DESIGN AND ACCESS STATEMENT

The following Design and Access Statement is provided in conjunction with the Supplementary Information Template, drawings and supporting material included with this planning application. It has been produced having regard to Highland Council's guidance on Design and Access Statements.

https://www.highland.gov.uk/downloads/file/2645/design_and_design_and_access_statements_advice_noten

In accordance with published Government guidance, the proposal has been drawn up having regard to the need for good design.

In particular[1]:

- Considerations of design and layout are informed by the context, having regard not just to any immediate neighbouring buildings but the townscape and landscape of the wider locality. The local pattern of streets and spaces, building traditions, materials and ecology all help to determine the character and identity of the development.

- The scale, massing and height of proposed development have been considered in relation to that of adjoining buildings; the topography, the general pattern of heights in the area; and views, vistas, and landmarks.

The following general design principles have been taken into account in respect of this proposed telecommunications development:

- A proper assessment of the character of the area concerned;
- That the design shows an appreciation of context.

SITE CONDITIONS, TECHNICAL CONSTRAINTS, LANDSCAPE FEATURES AND CAPACITY REQUIREMENTS

Introduction

The development proposals are for a shared 20m lattice communications mast, antennas, and associated ground-based apparatus. The ground-based apparatus also included 4x solar arrays to provide power. It needs to be borne in mind that the proposed development is for a mobile telecommunications installation. Hence, access is deliberately restricted, where appropriate, for the security of the installation.

Pre-Application Discussions and Negotiations

As detailed within the Site Supplementary Information Pack, communication was initially sent to

[1] These factors are applicable across all development locations and hence reference townscapes and buildings etc which will not be applicable for the vast majority of SRN sites

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the planning department at Highland Council, outlining the requirement for a new base station at this location, along with details of the proposed scheme. The formal response has been taken into account when finalising the planning application proposals.

Documentation Submitted with Application

- Plans and elevations
- Extracts within the Supplementary Information Pack
- Supporting statement (Site Specific Supplementary Information
- Further documentation including details of the Shared Rural Network.
- Private Access Checklist
- Wild Land Assessment
- Landscape and Visual Impact Assessment
- Visualisations
- Preliminary Ecological Assessment
- Peat Survey
- Construction and Environmental Management Plan

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Design Component

For SRN, the operators have carefully considered the design of the proposed masts across the programme. The structure has to be able to support the equipment for 4x operators. A lattice tower is the most suitable design from a technical viewpoint, given the windloading in the exposed rural locations where the SRN masts will be located. Such a design is also able to facilitate greater coverage (as they give better scope for antenna orientation) and provide the structural capability required to be able to support the weight and size of all the operators' telecommunications equipment. Due to the slim line nature of the supporting struts of the lattice frame, light is able to continue to pass through the structure. If the lattice tower were to be any slimmer in width, then it would not be structurally capable of supporting all the operators' equipment or meet the windloading requirements in this location. The colour of the tower is proposed to be RAL7034 as this sits well within this type of landscape. However, it could any other colour that the authority considers appropriate.

The antennas are proposed to be located on the legs of the tower and therefore there will not be a bulky headframe at the top of the mast. Remote Radio Units (RRUs) are proposed underneath the antennas. These are small, approximately the size of a shoe box. They are designed to make the antennas more efficient and reduce the amount of ground based equipment cabinets, thus minimising the visual impact on the surrounding area. Given their height above ground level located underneath the antennas, at centre line heights of 16.5m and 15.3m AGL, and their small size, they will not be prominent in the landscape.

The transmission dish is essential to link the installation back into the MNO's wider network and relay the data. The dish antennas used by mobile phone networks are relatively small, in this case they are proposed to be 300mm and 600mm in diameter. They are used to link individual radio base stations to each other and, through a series of links, into the wider mobile phone and fixed line networks. In order to communicate with each other, dish antennas must have a clear line of sight, sometimes known as point-to-point communications. They must be in clear view of each other without any physical obstructions such as trees or buildings which would reduce or disrupt the low-powered signal. For this reason, dish antennas are always mounted high on rooftops or tall structures. In this instance, in order to obtain a clear line of sight over the undulating topography in the wider surrounds, the dish antenna needs to be located at a centre line height of 20.5m above ground level.

A streetworks style column/pole cannot be utilised as they are not able to structurally support the weight and size of 4 separate MNO's equipment to enable the operators to share the same structure. A number of masts would be needed, throughout this rural landscape. This would lead to proliferation and would have a greater impact on the surrounding area. Such designs are also restrictive on the coverage that can be provided due to limitations in respect of the heights and bearings and therefore will not be able to provide the necessary coverage to this large rural area.

The more compromises on design, the less coverage and service provision that can be provided and the less benefits will be obtained. Monopoles are unable to support as much equipment and are less able to be future proofed. They also come in one long section whereas lattice masts come in several smaller sections and can be assembled on site. This is an important consideration given the rural and remote location of this site.

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The proposed height at 20m is essential in order for all the operators' equipment to reach the target coverage area. The proposed height has had to take into account the landscape, topography and area of proposed coverage. If the mast were to be any lower in height, it would only be able to provide coverage to a smaller part of the larger target area. This would fail the operator's design brief to provide high quality 4G coverage across this area of the Highlands.

The submitted coverage plots supporting this application demonstrates the significant coverage which will be achieved through the delivery of this important infrastructure.

The equipment cabinets are designed to appear like other statutory undertakers' equipment cabinets. The equipment cabinet and electric meter cabinet are relatively small. Given their location within a fenced compound, their maximum height of 2.50m and their proposed colouring to blend with the landscape, they should not be prominent. The colour of the apparatus can be discussed during the course of the application taking on board consultee comments

The site will be located within a fenced compound for health and safety reasons. The proposed fencing will be 1.9metre high fence to help minimise ground-based impacts.

The scheme also proposes a small access track and hardstanding 'access space' area, which will provide a safe set down area. It will extend from the existing access track to the southeast and allow safer access into the compound's gates.

The proposed mast and apparatus will be predominantly powered by renewables. This will be achieved through 4x solar arrays which are shown on the drawings and will be located within the compound.

Each solar array (4No) is 3kW nominal (full sun); but will deliver in the region of 400-600W per array average throughout the year. May – Sept will basically operate 100% on solar, but between Oct - Apr will need more generator input.

However, there is also battery storage, and it is quite central to the solution (it is a 'hybrid' solution). It fulfils the load until emptied at which point it needs to pull power from a generator. The generator will use HVO and is more of a backup than a primary source. HVO, or Hydrotreated Vegetable Oil is a 'cleaner' solution than traditional diesel by using non fossil fuel and reducing the carbon footprint from the site. Importantly, this generator is a back-up and will only be used when either the solar arrays are not providing power and/or when the battery needs topping up.

The noise from the generator is generally attenuated as it is housed within the container. The generator produces 66dB(A) at 7m. Sound also attenuates over distance as per the equation below:

SPL2 = SPL1 – 20 log (R2/R1) ; SPL1 is Sound at point 1 (66 dB(A) at 7 metres) SPL2 is sound at point 2 (calculated), R1 is 7 metres. If R2 is 300m, the perceived sound would be about 33dB(A), which is quite low (even in a remote and rural area).

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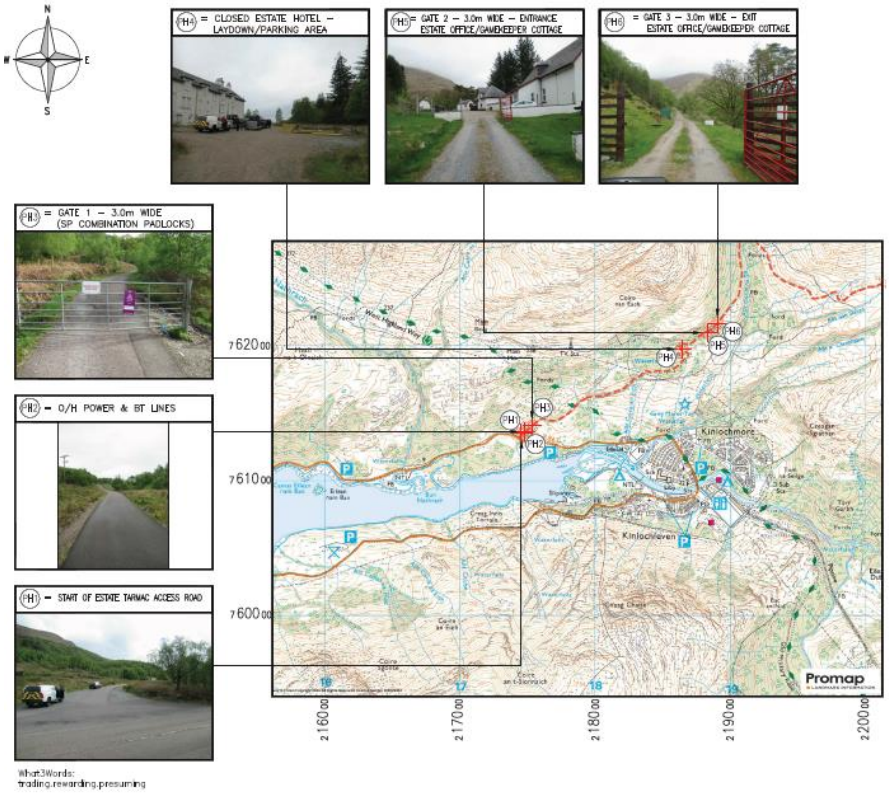
It is therefore considered that the proposal before you strikes the best balance between landscape, environmental impact and operational considerations. The proposed height and design represent the best compromise between the visual impact of the proposal on the surrounding area and meeting the technical requirements for the site. Taking all matters into account it is considered that this proposal, to provide Shared Rural Network 4G coverage and to fill this total not spot with high quality 4G mobile service provision for the four telecommunications network operators, utilising the same structure, would be acceptable within the landscape.

Access

The site will be accessed by an existing access track with a small area of new track to be constructed as per the planning drawings. Access would be via ATV once the site was built. Access details are included within the planning drawings and these show the full route back to the public road and also include a number of images. These are set over 5x pages and we have included extracts of the drawings below.



PROPOSED SITE ACCESS DETAILS (01 OF 05)
(Scale 1:25000)

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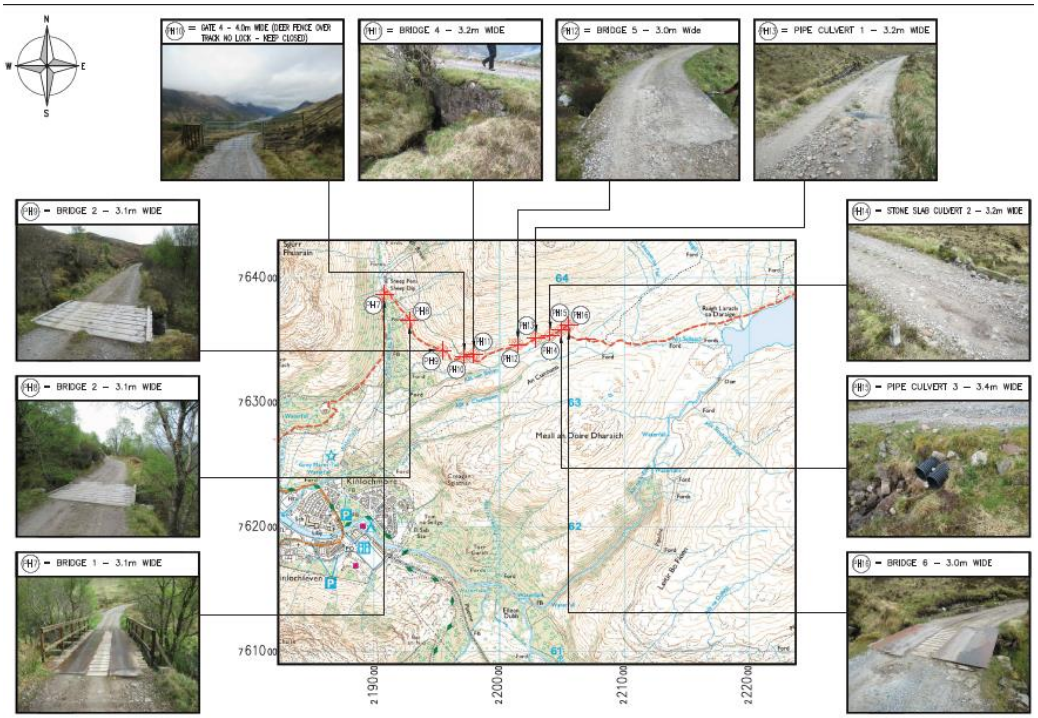

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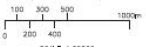

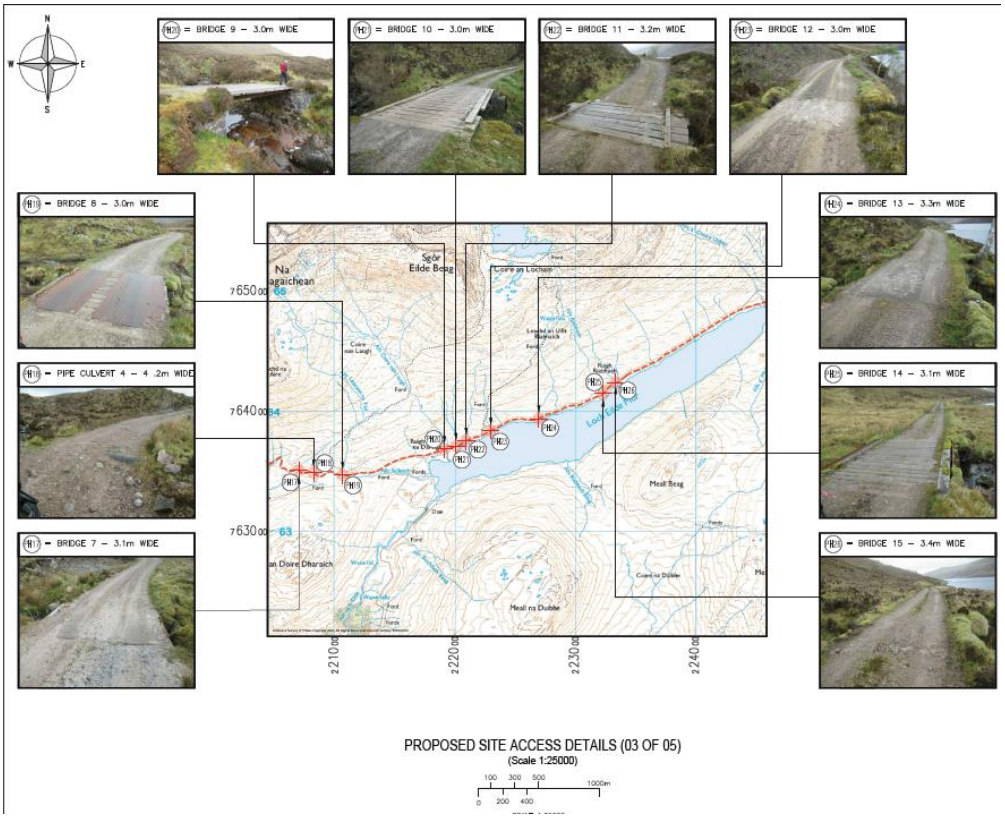

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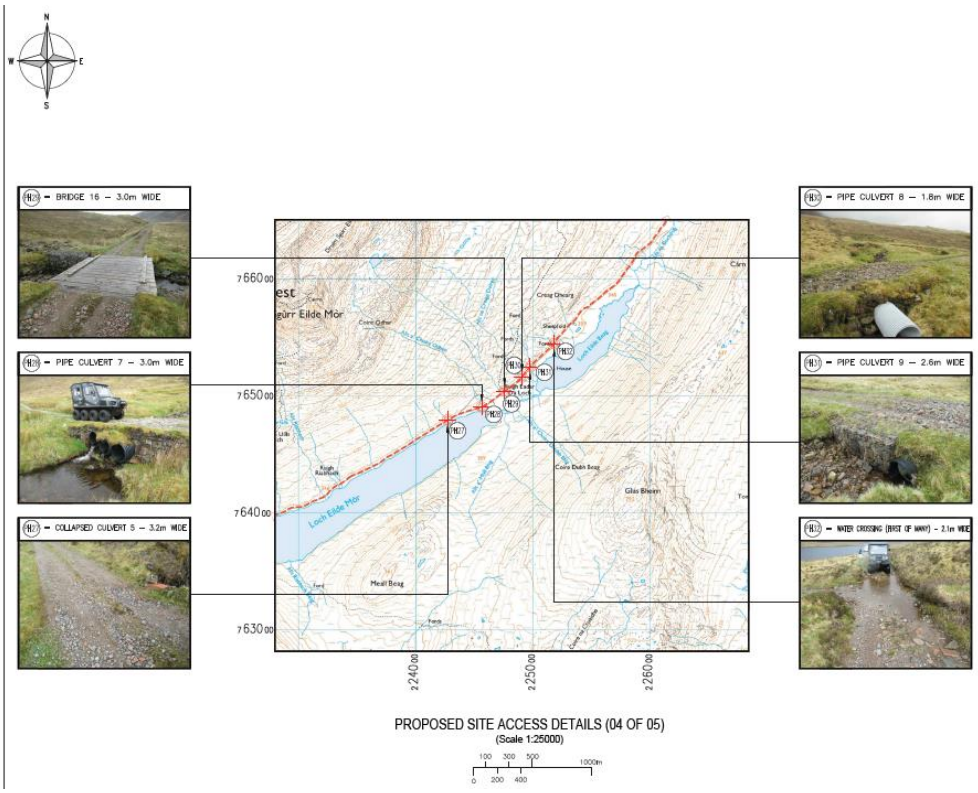

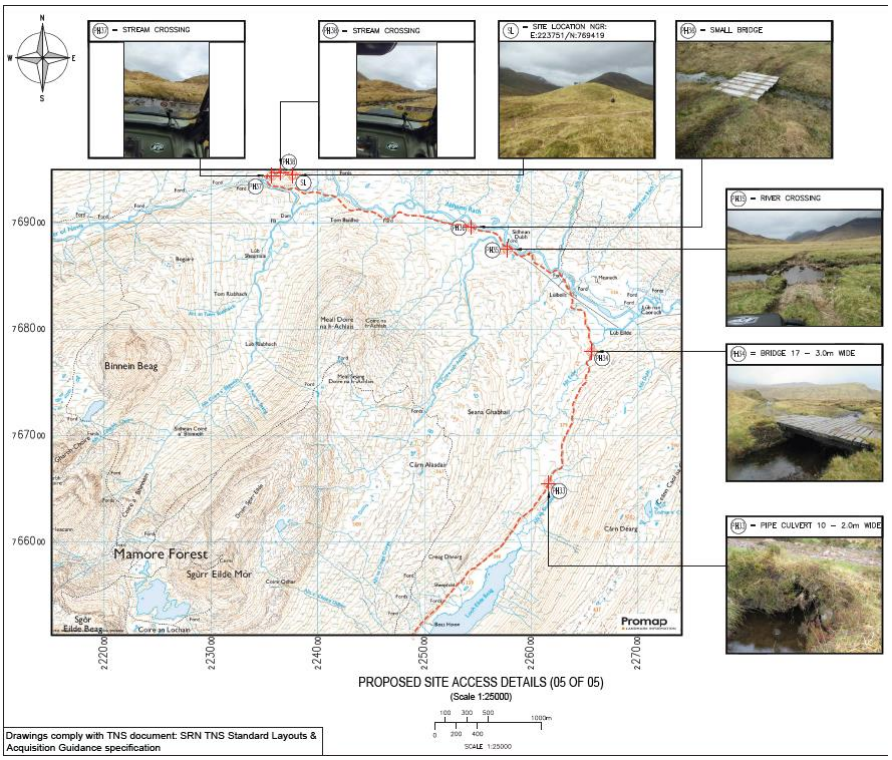

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