John Fisher Park Telecommunications Device - Waterways Impact Statement

Urbis

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Template 2.8.1

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Abbreviations

Abbreviation	Description
CEMP	Construction Environmental Management Plan
ELA	Eco Logical Australia Pty Ltd
NBC	Northern Beaches Council
OEH	Office of Environment and Heritage
WDCP	Warringah Development Control Plan 2011
WLEP	Warringah Local Environmental Plan 2011
WIS	Waterways Impact Statement

1. Introduction

Eco Logical Australia Pty Ltd (ELA) was commissioned by Urbis Pty Ltd, on behalf of Optus, to prepare a Waterways Impact Statement (WIS) for the proposed development of a telecommunications facility on Lot 7356 DP1167221. Figure 1 shows the location of the proposed development and proximity to Curl Curl Lagoon. The study area is located in John Fisher Park, accessed from Abbott Road, North Curl Curl.

A WIS is a requirement of the Warringah Council's *Protection of Waterways and Riparian Land Policy (PL 740)* and the *Warringah Development Control Plan 2011* for any development works in waterways and riparian lands. Riparian land is categorised as all land within 100 m of a wetland or 40 m of a watercourse (taken to start at the highest bank of the watercourse; or for ephemeral streams without a defined channel, the start of the riparian land is the creek centre line). A WIS enables Council to conduct an adequate environmental assessment of development works so as to protect, maintain and enhance waterways and riparian lands within the former Warringah Council.

This WIS has been prepared in accordance with the former Warringah Council's *Guidelines for Preparation of a Waterways Impact Statement*.

Figure 1: Study area with proposed footprint and Waterways and Riparian Land extent (Warringah DCP 2011)

2. Waterway analysis

2.1 Ecological value

The proposed development is to take place on the northern bank of Curl Curl Lagoon. The Curl Curl Lagoon catchment covers an area of 485 ha and consists of approximately 47% impervious surfaces (MWH, 2004). The catchment has been significantly modified, with Greendale Creek (the main tributary of Curl Curl Lagoon) piped and channelised in multiple sections and passing through the Brookvale industrial precinct before flowing under Harbord Road and then becoming Curl Curl Lagoon. The 2014/15 Lagoon Health Report Card stated that 99.8% of the Curl Curl Lagoon catchment has been modified (Warringah Council, 2015).

The previous land use of the area surrounding Curl Curl Lagoon was as a landfill site and the riparian area is now predominantly sports fields and revegetated bushland. At the time of the site inspection (9 May 2019), large areas of exotic riparian vegetation had recently been cleared and replaced with native riparian species.

2.2 The nature and extent of proposed construction activities

The development footprint is shown in Figure 1 and is located within riparian and waterways lands as mapped in the WDCP. Earthworks are proposed for the construction of the equipment shelter and monopole, but these would be minor and have a localised footprint. No mature trees require removal as part of the proposed works, but approximately 15 tubestock plants will need to be removed (see Flora and Fauna Assessment, Eco Logical Australia 2019, for more information).

To minimise construction impacts on water and soils, a Construction Environmental Management Plan (CEMP) incorporating an Erosion and Sediment Control Plan should be developed and then implemented prior to and during the works. The CEMP will also stipulate that materials and machinery are to be stored away from the edge of the creekline

2.3 The nature and extent of proposed operational activities

Once constructed, the operation of the Optus telecommunications facility will have a negligible effect on the surrounding environment and the adjacent waterway. The equipment shelter will be screened by planted vegetation that is of the same vegetation community as those recently planted along the bank of Curl Curl Lagoon. The monopole will replace the existing light pole that is currently in place behind the dugout of the baseball fields. A very minor area of additional impervious surface is to be constructed as part of the proposed development, however the revegetated riparian buffer between this surface and the waterbody will remain intact and would continue to thicken with time. The riparian land adjacent to the proposed works would be protected through Council's ongoing vegetation maintenance program.

2.4 The location of proposed construction and operational activities relative to the waterway features

The footprint of the proposed base station and power and fibre route is shown in Figure 1. The proposed equipment shelter is to be constructed approximately 17 m from the top of the Curl Curl Lagoon bank,

within the waterways and riparian lands buffer. There would be no new stormwater outlets constructed as part of the proposed works.

2.5 Quality of the on-site and off-site waterways and riparian lands:

According to the Warringah Council Creek Management Study (MWH, 2004), Greendale Creek and Curl Curl Lagoon are part of a Category C catchment, which are generally waterways with low to moderate ecological value and moderate to highly developed catchments containing up to 50% connected impervious areas. The ecosystems within these catchments are already substantially modified.

The headwaters of Greendale Creek to the south of Warringah Road, which eventually feed into Curl Curl Lagoon, are in a relatively natural condition and the creek and riparian area represents good conservation value. In the areas adjacent to Curl Curl Lagoon, the previous land use is considered to still be impacting on the quality of the water within the lagoon today, as the decomposing rubbish contributes leachate to the lagoon waterbody. Northern Beaches Council's 2015/16 Lagoon Health Report Card gave the ecological health of Curl Curl Lagoon a 'D' rating, meaning that the indicators met few of the benchmarks set by Office of Environment and Heritage (OEH) for part of the year, equal to the lowest 20% of scores in NSW (NBC, 2016). Stormwater runoff from Abbott Road is also directly fed into the lagoon through stormwater pipes that run under the playing fields at John Fisher Park and discharge directly into the lagoon to the east of the proposed works area.

The Flora and Fauna Assessment (ELA, 2019) describes the on-site riparian land as a portion of recently revegetated Estuarine Swamp Oak Forest, an Endangered Ecological Community under the *Biodiversity Conservation Act 2016*. No threatened aquatic flora or fauna were identified as potentially occurring at the site during the desktop review completed as part of the Flora and Fauna Assessment, nor were any observed during the site inspection. The riparian zone of Greendale Creek and Curl Curl Lagoon is an elongate continuously-vegetated buffer that extends from Harbord Road in the west to Griffin Road in the east. The riparian area on the northern side of the lagoon is adjacent to mown grass playing fields, hard-surface netball courts and a walking track.

At the time of the site inspection (9 May 2019), the riparian zone within the study area had recently been cleared of exotic vegetation and replanted with native tubestock (Figure 2). No vegetation was growing on the edge of Curl Curl Lagoon and loose soil and vegetative debris was observed on the surface of the water adjacent to the bank (Figure 3). There was little instream vegetation apart from a thin dense strip of *Phragmites australis* (Common Reed) (Figure 4) that had captured some loose vegetative material and litter. A pair of *Porphyrio melanotus* (Purple Swamp Hens) were seen foraging in this vegetation. Bank stability appeared low due to recent clearing and lack of vegetation and root structures that to bind and stabilise the soil on the edge of the lagoon.

Two stormwater outlets were observed within the study area, discharging directly into Curl Curl Lagoon. One of these showed evidence of erosion around the edges of the concrete headwall (Figure 5) and the other appeared to have been recently repaired, with sand bags placed behind the headwall to reduce sediment movement (Figure 6). Water was relatively clear during the site inspection (Figure 7) and there was no evidence of oil, grease or sheen on the surface of the water.

Figure 2: Revegetated riparian zone, looking west

Figure 3: Cleared edge of Curl Curl Lagoon, looking east

Figure 4: Thin strip of Common Reed within study area, looking south

Figure 5: Erosion around edge of concrete headwall of stormwater outlet, looking south

Figure 6: Sandbags behind recently repaired stormwater outlet, looking east

Figure 7: Good visibility through water, looking south

3. Assessment of impacts

The likely impacts of development on the factors addressed in Section 2 (Waterway Analysis), are assessed in Table 1 below.

Table 1: Assessment of impacts of proposed works

Factor	Assessment of impacts
Water quality	Potential impacts to water quality during construction (such as sedimentation) will be minimised by implementing a Construction Environmental Management Plan (CEMP) and/or Erosion and Sediment Control Plan. Implementation and adherence to measures outlined in the CEMP would ensure there is no transmission of sediment and debris into Curl Curl Lagoon during the construction period.
Channel form, erosion rate and bank stability	As a result of recent weed removal, the bank of Curl Curl Lagoon in the vicinity of the proposed development is exposed and partly devoid of vegetation. The recently-planted vegetation in the riparian area would act to stabilise the bank in the long term. The proposed development would not require any works to take place within the lagoon or on the bank. Therefore, the proposed works would not alter the channel form, erosion rate and bank stability.
Impacts on stormwater discharge points and stormwater treatment measures	There will be no impact on stormwater discharge points and/or stormwater treatment measures as a result of the proposed works, as additional overland flow would be negligible. No additional stormwater discharge points need to be installed as part of the proposed works.
Ecological impacts	The Flora and Fauna Assessment (Eco Logical Australia, 2019) concluded that the proposed development would not have a significant impact on local ecology. Only a small area of recently planted vegetation is to be impacted by the proposed works, and this vegetation is currently too young to provide habitat for fauna. Weed management of the fringing riparian land will assist development of a native-dominated community.
Landscape impacts	The development is unlikely to significantly modify the landscape as the telecommunications pole is to replace an existing light pole and the shelter is to be constructed adjacent to the baseball field nets, in an area that is already highly disturbed.
Bank stability and erosion risk	The proposed development is located approximately 17 m from the edge of Curl Curl Lagoon. The geotechnical report prepared by AW Geotechnics (2018) identified that the site would be unaffected by slope stability issues and that screw piers or driven piles were recommended to counteract the influence of water charged cohesionless soils.
Extent of native vegetation proposed to be removed	The Flora and Fauna Assessment (Eco Logical Australia, 2019) identified approximately 15 tubestock plants that may need to be removed as part of the proposed works. These have been recently planted, have not yet established themselves within the area and are not providing habitat for any fauna species. No mature trees will be removed.
Modifications to natural creeklines or overland flow	The lagoon bed and banks, and water flow within and adjacent to the lagoon would not be modified by the development. Any change to overland flow patterns as a result of the construction of the telecommunications facility would be negligible due to its small size and the absence of any impervious surfaces surrounding it. The proposed works would not cut off any floodplain or important hydrological connections.

4. Assessment of compliance with the Warringah Development Control Plan 2011

4.1 Objectives

This section of the Waterways Impact Statement is to demonstrate compliance with the objectives and requirements of the Warringah Development Control Plan 2011 where applicable, with particular emphasis on the following clauses:

- C4 Stormwater
- C5 Erosion and sedimentation
- E2 Prescribed vegetation
- E3 Threatened species, populations, ecological communities listed under State or Commonwealth legislation, or High Conservation Habitat
- E4 Wildlife corridors
- E5 Native vegetation
- E6 Retaining unique environmental features on site
- E8 Waterways and riparian lands.

4.2 Assessment of compliance

4.2.1 C4 Stormwater

The proposed development complies with control C4 Stormwater. Any stormwater runoff generated from the proposed works, once completed, would be negligible due to the small size of the proposed hardstand area. This means that it is not likely to cause downstream flooding or have any environmental impact on adjacent Curl Curl Lagoon. During construction, all water flow generated from the site is to be managed as per a CEMP and erosion and sediment control plan.

4.2.2 C5 Erosion and sedimentation

During construction, works may result in erosion and sedimentation, therefore, a CEMP incorporating an erosion and sediment control plan would be prepared for the construction works. This will ensure minimum soil erosion and maintenance of the downstream water quality. The plan will be prepared in accordance with the *Managing Urban Stormwater: Soils and Construction Handbook* and is to provide details of the proposed method of on-site erosion and sediment control.

4.2.3 E2 Prescribed vegetation

Prescribed vegetation includes all vegetation identified on mapping of Threatened and High Conservation Habitat, Wildlife Corridors and Native Vegetation as per the WDCP. All of these types of Prescribed vegetation are mapped for the proposed works area and are addressed in sections 4.2.4, 4.2.5 and 4.2.6 of this report respectively

The proposed development has been situated and designed to minimise the impact on vegetation within the study area.

4.2.4 E3 Threatened species, populations, ecological communities listed under State or Commonwealth legislation, or High Conservation Habitat

According to WDCP, the study area is mapped as containing *Threatened and High Conservation Habitat* (Figure 8). The Flora and Fauna Assessment prepared for the proposed works (Eco Logical Australia 2019) found that no habitat for threatened species existed within the study area due to the recent clearing of the site and the fact that the revegetated natives were too young to provide any habitat.

The Flora and Fauna Assessment did identify that the revegetated area was likely to be Estuarine Swamp Oak Forest, which aligns with *Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*, an Endangered Ecological Community (EEC) under the *Biodiversity Conservation Act 2016* and Endangered under the *Environment Protection and Biodiversity Conservation Act 1999*. Considering the newly revegetated nature of this vegetation community, the fact that approximately 15 tubestock plants would be directly impacted by the proposed works and that these plants would be replaced under a Biodiversity Management Plan, it is unlikely that the proposed works would have a significant impact on the EEC.

4.2.5 E4 Wildlife corridors

The proposed development is located within a Wildlife Corridor (Figure 9). A Flora and Fauna Assessment and Biodiversity Management Plan have been prepared (ELA, 2019) as per the requirements of this DCP control. Due to the recently cleared nature of the study area and the fact that vegetation to be removed as part of the proposed works is currently tubestock-sized that does not yet provide any habitat for fauna, the likelihood of an immediate impact on the mapped wildlife corridor in this area as a result of the proposed works is unlikely.

4.2.6 E5 Native vegetation

According to Council's WDCP mapping, the study area contains Native Vegetation (Figure 10). As previously outlined, the study area has been recently cleared of exotic vegetation and replanted with native tubestock. No remnant native vegetation exists in the study area and the area of vegetation to be cleared as part of the proposed works is less than 100 m^2.

4.2.7 E6 Retaining unique environmental features on site

No unique environmental features are located within the study area.

4.2.8 E8 Waterways and riparian lands

The study area is located within Waterways and Riparian Lands (Figure 1). As per the WDCP control E8, the following requirements apply to the proposed works:

- The applicant shall submit a Waterway Impact Statement
- Developments shall comply with the requirements of Council's Waterways and Riparian Land Policy and Water Management Policy
- Infrastructure such as roads, drainage, stormwater structures, services, etc. should be located outside land identified as Waterways and Riparian Lands.

This Waterway Impact Statement has been prepared as per Warringah's *Guidelines for Preparing a Waterways Impact Statement.* The proposed development complies with the requirements of Council's

Protection of Waterways and Riparian Land Policy, in that there is no net loss to biodiversity, no change to natural flow regimes and no effect on bank stability likely to occur as a result of the proposed works.

Figure 8: Warringah DCP Threatened and High Conservation Habitat

Figure 9: Warringah DCP Wildlife Corridor

Figure 10: Warringah DCP Native Vegetation

5. Provision of mitigation measures

5.1 Outcome 1: Protecting native species and communities

Performance criteria	Mitigation measures
Maintain natural habitats	• Tubestock removed where required to facilitate access for the construction works would be replanted as per the Biodiversity Management Plan (ELA, 2019) in consultation with Council. • During construction protect vegetation and habitat elements; and control sediment, erosion and weeds.
Provide fauna movement routes	• During construction, control sediment, erosion and weeds to avoid indirect impact to aquatic habitat. • Replant any tubestock that require removal. • During construction, protect trees to be retained (i.e. fencing around drip line).
Prevent unnatural erosion or sediment deposition	• Develop and implement erosion and sediment control plan.
Maintain acceptable water quality	• Implement Council-approved erosion and sediment control plan
Maintain connectivity between waterways and floodplains	• During construction, restrict access (via fencing) to retained vegetation and vegetated riparian buffer. No permanent barrier to be constructed between Curl Curl Lagoon and its floodplain.

5.2 Outcome 2: Prevent loss of natural diversity through protecting waterway and riparian vegetation (including non-native vegetation)

Performance criteria	Mitigation measures
Avoid introducing plants or animals which may displace natural species	• During construction, observe hygiene protocols to avoid the spread of weeds, pests and diseases. • Clean all machinery and equipment of weed seeds before entering site.
No increase in nutrient loads to riparian soils and waterways	• Develop and implement erosion and sediment control plan.
Avoid displacing species by habitat changes	• During construction, restrict access (via fencing) to retained vegetation. • Undertake replanting of native species when construction works are complete.
Protect natural areas from contamination	• During construction, restrict access (via fencing) to retained vegetation. • Avoid storage of chemical, fuels or oils onsite during construction. If storage is required, ensure it is on flat ground more than 100 m from any

Performance criteria	Mitigation measures
	waterway. Ensure adequate bunding and spill containment onsite.
Prevent the loss of any rare or threatened natural features	• Do not clear any vegetation outside of that identified in Flora and Fauna Assessment (ELA, 2019). • Enhance native vegetation within the 'waterways and riparian lands' by replacing any tubestock removed as part of construction activities.
Protect downstream protected areas, such as National Parks	• Downstream receiving waters are to be protected via implementation and maintenance of erosion and sediment controls.

5.3 Outcome 3: Minimise damage to public and private property by waterway processes through maintaining the relative stability of the bed and banks

Performance criteria	Mitigation measures
Avoid increases in peak channel flows and sediment exports for events smaller than 2-year Average Recurrence Interval (ARI)	• Very little increase in impervious surfaces will result from proposed works, therefore no increase in peak flows are expected.
Avoid local erosion at stormwater outlets	• Proposed works are to take place away from stormwater outlets. No increase in overland flow is expected from the completed facility.
Avoid export of weeds from private properties into waterways	• No disposal of cleared vegetation in riparian lands.
Channel banks are not over-steepened	• No in-stream works are proposed. • During construction, restrict access (via fencing) to retained vegetation including the 'waterways and riparian lands' area and bank of lagoon to prevent exacerbation of erosion. • During construction, control sediment and erosion to avoid indirect impacts to channel banks.
Channel banks are stable	• No in-stream works are proposed • During construction, restrict access (via fencing) to retained vegetation including the 'waterways and riparian lands' area and bank of lagoon to prevent exacerbation of erosion. • During construction, control sediment and erosion to avoid indirect impacts to channel banks.

5.4 Outcome 4: Preserve natural ecological processes

Performance criteria	Mitigation measures
Streamflow and water quality are natural	• No artificial barriers to capture or divert water would be constructed as part of the proposed works. • The proposed construction or operation of the telecommunications facility would not involve extraction of water from Curl Curl Lagoon. • Development and implementation of an erosion and sediment control plan would prevent degradation of water quality.
Aquatic and riparian vegetation are undisturbed and unmodified	• No in-stream works are proposed. • During construction, restrict access (via fencing) to retained vegetation including the 'waterways and riparian lands' area and the bank of Curl Curl Lagoon. • During construction, control sediment and erosion to avoid indirect impacts to riparian and aquatic vegetation. • Enhance native vegetation within the 'waterways and riparian lands' by the replacement of tubestock removed to facilitate construction access.
Aquatic and riparian fauna habitat and movement corridors are retained	• No in-stream works are proposed. • During construction, restrict access (via fencing) to retained vegetation including the 'waterways and riparian lands' area and the bank of Curl Curl Lagoon. • During construction, control sediment and erosion to avoid indirect impact to waterways. • During construction, observe hygiene protocols to avoid the spread of weeds, pests and diseases.

5.5 Outcome 5: Create opportunities for public access and recreation in waterway corridors

Performance criteria	Mitigation measures
Provide public access along creek corridors where appropriate	• The proposed works are to take place adjacent to an area where public access is unrestricted. The proposed development will not restrict access along the foreshore of Curl Curl Lagoon. • During construction, temporary fencing will be installed to prevent public access to the works area to maintain public safety, however this would not restrict access for the public to other areas of Curl Curl Lagoon or John Fisher Park sportsfields.

6. Conclusion

The conclusion of this Waterway Impact Statement is that the proposed development is unlikely to have adverse impacts on adjacent Curl Curl Lagoon or its riparian land. An erosion and sediment control plan is to be developed and implemented during the works and any structures designed to minimise erosion and movement of sediment from site are to be maintained regularly, particularly before and after rainfall.

7. References

Eco Logical Australia (2019). John Fisher Park Telecommunications Facility Flora and Fauna Assessment

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