Referral of proposed action

Project title: Shoreline Development

1 Summary of proposed action

1.1 **Short description**

The subject site "Shoreline" is the name for a proposed urban village with approximately 3,800 homes, shops, restaurants and a 2.2 km people's foreshore park (**Attachment 1**) to be built on 279.5 hectares nominated in Redland City Council's town plan for investigation for residential development. Preliminary approval for the Shoreline development, subject to conditions, was granted by Redland City Council on the 18th November, 2015.

The subject site covers 279.5 hectares of land, the majority of which was cleared for farming in the 1930s (**Attachment 2**). Farming in this area is considered no longer economical and most of the land is currently vacant.

1.2 **Latitude and longitude**

	Latitude			Longitude		
location point	degrees	minutes	seconds	degrees	minutes	seconds
South-east	-27.66821			153.31043		
South-east	-27.66705			153.31095		
South-east	-27.66694			153.31260		
South-east	-27.66524			153.31272		
South-east	-27.66890			153.31613		
South-east	-27.67708			153.30808		
South-central	-27.67581			153.30000		
South-central	-27.66875			153.30108		
South-west	-27.66751			153.29366		
South-west	-27.66511			153.29391		
South-west	-27.66435			153.29199		
North-west	-27.65707			153.29335		
central	-27.65890			153.30322		
North-central	-27.64917			153.30520		
North-east	27.64985			153.30906		
north	-27.65122			153.30923		
east	-27.65274			153.31078		
east	-27.65563			153.30812		
Central-east	-27.65852			153.30975		
South-east	-27.66232			153.31043		
south	-27.66186			153.30854		
south	-27.66719			153.30760		

1.3 **Locality and property description**

The subject site is comprised primarily of rural land uses and is mostly cleared with scattered individual trees and vegetated patches associated with drainage lines. For the most part the eastern boundary of the subject site is defined by Moreton Bay and associated intertidal environs. Land to the west of the subject site is heavily vegetated and forms part of a larger tract of bushland supporting both remnant and non-remnant vegetation.

1.4 **Size of the development footprint or work area (hectares)**

The Shoreline development covers 279.5 ha.

1.5	**Street address of the site**	148-154, 156-168, 194-214, 218-236, 238-258, 260-280, 275-385, 282-302, 304-324, 326-336, 338-348, 362-372, 422-442 and 446-486 Serpentine Creek Road; 1, 47-91, 68-74, 74a, 90-92 and 94-96 Scenic Road; and 27-69, 91-111 Orchard Road, Redland Bay.
1.6	**Lot description** Lot 2 on RP149309 Lot 8 on R1291 Lots 69,70,71,72,73,& 74 on S31102 Lot 1 on RP133830 Lots 1, 3 & 4 on RP105915 Lot 11 on SP268704 Lot 2 on SP226358 Lot 1 on RP212251 Lot 1 on RP103265 Lots 1 & 2 on RP140163 Lot 1 on RP71630 Lots 83, 84 & 86 on S312432 Lots 247, 252, 255, 256, 257 & 259 on S312432	
1.7	**Local Government Area and Council contact (if known)** Redland City Council – Emma Martin - Development Assessment Officer	
1.8	**Time frame** Operational works expected to commence for Stage 1 in early 2017	

1.9	**Alternatives to proposed action** Were any feasible alternatives to taking the proposed action (including not taking the action) considered but are not proposed?	✓	No
			Yes, you must also complete section 2.2
1.10	**Alternative time frames etc** Does the proposed action include alternative time frames, locations or activities?	✓	No
			Yes, you must also complete Section 2.3. For each alternative, location, time frame, or activity identified, you must also complete details in Sections 1.2-1.9, 2.4-2.7 and 3.3 (where relevant).
1.11	**State assessment** Is the action subject to a state or territory environmental impact assessment?	✓	No
1.12	**Component of larger action** Is the proposed action a component of a larger action?	✓	No
1.13	**Related actions/proposals** Is the proposed action related to other actions or proposals in the region (if known)?	✓	No
1.14	**Australian Government funding**	✓	No
1.15	**Great Barrier Reef Marine Park** Is the proposed action inside the Great Barrier Reef Marine Park?	✓	No

2 Detailed description of proposed action

2.1 Description of proposed action

The Shoreline development will include approximately 3800 new residences, a town centre, school, recreational and sporting facilities, restaurants, 22 ha of foreshore parkland and over 20 ha of rehabilitated flora and fauna habitats. No development is proposed within or below HAT. The Shoreline development includes the planting of >100,000 Koala habitat trees, in addition to the planting of other locally endemic native flora species, to provide a minimum 100 m wide corridor linking retained vegetated patches in the eastern portions of the subject site with large areas of bushland located to the west of the subject site. Two dedicated fauna underpasses and one fauna overpass is proposed to be constructed to allow fauna to move safely through the Shoreline development area, across an existing roadway, to assess high quality bushland habitats located west of the subject site (**Attachment 1**).

2.2 Alternatives to taking the proposed action

N/A

2.3 Alternative locations, time frames or activities that form part of the referred action

N/A

2.4 Context, planning framework and state/local government requirements

The subject land has the benefit of an approval by Redland City Council dated 25 November 2015 for a Preliminary Approval for a Material Change of Use to vary the effect of a local planning instrument for a master planned urban community comprising town centre, town centre frame, residential and open space precincts. As part of the assessment of this application the State made a thorough review and recommended conditions of approval regarding transport infrastructure (Department of Transport and Main Roads), treatment of foreshore areas and koala habitat (Department of Environment and Heritage Protection) and retention of native vegetation (Department of Natural Resources and Mines).

Explain the context in which the action is proposed, including any relevant planning framework at the state and/or local government level (e.g. within scope of a management plan, planning initiative or policy framework). Describe any Commonwealth or state legislation or policies under which approvals are required or will be considered against.

2.5 Environmental impact assessments under Commonwealth, state or territory legislation

Not applicable for the Shoreline urban development.

2.6 Public consultation (including with Indigenous stakeholders)

The Shoreline development has been the subject of extensive public consultation on multiple occasions:
(1) Formal Public Consultation and Public Opinion Survey early 2013. This consultation included ongoing electronic, print and social media updates; a static display at nearby Victoria Point; a community information day; a project website; and an opt-in public survey which received over 600 written responses, the majority of which (75%) supported the proposed urban development.
(2) Redland City Town Plan review public consultation mid 2015– the subject land was included in the draft Town Planning documentation as Urban Investigation Area;
(3) Development Application- public submissions – late 2014. As part of the development application to Redland City Council for a Master Planned Community public submissions were invited over a 2 month period. 851 properly made submissions were received with 86% being in favour of the development.

2.7 A staged development or component of a larger project

If you have identified that the proposed action is a component of a larger action (in section 1.12) you must complete this section. Provide information about the larger action and details of any interdependency between the stages/components and the larger action. You may also provide justification as to why you believe it is reasonable for the referred action to be considered separately from the larger proposal (e.g. the referred action is 'stand-alone' and viable in its own right, there are separate responsibilities for component actions or approvals have been split in a similar way at the state or local government levels).

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

A search of the Protected Matters Search Tool (PMST) indicates the likely or potential occurrence of Matters of National Environmental Significance (MNES) in the locality (**Attachment 3**).

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The interactive map tool can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest.

Your assessment of likely impacts should refer to the following resources (available from the Department's web site):

- specific values of individual World Heritage properties and National Heritage places and the ecological character of Ramsar wetlands;
- profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;
- *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*; and
- associated sectoral and species policy statements available on the web site, as relevant.

Your assessment of likely impacts should consider whether a bioregional plan is relevant to your proposal. The Minister has prepared four marine bioregional plans (MBP) in accordance with section 176. It is likely that the MBP's will be more commonly relevant where listed threatened species, listed migratory species or a Commonwealth marine area is considered.

Note that even if your proposal will not be taken in a World Heritage area, Ramsar wetland, Commonwealth marine area, the Great Barrier Reef Marine Park or on Commonwealth land, it could still impact upon these areas (for example, through downstream impacts). Consideration of likely impacts should include both direct and indirect impacts.

3.1 (a) World Heritage Properties

Description

There are no World Heritage Properties within the vicinity of the subject site

Nature and extent of likely impact

There will be no impacts on World Heritage Properties.

3.1 (b) National Heritage Places

Description

There are no National Heritage Places within the vicinity of the subject site.

Nature and extent of likely impact

There will be no impacts on National Heritage Properties.

3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)

Description

The Moreton Bay Ramsar wetland occurs immediately adjacent to the subject site.

Nature and extent of likely impact

A detailed assessment of potential impacts to this MNES has been completed by frc environmental (frc 2016), the results of which are provided in **Attachment 4**. Their assessment concludes there will be a net improvement in the quality of stormwater run off from the subject land. Consequently there are no direct impacts on Moreton Bay as a result of the proposed development, and any potential, indirect impacts will be minimised, mitigated and managed under the guidance of a Stormwater Management Plan, Erosion and Sediment Management Plan and an Acid Sulphate Soil Management Plan.

3.1 (d) Listed threatened species and ecological communities

Description

The Protected Matters Search Tool (PMST) for a 5 km buffer around the subject site identified the following Matters of National Environmental Significance (MNES):

- Two threatened ecological communities (TECs):
  - Lowland Rainforest of Subtropical Australia (critically endangered) – community may occur; and
  - Subtropical and Temperate Coastal (vulnerable) – community may occur.

- 57 Threatened Species; and
- 79 Listed Migratory Species

Nature and extent of likely impact

Threatened Ecological Communities

The PMST identifies the potential occurrence of two Listed TECs in the subject site: (i) Lowland Rainforest of Subtropical Australia (Rainforest TEC); and (ii) Subtropical and Temperate Coastal Saltmarsh.

The results of a targeted field assessment (**Attachment 5**) indicate the subject site does not support any flora species associated with rainforest conditions and no rainforest habitats are present within the subject site; therefore it is concluded that the Rainforest TEC does not occur within the subject site.

Regional Ecosystem RE 12.1.2, which equates to Subtropical and Temperate Coastal Saltmarsh, is currently mapped by the state as occurring immediately adjacent to the Shoreline development area (refer to Figure 3.4 of **Attachment 5**). These areas will be included within the Foreshore Open Space designation where there will be no direct disturbance as a result of the proposed development. It noted that there is no requirement for Commonwealth Government approval in relation to Vulnerable TECs.

Threatened Species

Flora

The PMST identifies the potential occurrence of eight listed threatened plant species for the subject site:

Scientific Name	Common Name	EPBC Act Status
Arthraxon hispidus	Hairy-joint Grass	Vulnerable
Baloghia marmorata	Marbled Baloghia	Vulnerable
Corchorus cunninghamii	Native Jute	Endangered
Cryptocarya foetida	Stinking Cryptocarya	Vulnerable
Cryptostylis hunteriana	Leafless Tongue-orchid	Vulnerable
Macadamia integrifolia	Macadamia Nut	Vulnerable
Phaius australis	Lesser Swamp-orchid	Endangered
Thesium australe	Austral Toadflax	Vulnerable

Based on a desktop assessment and field survey (BAAM 2014) (**Attachment 5**), three species, *Arthraxon hispidus, Macadamia integrifolia* and *Phaius australis*, are considered to have some potential to occur due to the suitability of habitats for these species within the subject site. These species are discussed in further detail below. Please note that as the field surveys were conducted in 2014, Appendix 4 of **Attachment 5** was updated on 05/5/2016 to reflect any changes in listed species status, habitat preferences and likelihood of occurrence based on the current PMST report for the subject site (**Attachment 3**).

Arthraxon hispidus
This species occupies a diverse range of ecosystem types usually on the edges of rainforest, wet eucalyptus forest, near creeks or swamps, woodland, freshwater springs, coastal dunes, gullies and sandy alluvium in open forests (DotE 2016a). Potential habitats for this species within the subject site are highly disturbed through past and ongoing land uses and this species was not observed during the ecological assessment surveys (**Attachment 5**). If this species is present it is likely to be located within the intact vegetation associated with the central bushland patch that is being retained, rehabilitated and managed as a wildlife corridor; therefore, if present it is unlikely the Shoreline development will cause any significant impacts to *Arthraxon hispidus*.

Macadamia integrifolia
An historic record of a potentially naturally occurring juvenile *Macadamia integrifolia* (0.5 meters tall) was recorded in lot 74 within Forest Red Gum – Ironbark open forest (Benwell 2005) which was part of a private garden. It was noted that this species was likely to have established itself from seed because of the absence of fire and the fertile red soil (Benwell 2005). The closest known population of the species is at Mt Cotton. During the ecological assessment (**Attachment 5**) the known location of this specimen was surveyed. The plant was present (approximately 2 meters tall) and occurred on the boundary of a garden and Forest Red Gum – Ironbark open forest (refer to Figure 3.1 of **Attachment 5**). This individual occurred downhill of a large farm garden that included a mature macadamia nut tree. It is highly likely the seed that germinated downhill originated from this planted individual or was indeed planted by the owner of the garden. In addition the subject *Macadamia integrifolia* was situated amongst slash pines with a juvenile Jacaranda *Jacaranda mimosifolia* and Guava *Psidium guineense* growing in close proximately to it. This individual is not considered to naturally occur in this locality. Two additional Macadamia seedlings (both <15cm tall) were recorded during the field visit on the 13/05/14 within native vegetation currently not mapped as remnant or regrowth by the state (vegetation was dominated by Scribbly Gums, Brown Bloodwoods and Black She-oak on a slightly raised topography). It is concluded that it is highly likely that these seeds did not naturally occur; most likely originating from one of the surrounding farm's mature (planted) Macadamia trees.

In addition to the three immature trees, four mature (planted) individuals of *Macadamia integrifolia* were recorded within the subject site. All were clearly planted in association with other orchard and garden trees with no remnant habitat in close proximity to their locations (refer to Figure 3.1 of **Attachment 5**).
Given that none of the recorded *Macadamia integrifolia* individuals are expected to naturally occur within the subject site, it is considered that these individuals are not protected under the EPBC Act and do not require assessment in relation to potential impacts.

Phaius australis
This species is typically restricted to heath/ sedgeland wetlands, swampy grassland or swampy forest in association with Broad-leaved Paperbark or Swamp Mahogany and/or Swamp Box, swampy rainforest or fringing open forest. Whilst the subject site includes suitable forest type *Melaleuca quinquenervia* and *Eucalyptus robusta*, the chance of this species being present on site is significantly compromised due to high disturbance by pasture weed species, grazing and historical agricultural land uses. This species was not detected during the ecological surveys (**Attachment 5**) and there are no historical records of the species from the subject site. Potential habitats for *Phaius australis* within the subject site are being retained, rehabilitated and managed as part of the central wildlife corridor; therefore, if present, it is unlikely the Shoreline development will cause any significant impacts to this species or its habitats.

The subject site does not support habitats suited to any other flora species listed in the PMST report and they are considered unlikely to occur (refer to Appendix 4 of **Attachment 5**). Based on the results of the ecological assessment (**Attachment 5**), the Shoreline development is not expected to have any significant impacts on EPBC listed flora species or their habitats.

Fauna

Birds
The PMST identifies the potential occurrence of 26 listed threatened bird species. Of the listed threatened birds, the majority, as listed in **Table 3.1**, are marine habitat specialists that are not expected to occur on or near the subject site; therefore there will be no direct impacts on these species.

Table 3.1. Threatened marine habitat bird species identified from PMST report (Attachment 3) that will not be impacted on by the proposed development.

Scientific Name	Common Name	EPBC Act Status
Diomedea exulans antipodensis	Antipodean Albatross	Vulnerable
Diomedea exulans exulans	Tristan Albatross	Endangered
Diomedea exulans gibsoni	Gibson's Albatross	Vulnerable
Diomedea exulans (sensu lato)	Wandering Albatross	Vulnerable
Fregetta grallaria grallaria	White-bellied Storm-Petrel	Vulnerable
Macronectes giganteus	Southern Giant Petrel	Endangered
Macronectes halli	Northern Giant Petrel	Vulnerable
Pachyptila turtur subantarctica	Fairy Prion (southern)	Vulnerable
Pterodroma neglecta neglecta	Kermadec Petrel (western)	Vulnerable
Thalassarche cauta cauta	Shy Albatross	Vulnerable
Thalassarche cauta salvini	Salvin's Albatross	Vulnerable
Thalassarche cauta steadi	White-capped Albatross	Vulnerable
Thalassarche eremita	Chatham Albatross	Endangered
Thalassarche melanophris	Black-browed Albatross	Vulnerable
Thalassarche melanophris impavida	Campbell Albatross	Vulnerable

Of the remaining threatened bird species from the PMST report (listed in **Table 3.2**), only Australian Painted Snipe is considered to have any potential to occur within the subject site. The subject site does not support foraging, nesting, roosting or breeding habitats for the remaining species (refer to Appendix 4 of **Attachment 5**).

Table 3.2. non-marine threatened bird species from PMST report

Scientific Name	Common Name	EPBC Act Status
Anthochaera phrygia	Regent Honeyeater	Critically Endangered
Botaurus poiciloptilus	Australasian Bittern	Endangered
Calidris ferruginea	Curlew Sandpiper	Critically Endangered
Dasyornis brachypterus	Eastern Bristlebird	Endangered
Erythrotriorchis radiatus	Red Goshawk	Vulnerable
Geophaps scripta scripta	Squatter Pigeon	Vulnerable
Lathamus discolor	Swift Parrot	Endangered
Numenius madagascariensis	Eastern Curlew	Critically Endangered
Poephila cincta cincta	Black-throated Finch	Endangered
Rostratula australis	Australian Painted Snipe	Endangered
Turnix melanogaster	Black-breasted Button-quail	Vulnerable

Species Assessment* - Australian Painted Snipe *Rostratula australis

Data relevant to the habitat, distribution and ecology of Australian Painted Snipe was sourced through relevant literature and relevant and publicly available data sources including the Atlas of Living Australia, the Queensland Government's "WildNet" database and the Commonwealth SPRAT profile (DotE 2016a). This information, together with the results of the field survey (**Attachment 5)** was reviewed to allow an assessment of significant impacts on this species.
Australian Painted Snipe is a secretive, cryptic, crepuscular species that occurs in terrestrial shallow wetlands, both ephemeral and permanent, usually freshwater but occasionally brackish. It also uses inundated grasslands, saltmarsh, dams, rice crops, sewage farms and bore drains. The species feeds on vegetation, seeds and invertebrates, including crustaceans and molluscs (Marchant and Higgins 1993).

Breeding occurs mainly in the Murray-Darling region, though is also recorded in other parts of Queensland, New South Wales and South Australia. Nests are shallow scrapes on the ground and are often found on islands in freshwater swamps/wetlands. Breeding habitat requirements appear to be specific, including shallow wetlands with patches of bare mud, dense low cover and sometimes tall dense cover (Rogers *et al.* 2005).

Freshwater Fish
The PMST identifies the potential occurrence of 1 listed threatened freshwater fish species: Mary River Cod *Maccullochella mariensis* (endangered).

The Mary River Cod occurs in three natural subpopulations within the Mary River system (DotE 2016f). The

subject site supports a single ephemeral creek that does not provide suitable habitats for this species and is not connected to the Mary River catchment. It is therefore considered that Mary River Cod are not present within the subject site and the Shoreline development will not cause any direct or indirect impacts on this species.

Insects
The PMST identifies the potential occurrence of one listed threatened insect species; Pink Underwing Moth *Phyllodes imperialis smithersi* (endangered).

The Pink Underwing Moth is associated with undisturbed, subtropical rainforest that supports the vine *Carronia multisepalea,* which provides food and habitat for this moth (DotE 2016g). The subject site does not support subtropical rainforest and this species is unlikely to occur; therefore there will be no significant adverse impacts on this species.

Terrestrial Mammals
The PMST identifies the potential occurrence of 8 listed threatened mammal species, as listed in **Table 3.3.** Of these eight species, only two are known or have potential to occur within the subject site; Koala and Grey-headed Flying-fox, which are discussed in further detail below. The remaining six species are addressed in Appendix 3 of **Attachment 5.**

Table 3.3 Terrestrial mammal species detected from the PMST report (**Attachment 3**).

Scientific Name	Common Name	EPBC Act Status
Chalinolobus dwyeri	Large Pied Bat	Vulnerable
Dasyurus maculatus	Spotted-tail Quoll	Endangered
Petrogale penicillata	Brush-tailed Rock-wallaby	Vulnerable
Phascolarctos cinereus (SEQ Bioregion)	Koala (SEQ Bioregion)	Vulnerable
Potorous tridactylus tridactylus	Long-nosed Potoroo (SE Mainland)	Vulnerable
Pseudomys novaehollandiae	New Holland Mouse	Vulnerable
Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable
Xeromys myoides	Water Mouse	Vulnerable

Species Assessment* - Koala *Phascolarctos cinereus

Data relevant to the habitat, distribution and ecology of Koala was sourced through relevant literature and relevant and publicly available data sources including the Atlas of Living Australia, the Queensland Government's "WildNet" database and the Commonwealth SPRAT profile (DotE 2016c). This information, together with a review of aerial photography and existing vegetation community and Koala habitat mapping by the Queensland Government, was used to inform field surveys, conducted by Australian Koala Foundation (AKF 2005) and by BAAM on 5th and 6th March and 2nd April, 2014; the results of which are detailed in **Attachment 5.**

Koala has a distinct association with eucalypt woodland and forest habitat types containing suitable food trees (Hume and Esson 1993; Moore and Foley 2000; Martin *et al*. 2008). The species is not necessarily restricted to bushland or remnant areas and are known to exist and breed within farmland and the urban environment (Dique *et al*. 2004). Similarly, movement is not confined to vegetated corridors, as they also move across cleared rural land and through suburbs (Martin *et al*. 2008).

Koala occurs throughout north-east, central and SEQ, extending south through Victoria into South Australia and Kangaroo Island. The highest density of Koala populations occurs in south-east Queensland (DotE 21016b).

As the subject site is mapped under the *South East Queensland Koala Conservation State Planning Regulatory Provisions* (KSPRP) (DEHP 2010) as supporting Koala habitats, the occurrence of Koala and a targeted assessment of habitat for Koala was undertaken as part of the ecological assessment (**Attachment 5**). The Koala assessment involved searches for Koala and recording Koala habitat trees along representative transect surveys of eucalypt-dominated vegetation communities within the subject site, in addition to conducting a general assessment of habitat features that could potentially support Koala.

Koalas were recorded within the Shoreline development area previously (AKF 2005). No Koalas were observed during the BAAM surveys, although evidence of their visitation (i.e. scats) were observed at two locations and

definitive scratches were observed at one other location (refer to Figure 3.2. of **Attachment 5**)
Current information indicates that Koala population densities within Redland Bay are very low in comparison to most other suburbs within Redland City. Systematic surveys conducted by the Redland City Koala Action Group recorded only one individual from Redland Bay in the years between 2009 and 2012, with the highest count of 12 sightings recorded in 1996, and sightings decreasing every year since. In comparison, sightings for Ormiston and Cleveland have been consistently higher during the all survey years (12 and 20 sightings during 2012, respectively). The results of the recent field survey also indicate that Koala density within the subject site is low.

An assessment of habitat quality within the subject site in accordance with the *EPBC Act referral guidelines for the vulnerable Koala* (DotE 2014) returned a score of 4; therefore, it is considered the subject site does not support habitat critical to the survival of Koala (**Table 3.4**). Based on this result, the Commonwealth considers that the clearing of Koala habitats within the subject site will not cause any significant impacts to Koala (DotE 2014).

Table 3.4. EPBC Act Koala habitat assessment tool.

Attribute	Score	Assessment	
Koala occurrence	**2**	Desktop	The wildlife online database records 147 Koala sightings within a 5 km radius of the subject site, since 1980.
		On-ground	Koala evidence (scats and scratches) was observed within the subject site.
Vegetation composition	**2**	Desktop	Portions of the subject site is mapped under the KSPRP as supporting bushland habitats for Koala.
		On-ground	The subject site contains two or more recognised koala food tree species.
Habitat connectivity	**0**	The subject site is comprised primarily of rural land uses and is mostly cleared with scattered individual trees and vegetated patches associated with drainage lines. The eastern boundary of the subject site is defined by Moreton Bay and the northern boundary adjoins suburban residential areas. Land to the west of the subject site is heavily vegetated and forms part of a larger tract of bushland supporting both remnant and non-remnant vegetation. However, a major roadway, Redland Bay Road, presents a significant barrier to safe Koala movements to habitats in the west.	
Key existing threats	**0**	Desktop	The Daisy Hill Koala Hospital reports 6 koala mortalities for Redland Bay area in 2012.
		On-ground	The presence of major roadways and domestic dogs is a serious threat to Koalas at this location.
Recovery value*	**0**	Due to the highly fragmented nature of the remaining Koala habitats, the subject site is not considered to hold important Koala recovery values	
Total	**4**	Decision: The habitat is not considered critical to the survival of the Koala.	

Species Assessment* - Grey-headed Flying-fox *Pteropus poliocephalus

Data relevant to the habitat, distribution and ecology of Grey-headed Flying-fox was sourced through relevant literature and relevant and publicly available data sources including the Atlas of Living Australia, the Queensland Government's "WildNet" database and the Commonwealth SPRAT profile (DotE 2016d), EHP Flying-fox roost mapping (DEHP 2016) and Commonwealth's National Flying-fox Monitoring Viewer (DotE 2016e).

Grey-headed Flying-fox is a large species of flying-fox. As the species is a canopy-feeding frugivore and nectarivore, they utilise vegetation including rainforests, open eucalypt forests, woodlands, melaleuca swamps and banksia woodlands (Nelson 1965). Regular or frequently used camps have been located between Rockhampton in Queensland south to around Mallacoota in East Gippsland, Victoria. They are generally recorded between the coast and the western slopes of the Great Dividing Range. Breeding occurs during the spring months when food resources are at their most plentiful (Duncan *et al.* 1999).

Flying-fox Roost sites have been recorded to the north of the subject site and on nearby islands (DEHP 2016; DotE 2016d). The field investigation under taken by BAAM (2014) (**Attachment 5**) confirmed that no roost sites for Grey-headed Flying-fox are located in the subject site. The field investigation did not include dusk or night time surveys; therefore the actual presence of Grey-headed Flying-fox within the subject site has not been determined. However, the subject site supports some canopy species that, when in flower, would provide resources for Grey-headed Flying-fox, and it is likely that this species would occur within the subject site in

response to flowering/fruiting events.

Based on an assessment against the DotE *Significant Impact Guidelines 1.1* (DotE 2013) (**Table 3.5**), it is considered that there is a low risk the proposed development will have a significant impact on Grey-headed Flying-fox.

Table 3.5. Assessment against DotE *Significant Impact Guidelines 1.1 – MNES - Grey-headed Flying-fox*

Criteria	Assessment of significance
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:	
Lead to a long-term decrease in the size of an important population of a species.	Grey-headed Flying-fox occur widely throughout the local and regional landscape. A search of the DotE Flying-fox Monitoring viewer (DotE 2016e) indicates the closest flying-fox roost site is approximately 700 m north of the northern boundary of the subject site. However, Grey-headed Flying-fox have not been recorded at this roost site since 2012. Impacts to potential feeding resources in the subject site as a result of this proposed development are not expected to result in long-term effects to the size of an important population, reduce the area of occupancy, fragment an existing population, affect habitat critical to the survival, or disrupt the breeding cycle of the species. Feeding resources are widely available in the broader landscape and no roost sites are known or expected to be present in the potential impact area. Therefore, the potential impacts are assessed as low.
Reduce the area of occupancy of an important population.	
Fragment an existing important population into two or more populations.	
Adversely affect habitat critical to the survival of a species	
Disrupt the breeding cycle of an important population.	
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	The proposed development will require the clearing of some potential feeding resources for Grey-headed Flying-fox. However, the Shoreline Development Plan (**Attachment 1**) has included the retention and expansion of biodiversity corridors that will provide abundant feeding resources for this species. Impacts from the loss of potential feeding resources within the subject site, when abundant feeding resources are present within the local landscape and more resources will be provided as a result of the proposed development, are not expected to cause a decline in population levels for this species; result in the invasion of species, or introduce disease. It is therefore considered that the risk of significant impacts to Grey-headed Flying-fox is low.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.	
Introduce disease that may cause the species to decline.	
Interfere substantially with the recovery of the species.	Feeding resources are widely available in the broader landscape and no roost sites are known or expected to be present in the subject site. Therefore, the potential impacts are assessed as low.

Terrestrial Reptiles

Two reptile species, *Coeranoscincus reticulatus* Three-toed Snake-tooth Skink and *Delma torquata* Collared Delma are listed in the PMST report as having potential to occur within the subject site. These two reptile species are addressed in Appendix 3 of **Attachment 5.** The subject site does not support suitable habitats for these two species and they are not expected to occur; therefore there will be no significant impacts on threatened reptile species.

Marine Fish, Mammals and Reptiles

Attachment 4 (frc environmental 2016) provides the results of the significant impact assessment on threatened marine fish, mammal and reptile species. As there will be no direct impacts on marine habitats and potential indirect impacts will be minimised, mitigated and managed under the guidance of an Environmental Management Plan, which includes stormwater, erosion and sedimentation and acid sulphate soil plans, it is not expected that the Shoreline development will cause any significant impacts on threatened marine fish, mammal or reptile species.

3.1 (e) Listed Migratory Species
The PMST identifies the potential occurrence of a number of migratory marine and terrestrial bird, fish, mammal and reptile species.

Migratory Marine Species
Potential impacts on migratory marine fish, mammal and reptile species have been addressed in **Attachment 4**, which indicates that there will be no direct impacts on migratory marine fish, mammal and reptile species and potential indirect impacts will be minimised, mitigated and managed under the guidance of an Environmental Management Plan. It is therefore considered that the Shoreline development will not cause any significant impacts on migratory marine fish, mammal and reptile species.

Similarly, there will be no direct impacts on migratory marine bird species and potential indirect impacts will be minimised, mitigated and managed under the guidance of an Environmental Management Plan. It is therefore considered that the Shoreline development will not cause any significant impacts on migratory marine bird species.

Migratory Terrestrial Species

Description
The PMST report for the subject site identified a number of migratory terrestrial species of which seven species, as listed below, are covered by the Draft Referral guideline for 14 birds listed as migratory species under the EPBC Act (DotE 2015a).

- *Hirundapus caudacutus* White-throated Needletail;
- *Cuculus optatus* Oriental Cuckoo
- *Merops ornatus* Rainbow Bee-eater;
- *Monarcha melanopsis* Black-faced Monarch;
- *Monarcha trivirgatus* Spectacled Monarch;
- *Myiagra cyanoleuca* Satin Flycatcher;
- *Rhipidura rufifrons* Rufous Fantail

Nature and extent of likely impact

Table 3.6 presents the results of an assessment against the Draft Referral guideline for 14 birds listed as migratory species under the EPBC Act (DotE 2015a), *Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species* (DotE 2015b) and DotE Significant Impact Guidelines 1.1 (DotE 2013) in relation to the migratory species that have potential to occur within the subject site. Based on this assessment, the proposed development is not expected to have any significant impacts on these seven migratory species, or important habitats for migratory species.

White-throated Needletail has potential to occur within the subject site on an annual basis. This is an aerial species for which the subject site does not represent 'important habitat' and no significant impacts are expected due to the proposed action as this species forages over a wide variety of land use, including human infrastructure and waterbodies.

The subject site does not support any rainforest ecosystems; therefore, there are no suitable habitats present for Black-faced Monarch.

Table 3.6. Assessment against Commonwealth impact guidelines for Migratory Species

Criteria	Assessment of Significance
An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:	
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of *important habitat* for a migratory species.	The subject site contains small farm dams and minor watercourses. However, none of these areas are considered to contain important habitat for migratory species, due to the lack of dense fringing vegetation around the dams and continued disturbance of dam banks by domestic animals. Specific accounts are provided for those species considered to have potential to occur within the subject site below. • **Oriental Cuckoo** This species is a relatively sparse migrant to south-east Queensland in areas of suitable, open habitat, and would only be an occasional visitor to the subject site. The proposed development will have limited impacts on

	the availability of habitat for this species within the broader region and no significant impacts are expected. • **Rainbow Bee-eater** Rainbow Bee-eater is a common, widespread species in the local landscape. Within its distribution, it occurs in open or lightly timbered areas, shrublands, farmland, cleared land, mangroves, rainforest edges and in disturbed areas that have exposed soil or sand banks for breeding (Higgins 1999). The subject site is not considered to hold important breeding habitat. The proposed action is expected to have minimal effects on any local population of these species and the proposed development is not expected to impact upon important habitat. • **Spectacled Monarch** Spectacled Monarch are mostly found singly or in pairs in low dense vegetation, mainly in rainforests, but also in wet sclerophyll forests and other dense vegetation such as mangroves, drier sclerophyll forests, woodlands, parks and gardens (Higgins *et al*. 2006a). The most intact habitats within the subject site will be protected and enhanced as part of the proposed development; therefore there will be no impacts upon important habitats for this species. • **Satin Flycatcher** Satin Flycatcher are mostly found in heavily vegetated gullies in eucalypt-dominated forests, favouring wet forests, moist gullies and watercourses. The small vegetated gully that is present within the subject site will be retained and rehabilitated as part of the proposed development; therefore there will be no impacts upon important habitats for this species. • **Rufous Fantail** Rufous Fantail occur in moist habitats, including closed forests, coastal scrubs, mangroves and along watercourses and gullies, and urban/rural areas during mid-year migration (Pizzey and Knight 2003; Higgins *et al*. 2006b). Vegetation associated with the watercourse and estuarine areas will be retained, enhanced and protected as part of the proposed development; therefore there will be no impacts upon important habitats for this species.
Result in invasive species that are harmful to the migratory species becoming established in an area of *important habitat* for the migratory species.	The subject site does not support habitats that would be considered important for migratory species and the removal of ephemeral watercourses and constructed dams will not result in an invasion of species that are harmful to migratory species. No significant increase or benefit to invasive species is expected from the proposed action.
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an *ecologically significant proportion* of the *population* of a migratory species.	• **Oriental Cuckoo** This species is a relatively sparse migrant to south-east Queensland in areas of suitable, open habitat. The proposed development will have limited impacts on the availability of habitat for this species within the broader region. Serious disruption to the lifecycle of any local population is not anticipated to occur. • **Rainbow Bee-eater** Rainbow Bee-eater is a common, widespread species and the subject site is not expected to support an 'ecologically significant proportion of a population' and any potential impacts associated with the proposed action are anticipated to be insignificant. • **Spectacled Monarch** There is some potential for this species to occur in the forested habitats on the subject site, particularly within denser vegetated portions along foreshore and drainage gullies. As these habitats will be retained, enhanced and protected as part of the proposed development, serious disruption to the lifecycle of any local population is not anticipated to occur.

	• **Satin Flycatcher** Potential habitats for this species will be retained, enhanced and protected as part of the proposed development; therefore there will be no serious disruption to the lifecycle of this species. • **Rufous Fantail** Potential habitats for this species will be retained, enhanced and protected as part of the proposed development; therefore any potential impacts are anticipated to be insignificant.

Listed Migratory Wetland Birds

The PMST report identified 35 species of migratory wetland species, as listed below, as having potential to occur within the subject site (**Table 3.7**).

Table 3.7. Migratory wetland species identified from PMST report.

Migratory Wetland Species			
Actitis hypoleucos	Common Sandpiper	*Heteroscelus brevipes*	Grey-tailed Tattler
Ardea alba	Great Egret	*Heteroscelus incanus*	Wandering Tattler
Ardea ibis	Cattle Egret	*Limicola falcinellus*	Broad-billed Sandpiper
Arenaria interpres	Ruddy Turnstone	*Limnodromus semipalmatus*	Asian Dowitcher
Calidris acuminata	Sharp-tailed Sandpiper	*Limosa lapponica baueri*	Bar-tailed Godwit
Calidris alba	Sanderling	*Limosa limosa*	Black-tailed Godwit
Calidris canutus	Red Knot	*Numenius madagascariensis*	Eastern Curlew
Calidris ferruginea	Curlew Sandpiper	*Numenius minutus*	Little Curlew
Calidris melanotos	Pectoral Sandpiper	*Numenius phaeopus*	Whimbrel
Calidris ruficollis	Red-necked Stint	*Pandion haliaetus*	Osprey
Calidris tenuirostris	Great Knot	*Philomachus pugnax*	Ruff
Charadrius bicinctus	Double-banded Plover	*Pluvialis fulva*	Pacific Golden Plover
Charadrius leschenaultii	Greater Sand Plover	*Pluvialis squatarola*	Grey Plover
Charadrius mongolus	Lesser Sand Plover	*Tringa glareola*	Wood Sandpiper
Charadrius veredus	Oriental Plover	*Tringa nebularia*	Common Greenshank
Gallinago hardwickii	Latham's Snipe	*Tringa stagnatilis*	Marsh Sandpiper
Gallinago megala	Swinhoe's Snipe	*Xenus cinereus*	Terek Sandpiper
Gallinago stenura	Pin-tailed Snipe		

Description

To identify potential impacts to migratory wetland birds as a result of the Shoreline development, four targeted surveys for roosting wetland birds were conducted at high tide and four targeted surveys for foraging birds were conducted during low/neap tide in accordance with DotE (2015b) by Dr Penn Lloyd between March 2015 and January 2016. The tide information and start and end times for the surveys are presented in **Table 3.8**, with a summary of results of each survey presented in **Table 3.9.** The locations for the high and low tide surveys are shown in **Attachment 6** together with the survey results for each location**.**

Table 3.8. Tide heights and times for the migratory wetland bird surveys.

Date	Low Tide Height (m)	Low Tide Time	High Tide height (m)	High Tide Time	Survey Start Time	Survey End Time
19/03/2015			2.56	8:40		
19/03/2015	0.29	15:17				
11/12/2015			2.4	9:41	8:10	9:40
11/12/2015	0.53	16:14			15:40	16:30
22/12/2015			2.29	7:05	5:20	7:00
22/12/2015	0.6	13:31			13:00	13:45
13/01/2015	0.32	5:42			5:50	6:35
20/01/2016			2.29	6:50	5:50	7:00

Table 3.9 Results of four low tide and four high tide surveys conducted along the foreshore and adjacent habitats of the proposed development area.

Species	Common Name	Survey Date/Numbers Recorded			
		19/3/2015	**11/12/2015**	**22/12/2015**	**13/01/2016**
Low Tide Surveys					
Migratory wetland birds					
Ardea modesta	Eastern Great Egret	2		3	1
Gelochelidon nilotica	Gull-billed Tern	6	17	9	1
Limosa lapponica baueri	Bar-tailed Godwit	6	1		4
Numenius phaeopus	Whimbrel	26	43	29	40
Numenius madagascariensis	Eastern Curlew	1	4	1	7
Tringa nebularia	Common Greenshank		9	6	9
Total migratory wetland birds		**41**	**74**	**48**	**62**
Resident shorebirds					
Himantopus himantopus	Black-winged Stilt			8	2
Vanellus miles	Masked Lapwing		2		
Total resident wetland birds			**2**	**8**	**2**
Other wetland birds					
Anas castanea	Chestnut Teal		3		
Threskiornis molucca	Australian White Ibis	15	14	27	16
Platalea regia	Royal Spoonbill	1			2
Butorides striatus	Striated Heron			1	
Ardea modesta	Eastern Great Egret	2		3	1
Egretta novaehollandiae	White-faced Heron	5	1		2
Egretta garzetta	Little Egret	4	2	3	1
Pelecanus conspicillatus	Australian Pelican				17
Haliastur indus	Brahminy Kite		1		
Gelochelidon nilotica	Gull-billed Tern	6	17	9	1
Total other wetland birds		**33**	**38**	**44**	**40**
High Tide Surveys					
Migratory wetland birds		**19/3/2015**	**11/12/2015**	**22/12/2015**	**20/01/2016**
Gelochelidon nilotica	Gull-billed Tern		1		
Total migratory wetland birds			**1**		
Other wetland birds					
Anas castanea	Chestnut Teal			4	
Threskiornis molucca	Australian White Ibis		2	2	5
Butorides striatus	Striated Heron				1
Egretta novaehollandiae	White-faced Heron		1		1
Egretta garzetta	Little Egret		1		

Pelecanus conspicillatus	Australian Pelican	2	2	11	12
Phalacrocorax melanoleucos	Little Pied Cormorant		1		
Haliastur indus	Brahminy Kite	1	1		
Haliaeetus leucogaster	White-bellied Sea-eagle	1	1	2	1
Total other wetland birds		**4**	**10**	**19**	**20**

Nature and extent of likely impact

Only a single migratory wetland bird, Gull-billed Tern, was observed during the high tide surveys, indicating that the subject site is not currently providing any important high tide roost sites for migratory wetland birds. As existing low-tide foraging areas are outside of the proposed Shoreline development footprint, the Shoreline development is not expected to have any direct impacts on migratory wetland bird species, or important habitats for migratory wetland bird species. Potential indirect impacts to foraging habitats will be managed in accordance with an Environmental Management Plan for the development.

3.1 (f) Commonwealth marine area

(If the action is in the Commonwealth marine area, complete 3.2(c) instead. This section is for actions taken outside the Commonwealth marine area that may have impacts on that area.)

Description

A Commonwealth marine area is located approximately 3 km east of the subject site. As any potential indirect impacts to marine areas will be managed in accordance with an Environmental Management Plan for the Shoreline Development, impacts to the Commonwealth marine area are not likely to occur.

Nature and extent of likely impact

Address any impacts on any part of the environment in the Commonwealth marine area.

3.1 (g) Commonwealth land

(If the action is on Commonwealth land, complete 3.2(d) instead. This section is for actions taken outside Commonwealth land that may have impacts on that land.)

Description

Not Applicable. The subject site is not within Commonwealth land.

Nature and extent of likely impact

3.1 (h) The Great Barrier Reef Marine Park

Description

Not applicable to the proposed urban development.

Nature and extent of likely impact

3.1 (i) A water resource, in relation to coal seam gas development and large coal mining development

Description
Not applicable to the proposed urban development.

Nature and extent of likely impact

Address any impacts on water resources. Your assessment of impacts should refer to the draft *Significant Impact Guidelines: Coal seam gas and large coal mining developments—Impacts on water resources*.

3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, actions taken on Commonwealth land, or actions taken in the Great Barrier Reef Marine Park

You must describe the nature and extent of likely impacts (both direct & indirect) on the whole environment if your project:

- is a nuclear action;
- will be taken by the Commonwealth or a Commonwealth agency;
- will be taken in a Commonwealth marine area;
- will be taken on Commonwealth land; or
- will be taken in the Great Barrier Reef marine Park.

Your assessment of impacts should refer to the *Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies* and specifically address impacts on:

- ecosystems and their constituent parts, including people and communities;
- natural and physical resources;
- the qualities and characteristics of locations, places and areas;
- the heritage values of places; and
- the social, economic and cultural aspects of the above things.

3.2 (a)	**Is the proposed action a nuclear action?**	✓	No
	If yes, nature & extent of likely impact on the whole environment		

3.2 (b)	**Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?**	✓	No
	If yes, nature & extent of likely impact on the whole environment		

3.2 (c)	**Is the proposed action to be taken in a Commonwealth marine area?**	✓	No
	If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(f))		

3.2 (d)	**Is the proposed action to be taken on Commonwealth land?**	✓	No
	If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(g))		

3.2 (e)	**Is the proposed action to be taken in the Great Barrier Reef Marine Park?**	✓	No

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(h))

3.3 Other important features of the environment

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed above). If at Section 2.3 you identified any alternative locations, time frames or activities for your proposed action, you must complete each of the details below (where relevant) for each alternative identified.

3.3 (a) Flora and fauna

Attachment 5 provides the results of the ecological assessment and targeted surveys conducted for the Shoreline development area. Due to past and ongoing land uses which have resulted in a heavily cleared landscape, flora and fauna habitat values were assessed as being relatively low, although the subject site does support Koala habitats and evidence of Koala usage of the subject site was observed.

3.3 (b) Hydrology, including water flows

The subject site rises from the coast to an elevation of approximately 35 m AHD, with a predominant north-south ridge contribution to minor catchments flowing east and west. Waterways within the subject site are ephemeral, with small pools persisting after significant rainfall. The subject site also supports a number of man-made dams.

3.3 (c) Soil and Vegetation characteristics

Soils are typically deeply weathered basalt and clay. Native vegetation has been mostly cleared for agricultural practices, with three small patches of intact vegetation occurring within the subject site. Isolated native and exotic trees are scattered throughout the subject site.

3.3 (d) Outstanding natural features

The subject site does not support any outstanding natural features.

3.3 (e) Remnant native vegetation

Attachment 5 provides the results of the ecological assessment conducted for the Shoreline development area. The majority of the subject site consists of open grazing or farming land mapped by the state as non-assessable vegetation under the *Vegetation Management Act 1999*, with remnant vegetation constrained to the foreshore area (RE 12.3.6/12.5.2 – Palustrine wetland/Open Forest) and a small creek line that runs through the central portions of the subject site (RE 12.3.6). Whilst the canopy layer in these remnant patches were relatively intact, the shrub and ground layers were dominated by exotic weed infestations. All remnant vegetation will be retained, protected and rehabilitated as part of the Shoreline development.

3.3 (f) Gradient (or depth range if action is to be taken in a marine area)

No Applicable.

3.3 (g) Current state of the environment

The majority of the subject site has been previously cleared for agricultural and cattle grazing practices, with associated farm houses, sheds etc. Uncleared areas have experienced heavy weed invasions in locations adjacent to cleared farmlands.

A small number of rural residential Lots currently support small areas of mature and semi-mature native vegetation interspersed with exotic vegetation.

3.3 (h) Commonwealth Heritage Places or other places recognised as having heritage values

The subject site does not support any Commonwealth Heritage Places or heritage values.
The Queensland Heritage Act 1992 and Aboriginal Cultural Heritage Act 2003 are the relevant legislation for the protection and management of cultural heritage in Queensland.
Serpentine Creek Road Cemetry is situated central to the subject site but is not located on the subject land. It has high ecological, aesthetic and cultural values and has been identified in the Redland Heritage Study as being of local and regional significance. The site is subject to a Habitat Management Plan. The site is included in the Queensland Heritage Register and the Redland City Council Heritage Register. The Cemetery does not form part of this application.

3.3 (i) Indigenous heritage values
The subject site does not support any Indigenous heritage values.

3.3 (j) Other important or unique values of the environment
There are no other important or unique values within or immediately adjacent to the subject site.

3.3 (k) Tenure of the action area (e.g. freehold, leasehold)
Freehold

3.3 (l) Existing land/marine uses of area
The majority of the subject site is currently, or has been in the past, used for cattle grazing and agricultural practices. There are no marine uses of the subject site.

3.3 (m) Any proposed land/marine uses of area
The Shoreline development does not include any land/marine uses.

4 Measures to avoid or reduce impacts

The Shoreline development has been located in a landscape that, due to past and ongoing land uses, currently supports limited habitat values for MNES. The proponent has undertaken a number of studies to identify ecological constraints and opportunities to inform the Shoreline Development planning.

The Council and State approved development includes the creation, restoration and management of wildlife corridors and open space areas that will, overtime, greatly increase the habitat extent and values for local flora and fauna species, particularly for Koala. The Shoreline development includes a commitment to plant in excess of 100,000 Koala habitat trees to offset the loss of <1000 Koala habitat trees scattered throughout the subject site.

The subject land has been subject to extensive vegetation studies. These identified a total of 2363 non-juvenile Koala habitat trees on the site (i.e Corymbia, Melaleuca, Lophostemon, Eucalyptus or Angophora, as listed under the Koala State Planning Regulatory Provisions. Of these trees, 344 (15%) are considered primary food trees (i.e. *Eucalyptus tereticornis* or *E. microcorys*) and a further 42 (18%) are listed as secondary food trees (i.e. *E. racemosa*) as defined in AKF (2015). For the most part, the trees were in isolated clumps or bushland patches, single trees scattered throughout Lots, or were located along road edges. The overwhelming majority of these trees are located with the proposed open space areas and corridors and will not be disturbed by the proposed development. Much of the rtained habitats are subject to approval conditions which prevent clearing (e.g Council Condition 25 No clearing of Trees within Koala Bushland and State government conditions preventing clearing within mapped remnant vegetation)

Design responses will minimise clearing of habitat trees outside of the open space areas.

The inclusion of two scientifically designed and strategically located fauna underpasses and a fauna overpass within the wildlife corridors will facilitate safe fauna movement opportunities, for all local fauna, to access large bushland areas located to the west of the subject site. The wildlife corridors and Open Space areas will be managed in accordance with the approved Landscape and Open Space Management Plan (BAAM 2015). This Plan will commence immediately and will be sequentially delivered as each stage of the development is constructed.

The Shoreline development will not cause any direct impacts on the Moreton Bay wetlands (Section 3.1d & **Attachment 4**) or migratory shorebirds (Section 3.1e & **Attachment 6**), and a detailed Stormwater Management Plan and Erosion and Sedimentation Plan will ensure that construction and operational works do not cause any significant indirect impacts on MNES.

Vegetation clearing will be constrained to small isolated vegetation patches, or to scattered individual trees. All vegetation clearing will be conducted in a sequential manner, with no clearing occurring during the hours of 6pm and 6am. All vegetation will be inspected by a qualified fauna spotter/catcher prior to clearing. The fauna spotter will remain onsite during all vegetation clearing to ensure potential impacts to local fauna are minimised.

5 Conclusion on the likelihood of significant impacts

5.1 Do you THINK your proposed action is a controlled action?

✓	No, complete section 5.2

5.2 Proposed action IS NOT a controlled action.

Due to past and ongoing land uses, the subject site does not currently support any habitats that would be considered critical for the survival of EPBC listed species. The Council approved Shoreline development includes the retention, rehabilitation and protection of the highest habitat values within the subject site. The inclusion of three wildlife corridors, one fauna overpass and two fauna underpasses will greatly improve wildlife habitat extent, particularly for Koala, and will provide safe fauna movement opportunities to allow the local fauna to access higher habitat values located to the west of the subject site.

Based on the limited habitat values within the subject site, together with the dedication of strategic biodiversity corridors for the local area, it is considered that the proposed action will not cause any significant impacts to threatened fauna populations.

5.3 Proposed action IS a controlled action

	Matters likely to be impacted
	World Heritage values (sections 12 and 15A)
	National Heritage places (sections 15B and 15C)
	Wetlands of international importance (sections 16 and 17B)
	Listed threatened species and communities (sections 18 and 18A)
	Listed migratory species (sections 20 and 20A)
	Protection of the environment from nuclear actions (sections 21 and 22A)
	Commonwealth marine environment (sections 23 and 24A)
	Great Barrier Reef Marine Park (sections 24B and 24C)
	A water resource, in relation to coal seam gas development and large coal mining development (sections 24D and 24E)
	Protection of the environment from actions involving Commonwealth land (sections 26 and 27A)
	Protection of the environment from Commonwealth actions (section 28)
	Commonwealth Heritage places overseas (sections 27B and 27C)

None applicable.

6 Environmental record of the responsible party

		Yes	No
6.1	**Does the party taking the action have a satisfactory record of responsible environmental management?** **Provide details** The proponents of the Shoreline development are experienced and long term residential and commercial developers, based in the local area. 1.) Fox and Bell Group See: www.foxandbell.com The nearest residential developments to the site developed by Fox and Bell are Orchard Beach and Parklands estates situated at Redland Bay. Fox and Bell also developed the Redlands Business Park at German Church Road, Redland Bay that has rehabilitated over 9.0ha of habitat, created fauna corridors, road underpasses and planted over 100,000 trees. 2.) Fiteni Homes See: www.fitenihomes.com.au Fiteni Homes is a long term and respected builder and developer in Redland City. Their current projects include: Birkdale Retreat (Birkdale) , Egret Point(Victoria Point), Parklands (Alexandra Hills), Seebreeze (Wellington Point), Thornlands Waters (Thornlands), Parkedge (Redland Bay).	✓	
6.2	**Has either (a) the party proposing to take the action, or (b) if a permit has been applied for in relation to the action, the person making the application - ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?** **If yes, provide details**		✓
6.3	**If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?** **If yes, provide details of environmental policy and planning framework** Shoreline has adopted a Environmental Policy which can be provided if requested.	✓	
6.4	**Has the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?** Shoreline Pty Ltd is a recently formed Corporation and has not undertaken any previously referred actions under the EPBC Act. **Provide name of proposal and EPBC reference number (if known)**		✓

7 Information sources and attachments

(For the information provided above)

7.1 References

- List the references used in preparing the referral.
- Highlight documents that are available to the public, including web references if relevant.

- **AKF (2005).** Redland Bay South Masterplanned Community Proposal – Systematic Survey for Vertebrate Fauna and Ecological Assessments & Survey for Evidence of Koala Activity. Australian Koala Foundation, February 2005**.**
- **AKF (2015).** Australian Koala Foundation National Koala Tree Planting List.
- **BAAM (2014).** Shoreline Ecological Assessment – Redland Bay. Report prepared for Fox and Bell.
- **BAAM (2015).** *Landscape and Open Space Management Plan – Shoreline.* Prepared for Shoreline Redlands Pty Ltd
- **Benwell (2005).** Flora Survey of the Proposed Redland Bay South Planned Community Development Site. Australian Koala Foundation, February 2005.
- **DEHP (2010).** South East Queensland Koala Conservation State Planning Regulatory Provisions. Department of Environment and Heritage Protection. http://www.statedevelopment.qld.gov.au/resources/policy/seq-koala-conservation-sprp.pdf
- **DEHP (2016).** Flying-fox Roost locations. Queensland Department of Environment and Heritage Protection. https://www.ehp.qld.gov.au/wildlife/livingwith/flyingfoxes/pdf/seq-roosts Accessed 21 March 2016.
- **Dique, DS, Preece, HJ, Thompson, J and Villiers DL (2004)**. 'Determining the distribution of a regional koala population in south-east Queensland for conservation management.' *Wildlife Research*, **31**: 109-117.
- **DotE (2013). Significant Impact Guidelines 1.1 – Matters of National Environmental Significance.** http://www.environment.gov.au/epbc/publications/significant-impact-guidelines-11-matters-national-environmental-significance. Accessed 21/3/2016
- **DotE (2014).** EPBC Act referral guidelines for the vulnerable koala (combined populations of Queensland, New South Wales and the Australian Capital Territory). Commonwealth Department of the Environment. http://www.environment.gov.au/system/files/resources/dc2ae592-ff25-4e2c-ada3-843e4dea1dae/files/koala-referral-guidelines.pdf Accessed 21/4/2016
- **DotE (2015a).** Draft Referral guidelines for 14 birds listed as migratory species under the EPBC Act. Commonwealth Department of the Environment. http://www.environment.gov.au/biodiversity/threatened/publications/epbc-act-referral-guidelines-migratory-birds Accessed 23/4/2016
- **DotE (2015b).** *Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species.* Commonwealth Department of the Environment. http://www.environment.gov.au/system/files/resources/67d7eab4-95a5-4c13-a35e-e74cca47c376/files/shorebirds-guidelines Accessed 21/4/2016

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7.2 Reliability and date of information

Information provided in the terrestrial components of Section 3 of this referral is based on numerous site investigations undertaken by BAAM Principal Ecologists, Adrian Caneris and Dr Penn Lloyd and Senior Ecologists Dr Jo Chambers and Alicia Christie between January 2014 and January 2016, and an extensive desktop review of the proposed development plans, online wildlife database sources (Atlas of Living Australia, EHP WildNet) and a number of relevant and publicly available data sources such as the Commonwealth SPRAT profiles for threatened species identified from the PMST report.

Information provided in Sections 3, 4 & 5 was written by Dr Jo Chambers on the basis of the ecological assessment (**Attachment 5**) and Shorebird surveys (**Attachment 6**) undertaken by BAAM, and has been reviewed by BAAM Principal Ecologists Adrian Caneris and Dr Penn Lloyd and BAAM Project Delivery Manager Jedd Appleton.

Information provided in the marine components of Section 3 of this referral is based on a site inspection by frc environmental Principal Ecologist Carol Conacher in November 2013, a site visit by frc environmental Principal Ecologist John Thorogood in November 2015, frc environmental's extensive experience assessing marine and estuarine communities in Moreton Bay over the past 30 years, and extensive desktop review of the development plans and a number of relevant and publicly available data sources such as the Commonwealth SPRAT profiles for threatened species. **Attachment 4** was written by frc environmental Senior Ecologist Dr Liz West and Graduate Ecologist Dr James Bone, and has been reviewed by frc environmental Principal Ecologist Carol Conacher.

7.3 Attachments

Indicate the documents you have attached. All attachments must be less than three megabytes (3mb) so they can be published on the Department's website. Attachments larger than three megabytes (3mb) may delay the processing of your referral.

		✓ attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the project locality (section 1)	✓	Attachment 1 Shoreline Precinct Plan Attachment 2 Locality Figure
	GIS file delineating the boundary of the referral area (section 1)	✓	Attached as separate file - Shoreline Footprint GIS Shape File (WinRAR ZIP File)
	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)	✓	Attachment 2 Locality Figure Attachment 3 PMST report
If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.5)		Redland City Council and State Development Approvals (Attachment 7)
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.6)		Attachments 4,5,6 & 8
	copies of any flora and fauna investigations and surveys (section 3)	✓	Attachment 4 frc environmental Marine Component Attachment 5 Ecological Assessment Report Attachment 6 – BAAM migratory shorebird surveys
	technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3 and 4)	✓	Attachment 4 frc environmental Marine Component Attachment 5 Ecological Assessment Report Attachment 6 – BAAM migratory shorebird surveys
	report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)		Attachment 8 – Community Consultation Summary

8 Contacts, signatures and declarations

NOTE: Providing false or misleading information is an offence punishable on conviction by imprisonment and fine (s 489, EPBC Act).

Under the EPBC Act a referral can only be made by:

- the person proposing to take the action (which can include a person acting on their behalf); or
- a Commonwealth, state or territory government, or agency that is aware of a proposal by a person to take an action, and that has administrative responsibilities relating to the action[1].

Project title:

8.1 Person proposing to take action

This is the individual, government agency or company that will be principally responsible for, or who will carry out, the proposed action.

If the proposed action will be taken under a contract or other arrangement, this is:

- the person for whose benefit the action will be taken; or
- the person who procured the contract or other arrangement and who will have principal control and responsibility for the taking of the proposed action.

If the proposed action requires a permit under the Great Barrier Reef Marine Park Act[2], this is the person requiring the grant of a GBRMP permission.

The Minister may also request relevant additional information from this person.

If further assessment and approval for the action is required, any approval which may be granted will be issued to the person proposing to take the action. This person will be responsible for complying with any conditions attached to the approval.

If the Minister decides that further assessment and approval is required, the Minister must designate a person as a proponent of the action. The proponent is responsible for meeting the requirements of the EPBC Act during the assessment process. The proponent will generally be the person proposing to take the action[3].

1. Name and Title:	Chris Barnes (CEO)
2. Organisation	Shoreline Redlands Pty Ltd ABN 92 163 078 715
3. EPBC Referral Number (if known):	
4: ACN / ABN (if applicable):	ABN 92 163 078 715
5. Postal address	PO Box 649 Cleveland Q4163
6. Telephone:	07 3821 1204
7. Email:	chris.barnes@shorelineredlands.com.au
8. Name of proposed proponent (if not the same person at item 1 above and if applicable):	
9. ACN/ABN of proposed proponent (if not the same person named at	

[1] *If the proposed action is to be taken by a Commonwealth, state or territory government or agency, section 8.1 of this form should be completed. However, if the government or agency is aware of, and has administrative responsibilities relating to, a proposed action that is to be taken by another person which has not otherwise been referred, please contact the Referrals Gateway (1800 803 772) to obtain an alternative contacts, signatures and declarations page.*

[2] *If your referred action, or a component of it, is to be taken in the Great Barrier Reef Marine Park the Minister is required to provide a copy of your referral to the Great Barrier Reef Marine Park Authority (GBRMPA) (see section 73A,* EPBC Act*). For information about how the GBRMPA may use your information, see http://www.gbrmpa.gov.au/privacy/privacy_notice_for_permits.*

item 1 above):

COMPLETE THIS SECTION ONLY IF YOU QUALIFY FOR EXEMPTION FROM THE FEE(S) THAT WOULD OTHERWISE BE PAYABLE

I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

□ an individual; OR

□ a small business entity (within the meaning given by section 328-110 (other than subsection 328-119(4)) of the *Income Tax Assessment Act 1997*); OR

□ **not applicable**.

If you are small business entity you must provide the Date/Income Year that you became a small business entity:

Note: You must advise the Department within 10 business days if you cease to be a small business entity. Failure to notify the Secretary of this is an offence punishable on conviction by a fine (regulation 5.23B(3) *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth)).

COMPLETE THIS SECTION ONLY IF YOU WOULD LIKE TO APPLY FOR A WAIVER

I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations. Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made:

□ **not applicable.**

Declaration

I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct.
I understand that giving false or misleading information is a serious offence.
I agree to be the proponent for this action.
I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature

Date 7/9/2016

8.2 Person preparing the referral information (if different from 8.1)

Individual or organisation who has prepared the information contained in this referral form.

Name	Dr Jo Chambers
Title	Senior Ecologist
Organisation	Biodiversity Assessment and Management Pty Ltd
ACN / ABN (if applicable)	59 097 464 992
Postal address	PO Box 1376 Cleveland, 41263
Telephone	07 32867788
Email	jo@baamecology.com

Declaration

I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct.
I understand that giving false or misleading information is a serious offence.

Signature 

Date 08/09/2016

REFERRAL CHECKLIST

NOTE: This checklist is to help ensure that all the relevant referral information has been provided. It is not a part of the referral form and does not need to be sent to the Department.

HAVE YOU:

- ❑ Completed all required sections of the referral form?
- ❑ Included accurate coordinates (to allow the location of the proposed action to be mapped)?
- ❑ Provided a map showing the location and approximate boundaries of the project area?
- ❑ Provided a map/plan showing the location of the action in relation to any matters of NES?
- ❑ Provided a digital file (preferably ArcGIS shapefile, refer to guidelines at Attachment A) delineating the boundaries of the referral area?
- ❑ Provided complete contact details and signed the form?
- ❑ Provided copies of any documents referenced in the referral form?
- ❑ Ensured that all attachments are less than three megabytes (3mb)?
- ❑ Sent the referral to the Department (electronic and hard copy preferred)?