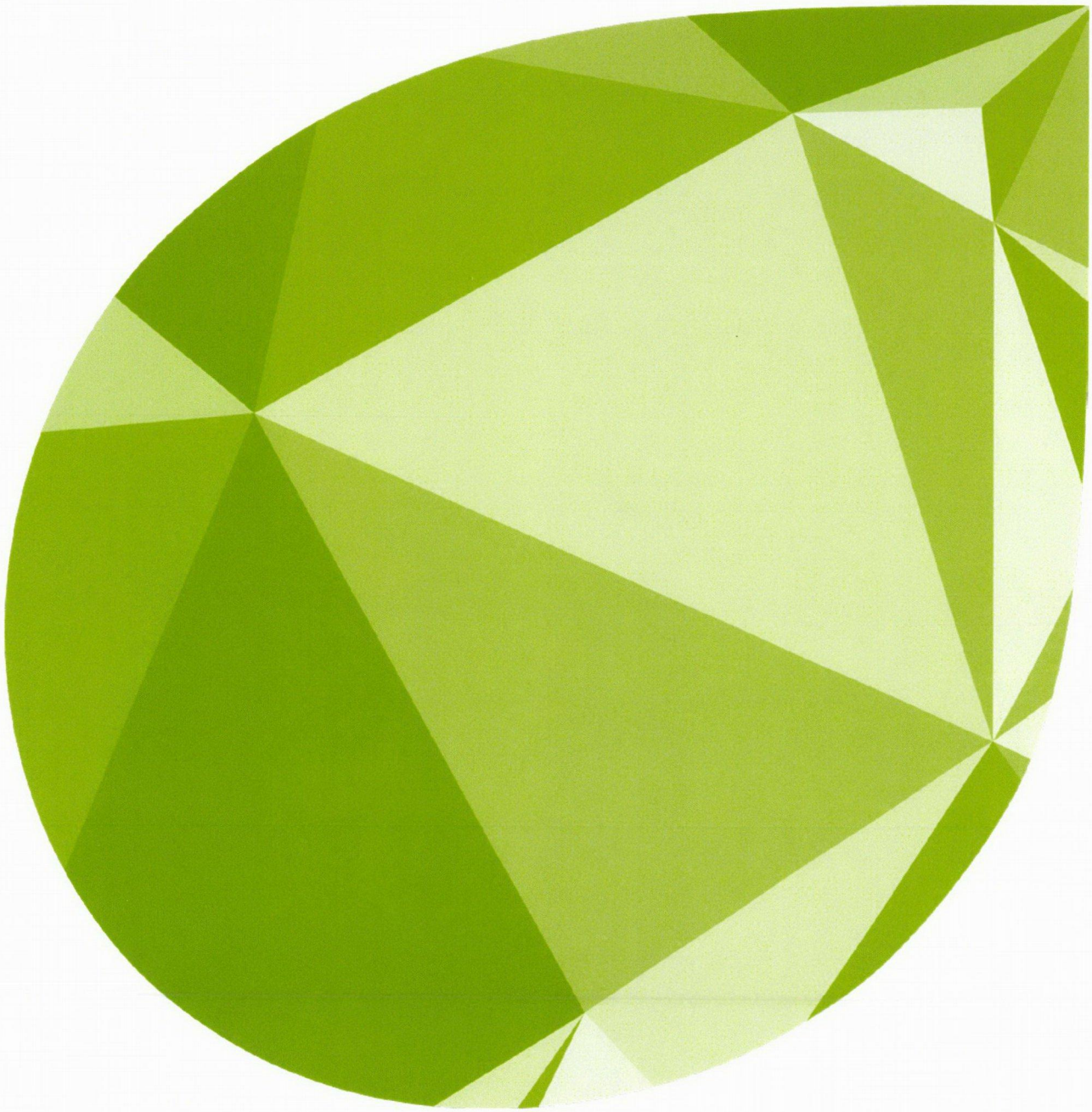

aurecon

Two Rocks Exchange

Development Application

Telstra

12 July 2017
Revision: 2
Reference: 205428

Bringing ideas to life

Contents

Appendices

1 Overview

Aurecon act on behalf of our client Telstra. We have been instructed by our Client to prepare and lodge a Development Application to the City of Wanneroo (City) seeking approval for a permanent solution to provide continuing mobile telecommunications from the Two Rocks exchange site. The permanent solution will consolidate existing onsite small cell and offsite transmission equipment on a new monopole whilst taking advantage of the ability to accommodate ground level infrastructure within the exchange building itself.

Telstra has recently installed small cell technology as a 'stop-gap' solution to provide limited 4G mobile phone and data services from the exchange. The City acknowledged this installation as being low-impact and did not provide further comment to the carrier-led consultation. No other submissions were received from the public. Small cell technology is designed to provide enhanced services to a very localised area and is typically only installed in high-useage areas such as the Perth CBD. This installation will be decommissioned upon a permanent solution being delivered. Telstra also has equipment on a Department of Transport navigation beacon located off Sovereign Drive within a Bush Forever Reservation (BF397). This facility is significantly constrained by a lack of formed access. So as to not disturb habitat maintenance is currently conducted through the use of a helicopter. Structurally the facility is at capacity and is unable to be upgraded This mobile telecommunications facility at the Department of Transport navigation beacon is also proposed to be decommissioned upon a permanent solution being delivered.

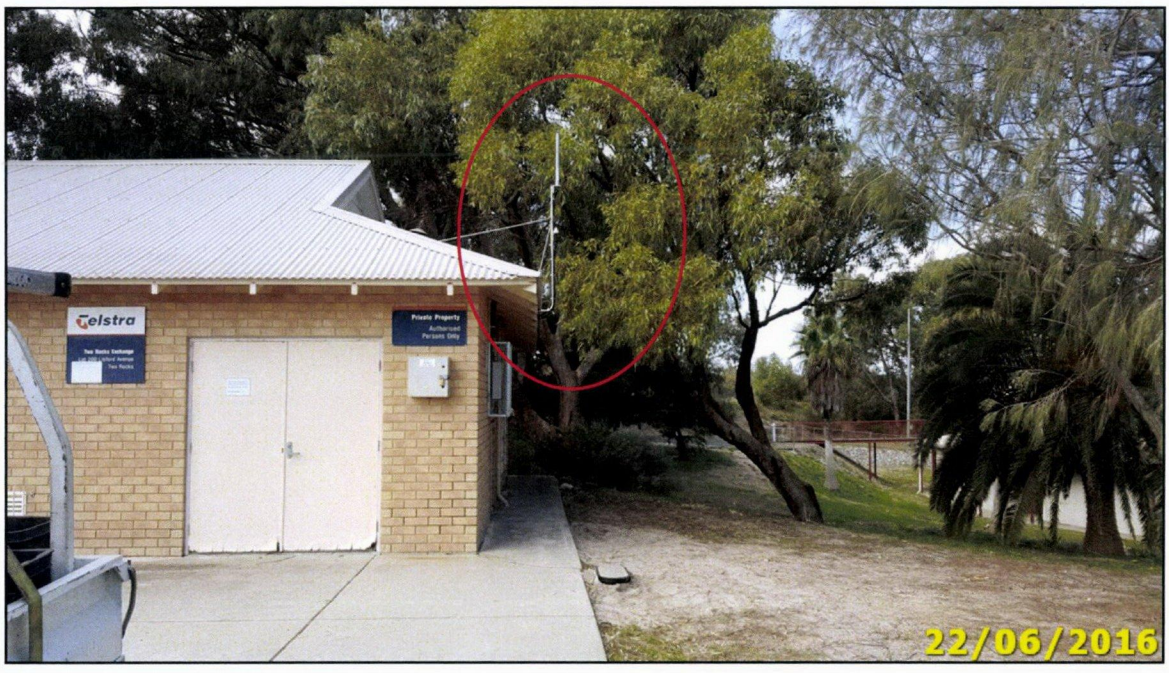

Figure 1 The small cell technology at the exchange

Figure 2 The mobile telecommunications facility at the Department of Transport navigation beacon to be decommissioned

It is clear from community feedback received and technical data that there is an immediate need to improve telecommunication services in the Two Rocks area and to ensure the adjoining 423 hectares subject to the Two Rocks Local Structure Plan is adequately serviced. We will seek to demonstrate that there is a genuine need to improve telecommunication services in the Two Rocks area, that Telstra has undergone a rigorous site selection process, that consolidation of telecommunications infrastructure best satisfies the planning framework, and that all reasonable steps have been employed to ensure the development is consistent with the principles of sustainability and, on balance should be supported.

1.1 Preliminary Consultation

In order to prepare this submission Aurecon has been involved in the site scoping and selection process and has undertaken preliminary consultation with the City both at the time of assessing candidate sites and prior to lodgement of this development application. In response to the pre-lodgement meeting Aurecon have prepared photo montages from agreed vantage points so as to confirm the visual impact will be acceptable and not outweigh the community benefit the technology will deliver.

> *The emergence of smartphone technologies is driving an exponential increase in demand for data services. It is predicted that by 2020 Australia will have almost 20 million mobile broadband subscriptions on handsets together with another 6.3 million*

data cards. Australia cannot sustain strong economic growth unless it lifts its productive capacity and it cannot sustain ongoing improvements in living standards unless productivity growth improves. One of the key enablers of productivity is mobile telecommunications.
Althaus, Chris 2012 Telecommunications Journal of Australia

1.2 Balancing Visual Impacts Against Community Benefit

We understand that the coastline is a regionally important landscape feature and are highly valued assets for which developers must approach cautiously. We have recognised the need to ensure any design response is, as far as practical, sympathetic to its natural setting. We also recognise that the state planning policy stipulates that any visual impact needs to be weighed against the overall benefit that the provision of effective communications systems brings to a community and its visitors. On this basis we have sought a single site solution at the exchange in lieu of other potential options closer to the coastline. A slim-line monopole structure at the least elevation necessary to satisfy the coverage objective utilising the exchange to house transmission equipment is deemed the least visually impactful solution to adequately service this growing community.

The State Administrative Tribunal (SAT) has ruled that height is an integral part of a mobile phone base station.

"While it is true that the tower will be higher than any other point in the immediate vicinity of the subject land, such height is an integral part of the successful functioning of the infrastructure, a matter recognised by SPP 5.2, cl 2.3 ('mounted clear of surrounding obstructions')."
Optus Mobile v City of Stirling [2008] WASAT 238 [59]

"The planning framework does not require the tower to be invisible."
Telstra Corporation v Shire of Waroona [2012] WASAT 179

Further to height being essential it is important to recognise that state and local planning policy encourages colocation to minimise the number of base stations. Colocation dictates that lower mounting elevations also achieve coverage objectives for secondary carriers. Whilst our proposed monopole is structurally able to accommodate additional infrastructure and; therefore, colocation opportunities in some locations a greater number of smaller structures may well be preferred to fewer more visually prominent structures. This consideration played a part in our assessment of potentially swapping out an existing rooftop facility at 10 Enterprise Avenue with a bulkier and taller re-engineered structure capable of supporting a third carrier and their technologies. An overview of the site scoping and selection process and rationale for the proposed monopole structure is provided within the body of this submission.

1.3 Regulatory Compliance

The proposed installation will comply with the Australian Communications and Media Authority (ACMA) regulatory arrangements with respect to electromagnetic radiation (EMR) exposure levels. EMR Exposure Levels from this site have been calculated in accordance with the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) prediction methodology and report format and will not exceed 0.98% of the permissible level.

The State Telecommunications Planning Policy is consistent with recent planning tribunal rulings that *issues relating to EMR levels are not deemed to be valid planning considerations* and states:

> *"Standards set by ARPANSA incorporate substantial safety margins to address human health and safety matters; therefore, it is not within the scope of this Policy to address health and safety matters. Based on ARPANSA's findings, setback distances for telecommunications infrastructure are not to be set out in local planning schemes or local planning policies to address health or safety standards for human exposure to electromagnetic emissions."*
> State Planning Policy 5.2 (August, 2015)

We have designed a monopole structure which seamlessly incorporates an antenna pod which is considered the least impactful structure in urban environments whilst allowing for the co-location of emergency services organisations and other carriers consistent with the Guidelines for the Location, Siting and Design of Telecommunication Infrastructure (WAPC, 2004).

> *"Telecommunications facilities should be located and designed to meet the communication needs of the community."*

> *"Co-location of telecommunications facilities should generally be sought, unless such an arrangement would detract from local amenities or where operation of the facilities would be significantly compromised as a result."*

> *"Reduce the visual bulk on the entire structure. Lattice web towers are usually less obtrusive than solid towers."*
> Visual Landscape Planning in Western Australia p. 139

1.4 Need for the Facility

We will seek to demonstrate that there is a genuine need to improve telecommunication services in the Two Rocks area, that Telstra has undergone a rigorous site selection process, that the chosen exchange site best satisfies the planning framework, and that all reasonable steps have been employed so as to ensure the development is consistent with the principles of sustainability and, on balance should be supported.

1.5 Payment of Application Fee

Payment of the application fee of $640 being 0.32% of the estimated $200,000 (ex. GST) cost of development is proposed to be made by credit card. Credit card details have been provided on the Application for Approval to Commence Development form.

2 Coverage Objective

Mobile services consist of Voice as well as high speed Wireless Internet or Mobile Broadband service. While the voice service growth in Perth's northwest corridor is experiencing high growth, the demand for mobile broadband is increasing exponentially. This site will enhance Telstra's WCDMA850 3G, LTE700 4G, LTE1800 4G and LTE2600 4G wireless network depth of coverage in the area of Two Rocks. The facility will provide 3 and 4 G service availability and high call quality in the vicinity of the proposed site location. Reliable 3 and 4 G coverage shall be provided to present users in this area currently experiencing poor signal level on handset devices, particularly inside buildings. Coverage will also be available to new residents as construction continues to the east.

The commissioning of this site is a high priority for Telstra due to the imminent need to provide wireless broadband access to future residents and businesses for which nearby base stations will not be able to service due to capacity constraints. We are also experiencing some delay in obtaining approval for a new facility to service the northern Yanchep area whilst access arrangements are formalised.

The further a base station is from the customers, the weaker the mobile signal is and the slower the data rate of transfer. The weaker signal level also has difficulty penetrating buildings and therefore has detrimental effect on in-building coverage. Surrounding obstructions and topography also has an impact on the signal strength. The best location to build base stations is closest to where these mobile services are required. The further a base station is from its technically optimal position more base stations are required or else there will be coverage gaps.

3 Site Details and Surrounding Land Use

- The legal description of the subject land is 61 Lisford Avenue, Two Rocks being Lot 1 on Diagram 80150 (volume 1921 folio 332)
- The land is owned by Telstra Limited.
- The land is zoned Urban Development.
- The exchange has been in operation since 1992.
- The exchange site is fully developed and contains no remnant vegetation.
- Parabolic dunes abuts the exchange to the east that are steep-sided and contain open low health of Melaleuca, Acacia, Beyaria and Calothamnus species.
- The nearest residence is located on Residential zoned land 211m to the southeast.
- The nearest intersection of Lisford Avenue and Sovereign Drive is located 131m to the north.
- Ground level infrastructure is limited to the monopole itself with transmission equipment being located within the exchange building and linked via below-ground cabling.
- The monopole is obscured from most vantage points due to a combination of terrain, vegetation, existing structures and the non-linear road pattern. A detailed visual landscape assessment has been prepared to support this application.

3.1 Site Context

Figure 3 Immediate Context (source Google Earth) – We cannot use a Google Earth image please replace

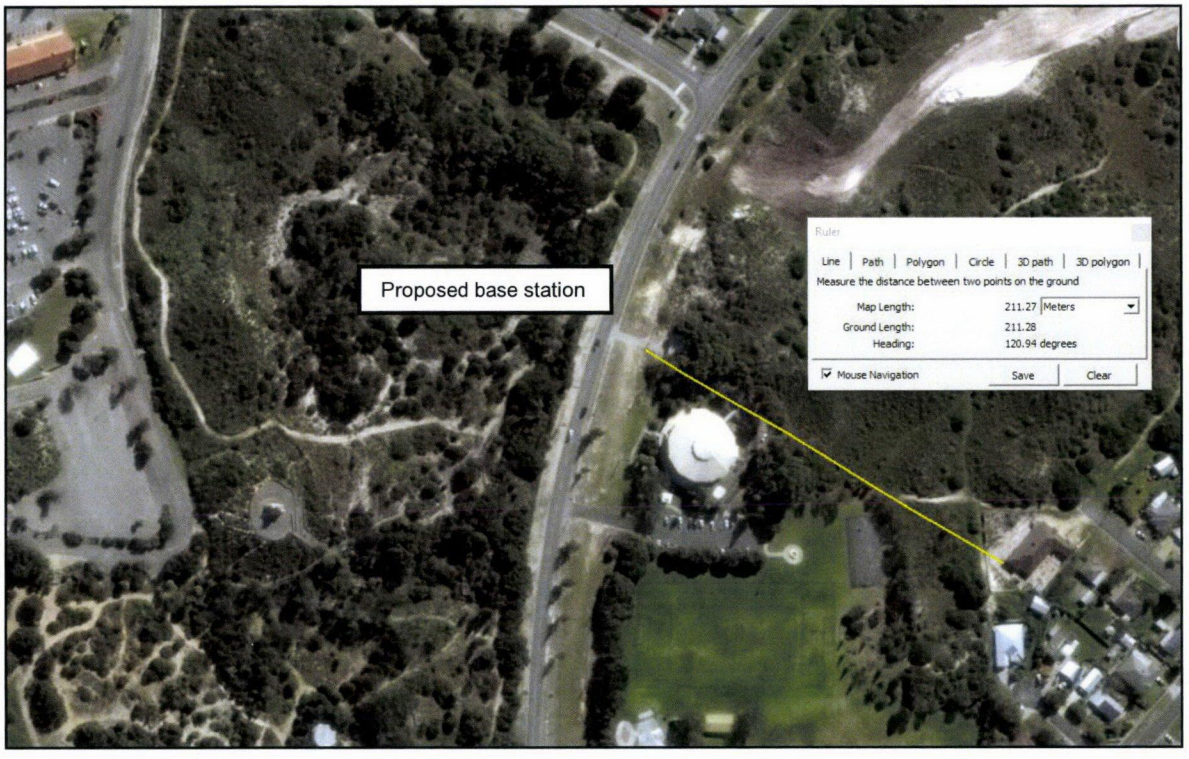

Figure 4 Local Context (source Google Earth) – We cannot use a Google Earth image please replace

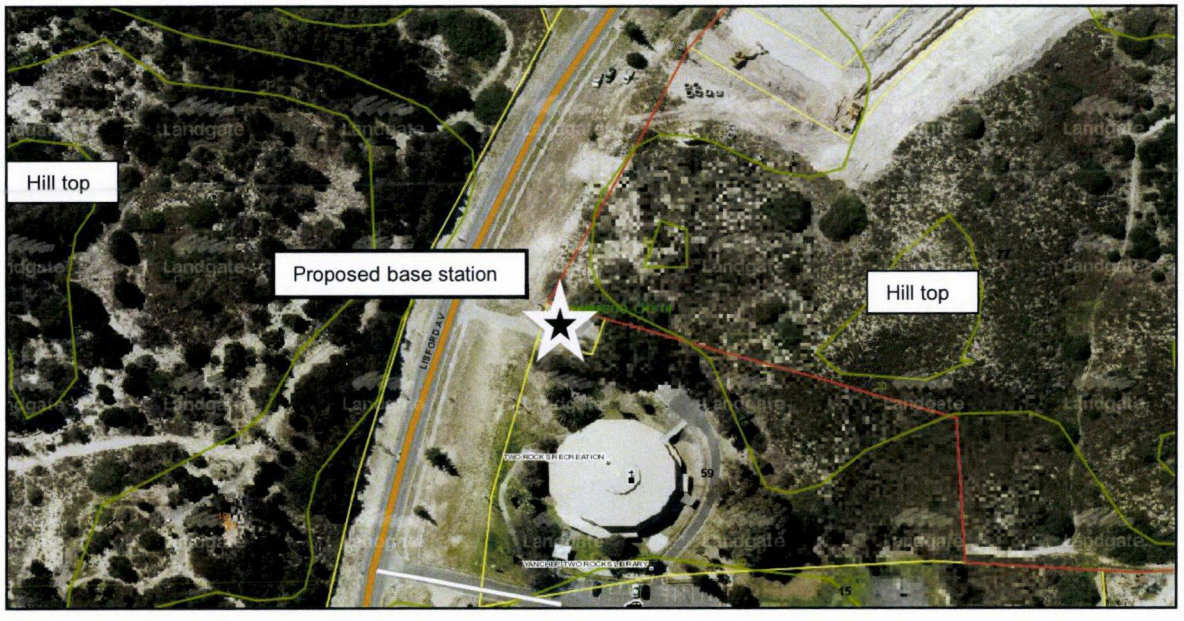

Figure 5 Broader Context identifying the undulating nature of the area and high point east of the exchange that must be overcome to achieve coverage objectives to future estates (source Landgate)

4 Proposal Details

The proposed telecommunications facility will comprise the following:

- 23.8m slim-line monopole with remote radio units and antenna pod mounted directly above.
- Three RV4PX310B1 panel antennas at the 27.6m level with three TMA20194F01V1-1 tower mounted amplifiers mounted between and six remote radio units at the 24.8m and 25.7m levels.
- Ancillary equipment necessary for the operation and proper functioning of the facility (feeders run internally of the monopole, GPS antenna)
- Ancillary equipment installed to ensure the protection or safety of the facility and maintenance personnel (bollards, cable tray).
- Ancillary works (extension to the concrete hard-standing area, new weather-proof external door to the exchange building).

The monopole design minimises the visual impact and can accommodate panel, remote radio units and tower mounted amplifiers. An antenna pod has been utilised in lieu of a headframe and ancillary equipment located within an enclosure between the pole and antennas to ensure a *slim-line* outcome and not draw attention to the top of the pole.

The selected location ensures that the infrastructure is consolidated with the exchange building and the visual impact is reduced as far as practical by maximising the separation distance from Lisford Avenue. By maximising connectivity to the exchange building the length of the cable tray is able to be reduced and need for supporting poles negated.

Telstra vehicular access typically by standard 'B99' vehicles will be infrequent (2-6 times per year) from Lisford Avenue via an existing concrete crossover and driveway. The concrete hard-standing area will be extended to ensure vehicles can continue to enter and exit the exchange in forward gear. This is an exchange it will be accessed more then 2-6 times a year

No external flood lighting or navigation lighting is proposed. There is no legislative requirement for obstacles located away from aerodromes to be fitted with navigation lighting. The height above ground level for which structures must be reported to the Civil Aviation Safety Authority and may be fitted with lighting is 110m.

4.1 Environmental Commitment

Telstra is committed to delivering continuous improvements in their environmental performance. A copy of Telstra's Environmental Policy is available at http://www.telstra.com.au Telstra's contractors are required to operate in accordance with the environmental standards and controls contained within the *Telstra Environmental Handbook*. The Handbook outline's Telstra's minimum environment management standards pertaining to water, air, flora, fauna, energy, noise, water, other natural resources, heritage and their interrelation. Contractors are also required to fulfil their contract requirements which include having in place and complying with an environmental management system that is consistent with Australian Standards ISO 14001:2004.

The proposed facility will comply with the Australian Communications and Media Authority regulatory arrangements with respect to electromagnetic radiation (EMR) exposure levels. The

State Administrative Tribunal orders and many local planning policies pertaining to telecommunications infrastructure acknowledge that health is not a planning considering given the licensing requirements have due regard to public health.

4.2 Construction and Noise

Noise and vibration emissions associated with the proposed facility are expected to be limited to a ten (10) week construction and commissioning phase. Noise generated during the construction phase is anticipated to be of short duration and accord with the standards outlined in the Department of Environment Regulation (DER) *Environmental Protection (Noise) Regulations 1997*. Construction works are planned only to occur between the hours of 7.00am and 6.00pm.

No additional air conditioning units have been proposed for the exchange. The monopole will not generate any noise through signal transmission, or from wind given there are no guyed wires or other protruding parts.

5 Site Selection Process

5.1 Precautionary Approach

Telstra has applied the Precautionary Approach in the selection and design of the proposed site in accordance with Sections 4.1 and 4.2 of the *Communications Alliance Industry Code C564:2011 for Mobile Phone Base Station Deployment*.

In selecting this site, Telstra has used industry best practice to assess potential candidate sites, taking into account technical and non-technical criteria including:

- service objectives;
- potential to co-locate at an existing telecommunications facility or building structure;
- visual impact on the surrounding area;
- the need to obtain relevant town planning approvals;
- the proximity to community-sensitive locations;
- the proximity to areas of environmental heritage or significance;
- the availability of secure tenure;
- the availability of public utilities, such as power;
- minimisation of electromagnetic radiation exposure to the public; and
- other cost factors.

5.2 Existing Facilities

Upgrading existing facilities or colocation is encouraged by contemporary planning policy and the *Industry Code C564:2011 for mobile phone base station deployment*. Upgrading or colocation is always Telstra's preferred option given it, as well as being the cheapest and most expedient option. In fringe growth areas or locations experiencing infill development often a new facility is required to supplement the network and alleviate existing facilities at peak capacity. The feasibility of establishing a new 'low-impact' facility on an existing building or structure is always explored as part of a scoping exercise. Again, this approach is also encouraged by policy and is often the most expedient and cost-effective option. The nearest existing facilities and their distance from the proposed site are as follows:

- Axicom rooftop installation accommodating Vodafone/Optus at 10 Enterprise Avenue, 364m to the west.
- Department of Transport navigation beacon accommodating Telstra at Sovereign Drive, 947m to the northwest.
- Telstra 45m lattice tower accommodating Telstra/Optus/Vodafone at 710 Shearwater Avenue 2.23km to the northeast.
- Telstra 35m monopole (proposed not yet built) at lot 307 Shearwater Drive, 5.37km to the southeast.

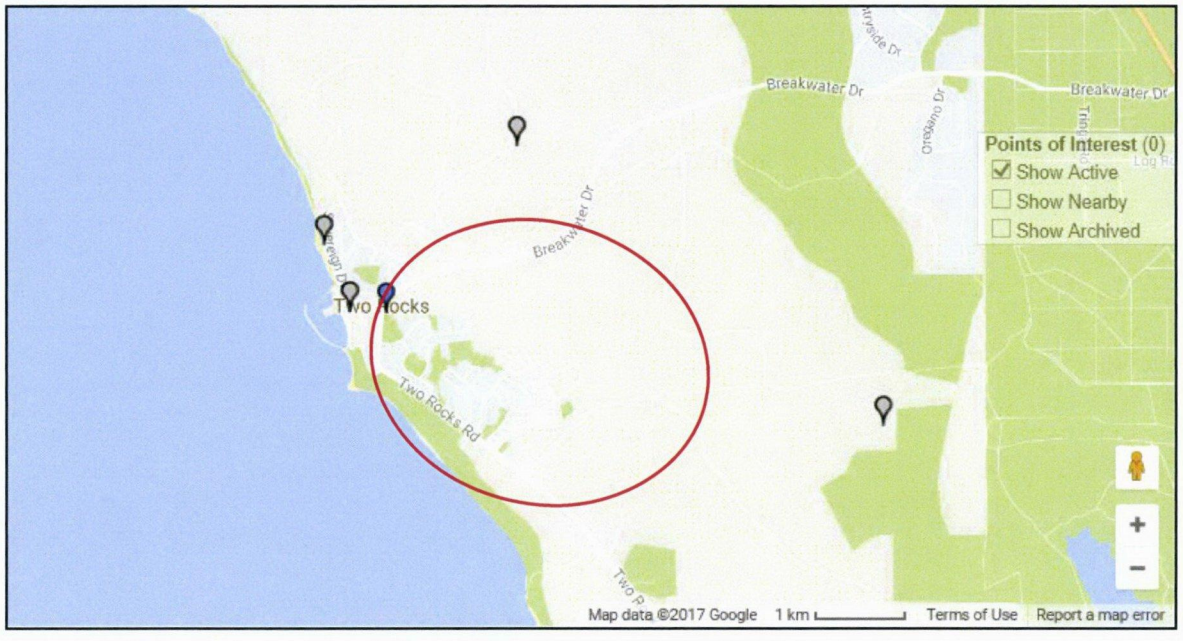

Figure 6 Existing facilities in the area and targeted area (source www.rfnsa.com.au)

Further upgrades or establishment of the above sites was determined to not achieve the desired coverage objectives, particularly for locations east of Lisford Avenue and south of Breakwater Drive. Furthermore, access to the Department of Transport facility is non-existent and structurally the facility is at capacity and is unable to be upgraded This mobile telecommunications facility at the Department of Transport navigation it is planned to be decommissioned as part of this permanent solution that also achieves the objective of colocation.

5.3 Candidate Sites

Seven (7) candidate sites were identified as being potentially feasible. Of the five (5) short-listed candidate sites for which landowners expressed interest candidate E (tavern at the rocks) was eliminated for not meeting coverage objectives. Four (4) remaining candidates were then assessed in detail across four technical disciplines. These technical disciplines for which candidates must individually meet minimum threshold scores are:

Technical Discipline	Primary Consideration
Property	the ability to secure land tenure, and the timing and terms of any subsequent agreement
Design and Construction	construction costs, ease of access for construction and maintenance activities, the availability of power, and access to the fibre network
Town Planning and Environment	social, environmental and heritage considerations, and the ability and timing to obtain regulatory approvals
Radio Frequency (RF) Design	the ability to meet coverage objectives and the overall business case

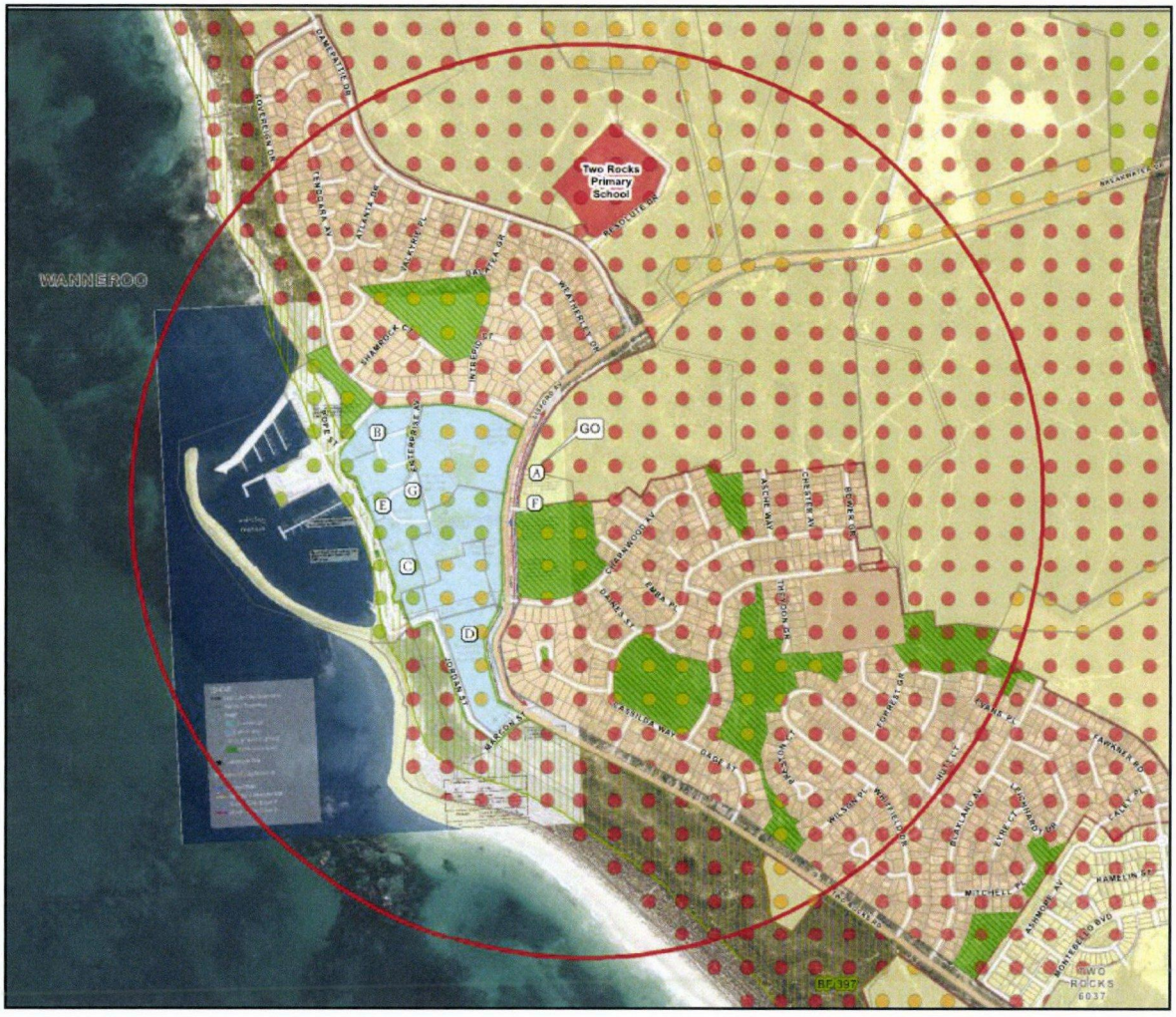

Figure 7 Planning and property constraints mapping produced in the early stages of site scoping to inform the candidate identification process (primary search area denoted by the red ring)

The Phil Renkin Recreation Centre adjacent to the exchange was eliminated at the detailed assessment stage for not meeting the minimum town planning and environment criteria and a lack of confidence to secure a long-term lease.

The remaining two (2) short-list candidate sites that met the minimum threshold scores across all disciplines but were not preferred to the exchange were:

Candidate/Address	Reason for Not Pursuing
Candidate B new monopole – Post Office 8 Enterprise Drive	Likely community opposition from residents to the north. Potential visual landscape impact due to proximity to the coast. Coverage objectives scored the second lowest of the four candidates assessed in detail.
Candidate C swap out of existing rooftop structure – Axicom facility 10 Enterprise Avenue	Lack of certainty whether a lease agreement would meet Telstra guidelines and could be reached with landowner for ground level shelter.

	Coverage objectives barely met the minimum threshold and scored the lowest of the four candidates assessed in detail.

Notwithstanding the proximity to the community centre the proposed exchange site, on balance, has the least known constraints and perceived impacts compared to other potential sites where landowner interest was expressed.

6 Heritage and Environmental Significance

A search of the State Heritage Office Places Database, Department of Environmental Regulation (DER) and the *Environmental Protection and Biodiversity Conservation Act* databases of significant locations demonstrates that there are no significant environmental or heritage constraints on the proposed site.

A search of the Department of Aboriginal Affairs heritage database has not identified any Registered Aboriginal heritage sites in the area. Telstra's contractors are experienced with ensuring compliance with the requirements of the *Aboriginal Heritage Act 1972* and Section 1.8 of *Telstra's Environmental Handbook – Cultural Heritage (Historic and Aboriginal).*

The site has been disturbed and no further vegetation removal is proposed thus heritage and flora and fauna surveys have not been independently undertaken by Telstra.

The site is not located within an acid sulphate site risk area, nor is it identified on the DER contaminated sites database. Given the lack of environmental impediments, the significant separation distance to dwellings, the compact building envelope and minimal earthworks a site-specific construction environmental management plan has not been prepared. Sections 9 and 11 of *Telstra's Environmental Handbook – Soil / Erosion and Sediment Control* provide sufficient controls to minimise environmental impacts and nuisance.

An environmental constraints mapping exercise was undertaken that captured areas of heritage, environmental and community significance **(refer Appendix E)**.

Figure 8 Constraints map identifying the location of bush forever reservations and Two Rocks Primary School

6.1 Bushfire Risk

"The Bush Fire Prone Areas 2016 dataset identifies bush fire prone areas of Western Australia as designated by the Fire and Emergency Services (FES) Commissioner on 21 May 2016. Bush fire prone areas are subject to, or likely to be subject to, bush fire attack. A bushfire prone area is identified by the presence of and proximity to bush fire prone vegetation, and includes both the area containing the bush fire prone vegetation and a 100-metre buffer zone immediately surrounding it. Where a bush fire prone area cuts across a portion of a parcel of land, the entire parcel is considered bush fire prone."

6.1.1 Justification for Waving the Requirement for a BAL and Fire Management Plan

The proposed development is classified under the Building Code of Australia as Class 10b (non-habitable structures). As such firebreaks are not required, nor will the development result in any additional fire load or risk to occupants. In response to minimise any visual impact through a slimline design the antennas, ancillary equipment and feeder cables are concealed within a shroud and; therefore, further protected from bushfire risk.

We have been advised by the Western Australian Planning Commission that it is was not the intent of *State Planning Policy 3.7 Planning in Bushfire Prone Areas* for Class 10 (Telecommunications Infrastructure) to require a BAL Bushfire Hazard Assessment in fire prone areas. The Department of Planning Policy and Priority Initiatives section have recently circulated to Aurecon and the carriers a draft Telecommunications Towers in Bushfire Prone Areas factsheet for comment that will further clarify the application of SPP3.7 for this type of infrastructure. On the basis of applying the *precautionary principle* that assumes the most extreme Fire Zone (FZ) classification exists, a deemed-to-comply provision will be introduced to negate the need for a BAL or Fire Management Plan. Demonstration of a ten (10) metre Asset Protection Zone (APZ) will satisfy this deemed-to-comply provision.

Figure 9 The predominantly cleared ten (10) metre APZ

We submit that the small number of scattered trees within this APZ between the exchange building and the Phil Renkin Recreation Centre constitute a low hazard and need not be removed. Our justification for their retention includes:

- The four (4) trees are not substantive in terms of biomass and are relatively isolated between two buildings;
- The ground around these trees is relatively flat and regularly slashed by the City and Telstra contractors;

- Vegetation adjacent and to the south of the APZ include palm trees (exotics) that are less combustible than eucalypt species or native shrubs or grass;
- The monopole is further shielded from the denser vegetation to the east and northeast by the exchange building itself; and
- The areas of remnant vegetation either side of Lisford Avenue in close proximity to the exchange are subject to Structure Plans forecasting intensive residential or mixed use development.

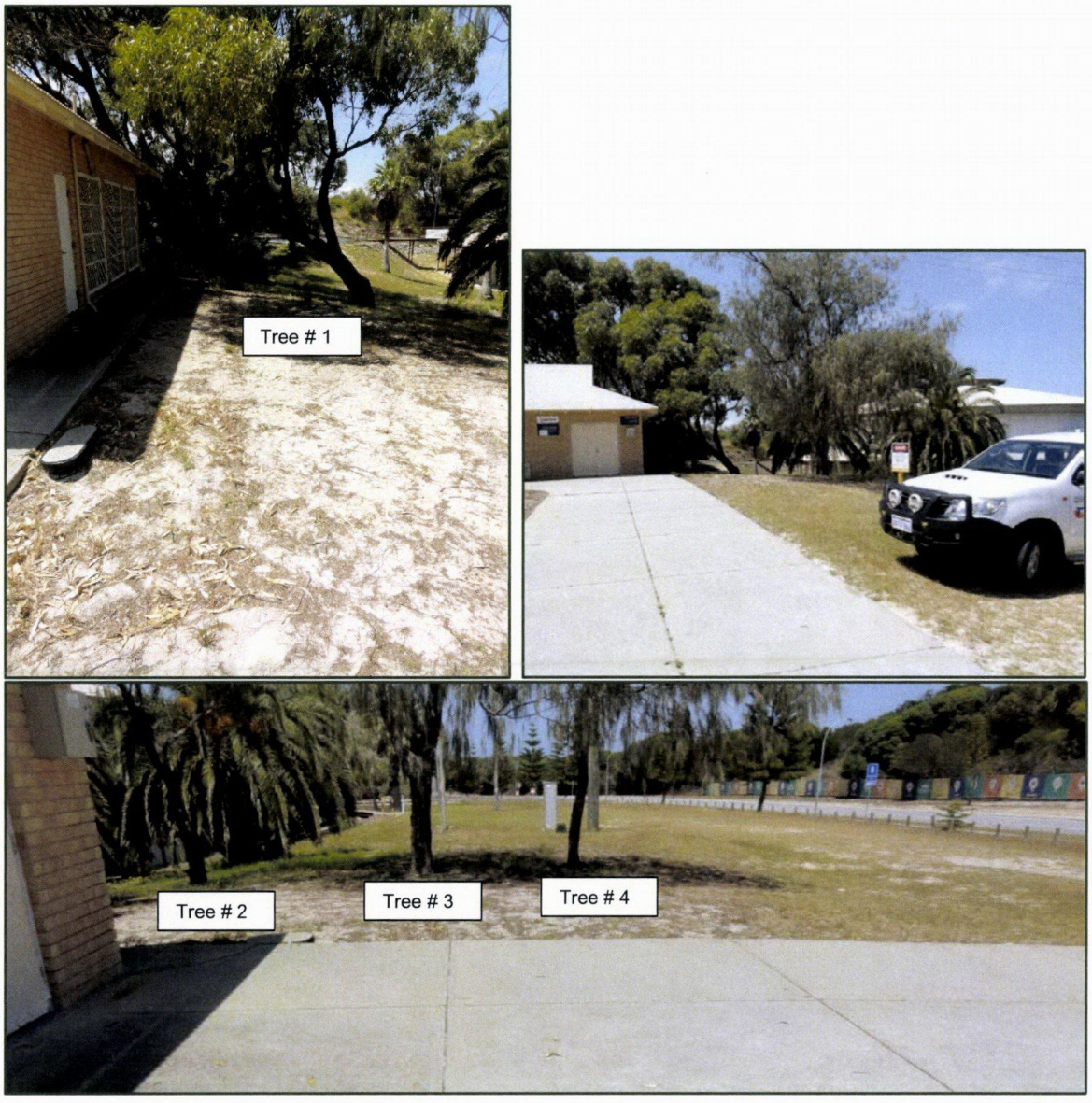

Figure 10 Images of the four scattered trees within the ten metre APZ

6.2 Health impacts

Public health is not a planning consideration. This position is recognised by state planning policy, more recently adopted local government planning policies in Western Australia, and the SAT.

"*The Health Department of Western Australia considers there is currently no health basis for restricting either the siting of mobile telephone towers or ground level access to them.*"
WAPC Planning Bulletin 46, 2000

"*A large number of studies have been performed over the last two decades to assess whether mobile phones pose a potential health risk. To date, no adverse health effects have been established as being caused by mobile phone use.*"
World Health Organisation fact sheet 1993 (June 2014)

"*Perceptions* (of potential health problems) *without more, are an unsuitable basis for evaluating amenity concerns to the point where a proposal, which is otherwise justified and compliant, should be refuse planning approval.*"
[WASAT 2009, 117]

7 Visual Landscape Assessment

7.1 Assessment against Part 3 Visual Landscape Planning in Western Australia – a manual for evaluation, assessment, siting and design (WAPC, 2007)

> *It is best practice to undertake a 'visual impact assessment', prepared in accordance with 'Visual Landscape Planning in Western Australia', to demonstrate to the satisfaction of the local government that the proposal satisfies the local and state planning policy framework. The Manual provides broad guidelines that should be read in conjunction with those specifically drafted for telecommunications infrastructure.*
> State Planning Policy 5.2 (August, 2015)

Part 1 of the Manual 'Introduction' addresses the planning context, distinguishes between visual landscape evaluation (plan making) and visual impact assessment (development assessment), and outlines the scope of the Manual.
Part 2 of the Manual 'Visual Landscape Planning Methods' includes processes for use by those decision makers who are responsible for recommending acceptance or otherwise of specific development proposals (i.e. visual impact assessment).
Part 3 of the Manual 'Guidelines for Location, Siting and Design' provides guidance for utility towers, including telecommunications towers. This guidance assists in ensuring proposals reduce their potential impact on visual landscape character.

Aurecon has previously met with Tara Cherrie-Morgan and Stephanie Clegg who were the former Department of Planning (DoP) Project Managers responsible for the production and implementation of the Manual to discuss the intent of the Manual specific to telecommunications. These discussions also concentrated on appropriate design responses to minimise visual impact in urban and coastal environments. It was noted by the DoP staff that the Manual is not State Policy rather it provides guidelines applicable to development on private land to assist in the protection of *significant* landscapes. Subsequent to this understanding this Visual Landscape Assessment, utilising the Manual, has been prepared on the premise that there are no 'regionally significant view' that would be affected. 'Locally significant views' along Lisford Avenue and a lookout located adjacent to Water Corporation tanks north of Breakwater Drive were identified.

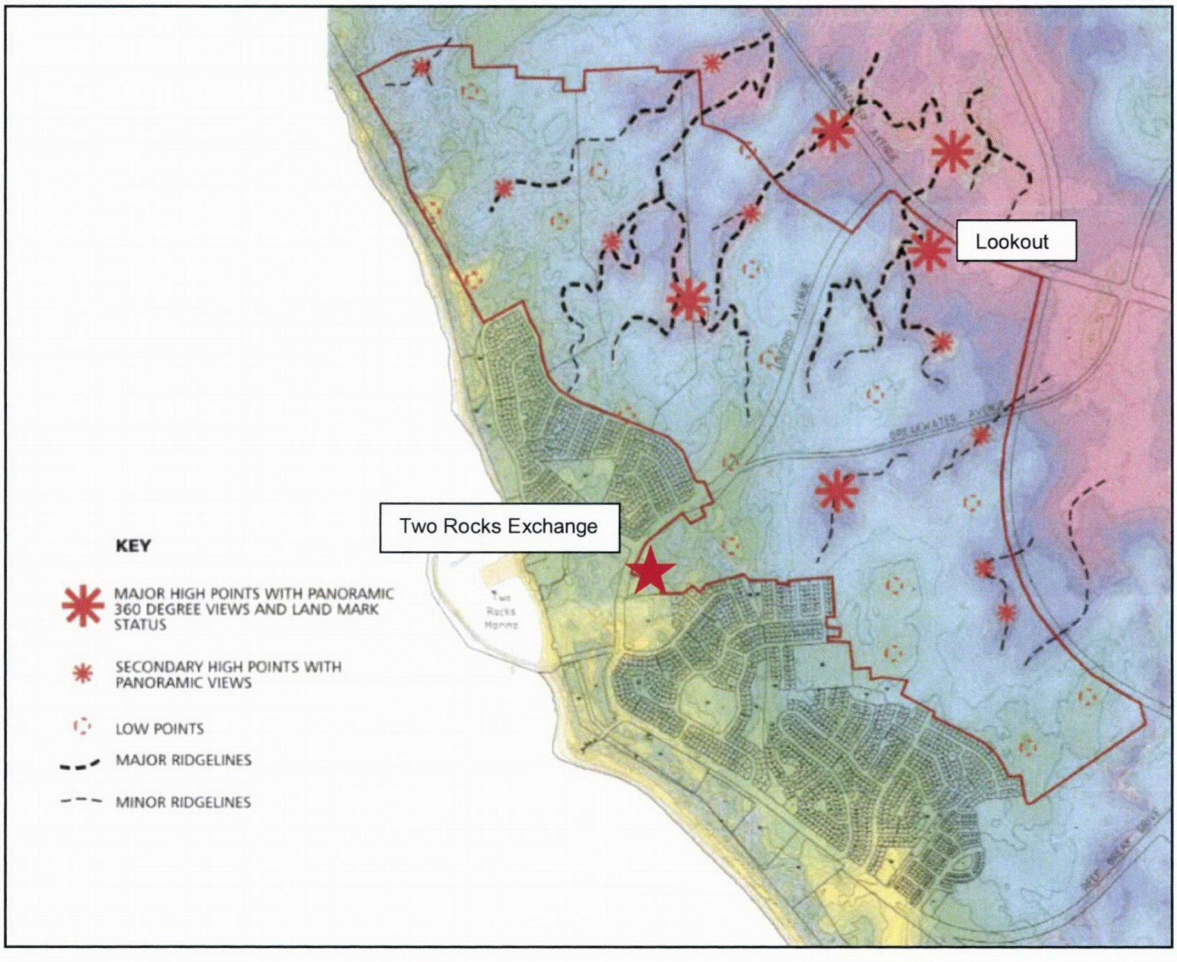

Figure 11 Landform analysis (source Two Rocks Local Structure Plan)

The Manual provides for three specific visual management objectives to meet the fore-mentioned broad visual character objectives:

a) not evident: development may be hidden, screened or not visible from specified viewing locations;
b) blending: development may be evident, but generally not prominent in that it borrows from the existing landscape setting; and
c) prominent: development may be a dominant feature in the landscape, drawing attention to itself.

The Manual states that "*where the broad objective is for a landscape to be enhanced or restored, any of the three specific objectives may apply. It is more likely to be acceptable for development to be prominent in the landscape, as a new feature will enhance a landscape that is currently lacking in visual interest.*" Whilst the exchange site arguably has little aesthetic or landscape value it is not degraded so as to require enhancement strategies. Given the site has long been established and operated as a telephone exchange we submit that equally it is more likely to be acceptable for further development of this site for communications purposes.

The pragmatic broad objective for managing the visual impact of the proposed monopole is (b) blending, because it is not feasible to screen the mast from view, nor is the proposed pole designed to be prominent in the way that an iconic building or public art may be.

The term blending is also described as 'harmonise with', 'compliment' or 'borrow from'. To ensure that a development blends with existing valued landscape character, it is necessary to identify the dominant visual components of the landscape. The Manual states *"All coastal landscapes have the same two basic components, land and sea..."* The dunes are predominantly characterised by native eucalypt shrubs and scattered trees less than 10m in height. This vegetation is not a uniform dark colour (unlike for denser ecological vegetation classes in more sheltered Swan coastal plain locations). The colours vary from the white sands of exposed areas, blue-grey through light green to dark green for shrubs and ground covers, to light brown grass.

Whilst light colours such as unpainted galvanised or white are often avoided so as to better blend ground level equipment with darker foliage, we sought instead to blend the monopole and cable tray against the more predominant lighter backgrounds. The natural galvanised finish of the monopole will rapidly weather and fade to a *milky* finish to blend better against lighter backgrounds such as the sky. When viewed from ground level on Lisford Avenue the lower portions of the pole and cable tray (if visible at all) will blend against the lighter brickwork of the exchange building itself.

Whilst some local governments have been known to require structures to be painted green or blue contrary to our assertion that darker structures are more prominent. The Manual refutes this premise that painting mitigates visual impact *"colour does not appear to be a design option with the recently constructed towers."*

The monopole design itself has been streamlined as far as practical and feeder cables and ancillary equipment located within the body of the structure. The Manual references this design response to *avoid clutter on individual towers. Combine all additional elements in the most streamlined way possible.* Shrouding the antenna pod was investigated; however, the resultant additional bulk (doubling) at the top of the structure would have outweighed any benefit, particularly given the tight clustering proposed. We submit that the proposed monopole design perfectly encapsulates this approach.

All three specific visual management objectives have been utilised for managing the visual impact for ground level infrastructure.

(a) Not evident: Equipment shelters or cabinets, power supply boards and feeder cables have been located within the exchange building or internal of the monopole to be completely hidden from public view.
(b) Blending: A cable tray of the shortest practical length obscured by the pole when viewed from the street frontage will connect the monopole to the exchange building.
(c) Prominent: Bollards will be installed to protect the pole from vehicle impact. It is counter-productive to paint these bollards in any colour that borrows from the nearby vegetation or exchange building.

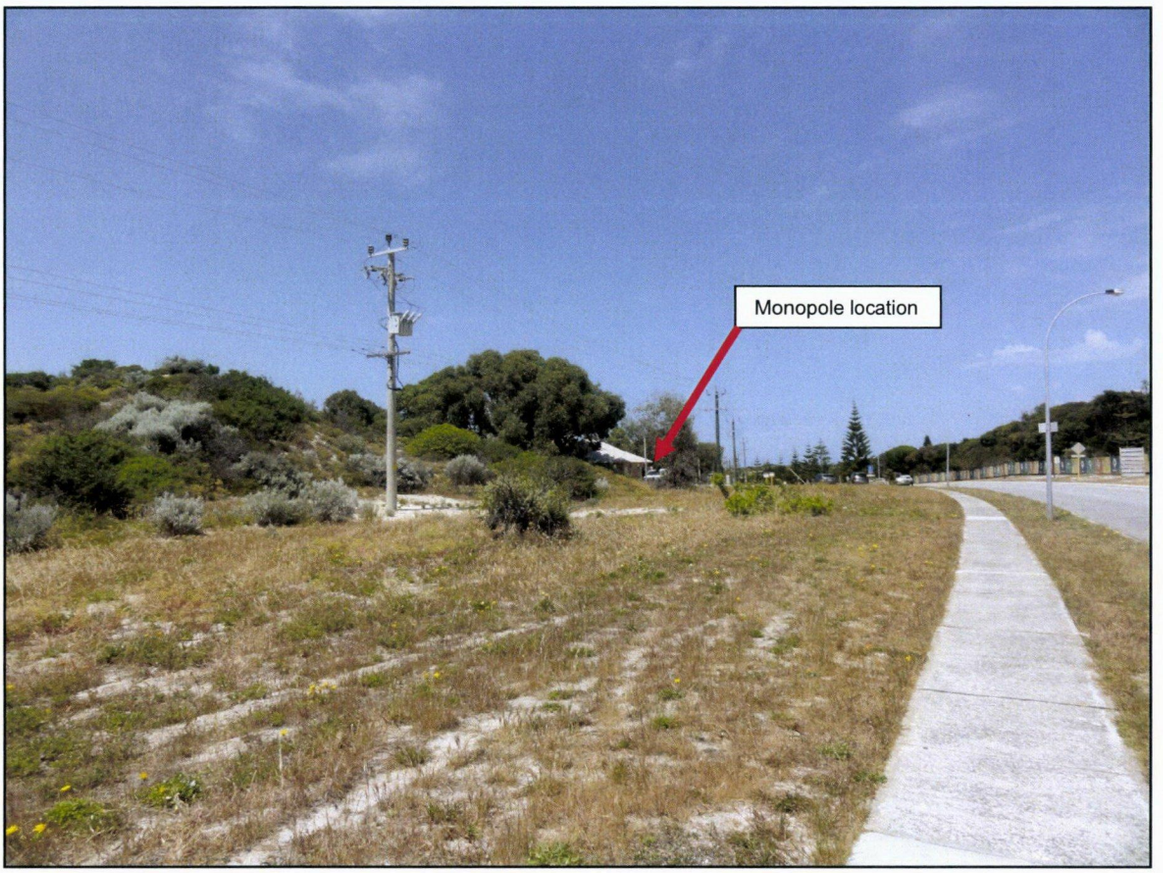

Figure 12 The surrounding landscape is not uniform in colour and is notable for overhead power lines, street lighting and scattered tall trees that break the skyline

The Manual recommends that *"…remnant bush be retained wherever feasible, as it provides a strong visual reminder of an area's original landscape character, thus forming a major component in an urban area's current expression of character."* An existing paved area has been selected such that no vegetation will removed.

The Manual also suggests that …"*where possible choose higher points that appear less prominent when viewed from key views and/or travel routes."* Whilst a higher point in the landscape further up the dune behind has not been selected we submit that the approximate 30m setback from the meandering Lisford Avenue alignment, undulating terrain and the Phil Renkin Recreation Centre combine to suitably obscure and soften motorists' views of the proposed monopole. Additionally, the monopole is situated such that when viewed from the west a large dune and mature trees provide a backdrop and when viewed from the east (future urban land) is substantively obscured behind the same dune.

Figure 13 The dune behind the exchange rises 7-8m above the ground level of the exchange

7.2 Photo Montages Methodology

When preparing montages for free-standing structures remote-controlled devices are used to ascertain an accurate height datum.

Figure 14 The **remote-controlled device used to establish an accurate height datum**

A series of viewpoints were identified by Aurecon and provided to the Shire for comment.

Due to the topography and distance the drone was not visible from the lookout on Breakwater Dr which the council had identified as a viewpoint.

Aurecon has endeavoured to ensure accuracy in the production of the following photo montages. Individual view experiences may change due to factors not modelled; such as atmospheric conditions, the time of day, and the weathering of materials used in construction.

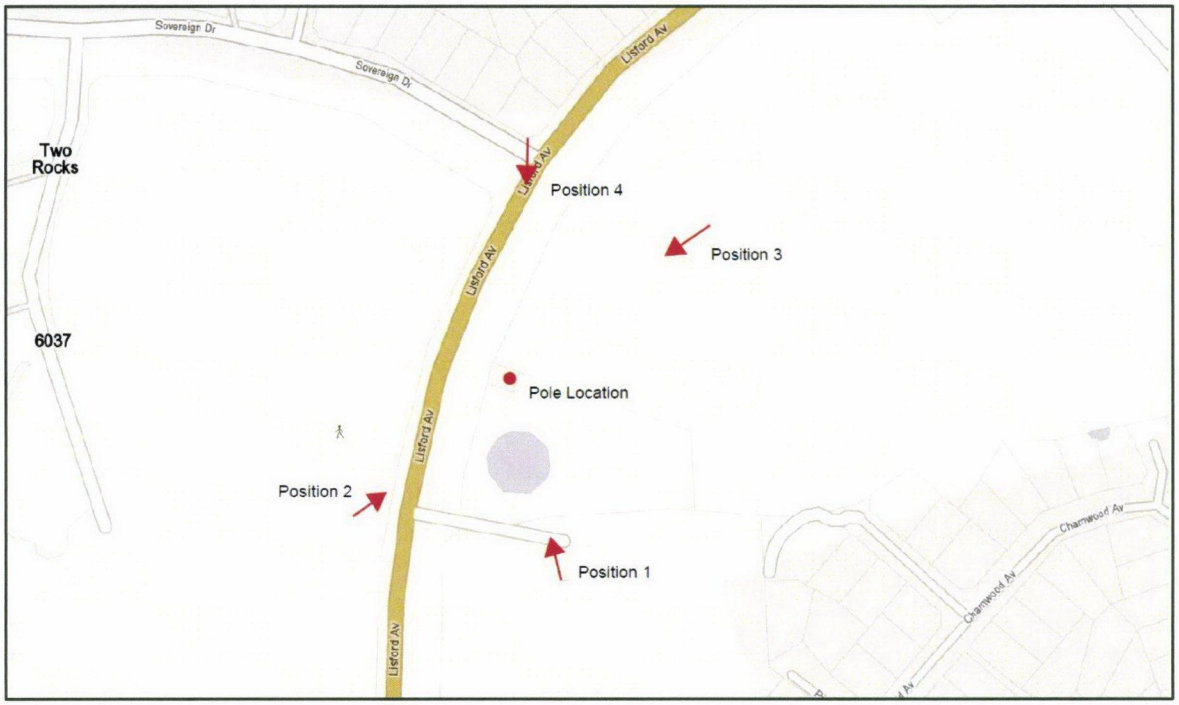

Figure 15 Viewpoints from which photography was taken

Figure 16 Montage 1 looking north from the Phil Renkin Recreation Centre

Figure 17 Montage 2 looking north from Lisford Avenue

Figure 18 Montage 3 looking southwest from future open space

Figure 19 Montage 4 looking south from Lisford Avenue

8 PLANNING POLICY FRAMEWORK

The following section identifies the pertinent Federal, State and Local Government policies and assessment criteria. A summary of the compliance against the key objectives and relevant requirements from these documents has been provided as applicable.

8.1 District Planning Scheme No. 2 (TPS2)

In accordance with the TPS2 Telecommunications Infrastructure:

> *"means any part of the infrastructure of a telecommunications network and includes any line, equipment, apparatus, tower, antenna, tunnel, duct, hole, pit or other structure used, or for use, in or in connection with a telecommunications network."*

Clause 1.6(k) Scheme Aims and Objectives seeks to "*ensure that adequate regard is given to the protection of the natural environment in the determination of land use and development proposals in accordance with sustainable development principles*." We believe that the selected site no only ensures that any future expansion of the exchange is not compromised, but also ensures soil disturbance is minimised and no vegetation is lost.

The subject site is zoned Urban Development, in accordance with TPS2:

> *The purpose of the Urban Development Zone is to provide for the orderly planning and development of larger areas of land in an integrated manner within a regional context whilst retaining flexibility to review planning with changing circumstances. In*

considering applications for development and changes to residential density codings in areas near existing and proposed future railway stations the Local government will have due regard to the desirability of higher residential densities, transit related development and good pedestrian and vehicular access to stations in order to promote public transport usage.

We would understand that the designation of the exchange site within the Urban Development zone is somewhat of an anomaly. Historically Telstra (Telecom) exchange facilities were reserved for public purpose – telecommunications. This designation is no longer applicable as Telstra has been privatised and is no longer a public authority. Given the circumstance that the exchange use is established and the proposed development relatively modest in scale, we would understand that any requirement to prepare a structure plan under clause 3.14.3 or to comply with the permissibility of uses under clause 3.14.4 of TPS2 is not applicable.

There are no environmental conditions or other control affecting the exchange site.

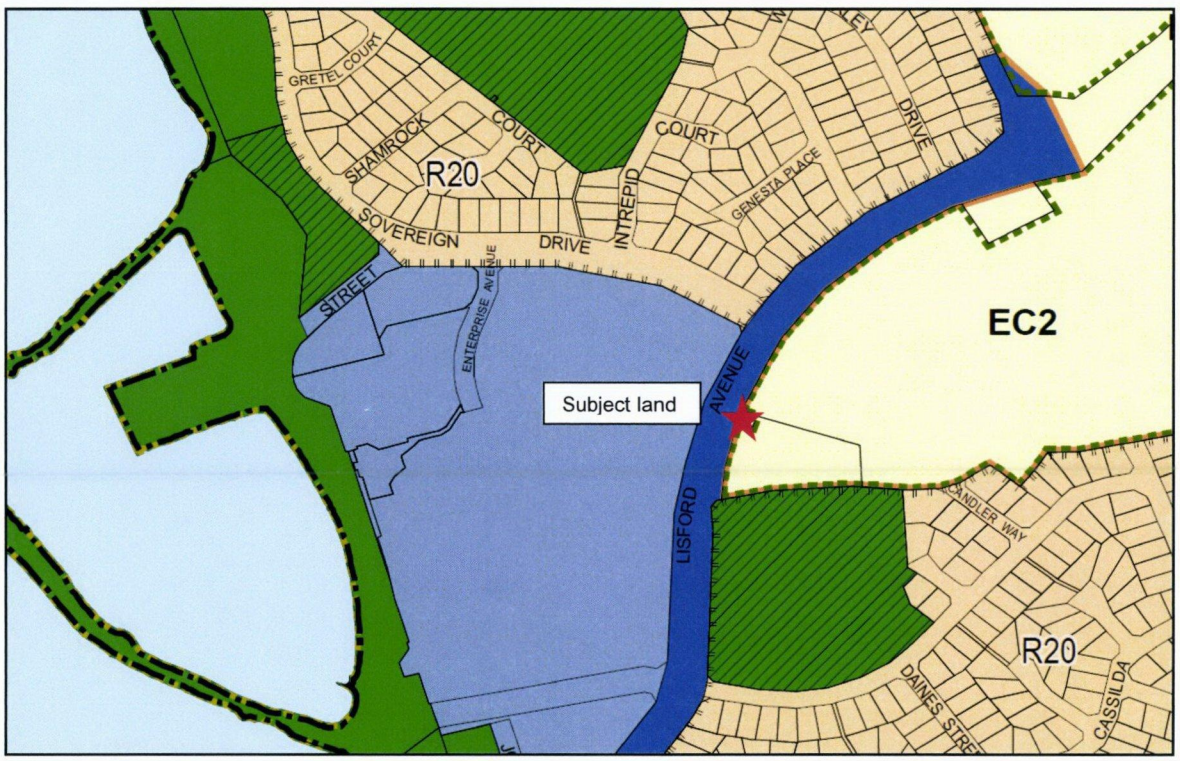

Figure 20 Scheme Maps extract

8.2 Western Australian Planning Commission Statement of Planning Policy No 5.2 – Telecommunications Infrastructure

The State Planning Policy released in September has primarily sought to ensure a more consistent approach in the preparation, assessment and determination of planning decisions for telecommunications infrastructure. As such, we have ensured sufficient information as outlined in Section 6.3.1 'Information to be Submitted When Lodging a Development Application' has been provided.

The State Policy now provides the direction that telecommunication infrastructure should not be prohibited in any zone in the zoning table and that, subject to guidance within a planning scheme, be designated as a permitted use in some zones. *Furthermore,* buffer zones and/or setback distances are not to be included in planning schemes or local planning policies. There is a clear direction in the State Policy to facilitate the roll out of an efficient telecommunications network unless the location and siting unreasonably affects places of cultural or environmental significance, or the visual impact on balance has not been mitigated to outweigh the community benefit of the service it will provide the community. We contend that the location, siting and design of our proposed infrastructure has been suitably considered and is acceptable when weighed against the planning policy framework.

SPP 5.2 Policy Measures	Response
Telecommunications infrastructure should be sited and designed to minimise visual impact and whenever possible: a) be located where it will not be prominently visible from significant viewing locations such as scenic routes, lookouts and recreation sites; b) be located to avoid detracting from a significant view of a heritage item or place, a landmark, a streetscape, vista or a panorama, whether viewed from public or private land; c) not be located on sites where environmental, cultural heritage, social and visual landscape values maybe compromised and d) display design features, including scale, materials, external colours and finishes that are sympathetic to the surrounding landscape.	Telstra has selected a location and structure that will minimise perceived negative impacts on the visual amenity of the future residential areas. The monopole design minimises the visual bulk of the structure while meeting structural design and structure height requirements. The ground level infrastructure has been predominantly placed inside the exchange building and feeder cables will run internal of the pole. Future residential development east of the exchange is buffered by proposed linear open space and the monopole partially screened by the terrain and vegetation. The proposed site has no impact on conservation or heritage attributes of the environment and is removed from sensitive sites and areas of high landscape or scenic value such as the coast.
Telecommunications infrastructure should be located where it will facilitate continuous network coverage and/or improved telecommunications services to the community.	Telstra though it's strategic planning processes has identified the new exchange facility as having the potential to address existing and forecast depth of coverage issues in the Two Rocks area. The site is centrally located to service the growing catchment population of the area and will enable decommissioning of the current small cell technology at the exchange and the Department of Transport navigational structure within bush forever reservation BF397.
Telecommunications infrastructure should be co-located and whenever possible: a) Cables and lines should be located within an existing underground conduit or duct; and B) Overhead lines and towers should be co-located with existing infrastructure and/or	Due to the need to achieve a height that will enable coverage objectives to be met and a lack of existing development in the area, it is impractical to locate the antennas on an existing structure.

within existing infrastructure corridors and/or mounted on existing or proposed buildings.	The land is used for the purposes of a telephone exchange (telecommunications infrastructure) such that co-location with other utility infrastructure has been achieved.

With respect to the above points this proposal through its siting, design and location has addressed these Policy Measures as far as practical.

It is also noted that the Western Australia State Administrative Tribunal (WASAT) has recently provided clarity as to the intention of the current SPP5.2 Guiding Principles pertaining to visual impact.

> *"While it is true that the tower will be higher than any other point in the immediate vicinity of the subject land… such height is an integral part of the successful functioning of the infrastructure, a matter recognised by SPP 5.2, cl 2.3 ('mounted clear of surrounding obstructions'). The weight to be afforded to SPP 5.2 in the planning framework is, as has been explained above, significant. Importantly, this finding has effect in relation to both the subject land and its immediate vicinity, and will influence any discussion of the visual impact on visual amenity."*
> WASAT 238 [59]
>
> "*The planning framework [SPPF 5.2] does not require the tower to be invisible*."
> WASAT 179 [84]

8.3 City of Wanneroo Local Planning Policy 2.5: Telecommunications Infrastructure

The local planning policy is currently under review. We understand that this review is in part to ensure consistency with the State Planning Policy that states buffer distances should not be applied in schemes or by local planning policies. Notwithstanding being under review it is our view that the above policy has been satisfied, specifically the objectives to promote co-location and minimise environmental disturbance and loss of visual amenity in residential areas. In response to the Policy Table the following assertions are made:

Deemed to Comply

L1 The proposed telecommunications infrastructure addresses an existing lack of coverage or service availability in the locality.

L2 The subject land is a telephone exchange and additionally accommodates a small cell installation.

L3 The proposed telecommunications infrastructure is not located on a lot where the adjoining lot is zoned 'Residential', 'Mixed Use', 'Special Rural', 'Rural Community', 'Landscape Enhancement' or 'Special Residential'.

D1 The proposed telecommunications infrastructure is confined to a height and dimension that balances the need to provide for appropriate network coverage for the surrounding area, whilst minimising loss of amenity in the locality.

D3 The proposed telecommunications infrastructure *can* enable the co-location of at least 2 separate telecommunications carriers.

D4 The monopole itself and cable tray behind will have a natural finish and blend when viewed against the brickwork of the exchange building to minimise visual intrusion.

Variations Subject to Consultation

D2 The proposed telecommunications infrastructure could potentially be visually conspicuous from beyond the subject property boundary.

D5 Screening for the base of the monopole has not been proposed given the *recessed* location and existing screening with viewed from most points along Lisford Avenue provided by the terrain and existing vegetation.

In specific response to design criterion D2 it is noted that:

- The State Administrative Tribunal has ruled that "*...height is an integral part of the successful functioning of the infrastructure*" and that "*the planning framework [SPPF 5.2] does not require the tower to be invisible.*"
- The facility is not located within 500 metres from sensitive land uses.
- The facility has been located and designed so that the base station will cause minimal visual impact.
- The facility is not located in Landscape Enhancement Areas or within 500 metres of a scenic road.
- The base of the monopole is removed from a motorists' view perspective and from many nearby points along Lisford Avenue screened by existing mature vegetation or the terrain.

8.4 Two Rocks Local Structure Plan

The Two Rocks Local Structure Plan (LSP) has been evolving since 2007 and provides greater clarity as to the future development of the local community. The LSP and forms part of the broader Yanchep – Two Rocks District Structure Plan no. 43 (DSP) area. Given being a higher order strategic document the DPS is only relevant to our proposed development in that it forecasts Two Rocks ultimately forming part of the North West Metropolitan Corridor and; therefore, further reiterating the necessity to forward plan for effective and efficient telecommunications services.

It is noted that a stated economy and efficiency strategy is to *provide high capacity telecommunications infrastructure throughout the Two Rocks Structure Plan area from the outset of development, to promote employment and work from home opportunities.* Notwithstanding recognition of the community benefit that effective telecommunications networks deliver no reservation(s) for telecommunications infrastructure are proposed within the 423-hectare structure plan area.

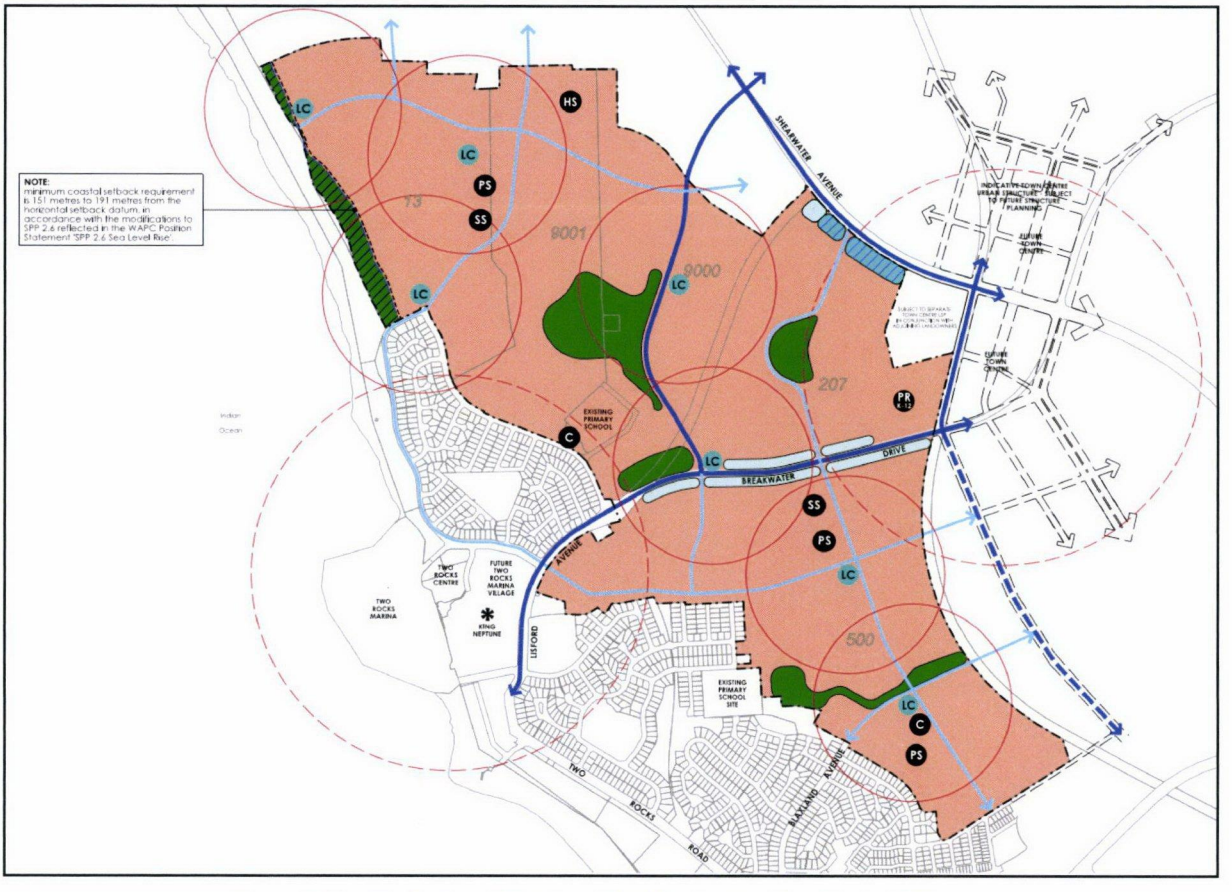

Figure 21 Two Rocks Local Structure Plan Map (source Two Rocks LSP)

Immediately abutting the subject land is lot 500 that is undeveloped and designated under the LPS as Precinct D – town centre and coastal. Precinct D is also nominated as Precinct 8 under the LSP. This precinct is nominated to accommodate higher density apartments and semi-detached housing with a density greater than R50 commensurate with its proximity to the existing town centre. The dune to the east of the subject land is nominated to be incorporated into a 0.4198ha. parcel of public open space that will additionally provide a buffer from the exchange to future residential development.

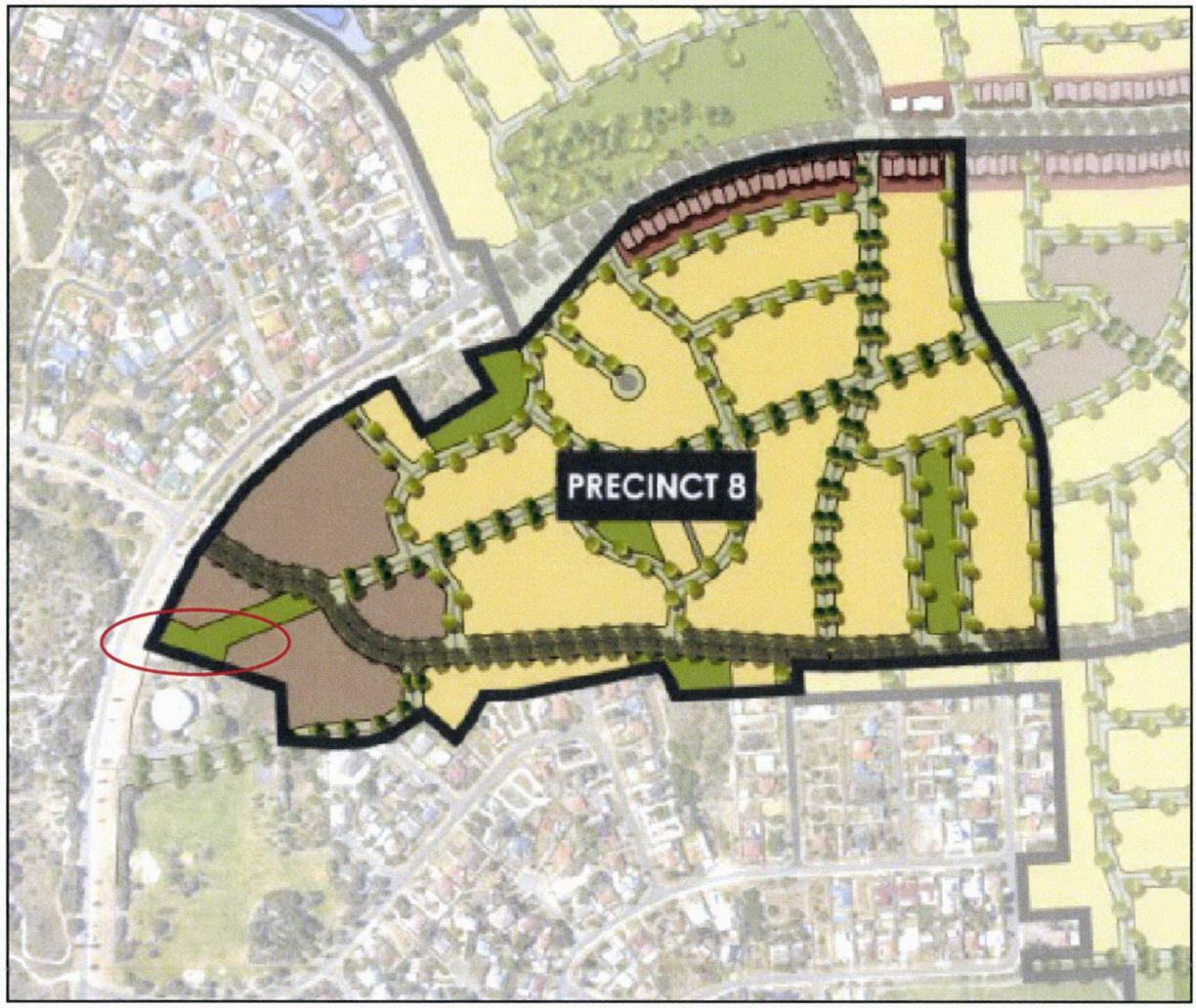

Figure 22 The interface with Precinct 8 of the Two Rocks LSP

8.5 Two Rocks Town Centre Local Structure Plan

The land within the town centre structure plan area is zoned Marina and is predominantly developed closest to the marina and foreshore and undeveloped elsewhere including adjacent to Lisford Avenue. The purpose of the Marina zone is *to accommodate a wide range of appropriate development adjacent to marinas.* The objective of the zone includes to *accommodate commercial, residential, recreational and associated activities related to marinas*. We submit that further consolidation of telecommunications infrastructure within the exchange will not compromise the orderly development of the structure plan area.

Figure 23 Two Rocks Town Centre Local Structure Plan

9 Telecommunications Industry Regulation Overview

9.1 Telecommunications Industry Regulation Overview

The principal regulation body is the Australian Communications and Media Authority (ACMA). ACMA regulates compliance with legislation, broadcast licence conditions, reports of communications industry matters including its performance, and issues telecommunications licences and allocates and licences the radiofrequency spectrum. Under the Commonwealth *Telecommunications Act 1997* the telecommunications industry has considerable scope for self-regulation. As such, the industry has developed Codes of Practice via the Communications Alliance industry group. ACMA registers such Codes and is empowered to respond to breaches of these Codes and drive more formal regulation.

The Telecommunications Industry Ombudsman may also respond to breaches of these Codes or resolve disputes between Carriers and their customers.

9.2 Telecommunications Act

The *Telecommunications Act* (Act) was enacted to provide a regulatory framework that among other objectives promotes the long-term interest of end-users of carriage services, the efficiency and international competitiveness of the Australian telecommunications industry, and the availability of accessible and affordable carriage services that enhance the welfare of Australians.

Under the Act State and Territory laws prevail except in limited circumstances most notably the inspection of land, maintenance activities, the installation of low-impact facilities, subscriber connections and temporary defence facilities. The definition of a low-impact facility as stipulated by the *Telecommunications (Low-impact Facilities) Determination 2011* does not extend to this proposed new facility.

9.3 Telecommunications Code of Practice 1997

The Telecommunications Code of Practice underpins the Telecommunications Act and deals with the following activities:

1. Inspection of land
2. Subscriber connection
3. Low-impact facilities
4. Temporary defence activities
5. Maintenance of facilities

The emphasis is on best practice planning, design and installation of facilities, in addition to compliance with industry standards and the minimisation of environmental impacts. The proposed facility is considered best practice given the site selected has no significant environmental constraints and the visual impact is the least necessary to effectively provide improved telecommunications in the locality.

10 CONCLUSION

Telstra's network is strategically planned and co-ordinated to ensure the best possible coverage is provided with minimal need for new base stations. The proposed permanent solution at the Two Rocks exchange site is part of Telstra's strategic plan for improving mobile telecommunications in metropolitan growth areas. It will provide improved telecommunications services, leading to improved convenience and safety for residents, travellers and visitors in the Two Rocks area including the projected 11,900 residents within the Two Rocks Local Structure Plan area.

Telstra has applied the Precautionary Approach in the selection and design of the proposed site in accordance with Sections 4.1 and 4.2 of the Communications Alliance Industry Code C564:2011 for Mobile Phone Base Station Deployment. In addition, upgrading of existing base station sites were ruled out given their physical distance from the area for which additional depth of coverage will be provided. In our view consolidation of telecommunications infrastructure within the exchange site is consistent with the planning policy framework and recognised industry practice.

All base station candidate sites are scored for their suitability against town environmental/conservation/heritage criteria in addition to coverage objectives, land tenure (the ability to secure a lease) and construction costs. As such, development approval is being sought which will not require the removal or destruction of vegetation, not result in significant soil disturbance, not impact on environmentally or culturally significant land, and allow for a degree of separation to existing and future residences. The telecommunications base station is also sufficiently set back from any areas of landscape significance, bush forever reservations or the coast.

The base station has drawn upon recognised blending techniques prescribed by Visual Landscape Planning in Western Australia – a manual for evaluation, assessment, siting and design for prominent development such as maintaining a galvanised steel finish for the monopole to blend against lighter backgrounds and running feeder cables internal of the pole.

Infrequent vehicular access will be provided from the current concrete crossover such that vehicles can safely access and egress the site in forward gear.

The proposed exchange site installation will comply with the Australian Communications and Media Authority regulatory arrangements with respect to electromagnetic radiation (EMR) exposure levels. Notwithstanding health is not a recognised planning consideration, the maximum cumulative EME level will not exceed 0.98% of the permissible level.

Respectfully, Council is requested to grant Approval to Commence Development in accordance with the provisions of the City of Wanneroo District Planning Scheme No.2 in light of the justification provided above.