EME and Wildlife

Submissions have raised concerns about potential health impacts, and impacts on the environment, resulting from operation of the facility.

With respect to public health and safety, Optus and Indara reiterate that the proposed facility will operate in compliance with all relevant Australian safety standards. It is the position of the Australian government, and peak health agencies such as the World Health Organisation, that mobile base stations are safe for the public where operating within these safety standards.

The current position of the World Health Organization is that:

> *Studies to date provide no indication that environmental exposure to RF fields, such as from base stations, increases the risk of cancer or any other disease.*
>
> https://www.who.int/news-room/q-a-detail/what-are-the-health-risks-associated-with-mobile-phones-and-their-base-stations).

The Australian government advises the following:

> *No adverse health effects are expected from continuous exposure to the RF EME emitted by the antennas on mobile phone base stations.*
> https://www.arpansa.gov.au/understanding-radiation/radiation-sources/more-radiation-sources/mobile-phone-base-stations
>
> *There is no evidence that telecommunication technologies, such as 5G, cause adverse health impacts. This position is supported by health authorities in Australia – such as the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) – and around the world, such as the World Health Organization.*
>
> *Mobile phone networks and other wireless telecommunications emit low-powered radio waves also known as radiofrequency (RF) electromagnetic energy (EME). This is different to ionising radiation associated with nuclear energy or use in medicine.* ***The radio waves to which the general public is exposed from telecommunications are not hazardous to human health.***
> https://www.health.gov.au/news/safety-of-5g-technology
>
> *What do we know about EME?* ***Answer: extensive scientific research confirms that mobile technology has no long or short term health effects****; and the Australian Government is focused on capturing the benefits of advanced telecommunications while ensuring strict protections and safety standards are met…*
>
> *The EME standard set by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) defines the maximum exposure limit for all wireless equipment and is strictly enforced by the Australian Communications and Media Authority (ACMA). Measurements undertaken by carriers and ACMA show that mobile telecommunication sites emit a tiny fraction of maximum EME exposure limits.* ***The exposure limits are themselves very conservative. As such, sites which operate at 100% of the limit are still considered safe****.*

This standard is informed by decades of quality studies undertaken by expert Australian and international scientists which show the low levels of EME produced by telecommunications equipment have no adverse effects. This includes previous generations of mobile technology, like 3G and 4G, and the higher, more efficient, radio waves used for 5G.
https://www.infrastructure.gov.au/media-centre/5g-and-electromagnetic-energy

With respect to environmental impact, we understand the importance of birds and bees for pollination, and what the consequence of depleted populations of birds and bees would have on our society. However, we are not aware of any credible scientific studies or evidence to indicate that reductions in birds and bees' populations are the result of mobile phone base stations.

With respect to environmental impacts, ARPANSA advises that current safety standards are also sufficient to protect the environment.

The ARPANSA RF Standard is intended for protecting humans against the known harmful effects of exposure to RF EME and does not specifically consider protection of flora and fauna in its underlying principles…However an assessment of existing research indicates that the exposure limits set within the Standard are adequate in providing protection to the environment.
https://www.arpansa.gov.au/regulation-and-licensing/regulatory-publications/radiation-protection-series/codes-and-standards/rpss-1-qa

Alternate location options

Optus constantly monitors its network for usage and performance. Mobile networks have a finite capacity which means the ability to cater for simultaneous phone calls. The more people using mobile phones, the more capacity is required, and this usually means more base stations will be required to provide service to the local community.

Optus carefully examines a range of possible deployment options in their desired location before concluding that a new telecommunication facility is required. In selecting new sites, Optus must also abide by the site selection criteria stipulated in section 4.1 of the *C564:2020 Mobile Phone Base Station Deployment Code*. Section 4.1 identifies a range of factors that need to be balanced in selecting a site, including the availability of land and public utilities; the carrier's reasonable service objectives; the availability of transmission to connect the Mobile Phone Radiocommunications Infrastructure with the rest of the network; and any obligations and opportunities to co-locate facilities.

To be clear, the current proposal involves installation of new panel antennas at a height of over 30m above ground level. This is the minimum height required to achieve a feasible level of service. The proposal also includes a transmission dish mounted at a height of 28m, which will link the site to the next facility in the network. This is the minimum height required for Optus to achieve a feasible transmission link.

As outlined in section 3.2 of the Statement of Environmental Effects, there is an existing 30m Telstra facility (RFNSA 2650011) located on Vincent Road. Whilst this site was assessed, it was discounted for technical reasons – specifically, that Optus were unable to achieve a sufficient height for the new equipment. The only space available on this facility was below 24m; at this height the facility would

not have met Optus' service objectives, and would not have been able to achieve a transmission link to the next site in the network.

We appreciate that a number of possible alternative candidates were suggested by the community members to the original Development Application. In addition to the candidates noted in the application, we have taken consideration of these locations further, but none are feasible. For a site to be viable, it must be capable of achieving the following aspects:

- **Technical performance:** The site must be able to meet Optus' service objectives for the area, achieve a transmission link to the next site in the network, and integrate with Optus' existing network in the area.
- **Tenure:** A willing landowner must be available to accommodate the facility.
- **Environmental Planning:** A site must be suitable from a town planning and environmental perspective – it must be in a suitable position to minimise visual and environmental impacts, and must be capable of achieving town planning approval.
- **Design and Build:** The site must be capable of being accessed and constructed. Geotechnical and terrain conditions must be suitable.

Due to a combination of the above, the location at 13 Sycamore Road, Lake Albert was deemed the only viable candidate.

Visual Impact and photos

Indara and Optus advises that the location of telecommunications facilities in urban and rural communities are now commonplace. Nevertheless, Optus and Indara always seriously consider visual impact when siting and designing telecommunications facilities and ensure compliance with the NSW Telecommunication Facilities Guideline, which requires carriers to co-locate where reasonable. In this instance there are no viable colocation facilities (existing structures etc) within the search area as demonstrated within Section 3.2 site selection process in the Development Application report, therefore necessitating a new facility.

Because telecommunications facilities need to protrude above the surrounding environment to provide service, by their nature they are generally visible within the surrounding landscape. Telecommunications facilities also have a limited coverage footprint, and generally need to be close to the community that they are servicing. It is therefore very rare for a telecommunications facility to be totally hidden or screened from view. Noting that towers cannot be totally hidden, Indara and Optus attempt to minimise the visibility of facilities where possible.

In selecting this location for a new facility at Lake Albert, Indara and Optus needed to consider the coverage requirements and balance these with the historical, commercial, recreational and residential aspects of the area.

This is the second application that has come before Council for a site at 13 Sycamore Road. The original application (DA22/0745) proposed a new facility on the western side of Sycamore Road, with a setback of only 10-15m from the road frontage. Community feedback received during public notification of that DA indicated visual impact was a concern; we acknowledge that there are limited visual screening opportunities in the vicinity of this original location.

Noting community sensitivities with regard to visual impact, we elected to consider relocation of the facility to a more favourable location on the subject property. The current site, in the view of Indara and Optus, is a superior location in terms of reduced visual impact. The new site is set back 100m from Sycamore Road, being much further from passing pedestrian and vehicular traffic. Mature trees in the vicinity of the new site will provide partial screening from surrounding areas, especially of the lower portion of the pole. Furthermore, the proposal includes landscaping around the compound perimeter to screen the compound and associated ground equipment. We consider that the revised location substantially mitigates the proposed facility's visual impact, presents a superior option to the original site, and responds well to community concerns raised during the original application.

We take issue with accusations of misleading visual material being provided. The photographs used for photomontages are genuine images from various viewpoints along surrounding streets, providing a comprehensive representation of the proposed facility. These real photos were chosen to accurately capture the existing environment, and provide a realistic portrayal of how the facility will fit into the landscape. This ensures transparency and authenticity in the representation of the project's potential impact on the area.

Whilst we acknowledge the facility will protrude above the surrounding area, the height of the monopole is a technical requirement and therefore a necessity. Mobile base station antennas require clear line of sight to operate effectively. It is therefore inevitable that any mobile base station will penetrate, to some degree, above the surrounding environment. We note that the proposal is at its *minimum* height to achieve Optus' service objectives for the area – at a lower height, the facility would not be feasible. Given the new location moves the facility a considerable distance off Sycamore Road, into a more visually sympathetic location, we consider we have minimised visual impact significantly compared with the original proposal.

We also note that it is a well established principle that visibility does not automatically equate to visual impact. That the facility will be partially visible from some perspectives is not in dispute – however we consider that we have minimised the impact of the facility as far as practicable, and the current design represents a suitable balance between service provision and local amenity.

References to Voyager Point

We appreciate the feedback regarding the typo identified in the development application report. Administrative errors can occur in documentation, but they do not reflect the professionalism or integrity of an organization. Rest assured, we have taken immediate steps to rectify the error and ensure accurate documentation moving forward.

The development application has been updated earlier with the typo fixed and provided to Council for review. We remain committed to transparency, accuracy, and upholding the highest standards throughout the development process.

Property Value & Impact on Future Residential Subdivision

The issue of property value is extremely complex and subjective. Property value is not a town planning consideration and is not a matter upon which Council can decide a development application.

Whilst property values are not a town planning consideration, amenity is a relevant consideration. We consider that the revised location of the proposal significantly reduces amenity impacts for local residents, and the facility acceptably balances amenity impacts against public benefit.

Sensitive Uses (School bus stop)

We recognise the sensitivity associated with proposals near residential areas and sensitive uses, such as schools and childcare centres, and we try hard to strike a balance between providing services and minimising our impact on the community and the local environment. The likelihood of an area being sensitive, and the ability to avoid sensitive areas where possible, are factors that we need to consider when selecting a site under section 4.1 of the *C564:2020 Mobile Phone Base Station Deployment Code*.

We note, however, that there is *no* safety requirement for a buffer zone between mobile base stations and community sensitive locations. Providing the facility complies with the Australian Standard, it is safe for the public in all areas around the site. EME levels from this site have been calculated to represent a maximum of **1.46%** of the allowable levels – where a facility operating at up to 100% is considered safe by the federal government.

R5 Zoning (Telecommunications a Prohibited Use)

The subject lot is zoned R5 Large Lot Residential in accordance with the *Wagga Wagga Local Environmental Plan 2010*. Telecommunications uses are not listed as a 'permitted' use within this zone.

Permissibility of this site is not established by the *Wagga Wagga LEP 2010*, but rather by the NSW *SEPP (Transport and Infrastructure) 2021*. Recognising the importance of telecommunications infrastructure in all zones, section 2.143 of the SEPP permits the installation of telecommunications facilities on any land.

The proposal has nonetheless been assessed against the relevant LEP objectives for the R5 zone and is considered to be broadly consistent. Whilst not a residential use, the facility will provide an important utility service to established and new residences in the area. The proposal, especially in its revised location, can deliver service whilst minimising impacts to environmentally sensitive locations or scenic quality. The facility will not conflict with the lot's current use as a plant nursery business. In a residential setting, reliable mobile connectivity has strong social and economic benefits, and especially benefits public safety.

Coverage

The purpose of the proposed telecommunications facility is to improve Optus mobile network coverage in Lake Albert and the surrounding area, and forms part of wider mobile network improvements currently taking place across Wagga Wagga.

Optus has identified that a new site is needed in Lake Albert, and are working with Indara to deploy the new facility. Because new base stations represent a considerable capital investment, they are not deployed unless there is a genuine need.

Mobile telephone base stations operate at extremely low power levels, so they need to be in or near the area they are designated to provide coverage to. There are currently no mobile base stations specifically servicing Lake Albert on the Optus network; the closest Optus facilities are located at Wagga Wagga Country Club, 2.8km southwest (RFNSA 2650021), Willans Hill Water Tower, 3.3km northwest (RFNSA 2650008) and the Sturt Highway, Gumly Gumly, 4.5km northeast (RFNSA 2652022).

Mobile base stations have a finite coverage footprint. The existing base station sites around Lake Albert are too far away to provide the area with reliable service – whilst Lake Albert gets its current Optus service from these facilities, Lake Albert is at the edge of the service footprint of these sites and mobile services will be unreliable. Network users may experience call dropouts or an inability to make a call – especially indoors – or slow data speeds or an inability to reliably access mobile internet.

It should also be noted that Lake Albert is seeing increased residential development and population growth; with services already being unreliable, increased development in the area will only exacerbate these shortcomings with service.

This proposal will ensure that Lake Albert residences have access to reliable, high quality mobile service, including fast data download speeds. The facility will also help to improve the performance of the existing Optus sites above by relieving network traffic from these sites, improving mobile network capacity.

Optus acknowledges that some members of the community have a perception that the further the base station is away from people, the less they would be exposed to radio wave emissions it uses to communicate. In fact, once a call is connected both mobile phones and their base stations are designed to operate at the lowest levels possible to make a call. Base stations are constantly adapting their output levels, depending on the number of calls they are handling and how far away the handsets are from them.

The further a base station is from a mobile handset, the harder a handset will need to work to communicate with the base station. This can mean higher levels of EME exposure from a mobile handset. Whilst counterintuitive, exposure to EME from a mobile handset is reduced by having a mobile base station in close proximity to the user. The best location to build a base station in order to minimize emissions is closest to where those services are required. Base stations are able to operate the most effectively in the area in which they are intended to provide coverage.

Flooding and Visual Impact of Raised Equipment

The site is subject to flooding based on the Council provided flood details.

Optus accepts the Defined Flood Level (DFL) based on annual probability of exceedance of 1:100 plus freeboard as determined by the appropriate authorities. Optus and Indara design standards require that a facility be designed with all critical service items (Outdoor Cabinets) to be located above AEP 1% event (with 200mm freeboard as minimum). Based on the flood plan in 1% AEP Event according to the Wagga Wagga Major Overland Flow Floodplain Risk Management Study And Plan, the peak flood depth at the subject location is 0.3-0.5m.

In this instance, Optus and Indara have opted to adopt an additional clearance of 500mm freeboard above the AEP 1% flood level to further proof the facility. The height of the proposed platform will be at 1m above the ground to ensure that equipment is above the 0.3-0.5m Peak Flood Depth in 1% AEP event with the additional 500mm freeboard (in accordance with the DCP).

Mobile base stations operate on a continuously unmanned basis, and require infrequent maintenance (generally two to four visits each year). Accordingly, the unmanned facility does not result in an increase of people in presence using the site therefore it does not increase the flood risk to life from such use. The proposed compound encompasses a small footprint of only 8m x 10m, it is considered that the facility does not increase the flood risk to the adjoining lands and the surrounding area.

It is acknowledged that this change in design will result in an increased visual impact on the local area. However the raised platform at this level is not considered to significantly increase visual impact as the proposed landscaping along the western side of the security fence will provide a degree of visual screening viewing from the west. The equipment cabinet will not be visible from surrounding land uses due to its location being surrounded by mature vegetation to the northwest, south and southeast. Furthermore, existing vegetation within the adjoining lots will provide some screening to the facility when viewed from areas to the north, northwest, east and southeast of the proposed location.

Noise

The equipment shelter will emit only minimal noise from the air conditioning units, which will enable the equipment to stay within normal operating temperatures. The operation of the air conditioning units produces noise comparable to a domestic air conditioner; it will not result in any unacceptable adverse noise impacts to the nearest sensitive noise receptors given the isolated location of the proposed equipment shelter in the context of the area.

During construction, there will be some minor excavation works which may introduce noise and vibration for a temporary period.

Access

The site is easily accessible from existing access routes and no additional access is required. The current plan utilizes the existing access from Sycamore through the existing main entrance (approx. 3m wide) and then existing access route to the proposed site within the property. However should the site conditions during construction necessitate upgrades of the access route, it will be our responsibility and at our cost. Rest assured, any such adjustments will be made without impacting other land.

Financial Benefits

While we understand the concern raised, our primary focus for the proposed facility is to provide added coverage and capacity the network to ensure the local community can continue to rely on the network for mobile telephone, internet, emergency calls and alerts, and so on. The proposal will have a wider community benefit. Our aim is to serve the broader community by addressing the need for better mobile coverage.

Power

The power design details were not specified in the report as they were not confirmed at the time of Development Application (DA) submission. Currently, the assessment and approval process from the power authority is still underway.

As advised by the power authority recently, augmentation is required to increase the network capacity of the existing power pole located at the southern end of the property boundary, to cater the proposed facility in the compound.

Importantly, these upgrades will not impact the power supply for residence of 13 Sycamore Road and any other neighbouring properties. In fact, it may benefit residents in the vicinity by increasing the overall capacity, thus enhancing reliability and potentially accommodating future needs.