PROPOSAL BY CTIL AND TELEFÓNICA UK LTD TO DEVELOP A MOBILE TELECOMMUNICATIONS BASE STATION HALL LANE SW, GREAT CHISHILL, CAMBRIDGESHIRE, SG8 8SG

Requirement for a base station

The site is proposed by CTIL and Telefónica UK Ltd, who trade in the UK as O2.

A site or sites are required locally to enhance existing 2G services on the O2 network, to remedy a shortfall in 3G services and to introduce new 4G services to Great Chishill, Barley, Shaftenhoe End, Heydon, Little Chishill and Chrishall. It has been identified that a single site located within Great Chishill could provide coverage across the majority of all these areas.

2G (GSM) allows for basic voice calls and text services. 3G (UMTS) is a more efficient technology than 2G for voice communications and also allows for data transmission as mobile phones, computers, and other portable electronic devices access the internet wirelessly. 4G (LTE, the acronym used for 'Long Term Evolution') supports mixed data, voice, video and messaging traffic and offers speeds of up to five times faster than 3G, enabling network users with 4G devices to benefit from ultra-fast internet browsing, video streaming, gaming, e-mail and downloads.

Within the UK a number of rural and remote locations continue to suffer from poorer coverage provision than towns and cities. The lack of connectivity within those affected rural areas means that communities and country-based business are deprived of access to a valuable tool that could be used to boost economic growth and promote social inclusion, one which is far more readily available to their urban counterparts.

The proposed telecommunications base station on the highways verge of Hall Lane represents part of this drive to address the deficit in mobile phone coverage and capacity across Cambridgeshire.

Selecting Locations for Base Stations

Because base stations are relatively low powered radio transmitters, they can only cover a limited geographical area. The area each base station covers is called a cell. The size of each cell is dependent on the type of technology required (2G, 3G or 4G for example) and area specific issues, but as a general rule, base stations need to be placed in or close to the areas where people want to use their mobile phones and other wireless devices. If they were to be installed away from the areas where people live and work, services in these areas would be poor or unavailable.

Each base station can also only handle a limited number of calls at one time (this is referred to as the "capacity" of the cell or network). Each cell overlaps with its neighbouring cells to create a continuous network. The size and shape of each cell is

determined by the features of the surrounding area, such as buildings, trees and hills, which can block signals. When people travel between cells, the signal is transferred between base stations without a break in service.

Site placement is absolutely critical in network planning, locations are selected to fit as closely as possible to the cellular pattern necessary for the area, with the result that both the interference generated and the overall number of sites required are reduced, whilst ensuring effective coverage. Ideally, sites should be as central as possible to the area requiring coverage to limit interference with adjacent cells and to maximise coverage and minimise the number of sites.

What Other Options Were Considered?

Prior to selecting the roadside location on Hall Lane, a comprehensive investigation was undertaken by the operators' network planners, acquisition and planning agents. This investigation was focused on specific a 'search area', the area in which a site would be able to meet coverage requirements, as determined by the expert radio planners determined. This included a physical search of the area, desktop analysis of potential options, and, investigation of local authority planning records and the Operator's own site database.

Sites are considered in terms of their technical suitability to provide the required level of service, as well as the effect on visual amenity and their ability to be acquired, built and maintained. The aim of site identification is to find the most technically efficient site, which has the minimum impact on visual amenity.

The following options were discounted from the search, resulting in the final selection of the application site:

Existing EE base station (shared use) at Manor Farm, Picknage Road, Barley, SG9 2AR

The network radio planner has determined that the location of the existing EE is an inferior from a technical perspective and so would require a much larger base station to be installed than is proposed on Hall Lane to achieve the same level of network coverage. This would result in a greater visual impact than can be achieved elsewhere and so is not a favourable option.

Land Adjoining Sewage Works (site of existing EE base station), Cambridge Road, Barley, Royston, SG8 8HN

This would entail adding a second base station installation close to the existing one on this property. The network radio planner determined that the location of the existing EE site is an inferior from a technical perspective and so would require a much larger base station to be installed than proposed on Hall Lane to achieve the same level of network coverage. This would result in a greater visual impact than can be achieved elsewhere and so is not a favourable option, particularly given the cumulative impact of the multiple installations.

Hill Farm Barns (site of existing EE base station), Great Chishill, SG8 8LD
This would entail adding a second base station installation. The network radio planner has advised that the location is inferior to that on Hall Lane from a technical perspective. The installation would need to be larger than that currently erected and larger than that proposed on Hall Lane, in order to achieve the same level of network coverage. The level of visual impact on the area would be greater, thus this was considered an inferior option.

EE base station (shared use) at Hill Farm Barns, Great Chishill, SG8 8LD
The network radio planner determined that the location is inferior to that identified on Hall Lane and that the coverage requirement could only be achieved by installing a significantly larger installation, with a greater visual impact.

Wood Green, The Animals Charity (site of Airwave CAM021B, Highway Cottage, Chishill Rd, Heydon, Royston, Hertfordshire, SG8 8PN
The location was discounted by the network radio planner who determined that the technical requirements could not be met from this location.

Land At Great Chishill Playing Fields Association (Adjacent to the Village Hall), Hall Lane, Great Chishill, SG8 8SH
Following an initial expression of interest, the landowners later confirmed that they did not wish to pursue accommodating a telecoms installation at this location. Having completed a further review of the potential options, the network's radio planner also advised that a minimum height of 20m would be required in order for a site at this location to provide acceptable coverage, with 25m ideally utilised. This would not represent the best option in terms of limiting visual impact. The option on Hall Lane allows for the best coverage provision at the lowest height, which limits the potential level of visual impact, and so is preferred.

Chishill Reservoir (Chishill 163), Hall Lane, Great Chishill, Royston, SG8 8SH
The network radio planner has determined that the location is inferior to that identified on Hall Lane and that the coverage requirement could only be achieved by installing a significantly larger installation, with greater visual impact.

Land adjacent to Pumping Station, New Road, Great Chishill, SG8 8ST
The network radio planner determined that the location is inferior to that identified on Hall Lane and that the coverage requirement could only be achieved by installing a significantly larger installation, with greater visual impact.

Land Lying to The East of Chishill Road, Heydon, Royston, SG8 8PN
The location was discounted by the network radio planner who determined that the technical requirements of the cell could not be met from this location.

Bayer Cropscience Limited, Chishill Orchard Farm, Heydon Road, Great Chishill, Royston, SG8 8SS
A base station installation at this location could not fully meet the coverage objective and that levels in Barley and Shaftenhoe End would be compromised if this location were to be used, likely requiring a second site to be deployed elsewhere to meet the shortfall. This was subsequently discounted on technical grounds.

Building to the west of Rectory Farm, New Road, Great Chishill, Nearest Post Code SG8 8SU
Lower land levels at this location would result in inferior coverage levels being provided than could be achieved at other options identified. It is an inferior technical option and discounted from the search process on that basis.

Chishill Windmill, Barley Road, Great Chishill, SG8 8SD
The network radio planner has determined that the location is inferior to that identified on Hall Lane and that the coverage requirement could only be achieved by installing a significantly larger installation, with greater visual impact.

St Margaret of Antioch, Church End, Barley, SG8 8JR
The church is a Grade II* Listed Building. There is no obviously and technically feasible design solution that would enable its use without unacceptable impact to the heritage asset.

Pumping Station, New Road, Great Chishill, SG8 8ST
The network radio planner determined that the location is inferior to that identified on Hall Lane which meant that the coverage requirement could only be achieved by installing a significantly larger installation, with greater visual impact.

Barley WRC Sewage works, Picknage Road, Barley, SG8 8HN
The network radio planner determined that the location is inferior to that identified on Hall Lane and that the coverage requirement could only be achieved by installing a significantly larger installation, with greater visual impact.

Rectory Farm, Barley Road, Great Chishill, Royston, SG8 8SU
The operator initially sought to deploy an 18m high lattice structure at this location (2017), however, it was subsequently identified that the desired levels of 4G could not be achieved throughout the target areas by a base station at this location and it was duly discounted as a viable option on technical grounds.

Field south of Heydon Road, Great Chishill, Royston, SG8 8ST
The network radio planner determined that the location is inferior to that identified on Hall Lane which meant that the coverage requirement could only be achieved by installing a significantly larger installation, with greater visual impact.

Adjacent to Barn, South of Bogmore Road, Great Chishill, SG8 8SN
The network radio planners determined that the location is inferior to that identified on Hall Lane which meant that the coverage requirement could only be achieved by installing a significantly larger installation, with greater visual impact.

St Swithun's Church, Heydon Road, Great Chishill, Royston, SG8 8SA
Use of the church was investigated, but a suitable design solution could not be identified. It was considered that antenna might be able to be located internally, behind the louvres. However, the louvres were found to be too small to facilitate good radio coverage as the antennas would have overlapped with the surrounding stonework, through which the signals could not pass. The church is a Grade II Listed building and alternative, external, designs such as face mounting antennas to the church tower were not considered appropriate in this instance.

What Happens Next?

The proposal is currently in a period of voluntary consultation. At present we are in the process of reviewing responses received from the community and are awaiting a formal response from the South Cambridgeshire District Council planning department.

If the site progresses, Prior Approval of the siting and appearance of the proposal would need to be granted by the local authority before any development could take place. On receipt of an application for such, the Local Authority area obligated to advertise the application and undertake a period of formal consultations. The application and any supporting information should be made available for public viewing.

Planning legislation requires that a prior approval application for development by a telecommunications operator must be determined and a decision provided to the applicant within 56 days of the application being received.