STATEMENT OF EVIDENCE - TERRESTRIAL ECOLOGY

IN THE **PLANNING AND ENVIRONMENT COURT** No 13 of 2021

HELD AT: **MAROOCHYDORE**

Between:	**PETER ROBINSON AND PAUL SCHUBERT**	Appellant
And:	**GLADSTONE REGIONAL COUNCIL (IN ITS ROLE AS ASSESSMENT MANAGER)**	Respondent
And:	**GLADSTONE REGIONAL COUNCIL (IN ITS ROLE AS DEVELOPMENT PROPONENT)**	Co-respondent

Author: **JUSTIN JAMES WATSON**

Date: **14 October 2021**

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1. INTRODUCTION

1.1 Statement and Qualifications of the Writer

1. This Statement of Evidence has been prepared to assist the Court in relation to P&E Appeal No. 13 of 2021, between Peter Robinson and Paul Schubert (appellant) and Gladstone Regional Council (in its role as assessment manager) (respondent) and Gladstone Regional Council (in its role as development proponent) (co-respondent).

2. I have a PhD in ecology, am an Associate Professor and a Certified Environmental Practitioner, with the Environment Institute of Australia and New Zealand. I have provided a curriculum vitae, a copy of which is included as **ATTACHMENT A**.

3. I am familiar with the locality, the associated vegetation communities and fauna habitats of the local landscape.

4. I have completed a site inspection of the subject land and surrounds, specific for the purpose of this Statement, on 17th and 18th August 2021.

1.2 Proposed Development and Immediate Landscape

5. The subject land is located at 5 Agnes Street, Agnes Water (Lot 8 CP910294) (**ATTACHMENT B**).

6. The proposal is for a carpark to be constructed on the vacant land currently used for informal car parking. I understand that the original proposal was for an 87 space carpark and that the amended proposal, the subject of the appeal, is for a reduced number of car parks, i.e. 73 (**ATTACHMENT C**).

7. This proposal includes the retention of trees, a stormwater management system and incorporates landscaping into the design.

8. The subject land is to the north of Agnes Street. The Beach Houses Estate is to the immediate north, Agnes Water Beach Club to the west/southwest (with the Endeavour Plaza Shopping Centre to the west/southwest of the Beach Club) and the Mango Tree Motel to the east/northeast. While a small open space/park is located to the northwest along Graham Coyler Drive, the surrounding landscape comprises primarily residential dwellings.

1.3 Purpose of Statement

9. I understand that ecological issues in this Appeal are those identified in the consolidated list of issues (dated 31st August 2021) numbered 9-12 (environmental impacts - vegetation clearing), 39 (relevant matters) and 47-48 (non-compliance and conditions). These are identified in **Section 3** of this document.

10. I have been requested to provide a Statement that addresses the ecological issues in the appeal.

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2. ECOLOGICAL CONSIDERATION

2.1 Ecological Values

11. An Environmental Management Plan (EMP) dated 26th February 2021, was prepared by CQG Consulting. This document provided some ecological information including a basic ecological assessment report (as Appendix C to the EMP) and was prepared to "summarise the commitment by GRC to maintain the environmental values of areas adjacent to the Site in accordance with the *Environmental Protection Act* (1994)." Section 9 of the EMP addressed Ecology Management, i.e. *to minimise the environmental impacts on abundance and distribution of flora and fauna; and to minimise the introduction and spread of invasive animal species.*

12. CQG provide the following description (at page 1) of the subject land:

    The Site is currently being used as an overflow carpark for nearby beach access. The topography of the Site is generally flat, with a gentle 0.5 percent fall from Agnes Street towards the north-western edge of the Site. Gravel overlays the south-east of the development site and the reminder of the Site has sparse grass growth. Two open drains run through the construction site to the pond. Gravel overlays the south-east portion of the construction site and the remainder of the area is largely clear apart from sporadic grass growth. The adjacent area to the north-west is an established stormwater pond covering approximately 35 square meters. This is surrounded by dense highly disturbed wetland vegetation. There are developed medium density residential and commercial areas to the south-west and north-east of the Site.

13. To appreciate the subject land and surrounds I completed a site inspection over two days and included both diurnal surveys and a nocturnal survey. I also inspected land to the north and west (along the constructed/realigned drainage line) and the intact and disturbed coastal areas to the east and further south. This survey was completed on the 17th and 18th August 2021. **PHOTO PLATES** illustrating the subject land and surrounds are attached.

14. This site inspection confirmed the condition of the subject land, noting 17 of the 29 flora recorded (by CQG) are weed/introduced species. The site is highly modified with evidence of historical earthworks (filling) and swales/drains. The land is used as an informal carpark (and camp site). The ground layer is dominated by grasses (maintained) and compacted earth while a few young/semi-mature eucalypts (forest red gums) are scattered throughout. Further north, the land falls into a drainage pond which is dominated by weed species, some of which have likely established due to garden plantings and landscaping from the Beach Houses Estate. The drainage line associated with the pond is realigned and concreted to the west while it supports some natural features further north (i.e. through the Estate).

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15. CQG provided the following description and assessment:

Vegetation in the vicinity of the Site was mapped as consisting of Category X (non-remnant) and Category R (reef regrowth watercourse vegetation) regulated vegetation, made up of RE12.1.11 (least concern), RE12.3.3 (endangered), RE12.12.12 (of concern) and RE12.3.6 (least concern). Ground truthing only confirmed the presence of RE 12.2.11, Corymbia tessellaris +/-Eucalyptus tereticornis, Corymbia intermedia and Livistonia decora woodland on beach ridges within the potentially impacted area. Compared to other areas of Agnes Creek, the Site does not contain sufficient complexity of vegetation to support a diversity of wildlife.

16. With respect to site values, CQG concluded:

- *The construction site is already highly modified and is currently used as an informal carpark;*
- *The site is not particularly diverse in species as it has been heavily modified and contains abundant non-native flora species; and*
- *No listed EVNT fauna or flora species were recorded.*

17. The State mapping (accessed September 2021) (refer **Extracts 1** & **2**) shows the following:

- No remnant vegetation on site or surrounds
- No essential habitat on site or surrounds
- Regrowth/reef vegetation over part of the site and Beach Houses Estate to north and Shopping Centre, Beach Resort and houses to the west
- A waterway to the north (beyond) the site which is the constructed concrete drain to the west and channel through the Beach Houses Estate to the north

Extract 1. State *Remnant Vegetation* and *Essential Habitat* mapping
Subject land identified by *red outline*

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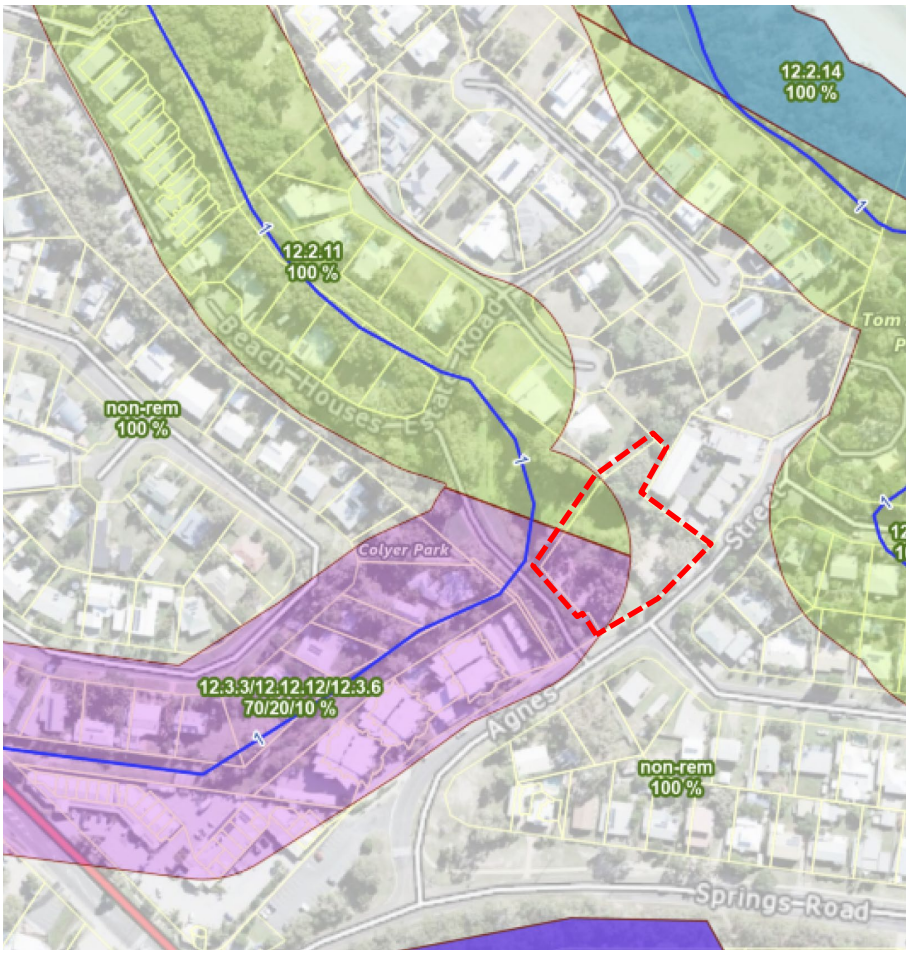
18. As noted by CQG, several (mixed polygon) regional ecosystems (RE) are mapped in the broader area, with regrowth vegetation associated with the drainage line and into parts of the subject land (refer **Extract 2**):

- RE12.3.3 - *Eucalyptus tereticornis* woodland on Quaternary alluvium
- RE12.12.12 - *Eucalyptus tereticornis, Corymbia intermedia, E. crebra +/- Lophostemon suaveolens* woodland on Mesozoic to Proterozoic igneous rocks
- RE12.3.6 - *Melaleuca quinquenervia +/- Eucalyptus tereticornis, Lophostemon suaveolens, Corymbia intermedia* open forest on coastal alluvial plains
- RE12.2.11 - *Corymbia tessellaris +/- Eucalyptus tereticornis, C. intermedia and Livistona decora* woodland on beach ridges in northern half of bioregion

19. *Eucalyptus tereticornis* is the dominant tree on the subject land. Few individual and scattered trees occur (refer **PHOTO PLATES**). Further north other trees occur on the land, including mangoes, wattles, palms, bloodwoods and paperbarks. The State mapping correctly confirms the subject land vegetation does not meet remnant vegetation status.

20. Remnant vegetation (and essential habitat) was observed (and is reflected on the State mapping – refer **Extract 1**) south of Captain Cook Drive and Springs Road, and north of Springs Road (to the east of the subject land).



Extract 2. Regrowth/Reef Vegetation

- Category C or R - endangered - *pink shading*
- Category C or R - least concern – *green shading*

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21. In order to assess the potential occurrence for threatened species, it is important to understand the known occurrence of species in the locality, whether the habitat occurs on the land (and in the surrounds) and whether the habitat is suitable for the species. Interrogation of available databases (with known records), a site inspection and appreciation of species' ecological requirements, assists in the assessment of likely occurrence.

22. The State Wildnet Database provides known records for species of fauna and flora, including threatened species (i.e. listed under State and Commonwealth legislation). CQG considered the available databases and search tools for threatened species and communities under the Commonwealth (*Environmental Protection Biodiversity and Conservation Act 1999*) and State (*Nature Conservation Act 1992*) legislation.

23. I have completed an independent analysis of the databases and the list (**Table 1**) below (data accessed September 2021) identifies that there are several known records of threatened fauna and flora within 5km of the subject land. Other than a single record for a grass, there are no known records for threatened species within 1km.

24. While only a single species (a grass) is known to occur (a known record) within 1km of the subject land, I have considered all species listed in **Table 1**. The 5km radius from the subject land has captured several natural areas and a variety of habitats, including the bushland around 1770, Eurimbula National Park, Joseph Banks Conservation Park, Reedy Creek Reserve and the bushland around the Community Centre (on Springs Road) and natural areas south towards Deepwater National Park.

25. Of the ten fauna listed in the table, eight are birds and two mammals. Of the birds, five are migratory shorebirds, one is a pelagic seabird, one is a beach-nesting bird and one is an aerial insectivore. The subject land provides no habitat for these species. The white-throated needletail is the aerial insectivore and feeds on insects while on the wing. It may fly over Agnes Water as it would over all of eastern Australia (Cape York to Tasmania) feeding on rising insects. It does not breed in Australia. The mammals include a water mouse which requires mangrove and saltmarsh habitats and the greater glider which requires very large trees with hollows and dense riparian/eucalypt and forested vegetation. These habitats and resources are not on or adjacent to the subject land.

26. Of the five flora listed:

- The lobelia is a common plant in damp areas in North Queensland with an obvious purple flower;
- The cycad occurs in spotted gum (*Eucalyptus maculata*) and narrow-leaved ironbark (*Eucalyptus crebra*) woodland and open forest with a grassy understorey. It has also been recorded on rainforest margins. The species usually grows on hill tops and steep slopes;
- *Germainia* is a perennial, tufted grass to 90cm tall. It is known from a population in Eurimbula National Park and the Torres Strait;
- *Arytera* is a tree or shrub growing to 7m high with a known population in Eurimbula National Park; and
- The wedge-leafed tuckeroo is a shrub or small tree that grows up to 6m in height and is recorded in a variety of rainforest types including vine thicket and dry rainforest.

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27. These threatened species (**Table 1**) do not occur on the subject land or immediate surrounds. The site, although highly degraded, supports potential habitat and resources for few common and mobile fauna, e.g. forage habitat for birds, possums and perhaps flying foxes in the eucalypts. These common species and their resources, occur in the broader landscape.

28. The pond provides habitat for common waterbird species and amphibians. The eastern sedgefrog (*Litoria fallax*) was heard calling on the evening of 17th August 2021 during a spotlight survey. This is a common frog across eastern Australia in garden and dam settings. It is possible that other common frog species (e.g. green treefrog, graceful treefrog and striped marshfrog) occur around the pond. No threatened frogs have been recorded within 5km of site (State Wildnet Database) and the habitat associated with the pond is also not considered suitable for threatened frog species that may occur in the broader locality. The broader landscape provides potential habitat for the wallum frogs (i.e. species that live in heathland and higher pH waters). The subject land does not support heathland/wallum communities. Further to this, the occurrence of *L.fallax* confirms habitat unsuitable for wallum frogs.

29. Grey-headed flying-fox (listed at the Commonwealth level but not the State) is reasonably common throughout southern/eastern Queensland and regularly seen in gardens and parks feeding on nectar/blossoms and fruits of both native and landscaped plants. There is only a single record on the State database within 5km of the subject land. As this species is known to occur in the region, and in gardens and parks, there is a possibility that it may forage in the eucalyptus during flowering periods. Importantly, there are no flying-fox camps (roost colonies) on the subject land with the nearest located north in Eurimbula National Park (Ref - http://www.environment.gov.au/webgis-framework/apps/ffc-wide/ffc-wide.jsf).

Table 1. Threatened Species known within 1km and 5km of Subject Land

FAMILY	SCIENTIFIC NAME	COMMON NAME	Q	A	5km	1km
Apodidae	*Hirundapus caudacutus*	white-throated needletail	V	V	2	0
Burhinidae	*Esacus magnirostris*	beach stone-curlew	V	-	4	0
Charadriidae	*Charadrius leschenaultii*	greater sand plover	V	V	4	0
Charadriidae	*Charadrius mongolus*	lesser sand plover	E	E	5	0
Procellariidae	*Macronectes giganteus*	southern giant-petrel	E	E	3	0
Scolopacidae	*Calidris ferruginea*	curlew sandpiper	CR	CE	1	0
Scolopacidae	*Limosa lapponica baueri*	Western Alaskan bar-tailed godwit	V	V	5	0
Scolopacidae	*Numenius madagascariensis*	eastern curlew	E	CE	8	0
Muridae	*Xeromys myoides*	water mouse	V	V	1	0
Pseudocheiridae	*Petauroides armillatus*	central greater glider	V	V	1	0
Campanulaceae	*Lobelia membranacea*	native lobelia	NT	-	1	0
Cycadaceae	*Cycas megacarpa*	a cycad	E	E	3	0
Poaceae	*Germainia capitata*	a grass	V	V	1	1
Sapindaceae	*Arytera dictyoneura*	veined coogera	NT	-	1	0
Sapindaceae	*Cupaniopsis shirleyana*	wedge-leaf tuckeroo	V	V	1	0

NOTES

- Conservation Status (Q = Queensland NC Act 1992; A = Commonwealth EPBC Act 1999)
- NT – near threatened, V = vulnerable, E = endangered, CE/CR = critically endangered

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30. Council's environmental mapping (under its Planning Scheme) incorporates the State MES (matters of environmental significance) mapping and identifies MSES-Wildlife (*hatched areas*) and MSES- Regulated vegetation (*green shading*) in the broader landscape (refer **Extract 3**). There is no Council (MSES) mapped areas within or adjacent to the subject land.

Extract 3. Council (MSES) mapping

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2.2 Ecological Impacts

31. The proposed development requires earthworks which will result in the loss of vegetation, namely individual trees (**ATTACHMENT C**). The CQG reporting did not include a tree survey or tree retention plan.

32. During the site inspection in August 2021, I recorded information on the individual trees within the proposed construction/project area. A tree survey (and schedule) over the proposed development is provided in **ATTACHMENT D**. The plan was provided by Council, I confirmed tree locations on the subject land and added the tree numbers and tree schedule to the plan. Also refer **PHOTO PLATE 7** which labels individual trees according to **ATTACHMENT D**.

    In summary, there are ten trees associated with the proposed works. These include seven eucalypts (including three small trees), one small swamp box and two planted (on verge) multi-stemmed tuckeroo. None of these trees display evidence of hollows or other specific habitat (denning/nesting) resources. All trees would offer some form of forage resource (i.e. flowers/nectar) during certain periods of the year. The eucalypts are common in the local landscape and would not be considered a "scarce" resource or habitat feature. Several trees are not located on the plan as they are beyond the disturbance area. These will be retained and include several eucalypts, bloodwoods, paperbarks and wattles (refer **PHOTO PLATES**).

33. The proposed development will result in the loss of six eucalypts and one swamp box. Of these, four trees are relatively small (i.e. less than 250mm diameter at breast height). One of the largest trees on the subject land (and immediate surrounds) is a multi-trunk eucalyptus which will be retained in the east. Numerous other trees are retained in the north/northwest, i.e. beyond the disturbance footprint.

34. It is my understanding that the proposed stormwater infrastructure for the proposed carpark will result in a significant reduction in pollutant loads leaving the site, including sediment, nutrients, surfactants and litter. I also note, from an ecological perspective, that the pond is not in a natural state, primarily likely due to historical activities, local development, channelising of the drainage path and impacts from the Estate. Improving the water quality entering the pond from the subject land would be an improved ecological outcome.

35. The interface between the current carpark and the pond is weed infested. The proposed modification to the interface and establishment of a landscaped edge will improve this area and minimise further weed invasion (from the subject land). The proposed landscape plan is included at **ATTACHMENT E**.

36. The ecological impacts as a result of the proposed development can be summarised as follows:

    - Loss of 1 x small swamp box
    - Loss of 3 x small eucalyptus
    - Loss of 3 x moderate sized eucalyptus
    - Loss of weed dominated "grassland" along edge of pond

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37. In my opinion, the loss of the above ecological values is not an unacceptable ecological impact. This is based on the low number of trees lost, none of which are mature, the trees do not form part of any broader conservation area, the location and context of the carpark, historical and current use and proposed landscaping and weed management benefits.

38. There is no loss of hollow-bearing or large mature trees, no loss of habitat considered critical for any threatened (or common) species, no loss of remnant vegetation, and no disruption to any fauna movement corridors (noting the subject land is not part of any biodiversity corridor, e.g. connections between conservation areas).

39. There is opportunity for rehabilitation of an area that is currently dominated by introduced/weed species and an improvement in the water quality (entering the pond). While it is a matter for the engineers, I understand that water quality will be improved which would naturally provide a benefit to the pond area (i.e. rather than untreated water entering the pond). Removal of weed/introduced species and replacement with a greater diversity of native species (as part of the landscaping plan) will provide a greater diversity of habitats and resources for fauna that may use the area. This has positive local and broader ecological outcomes by reducing weeds in the area and providing resources for a greater diversity of fauna.

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3. ECOLOGY ISSUES IN THE APPEAL

3.1 Environmental Impacts - Vegetation Clearing

40. The consolidated list of issues identifies the "environmental impacts" issues, as follows:

(9) The extent to which the proposed development involves clearing of native and riparian vegetation.
(10) Whether the proposed development will result in negative impacts on the environmental values of the site and adjoining areas as a result of vegetation clearing including, but not limited to, the impact on frogs and sugar gliders.
(11) Whether the proposed development includes appropriate mitigation measures to address the impacts of the development.
(12) Whether the proposed development complies with the following assessment benchmarks of the Planning Scheme:

Planning Scheme	*Provisions*
SF	*Part 3.7*
MUZ Code	*Overall outcome (m), PO32*

41. By way of reference to the Planning Scheme Benchmarks for the **Strategic Framework** (Part 3.7)[1]:

Part 3.7 **3.7.1** **Strategic outcomes**	*(1) Sustainable development allows our communities to meet their present needs while not compromising the ability of future generations to meet their needs.* *(2) Natural places including areas with national and state environmental significance are protected through appropriate planning and development practices.* *(3) Natural places and valuable features of our natural environment are linked through regional and local environmental corridors. The major urban area of Gladstone is separated from those of Boyne Island / Tannum Sands and Calliope by a greenbelt free of any urban development that delineates these urban areas and preserves significant environmental and landscape amenity values.* *(4) The region's identified scenic amenity values are protected from inappropriate development.* *(5) The environmental values and quality of the region's waters and waterways are protected.* *(6) Fisheries resources (including declared fish habitat areas) are protected from development and productivity is maintained to support the commercial, recreational and indigenous fishing sectors.* *(7) Development ensures waterfront areas, including coastal and riverine locations, are publicly accessible except where required for port related purposes or where sensitive ecological values occur.* *(8) Urban areas accommodate a network of open spaces, parks and recreational areas suited to community needs and also protect environmental values.* *(9) Development avoids areas affected by natural hazards where these risks can't be mitigated to an acceptable or tolerable level through development design and location measures. Sensitive uses are located in areas free from natural hazards or where the risks from natural hazards are acceptable.* *(10) Places of cultural heritage are conserved so that the unique cultural and historical identity and diversity of the Gladstone region can be appreciated and interpreted.* *(11) Development on or adjoining local heritage places preserves their heritage significance and complements their character.*

[1] Those with ecological relevance are shaded in yellow. Note: Not all of 3.7.2 has ecological application – only those areas with some relevance are addressed further.

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3.7.2 Elements	***Sustainable management of the natural environment and resources*** *Development minimises and mitigates environmental impacts on the region's natural environment and resources. High importance is placed on the natural environment so that national and state wide environmental values are not compromised.* *The region is abundant in areas of high ecological significance and riparian ecosystems including areas of national and state significance. These areas, including the key biodiversity places of Eurimbulah, Castle Tower, Kroombit–Bulburin and the Rundle Range are protected through minimal development disturbance and mitigation measures.* *Natural corridors and links between these hubs are protected. Natural corridors also function as important inter urban breaks particularly as a means of separating the major urban areas of Gladstone, Calliope and Boyne Island / Tannum Sands. No urban development is supported in this inter urban break or greenbelt.* *Areas of high scenic and landscape values within the region are protected from inappropriate development or impacts upon their amenity, particularly in the areas of Mount Larcom, Tablelands, Boyne Valley, Boynedale, Mount Alma, southern localities such as Lowmead and Captain Creek and much of the natural coastal and riverine areas.* *Development minimises and mitigates impacts on ecological, hydrological and water quality values and the natural processes within coastal foreshores, waterways and rivers; particularly in the largest catchments and tributaries of the Boyne River, Calliope River and Baffle Creek and other waterways such as, the Kolan River, Police Creek, Auckland Creek, Raglan Creek, and Diglum Creek. This is achieved through incorporating water sensitive urban design measures.* *Marine and fisheries resources are preserved and their associated industries operate sustainably. The Great Barrier Reef and the Gladstone Harbour are important as natural attractions and environmental assets to the region. The region continues its commitment to being a Reef Guardian Council.*
	Recreation in open space and parks N/A
	Safety and resilience to environmental change and natural hazards N/A

42. By way of reference to the Planning Scheme Benchmarks for the **Multiple Use Zone Code**[2]:

OO (m)	*Development mitigates any adverse impacts on adjoining areas of environmental significance, including creeks, gullies, waterways, wetlands, coastal areas, habitats, vegetation and bushland through location, design, operation and management requirements.*
PO32	*Development responds sensitively to on–site and surrounding topography, coastal foreshores, waterways, drainage patterns, utility services, access, vegetation and adjoining land use, such that:* *(a) any hazards to people or property are avoided* *(b) any earthworks are minimised* *(c) the retention of natural drainage lines is maximised* *(d) the retention of existing vegetation is maximised* *(e) damage or disruption to sewerage, stormwater and water infrastructure is avoided, and* *(f) there is adequate buffering, screening or separation to adjoining development.*

[2] Those with ecological relevance are shaded in yellow.

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Response to Vegetation Clearing Issues

(9) The extent to which the proposed development involves clearing of native and riparian vegetation.

43. The vegetation clearing is quantified in **Section 2.2** and is limited to non-native/introduced/weed species and a few eucalypt trees. Seven eucalypt trees of small to moderate size will be removed.

44. Riparian vegetation is generally associated with waterways. The pond does not support typical "riparian vegetation" and is dominated by weed species. The drainage line that is associated with the locality (and north of the subject land) has been realigned and concreted in parts.

45. Importantly, the clearing/construction works are setback from the pond and no native vegetation is proposed to be removed. Works in this area will restore the landscape to a more natural setting through initial weed control and landscape planting.

(10) Whether the proposed development will result in negative impacts on the environmental values of the site and adjoining areas as a result of vegetation clearing including, but not limited to, the impact on frogs and sugar gliders.

46. The environmental values are described in **Section 2.1** with ecological impacts identified in **Section 2.2.** The adjoining areas are, for the most part, developed and disturbed landscapes including roads, residential and motel accommodation. The pond to the north is heavily infested with weed species but is considered to provide habitat for some common fauna, including frogs and birds.

47. With respect to frogs:

    a) The removal of weed species and planting of native vegetation along the interface with the carpark and pond area would be an improvement and overall positive ecological outcome (for native frog and bird species); and
    b) I understand that the stormwater management system will see an improvement of the quality of water entering the pond from the south (carpark direction), both the stormwater and runoff and that appropriate best practice industry standards can be conditioned to ensure these outcomes.

48. With respect to sugar gliders:

    a) It is possible that this species occasionally forages in the nectar/blossoms provided by the flowering eucalypts at certain times of the year;
    b) There is a single record for a sugar (*Petaurus notatus*) and a single record for a squirrel glider (*Petaurus norfolcensis*), within 5km of the subject land;
    c) There are no hollow-bearing trees on the subject land (which would be necessary for denning);
    d) While gliders are likely scarce in the landscape (noting the few State records), they would potentially forage throughout the developed landscape, including within the eucalypts, paperbarks (and other blossom-producing species);

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e) Intact and dense habitats (e.g. remnant vegetation) in the local landscape (including areas with large mature trees that support hollows) would be considered more suitable habitat for gliders;
f) The retained eucalyptus and proposed planting will enhance/replace any potential resources removed.

49. With respect to other fauna, as discussed in **Sections 2.1 and 2.2**, it is possible that common and mobile species may use the trees within the subject land. These features (resources) are common in the landscape, and the few trees that will be removed are not considered "critical" resources for any fauna that may occur in the landscape. The landscaping exercise will replace some of these values (i.e. flower/nectar resources) and can provide a greater diversity (weed removal and planting with a diversity of native species).

50. In my opinion, noting the discussion above, there is no unacceptable impact to frogs, gliders or other fauna that may occasionally occur on the subject land.

(11) Whether the proposed development includes appropriate mitigation measures to address the impacts of the development.

51. With respect to ecology matters:

a) The development (construction area) is setback from the pond and avoids direct impacts to the pond;
b) I understand that standard best-practice measures can be conditioned to manage indirect impacts to the pond area (e.g. temporary protection/no-entry fence; sediment and erosion fencing, acid sulfate soil management);
c) Numerous native trees (including eucalypts) are retained in the northern part of the land;
d) While native vegetation clearing is minimal, the planting of similar species (and resources) elsewhere in the local landscape is a positive outcome; and
e) A landscaping (and weed control) exercise at the interface with the pond will be a positive ecological outcome.

52. In my opinion, as noted above, the ecological impacts associated with the proposed development are not considered unacceptable. The mitigation measures proposed (also refer **Section 4**) are considered appropriate to address the impacts. Specific recommendations to manage potential ecology impacts are provided in **Section 4.**

(12) Whether the proposed development complies with the following assessment benchmarks of the Planning Scheme.

53. By way of reference to the Planning Scheme Benchmarks for the **Strategic Framework Strategic Outcomes** (Part 3.7.1), it is acknowledged that not all strategic outcomes are relevant to ecology with those identified above (in yellow shading) discussed further.

(2) Natural places including areas with national and state environmental significance are protected through appropriate planning and development practices.

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54. The subject land would not be considered a "natural place". Nevertheless, the subject land (and surrounds) does not support values that would be considered of "national and state environmental significance".

(3) Natural places and valuable features of our natural environment are linked through regional and local environmental corridors. The major urban area of by a greenbelt free of any urban development that delineates these urban areas and preserves significant environmental and landscape amenity values.

55. As noted above, the subject land is not considered a "natural place". Regardless, the subject land is not part of a regional or local environmental corridor and is removed from the areas identified as "Gladstone, Boyne Island, Tannum Sands and Calliope".

(5) The environmental values and quality of the region's waters and waterways are protected.

56. The drainage line adjacent to the subject land has been modified/constructed and disturbed. The environmental values and quality of the associated waters are likely to be improved. It is acknowledged that the pond receives waters from land not associated with the proposed carpark (and these other waters may be of lesser quality). Weed control and landscaping at the interface has the potential to improve overall values.

(8) Urban areas accommodate a network of open spaces, parks and recreational areas suited to community needs and also protect environmental values.

57. Insofar as this benchmark has ecological application, the loss of a few trees is considered an acceptable ecological outcome, noting the context of the subject land and the proposed landscaping (replacement of ecological values) and weed management (e.g. associated with the balance area adjacent to the pond).

58. In conclusion, with reference to the **Strategic Outcomes** (Part 3.7.1) relevant to ecology, the subject land does not support environmental values of state or national significance, is not a corridor or "natural place", is not part of a greenbelt and the adjacent pond and drainage line whilst degraded (and not in a natural condition) will be setback from the proposed carpark. As I understand, water quality (from the subject land) will also be improved to this area. The intended outcomes of the relevant benchmarks will not be compromised.

59. With respect to the **Strategic Framework Elements** (Part 3.7.2), Sustainable management of the natural environment and resources, those relevant to ecology are discussed below.

Development minimises and mitigates environmental impacts on the region's natural environment and resources. High importance is placed on the natural environment so that national and state wide environmental values are not compromised.

60. National and State -wide values occur elsewhere in the locality and will not be impacted by the proposed development. The proposed development will result in few trees being removed, i.e. six eucalyptus and one swamp box tree. The loss of this vegetation is considered an acceptable ecological impact noting the associated values, context of the land and surrounds (as described in **Section 2**) and proposed measures to improve water

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quality and biodiversity values (i.e. weed removal and establishment of native vegetation).

The region is abundant in areas of high ecological significance and riparian ecosystems including areas of national and state significance. These areas, including the key biodiversity places of Eurimbulah, Castle Tower, Kroombit–Bulburin and the Rundle Range are protected through minimal development disturbance and mitigation measures.

61. The nearest area of high ecological significance (a key biodiversity area) is Eurimbulah some 5km to the north. The subject land and surrounds are not an "area of high ecological significance".

Natural corridors and links between these hubs are protected. Natural corridors also function as important inter urban breaks particularly as a means of separating the major urban areas of Gladstone, Calliope and Boyne Island / Tannum Sands. No urban development is supported in this inter urban break or greenbelt.

62. The subject land is not a corridor between high ecological significance areas nor part of a greenbelt.

Development minimises and mitigates impacts on ecological, hydrological and water quality values and the natural processes within coastal foreshores, waterways and rivers; particularly in the largest catchments and tributaries of the Boyne River, Calliope River and Baffle Creek and other waterways such as, the Kolan River, Police Creek, Auckland Creek, Raglan Creek, and Diglum Creek. This is achieved through incorporating water sensitive urban design measures.

63. There are no important waterways near the subject land. The proposed development is nevertheless setback from the pond and drainage line with suitable measures to avoid indirect impacts to these features, including a water quality management system, weed control and native landscaping planting along the interface.

64. In conclusion, with reference to the **Elements** (Part 3.7.2) relevant to ecology, similarly to Part 3.7.1, the subject land does not support environmental values of state or national significance, is not a corridor or "natural place", is not part of a greenbelt and the adjacent pond and drainage line whilst degraded (and not in a natural condition) will be setback from the proposed carpark. As I understand, water quality (from the subject land) will also be improved to this area. The intended outcomes of the relevant benchmarks will not be compromised.

65. With respect to the **Multiple Use Zone Code** {**overall outcome** (**m**) and **PO32** (**d**)}:

    a) The development is not adjacent to any areas of environmental significance (refer **Sections 2.1** and **2.2**);
    b) The adjacent pond, while constructed and degraded, does provide some habitat (i.e. a waterbody) but it is not an "area of ecological significance";
    c) Regardless of the associated values of the pond, the proposed development is setback from the pond area and will allow for the removal of weed species, thereby enhancing the vegetation values associated with the pond;
    d) The water quality entering the pond from the subject land (as I understand) will be improved, and this would have a positive benefit to the pond area;

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e) Numerous trees (including eucalypts) are retained in the north of the subject land; and
f) The landscaping proposed (and weed control) at the interface between the pond and carpark would create a dense planting and diversity of native species, providing habitat for a variety of fauna.

66. In conclusion, with reference to the **Overall Outcome (m)** and **PO32** (**d**), the subject land and surrounding areas are not "areas of environmental significance", the proposed development will not generate an unacceptable ecological impact and the overall and performance outcome for the Multiple Use Zone Code will not be compromised.

3.2 Relevant Matters

67. The consolidated list of issues identifies the ecological "relevant matters", as follows:

(39) Whether the proposed development will mitigate ecological impacts through the retention of vegetation and additional plantings and will not result in adverse ecological impacts that cannot be appropriately mitigated through the imposition of reasonable and relevant conditions.

68. Ecological values are discussed in **Section 2.1** with potential impacts considered in **Section 2.2**.

69. In response to considering this matter, it is important to consider:

a) The context of the subject land, surrounds and proposed development;
b) The subject land does not support high ecological values and neither does the land to the north (i.e. associated with the pond);
c) The subject land (and surrounds) is not pristine in condition;
d) The proposed development essentially formalises the current use with some controls;
e) The ecological impact is restricted to the loss of six eucalyptus trees that are small to medium in size. No tree hollows or mature vegetation will be lost;
f) Several native trees (including eucalypts) are retained elsewhere on the subject land;
g) Additional plantings (elsewhere in the immediate locality) of similar species are a positive ecological outcome and will "replace" the trees (and resources) lost; and
h) Landscaping within the carparking area and the interface with the pond area is a positive ecological outcome, as is the removal of non-native/weed species which currently dominate the ground/mid-storey. The planting of paperbarks at the interface will directly compensate for the foraging resources removed.

70. In my opinion, while there are no ecological impacts that would be considered unacceptable, standard best practice measures can be implemented to avoid potential adverse impacts and could be imposed through reasonable and relevant conditions (see discussion in **Section 4**). The retention of the largest tree on the subject land, retention of native vegetation, including the large mango trees (within the clump of vegetation) in the northeast, and other native vegetation in the north and northwest (including several wattles, eucalypts, bloodwoods and paperbarks) and proposed landscape planting is an acceptable ecological outcome, further reducing any ecological impacts.

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3.3 Non-Compliance and Conditions

71. The consolidated list of issues identifies the ecological "non-compliance and conditions", as follows:

(47) Whether any non-compliances with assessment benchmarks are of a character that would call for the development application for the proposed development to be refused.
(48) Whether any non-compliances with assessment benchmarks can be addressed by the imposition of relevant and reasonable conditions.

72. With reference to the discussions above, including ecological values (**Section 2.1**), potential impacts (**Section 2.2**) and consideration of assessment benchmarks (**Sections 3.1** and **3.2**), it is my opinion that there is no "non-compliance" with the relevant "ecological" benchmarks, and as such, there would be no ecological basis for the proposed development to be refused.

73. While there are no ecological "non-compliances", it is nevertheless important to ensure appropriate measures are in place to minimise potential ecological impacts and provide an enhanced ecological outcome, where possible. To ensure this is achieved I would support the imposition of reasonable and relevant conditions. I have provided recommendations for ecological conditions in **Section 4**.

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4. RECOMMENDED CONDITIONS OF APPROVAL

74. In my experience, there is nothing particularly unusual about the proposed development that would warrant conditions beyond what would be expected as standard best practice.

75. While not necessary, in my opinion and experience, I would nevertheless recommend the following measures to enhance the ecological outcome:

    a) Vegetation Management

        i. Tree removal limited to the seven trees identified on plan in **ATTACMENT D**;
        ii. Clearly identify trees for removal vs retention;
        iii. Install tree and vegetation protection fencing for areas/trees to be retained;
        iv. Protection measures to be in place prior to any vegetation clearing or construction works; and
        v. Construction/site induction to ensure understanding of "no-go" areas.

    b) Fauna Management

        i. Fauna spotter/ecologist to inspect trees prior to tree clearing;
        ii. Tree clearing to be conducted in sensitive manner; and
        iii. Fauna spotter/ecologist to be on site during vegetation clearing.

    c) Landscaping and Rehabilitation

        i. Weed control along the interface with the pond on the subject land;
        ii. Landscaping to maximise the use of planting throughout the carparking area;
        iii. Dense planting with suitable native species only along the interface with the pond, including paperbarks; and
        iv. Generally in accordance with the landscaping plan (**ATTACHMENT E**).

5. CONCLUSION

76. I have considered the issues raised in the appeal that relate to ecology matters. I have inspected the subject land and surrounds and made the necessary enquiries regarding the relevant ecological mapping and databases.

77. I have assessed the site's ecological values and the impact on these values associated with the proposed development. I have considered the context of the subject land, the existing use, the surrounding developed landscape and the proposed development, including tree retention, weed removal, water management and landscaping works.

78. It is my opinion that the proposed development will not have an unacceptable impact on any ecological values of significance and that the development will not compromise the outcomes and intent of the relevant (ecological) benchmarks.

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6. DECLARATION

80. I confirm that:

a) The factual matters stated in this Statement of Evidence are, as far as I know, true;
b) I have made all enquiries that I consider appropriate;
c) The opinions provided in this Statement of Evidence are my genuinely held opinions;
d) I understand my duty as an expert to assist the Court and believe I have complied with that duty;
e) I have been made aware of and complied with my obligations under both the Uniform Civil Procedure Rules and the Planning and Environment Court Rules in preparing this statement; and
f) No instructions were given or accepted to adopt or reject any particular opinion in preparing this Statement of Evidence.

Justin Watson (PhD, Assoc.Prof., CEnvP)

Date: 14 October 2021

ATTACHMENTS

- **Attachment A** – Curriculum Vitae
- **Attachment B** – Subject Land and Surrounds
- **Attachment C** – Proposed Development
- **Attachment D** – Tree Survey/Removal Plan
- **Attachment E** - Landscaping Plan
- **Photo Plates**

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Attachment A – Curriculum Vitae

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JUSTIN JAMES WATSON - ECOLOGIST

Doctor of Philosophy (Botany/Zoology)
Associate Professor – Institute for Land, Water & Society (Charles Sturt University)
Certified Environmental Practitioner (EIANZ)

72 Kensington Circuit Brookfield 4069
PO Box 535 Kenmore 4069
justin@gondwanaecology.com.au
www.gondwanaecology.com.au
0407 410 099

Justin is the Director and Ecologist at Gondwana Ecology Group (established 2013).

He has been involved in the research, environmental and consulting field for more than 30 years (in Queensland since 2000) and has produced and/or contributed to numerous ecological/environmental reports, management plans and EIS/EIA's in Australia and internationally.

He is regularly engaged by local and State government to provide specialist/technical review of project EIS', threatened species management and amendments to planning schemes. He has co-authored the draft technical guidelines for the Commonwealth migratory species provisions.

He is a Certified Environmental Practitioner with the Environment Institute Australia and New Zealand, a past committee member of the Queensland Environmental Law Association and past councillor for Birds Australia. His ecological experience in Australia extends across all States and he has worked internationally and in remote areas.

In 2008 he was awarded an Adjunct Professorship position with the Institute for Land, Water and Society (Charles Sturt University) in recognition of his "contribution to teaching, research, scholarship and creative work." Current conservation, research and academic pursuits include terrestrial and restoration ecology, indigenous protected areas/conservation, Torres Strait biodiversity and conservation projects, threatened species management and conservation, and working with local environmental community groups.

He has published a number (>50) of refereed and popular articles, made contributions to books, brochures and multimedia (>10 books, brochures) and presented (>70) his wide range of research at local and international conferences, workshops, public lectures.

He has given expert evidence in the Planning and Environment Court, Land Court and the Land Tribunal and has provided advice to the Court since 2003. He regularly participates in Expert Witness workshops as presenter and mentor.

His PhD, subsequent research and consulting focussed on biodiversity, rehabilitation, understanding ecosystem functioning and identifying a practical approach to restoring landscapes.

Previous research and long-term monitoring has included ecosystem functioning and landscape dynamics, mine and sand dune rehabilitation, coastal management and ecological function, coastal bird breeding biology and management, migratory shorebird monitoring, hunting impacts on game-bird populations, threatened species translocation/management and conservation, seed dispersal, commercial saltpan bio-indicators and sustainable development of ecological areas for tourism.

He has been awarded numerous grants and sponsorships from various scientific/conservation-related organisations to conduct research (in Africa, Australia, Torres Strait and Solomon Islands) and regularly collaborates with research and conservation organisations.

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ECOLOGICAL & ENVIRONMENTAL WORK EXPERIENCE

- Director & Ecologist – Gondwana Ecology Group (2013 – current)
- Director, Principal Ecologist & Consultant – RPS Group (2003-2013)
- Queensland Manager, Senior Environmental Scientist – James Warren & Associates (2002-2003)
- Senior Environmental Manager – Resource Strategies (2000-2002)
- Environmental Manager/Restoration Ecologist – PPC Cement (Pty) Ltd (PhD Contract) (1995-2000)
- Scientific Officer – Institute for Coastal Resource Management (1999)
- Environmental & Research Consultant, Nature Tour Guide (Independent) (1993-2000)
- Nature Conservation Officer/Ranger – Port Elizabeth Municipality – Parks and Recreation (1996-1999)
- Environmental Education Officer – Western District Regional Council (1995-1999)
- Researcher/Laboratory/Assistant - Zoology/Botany Dept., PE University & PE Museum (1988-1999)

SELECTED ECOLOGICAL & ENVIRONMENTAL EXPERIENCE

- Terrestrial fauna surveys (including targeted surveys for threatened species), habitat assessments & conservation research in NT, NSW, QLD, WA, Torres Strait and Solomon Islands.
- Protected Plant Surveys in Queensland.
- Assessment of Biodiversity/Koala/Environmental Offsets in Queensland.
- Technical Specialist, Review & Independent Advice for large-scale EIS' in QLD.
- Ecological surveys, assessments and management plans for projects throughout Australia as Principal Ecologist with C&B Group, Natural Solutions, Conics & RPS.
- Numerous detailed ecological studies in NSW & QLD as Senior Environmental Scientist with James Warren & Associates. Predominantly for proposed development applications.
- Baseline and monitoring fauna & flora studies in NSW (Broken Hill, Orange, Wagga-Wagga, Temora, West Wyalong, Stratford, Gloucester, Tenterfield), QLD (North Stradbroke Island) & WA (Pilbara, Great Sandy Desert) as Senior Environment Manager with Resource Strategies.
- Ecological studies/research throughout South Africa, Mozambique and Namibia as principal & senior ecologist. Environmental impact assessments, preliminary & scoping studies - participated as field technician, surveying baseline data, specialist report preparation & management recommendations.
- Identification/collection of undescribed species/range extensions in remote Africa & Australia.
- Specialist Ecology Advisor for State/Local Governments, Conservation/Community Groups & Industry.
- Species Management Plans, Impact Management Plans & Koala Management Strategy – State & Infrastructure/Energy.
- Baseline ecology surveys for Conservation & Indigenous Land Trusts in QLD (including Kulla National Park; Indigenous Protected Areas in NQ; Undulla in SEQ).
- Management of nature reserve (estuary, mudflats, terrestrial > 15000ha) including administration, work force delegation, erosion & alien species control, law enforcement, boating safety, public & community liaison, general maintenance, rehabilitation, environmental education, shorebird habitat management & survey.
- Various environmental and advisory committees since 1988.
- Supervised undergraduate research projects 1997-2000, Student Advisor/Mentor from 2007 & PhD Co supervisor – Mammals of the Solomon Islands, University of Queensland (2009-2014).
- EIANZ certification co-ordinator/referee for applications & interviews.
- Co-author of Commonwealth EPBC Act migratory species assessment provisions (2015).
- Peer review of koala conservation management plan for the Gold Coast (2018).
- Technical review & assessment of planning scheme amendments for the Gold Coast (2020).

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MEMBERSHIPS/AFFILIATIONS

- Adjunct Associate Professor, Charles Sturt University (Institute for Land, Water and Society)
- Birdlife Australia

  (incl. Councillor/Director 2005-2011)
- Birds Australia Southern Queensland (incl. Committee 2004-2008)
- Birds Queensland
- The Hut Environmental & Community Association

  (incl. Committee 2004-2008, Vice President 2016-current)
- Central Queensland Mine Rehabilitation Group
- Environment Defenders Office
- Ecological Society of Australia (and Ecological Restoration Society of Australia)
- Urban Biodiversity Advisory Consortium Steering Committee 2004-2007
- Environment Institute Australia and New Zealand (EIANZ) – Certified Environmental Practitioner
- Moggill Creek Catchment Group
- Queensland Environmental Law Association (incl. Committee 2014-2017)
- Queensland Frog Society
- Wildlife Preservation Society of Queensland

ENVIRONMENTAL AWARDS/RESEARCH GRANTS

- Adjunct - Associate Professorship - Charles Sturt University (2008-current)
- Charles Sturt University research grant – Torres Strait Threatened Species Surveys (2015-2016)
- Flora Conservation Scholarship (1997)
- Avroy Shlain Research Grant (1993)
- Eastern Cape Wildbird Society (1993, 1998-2000)
- Endangered Wildlife Trust (1993-1995)
- Foundation for Research Development (1993-1999)
- Whysall's Optics/Swarovski (1997)
- South African Ornithological Society (1993-1994)
- Terrestrial Ecology Research Unit (1993-1999)
- Charles Sturt University (ILWS) research grant – Solomon Island Biodiversity (2011)
- Federal Government - Indigenous Protected Areas Programme - Torres Strait (2009)
- FRD (THRIP) Research Grant (1997-1999)
- Institute for Coastal Research (1993-1995)
- MTN Cellular (1998)
- PPC Cement (1996-1999)
- VI International Rangeland Congress, Townsville (1999)
- Professional Natural Scientist (Scientific Council) in 1998
- Pretoria Software Solutions (1993)
- University of Port Elizabeth (1992-1994)

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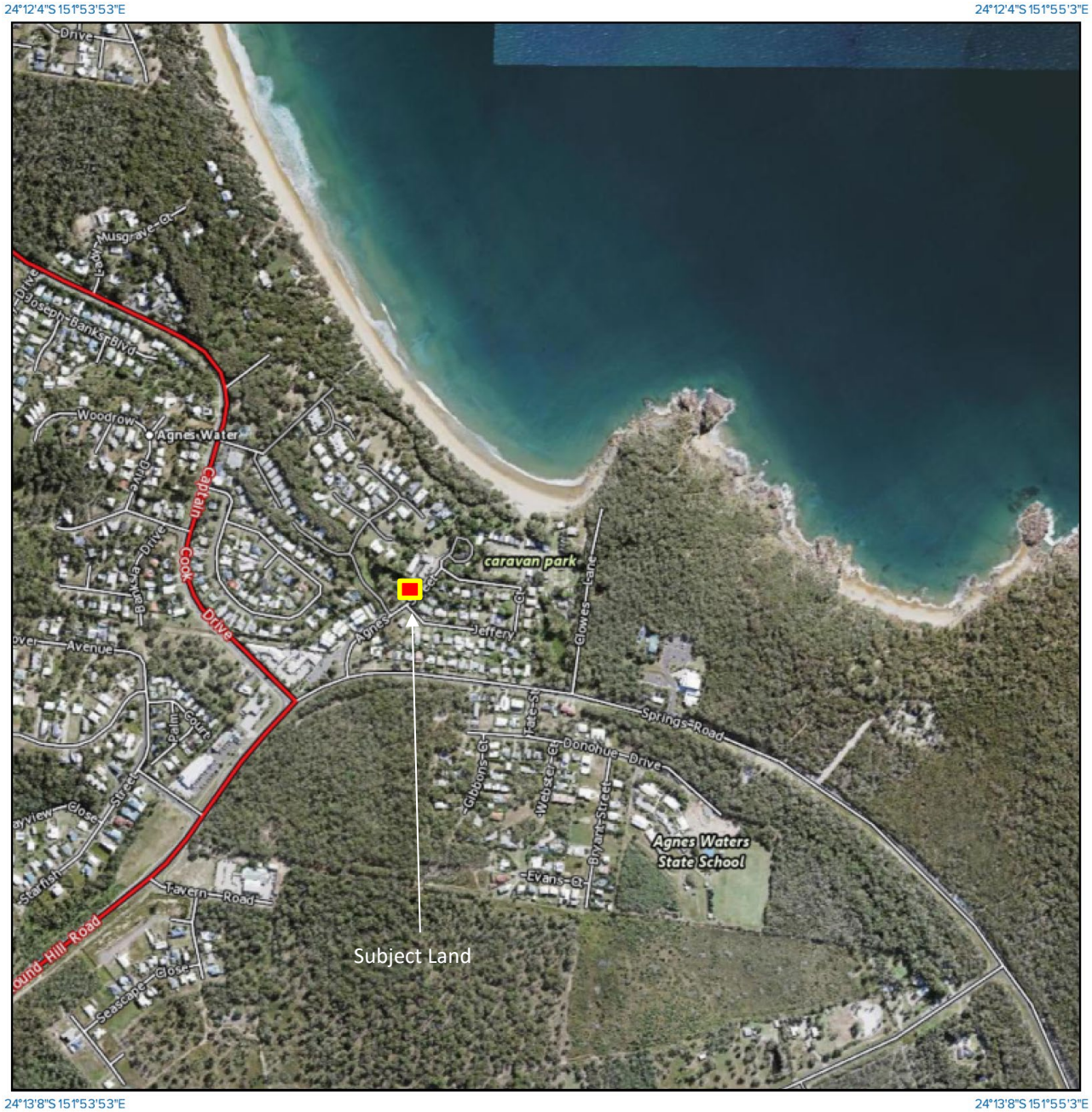
Attachment B1 – Subject Land & Surrounds



NOTE: Subject Land denoted by ***red-yellow symbol***
Source: QLD GLOBE

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Attachment B2 – Subject Land

NOTE: Subject Land denoted by ***red-dashed outline***
Source: QLD GLOBE

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Attachment C – PROPOSED DEVELOPMENT

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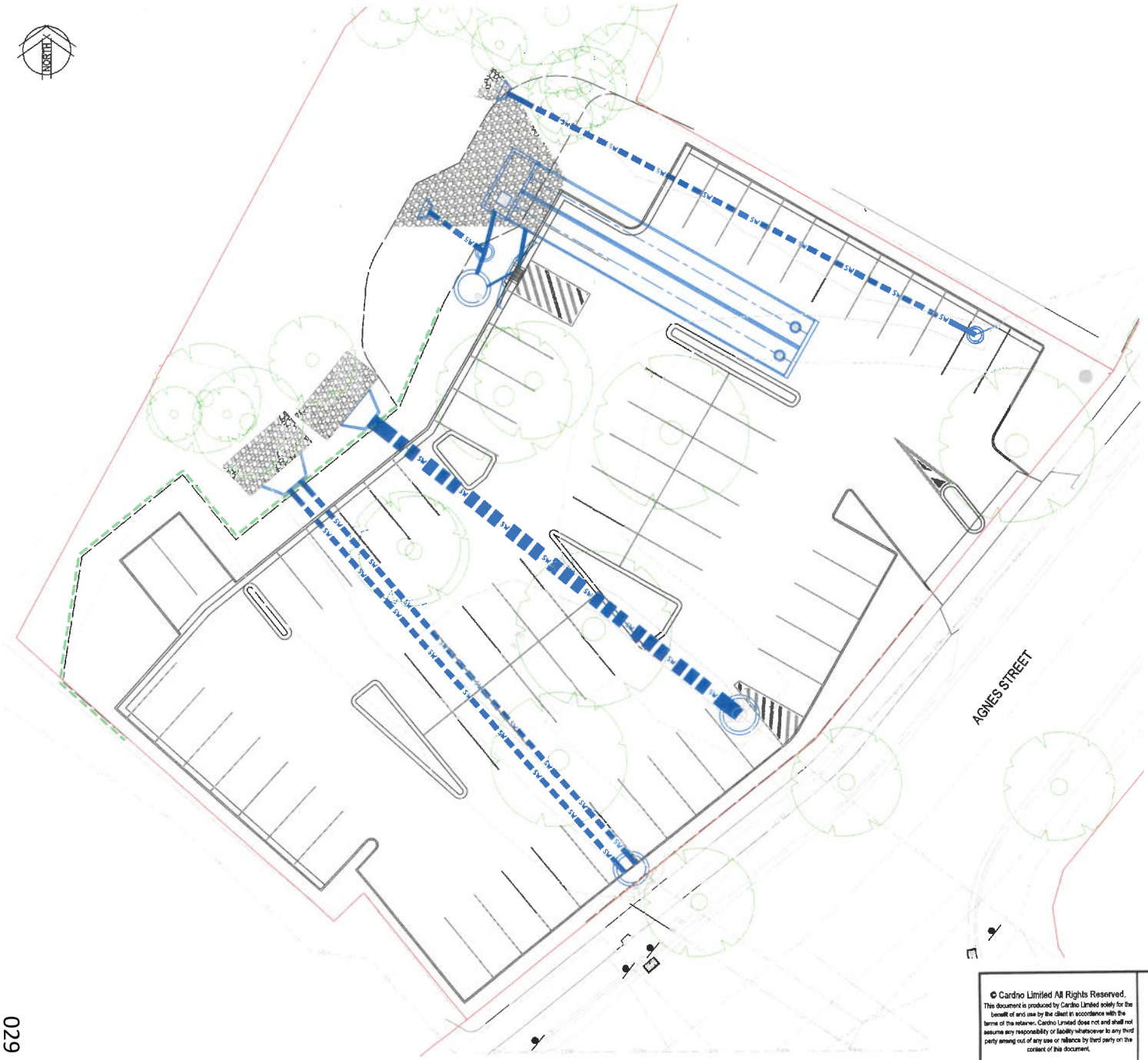
Version: 1, Version Date: 15/10/2021

Document Set ID: 5148054
Version: 1, Version Date: 15/10/2021



CARPARKS	
TOTAL	DIMENSIONS
73	5.40m x 2.70m (PERP)

LEGEND

- EXISTING TOP OF BANK
- EXISTING BOTTOM OF BANK
- EXISTING SEWER MAIN AND MANHOLE
- EXISTING OVERHEAD ELECTRICAL CABLE AND POWER POLE
- EXISTING EXISTING WATER MAIN
- EXISTING STORMWATER MAIN
- EXISTING UNDERGROUND TELSTRA CABLE
- RP BOUNDARY
- EXISTING FENCE
- TREE
- PROPOSED STORMWATER
- NEW DIAMOND BLOCK RETAINING WALL (OR APPROVED EQUIVALENT)

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GLADSTONE REGIONAL COUNCIL
AGNES ST AND JEFFERY CRT, AGNES WATERS
CARPARK WORKS - COMMUNITY CONSULTATION
AGNES ST CARPARK - OPTION 1

Datum	Date	Scale	Size
AHD		N.T.S.	A1

Drawing Number: R2020043-SK-0004
Revision: 1

XREFs: XR-R2020043-SKSCH-AGNES-OPTION 1, XR-R2020043-SURV
CAD File: \\aurora01\Regional_QLD\Projects\Central Queensland\Rockhampton\PROJECTS 2020\PROJECTS 2020\R2020043-GRC-AGNESWATERS CPWORKSDESIGN & TECH\MCAD\DRAWING\R2020043-SK-0004.dwg

029

Document Set ID: 4780153
Version: 1, Version Date: 30/08/2020

Attachment D – TREE REMOVAL PLAN

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Version: 1, Version Date: 15/10/2021

DRAFT FOR DISCUSSION ONLY

TREE SCHEDULE

 # Species - Diameter (approx.) - hollows

1 *Eucalyptus tereticornis* - 400mm - 0
2 *E.tereticornis* - 500mm - 0
3 *E.tereticornis* - 450mm x 2 (multi-trunk) - 0
4 *Lophostemon suaveolens* - 200m (multi-trunk) - 0
5 *E.tereticornis* - 200mm x 3 (multi-trunk) - 0
6 *E.tereticornis* - 250mm - 0
7 *E.tereticornis* - 250mm - 0
8 *E.tereticornis* - 500mm x 2 (multi-trunk) - 0
9 *Cupaniopsis anacardioides* - 300mm (multi-trunk) - 0
10 *C.anacardioides* - 300mm (multi-trunk) - 0

TREE TO REMAIN

TREE TO BE REMOVED

Native vegetation retained in this location with supplementary rehabilitation (weed control and planting/with suitable native species)

NOT FOR CONSTRUCTION
FOR INFORMATION ONLY

GLADSTONE REGIONAL COUNCIL

LAYOUT SKETCH			
TITLE AGNES WATERS CARPARK LAYOUT PLAN AND AERIAL			
SIGNED	DRAWING NO. 21-045-SK-04	REV 1.1	SHEET SIZE A1
SCALE 1:250	DRAWN BY DJC		

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Attachment E – LANDSCAPE PLAN

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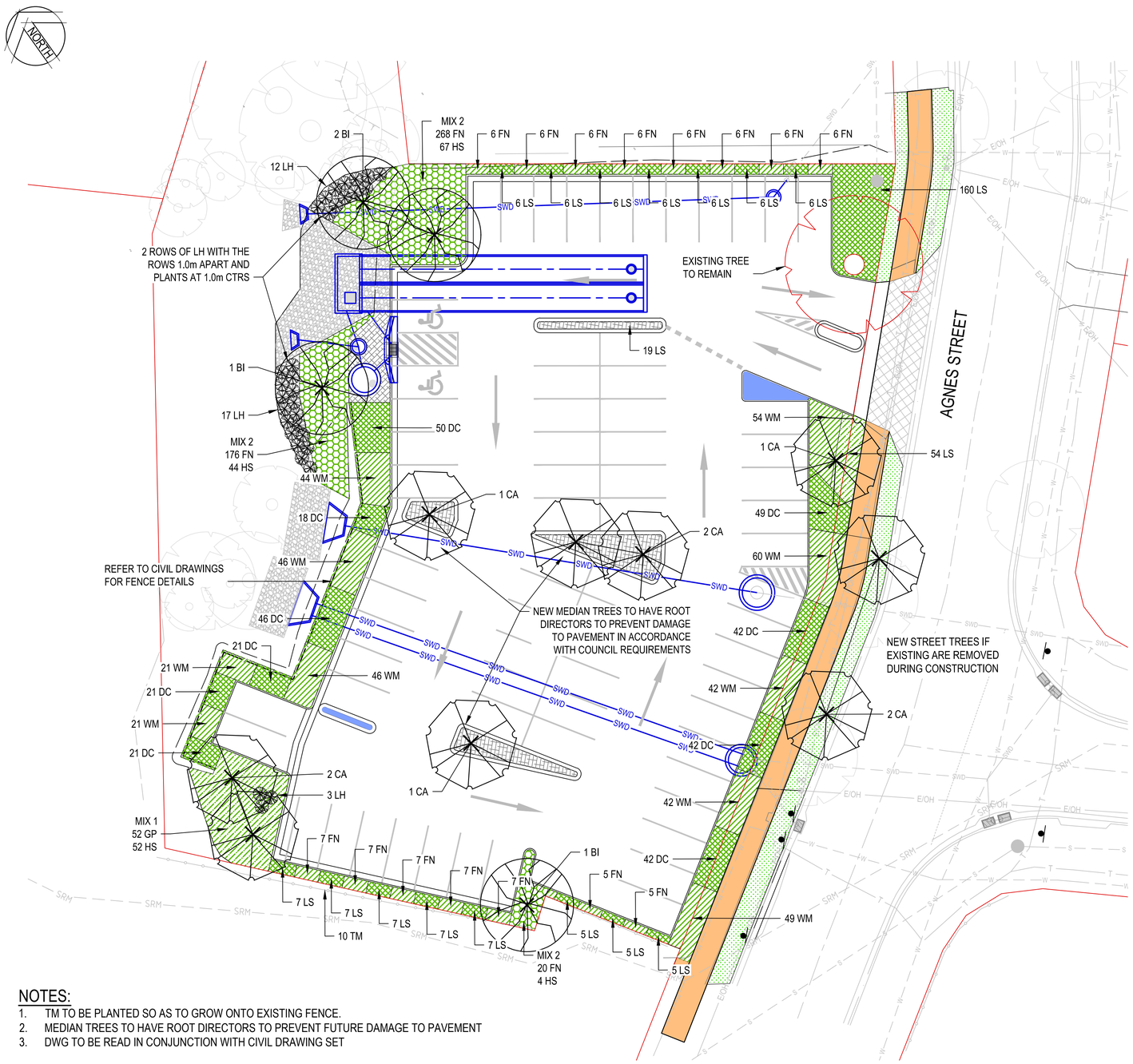

NOTES:

1. TM TO BE PLANTED SO AS TO GROW ONTO EXISTING FENCE.
2. MEDIAN TREES TO HAVE ROOT DIRECTORS TO PREVENT FUTURE DAMAGE TO PAVEMENT
3. DWG TO BE READ IN CONJUNCTION WITH CIVIL DRAWING SET

AGNES STREET LANDSCAPE PLAN

SCALE 1:200 @ A1

0 5 10 15 20m

SCALE 1:200 @A1

EXISTING LEGEND

- EXISTING TOP OF BANK
- EXISTING BOTTOM OF BANK
- EXISTING SEWER MAIN AND MANHOLE
- EXISTING OVERHEAD ELECTRICAL CABLE AND POWER POLE
- EXISTING EXISTING WATER MAIN
- EXISTING STORMWATER MAIN
- EXISTING UNDERGROUND TELSTRA CABLE
- RP BOUNDARY
- EXISTING FENCE
- EXISTING TREE TO REMAIN / EXISTING TREE

LANDSCAPE LEGEND

SOFTSCAPE

GARDEN BED - TYPE 1
100mm ORGANIC MULCH WITH SOIL CONDITIONER.

TURF GRASSING:
SPECIES: KIKUYU.

HARDSCAPE

MULCH ONLY.
RESIN STABILISED AS PER COUNCIL'S SPECIFICATION

CONCRETE TYPE C1
GREY COLOUR
BROOM FINISH

CONCRETE TYPE C2
GREY COLOUR
BROOM FINISH

PROPOSED TREES

CA

BI

FEATURE PLANTS

LH

add - paperbark planting below retaining walls at interface with pond

PLANTING SCHEDULE

TREES & FEATURE PLANTS				
KEY	BOTANIC NAME	SPACING	POT	QTY.
BI	Banksia integrifolia	AS SHOWN	300mm	4
CA	Cupaniopsis anacardioides	AS SHOWN	100 Lt	9
MIX 1				
KEY	BOTANIC NAME	SPACING	POT	QTY.
GP	Grevillea Poorinda	1000 mm	170 mm	52
HS	Hibbertia scandens	1000 mm	170 mm	52
MIX 2				
KEY	BOTANIC NAME	SPACING	POT	QTY.
FN	Ficinia nodosa	500 mm	170 mm	488
HS	Hibbertia scandens	1000 mm	170 mm	122
SHRUBS AND GROUND COVER				
KEY	BOTANIC NAME	SPACING	POT	QTY.
DC	Daniella caerulea 'Breeze'	500mm	170mm	364
FN	Ficinia nodosa	500mm	170mm	105
LH	Lomandra histrix Katie Belles	AS SHOWN	170mm	32
LS	Lomandra Shara	500mm	170mm	307
WM	Westringia Mundi	500mm	170mm	432
TM	Tecomanthe Roaring Meg	500mm	170mm	10

Rev.	Date	Description	Des.	Verif.	Appd.
D	19/03/2021	GRC COMMENTS ADDED - ISSUE FOR APPROVAL	ST	MN	MN
C	1/07/2020	FOR CLIENT APPROVAL	ST	MN	MN
B	22/05/2020	FOR CLIENT APPROVAL	ST	MN	MN
A	15/05/2020	FOR CLIENT APPROVAL	ST	MN	MN

GLADSTONE REGIONAL COUNCIL

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		Date
Drawn	A.E.	15/07/2020
Checked	M.N.	15/07/2020
Designed	M.N.	15/05/2020
Verified	M.N.	15/05/2020
Approved	RPEQ.	
		Date

Client: GLADSTONE REGIONAL COUNCIL

Project: AGNES STREET AND JEFFERY COURT, AGNES WATER CARPARK AND DRAINAGE WORKS

Title: LANDSCAPING PLANTING PLAN

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	GRID	Scale	Size
AHD	MGA-56	AS SHOWN	A1

Drawing Number: R2018073-LA-0100

Revision: D

DATE PLOTTED: 24 March 2021 12:41 PM BY - AARON ELLARD

XREFs: XR-R2020043-DSGN-AGNES, XR-R2020043-SURV
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PHOTO PLATES

Plate 1. View eastwards across subject land (area to be constructed)

- Non-native grass species and weeds in foreground and to left.
- Six eucalypts in photo to be removed.

Plate 2. View eastwards and northwards

- Non-native grass species and weeds in foreground.
- Eucalypts in left of photo to be retained.
- Area in centre and left to be landscape/rehabilitated.

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Plate 3. View eastwards towards constructed pond within Beach Houses Estate.

- Weed species growing along edge of pond to the right.
- Subject land and proposed carpark further right (out of frame).

Plate 4. View eastwards along drainage line

- Constructed drainage line west of subject land and beneath shopping plaza.

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Plate 5. View north/westwards across subject land.

- Large multi-stem tree (#8) in foreground to be retained.

Plate 6. Drainage line north of subject land (Beach Houses Estate)

- Area contains native and weed species.
- >300m north of subject land.

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Plate 7. Landscape view of subject land (construction area).

- Photo "distortion" due to wide landscape setting
- Tree numbers (in ***red***) correspond to plan in **ATTACHMENT D.**
- Large multi trunk tree (#8) hidden from view – see **Photo Plate 5.**
- Trees along Agnes Street (#9 and #10) to be retained not labelled.
- Agnes Street along rear and right of photo.
- Pond and Beach Houses Estate to left of photo.
- Understory vegetation in fore and left dominated by weed species (mostly grasses).
- Clump of trees in centre left to be retained.
- Dense vegetation trees in distant centre to be retained.

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