

7.0 ENVIRONMENTAL ASSESSMENT

7.1 EME Hazards, Risk and Health Impacts

Optus acknowledges some people are genuinely concerned about the possible health effects of electromagnetic energy (EME) from mobile phone base stations and is committed to addressing these concerns responsibly.

Optus, along with the other mobile phone carriers, must strictly adhere to Commonwealth legislation and regulations regarding mobile phone facilities and equipment administered by the ACMA.

In 2003 the ACMA adopted a technical standard for continuous exposure of the general public to RF EME from mobile base stations. The standard, known as the Radio communications (Electromagnetic Radiation – Human Exposure) Standard 2003, was prepared by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) and is the same as that recommended by ICNIRP (International Commission for Non-Ionising Radiation Protection), an agency associated with the World Health Organisation (WHO). Mobile carriers must comply with the Australian Standard on exposure to EME set by the ACMA.

The ARPANSA standard operates by placing a limit on the strength of the signal (or RF EME) that Optus can transmit to and from any network base station. The general public health standard is not based on distance limitations, or the creation of “buffer zones”. The environmental standard restricts the signal strength to a level low enough to protect everyone at all times. It has a significant safety margin, or precautionary approach, built into it.

The use of the ARPANSA standard in development applications involving telecommunications facilities was tested and supported by decisions made in the New South Wales Land and Environment Court, having particular regard to *Telstra Corporation Limited v Hornsby Shire Council [2006] NSWLEC 133* which tested whether the proposed EME levels will harm the health and safety of the residents.

The Land and Environment Court ruled in favour of Telstra, on the basis that the standards set by the ACMA are scientifically proved and robust. The Land and Environment Court stated that Councils should adopt these standards when measuring and determining EME levels, given that it is the ACMA that has the responsibility for ensuring exposure limits do not adversely affect the health and amenity of the community.

The Land and Environment Court further stated that it was not appropriate for the Council to set aside or disregard the existing safety standard nor is it appropriate for the Council to pioneer its own standards. The Land and Environment Court ruled it was appropriate for safety standards to be set by authorities with special

expertise, such as ARPANSA.

In order to demonstrate compliance with the standard, ARPANSA created a prediction report using a standard methodology to analyse the maximum potential impact of any new telecommunications facility. Carriers are obliged to undertake this analysis for each new facility and make it publicly available.

Importantly, the ARPANSA-created compliance report demonstrates the maximum signal strength of a proposed facility, assuming that it's handling the maximum number of user's 24-hours a day.

In this way, ARPANSA requires network carriers to demonstrate the greatest possible impact that a new telecommunications facility could have on the environment, to give the community greater peace of mind. In reality, base stations are designed to operate at the lowest possible power level to accommodate only the number of customers using the facility at any one time. This design function is called "adaptive power control" and ensures that the base station operates at minimum, not maximum, power levels at all times.

Using the ARPANSA standard methodology, Optus has undertaken a compliance report that predicts the maximum levels of radiofrequency EME from the proposed telecommunications facility.

The maximum environmental EME level from the site, once it is operational, is estimated to be 0.63% of the ACMA mandated exposure limit. Please refer to the ARPANSA format Environmental EME Report (Appendix C) for more information.

This maximum level is extremely low and well below the ACMA standard. Optus complies with the public health and safety standard by a significant margin.

Optus relies on the expert advice of national and international health authorities such as ARPANSA and the WHO for overall assessments of health and safety impacts.

The WHO advises that all expert reviews on the health effects of exposure to radiofrequency fields have concluded that no adverse health effects have been established from exposure to radiofrequency fields at levels below the international safety guidelines that have been adopted in Australia.

Optus has strict procedures in place to ensure its mobile phones and base stations comply with these guidelines. Compliance with all applicable EME standards is part of Optus' responsible approach to EME and mobile phone technology.

The ACMA mandates exposure limits for continuous exposure of the general public to RF EME from mobile phone base stations. These limits are specified in the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) 2002, 'Radiation Protection Standard: Maximum Exposure Levels to radiofrequency Fields – 3kHz to 300Ghz', Radiation Protection Series Publication No.3 ARPANSA ("RPS 3").

Some community members perceive that there is a potential health risk associated with mobile phones and mobile phone base stations. RPS 3, which sets public and occupational limits of exposure to radiation, is designed to avoid any known adverse effects where people are exposed to RF EME. Compliance with these exposure limits is a condition of the radio communications licenses issued by the ACMA.

ARPANSA states:

"The weight of national and international scientific opinion is that there is no substantiated evidence that RF emissions associated with living near a mobile phone base station poses a health risk."

The WHO's current advice is:

"None of the recent reviews have concluded that exposure to RF fields from mobile phones and their base stations cause any health consequences."

In accordance with RPS 3, an estimate has been made of the maximum cumulative radiofrequency (RF) electromagnetic energy (EME) levels at ground level emitted from the proposed mobile base station. Estimates of RF EME levels are provided for 360° circular bands at 0-50, 50-100, 100-200, 200-300, 300-400 and 400-600m from the base of the antenna.

The report concludes that the estimated maximum cumulative EME level at the subject site is 0.63 percent of the ACMA mandated exposure limit (Refer to Appendix C).

7.2 Visual Amenity

A precautionary approach to site design has been undertaken. Optus have designed the proposed telecommunications facility in order to reduce the bulkiness and visual obtrusiveness of the facility as much as possible. As outlined in Section 3 of this report, a detailed site design process was undertaken and consideration given to radio frequency, property, planning and engineering factors. The Head Lessor (KT Pty Limited) was consulted and involved in this process, and have provided consent in support of the subject site. During the feasibility phase pre-consultation was undertaken with the DPE to discuss the proposal for a permanent telecommunications facility as well as mitigate any potential risks associated with the proposal.

Considering the proposal involves deploying a telecommunications facility at an existing disturbed area on the upper ski slope, there will be a level of visual impact occurring as a result. This has been mitigated as far as possible through a sensitive approach to site design:

- Relevant Commonwealth and NSW government planning policies. The proposal is considered to be consistent with the applicable regulatory

instruments (Refer to Section 5 of this report for further information on regulatory compliance);

- While co-locating on existing telecommunications facilities is Optus' preferred option, there are no feasible options for co-location at this location. Optus have taken the opportunity to co-site this facility with existing infrastructure (Cat Shed maintenance workshop and ski lift structure);
- The proposed height, structure, and building footprint allows for other telecommunications carriers to co-locate once the facility is established;
- The proposed Cat Shed maintenance workshop has been previously disturbed and cleared of vegetation when the original development occurred;
- The proposal is not expected to have an adverse impact on the environment due to the nature of the facility and relatively small building footprint;
- The proposed telecommunications facility will significantly improve the coverage in the area, providing enhanced services to Thredbo Village; and
- The Head Lessor (KT Pty Limited) is agreeable to the proposal.

Through these measures it is considered that visually, the proposal will not have a detrimental effect on the surrounding area (Please refer to Appendix A – Photographs).

7.2.1 Visual Impact Statement

The proposed facility is located at the Cat Shed maintenance workshop Upper Ski Slopes, Friday Drive, Thredbo Village, NSW, 2625 in the Kosciuszko National Park. There are limited permanent residences within the area, with the majority of properties being used for tourism purposes. There are a number of hotels and private accommodation located in proximity to the site within Thredbo Village.

The proposal involves the installation of a monopole with three new panel antennas installed on a circular headframe at a height of 25m (centreline). The antennas and monopole extension will have a non-reflective natural colour finish to ensure that the facility remains as visually unobtrusive as possible.

The proposed facility will be visible from some distance, given its required height; however the site is substantially setback from Friday Drive and Thredbo Village accommodation and adequately separated from urban and residential areas, minimising the level of visual impact. The height of the proposed facility is required to gain optimal network performance for residents, visitors, NPWS staff and

emergency services organisations in the area surrounding the subject site.

A visual assessment of the facility has been undertaken to illustrate the visual impact resulting from the proposed development. A number of images were taken of the facility from the areas surrounding the subject site in order to understand and assess any impacts the proposed facility may have (refer to Appendix A - Photos of Site and Surrounds).

The top of the ski slopes is located approximately 1500m from the subject site. At the top of the mountain the elevation is approximately 440m greater than the elevation at the subject site. Consequently, when viewed from above it is not considered that the proposed facility will have a significant visual impact, which is proposed to have an overall height of approximately 25m. The proposed facility will not break the skyline from this viewpoint, given the steepness of the spur, and then flattening out, to the subject site. From the base of the ski slopes, the site will be partially screened by existing mature trees as seen in photo 5 below.

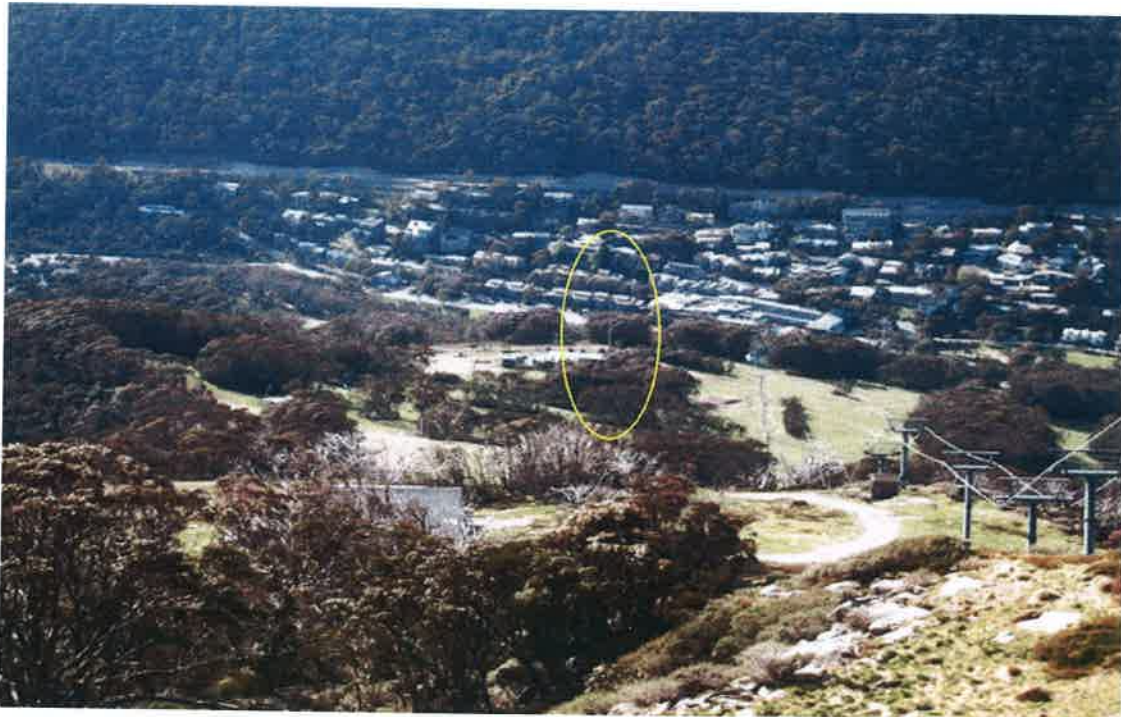


Photo 5: View of the subject site from Eagles Nest (top of the mountain) looking south east.

The Alpine Hotel grounds are located approximately 460m from the subject site, on the opposite side (i.e. south eastern side) of Friday Drive. There is some visual impact associated with the facility when viewed from the carpark. However, as mentioned above, the facility has been designed to minimise this impact. The facility is also proposed to be substantially setback behind the existing tree line, which will also assist in minimising any visual impact associated with the facility.

The view from the Alpine Hotel grounds also capture the ski lift structure up the mountainside in the cleared open ski run, and as the ski lift structure is considered to be substantially larger in bulk and scale, the visual impact of the facility is deemed acceptable. It is considered that the benefits to be provided by the facility outweigh any visual impact associated with the facility.



Photo 6: View of the subject site (behind tree line) from The Alpine Hotel grounds, looking north west.

The main access route to and from the Thredbo Valley is via Friday Drive from Alpine Way, coming from Jindabyne. From this viewpoint at the intersection of Friday Drive and Valley Close (approximately 800m east) the proposed facility will have limited visual impact to the surrounding area. The surrounding landscape including mature trees in the foreground will assist in limiting the visual impact associated with the proposed facility. This is largely due to its minimal bulk and natural colouring. The proposed facility will break the skyline slightly when viewed from this direction, and such, the visual impact of the proposal is considered to be acceptable.



Photo 7: View of the subject site from the intersection of Friday Drive and Valley Close, looking west.

The visual impact associated with the facility is appropriately minimised through the natural colouring and design of the equipment and its appropriate siting with existing infrastructure at the maintenance workshop and ski lift structure. It is also important to acknowledge the wider context of the area, with the ski lifts having greater visual impact than that of the proposed facility. As such, the visual impact of the proposed facility is considered to be acceptable.

7.3 Geology, Soil, Water quality, and Hydrology

Given the relatively minor nature of the proposed excavation and trenching works, it is highly unlikely that the proposal will impact upon any nearby water bodies or any drainage lines in the area. However, the following soil and water management measures will be undertaken where appropriate to minimise any potential impacts on soils and surface water during construction:

- Keeping ground disturbing activities to a minimum;
- Implementing appropriate sediment control measures as required, such as the installation of silt / sediment fences and / or sediment traps;
- No removal of vegetation is proposed;
- Erosion and sediment controls will be checked regularly;
- Fill in and compact any trenches immediately after services have been laid; and;
- Works would not occur during periods of heavy rainfall.

7.4 Bushfire Management

The proposed telecommunications facility is pre-fabricated and in accordance with the Building Code of Australia and Australian standards. A Fire Management Plan is not required for a telecommunication facility as they are unmanned, remotely operated and do not pose a risk to human life.

7.5 Flora and Fauna

The proposed development will not have a significant impact on the flora and fauna at the site as the existing site is clear, disturbed areas of land. No significant vegetation is to be removed. Excavation and trenching excavations are proposed and there will be minimal disturbance to the soil.

7.6 Heritage

Heritage registers exist at the commonwealth, state and local levels. Online searches were undertaken in order to determine any natural or cultural values, including the following databases:

- National Heritage List;
- Commonwealth Heritage List;
- NSW Heritage Register;
- Snowy River Local Environmental Plan 2014.

Searches of the above databases indicate that other than being included within the Kosciuszko National Park, the subject site has not been registered as having any heritage significance. As such, the proposal will not have any impact on the heritage significance of the area.

Notwithstanding, precaution and due diligence will be exercised throughout the construction phase and if any items of indigenous or cultural heritage are encountered, works would cease and KT Pty Ltd, DPE and National Parks and Wildlife Service will be advised promptly.

7.7 Archaeological Impact

No archaeological impact is anticipated as a result of the proposal. However, should any item of archaeological importance be discovered during the construction, work would cease immediately and all appropriate authorities would be notified. Work would not resume until all clearances are received from the relevant authorities.

7.8 Contaminated Land

The site is not listed in the Contaminated Land Register or in the Environmental Management Register, nor known to contain Acid Sulphate Soils (ASS) or Potential Sulphate Soils (PASS). No signs of land contamination were observed during the site inspection. As such, it is unlikely that the proposed works would encounter any contaminated soils. Any contaminated soils exposed during the proposed works will be managed in accordance with the relevant guidelines.

7.9 Erosion and Sediment Control

Given the scale of the works and location of the proposed facility, potential impacts would be addressed and mitigated with the following soil and water management measures undertaken during construction, and continued after construction until the facility is established. These measurements include:

- Keeping ground disturbing activities to a minimum;
- Implementing appropriate sediment control measures as required, such as the installation of silt/sediment fences and/or sediment traps;
- No removal of vegetation is proposed;
- Erosion and sediment controls will be checked regularly;
- Fill in and compact any trenches immediately after services have been laid; and;
- Works would not occur during periods of heavy rainfall.

A Geotechnical Report has been prepared which establishes the method of construction activities.

7.10 Air Quality

Where there is potential for dust generation during construction or during the movement of construction vehicles, it is expected to be localised and any impacts minimal and of short term duration. The site and surrounds would be appropriately restored after the completion of works and work within and around the site is not expected to impact upon the surrounding land.

Overall, minimal dust generation will occur during construction of the facility. Measures such as wetting down exposed surfaces would be undertaken if required to mitigate any construction related impacts due to dust generation. Once installed the facility will have no air pollution and is not expected to cause dust hazards.

7.11 Noise and Vibration

Any noisy construction activities would be as a result assembling the facility and are expected to be minimal. Any potential noise impacts are expected to be minor and short term in duration. Works would be undertaken only during standard working hours. It is not expected that construction works would have any vibrational impacts on the surrounding area.

7.12 Waste Minimisation and Management

Due to the nature of deployment, the generation of waste resulting from construction of the proposed facility is expected to be minimal. All waste material and other packaging material will be disposed of at an approved waste disposal facility.

Telecommunication facilities are of low maintenance, unmanned and will not generate any waste or odour emissions. Routine maintenance checks (approximately 2 – 6 times per year) will be required for the ongoing operation of the facility.

7.13 Traffic and Access

Once constructed, mobile phone base stations are of low maintenance, unmanned and remotely operated. As such, operational visits to the site will be approximately 2 - 6 times per year. The proposed facility will not require services from public transport or parking facilities. Parking for maintenance vehicles is available adjacent to the site.

During the operation of facility the proposal is not expected to impact upon traffic movements on any local roads and have no noticeable increase in traffic volumes.

7.14 Associated Infrastructure and Activities

There is existing infrastructure located nearby the subject site. power will be sourced from the adjacent Cat Shed maintenance workshop and minor trenching works are proposed for the power conduits. In relation to fibre transmission, proposed trenching to the nearby Telstra fibre transmission is required.

The following mitigation measures will be implemented to ameliorate any impacts on existing infrastructure:

- A 'dial-before you dig' search would be undertaken during the detailed design stage;
- Prior to construction, all infrastructure and utilities would be identified through KT Pty Ltd Maintenance/Service/Property Staff; and
- If required, prior to construction, relevant utilities and adjacent residents would be notified of any impending disruptions to services.

When operational, the telecommunications facility will be unmanned, and does not require utility services such as telephone, water and sewerage.

7.15 Cumulative Environmental Effects

The potential environmental impacts associated with the proposal have been identified as:

- perceived health risk issues;
- potential visual impact; and
- potential impacts during construction of the proposed facility.

Each of these issues has been considered individually and collectively from a cumulative impact perspective.

The estimated RF EME from the proposed facility is well within and below the standards mandated by the ACMA. The proposed facility will comply with all standards and regulations in this regard.

There is some potential for greater visual impact associated with the proposed facility, however, such impacts are minimised by the following measures considered during the siting and design of the facility:

- The proposed facility will be partially screened by existing vegetation;
- The proposed equipment is in a neutral colour specified by DPE and KT and compatible with the existing equipment shelter, Cat Shed maintenance workshop and surrounding vegetation.
- A circular headframe will screen ancillary equipment boxes (RRUs & MHAs) keeping the facility as streamlined as possible; and
- Feeders run internally within the monopole, minimising the need for external cable trays which would increase the volume and visual bulk of the facility; and
- Future co-location opportunities of other carriers are provided, limiting the need for additional telecommunication facilities.

7.16 Suitability of the Site for the Use and Development

The subject site is appropriate for the development as it is located within disturbed areas of land and is adjacent to a large maintenance workshop and existing ski lift structure. The facility is partially screened by vegetation, and will not substantially impact on the amenity of the areas surrounding the site..

7.17 Submissions Made in Accordance with the Act or Regulations

The DPE may undertake a notification process advising the local community of the

proposed telecommunications facility, and accordingly, submissions may be received in response to the notification..

7.18 The Public Interest

The community would benefit by Optus providing enhanced services to the area. In turn, there is greater opportunity for economic development through increased business activity. Optus consider the subject site to be the most suitable to provide enhanced coverage for the Thredbo Village and ski slopes,, and therefore the public would benefit by the approval of this proposal.

No adverse environmental impacts are expected as a result of the proposal. Appropriate work practices and management measures will be undertaken as specified in this Statement of Environmental Effects. The proposed telecommunications facility is not considered to have any adverse cumulative impact on the environment.