicuous and intrusive and will be detrimental to the amenity of the local area;
- Residential amenity and setting.

Other findings

5.6.13 There were no local reviews or appeals made to Scottish Ministers on any application sampled.

5.6.14 A total of 84% of applications sampled were determined by delegated powers, with 16% by committee. A possible explanation for this could be due to the low number of objections received by PA's and/or the quality of the application submission.

5.7 Development Planning

5.7.1 Paragraph 294 of SPP [3] requires LDPs to take into account the infrastructure roll-out plans of digital communications operators, community groups and others, such as the Scottish Government, the UK Government and PAs. It calls for LDPs to provide a consistent basis for decision making and to set out criteria to be applied when determining planning applications for communications equipment.

5.7.2 A sample of three LDPs have been considered to understand the level of importance being placed on electronic communications infrastructure by PAs. The LDPs considered were Perth & Kinross Council LDP [51], Argyll & Bute Council LDP [52] and Stirling Council LDP [53].

5.7.3 A key finding from the small sample of LDPs reviewed is that there is a considerable disparity of emphasis being placed on communications connectivity. Argyll & Bute Council's Policy LDP 11 – Improving our Connectivity and Infrastructure supports all development proposals that seek to maintain and improve Argyll & Bute's internal and external connectivity and make best use of the existing infrastructure by ensuring new telecommunication proposals are encouraged. The Argyll & Bute LDP was adopted in 2015, after the publication of SPP June 2014. Comparatively, the Perth & Kinross Council LDP, which was adopted in February 2014 prior to SPP, includes a policy on Communications Infrastructure (Policy ED2) which broadly replicates the content of PAN 62 in relation to siting and design. Stirling Council LDP, also published in 2014, contains no Communications infrastructure policy.

6 Industry Consultation

6.1 Introduction

6.1.1 This section summarises the feedback from industry.

6.1.1.1 Section 6.2 captures industry response to Part A of the questionnaire requesting views on the effectiveness of current PD rights and planning guidance for electronic communications infrastructure.

6.1.1.2 Section 6.3 captures industry requests for PD rights extensions taken from:

- Response to Part B (the nature of the communications infrastructure and scope for legislative changes to further increase PD rights to deliver the Scottish Government's vision for world class digital connectivity) and Part C (Additional Suggestions) of the questionnaire;

- Dialogue with industry to gather further evidence on requests for extensions to PD rights.

6.2 Effectiveness of current PD rights and Planning Guidance for Electronic Communications Infrastructure

6.2.1 There is general agreement from industry that Scottish Planning legislation is relatively clear, with interpretation of the legislation further clarified by the recently published Planning Circular 2/2015 [33].

6.2.2 Industry highlighted the following common misinterpretations/or areas of ambiguity in the GPDO 2014:

- The 2014 amendments do not make it clear whether Cabinets & DSLAM's are afforded permitted development by virtue of the term "ancillary to such development involving the installation of telegraph poles, the replacement or alteration of existing telegraph poles, the installation of new overhead lines on such poles".

- There is slight ambiguity around emergency development, with the timeframe referenced in 6(c) not updated to account for the changes in 1(b), but as the intention of the legislators was clear with the change to 1(b) it is this interpretation that is used. There is also misinterpretation of what is the meaning of moveable electronic communications apparatus in relation to masts.

6.2.3 Industry highlighted that there are inconsistencies in application of the current Class 67 legislation and the planning application process across PA's. The level of understanding of the network service requirements and constraints of operators can also vary across PA's.

6.2.4 Current PD rights are considered to be supportive of network upgrade and site sharing, with alterations/replacement to existing masts applying in both designated and non designated areas. The most frequently used PD rights are the swapping and addition of antennas on existing structures, addition of cabinets, and mast alterations/replacements (with height increases).

6.2.5 PD rights for alterations, replacement and installation of apparatus on existing masts in designated areas have been particularly helpful in supporting technology upgrades in more sensitive locations. However, there are instances where it is not possible to deploy equipment under PD rights owing to special land designations. Industry questioned whether the list of designated areas that currently remove PD rights needs to include SSSI and some other International Nature conservation habitats such as SPA. Irrespective of whether a development might be PD, this does not override any other especial consent that might be needed from SNH, such as Operations Requiring Consent (ORC) in SSSI or the need for appropriate assessment in other areas, depending on the significance of the impacts of the proposed PD rights.

6.2.6 There are a number of entities who have a role to play in Scottish Government's vision for world class digital connectivity but do not benefit from Electronic Communications Code Operator PD rights, and whose requirements exceed the current permissions stated in Class 68(1).

6.2.7 PD rights are used wherever possible by industry as they provide certainty on the outcome, as well as greater efficiency, understood in terms of both cost and time. The use of PD rights to provide certainty can be detrimental to the network where a less optimal design may be progressed to ensure no unnecessary delays. MNO's have made it clear that to provide the world-class, future-proofed infrastructure envisioned, then Scotland needs both taller masts and a greater number of masts.

6.2.8 The high approval rate of recent planning applications would indicate in essence the planning outcome would have been the same if these works had been under PD rights.

6.2.9 Industry highlighted other inhibitors to deployment, over and above planning constraints, particularly in rural areas such as securing affordable backhaul, power provision, non domestic rates, low subscriber numbers, landownership/wayleaves etc.

6.2.10 Industry highlighted a need for a complete review, modernisation and rewriting of the out of date PAN 62 guidance to assist in promoting further public, PA and other stakeholder engagement and consultation in planning decisions. Furthermore:

- PAN 62 needs to be entirely re-written and modernised. This could be done via a joined up approach with the operators, the Scottish Government and various other stakeholders such as PA's etc.

- A revised PAN 62 should dovetail current best practice with SPP in terms of supporting proposals based on site specific technical, geographic or topographic necessity, including removing the restriction created by the imbalance of weight attached to environmental considerations in both protected and non-protected rural and urban areas.

- A self-regulatory code of best practice for mobile development was encouraged in Scotland as a replacement for PAN 62.

6.2.11 The differences between the Scottish Planning System compared with the other UK administrations were highlighted:

- PD rights in Scotland are generally less restrictive than in England, Wales and Northern Ireland in relation to alterations and replacement of existing masts. The Northern Ireland planning system in relation to PD rights for electronic communications infrastructure was generally considered to be the most restrictive.

- In England and Wales, current PD rights for adding apparatus to masts in designated areas are limited and still subject to prior approval of the PA, unlike Scotland where PD rights are outright and simply require notification to the PA.

- In England and Wales, currently new ground based masts (up to 15m) or existing masts extended to 20m are PD, but these are still subject to the prior approval of the PA.

- Other UK administrations appreciate the negative impact of limited PD rights and thus have begun consultation on revising PD rights in line with a commitment established in the Productivity Plan.

- The prior approval process adds an additional layer of administration, delay and cost without discernible benefit to parties involved.

- Operators will typically choose the planned sites which allow faster rollout and with certainty, therefore a more favourable planning system in a UK administration can result in an increased number of sites progressed.

6.3 Scope for PD rights extensions

Industry Request No. 1 - Extend PD rights for emergency works

6.3.1 A number of industry consultees proposed an extension from the current 12 months to 18 months to more closely reflect the timescales required to fully address emergency issues (including the acquisition, build and integration of permanent replacement sites) and to reduce the impact of loss in service.

6.3.2 Continuity of service is essential given user dependence on connectivity.

Industry Request No. 2 - Extend PD rights for the replacement or alteration of an existing mast which is ground based or the installation of apparatus on such a mast

6.3.3 Operators look to keep, where operationally possible, development within the limitations of PD rights for mast height and width increases introduced in 2014 changes to avoid the uncertainties of the full planning process. A number of site upgrades now include a 5 metre height increase as it enables the provision of coverage to a much larger area, particularly in more remote locations. However, in many cases an increase of 7, 8, or 10 metres would be substantially more effective, but due to the uncertainty in securing support for such alterations a more modest, less suitable design is adopted.

6.3.4 Generally increasing the height of existing masts is a lower cost solution and least intrusive way of providing improved coverage. Extensions to the width of structures would also enable additional equipment to be loaded on to sites. Some operators argue that in remote locations, with large open landscapes, the overall visual impact of, for example, a 25 metre structure is not in any meaningful way greater than a 15 metre structure. The following support statistics were provided:

- An increase in height from 20m to 25m can provide as much as double the coverage benefit, compared with an increase from 15m to 20m and an increase to 45m could cover an additional 5% of the UK landmass compared with current plans.

- The average height of masts in European countries compared with UK (17 metres): Sweden 72-90 metres; France approx. 30 metres; Austria 32-36 metres in greenfield sites.

- Taller masts can reduce the number of new masts required to provide the same level of coverage by 3:1.

6.3.5 Operators require height and width uplifts for a number of reasons, for example:

- There is often a need to clear the tree line for some masts that were built many years ago to fit in with adjacent trees;
- To provide greater coverage for partial not spots in urban/suburban areas, or wider coverage in rural areas;
- Equipment upgrades to utilise different spectrum bands;
- Capacity increases;
- Site share.

6.3.6 An extension to 10 metres would not imply that the full permitted height would be applied to every mast. The economics and need for extra height would drive any upgrades with the main case for substantial uplift in height to be made in rural areas for increased coverage. The industry Code of Best Practice would ensure that proposals were appropriate to the setting.

6.3.7 There are numerous proposals beyond 5 metres height increase and 1 metre width increase which are routinely approved and as such would benefit in having PD rights to negate the need for unnecessary application.

6.3.8 The current PD rights to relocate a mast up to 4 metres should be extended where appropriate to make upgrades easier.

Industry Request No. 3 - Extension of PD rights to include the construction or installation of ground based masts

6.3.9 The current legislation encourages network upgrade rather than rollout of new infrastructure which is still subject to full planning control and uncertainty. Certainty of process is crucial to all network improvement and extensions. Much of the focus is currently on simply adding additional technologies to existing structures with minimal height increases of up to 5 metres to fit within PD rights.

6.3.10 If operators had the ability to progress swiftly and with certainty provided via PD, they would instead have progressed more technically capable infrastructure which would have provided a much better return on operator investment and even further improvement on Scottish connectivity and coverage, with all associated benefits to Scottish business and population. More flexibility is needed to develop appropriate infrastructure in protected areas to incentivise build out into challenging areas.

6.3.11 The reasons for a new mast, as stated by industry are:

- New sites will be needed in rural areas, to provide coverage, where there is little or none at present and in urban areas to increase network capacity;

- New sites for replacement of existing sites where an existing base station is no longer available (e.g. where the land or structure on which a base station is sited is being redeveloped and operator receives a notice to quit (NTQ) the site); and

- Consolidation of existing sites (where new masts are removed and consolidated into a single structure).

6.3.12 Industry has stated that the high approval rate for planning applications for new masts demonstrates that proposals are entirely appropriate and as such should have been covered via PD rights and not required to go through the full planning process which causes unnecessary delays to works and service provision, adds a degree of uncertainty to proposals for both operators and potential site providers and also puts unnecessary demand on already stretched local authority resources in assessing and determining works. By following the industry Code of Best Practice and providing the proper justification for a proposal and care in siting and design, then planning permission is possible in any location.

6.3.13 Operators following the Code of Best Practice ensures that mast developments are appropriate to the communities they are intended to serve and that all possible efforts are made to minimise any adverse impacts from proposed sites, while enabling the delivery of connectivity and other services wanted in communities.

6.3.14 Delays and uncertainty in the planning process abstract from the already marginal economics from sites across most of rural Scotland and undermine the economic case for extending rural areas. In these types of locality, taller infrastructure is required to compensate for issues where trees block signal, topography creates shadowing and an installation is required to provide service across a large distance to a sparse population. It is often in these cases that a rural population suffers most from a lack of mobile connectivity given they often do not have other means of connection available in urban areas. Furthermore, a single taller site can more cost effectively provide service to a large wide area - the alternative means of service provision is a proliferation of smaller sites.

6.3.15 Taking into account the benefits to rural population associated with greater connectivity and the environmental benefits in terms of reduced proliferation, local authorities and PD legislation should support proposals for new, taller installations instead of obstructing them. The need for a planning application in such areas, particularly in SSSI and CAs are most uncertain, time consuming and resource intensive, worsening already weak investment cases and making further network deployment into such areas unlikely.

6.3.16 The Scottish Planning System needs to give due consideration to the technical constraints associated with telecommunications development, the social and economic benefits of improved network capability, and the need to site new ground based masts in target service areas.

6.3.17 Gaining planning approval for ground based masts can be difficult in urban areas, particularly in designated areas. In rural locations, especially with any landscape designation associated, industry expressed difficulty in gaining planning approval for new ground based masts. Where approval could be gained in such areas, it was stated that this was usually for a significantly compromised structure in terms of height and required robustness.

6.3.18 There were concerns raised by some operators that there is a general perception of an acceptable height of mast (15 metres), with any proposals in excess of this height considered inappropriate irrespective of the context in which it is installed. There is also an industry view that a small number of local objections can still lead to a negative planning outcome.

6.3.19 The extension of PD rights to new mast installations does not necessarily mean a high proliferation of new masts or at greater heights. Rather it would allow for the design of a type of mobile network envisioned in the Digital Scotland plan with an assuredness that all the necessary sites can be installed with no breakdown in the rollout due to the inability to secure planning approval for a base station essential to the networks overall operation. The mix of infrastructure is expected to consist of greenfield ground based mast sites, existing ground based mast upgrades, equipment on rooftops and microcells (small cell). The height of a mast is dictated by spectrum, siting, technology etc.

6.3.20 Small cell deployment, particularly in an urban environment is expected to be in large volume deployed on new monopole type structures, buildings and lamp posts. Industry has stressed the need for easier deployment of small cell type solutions, particularly in designated areas. Industry has expressed the need for a flexible approach that provides the industry with the ability to match customers' expectations with the most appropriate solution for the environment. This may in some instances involve the installation of small cells and street furniture in urban areas or larger masts in some rural areas. This approach has been stated by operators as providing a good foundation and sufficient flexibility to enable the rapid deployment of new technologies and other improvements, including LTE, new spectrum capacity, 5G and other technological innovations not yet in the pipeline.

6.3.21 Public perception has changed to having an improved understanding and acceptance of mobile infrastructure. Generally, there has been a clear shift from mast siting complaints to queries regarding improved mobile service and mast siting requests.

Industry Request No. 4 - Extend PD rights for installation, alteration or replacement of apparatus on rooftops and support for small cell

6.3.22 There is a need to extend PD rights for development on rooftops, particularly in designated areas, for example buildings in communications use within CAs may be the optimum location for either siting new apparatus or upgrading existing apparatus.

6.3.23 Appropriate PD rights to facilitate the deployment of small cells. Small cell deployment is expected to be in large volume both on operators own pole type structures or variously located on third party buildings, poles, lamp posts etc. Easier deployment of these solutions in buildings, particularly in designated areas and on dwellings if necessary would support quicker coverage.

Industry Request No. 5 - Extend PD rights for the addition of support equipment to ground based masts that may not necessarily require any alterations to the mast

6.3.24 Only one example was given where PD rights extensions would be useful: Installation of small-scale back-up generators to remote sites to ensure the continued operation of sites. A two month delay while securing the necessary planning approval can be the difference between having the site operational over the winter or having to wait a further six months, as these sites are frequently inaccessible for the necessary machinery during the winter months.

Industry Request No. 6 – Extend PD rights to non Code Operators.

6.3.25 Enhancement of PD rights for non Code Operators would benefit service levels and contribute to the Scottish Government digital objectives. There are a number of entities who are active in the market but who do not benefit from the Code whilst offering services to the public and private enterprise which is aligned with Scottish Government's vision for World Class digital connectivity. PD rights for deploying equipment on existing masts and for installation and construction of new masts would bring a greater speed to market for such entities.

6.3.26 Small scale community led broadband initiatives are typically focused upon serving a relatively low number of users. With low numbers of end-users, the budget of such schemes are on the whole very limited. Enhancement of PD rights to non Code Operators such as small scale community broadband schemes could result in these types of developments avoiding having to pay for planning application and would give them a greater chance of success.

6.3.27 The utilisation of existing radio sites for new equipment under PD rights should not be limited to Electronic Communications Code Operators and instead Class 68 should be extended to allow faster and less restrictive development for non Code Operators. England has implemented a change in PD rights for non Code Operators with the abolition of Part 25 and the subsequent creation of Part 16. Under P16(c) non Code Operators have had their PD rights increased to what was previously enjoyed under Part 25.

7 PA/Stakeholder consultation

7.1 Introduction

7.1.1 The section summarises feedback from PA/Stakeholders.

7.1.1.1 Section 7.2 captures PA's/Stakeholders response to Part A of the questionnaire requesting views on the effectiveness of current PD rights and planning guidance for electronic communications infrastructure.

7.1.1.2 Section 7.3 captures views on the scope for PD rights extensions in response to industry requests taken from:

- Response to Part B (the nature of the communications infrastructure and scope for legislative changes to further increase PD rights to deliver the Scottish Government's vision for World Class digital connectivity) and Part C (Additional Suggestions) of the questionnaire; and

- Road testing workshop of proposed extensions to PD rights conducted with a representation of PA's/Stakeholders.

7.2 Effectiveness of current PD rights and Planning Guidance for Electronic Communications Infrastructure

7.2.1 *Have you had direct experience of PD rights in relation to electronic communications infrastructure?* (If 'yes', please indicate if that includes the amendments introduced in 2014):

PA's YES (20/20) and includes the amendments introduced in 2014 (9/20)

Stakeholders YES (2); NO (2)

Approximately 80% of responses stated that the current legislation is too complex and needs to be simplified. PD rights legislation was found to be ambiguous in many cases as a result of continual incremental amendments made to the legislation.

PA's stated that the majority of operators comply with the process as required in Annex G of Planning Circular 2/2015: Consolidated Circular on Non-Domestic PD rights [33].

7.2.2 Have you experienced a reduction in the number of planning applications submitted for electronic communications infrastructure since the 2014 amendments to PD rights?

PA's YES (11); NO (8)

Stakeholders YES (1); NO (0)

Five PA's provided quantifiable figures demonstrating reductions in planning applications from 2014-15 compared with 2013-14, with the other PA's not having the required statistics or reporting minimal/no change.

The majority view from PA's is that the 2014 extensions have not resulted in a dramatic reduction in workload. PA's highlighted that a good number of applications are for CAs. A few PA's believed that the notification in relation to application of PD rights for electronic communications infrastructure was onerous due to the number of notifications and time spent responding to such requests. Some suggested that a fee should be applied to such notifications.

7.2.3 Are there planning applications for electronic communications infrastructure that are routinely approved?

PA's YES (13); NO (7)

Stakeholders YES (1) NO (5)

Consensus view from PA's is that no applications are 'routinely approved', with appropriate consideration and assessment always having to take place. Applications for cabinets (including proposals in CAs), new masts in rural areas and proposals that involve extensions or relocations of existing structures and replacement apparatus are usually approved. The view is that development of this nature should still continue to be assessed to provide a level of control, particularly in designated areas to protect the special characteristics of such areas. There is a general grey area over whether equipment cabinets constitute ancillary development, and the application of PD rights for such cabinets in designated areas. Scope for PD rights extensions was stated in the following contexts:

- More development on existing structures, particularly those at a high level which are not visually prominent;

- Within existing compounds in terms of mast and cabinets so long as no taller than what is there already;

- A review of Class 67(2)(a) allowing ancillary equipment in designated areas as PD, subject to an application for determination of whether prior approval is required on siting or appearance grounds, in a similar manner to the Class 18 requirements for agricultural buildings/structures; and

- Small scale ground based masts similar to those allowed in England. There may be scope to investigate where telecoms equipment is likely to go in future and future proof regulations if this development is likely to be minor but outwith scope of current regulations.

A view was highlighted that the extension of PD rights must be avoided particularly in the case of wild land areas. The SNH wild land map[2] must play a part in helping to determine the suitability of locations. While the wild land map is not a designation in the environmentally recognised sense of the word, it should be borne in mind that the Scottish Government does not support any further erosion of wild land quality, as indicated in SPP (paragraphs 200 and 210). Many designated areas are Natura 2000 sites and as such are covered by the European Birds and Habitats Directives, which have been transposed into the Conservation (Natural habitats &c.) Regulations 1994. These have a regulatory function which can enable environmental protection and developments to proceed. There are international legal requirements for the Scottish Government to have procedures in place to ensure compliance with the Directives and thus avoid risks associated with not doing so.

Furthermore, with development where there is a chance that the habitat integrity of a designated site would be disrupted in any way, there has to be a process of impact identification and assessment with necessary mitigation proposed and examined. This has to be presented in an environmental statement with a full application, which is publically advertised and open to scrutiny. Thus PD would not be applicable. It was also pointed out that there are other species and habitats which are undesignated but also have some protection due to their sensitivity, and again their requirements would not be covered by PD rights. Paragraphs 193 to 218 inclusive of SPP were referenced.

A view was also captured that stated the planning process provides an important regulatory function which aids environmental protection and quality control. As well as increasing the risk of environmental harm, increasing the scope of PD rights within SSSIs and European wildlife sites may not be compatible with wildlife legislation and could therefore create additional uncertainty and expose developers and Scottish Ministers to additional risks. Even with current controls, electronic communications infrastructure is sometimes deployed that is of insufficient quality in terms of location and design.

[2] http://www.snh.gov.uk/docs/A1323225.pdf

7.2.4 Do you have dialogue/communication with the electronic communications industry in relation to network operator requirements and application of PD rights?

PA's YES (11); NO (9)

Stakeholders YES (1); NO (2)

PA's in general did not regularly have dialogue with industry. Communication was mainly via the notification procedures and in processing of applications. Some engagement takes place in advance of rollout programmes etc. Many PA's indicated that meetings with network operators in respect of roll-out programmes prior to these being finalised would be beneficial in so far as problem sites could be identified prior to the submission of any applications. To improve dialogue, both industry and PA's need a better understanding of the background to their approach and the reasoning process they undertake when making and considering planning applications.

7.2.5 Are you familiar with/and use the guidance provided in PAN 62?

PA's YES (19); NO (1)

Stakeholders YES (3); NO (2)

Some key issues were raised on PAN 62 including the change in the industry approach and emphasis on having world class digital connectivity, emerging technologies, and outdated precautionary approach to telecom developments given the backdrop of public concern at the time. All PA's agreed that PAN 62 was helpful in cases, for example within CAs and in relation to landscape issues, but certainly in need of updating.

A view was captured stating that Paragraphs 100 to 103 should reflect the policy, guidance and advice in SPP, SHEP and Circular 2/2011. This should stress the finite nature of archaeological remains, its vulnerability to even minor changes and the fact that it is irreplaceable.

Another view captured stated that Paragraph 98 should be retained in any redraft, as relaxation of the PD rights could lead to a risk of non compliance by the industry with conservation legislation. A general review and refresh of the environmental impacts and mitigation content, in line with SNH's guidance on *'Assessing the impacts of small-scale wind energy proposals on the natural heritage [48]'* and *'Micro renewables and the natural heritage' [49]*, could be useful.

7.2.6 Does your authority/organisation have examples of good practice and / or case studies based on experience of the handling of planning applications for electronic communications infrastructure?

PA's YES (3)

Stakeholders YES (0)

PA's highlighted the benefits of pre application advice and where multi applications have been submitted and a coordinated approach taken with one point of contact for the operators. Specific scenarios were given where masts had been disguised or hidden.

7.2.7 Has your authority/organisation noticed a change in public perception of communications infrastructure such as masts and street cabinets infrastructure?

PA's YES (14); NO (6)

Stakeholders YES (1)

PA's reported that equipment cabinets and ground based masts to a certain degree are becoming more common place and reduced opposition in general has been received for such developments. The general view is that proposals are seen as less controversial now as most members of the public now utilise hand held communication and data devices. People in general are now more accepting of the benefits of mobile coverage and less concerned over health and safety issues.

One Stakeholder highlighted that many of its members are very sensitive to structures such as telecoms masts and cabinets in wild areas and raise concerns. The proliferation of masts on hilltops was cited.

7.3 Scope for PD rights Extensions

7.3.1 Industry Request No. 1: Extend PD rights for emergency works from 12 months to 18 months

7.3.1.1 The majority of PA's/Stakeholder were in favour of a time extension from the current 12 months to 18 months. Consideration would need to be given to the associated conditions on the operators to deploy the minimum infrastructure needed to temporarily fill the gap until the situation can be recovered i.e. proportionate response to the emergency. Guidance would be needed to show examples of emergencies and works in response to such emergencies as part of an updated PAN 62. A PA suggested that planning enforcement may not be enough in certain situations e.g. footways.

There are changing attitudes to the reception of emergency equipment, however there are still instances whereby the public will monitor the time period closely to ensure that the temporary infrastructure is removed.

7.3.2 Industry Request No. 2: Extend PD rights for the replacement or alteration of an existing mast which is ground based or the installation of apparatus on such a mast to include the following:

- **Up to 10 metre height increase for masts less than 50 metres.**
- **A change in location of up to 10 metres from the location of the existing mast.**

7.3.2.1 The consensus view is that the current planning system is working in relation to replacement or alteration of an existing mast which is ground based or the installation of apparatus on such a mast. The current 5 metres increase currently works well, with lesser height increases often requested.

7.3.2.2 Concerns were raised in terms of the impact of a height extension. An increase in height could result in an increase in width which could affect the footprint/look of the structure compared with the original structure. The purpose and need for such a height increase was questioned. Is it to provide a significant increase to smaller masts or to extend higher masts more than the current 5 metres. A view was taken that industry may overbuild for mast share purposes for generating additional revenue rather than an actual technology driven need or to provided further coverage.

7.3.2.3 Significant concern was raised about applying PD rights across the board for a significant height gain of up to 10 metres. A 10 metre height increase to a taller mast can also have a significant impact. Allowing such height increases could reduce the need for investigating alternative, perhaps more appropriate sites. A PA highlighted that in an urban context, alternative sites chosen (controlled by the planning application process) can be a better outcome than a significant height increase to an existing mast. The majority of PA's stated that the high approval rate should not negate the need for the planning process. Furthermore, the time/cost factor was not considered an issue by PA's – planning applications are relatively low cost/and the majority of decisions are made within 8 weeks.

7.3.2.4 PA's raised a concern that if industry design the network at present to fit within PD where possible then it could be argued that the ability to extend to 10 metres would encourage over build. Perhaps a percentage increase would be better, allowing a graded increase depending on existing height. However, a tiered approach would not work in all instances as impact on visual amenity would depend on location. A stakeholder highlighted that in the context of digital connectivity, height is not the issue but more sites are important.

7.3.2.5 The consensus is that legislation should not be set to encompass minority cases when it can go through due process and may be approved anyway. There needs to be control to monitor those minority cases. A PA offered the view that licensing was taken away for a reason and that avoiding the planning system should not be encouraged. Also, Class 67 is already not clear without further conditions being applied.

7.3.2.6 The consensus view in terms of PD rights extension for relocation of the mast to a potential 10 metres, is that this could bring the mast into the vicinity of neighbouring properties. Moving of masts are not common place. Industry works on modifications to existing network locations. Such a large relocation combined with large height increases proposed could effectively result in a new mast structure and location.

7.3.3 Extension of PD rights to include the construction or installation of ground based masts to include the following:

- **Up to 50 metres in non designated areas;**
- **Up to 25 metres in designated areas.**

7.3.3.1 The majority of PA's/Stakeholders did not support PD rights extension to new mast build irrespective of suitable restrictions and conditions being applied. Development on new sites was generally viewed as requiring planning control.

7.3.3.2 Potential for PD rights extension was highlighted in certain circumstances, as follows:

- New monopole types structures in urban environments (non designated areas) subject to certain height, plus distance from other sites to fit in with existing street furniture and pedestrian rights of way. There would be a need for certainty in terms of structure type and auxiliary equipment associated with the mast build.

- New masts subject to height restriction in industrial areas and within an existing telecommunications compound as the compound would benefit from being in existing use.

- Specific non designated rural areas.

7.3.3.3 The consensus view from PA's is that applying PD rights to capture such scenarios would be difficult and would introduce the risk of bringing in other scenarios where control on siting and appearance is needed. Also, it could further complicate the legislative landscape.

7.3.4 Extend PD rights for installation, alteration or replacement of apparatus on rooftops, as follows:

- **Class 67 (2) (a) specifying PD rights that apply in designated areas to also include the installation, alteration and replacement of apparatus on rooftops as per the PD rights and associated restrictions/conditions that apply in non designated areas.**
- **Restrictions and conditions in Class 67 (2) for the installation, alteration and replacement of apparatus on rooftops within non designated areas to be removed.**

7.3.4.1 Extension of PD rights on rooftops was viewed more favourably than PD rights extensions to ground based masts by PA's/Stakeholders, with buildings seen as a better option than masts.

7.3.4.2 The consensus view indicated scope for extending PD rights for alteration or replacement of apparatus on rooftops in designated areas (not including scheduled monuments and listed buildings). Such alterations or replacements would have to be controlled in terms of height, size, siting, design, shape, materials and colour/finish, and not be visible from street level.

7.3.4.3 Scope for installation of apparatus on buildings in designated areas was also highlighted, again subject to suitable restrictions.

7.3.4.4 The consensus view was supportive of small cell deployment. There would be a need for the apparatus colour to match building colour where possible. Small cells could be hidden in shop facia in particularly sensitive areas. A question was raised on whether it is considered development (Section 26) or PD rights.

7.3.5 Extend PD rights for the addition of cabinets to ground based masts that may not necessarily require any alterations to the mast, e.g. small scale back-up generators, as follows:

- **Class 67 (2) (a) specifying PD rights that apply in designated areas to also include the construction, installation, alteration or replacement of ground based equipment housing as per the PD rights and associated restrictions/conditions that apply in non designated areas.**

7.3.5.1 There could be scope for extension of PD Rights to encompass the example given but with restrictions in terms of proximity to a mast in a compound and suitable distance from residential properties.

7.3.5.2 The consensus view is that the one example given by industry should not be considered as a pre-cursor for extension of PD rights to equipment housing into designated areas. It was highlighted that there is already clutter in areas (four cabinets alongside each other in some instances), with significantly more cabinets than masts.

7.3.6 PD rights for non Code Operators for construction or installation of a small monopole type structure nearby commercial sites and for laying of duct and fibre routes.

7.3.6.1 The concern was raised that giving PD rights to non Code Operators could result in sporadic build and would be to the detriment of Electronic Communications Code Operators should PD rights be given to non Code Operators that are not currently provided in Class 67.

7.3.6.2 The consensus view is that these types of development by non Code Operators should be dealt with through the planning process but with consideration given to the need for such development and business case constraints.

8 Best Practice Case Studies

8.1 Case Study 1: Ground Based Mast

Description

Installation of a 21m high Slimline Lattice Mast Accommodating 3 No. Antennas and 2 No. 0.6m Transmission Dishes, also Includes the Installation of 3 No. Equipment Cabinets; Concrete Bases to Support the Mast and Cabinets and Ancillary Equipment Surrounded by a 1.2m High Timber Post and Rail Fence.

Since September 1997 Telefonica O2 Ltd have deployed and operated a 15m high monopole telecommunications mast and associated works on agricultural land in Aberdeenshire. However, due to the redevelopment plans of the landowner it is necessary that the operator must relocate the mast as a means of ensuring continued service provision to the area.

Steps Undertaken

The operator considered other means of providing the continued high quality coverage for O2 customers as well as alternative locations for a replacement mast and associated equipment but in the end they concluded that another site on the landowner's farm would be the most appropriate location from both a technical and planning perspective. Based on the technical requirements associated with the required relocation it was deemed that a new 21m high lattice mast design was required to replicate and improve upon existing service.

Prior to the submission of a planning application being made by the operator, and in accordance with current industry best practice ('Code of best practice on mobile phone network development'), voluntary pre-application engagement, the operator engaged with relevant stakeholders to inform them of the proposed replacement mast and upgraded associated equipment. Letters outlining the proposal, accompanied by drawings, were sent by the operator to Ward Councillors and the Planning Authority and they were given a 14 day period to respond.

The Planning Authority responded to confirm that they would not discourage an application for the proposal. Ward Councillors did not respond with any query or objection. A robust application, accompanied by the required supporting information and planning justification in accordance with current industry best practice was submitted to the PA.

No objections were received from the public or statutory consultees. The Council tree specialist proposed a condition to protect surrounding trees and the proposal was duly conditionally approved within a timely period without issue.

Post approval, the operator submitted a Proposed Site Access Route plan, which included details of the tree protection works, to the PA for their approval. The PA was satisfied the proposed works met with the requirements of the planning conditions attached to the consent and discharged the conditions without issue.

Planning Outcome

It is envisaged that the operator will be implementing the new 21m high lattice mast approval prior to decommissioning the existing, 1997 deployed, 15m monopole base station in the near future.

This case study emphasises the importance of beginning, and having a continual open dialogue between the PA, operator and stakeholders. This process should begin before application is formally lodged and continue until after the decision has been made. Ongoing, open conversations are important as they can allow for reflection on the existing application, and help amend the application to increase the likelihood of a favourable decision.

8.2 Case Study 2: Cabinets

Description

Two applications were lodged for two cabinets, in separate locations within Comrie Village, as part of a range of proposals to provide superfast broadband coverage.

Comrie is a conservation area with a high volume of historic and listed buildings. The initial two applications were identified as problems due to concerns identified with location of cabinets and detrimental impact on the setting of listed buildings and character of the conservation area.

Steps Undertaken

Engagement:

The planning authority highlighted sensitive areas (affected by proposed development) early to ensure protection.

Regular site meetings were held with a selected group of key contacts for the application (to include representatives from the planning authority, the applicant and key contractors). These were used as a basis to help produce a subsequent application after the original application was withdrawn.

Site Search:

Following ongoing dialogue and guidance from the planning authority, the applicant searched for alternative sites. This exercise was supported by the planning authority and through this process, a suitable alternative location was chosen. An application was lodged for this site with approval given.

Other replacement sites were chosen for their location outwith the conservation area, to negate the need to obtain planning permission.

Planning Outcome

The applications were retracted due to the indication from the planning authority that they were likely to be rejected. A subsequent (more agreeable) application was later submitted to the planning authority. Screening of locations for proposed developments should be more routinely used within conservation areas.

9 Research Findings

9.1 Introduction

9.1.1 This research has consulted industry, PA's and Stakeholders on the effectiveness of current PD rights and planning guidance for electronic communications infrastructure; and scope for further extension of PD rights.

9.1.2 A number of industry requests have been captured for extensions to PD rights and changes to planning guidance for electronic communications infrastructure, with efforts made through dialogue with industry to gain an understanding of the rationale and justification for industry needs.

9.1.3 This section analyses the evidence base gathered from industry for the requested extension to PD rights, with due consideration given to Scottish Government's telecoms policy and objectives, views from PA's/Stakeholders, knowledge of emerging technology trends and outputs from an analysis of a sample of planning applications in relation to electronic communications infrastructure over a two-year period 2013-2015.

9.1.4 The requirements and need for updated guidance has been assessed based on industry, PA's and Stakeholders views on which aspects of PAN 62 can usefully be retained, and on the need for and content of any new advice required, with a view to ensuring that the advice remains up to date, promotes best practice for achieving successful outcomes, and furthers the working relationship between operators, PA's and Stakeholders.

9.1.5 The research work has captured two case studies in handling planning applications for key electronic communications infrastructure in Scotland (see Section 8) that demonstrate how a successful outcome can be achieved through best practice and effective engagement between all parties (the developer, the PA, relevant agencies, and the public).

9.1.6 The rationale and conclusions drawn in this section form the basis of the recommendations stated in Section 10.

9.2 Scope for PD rights extensions

9.2.1 This research work is part of a wider package of measures under consideration to encourage the provision of mobile services in remote and rural areas. Identifying the magnitude of the constraints presented by the Scottish planning system compared with other deployment constraints highlighted by industry (see Section 6.2.9) is not in scope of this research work. Other sources, such as 'The Tackling Partial Not-Spots in Mobile Phone Coverage Consultation Summary of Responses' [54] and the research report commissioned in 2013 on 'Economic Impacts of Mobile Communications in Scotland' [55] highlight the relaxation of planning laws as being one area for consideration to encourage the extension of mobile coverage.

9.2.2 The different planning systems in each UK administration have been highlighted by industry as having an effect on business case and deployment prioritisation, including timescales and costs to deploy new infrastructure and upgrades to existing infrastructure. With MNOs under coverage obligations, it is timely for Scotland to investigate how any barriers to deployment within the planning regime can be reduced. The UK Government on 17th March 2016 [56] announced a significant package of planning relaxations to support the deployment of mobile infrastructure in England, and to seek views on the complementary changes needed to the Electronic Communications Code (Conditions & Restrictions) Regulations 2003 ("the Code regulations") [27]. Scotland has to be mindful of these outcomes, to ensure that its planning system is flexible and encourages suitable build in the right areas in line with Scottish Government objectives.

9.2.3 This research work has captured a specific need from industry for certainty and flexibility to be provided through the planning system to enable the optimal deployment of infrastructure. The work has also established that the Scottish planning system offers advantages over other UK administration planning systems, particularly in relation to PD rights for upgrades to existing masts without the need for prior approval and these rights applying in both designated and non designated areas. These PD rights enable more effective rollout of network upgrade and promote site sharing in Scotland. However, MNO's in response to consultation have placed significant emphasis on further PD rights extensions for alteration and replacement of existing ground based masts to allow flexibility for greater height increases and relocation distances where required. MNO's have also stressed the need for introduction of PD rights for the construction and installation of new ground based masts. The key driver for MNO's request is the need for taller masts and new ground based masts for improving mobile coverage, particularly in rural areas.

9.2.4 Captured feedback from industry highlights PD rights being a key influencing factor when designing and planning network rollout due to the certainty provided. There is no evidence gathered during this research work to verify this approach or establish the impact of current PD rights in Scotland. However, it is important to note that the need for certainty may create a risk of sub optimal infrastructure being deployed (in terms of coverage and performance) should the associated restrictions and conditions of PD rights extensions not provide the required flexibility.

9.2.5 There is a view held by some operators of inconsistencies across PA's on the interpretation of Class 67 legislation. A key example, is the different interpretations of ancillary development by PA's in relation to the installation of telegraph poles, the replacement or alteration of existing telegraph poles, and the installation of new overhead lines on such poles. Some PA's consider this to mean Openreach street cabinet infrastructure in relation to the Digital Scotland Superfast Broadband programme, thereby permitting development for such infrastructure in both designated and non designated areas. Other PA's require a planning application to be submitted, particularly for cabinet deployment in designated areas. The Planning Circular 2/2015 (paragraphs 6 to 9) [33] makes it clear that in respect of Class 67, ancillary development means the installation of equipment providing necessary support to the primary activities or operation of an electronic communications code system. This includes, but is not necessarily restricted to, such items as equipment cabinets (for example; cabinets to house Digital Subscriber Line Access Multiplexer (DSLAM's) and Primary Cross Connection Points (PCP's), other ground based apparatus and associated cabling). If this was the intention of the 2014 GPDO amendments, then this should be made clear in any future amendments to Class 67.

9.2.6 There is a view held by some operators of varying emphasis placed by PA's on the need for electronic communications infrastructure when processing planning applications. This research work, based on the analysis described in Section 5.7, has found that the emphasis in LDP's for electronic communications infrastructure can vary across PA's. This may be related to when the LDP was adopted in line with SPP. Going forward, there is a need for LDP's to reflect the emphasis placed on electronic communications infrastructure in the SPP in a consistent manner, and a need for better, mutual understanding between PA's/Stakeholders and industry in line with Scottish Government objectives.

9.2.7 To assist the above process, it is proposed that an evolving code of best practice based on the principles set out in SPP, and an agreed working relationship between operators and PA's/Stakeholders is introduced. A Code of Best Practice [11] on mobile phone network development currently operates in England to provide guidance to MNO's, their agents and contractors, and local planning authorities. A separate code applies to fixed line operators [28]. There is currently no Scottish equivalent. MNO's have stated that they apply the ten commitments, Traffic Light Model and siting and design principles captured in the England Code of Best Practice to proposals in Scotland. The Code of Best Practice as it applies in England is not a statutory undertaking, but rather is developed and owned by a working group with the aim of ensuring timely delivery of high quality communications infrastructure in a way that also minimises the potential impact that can be associated with such development. A code of best practice in Scotland could act as a replacement for the out of date PAN 62, complementing the SPP and providing up to date advice on good practice. This should reflect the different legislation, designations and agencies/authorities in Scotland, with all relevant parties to be involved in its development. Some Stakeholders consulted have already established a code of best practice with other industries and have expressed an interest in participating in this process.

9.2.8 This research work has highlighted a high approval rate for planning applications relating to electronic communications infrastructure from the sample analysed and feedback from industry/PA's/Stakeholders. The sample demonstrates a high approval rate for all types of development with minimal objections or revisions (see Section 5.6). Industry has stated that developing proposals in conformance with the Code of Best Practice often results in a high success rate of planning applications in the UK. Adopting best practice, inclusive cooperation and consultation with PA's can assist in successfully deploying appropriate infrastructure in the right locations. This approach has resulted in a high success rate (>90%) for proposals made in relation to the MIP and Smart Metering communications network, which includes new masts, between 15 – 33m high within all landscapes, including National Park and other national and local landscape designations. Such evidence suggests that proposals by Electronic Communications Code Operators are in the main appropriate, with an argument to be made that more development could benefit from extension to PD rights.

9.2.9 Feedback from industry, PA's/Stakeholders and the low number of objections from the sample of planning applications analysed suggest greater public acceptance of electronic communications infrastructure development, however no firm conclusion can be drawn based on the extent of research work conducted.

9.2.10 Taking all of the above into consideration, it is concluded that there is scope for further PD rights extensions and associated guidance to provide industry with the required certainty and flexibility to deploy the infrastructure needed in support of Scottish Government digital objectives; and to ensure that Scotland is competitive, attracting investment in electronic communications infrastructure. The approach must place emphasis on the following:

- Grant further PD rights extensions to minor and uncontroversial development, on the basis that the planning system is not an efficient way of regulating development in such circumstances;

- Consideration given to siting and appearance through engagement with PA/Stakeholders in circumstances where planning permission is granted in principle but the development is of a sensitive nature;

- Extensions to PD rights should be made permanent rather than being seen in the context of any programme or initiative, such as 4G coverage objective. The changes need to be future proofed to take advantage of future technology developments and future releases of spectrum.

9.3 Prior Approval for electronic communications infrastructure

9.3.1 Certain classes of PD include a requirement, sometimes specified as a condition, for prior approval from the PA to be obtained prior to PD rights being carried out, on the basis that planning permission is granted in principle but the PA can influence aspects of the development. A prior approval process does not currently apply to Class 67 of the GPDO in relation to electronic communications infrastructure.

9.3.2 There is a condition in Class 67 (0 and 5.3.14) that requires operators to give notice in writing to the planning authority (with specified information to be submitted with the notification) no fewer than 28 days before development is begun consisting of the construction or installation of one or more antennas or of equipment housing. However, the notification does not require or allow consideration by PA's/Stakeholders on the siting and appearance of the proposal. For extension of PD rights, particularly in relation to new development such as ground based masts, a process will be required to allow a means of regulating, where necessary, important aspects of the development for which full planning permission is not required by virtue of the GPDO. The two broad approaches are to have a requirement for (a) prior approval; or (b) prior notification/prior approval.

9.3.3 A prior approval process would require the operator to apply in advance for prior approval of the specified aspects of the development (e.g. siting and design); paying a fee (in some cases there is an exemption from a fee) and supplying sufficient information to allow the PA to determine the outcome within two months. If the application for approval is not determined within two months (or any agreed extension) the applicant can appeal on the grounds of non-determination. Where prior approval is refused or granted with conditions, the applicant can likewise appeal against that decision. A prior approval is currently adopted in England for certain electronic communications infrastructure development (as described in Section 5.5), however feedback from operators' highlight that although the process gives certainty in terms of a set determination period of 56 days with the principle of the development in effect being approved, the process still needs considerable effort (on a par with a full planning application) with the possibility that the development can still be refused. Efforts have been made during this research work to capture English PA thoughts on the use of prior approval in relation to new ground based masts, however authorities contacted had no comments to make on the prior approval process.

9.3.4 Having a condition requiring prior notification to determine if prior approval is required would avoid operators waiting unnecessarily for decisions on the granting of prior approval. In this procedure, the developer would give prior notification in advance (unless the proposal lies within a Natura 2000 site), submitting the specified information and fee, seeking a determination as to whether prior approval of the specified aspects of the development (e.g. siting and design) is required. The PA has 28 days to indicate whether its prior approval is required. If no response is received in that time or the PA indicates that approval is not required, the developer can proceed. Where prior approval is required, the process is as outlined in Section 9.3.3 in terms of period for decision and appeals. The PA would have the opportunity during prior approval to request further information from the operator to support the proposal. The two month timescale for a decision runs from the date prior notification was given.

9.3.5 Although the prior notification/prior approval process is not without its drawbacks as highlighted by other sources [50], it would appear to be the most appropriate in relation to electronic communications infrastructure on the following basis:

- A prior notification application demonstrating the appropriateness of the development (adopting best practice) together with a timely PA assessment offers the potential for PD rights to be approved within a 28-day period.

- PA's retain control for consultation with statutory bodies and possible rejection of the application if necessary by invoking the prior approval process.

9.3.6 A prior notification/prior approval process, which is not currently in place in relation to electronic communications infrastructure in Scotland will have to be carefully introduced and continue to be monitored.

9.3.7 Some operators have suggested that placing the Code of Best Practice on a statutory footing would provide assurances that the operators approach is in compliance with the agreed best practice and that the proposed development is appropriate. This however would not provide the necessary controls for assessment of siting and appearance specific to the local context which a prior notification/prior approval process would enable.

9.4 PD Rights Extensions

9.4.1 The following sections assess each industry request for PD rights extensions against the following options:

- Option 1 – Do Nothing;
- Option 2 – PD rights extensions, with tight restrictions and conditions to allow planning permission only in certain circumstances/contexts;
- Option 3 – PD rights extensions, with more relaxed restrictions offering greater flexibility for Electronic Communications Code Operators to utilise the planning permission;
- Option 4 – PD rights extensions, subject to a suitable prior notification/prior approval mechanism on siting and appearance of the development;
- Option 5 – Further definition and scoping required to reach a conclusion.

9.4.2 Industry Request No. 1: Extend PD rights for emergency works

9.4.2.1 A number of industry consultees proposed PD rights extensions to the use of land in an emergency from the current period not exceeding 12 months to a period not exceeding 18 months, to more closely reflect the timescales required to fully address emergency issues (including the acquisition, build and integration of permanent replacement sites) and to reduce the impact of loss in service. Continuity of service is essential given user dependence on connectivity.

9.4.2.2 The majority of PA's/Stakeholders were in favour of the PD rights extension.

9.4.3 Industry Request No. 1: Outcome

9.4.3.1 **Option 2 (PD rights extensions, with tight restrictions and conditions to allow planning permission only in certain circumstances/contexts)** on the basis of the following:

- The request has been clearly defined and justified by industry, with the nature of PD allowing tight restrictions and conditions to be applied.

- Planning guidance to be provided to demonstrate examples of the types of emergency that can occur and appropriate emergency works required in response to such emergencies.

9.4.4 Industry Request No. 2: Extend PD rights for the replacement or alteration of an existing mast which is ground based or the installation of apparatus on such a mast

9.4.4.1 This research work has captured a need from MNO's for taller masts in rural areas, with figures provided demonstrating the effect of height vs increased coverage (subject to topography etc.), and low average mast height in UK (17 metres) compared with other European countries. MNO's have stated that taller masts could reduce the number of masts needed by 3:1. Data on existing ground based mast heights and distribution was requested from MNOs to inform decisions on where a height increase could have greatest impact, and to help focus any extension of PD rights to rural areas in response to the need for taller masts in such areas. No data was shared for this purpose. Likewise, no context has been provided on existing mast locations where the extension is likely to be applied or the extent/impact of the height increase needed, with MNO's stating that having the flexibility to extend to a certain height does not mean that operators would build up to that height or materially change the existing structure, as it depends on local site requirements – radio requirements, target coverage, topography, link requirement, loading etc.

9.4.4.2 In the absence of information from MNOs on existing ground based mast estate, the Ofcom Sitefinder[3] data has been analysed. The Sitefinder database of antenna heights/locations has been matched against the Scottish Government urban/rural classifications[4]. The analysis concludes that there is no marked distinction between rural areas (accessible small towns, remote small towns, very remote small towns, accessible rural, remote rural, very remote rural) vs urban areas (large urban, other urban areas) in terms of current height of antennas. For example, both rural areas and urban areas have a similar percentage of antenna heights less than 15 metres (approximately 40%) compared with greater than 15 metres, with the ratio of total rural vs urban locations being approximately 60%:40%. Therefore, any extension to PD rights that target a specific height range of existing masts with an aim of placing emphasis on rural areas could be misguided. Industry has also advised that existing height of masts should not determine future requirements.

9.4.4.3 There is no evidence from the sample of planning applications analysed that operators would look to apply/or need up to the requested 10 metre height extensions across all existing masts. The planning applications 2013-2014 sample (pre 2014 GPDO amendments) for alterations/replacements of existing masts show height increases varying between no change to 3 metres, with minimal design change for replacement masts. However, industry has stated that alterations to date have been mainly in urban or semi-urban (suburban) areas for the purpose of capacity enhancements and technology upgrade rather than coverage extension. Therefore, operator behaviour demonstrated by the planning applications sample may not be indicative of future development. An application was highlighted in the 2014-15 sample for an existing mast of height 14.6 metres requiring a 5.4 metre extension from O2(Telefonica)/Vodafone to provide new 4G services and continued use of 2G and 3G services. The statement explains that the function of the mast is to elevate the antennas above obstacles such as trees, buildings or valley sides that could block signals and prevent coverage being obtained. This type of scenario was commonly highlighted by MNO's as requiring a further few metres extension of height beyond the current PD rights of 5 metres.

[3] Data provides height of antennas that may not reflect the true height of masts.

[4] http://www.gov.scot/Resource/0046/00464806.pdf

9.4.4.4 This research work has captured a need from MNO's for additional flexibility to relocate masts beyond the current PD of 4 metres to enable more effective development and upgrade of existing structures within the footprint of existing mast sites. The assumption is that this is likely to take place within a controlled site perimeter to better cater for situations such as underground services, utility conduits, or other street furniture that might otherwise prevent the siting of a replacement mast within the current 4 metre restriction.

9.4.5 Industry Request No. 2: Outcome

9.4.5.1 **Option 3 (PD rights extensions, with more relaxed restrictions offering greater flexibility for Electronic Communications Code Operators to utilise planning permission)** on the basis of the following:

- A potential solution to allow further incremental extensions to height is to restrict further height increases beyond the current permitted 5 metres to a percentage increase relative to existing mast height. Suitable width restrictions and any current planning conditions associated with the grant of planning permission to the existing mast should apply to minimise the risk of a material change to the structure type/and hence significant visual impact. This should not negate the need for best practice to be applied by operators when developing proposals that takes into account siting and appearance.

- Providing greater flexibility to mast alteration/replacement further encourages development to existing mast site locations where the principle has already been accepted. The recommendation promotes the siting options specified in PAN 62 in terms of considering existing locations prior to erecting a new ground based mast and also underpins national planning policy to support mast and site sharing.

- The re-location distance of a replacement mast should be increased to provide greater flexibility for repositioning of the mast within the perimeter of the existing site boundary.

- PD rights extensions for mast alteration/relocation should apply to both designated and non designated areas as per the current approach, which has been deemed by industry as being a very helpful and forward looking approach. From an operator's perspective, upgrade to infrastructure is needed irrespective of designation. Plus, the strategy aims to focus build on existing sites in designated areas to where planning permission has already been granted with the potential to reduce the need for new sites.

9.4.6 Industry Request No. 3: Extension of PD rights to include the construction or installation of ground based masts

9.4.6.1 This research work has captured a clear need from MNOs for extending PD rights to help accelerate the deployment of new masts and taller masts, particularly in rural areas. MNO's have stated that this does not necessarily mean a high proliferation of new masts or all at greater heights. The mix of infrastructure is expected to consist of new ground based mast sites, alterations/relocation of existing ground based masts, equipment on rooftops and microcells (small cell).

9.4.6.2 The vast majority of new urban (streetscape) masts sites are likely to be monopole type structures and associated equipment housing designed to fit in with existing street furniture. It is anticipated that few ground based masts in such scenarios would be large, free-standing lattice masts. In a rural setting, structure types, locations, heights etc. are likely to vary depending on the technical/performance requirements of the network, with coverage being a key driver compared with capacity upgrades in urban environments. There are also fewer alternative options for hosting equipment in rural areas compared with urban areas, hence driving the need for taller masts and new masts.

9.4.6.3 PA's highlighted the high approval rate of planning applications in relation to electronic communications infrastructure as demonstration that the planning system is not a constraint to development. From the applications sampled, 33 new masts ranging from heights of 6 metres to 27 metres were all approved, with one revision being proposed. A total of seven objections were noted (one objection for a mast located in a designated area; and six objections for one application located in a non designated area). Industry has stated that planning applications for works proposed in designated areas can be difficult, however best practice, inclusive cooperation and consultation can assist in successfully deploying appropriate infrastructure in a suitable location.

9.4.6.4 Any extension of PD rights in rural locations would have to fully consider the impact and implications on designated areas and wild land areas[5]. PA's/Stakeholder had particular reservations on development in such areas, with a priority to protect their special characteristics.

[5] http://www.snh.gov.uk/docs/A1323225.pdf

9.4.6.5 No figures in terms of planned mast build numbers, type of structure and location have been provided by industry to allow suitable contexts to be defined. Certain contexts have been proposed by PA's/Stakeholders (see Section 7.3.3.2) where development could be considered permitted, however applying PD rights to capture such scenarios would introduce the risk of bringing in other scenarios where control on siting and appearance is needed. Further work could be conducted with industry with an objective to define an appropriate context in rural areas, with PA/Stakeholder input to form a basis on which a legislative change on extension to PD rights could be made with associated restrictions and conditions. Some indicators in terms of heights and siting requirements can be taken from the MIP, that had the objective of extending mobile coverage into UK rural areas. The project planned new masts 15 – 30 metres across all landscape types. But operator requirements may vary, with restrictions and conditions tailored to fit a particular context running the risk of being open to interpretation and unsuitably applied elsewhere, or being not fit for purpose by all operators. Plus, a set of restrictions and conditions placed now, given the forward looking nature of this research work, would have to cater for evolving industry requirements which are unknown at this point in time.

9.4.6.6 Although Section 9.2.9 suggests greater public acceptance of communications infrastructure development, no firm conclusion can be drawn from this research work on public acceptance of new ground based masts to warrant such development as being minor or uncontroversial.

9.4.7 Industry Request No. 3: Outcome

9.4.7.1 **Option 4 (PD rights extensions, subject to a suitable prior notification/prior approval mechanism on siting and appearance of the development) for installation or construction of new ground based masts in non designated areas** and **Option 5 (Further definition and scoping required to reach a conclusion) in designated areas** on the basis of the following:

- There is a need for new ground based masts, particularly in rural areas where fewer alternative options are available for hosting equipment. Any extension of PD rights must offer flexibility to operators to ensure that optimal infrastructure is installed to maximise coverage/performance and cater for future requirements in line with Scottish Government objectives.

- The principle for installation and construction of new ground based masts should be accepted in non designated areas, however PA control is still required to ensure that the proposal is ideally sited and designed to suit the location. Operators should have to demonstrate best practice and provide reassurances that all alternative options have been assessed and discounted.

- PA's/Stakeholders have expressed a strong requirement to not bypass the planning system for new ground based mast sites in designated areas to protect the special characteristics of such areas. Extending PD rights to new ground based masts in designated areas (even with a mechanism for assessing siting and appearance of the development, in addition to other planning controls for such areas) would mean that the principle of the development in these areas is approved. Further definition and scoping would be required, that has not been possible within the timeframe of this research work, to allow a conclusion to be drawn for PD rights extensions to new ground based masts in designated areas.

9.4.8 Industry Request No. 4: Extend PD rights for installation, alteration or replacement of apparatus on rooftops and support for small cell

9.4.8.1 The key driver from industry for PD rights extensions in this areas is to extend PD into designated areas for installation, alteration or replacement of apparatus on rooftops and provide adequate support for small cell deployment.

9.4.8.2 Industry has stated a need for PD rights extensions to encompass any installations, alterations or replacements on buildings in non-designated areas. No justification has been provided as to why existing PD rights do not meet requirements. PA's/Stakeholders have the view that current PD rights are appropriate. The 2014 GPDO amendments made significant extensions to PD rights to encompass four 'antenna systems' to be installed on any one building, where previously only four antennas were PD. This in effect can result in an uplift on number of antennas permitted from previous PD rights. The 2014 GPDO amendments also relaxed restrictions on height for antenna on buildings from 4 metres to 6 metres. This research work has not been able to gain adequate justification within the timeframe for further extensions in this area.

9.4.8.3 Industry requested an extension of PD rights to apply to replacement or alteration apparatus on rooftops in conservation areas that are already used to support telecoms apparatus, and PD rights to install smaller apparatus on rooftops in such areas. PA's/Stakeholders have highlighted scope for PD right extensions for replacement, alteration and installation of apparatus on rooftops in designated areas, subject to appropriate restrictions and conditions. PA's/Stakeholders were generally more supportive of development on existing buildings to reduce the need for new ground based mast build. However, industry has not clearly specified the requirement within the timeframe of this research work to allow an informed recommendation with associated restrictions and conditions to be specified.

9.4.8.4 This research work has established a firm requirement for support of small cell with indications from industry that small cell deployment will increase considerably over the next few years driven by mobile data demand, with 5G potentially also being a key driver for micro cell technology. Small cell deployment has a lower optimum height, smaller footprint and can be concealed in sensitive areas. Industry has stated that small cells are often no larger than a standard fire or burglar alarm and can offer an unobtrusive, low impact means of providing improved coverage in specific areas. Where they are mounted in commercial premises such as retail shops, the visual impact of a small cell is likely to be less than on a dwelling house, because of shop-front signage.

9.4.9 Industry Request No. 4: Outcome

9.4.9.1 **Option 5 (Further definition and scoping required to reach a conclusion) for apparatus on rooftops** and **Option 2 (PD rights extensions, with tight restrictions and conditions to allow planning permission only in certain circumstances/contexts) for small antenna** on the basis of the following:

- Recommendations for PD rights extensions to installations, alterations or replacements on buildings in designated or non-designated areas are not possible for reasons stated in 9.4.8.2 and 9.4.8.3.

- PD rights extensions to be applied to small antenna for installation on buildings (in designated areas) and on dwellinghouse (in both designated/non designated areas) to support anticipated small cell rollout. Current restrictions and conditions should apply to built environments such as conservation areas. Depending on the equipment proposed, there may be a consideration as to whether it is development at all (Section 26 of the Town and Country Planning (Scotland) Act 1997) or PD that will need to be resolved. Many smaller installations may not constitute development and so fall outwith the provisions of Class 67. For example, such systems may be covered by the normal principle of de minimis, or they may not have a material effect on the external appearance of the building on which they may be installed, and therefore not fall within the legal definition of development.

- Industry has highlighted that PD rights should be extended to include the installation of small antenna on other structures, such as telephone boxes or lightweight poles – to be applied in designated and non designated areas. This research work has identified scope for investigating PD rights in line with current legislation for other equipment installed on such structures e.g. CCTV etc., however firm recommendations can not be made within the timeframe of this research work.

9.4.10 Industry Request No. 5: Extend PD rights for the addition of support equipment to ground based masts that may not necessarily require any alterations to the mast

9.4.10.1 Industry has provided only one scenario: installation of back up generators. It is difficult to justify the extension of PD rights on the basis of one example being given by industry. Plus, PD rights extensions to cater for one example could introduce a risk of PD rights being interpreted as applying to other scenarios not intended.

9.4.11 Industry Request No. 5: Outcome

9.4.11.1 **Option 5 (Further definition and scoping required to reach a conclusion)** on the basis of the following:

- No clear requirement and justification is currently available to recommend an extension of PD rights.

9.4.12 Industry Request No. 6: Extension of PD rights to Non Code Operators

9.4.12.1 Non Code Operators require electronic communications infrastructure development (e.g. construction of new masts, installation of equipment on existing masts, fibre/duct build etc.) to provide telecoms connectivity, often in rural areas in Scotland.

9.4.12.2 Non Code Operators do not have powers under the Electronic Communications Code which is the legal framework for the rollout and maintenance of the physical networks of apparatus that support the provision of electronic communications services throughout the UK. Extending PD rights to non Code Operators would be to the detriment of Electronic Communications Code Operators should PD rights be given to non Code Operators that are not currently available in Class 67.

9.4.13 Industry Request No. 6: Outcome

9.4.13.1 **Option 1 (Do Nothing)** on the basis of the following:

- The aim of this research work is to explore the possible extension of PD rights to Electronic Communications Code Operators, who are subject to the condition and restrictions set out in the Electronic Communications Code. The Code is granted to network providers by Ofcom by a direction made following a public consultation and consideration of the responses to that consultation, and is open for all organisations to apply.

- Build by non Code Operators should be assessed via a planning application but with consideration given by PA's to the activity of these operators and need for such development.

9.5 Likely Benefits, Costs and Impact

9.5.1 The benefit of PD rights is that for small, non- controversial developments there is no need to go through the planning system, thus reducing both the potential cost and the timescales of any such development. For operators there is greater certainty that development can proceed, and for PA's there is a freeing up of resources from having to deal with fewer applications.

9.5.2 There is another key influencing factor when assessing the benefits for PD rights in relation to electronic communications infrastructure, which is the action needed to support Scottish Government digital objectives and to ensure that Scotland is competitive, attracting investment in the infrastructure needed.

9.5.3 Planning costs are not considered to be significant in comparison with the other factors associated with deployment, with the largest influencing factor on overall costs being the transmission (the leased line) and power (for greenfield sites). The extension of PD rights can however negate the effort and timescales associated with securing planning consents, saving potentially two/three months from the project life cycle. However, there is a risk that prior approval being invoked in relation to PD rights extensions to new masts may reduce the impact of these benefits.

9.5.4 A prior notification/prior approval process, which is not currently in place in relation to electronic communications infrastructure in Scotland will require careful introduction and continued monitoring. Reaction to how the changes have worked in practice and any particular areas of concern or uncertainty are likely to become quickly apparent through representations made by PA's and Electronic Communications Code Operators.

10 Recommendations

10.1 Introduction

10.1.1 Section 10.2 specifies the detailed recommendations from this research work on the scope for further changes to extend PD rights for electronic communications infrastructure on the basis of the rationale given in Section 9. Each recommendation is supported by associated restrictions and conditions that should apply as well as interpretations and guidance, where appropriate.

10.1.2 Section 10.3 specifies further recommendations in support of the PD rights extensions, including relevance of PAN 62 and need for and suggested content and scope of any additional guidance needed.

10.2 Recommended PD rights extensions

10.2.1 Recommendation 1:

Extend PD rights for the use of land in an emergency.
Associated Restrictions: The use of land in an emergency for a period not exceeding 18 months to station and operate moveable electronic communications apparatus required for the replacement of unserviceable electronic communications apparatus, including the provision of moveable structures on land for the purposes of that use.
Associated Conditions: No changes proposed to GPDO Class 67.
Associated Interpretations: No changes proposed to GPDO Class 67.
Associated Guidance: Examples of the types of emergency that can occur and appropriate emergency works required in response to such emergencies.

10.2.2 Recommendation 2:

Extend PD rights for the replacement or alteration of an existing mast which is ground based or the installation of apparatus on such a mast, subject to the restrictions and conditions stated below.
Associated Restrictions: Development should not be permitted by this Class if it involves the replacement or alteration of an existing mast which is ground based or the installation of apparatus on such a mast which results in -

(i) An increase in the overall height of the original structure of:

(aa) in the case of an existing mast where the overall size of the structure is 20 metres or less; more than (5 metres plus 10% of the original height of the structure); or

(bb) in the case of an existing mast where the overall size of the structure is greater than 20 metres but 50 metres or less, more than 5 metres; or

(cc) in the case of an existing mast where the overall size of the structure is greater than 50 metres in height, more than 15% of the original height of the structure;

(ii) an increase in the overall width of the structure (measured horizontally at the widest point of the original structure) of more than the greater of—

(aa) one metre; or
(bb) one third of the original width of the structure

(iii) a change in location of more than 6 metres from the location of the existing mast.

The above shall apply to both designated and non designated areas.

Associated Conditions:

As per existing Class 67 (3 to 6).

Any planning conditions relating to the existing site should apply to the replacement.

Any re-location distance extension beyond the current 4 metres should only occur within the site boundary of the existing mast location (as confirmed by the site location plan of the existing mast).

Associated Interpretations:

No changes proposed to GPDO Class 67.

Associated Guidance:

Siting and Design principles.

10.2.3 Recommendation 3:

Extend PD rights to include the construction or installation of ground based masts in non designated areas, subject to the restrictions and conditions stated below.

The scope for PD rights extensions to new ground based masts in designated areas requires further definition and scoping to reach a conclusion.

Associated Restrictions:

Development is not permitted by this Class –

if it involves the construction or installation of a ground based mast greater than 25 metres.

Associated Conditions:

Subject to a suitable prior notification/prior approval mechanism on siting and appearance of the development (see Section 9.3).

Associated Interpretations: No changes proposed to GPDO Class 67.
Associated Guidance: Siting and Design principles.

10.2.4 Recommendation 4:

There is scope for extension of PD rights for installation, alteration or replacement of electronic communications apparatus on buildings in designated areas subject to suitable restrictions and conditions, however further definition and scoping is required to reach a conclusion. **Extend PD rights for installation, alteration or replacement of small antenna on buildings in designated areas, subject to the restrictions and conditions stated below.** **Extend PD rights for installation, alteration or replacement of small antenna on a dwellinghouse or within the curtilage of a dwellinghouse in both designated and non designated areas, subject to the restrictions and conditions stated below.**
Associated Restrictions: For buildings (including commercial premises) in designated areas, the current restriction of two small antenna to be relaxed to allow four small antenna for natural environment designations, with the current restriction of two small antenna still applying in built environments such as conservation areas. For dwelling houses or within the curtilage of a dwellinghouse, the current restriction of two small antenna to be relaxed to allow four small antenna in non designated areas. Restrictions on placement of small antenna to be reconsidered in natural environment designations (with the exception of Category A listed buildings) to provide more flexibility to industry, on the basis that antennas need to face the road generally to be of use to passing users. Flexibility in terms of siting would also allow for multiple small antenna to be attached to a dwellinghouse at, for example a junction, while at the same time ensuring that there is no change in the visual impact from any particular viewpoint.
Associated Conditions: As per existing Class 67 (3 to 6).
Associated Interpretations: No changes proposed to GPDO Class 67.
Associated Guidance: Siting and Design principles.

10.2.5 Recommendation 5

The scope for PD rights extensions for the addition of support equipment to ground based masts that may not necessarily require any alterations to the mast requires further definition and scoping to reach a conclusion.
Associated Restrictions: To be determined.

Associated Conditions: To be determined.
Associated Interpretations: To be determined.
Associated Guidance: To be determined.

10.2.6 Recommendation 6

No extension of PD rights for non Code Operators.
Associated Restrictions: Not applicable.
Associated Conditions: Not applicable.
Associated Interpretations: Not applicable.
Associated Guidance: Role and nature of non Code Operator development and associated business model constraints.

10.3 Further recommendations in support of the PD rights extensions

10.3.1 Recommendation 7:

10.3.1.1 Scottish Government digital objectives, as supported by SPP, to be adequately captured in LDP policy across all PA's in a consistent manner, with emphasis placed on the need for electronic communications infrastructure.

10.3.2 Recommendation 8:

10.3.2.1 Greater and more frequent dialogue between PA's/Stakeholders and industry supported by a code of best practice, with detailed and latest information on siting and design agreed by all parties and description of the commitment and obligations of operators, PAs and stakeholders.

10.3.3 Recommendation 9:

10.3.3.1 A suitable prior notification/prior approval mechanism to be established and applied as a condition on PD rights extensions where the principle of development is established but where control is needed in siting and appearance, specifically in relation to PD rights extensions to construction and installation of ground based masts.

10.3.4 Recommendation 10:

10.3.4.1 The extension of PD rights to consider the synergy between planning legislation and the Electronic Communications Code Regulations, and notification/consultation obligations on operators/PAs/Stakeholders.

10.3.5 Recommendation 11:

10.3.5.1 Future amendments to Class 67 of the GPDO should look to capture the intention of the most recent guidance (e.g. Planning Circular 2/2015), particularly in relation to ancillary development and emergency works, to ensure consistency in interpretation across PA's and industry.

10.3.6 Recommendation 12:

10.3.6.1 PAN 62 guidance to be developed into a code of best practice, providing up to date (and evolving) advice on good practice to operators, PA's, Stakeholders and the public. A code of best practice should reflect the different designations and agencies/authorities in Scotland, with all relevant parties involved in its development. The introduction of a code of best practice in Scotland should correlate with any extensions of PD rights, with operators required to clearly state compliance with the code of best practice in notifications for the use of PD rights. The best practice guidance should consider the following:

- The need for connectivity and the resultant social and economic benefits is changing the perception of communities on the value of telecoms infrastructure and the role of emerging technologies for delivering cost effective solutions. Accordingly, further guidance should place emphasis on the need for electronic communications infrastructure, with focus on outcomes aligned to Scottish Governments digital objectives.

- A clear connection to be made between SPP and Scottish Government's digital objectives in the context of consumer demand and key deployment programmes (e.g. Digital Scotland, mobile consolidation and rollout, Smart Metering, Community Broadband Scotland, outdoor WiFi/4G small cell, Emergency Services Network etc.); and how this manifests itself in terms of digital infrastructure deployment in Scotland.

- The advice on health and safety in PAN 62 is considered to be outdated and would benefit from a review.

- Description of technology and digital connectivity solutions, with the current scope of PAN 62 increased to encompass the following:

    - Fibre broadband and emerging trends;
    - 2G, 3G, 4G and emergence of 5G;
    - Small Cell;
    - Public WiFi;
    - Terrestrial broadcasting;
    - Smart metering;
    - Smart City/IoT;
    - Microwave Radio;
    - Fixed Wireless Access;
    - White Space;
    - PMR/TETRA.

- Capture the technical constraints associated with electronic communications infrastructure deployment and the need to site telecommunications apparatus, such as cabinets and new ground based masts in target service areas. Describe the emphasis on coverage in rural areas, with capacity being key drivers in urban areas. For example, PAN 62 Paragraph 41 supports the attachment of antennas to trees in rural and urban locations. Furthermore, it specifies that masts should not break the skyline and be located on the lower valley sides. Industry has stated that this can lead to difficulties when proposing new structures within difficult terrains and PAN 62 takes no account of these technical difficulties and constraints associated with the technology and equipment in such locations.

- Up to date information on minimising environmental impact through good siting and design. This will include checks and balances to address PA's/Stakeholders concerns and obligations on PAs to assist Electronic Communications Code Operators in meeting requirements.

- Provide clarity to industry on expectations of Scottish PA's/Stakeholders on how Electronic Communications Code Operators can effectively approach deployment, including early notice of development plans.

- Examples of the types of incidents that can occur requiring the use of land in an emergency and the appropriate emergency works required in response to such emergencies.

- Ownership and refresh policy to be determined for updates to the code of best practice to encompass latest best practice and industry/technology developments.

- Provision of advice relating to the historic environment and the impact of electronic communications infrastructure (see Paragraphs 100 to 103 on the historic environment in PAN 62). This should reflect the policy, guidance and advice in SPP, SHEP and Circular 2/2011 and stress the finite nature of archaeological remains, its vulnerability to even minor changes and the fact that it is irreplaceable.

- Capture the role and nature of non Code Operator development and associated business model constraints.

- A single updated reference source for relevant and supporting information should complement the updated guidance.

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Annex B: Stakeholder Consultees

Statutory Stakeholders

Scottish Environment Protection Agency (SEPA)

Scottish Natural Heritage (SNH)

Historic Environment Scotland (HES)

Transport Scotland

Planning bodies:

Royal Town Planning Institute (RTPI) Scotland

Planning Aid for Scotland (PAS)

Professional Organisations / Bodies

The Chartered Institute of Architectural Technologists (CIAT)

Convention of Scottish Local Authorities (COSLA)

Federation of Small Businesses

Scottish Law Commission

National Farmers Union (Scotland)

National Trust for Scotland

Scottish Land & Estates

Telecoms Regulation

Ofcom

Natural heritage interests:

World Wildlife Federation (WWF)

Royal Society for the Protection of Birds (RSPB)

Scottish Environment Link

John Muir Trust

Association for Protection of Rural Scotland

Cultural heritage interests:

Chartered Institute of Archaeologists

The Cockburn Association

Scottish Civic Trust

Built Environment Forum - Scottish branch (BEFS)

Association of Local Government Archaeological Officers (ALGAO) Scotland

Archaeology Scotland

Architectural Heritage Society of Scotland

Bodies with interests re either coverage interests, and/ or how PD might be adapted to apply more effectively to their buildings or land etc., and/or whose activities may be affected by development:

Scottish Federation of Housing Associations Scottish Water
Scottish Canals
Crofters Commission
Network Rail
MOD/ Defence Infrastructure Organisation
Local Roads authorities (i.e. part of local authorities)
Airport operators - a sample from those with safeguarding maps, who are: Aberdeen, Kirkwall, Benbecula, Prestwick, Edinburgh, Stornoway, Glasgow, Sumburgh, Inverness, Tiree, Islay, Wick

Civil Aviation Authority

Meteorological (Met) office

Annex C: Scotland's Legislative Landscape

Table 1 : Legislation

Parliamentary Acts	
1997	*Town and Country Planning (Scotland) Act 1997 [13]* The principal planning legislation is the Town and Country Planning (Scotland) Act 1997.
2003	*The Communications Act 2003 [29]* The Act confers functions on the Office of Communications (Ofcom) to make provision about the regulation of the provision of electronic communications networks and services and of the use of the electro-magnetic spectrum; to make provision about the regulation of broadcasting and of the provision of television and radio services; to make provision about mergers involving newspaper and other media enterprises and, in that connection, to amend the Enterprise Act 2002; and for connected purposes. The Electronic Communications Code ("the Code") [27] is set out in Schedule 2 to the Telecommunications Act 1984 as amended by Schedule 3 to the Communications Act 2003. 'The Code' is granted to network providers by Ofcom and extends to the whole of the UK. In relation to Scotland, telecommunications is a reserved matter under paragraph C10 of Part II of Schedule 5 to the Scotland Act 1998. 'The Code' sets out the powers that can be given to providers of electronic communications networks (ECN's) and providers of conduit systems available for use by providers of ECNs to enable them to install and maintain electronic communications apparatus. Code powers allow operators to benefit from certain exemptions under Town and Country Planning legislation, and also entitles operators to carry out street works under the New Road and Street Works Act 1991 without needing to apply for a licence to do so.
General Permitted Development Order	
1992	*The Town and Country Planning (General Permitted Development) (Scotland) Order 1992 [14]* PD rights applicable to Telecommunications Code System Operators sit under Part 20, Class 67 of the 1992 Order. Class 67(1) sets out PD rights for development by or on behalf of Electronic Communications Code Operators, for the purposes of the operators' electronic communication network in, on, over or under land controlled by that operator or in accordance with the Electronic Communications Code. Class 67(2) sets out restrictions on the grant of planning permission. Class 67(3) sets out the conditions attached to the permissions.

	Class 67 of the GPDO 1992 has been amended by the 2001, 2011 and 2014 Orders.
2001	*The Town and Country Planning (General Permitted Development) (Scotland) Amendment (No. 2) Order 2001 [15]* The Order introduced a requirement for planning permission for a range of telecommunications developments (including all ground masts), and changed PD rights of operators'. The GPDO was also developed in the light of the report of the Independent Expert Group on Mobile Phones [30] (the Stewart Report), concerning health related issues, and the UK Government's response to it.
2011	*The Town and Country Planning (General Permitted Development) (Scotland) Amendment Order 2011 [31]* The 2011 Order amends the 1992 Order. Article 2(10) extends the development permitted under Class 67 to include certain work to electronic communications apparatus carried out by an operator in accordance with the Electronic Communications Code.
2014	*The Town and Country Planning (General Permitted Development) (Scotland) Amendment Order 2014 [16]* The 2014 Order amends the 1992 Order in respect of paragraph 2(13). It made substantial amendments to Class 67 for which the purpose was to encourage greater utilisation of existing infrastructure and to facilitate the provision of services such as superfast broadband to areas not previously accessible or where the costs of development are prohibitive. The amendments relax certain limitations on PD rights with regard to the replacement of unserviceable electronic communications apparatus, buildings in a designated area, telegraph poles and lines, ground based masts and apparatus and antenna.

Table 2 : Policy and Guidance

Policy and Guidance	
2001	*Circular 5/2001: The Town and Country Planning (General Permitted Development (Scotland) Amendments (No.2) Order 2001: Development by Telecommunications Code System Operators. [32]* This circular has been revoked by Planning Circular 2/2015: Consolidated Circular on Non-domestic Permitted Development Rights - revision 1.0 (Published November 24, 2015) [33]
2001	*PAN 62 Radio Telecommunications [4]* PAN 62 was published to support Circular 5/2001. It was developed in response to public concern about siting and design of mobile base stations, particularly masts. To help operators and planning authorities allay these concerns, the PAN gave advice on the process of site selection and design and illustrated how the equipment can be sensitively installed. It also explained why additional base stations are needed to serve the growth in customer demand and in response to changing technical requirements, including the third generation of mobile phones. PAN 62 is relevant to the full range of radio telecommunications equipment. This includes mobile, Fixed Radio Access (FRA), microwave link, television and radio broadcasting, paging, police, taxi and private telecommunication systems. It provides information on the following: • How radio telecommunication systems operate; • Radio telecommunications equipment; • Minimising environmental impact through good siting and design; • Local plans and supplementary guidance; and • Development control.
2014	*National Planning Framework 3 (NPF3) [2]* "*NPF3 highlights the importance of our digital infrastructure, across towns and cities, and in particular our more remote rural and island areas. Our economy and social networks depend heavily on high-quality digital infrastructure. To facilitate investment across Scotland, planning has an important role to play in strengthening digital communications capacity and coverage across Scotland*." NPF3 identifies key strategic infrastructure projects as national developments; 'A Digital Fibre Network' is included as one of the 14 national developments and is identified to deliver the Scottish Government's spatial strategy to realise its ambition for world class connectivity across Scotland.

2014	*Scottish Planning Policy (SPP) [3]* SPP sets out national planning policies which reflect Scottish Ministers' priorities for operation of the planning system and for the development and use of land. In respect of Supporting Digital Connectivity in Scotland, paragraph 293 of the SPP confirms that the planning system should support: • Development which helps deliver the Scottish Government's commitment to world-class digital connectivity; • The need for networks to evolve and respond to technology improvements and new services; • Inclusion of digital infrastructure in new homes and business premises; and • Infrastructure provision which is sited and designed to keep environmental impacts to a minimum.
2015	*Circular 2/2015 - Consolidated Circular on Non-Domestic Permitted Development Rights – Annex G Development by Electronic Communications Code Operators [33]* Paragraph 2 confirms: "*Planning has an important role to play in strengthening digital communications capacity and coverage across Scotland and PDR for Class 67 have been substantially amended in recent years. The purpose of these changes has been to support a range of existing communication services and facilitate new services to help Scotland become a world class digital economy.*" This circular revokes Circular 5/2001 [32].

Annex D: England's Legislative Landscape

Table 3 : Legislation

Parliamentary Acts	
1990	*Town and Country Planning Act 1990 [34]* The planning system for England and Wales is set out in the Town and Country Planning Act 1990.
2004	*The Communications Act 2003 (Consequential Amendments) Order 2004 [35]* This Order makes consequential amendments in connection with the commencement of the provisions of the Communications Act 2003.
General Permitted Development Order	
1995	*The Town and Country Planning (General Permitted Development) (England) Order 1995, Part 24, Class A - Development by Electronic Communications Code Operators [36]* This has been superseded by GPDO 2015.
2001	*The Town and Country Planning (General Permitted Development) (Amendment) (England) Order 2001 [37]* Major update of the 1995 Order which *replaced the whole of Part 24 Class A.* The approach adopted reflected the technology available. The regulations pre-dated the mainstream deployment of 3G services in the UK, which enabled the introduction of data focussed technology e.g. smart phones, dongles and tablets, leading to significant growth in smartphone usage.
2013	*Town and Country Planning (General Permitted Development) (Amendment) (No. 2) (England) Order 2013 [38]* The 2013 Order amends the 1995 Order. It grants increased PD rights for electronic communications infrastructure that would previously have required a planning application or a prior approval application. PD rights were extended to include Telecoms Masts. The changes are deregulatory in effect enabling MNO's and their contractors to install mobile infrastructure more quickly. The changes increased PD rights for MNO's to support the swifter roll-out of 4G, whilst providing greater connectivity and capacity for 3G and 2G (voice only). Users of electronic communications, charities and voluntary bodies also benefitted from these developments.

2015	*Town and Country Planning (General Permitted Development) (England) Order 2015 [39]* Class A**,** Part 16 of Schedule 2 of the GPDO 2015 corresponds to Part 24 Class A of the GPDO 1995. It supersedes the 1995 Order. Part 16 of Schedule 2 to GPDO 2015 specifies what PD rights there are for fixed and mobile telecommunications. This part also sets out what exceptions, limitations, and conditions apply to these permitted development rights. GPDO 2015 includes a time-limited right which allows development to be retained permanently applies to telecommunications equipment. This right allows for new or replacement telegraph poles, cabinets or lines for fixed-line broadband services to be located in article 2(3) land without having to make an application for prior approval. This right applies for a period of five years beginning 30 May 2013 and ending 30 May 2018. Article 2(3) land is land within— (a) an area designated as a conservation area under section 69 of the Planning (Listed Buildings and Conservation Areas) Act 1990 (designation of conservation areas); (b) an area of outstanding natural beauty; (c) an area specified by the Secretary of State for the purposes of section 41(3) of the Wildlife and Countryside Act 1981 (enhancement and protection of the natural beauty and amenity of the countryside); (d) the Broads; (e) a National Park; and (f) a World Heritage Site.

Table 4 : Policy and Guidance

Policy and Guidance	
2001	*PPG 8: Telecommunications [40]* This PPG gives guidance on planning for telecommunications development, including radio masts and towers, antennas of all kinds, radio equipment housing, public call boxes, cabinets, polls and overhead wires. The PPG sets out planning policies on telecommunications, including: environmental considerations, such as mast and site sharing and design issues, health considerations and public concern; and pre-application discussions and public consultation.

2012	National Planning Policy Framework (NPPF) [43] The NPPF sets out the Government's planning policies for England and how these are expected to be applied. Section 5 relates to Supporting high quality communications infrastructure. In particular, paragraphs 42-43 confirm the Government's commitment to advanced, high quality communications infrastructure as essential for sustainable economic growth. The development of high speed broadband technology and other communications networks also plays a vital role in enhancing the provision of local community facilities and services. Paragraph 43 states that "In preparing Local Plans, local planning authorities should support the expansion of electronic communications networks, including telecommunications and high speed broadband. They should aim to keep the numbers of radio and telecommunications masts and the sites for such installations to a minimum consistent with the efficient operation of the network. Existing masts, buildings and other structures should be used, unless the need for a new site has been justified. Where new sites are required, equipment should be sympathetically designed and camouflaged where appropriate."
2013	*Fixed Line Code Operators - Cabinet Siting and Pole Siting Code of Practice [28]* This Code of Practice has been developed to complement the changes being made to the Electronic Communications Code (Conditions and Restrictions) Regulations 2003 and the Town and Country Planning (General Permitted Development) Order, Part 24 of Schedule 2 to the Town and Country (General Permitted Development) Order 1995. Its intent is to: • Increase the pace of roll out of superfast broadband by providing an engagement framework for Electronic Communications Code Operators and local authorities, and providing certainty and clarity for the deployment of electronic communications apparatus; • Seek to avoid and then minimise adverse impacts associated with the provision of new electronic communications apparatus, particularly in Protected Areas; and • Support the dissemination of good practice. This code of practice was prepared by the broadband cabinet and pole best siting practice working group made up of Planning Officer's Society, National Parks England, BT, Virgin Media, UK Competitive Telecoms Association, English Heritage, JAG (UK), and KCOM.

	Code of Best Practice on Mobile Network Development in England [11] The 2013 Code (superseding Code from 2002) reflects the changes in the planning regime and developments in mobile technology. The Code aims to ensure the planning essentials of minimised environmental impact and visual intrusion are maintained without preventing the appropriate development of mobile infrastructure. The Code of Best Practice has been developed and is owned by industry, local authority groups and other interested parties: Arqiva; the Department for Communities and Local Government; the Department for Culture Media and Sport; the Department for Environment, Food and Rural Affairs; English Heritage; the Mobile Operators Association; National Parks England (also representing the Association of Areas of Outstanding Natural Beauty); and the Planning Officer's Society.

Table 5 : Recent Consultation

Recent Consultation	
2013	*Consultation on Extending PD rights for mobile connectivity in England [41]* The consultation sought views on the Government's proposals to: • Amend Part 24 of the Town and Country Planning (General Permitted Development) Order 1995 (as amended) to grant increased PD rights for quicker installation of communications infrastructure; • Update the Electronic Communications (Conditions and Restrictions) Regulations 2003 with complementary changes to installing communications infrastructure; and • Updating and clarifying both sets of regulations to reflect technology changes and to remove ambiguity. Two key proposals relate to increasing PD rights for the heights of antenna on existing buildings and structures, and an increase in height for existing masts: Proposal 1: On existing buildings and structures, increase the current permitted development height limit for antenna from up to 4 metres to up to 6 metres before the prior approval threshold applies under existing permitted development rights. This applies to land in non-protected areas only. Proposal 2: Existing masts (on land in non-protected areas) can be increased in height from up to 15 metres to up to 20 metres and width by up to a third as permitted development with prior approval for siting and design.

	Under existing regulations, PD rights are in some circumstances subject to a prior approval process (which is set out at paragraphs 34 to 37). Land in certain areas is also currently excluded from certain permitted development rights i.e. Areas of Outstanding Natural Beauty, CAs, World Heritage Sites, National Parks, The Norfolk and Suffolk Broads, and Sites of Special Scientific Interest. In this consultation references to 'protected areas' refer to these areas which are set out in article 1(5) of the 1995 Order. These changes came into force from 21 August 2013 through the Town and Country Planning (General Permitted Development) (Amendment) (No. 2) (England) Order 2013
2015	*Review of How the Planning System in England Can Support the Delivery of Mobile Connectivity. The Call for Evidence [25]* This call for evidence is on Government proposals to extend PD rights to taller mobile masts in both protected and non-protected areas in England. It seeks evidence on the effectiveness of telecommunications PD rights and the changes made in 2013. Objectives: • Assess the effectiveness of the planning system in supporting the deployment of mobile infrastructure in all areas; • Inform options for change; • Consider suggestions for how best to target and design any changes; and • Assess the effectiveness of the 2013 sector-owned code of best siting practice. Consultee responses to focus on the following six areas: • Experience of how the planning system currently works for mobile deployment; • The effectiveness of telecommunications PD rights and the changes made in 2013; • The operation of the Code of Best Practice; • The nature of the infrastructure required to deliver the 2017 target of 98% with access to 4G connectivity; • The benefits and impacts for communities of coverage and the effect of infrastructure on the landscape; and

	• The projected impact of technology on future mobile infrastructure requirements. July 2015 – UK government announcement on 17 March 2016 presented the main changes to extend PD rights.
2015	*Reforming the Electronic Communications Code: Consultation Document [26]* Seeks views from those who use and are affected by the Electronic Communications Code, particularly addressing the following areas: • The definition of land and ownership of property: to provide an appropriate definition that takes into account the nature of the Code and its users and provides legal certainty. • How consideration is to be determined: how the court is to assess the level of payment that is to be made by Electronic Communications Code Operators when Code Rights are imposed. • Upgrading and sharing apparatus**:** to provide appropriate powers to upgrade and share which are effective in supporting network connectivity and coverage expansion and take into account the interests of all stakeholders. • Contracting out of the revised Code: whether or not it should be possible to contract out of the Code. • The role of land registration: how purchasers of land are able to find out if the land is subject to Code rights, whether any Code rights should be subject to land registration and, if so, what the consequences should be of failing to register them should be. • Transitional arrangements, savings and retrospectivity: what provisions may be required to ensure a clear transition to the revised Code and how existing arrangements will be dealt with.

Annex E: Other References

Table 6: Other References

Literature Review References	
1992	*Review of the General Permitted Development Order 1992: Final Report [42]* The overall aim of the research was "to review the appropriateness of the planning permissions set out in the Town and Country Planning (General Permitted Development) (Scotland) Order 1992 (the GPDO) and some of the related mechanisms and recommend changes to simplify it and bring it up to date". This included the potential to deregulate householder developments under Part 1 of Schedule 1 to the GPDO, and establish appropriate new parameters for permitted development. Recommendations are founded on improving the clarity, simplicity, ease of understanding, consistency and currency of the GPDO. They include: • Making the GPDO easier to understand, interpret and use, including a new format for the presentation of PDR, easy-read and web-based versions in plain English, and separate user guidance; • Simplifying PDR as far as possible, reducing the uncertainties associated with interpretation of criteria and terminology, reducing the need for prior approval by the planning authority, and reducing the number of Parts of the GPDO from 25 to 20; • Improving consistency across Classes where justified by circumstances (e.g. in relation to permitted development within designated areas) • Resolving anomalies about private ways by consolidating all PDR for private ways into one comprehensive Class; • Clarifying permitted development for agricultural operations, and the PDR available to statutory undertakers; • Extending PDR for industrial and warehouse development; • Introducing new PDR for micro-generation equipment and development ancillary to waste management operations; • Minor reforms to the other Parts of the Order.
2000	*The Stewart Report [30]*

	The Stewart Report was commissioned by the UK Government and conducted by the Independent Expert Group on Mobile Phones (IEGMP) to: • Consider present concerns about the possible health effects from the use of mobile phones, base stations and transmitters; • Conduct a rigorous assessment of existing research; • Give advice based on the present state of knowledge; • Make recommendations on further work that should be carried out to improve the basis for sound advice. It concluded: *"The balance of evidence indicates that there is no general risk to the health of people living near to base stations on the basis that exposures are expected to be small fractions of international guidelines. However, there can be indirect adverse effects on their well-being in some cases".* (paragraph 1.33) The report recommended: *"A precautionary approach to the use of mobile phone technologies be adopted until much more detailed and scientifically robust information on health effects becomes available"* (paragraph 6.35) *"A substantial research programme should operate under the aegis of a demonstrably independent panel"* (paragraph 5.270) *''The issue of possible health effects of mobile phone technology should be the subject of a further review in three years time, or earlier if circumstances demand it"* (paragraph 5.273)
2001	Prior Notification Arrangements for Agricultural and Forestry Buildings in Scotland [50] This research paper aimed to identify current trends in the function, size, design and siting of farm and forestry buildings and to review the operation of the prior notification arrangements in Scotland, including comparison with procedures in England and Wales, particularly in the National Parks. The research concluded that the prior notification procedures are widely considered to be confusing, complex, ineffective and inadequate to achieve their objectives. The preferred option put forward was for permitted development rights, for other than very small extensions to existing farm and forestry buildings, to be withdrawn throughout Scotland. All new buildings and most building extensions should be subject to conventional planning application procedures, including appropriate publicity, consultations and notifications. If this was not considered to be appropriate for the whole of Scotland it should be introduced at least for the National Parks, NSAs and other areas of environmental sensitivity, such as Sites of Special Scientific Interest, the sites and settings of Scheduled Monuments and Listed Buildings and Historic Gardens and Designed Landscapes.

2008	Non Householder Minor Development Consents Review, White Young Green Planning [44] This report encompasses a wide-ranging review of the General Permitted Development Order (GPDO) (excluding householder and telecommunications) which has gleaned evidence from a wide range of stakeholders and sources. It makes recommendations for revising the GPDO in a number of important areas, using an impacts-based approach to identify low impact developments which could be exempted from needing planning permission.
2008	*The Killian Pretty Review [45]* The aim of the review was to investigate the opportunities for improving the planning application process for the benefit of all involved. The recommendations are grouped into the key themes identified in the Call for Solutions: • The process is made more proportionate with more permitted development and streamlined processes for small scale development and streamlined information requirements where full planning permission is required; • The process is improved particularly in relation to pre-application and post decision stages, where some significant problems currently exist; • Engagement is made more effective by improvements in the way elected members, statutory and non statutory consultees and the wider community are involved in the process; • Changes in culture are encouraged by replacing time-based performance targets with a measure of customer satisfaction and by seeking ways to reward better quality applications; and • Unnecessary complexity is removed by making the national policy and legislative framework clearer, simpler and more proportionate.

Annex F: Types of Development (examples taken from the planning application sample)

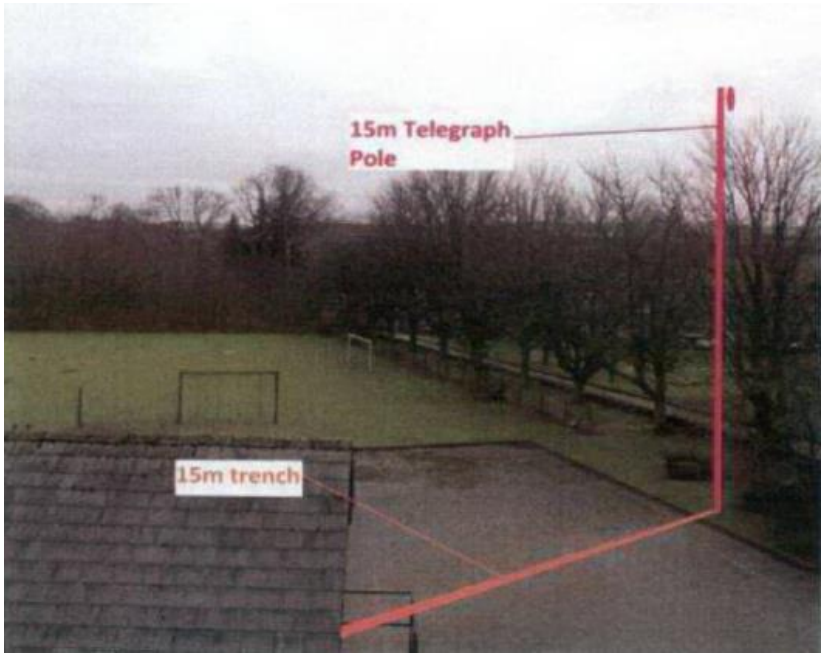
Key initiatives and programmes of work

- Local Council initiatives;
- Community initiatives for improving telecom services in hard to reach areas;
- Mobile rollout (e.g. 2G/3G/4G rollout, network consolidation);
- Smart Metering;
- Digital Scotland Superfast Broadband programme.

Local Council initiative

The approved planning application by Aberdeenshire Council shown in Table 7 demonstrates action taken by a local council as part of a strategy defining how technology and digital services can support delivery of the Council's vision and enable improvements in service delivery and efficiency. Due to the geographical nature of Aberdeenshire, the provision of superfast broadband to support communities and Council operations is challenging. The Council as part of the 'innovate Aberdeenshire' is continuing to deploy hilltop point to point radio wireless provision. The wireless provision is a key priority ensuring that all appropriate Council buildings, including schools, have fast and reliable wireless access for staff and citizens. The overall strategy is to work towards allowing communities to access the point to point hilltop wireless programme where other adequate provision cannot be provided by traditional service providers in their local communities.

Table 7: Local Council initiative

EXAMPLE 1 (ABERDEENSHIRE COUNCIL): ERECTION OF 15M HIGH TELEGRAPH POLE & 0.6M DISH WIRELESS ANTENNA. THE TELEGRAPH POLE DIMENSIONS ARE 15 METRES ABOVE GROUND LEVEL WITH A 200MM DIAMETER AT THE TOP. THE PROPOSED WIRELESS ANTENNA DIMENSIONS ARE 600 X 389MM, AND IS TO BE MOUNTED AT THE TOP OF THE TELEGRAPH POLE, WITH OVERALL HEIGHT REMAINING AT 15 METRES.	
	

Community Build

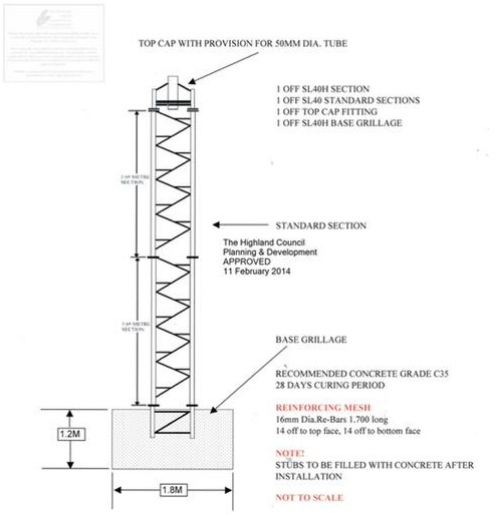
The two approved planning applications shown in Table 8 highlight proposals by community groups looking to deploy infrastructure for delivery of improved telecom services to hard to reach areas. Both demonstrate the importance of partnership and collaboration required to create a viable solution.

The Locheilnet example demonstrates the typical siting of a hilltop mast to deliver improved broadband services to a remote area by a not for profit Community Interest Company, run by local community members. The project was funded by Marine Harvest Scotland, the Ardgour Area Fund, Foundation Scotland, Highland Council Discretionary Fund, Rotary Club of Lochaber and Corpach Boat Building and Community Broadband Scotland (CBS).

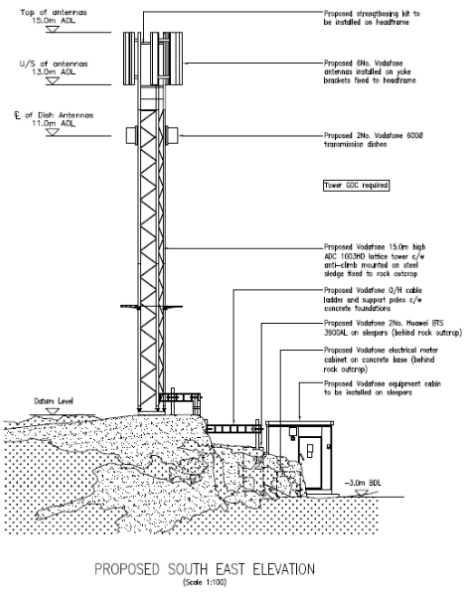
The community owned mobile mast on the Isle of Coll enabled 2G/3G & 4G mobile services to a remote rural area where the MNO's would not deliver under their standard business model. It is envisaged that the community owned mobile mast could act as a catalyst for the delivery of future wireless services in the region. Development Coll (DC) worked in partnership with Scottish Government, Vodafone and Mono Consultants with ongoing operational funding support from Project Trust, SSE Community Fund, NHS Highland, Wireless Infrastructure Group, Argyll & Bute Council, Scottish Fire & Rescue and Scottish Water.

Table 8: Community Build

EXAMPLE 2 (LOCHEILNET): ERECTION OF A 6M HIGH STEEL LATTICE TRANSMISSION MAST, 40CM SIDED ON A CONCRETE AND BOLTED FOUNDATION SET AT EXISTING GROUND LEVEL AND ENCLOSED BY A 3M X 3M STOCK PROOF FENCE. THE DEVELOPMENT WILL MAKE USE OF EXISTING INFRASTRUCTURE WHICH SERVES EXISTING MASTS AT THIS SITE. AN UNDERGROUND ELECTRICITY CABLE WILL BE RUN FROM AN ADJACENT MAST SITE APPROX. 150M TO THE NORTHEAST OF THE APPLICATION SITE. THE MAST WILL SITE DISHES FOR THE TRANSMISSION OF COMMUNITY BROADBAND.



EXAMPLE 3 (DEVELOPMENT COLL): 15M HIGH LATTICE MAST ACCOMMODATING 6 NO ANTENNAS AND 2 NO 0.6M TRANSMISSION DISHES. ERECTION OF EQUIPMENT CABIN AND METER CABINET.



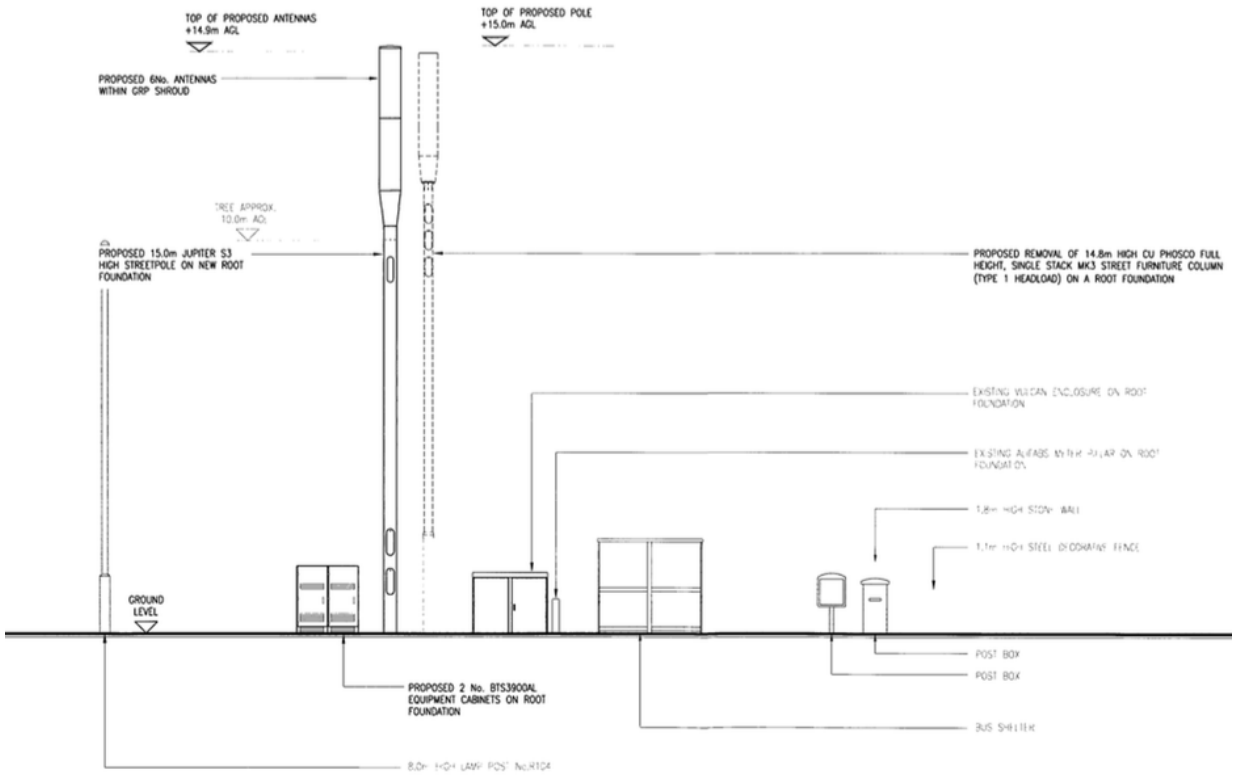
PROPOSED SOUTH EAST ELEVATION
(Scale 1:100)

Electronic Communications Code Operators (mobile)

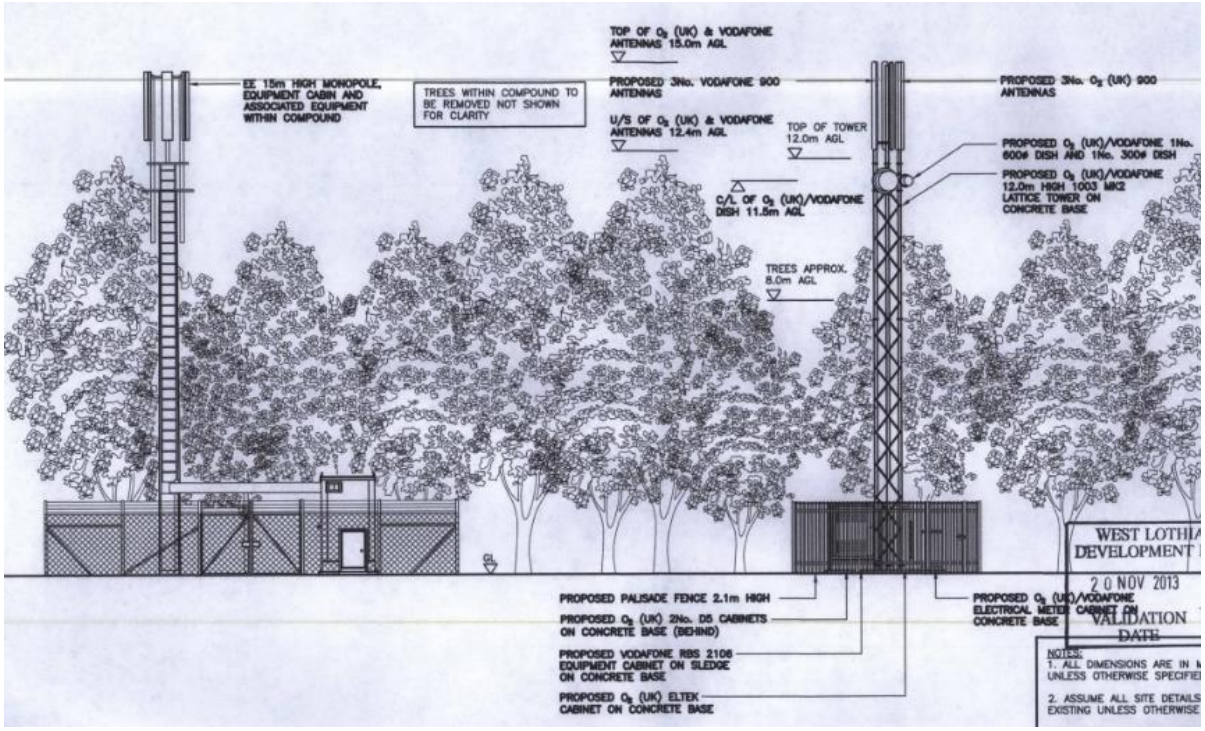
The majority of developments from MNO's are from the consolidated operating companies namely CTIL (O2(Telefonica)/Vodafone) and MBNL (EE/Three) to consolidate operators' networks and enhanced coverage/capacity of mobile services in a particular area.

The three approved planning applications shown in Table 9 demonstrate the types of development being undertaken by MNO's.

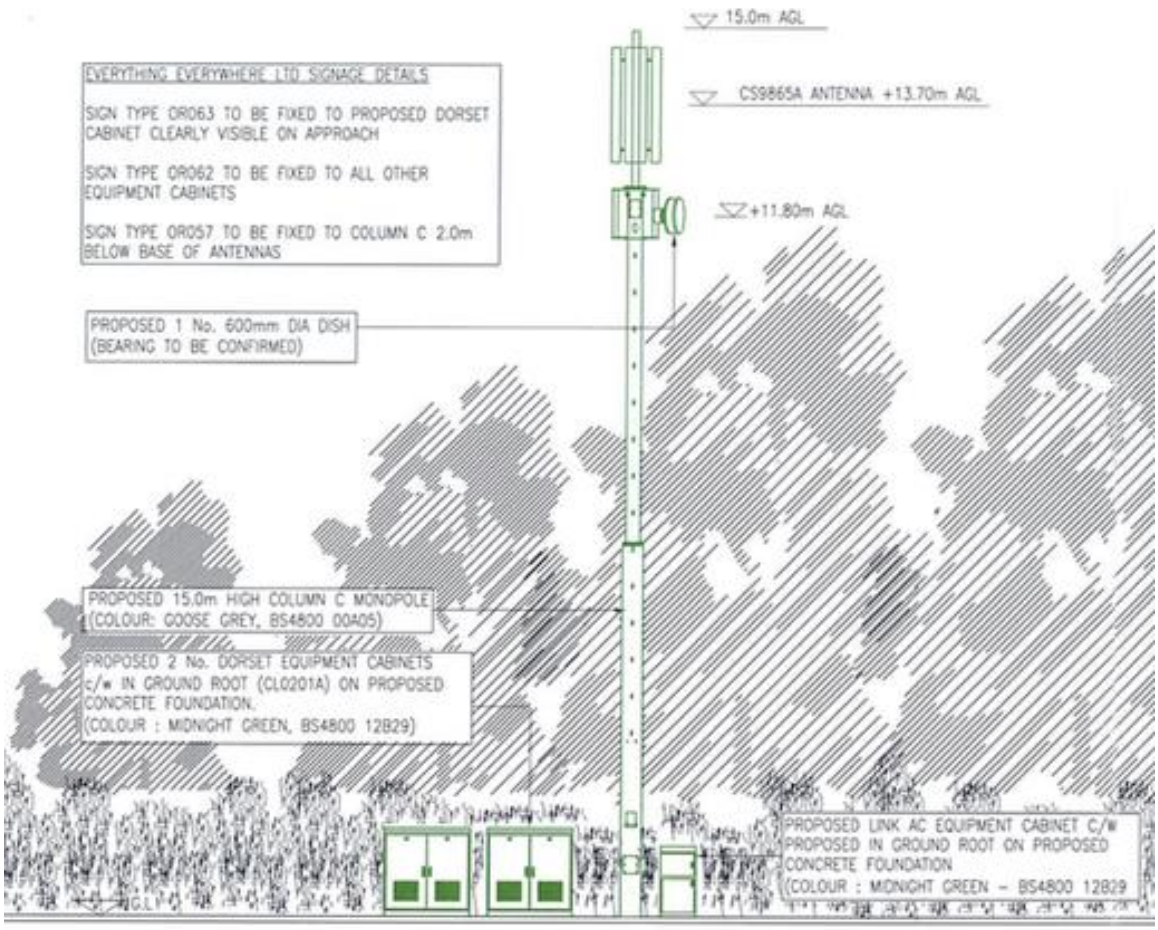
Table 9: Mobile operator development examples

EXAMPLE 4 (O2(TELEFONICA)/CTIL): REMOVAL OF EXISTING 14.8M HIGH STREET STREET FURNITURE TOWER AND INSTALLATION OF NEW 15M HIGH STREET FURNITURE TOWER INCORPORATING 6NO. ANTENNAS WITH GRP SHROUD (GIRTHS: 324MM MAIN, 540MM SHROUD, GREY RAL 7035) AND 2NO. GROUND BASED CABINETS (HUAWEI, 770X750X1925MM, GREEN RAL 6009).


EXAMPLE 5 (O2(TELEFONICA)/CTIL): INSTALLATION OF A 15 METRE HIGH SLIMLINE LATTICE MAST WITH 6 NO. ANTENNAS, 1 NO. 600MM AND 1 NO. 300MM DIAMETER MICROWAVE DISHES, WITH EQUIPMENT HOUSING EQUIPMENT AND CABINETS LOCATED AT GROUND LEVEL, ALL WITHIN A FENCED COMPOUND MEASURING 6 METRE X 5.5 METRE (2.1 METRE HIGH). THERE IS AN EXISTING 15 METRE HIGH TELECOMS MAST TO THE SOUTH OF THE SITE. THE SITE IS WITHIN THE COUNTRYSIDE WHICH IS NOT DESIGNATED FOR ITS LANDSCAPE CHARACTER.



EXAMPLE 6 (EE): TELECOMMUNICATIONS MONOPOLE (COLOURED GOOSE GREY AND HAVE THE APPEARANCE OF A STREET LIGHTING COLUMN) AT 15 METRES IN HEIGHT WITH 3 PANEL ANTENNAS AT THE TOP OF THE POLE AND A 600MM DIAMETER TRANSMISSION DISH AT 11.80 METRES ABOVE GROUND LEVEL, AND 3 EQUIPMENT CABINETS. THE TWO EQUIPMENT CABINETS THAT WOULD BE POSITIONED TO THE SOUTH SIDE OF THE MONOPOLE WOULD EACH MEASURE SOME 1.5 METRES HIGH BY SOME 1.45 METRES WIDE BY SOME 650MM DEEP. THE OTHER EQUIPMENT CABINET WOULD MEASURE SOME 1.15 METRES HIGH BY SOME 600MM WIDE BY SOME 500MM DEEP. ALLOW FOR THE EQUIPMENT CABINETS WOULD BE COLOURED MIDNIGHT GREEN. PROPOSED MONOPOLE TO REPLACE EXISTING TELECOMMUNICATIONS MAST WITH ASSOCIATED EQUIPMENT CABINETS THAT ARE TO BE REMOVED AND AS SUCH THE NEW INSTALLATION MUST BE LOCATED AS CLOSE AS POSSIBLE TO THE EXISTING MAST.

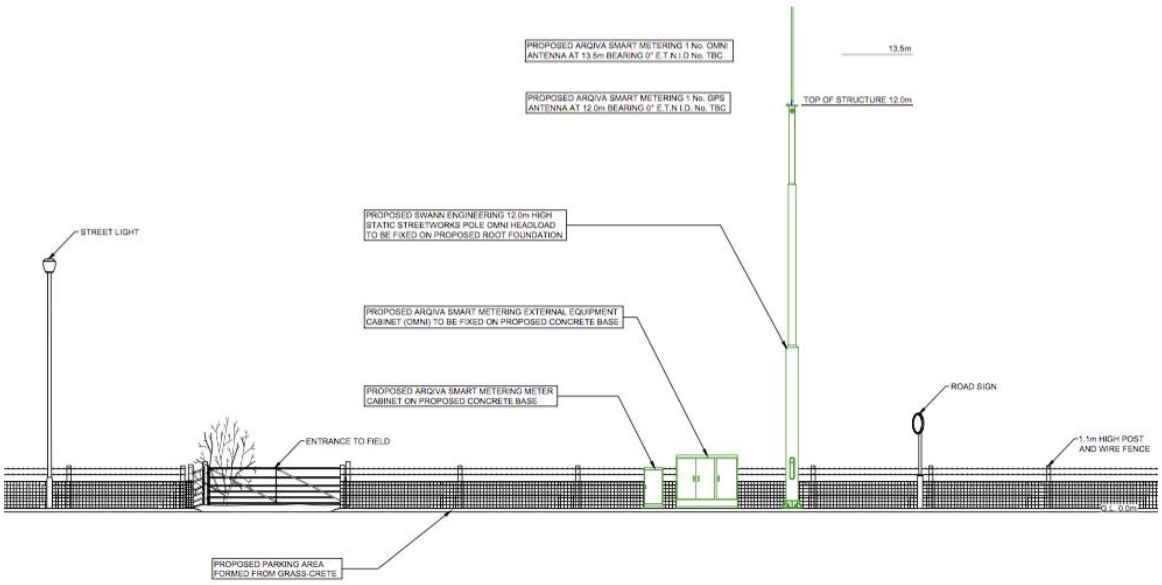


Electronic Communications Code Operators (Smart Metering/Wholesale)

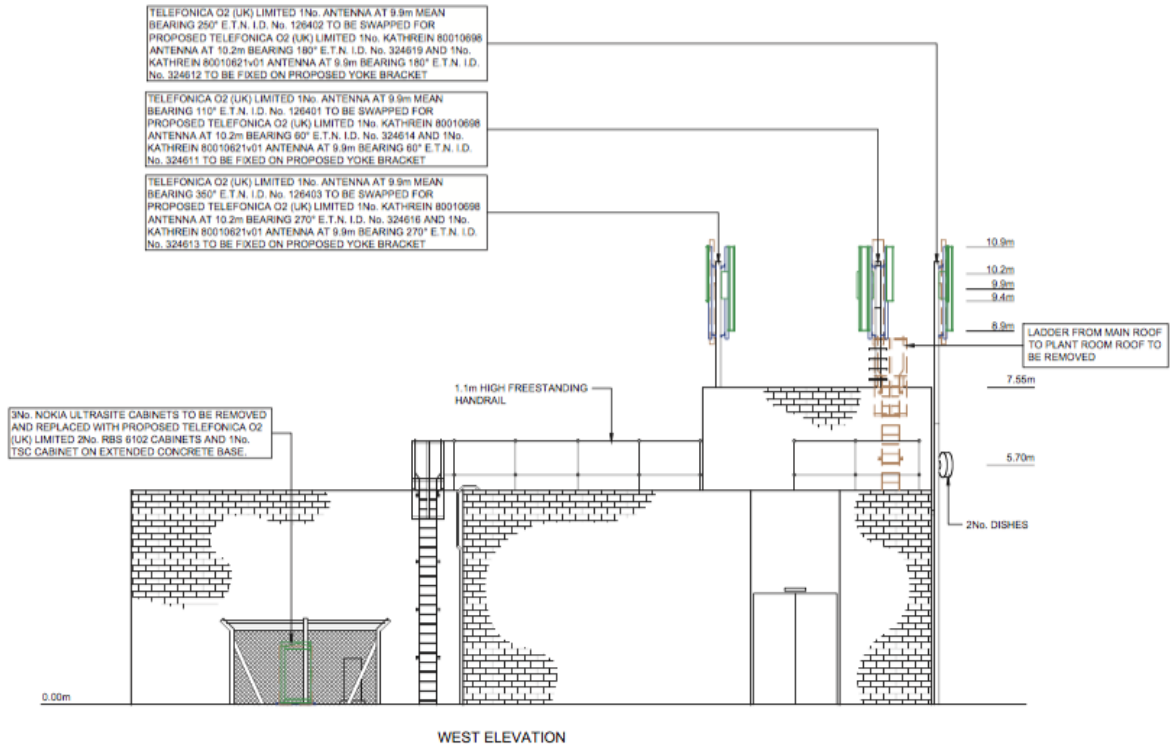
The two approved planning applications shown in Table 10 highlight the activity of Arqiva comprising installs/upgrades of masts/equipment to facilitate the Smart Metering rollout and removal/installation of equipment on the behalf of operators in support of its wholesale operation.

Table 10: Arqiva development examples

EXAMPLE 7 (ARQIVA): INSTALLATION OF A 12 METRE HIGH SMART METERING TELECOMMUNICATIONS WITH GROUND-BASED EQUIPMENT CABINETS. THE POLE IS A STANDARD HEIGHT AND DESIGN WHICH WILL BE USED ACROSS THE WHOLE OF THE SMART METERING NETWORK. A BASE STATION TYPICALLY CONSISTS OF A CABINET OR CABINETS CONTAINING RADIO TRANSMITTING AND RECEIVING EQUIPMENT AND AN ELECTRICAL POWER SYSTEM, COUPLED TO A SET OF ANTENNAS. THE BASE STATION COMMUNICATES WITH SMART METERS IN THE LOCAL AREA. IT REQUIRES A POWER SUPPLY AND ALSO NEEDS TO BE CONNECTED INTO THE WIDER SMART METER NETWORK. THIS WILL NORMALLY BE ACHIEVED BY CONNECTION TO UNDERGROUND ADSL CABLES. IN THE RARE OCCASIONS WHERE THIS IS NOT FEASIBLE, THEN THE TRANSMISSION LINK WILL BE PROVIDED BY A SMALL VSAT DISH, SIMILAR IN SIZE TO A DOMESTIC SATELLITE DISH.



EXAMPLE 8 (ARQIVA ON THE BEHALF OF O2(TELEFONICA)): REMOVAL OF 3 EXISTING TELECOMMUNICATION ANTENNAS AND THE INSTALLATION OF 6 TELECOMMUNICATION ANTENNAS AND 3 RRUS (REMOTE RADIO UNITS) ON 3 EXISTING SUPPORT POLES THAT ARE ATTACHED TO THE RAISED COMPONENT OF THE ROOF OF A TELEPHONE EXCHANGE BUILDING. REMOVAL OF EXISTING THREE EQUIPMENT CABINETS FROM THE EXISTING COMPOUND THAT IS ON LAND ADJACENT TO THE RECESSED NORTHWEST CORNER OF THE BUILDING AND INSTALLATION OF THE 3 REPLACEMENT EQUIPMENT CABINETS WITHIN THAT EXISTING FENCE COMPOUND.



WEST ELEVATION

Table 11 demonstrates the four main types of cabinets installed by BT/Openreach in support of the Superfast Broadband rollout.

Table 11: Openreach Superfast Broadband Cabinets

<table>
<tr>
<td>EXAMPLE 9 (OPENREACH): HUAWEI 288 FTTC CABINET (TYPE 1)

(1.6M X 0.45M X 1.2M)</td>
<td>Huawei 288 FTTC cabinet
 
</td>
</tr>
<tr>
<td>EXAMPLE 10 (OPENREACH): HUAWEI 96 FTTC CABINET

(1.3M X 0.45M X 0.8M)</td>
<td>
<table>
<tr><th>HUAWEI 96</th><th>Cabinet</th><th>Dimensions (mm)</th></tr>
<tr><td rowspan="4">  </td><td>Width</td><td>800</td></tr>
<tr><td>Depth</td><td>450</td></tr>
<tr><td>Height
(Including Root)</td><td>1100
(1300)</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td>Concrete Plinth</td><td>Dimensions (mm)</td></tr>
<tr><td></td><td>Width</td><td>1000</td></tr>
<tr><td></td><td>Depth</td><td>650</td></tr>
<tr><td></td><td>Depth Below Ground</td><td>250+(25 sand+100 compacted Type 1)</td></tr>
</table>
</td>
</tr>
</table>

EXAMPLE 11 (OPENREACH): HUAWEI 288 FTTC CABINET (TYPE 2)

(1.4M X 1.2M X 0.45M)

HUAWEI 288	Cabinet	Dimensions (mm)
	Width	1200
	Depth	450
	Height (Including Root)	1400

Concrete Plinth	Dimensions (mm)
Width	1400
Depth	650
Depth Below Ground	250+(25 sand+100 compacted Type 1)

EXAMPLE 12 (OPENREACH): HUAWEI ALL IN ONE CABINET

(800MM X 1100MM X 450MM)

Huawei All-in-One Cabinet

Annex G: Glossary of Terms

2G	The second generation or GSM, was the first digital technology used in the operation of mobile phones. It was introduced in the early 1990s, replacing earlier first generation analogue technology, and enabled mobile access to some data services, such as email.
3G	Third generation mobile allows multimedia and internet access and the ability to view video footage, as well as the voice and text messaging provided by 2G. The UK 3G spectrum auction in year 2000, raised £22.5bn (this brought Hutchison 3G into the UK market) – combined with the four companies that were already running mobile phone services in the UK at that time - BT Cellnet, Orange, One2One and Vodafone. There have since been several technology iterations of 3G.
4G	Fourth generation mobile, is the successor to 3G and 2G. It delivers significantly faster mobile broadband services – approaching today's ADSL home broadband speeds – and thus support a wide range of data services. The 4G spectrum auction took place in 2013. Everything Everywhere Ltd, Hutchison 3G UK Ltd, Niche Spectrum Ventures Ltd (a subsidiary of BT Group plc), Telefónica UK Ltd and Vodafone Ltd were all successful with £2.3 billion raised. A total of 250 MHz of spectrum was auctioned in two separate bands - 800 MHz and 2.6 GHz. The lower-frequency 800 MHz band is part of the 'digital dividend' freed up when analogue terrestrial TV was switched off, and is suited for widespread mobile coverage. The higher-frequency 2.6 GHz band is suited for delivering the capacity needed for faster speeds.
5G	5G is a term used to describe the forthcoming fifth generation of mobile network technology predicted to offer a significant uplift on speed compared with 4G.
ADSL	Asymmetric digital subscriber line (ADSL) is a type of DSL technology, a data communications technology that enables faster data transmission over copper telephone lines rather than a conventional voiceband modem can provide.
Antenna	A device that transmits and receives radio waves. There are different designs in operation including omni-directional antennas, sectored antennas and dual/triband antennas.
Article 2(3)	Protected areas known as article 2(3) land, these cover: • Conservation areas;

	• Areas of Outstanding Natural Beauty; • National Parks; • The Broads; • World Heritage Sites.
Base Station	A base station is a macrocell, microcell, picocell or femtocell site and consists of radio transmitters and receivers.
Cabin/Cabinet	A structure that protects electronic communications equipment from damage. They can be in the form of large cabins or smaller cabinets.
CATV	Cable TV network can deliver television programs, broadband access and other multimedia information and entertainment services.
CBS	Community Broadband Scotland was launched in 2012 and is a national initiative to deliver Scotland-wide service to support community broadband solutions, targeted at areas. CBS focuses on those areas least likely to benefit from the DSSB programme rollouts.
Cell	A geographic area over which a radio base station transmits and receives radio signals to and from customers to provide service coverage.
Consultees	PA's/NPA's and Stakeholders consulted as part of this research work.
CTIL	Cornerstone Telecommunications Infrastructure Limited was founded in 2012 as a joint venture between Vodafone and O2(Telefonica) to manage the network sites for both companies including the consolidation of sites to create a single grid. Cornerstone has been deploying new masts and consolidating the existing networks on behalf of the two MNO's.
Designated Areas	Class 67(2)(a) – national scenic area, National Park, Natural Heritage Area, conservation area, historic garden or designed landscape, site of special scientific interest, historic battlefield, European Site, and a Category A listed building or scheduled monument or the setting of such a building or monument.
Digital TV	Digital television (DTV) is the transmission of audio and video by digitally processed and multiplexed signal, in contrast to the totally analogue and channel separated signals used by analogue television. Digital TV can support more than one program in the

	same channel bandwidth.
Dish antennas	Dish antennas operate on a line of sight basis and transmit and receive highly focussed low powered radio waves in one direction. Dish antennas usually have the function of linking a base station, sometimes through a series of links, to a base station control site. It is usually by this means that a base station is integrated into the wider network.
DOCSIS	Data Over Cable Service Interface Specification is an international telecommunications standard that permits the addition of high-bandwidth data transfer to an existing cable TV (CATV) system.
DSL	A Digital Subscriber Line modem is a device used to connect a computer or router to a telephone line which provides the digital subscriber line service for connectivity to the Internet.
DSLAM	Digital Subscriber Line Access Multiplexer is a network device, usually at a telephone company central office, that receives signals from multiple customer Digital Subscriber Line (DSL) connections and puts the signals on a high-speed backbone line using multiplexing techniques.
DSSB	Digital Scotland Superfast Broadband Programme is a key step in the Scottish Government's aim for Scotland to become a world class digital nation.
EE	Everything Everywhere.
Electronic Communications Code	The Electronic Communications Code ('the Code') enables electronic communications network providers to construct electronic communications networks. The Code enables these providers to construct infrastructure on public land (streets), to take rights over private land, either with the agreement with the landowner or applying to the County Court or the Sheriff in Scotland. It also conveys certain immunities from the Town and Country Planning legislation in the form of Permitted Development. In addition to providers of electronic communications networks the Code is also available to those who wish to construct conduits to be made available to network providers.
Electronic Communications Code Operators	Those parties rolling out infrastructure who are subject to the requirements and benefits of the 'Electronic Communications Code' specified in UK legislation on Communications.
ESN	The Emergency Services Mobile Communications Programme (ESMCP) will provide the next generation communication system for the 3 emergency services (police, fire and rescue, and ambulance) and other public safety users. This system will be called the Emergency Services Network (ESN). ESN will provide the next

	generation integrated critical voice and broadband data services for the 3 emergency services. ESN will be a mobile communications network with extensive coverage, high resilience, appropriate security and public safety functionality. This allows users to communicate even under the most challenging circumstances.
Femto-cell	A femto-cell is a small base station. Indoor femto-cells allow mobile phone users to make calls inside their homes via their Internet broadband connection. The base station tends to be of the size and appearance of a typical Wi-Fi router used in homes to connect a computer wirelessly to the Internet. It is a plug and play device that allows a mobile phone subscriber to use their mobile phone to make voice and data calls via their broadband connection to their mobile phone provider's phone network. Outdoor femto-cells provide localised area coverage over a greater area and to more users than indoor femto-cells. They are typically used to provide a signal in areas which traditional mobile coverage has been unable to reach.
Fixed Wireless Access	Fixed Wireless Access systems are a means of making fixed connections between users' premises and telecommunication networks. They may deliver a range of electronic traffic, including telephony, high speed data, television and multimedia services. At higher frequencies, the availability of wider bandwidths and the technical characteristics provide opportunities for delivering fixed Broadband Wireless Access (BWA), including as a backhaul for other telecommunications services.
FTTC	Fibre to the Cabinet involves running fibre optic cables from the telephone exchange or distribution point to the street cabinets which then connect to a standard phone line to provide broadband. This is combined with a copper cable from the cabinet to the home or business which uses VDSL or similar technology that can deliver much faster speeds over shorter distances.
FTTP	Fibre to the Premise is a fibre connection between the exchange and the end users' premises.
G.Fast	G.fast is a Digital Subscriber Line (DSL) standard for local loops shorter than 500 m, with performance targets between 150 Mbit/s and 1 Gbit/s, depending on loop length.
GPDO	General Permitted Development Order.
GSM	Global System for Mobile Communications is the international, pan-European operating standard for the current generation of digital cellular mobile communications. It enables mobile phones to be used across national boundaries.
HOPS	Heads of Planning Scotland.

International Commission on Non-Ionizing Radiation Protection	An independent scientific body that has produced an international set of guidelines for public exposure to radio frequency waves. The Government has adopted these guidelines, and all mobile network base stations operate within them.
IoT	The Internet of Things is the network of physical objects—devices, vehicles, buildings and other items—embedded with electronics, software, sensors, and network connectivity that enables these objects to collect and exchange data.
LDP	A Local Development Plan is required for each council area across Scotland. It allocates sites, either for new development, such as housing, or sites to be protected. It also includes policies that guide decisions on all planning applications.
LTE	Long Term Evolution was the next step from 3G technology, and will deliver high data speeds of up to 100Mb/s downlink and 50Mb/s uplink (peak rates).
Machine to Machine	Machine to machine refers to direct communication between devices using any communications channel, including wired and wireless.
Macrocell	A macrocell provides the largest area of coverage within a mobile network. The antennas for macrocells can be mounted on ground-based masts, rooftops or other existing structures. They must be positioned at a height that is not obstructed by terrain or buildings. Macrocells provide radio coverage over varying distances depending on the frequency used, the number of calls made and the physical terrain. Macrocell base stations have a typical power output in tens of watts.
Masts	A ground-based or roof-top structure that supports antennas at a height where they can satisfactorily send and receive radio waves. Typical masts are of steel lattice or tubular steel construction. New slimmer versions of masts are now available which can be painted to blend in with their surroundings, disguised as trees or telegraph poles or used in conjunction with street lighting and CCTV cameras. Masts themselves play no part in the transmission of the radio waves for mobile telecommunications.
MBNL	Mobile Broadband Network Limited is the joint venture management company created by 3UK and T-Mobile (now EE). MBNL is responsible for establishing and managing a new consolidated network of base station sites. Network consolidation involves T-Mobile and 3UK combining their base station sites, hardware and infrastructure to operate a single network. Network Consolidation is a form of RAN (Radio Access Network) Sharing. The result of consolidation is that a significant number of existing T –Mobile &

	3UK Sites are being decommissioned. MBNL has now consolidated more than 12,000 sites for T-Mobile and 3UK (December 2010). As a result of the merger between Orange and T-Mobile in April 2010 further decommissioning is underway.
Microcell	Microcells provide additional coverage and capacity where there are high numbers of users within urban and suburban macrocells. The antennas for microcells are mounted at street level, typically on the external walls of existing structures, lamp-posts and other street furniture. Microcell antennas are usually smaller than macrocell antennas and when mounted on existing structures can often by blended into building features. Microcells provide radio coverage over distances, typically around 100m and operate at power levels substantially below those of macrocells.
MIP	Mobile Infrastructure Project.
MNO	Mobile Network Operator means a firm that owns both mobile network infrastructure and is licensed by Ofcom, under section 1(1) of the Wireless Telegraphy Act 1949, to hold spectrum and for the purpose of providing a public phone network using a radio link. There are currently four MNO's in the UK – EE, Three, Vodafone and O2(Telefonica).
Mobile Broadband	Delivery of broadband data services to mobile devices.
Natura 2000	Natura 2000 is a network of core breeding and resting sites for rare and threatened species, and some rare natural habitat types which are protected in their own right. It stretches across all 28 EU countries, both on land and at sea. The aim of the network is to ensure the long-term survival of Europe's most valuable and threatened species and habitats, listed under both the Birds Directive and the Habitats Directive.
Non Designated Areas	Areas outwith Designated Areas.
NPA	National Park Authorities with responsibility for the delivery of the planning service in The Trossachs and the Cairngorms.
NPF	The National Planning Framework sets the context for development planning in Scotland and provides a framework for the spatial development of Scotland as a whole.
Ofcom	Office of Communications - the UK's independent telecommunications regulator and competition authority.
PA	Authorities responsible for the delivery of the planning service in Scotland across the 34 planning authorities (including 32 Councils

	and 2 National Parks).
PAN 62	Planning Advice Note: PAN 62 Radio Telecommunications
PCP	Primary Cross-connection Point - this is the local street cabinet in which cables extending out to local distribution points are aggregated and connected to larger copper and fibre optic cables to move the voice and data signals to and from the local exchange. The number of connections managed in a PCP depends on the number of end user premises in an area, but is usually several hundred (200-400) lines.
Picocell	A picocell provides more localised coverage than a microcell. These are normally found inside buildings where coverage is poor or there are a high number of users such as airport terminals, train stations or shopping centres.
RRU	Remotely installed Radio Unit.
Sitefinder	Sitefinder was set up as a result of recommendations of the Stewart Report in 2000. It is a voluntary scheme under which mobile network operators make information available on the location and operating characteristics of individual base stations, so that people who wish to inform themselves about this can do so. The last Sitefinder update was performed in May 2012, although some operators ceased providing updates from as early as 2005.
Small Cell	Small cell is a catch-all term covering a variety of small base stations, such as femto-cells, microcells, and picocells.
Smart City	An authority that deploys or has a strategy for deployment of smart technologies (e.g. traffic sensors, smart grid) with the ultimate goal to make the region a better place to live, while keeping it sustainable.
Smart Meter	A gas and electricity meter that can digitally send meter readings to an energy supplier and enable monitoring of usage.
SNH	Scottish Natural Heritage.
SPP	Scottish Planning Policy.
SSE	Scottish Southern Energy.
SSSI	Site of Special Scientific Interest (SSSI).
Stakeholders	The agreed list of Stakeholders listed in Annex B.
Stub Mast	A roof-mounted mast structure that supports multiple antennas at a height where it can satisfactorily send and receive radio waves. A

	stub mast is typically 4m - 6m high and of steel lattice construction. Stub masts themselves play no part in the transmission of radio waves.
VDSL	Very High Bit Digital Subscriber Line (VDSL) is a Digital Subscriber Line (DSL) technology providing data transmission faster than Asymmetric Digital Subscriber Line (ADSL) over a single flat untwisted or twisted pair of copper wires.
VSAT	Very Small Aperture Terminal satellite communications.
White Space	Parts of the radio spectrum that are unused in a particular location and at a particular time. TV white space exists between airwaves primarily used for digital terrestrial TV broadcasting (470 MHz to 790 MHz). Ofcom made regulations on 18 December 2015 which enable licence exempt use of white space devices in the 470 - 790 MHz band. The regulations came into force on 31 December 2015.
WiFi	A technology enabling computers, smartphones and handheld/tablet computers to access the internet when within range of a wireless network connected to the internet.
WIG	Wireless Infrastructure Group.