OPERATIONAL BACKGROUND

As a result of the rapid growth in the mobile telecommunications industry and our society's ever increasing dependence upon the various services associated with mobile communications comes the need for additional infrastructure.

However, in an attempt to reduce the cumulative impact of base station development the Telefónica Group (O2) and the Vodafone Group (Vodafone) have formed a strategic partnership to share mobile assets in the UK and across Europe. Please note that within the UK this project is called "Cornerstone" which means that O2 and Vodafone will be working closely to pool their resources whilst making substantial improvements to their Second Generation (2G) and Third Generation (3G) networks. In this regard their key focus will be on the joint build of newly required sites, as is the case with the subject proposal, and the consolidation of existing sites.

Mobile Networks

Mobile networks are put together through a joining of a series of cell areas within which a base station site must be deployed. A good analogy of how a network operates is to compare it to a patchwork quilt with each cell area being a single patch within this. For blanket coverage to be provided each cell's solution must allow for coverage to join seamlessly together avoiding any gaps. In this regard the base station solution for each cell area must take into account the topography of the area and any clutter that might impede signal transmission, such as high buildings of mature trees. Base stations must also be positioned far enough from each other to prevent competition and interference between sites.

3G and the localised network requirements

Whilst each operator already has a basic 3G network in place at present with a degree of coverage to the local area being provided by their established base station sites within the wider area, as more people want to use their phones and mobile devices within their homes and on the move, the operators are obliged by their licence agreements to improve their network coverage in order to provide a high quality indoor and outdoor coverage.

Please also note that the geographical area covered by each base station expands and decreases depending upon how many handsets are attempting to connect to that particular site. Furthermore, each base station has an operational capacity, meaning that only a certain number of handsets can connect to it at any one time. The popularity of smart phones and 3G enabled devices has placed so much demand upon the existing O2 and Vodafone networks that they are unable to provide the level of coverage that their customers have come to expect.

In a contrast to the well-established 2G networks, which could provide significant geographical areas with of coverage often from peripheral locations, 3G equipment operates at a very low power capacity and requires that each base station development be located within the target coverage area for which it is to serve. As such, 3G cell areas are physically and geographically smaller than 2G cell areas. We would also take this opportunity to highlight that for an efficient level of service to be provided, 3G cell solutions are required to be located within an approximate distance of 500-1000m of each other within urban/suburban areas, depending upon localised issues such as topography and clutter, as noted above. As you will appreciate, this will require the deployment of significant number of new sites in order to bring the operators' nationwide networks up to the required standard for efficient 3G service and, on this basis, development within sensitive planning policy areas, proximity of historic sites or within a context of residential properties will often be unavoidable; all that can be done is to ensure that the potential impact of any new development is limited to a minimum operational size and amount.

The subject proposal is required as part of O2 and Vodafone's plans to provide **Barnsley** with the aforementioned efficiency of 3G coverage and access to the many benefits associated with it, including wireless internet access, email, data download, video calls and picture messaging, at anytime and anywhere within the local area.

Other information

Please refer to the following attachments for further details on the operational nature of 3G technology:-

- Mobile Operators Association (MOA) fact sheet on 3G
- O2/Vodafone EMF Fact Sheet: How it works