Generations Industrial Park
EPBC Act Referral

Patricia and William Hester

13 July 2016
7460

Referral of proposed action

Project title: Generations Industrial Park

1 Summary of proposed action

1.1 **Short description**

Generations Industrial Park is a major light industry and business subdivision development within the Yatala Enterprise Area of the **City of Gold Coast**.

1.2 **Latitude and longitude**

Id	Longitude (east)	Latitude (south)	Id	Longitude (east)	Latitude (south)
Area 1			Area 2		
1	153°14'35" E	27°44'1" S	1	153°14'29" E	27°44'34" S
2	153°14'30" E	27°44'33" S	2	153°14'29" E	27°44'37" S
3	153°14'28" E	27°44'32" S	3	153°14'27" E	27°44'36" S
4	153°14'23" E	27°44'30" S	4	153°14'25" E	27°44'36" S
5	153°14'17" E	27°44'29" S	5	153°14'23" E	27°44'35" S
6	153°14'7" E	27°44'19" S	6	153°14'23" E	27°44'34" S
7	153°14'6" E	27°44'18" S	7	153°14'21" E	27°44'33" S
8	153°14'8" E	27°44'19" S	8	153°14'18" E	27°44'30" S
9	153°14'7" E	27°44'17" S	9	153°14'23" E	27°44'31" S
10	153°14'3" E	27°44'10" S	10	153°14'27" E	27°44'33" S
11	153°13'57" E	27°44'1" S			
12	153°14'4" E	27°43'57" S			
13	153°14'19" E	27°43'59" S			

1.3 **Locality and property description**

Contextually, the site is located 1 km east of the intersection between Stapylton Jacobs Well Road and the Pacific Motorway, approximately 4 km south-east of Beenleigh, which lies approximately half way between Brisbane City and City of Gold Coast.

Land immediately surrounding the site has mostly been cleared of vegetation values for industrial or rural purposes. Significant industrial developments have been completed to the north, west and south of the site, and a large quarry and refuse transfer station shares the eastern property boundary. Nearby features include the Yatala Enterprise Area and the suburbs of Yatala, Mount Warren Park, Ormeau and Gilberton.

Approximately half of the area of the subject site has been cleared for pastoral purposes. The central portion of the site is being utilised as a light industrial enterprise with infrastructure associated with the manufacture and storage of soil and fertilisers. The remainder contains remnant and regrowth vegetation and some degraded drainage areas. Overall the site is relatively disturbed by pastoral and industrial uses.

The referral area covers approximately 73 hectares. Refer to **Figure 1** for the site context and **Figure 2** for the site aerial.

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

73 ha total site area, with 63 ha proposed for industrial allotments.

1.5 **Street address of the site**

Stapylton Jacobs Well Road, Stapylton, Queensland.

1.6 **Lot description**

The referral area is made up of two allotments:

Lot Number	Area	Tenure
Lot 1 on RP6882	20.5 ha	Freehold
Lot 240 on W31320	52.5 ha	Freehold

1.7 **Local Government Area and Council contact (if known)**

The Local Government Area is the **City of Gold Coast.**

Contact:

Monique Anderson
Implementation and Assessment Branch
Gold Coast City Council
(07) 5582 8866
gcccmail@goldcoast.qld.gov.au

1.8 **Time frame**

The project has obtained Local Government approval and is finalising State level approvals with the intention to commence post confirmation of EPBC Act requirements. Construction will commence as soon as possible in line with market demand and continue for about 10 years.

1.9 **Alternatives to proposed action**

X	**No.** The site has been strategically designated by the **City of Gold Coast** as a Future Business and Industry Precinct of the Yatala Enterprise Area. The site is located adjacent to the junction between Stapylton Jacobs Well Road and the Pacific Motorway, which provides efficient and effective access to and egress from the proposal site. This infrastructure has been put in place in anticipation of the expansion of the Yatala Enterprise Area and provides an ideal location to create an industrial park. An alternative location ignores that practicality and is not feasible within the extent of the proponent's land holdings. The approved Material Change of Use application for the site was consistent with Local Government planning intentions and alternative actions would arguably be inconsistent with that intent and unlikely to be supported by CGC. The planning intentions are presented in the CGC identification of the site as a Future Business and Industry Precinct situated within the Yatala Enterprise Area. The referral site itself comprises a crucial component of the Yatala Enterprise Area due to its locality adjoining Stapylton Jacobs Well Road within close proximity to the Pacific Motorway. Undertaking the action in a different location or at a different intensity or scale was not considered as it would extend beyond the boundaries of, or be inconsistent with, the planning intentions of the Yatala Enterprise Area. The proposal has been approved by way of the Material Change of Use that provides development certainty for the site.
	Yes, you must also complete section 2.2

1.10	**Alternative time frames etc**	**X**	**No.** Alternative timeframes are not proposed. Construction works are proposed to commence shortly after the relevant approvals are obtained. The Material Change of Use approval provides certainty as to the uses permitted on the site.
			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**	**X**	**No.** The project is not subject to a state environmental impact assessment. As part of the MCU approval process, State Government agencies acted as concurrent assessors for relevant aspects of the proposal. This application and approval system is mutually exclusive to EPBC Act assessment.
			Yes, you must also complete Section 2.5
1.12	**Component of larger action**	**X**	**No.** The project is not being developed as part of a component of a larger action. While the action occurs within the Yatala Enterprise Area, the proponents have no control or influence over surrounding parcels of land. This action is confined to the parcels under the ownership of **Patricia and William Hester** and contained within the approved Material Change of Use area.
			Yes, you must also complete Section 2.7
1.13	**Related actions/proposals**	**X**	**No.** This referral is not related to other actions in the region including proposals to be undertaken within the declared Yatala Enterprise Area. Although likely to be lodged in accordance with the relevant Planning Scheme, the proposed design and lodgement of any other development applications by external land owners is not controlled by **Patricia and William Hester**.
			Yes, provide details:
1.14	**Australian Government funding**	**X**	**No.** The proponent has not received funding from the Australian Government to undertake the project.
			Yes, provide details:
1.15	**Great Barrier Reef Marine Park**	**X**	**No.**
			The proposed action is not located inside the Great Barrier Reef Marine Park.
			Yes, you must also complete Section 3.1 (h), 3.2 (e)

2 Detailed description of proposed action

2.1 Description of proposed action

The proposed action involves the construction of Generations Industrial Park, a major industrial subdivision development located within the Yatala Enterprise Area designated by **City of Gold Coast** (**CGC**) as a Future Business and Industry Precinct. **CGC** intends the Future Business and Industry Precinct to the east of the Pacific Motorway to become 'General Impact Business and Industry'. This use will accommodate a broad range of manufacturing industries, warehouses and distribution centres of a general industrial nature.

This proposal retains an MCU approval from the **CGC** and includes development of the subject site for industrial, recreational and conservation uses. Development design has incorporated a significant ecological buffer area along the site's eastern and southern boundaries to buffer future industrial uses from neighbouring areas, including the relatively degraded Sandy Creek riparian corridor to the south and vegetation bordering the relatively large refuse tip and quarry to the east, and provide connectivity values for local fauna through the surrounding landscape. The total approved industrial development area is 63 ha with 10 ha set aside as ecological buffer and stormwater detention areas.

The proposed development will offer industrial sites in line with planning intent to augment the expansion of the Yatala Enterprise Area as endorsed in **CGC**'s Local Area Plan. The proposed lot sizes and configurations will provide opportunities for a variety of industrial enterprises whilst supplementing existing industrial areas adjacent to the north, west and south of the site.

The proposed development will incorporate a north-south oriented ecological buffer along the entire length of the eastern boundary and along Sandy Creek to the south. The buffer will provide an effective conservation linkage to areas beyond the site and will be rehabilitated as per Council approval conditions utilising local flora species. The proposed development footprint is primarily contained within areas that are already cleared as well as remnant areas that are relatively disturbed by encroaching pastoral and industrial uses.

For the purposes of this referral the action is described as clearing and earthworks over 66.5 ha of the site for the following uses and activities:

- A total of 45 individual lots are proposed, 11 of which are over one hectare in size;
- Four proposed stormwater drainage detention reserves totalling 3.5 ha;
- Ecological buffer along the western and southern boundaries of 6.5 ha; and
- Total non-development area of 10.0 ha on-site.

2.2 Alternatives to taking the proposed action

There are no alternatives proposed (refer to response 1.9).

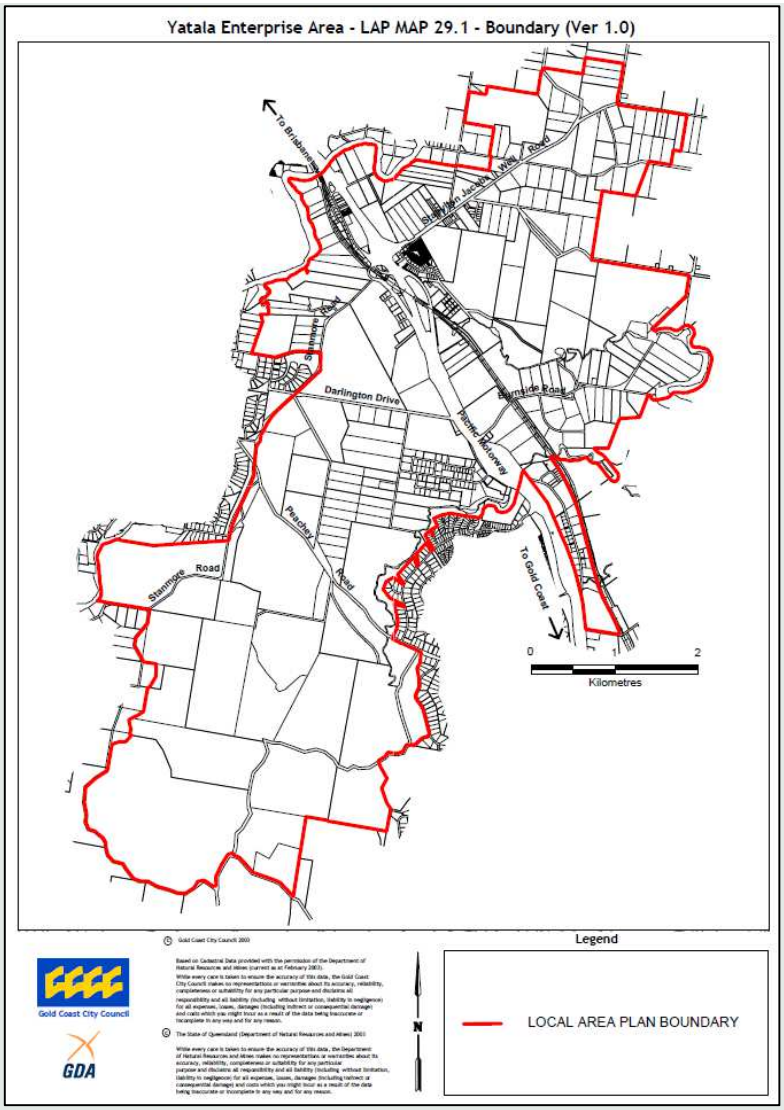
2.3 Alternative locations, time frames or activities that form part of the referred action

There are no alternatives proposed (refer to response 1.10).

2.4 Context, planning framework and state/local government requirements

Context

The Yatala Enterprise Area (map extracted below) was formed in 2005 as a specialist Activity Centre and designated as a Major Development Area under the Queensland State Government's *South East Queensland Regional Plan*.



Planning Framework

The subject site is located within the **City of Gold Coast** Local Government area, situated within South East Queensland. The project was subject to the provisions of the *Gold Coast Planning Scheme*, in particular, the *Yatala Enterprise Area Local Area Plan*, as well as Queensland's *Sustainable Planning Act 2009* (Qld).

Current Approvals

City of Gold Coast Material Change of Use Approval – PN163781/01/DA1.

2.5 Environmental impact assessments under Commonwealth, state or territory legislation

No environmental impact assessments are required under Commonwealth or State legislation (refer to response 1.11).

2.6 Public consultation (including with Indigenous stakeholders)

As part of the development assessment process for the MCU Approval, the proponents were required to engage in public consultation which involved the notification of the project to seek public comment under the *Urban Land Development Authority Act 2007*. The proponent was found to satisfy all public notification requirements and was subsequently granted an Approval. Similar public consultation is expected to continue during the ongoing approvals process.

2.7 A staged development or component of a larger project

No, the project is not a staged development or a component of a larger project. Refer to responses 1.12 and 1.13.

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

3.1 (a) World Heritage Properties

Description

Not applicable. Refer to Attachment 1.

Nature and extent of likely impact

Not applicable

3.1 (b) National Heritage Places

Description

Not applicable. Refer to Attachment 1.

Nature and extent of likely impact

Not applicable

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

Description

The site is approximately 11 kilometres west of Moreton Bay, which is a Ramsar wetland.

Nature and extent of likely impact

No impacts on Moreton Bay are expected. Stringent management measures conditioned by the MCU approval will be put in place to ensure that any sediment erosion and stormwater runoff from the development is captured and treated before being released into local waterways. Measures required include approved:

- Acid Sulfate Soil Management Plan;
- Stormwater Management Plan; and
- Erosion and Sediment Control Plan.

This will ensure that any stormwater meets quality standards set by the relevant State and Local Government guidelines.

In addition, it is unlikely that water flowing from the development site will have a significant impact on Moreton Bay. It is noted that before reaching Moreton Bay, the stormwater must first run through the degraded Sandy Creek, which drains eastward meandering approximately 13 km to the Logan River entering 5 km west of the river mouth. Sandy Creek flows for approximately 6 km through a heavily industrialised catchment east of the referral site, before becoming a highly modified and diverted drain adjoining and servicing irrigated agricultural allotments for approximately 7 km to the Logan River. The Logan River itself drains the highly developed City of Logan.

In the context of the Logan River catchment, it is unlikely that the proposed action will have any notable impacts on water quality in Moreton Bay.

3.1 (d) Listed threatened species and ecological communities

Description

MNES Desktop Assessment

The Protected Matters Search Tool using a five kilometre radius around the site identified the following matters protected under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) as having potential to occur on-site:

- Two Threatened Ecological Communities (TECs):
  - *Lowland Rainforest of Subtropical Australia* (critically endangered)- community may occur
  - *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (critically endangered) - community likely to occur;
- 14 listed threatened flora species; and
- 23 listed threatened fauna species.

Table 1 provides a summary of these search results, with the full search results provided in **Attachment 1**.

Table 1: EPBC Act Protected Matters Search Tool Results

Wetlands of International Importance		
Moreton Bay: Within 10 km of Ramsar		
Threatened Ecological Communities		
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur in the area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community may occur in the area
Threatened Species		
Scientific Name	**Common Name**	**Status**
Birds		
Anthochaera phrygia	Regent Honeyeater [82338]	Critically Endangered
Botaurus poiciloptilus	Australasian Bittern [1001]	Endangered
Cyclopsitta diophthalma coxeni	Coxen's Fig-Parrot [59714]	Endangered
Dasyornis brachypterus	Eastern Bristlebird [533]	Endangered
Erythrotriorchis radiatus	Red Goshawk [942]	Vulnerable
Geophaps scripta scripta	Squatter Pigeon (southern) [64440]	Vulnerable
Lathamus discolor	Swift Parrot [744]	Critically Endangered
Poephila cincta cincta	Black-throated Finch (southern) [64447]	Endangered
Rostratula australis	Australian Painted Snipe [77037]	Endangered
Turnix melanogaster	Black-breasted Button-quail [923]	Vulnerable
Fish		
Maccullochella mariensis	Mary River Cod [83806]	Endangered
Insects		
Phyllodes imperialis smithersi	Pink Underwing Moth [86084]	Endangered
Mammals		
Chalinolobus dwyeri	Large-eared Pied Bat [183]	Vulnerable
Dasyurus maculatus maculatus (SE mainland population)	Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered
Petauroides volans	Greater Glider [254]	Vulnerable
Petrogale penicillata	Brush-tailed Rock-wallaby [225]	Vulnerable

Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)	Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable
Potorous tridactylus tridactylus	Long-nosed Potoroo (SE mainland) [66645]	Vulnerable
Pseudomys novaehollandiae	New Holland Mouse, Pookila [96]	Vulnerable
Pteropus poliocephalus	Grey-headed Flying-fox [186]	Vulnerable
Xeromys myoides	Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable
Plants		
Arthraxon hispidus	Hairy-joint Grass [9338]	Vulnerable
Baloghia marmorata	Marbled Balogia, Jointed Baloghia [8463]	Vulnerable
Bosistoa transversa	Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable
Corchorus cunninghamii	Native Jute [14659]	Endangered
Cryptocarya foetida	Stinking Cryptocarya, Stinking Laurel [11976]	Vulnerable
Diploglottis campbellii	Small-leaved Tamarind [21484]	Endangered
Gossia gonoclada	Angle-stemmed Myrtle [78866]	Endangered
Lepidium peregrinum	Wandering Pepper-cress [14035]	Endangered
Macadamia integrifolia	Macadamia Nut, Queensland Nut, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable
Phaius australis	Lesser Swamp-orchid [5872]	Endangered
Phebalium distans	Mt Berryman Phebalium [81869]	Critically Endangered
Planchonella eerwah	Shiny-leaved Condoo, Black Plum, Wild Apple [17340]	Endangered
Randia moorei	Spiny Gardenia [10577]	Endangered
Thesium australe	Austral Toadflax, Toadflax [15202]	Vulnerable
Reptiles		
Delma torquata	Collared Delma [1656]	Vulnerable
Saiphos reticulatus	Three-toed Snake-tooth Skink [88328]	Vulnerable

NB – Marine species such as turtles and albatross have been removed from **Table 1** above, due to a lack of habitat on-site.

A likelihood of occurrence assessment was conducted for threatened species, threatened ecological communities, and migratory species identified by the PMST search as having potential to occur on-site. The assessment included desktop research such as searches of relevant database and mapping tools, review of historical ecological reports for the site and region, review of aerial photography, presence or absence of suitable habitat, site features, results of the field surveys and professional judgement. Detailed field surveys were also carried out including targeted searches for listed species and signs of their presence, identification of suitable habitat for listed species and review of high value site features such as waterways and remnant vegetation. The assessment is detailed in the Ecological Assessment Report (EAR) provided as **Attachment 2** to this referral. **Attachment 3** shows field survey effort undertaken on the site.

The assessment of the likelihood of occurrence ruled out the potential for most listed matters to occur on-site. This was primarily due to the combined impacts on the site from:

- The largely cleared and disturbed nature of the site;
- Lack of suitable niche habitat across the site, such as rocky outcrops and coastal habitats;
- Influences from surrounding industrial developments and expanding development within the local area;
- Fragmentation of the site adjoining the Pacific Motorway;
- Evidence of dogs and exotic weeds throughout the site; and
- Disturbances caused by pastoral and industrial practices.

Overall, desktop surveys identified the potential for the Swift Parrot (Endangered), Grey-Headed Flying-Fox (Vulnerable) and Koala (Vulnerable) to occur on-site due to the availability of potential habitat, the former two when eucalypts are flowering. No other species or TECs are considered likely to occur on-site (refer to **Attachment 2 – Appendix E** for Likelihood of Occurrence Analysis).

Assessment of Occurrence and Field Survey Results

On the 29th and 30th September 2014, Senior Ecologists from **Saunders Havill Group** conducted field assessments across the site to identify any potential MNES fauna or flora and conduct an assessment of suitable habitats on the application allotments located at Stapylton Jacobs Well Road, Stapylton. Overall, the site was found to be relatively disturbed as a result of ongoing agricultural and industrial practices which have left large areas of the site cleared of vegetation and the remainder sustaining compromised habitat values (refer to **Attachment 2** – Ecological Assessment Report).

Swift Parrot (*Lathamus discolor*)

The Swift Parrot is listed as Endangered under the EPBC Act. Swift Parrots breed in Tasmania during spring to early summer. During autumn and winter the species migrates to the mainland where it follows a nomadic existence linked to the availability and timing of flowering of trees in various locations. Wildlife on-line search results contain a single record of the Swift Parrot within 2 km of the referral site, however, the specific date and location of this record are unavailable (**Attachment 2**). There are no records of the Swift Parrot within 10 km of the referral site under the Atlas of Living Australia. While the species is considered very uncommon in south-east Queensland, its occurrence cannot be completely discounted.

The Swift Parrot was not recorded on-site during diurnal bird surveys over two days (refer **Attachment 2**). The species has the potential to occur as a visitor during eucalypt flowering events, although remnant vegetation containing eucalypts is relatively degraded on-site and larger tracts of optimal habitat more likely to attract migrating Swift Parrot are available elsewhere in the broader landscape. For example, The Carbrook Wetlands Conservation Parks covering a combined area of 295 ha contain *Eucalyptus* and *Melaleuca* hilly woodlands and swamps and are situated 6 km north of the referral site. Further, eucalypt forests associated with the 102 ha Buccan Conservation Reserve and the 480 ha Plunkett Conservation Park are 8 km west and 11 km southwest of the referral site, respectively. In addition, Tamborine National Park 13 km south of the referral site forms an important 2,080 ha refuge of mountainous eucalypt forests likely to provide more optimal foraging habitat for Swift Parrot.

Given the relatively poor habitat options available on-site and the level of ongoing disturbance, the project area is considered unlikely to support an 'important population' of Swift Parrot, and so, the proposal is considered unlikely to cause a 'significant impact' on this MNES.

Grey-Headed Flying-Fox (*Pteropus poliocephalus*)

The Grey-Headed Flying-Fox is listed as Vulnerable under the EPBC Act. The species is known to use a wide variety of habitats including subtropical and temperate rainforests, tall sclerophyll forest and woodlands, heaths, swamps and also urban and agricultural areas where food trees have been cultivated. There are no records within Wildlife Online or the Atlas of Living Australia of the Grey-headed Flying-fox within 10 km of the referral site (**Attachment 2**). According to the *Draft EPBC Act Policy Statement – camp management guidelines for the Grey-headed and Spectacled Flying-fox*, the closest Nationally Important Grey-headed Flying-Fox camp is located approximately 25 km northwest of the referral site in the suburb of Parkinson, and there is another approximately 35 km south of the site at Canungra. Although present within the broader landscape, these camps are considered beyond the extent of the recognised typical nightly commuting distance of flying-foxes (20km).

The species was not recorded on the subject site during field surveys, nor were roosting camps observed. As for the Swift Parrot, the site contains eucalypt species that provide recognised winter foraging resources for Grey-headed Flying-fox, however, it is relatively degraded and there are much larger tracts of more optimal foraging habitat in the surrounding landscape, for example:

- Carbrook Wetlands Conservation Parks;
- Buccan Conservation Reserve;
- Plunkett Conservation Park; and
- Tamborine National Park

Refer to the Swift Parrot response, above, for more specifics information about localities and sizes of these winter flowering foraging habitats.

The project area does not currently support a flying-fox roosting camp, and suitable foraging habitat is widespread in the greater Logan, Brisbane, Gold Coast region. Therefore, the project area is not likely to support an 'important population' of Grey-Headed Flying-Fox. Overall, this is a common, highly mobile animal that is able to utilise foraging resources over a large area. Given the widespread distribution of the species across South-east Queensland and the availability of habitat throughout the greater area, the project is considered unlikely to have a significant impact on the Grey-Headed Flying-Fox.

Koala (*Phascolarctos cinereus*)

Conservation Status

Under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act), Koala populations in Queensland, New South Wales and the Australian Capital Territory are listed as Vulnerable. Koalas are also listed as Vulnerable under Queensland's *Nature Conservation Act 1992* (Qld) (NCA). The site is located within the modelled distribution of the Koala, within the 'coastal context,' as per the EPBC Act Referral Guidelines for the Vulnerable Koala.

Habitat

As described in the Koala SPRAT species profile, Koalas inhabit a wide range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by eucalypt species. Under the Koala Referral Guidelines, Koala habitat is defined as *'any forest or woodland containing species that are known Koala food trees or shrubland with emergent food trees. This can include remnant or non-remnant vegetation in natural, agricultural, urban and peri-urban environments.'*

Distribution

Koalas are endemic to Australia and have a known distribution from north-eastern Queensland to south-east South Australia. They are widespread within coastal and inland areas, however, densities of Koalas are higher within coastal areas with higher average annual rainfalls. South-east Queensland is known to support Queensland's highest density of Koalas.

Threats

The three main threats to Koalas have been identified within the SPRAT profile as:

- Habitat loss and fragmentation;
- Vehicle strike; and
- Predation by domestic or feral dogs.

In addition, the prevalence of disease such as the *Chlamydia* virus in many Koala populations has led to symptoms such as infections of the eyes, urinary tract, respiratory tract and reproductive tract, with the latter having the potential to lead to infertility in females. More recently, Koala Retrovirus (KoRV) has had an increasing impact on most Queensland Koala populations. While most Koalas carry the disease, environmental stresses such as poor nutrition and overcrowding lead to conditions caused by KoRV such as leukaemia and immunodeficiency syndrome.

Field Assessment

Two ecologists from the Saunders Havill Group conducted field assessments across the subject allotments located at Stapylton Jacobs Well Road, Stapylton, on the 29th and 30th September of 2014 with weather conditions fine and sunny on each occasion. The area assessed included the existing industrial area, pastoral paddocks and vegetation within and immediately surrounding the site. The focus of the investigations was to identify site vegetation and adjoining habitats and to assess the level of utilisation of the site by Koalas. The field assessment involved the following methods:

- Habitat Assessments;
- Scat search meandering transect as per (Phillips & Callaghan 2011); and
- Opportunistic searches.

Habitat Assessments

Queensland's Koala Habitat Values Map (see **Attachment 2 – Figure 5**), shows that the site contains a mixture of vegetation classified as Medium and Low Value Rehabilitation, Medium Value Bushland and Generally Not Suitable Habitat. Regional Ecosystem Mapping (see **Attachment 2 – Figure 4**) shows that approximately half of the site is mapped as Category X (non-remnant vegetation), with areas of Least Concern RE 12.11.5 mapped through the top, middle and bottom portions of the site and a sliver of Of Concern RE 12.3.11 bordering Sandy Creek at the southern site extremity. These REs are not mapped as 'Essential Habitat' for the Koala.

Table 2: Australian Koala Foundation Food Tree List for the Gold Coast

Local Government Area	Elevation*	Scientific Name and/or subspecies	Common Name	Soil and Location
GOLD COAST CITY	2-100	***E. bancroftii***	**Orange Gum**	infertile, sandy lowland sites
GOLD COAST CITY	2-800	*E. biturbinata*	Grey Gum	slopes on soils of medium fertility, annual rainfall >1000 mm
GOLD COAST CITY	2-1000	*E. crebra*	Narrow-leaved red ironbark, Ironbark, Narrow-leaved ironbark	well-drained shallower or sandy/sandy clay soils of medium fertility, >550 mm rainfall
GOLD COAST CITY	2-1000	*E. grandis*	Flooded Gum, Rose Gum	moist, fertile, well-drained, deep, loamy soils of alluvial or volcanic origin, 725-3500 mm
GOLD COAST CITY	2-850	*E. major*	Grey Gum	wet coastal forests on soils of low to medium fertility
GOLD COAST CITY	2-1200	*E. melliodora*	Yellow box, Honey box, Yellow ironbox	gentle slopes, foothills or on flats near watercourses. Soils include alluvials, loams and clays, frost and drought tolerant, 500-1400 mm
GOLD COAST CITY	2-950	***E. microcorys***	**Tallowwood**	on slopes in deeper moderate to fertile soils, well-drained but moist
GOLD COAST CITY	2-1050	*E. moluccana*	Coastal Grey Box, Grey box, Gum-topped box	loam soils of moderate to high fertility on coastal plains and ranges, tolerates saline soils
GOLD COAST CITY	2-1000	*E. planchoniana*	Bastard Tallowwood, Needlebark stringybark	dry sclerophyll forest or woodland on sandy soils or coastal sand
GOLD COAST CITY	2-850	*E. propinqua*	Small-fruited Grey Gum	wet coastal forest on soils of low to medium fertility. Drought and frost tolerant
GOLD COAST CITY	2-1050	*E. racemosa ssp. racemosa*	Scribbly Gum	shallow infertile sandy soil, coastal areas or over sandstone
GOLD COAST CITY	2-700	*E. resinifera ssp. hemilampra*	Red mahogany	sandy or well drained fertile soils, Drought and frost tolerant
GOLD COAST CITY	2-200	***E. robusta***	**Swamp Mahogany**	swampy, seasonally waterlogged soils, very moist fertile soils, heavy clay, sandy clay, alluvial sand soils
GOLD COAST CITY	2-200	*E. seeana*	Narrow-leaved Red Gum	poorly drained shallow soils, swampy sandy soils
GOLD COAST CITY	2-700	*E. siderophloia*	Ironbark, Broken Back Ironbark	wet forest on soils of moderate fertility
GOLD COAST CITY	2-800	***E. tereticornis ssp. tereticornis***	**Forest red gum, Blue gum, Red irongum**	alluvial soils, 600-2500 mm, tolerates salt-laden coastal winds, tolerates saline soils, medium-heavy clays, does not tolerate waterlogged soils
GOLD COAST CITY	2-1100	*E. tindaliae*	Tindal's Stringbark	poorer soils in high rainfall areas, often derived from granite

Bolded entries indicate primary tree species

A total of 15 habitat assessments were conducted across the site, shown in the Field Survey Effort (see **Attachment 3**). This involved recording the tree species within randomised 50 x 20 metre transects across the site and looking for evidence of Koala. The purpose of the Habitat Assessment was to indicate utilisation by Koalas and to assess the species composition of site trees to determine the value of site habitat for Koalas based on the Australian Koala Foundation's National Koala Tree Protection List for the **City of Gold Coast** area (refer **Table 2**, above). Species listed in Bold are considered to be primary Koala Food Trees while the other listed species are secondary Koala Food Trees. A summary of the habitat assessment results are shown in **Table 3**, however, the full results for each habitat assessment, including species lists, have been included in **Attachment 2**.

Table 3: Habitat Assessment Results - Summary

Transect Number	Primary Koala Food Trees (%)	Secondary Koala Food Trees (%)	Total Koala Food Trees (%)
1	0.0	30.0	30.0
2	1.5	28.4	29.9
3	0.0	26.8	26.8
4	3.1	27.7	30.8
5	0.0	2.9	2.9
6	1.0	7.7	8.7
7	0.0	21.6	21.6
8	2.2	1.1	3.4
9	7.1	4.8	11.9
10	0.0	8.7	8.7
11	0.0	15.4	15.4

12	0.0	6.8	6.8
13	0.0	7.3	7.3
14	0.0	22.2	22.2
15	0.0	12.8	12.8

From **Table 3**, canopy cover for Primary species per site ranged from 0.0 to 7.1% of total canopy cover, and Secondary species from 1.1 to 30.0%. The canopy was generally dominated by *Allocasuarina littoralis* (Forest She-oak) and/or *Acacia concurrens* (Black Wattle), which are not recognised habitat for Koala.

Vegetation communities on-site also included associated *Alphitonia excelsa* (Soap Tree), *Eucalyptus siderophloia* (Grey Ironbark), *Corymbia citriodora* (Spotted Gum), *Eucalyptus crebra* (Narrow-leaved Ironbark), *Corymbia intermedia* (Pink Bloodwood), *Eucalyptus acmenoides* (White Mahogany), *Lophostemon confertus* (Brush Box), *Acacia leiocalyx* (Early Black Wattle), *Eucalyptus tereticornis* (Grey Gum) and *Melaleuca decora* (Decorative Paperbark) (refer to **Attachment 2** for further information).

Scat Meandering Transect

No scats or evidence of Koala were located during extensive habitat assessments. To bolster the Koala occurrence survey, a 1.5 km meandering transect through the least degraded habitat on-site targeting scats beneath and scratches on Koala Food Trees was conducted (refer **Attachment 3**). Every potential Koala Food Tree encountered during the 1.5 km transect was individually searched for evidence of Koala in the form of scratches or scats as per Phillips & Callaghan (2011).

Despite targeted efforts, no scats or evidence of Koala were recorded within the meandering transect.

Summary of Findings

The key findings from the field assessment are:

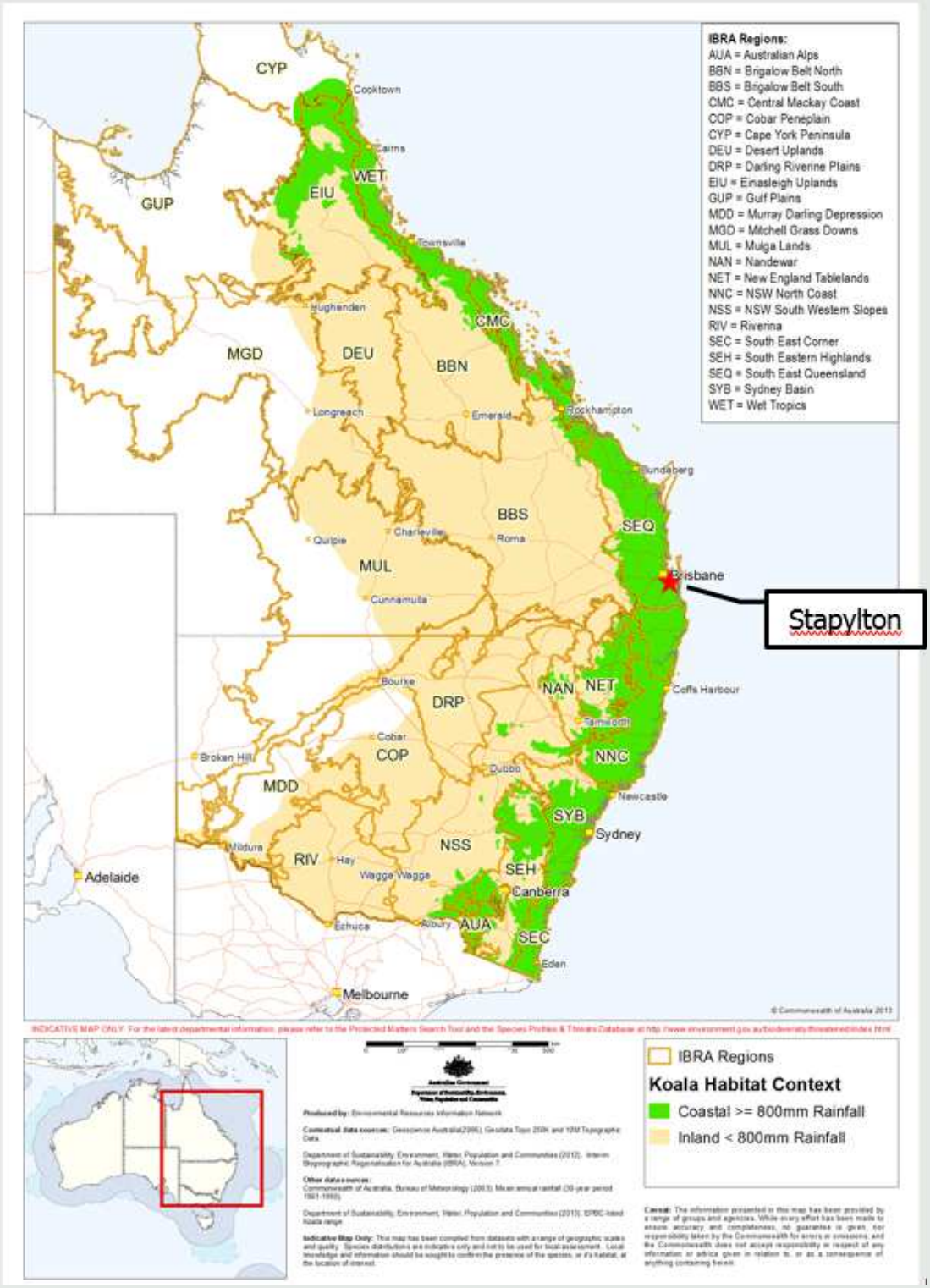
- No Koalas were observed across the site and no evidence of Koala usage was obtained. This suggests that the site is not utilised by Koalas.
- High levels of disturbance were observed across the site as a result of historical pastoral, residential and industrial land uses on and surrounding the site.
- Woodland on-site was dominated by species that are not considered to be primary or secondary Koala Food Trees.
- This site is fragmented as a result of surrounding land uses and roads and does not provide a contiguous, connected area of habitat. As such, it is unlikely the interim recovery objectives can be achieved.
- The assessment against the Koala Habitat Assessment Tool returned a score of '3' (refer next Section). This is below the critical habitat threshold of ≥5.

The following analysis is an assessment against the EPBC Act Referral Guidelines for the Vulnerable Koala.

What is the geographic context of the proposal site?

A search of the EPBC Protected Matters Search Tool within a 2 km buffer lists the Koala as potentially located on-site (**Attachment 1**). As per the EPBC Act Referral Guidelines for the Vulnerable Koala, the site is therefore considered to fall within the modelled distribution of the Koala.

The Koala Referral Guidelines separate the geographical context into two zones, inland and coastal, based on the 800 mm per annum rainfall isohyet. The Generations Industrial Park site is mapped within a "coastal" area as per the distribution map (below). Therefore, the coastal habitat attributes contained in the Koala Referral Guidelines are relevant when using the Habitat Assessment Tool.



Does the site contain habitat critical to the survival of the Koala?

In accordance with the EPBC Act Referral Guidelines for the Vulnerable Koala, any habitat which receives a score of **5 or more** using the Koala Habitat Assessment Tool is considered to be critical habitat. As shown by the Koala Habitat Assessment in **Table 4**, the site has been given a habitat score of '**3**' and so is not considered to constitute habitat critical to the survival of the Koala.

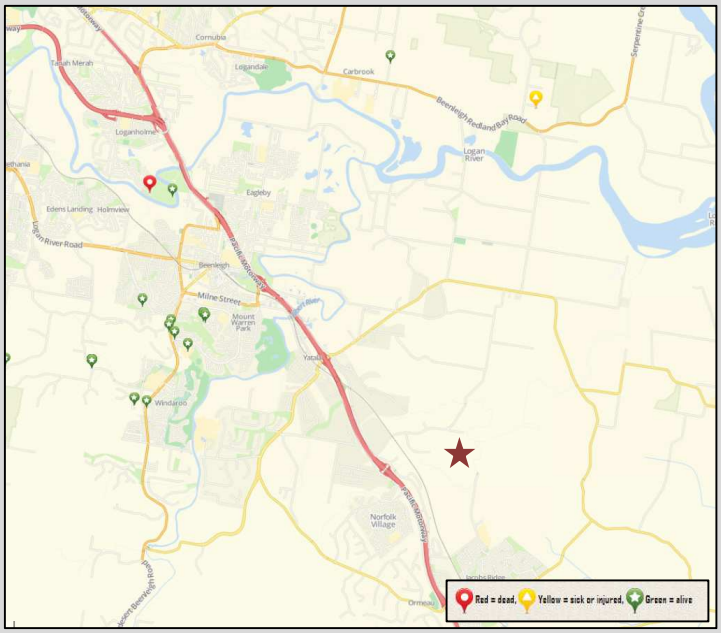
Table 4: Koala Habitat Assessment Tool

Attribute	Score	Comment
Koala occurrence	**0 (low)**	Desktop A Protected Matters Search with a 2 km radius of the site suggests there is potential for Koala occurrence in this area. A Wildlife Online search report using a 2 kilometre radius found 1 record of the Koala, however, the date of this sighting is unknown. The closest Atlas of Living Australia record for a Koala is 2.9 km west of the site. The Australian Koala Foundation Koala Atlas has no sightings within 2 km of the site.
		On-ground No Koalas or evidence of Koalas were recorded during extensive field surveys on-site (refer to **Attachment 2**). **As there is no evidence of Koala on-site and no verified records within 2 kilometres of the site in the last 5 years, the 'Koala Occurrence' attribute has been given a score of 0 (low).**
Vegetation composition	**+2 (high)**	Desktop The Queensland Government Regulated Vegetation Supporting Map (Regional Ecosystem V8.0) identifies the study area as containing Category X non-remnant vegetation and Category B Regulated Vegetation that is not mapped as 'essential habitat' for the Koala (refer to **Attachment 2 – Figure 4**).
		On-ground The site has been subject to extensive clearing for pastoral and industrial purposes (**Figure 2**). Grazing and agricultural land uses have largely prevented any significant re-growth over the site. Woodland areas on-site contained very low proportions of primary and secondary Koala Food trees (refer to **Attachment 2** and Habitat Assessments, above). **As the site contains woodland with two or more known Koala Food Trees, the 'Vegetation Composition' attribute is given a score of +2 (high).**
Habitat connectivity	**0 (low)**	The site is extremely fragmented with large areas of urban development and the Pacific Highway to the west, a refuse tip, quarry and high intensity agricultural areas to the east, industrial developments, cleared pastoral lands and Stapylton Jacobs Well Road to the north, and large industrial and commercial properties to the south (refer to **Attachment 4** for Connectivity Analysis Plan). From a contextual point of view, future development will not augment fragmentation of existing degraded habitat areas in the broader landscape and, as such, is unlikely to impact on connectivity values. Overall, the site does not form part of a connected area of habitat and is largely fragmented by surrounding land uses. Remaining patches of vegetation adjoining the referral site form a tenuously connected contiguous landscape of less than 300 ha. **The site is heavily fragmented from significant vegetation patches and has extremely limited connectivity to remaining vegetation patches. For these reasons, and the lack of a contiguous habitat landscape ≥ 300 ha, the site has been designated with a 'habitat connectivity' score of 0 (low).**
Key existing threats	**+1 (medium)**	Desktop The **Koala Tracker** is a crowd sourced National Koala sighting record. The **Koala Tracker** map (extracted below) shows several sightings of healthy Koalas in Mount Warren Park far to the west of the referral site (approximately 4.5 km away), on the other side of the Pacific Highway. There is one record of a healthy Koala and one record of a

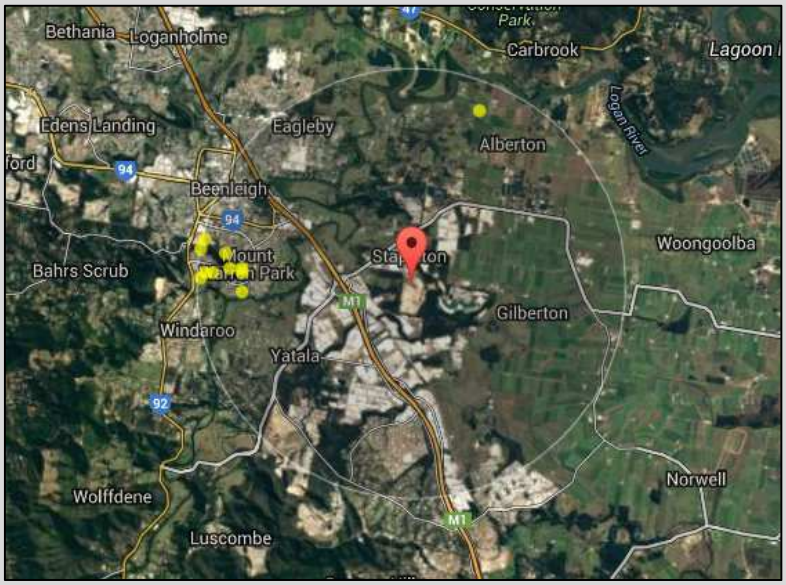
Koala sick (by disease) on the eastern side of the highway, however, these are approximately 5.5 km north and northeast (respectively) from the referral site.

Similarly, the **Atlas of Living Australia** contains a database of sighting records. The **Atlas of Living Australia** records show 13 sightings within a 5 km radius of the site (with dates ranging from 2010 to 2015). These records largely reflect the **Koala Tracker** records, with the majority of records being located around Mount Warren Park, to the west of the referral site, across the Pacific Highway. There is one record east of the Pacific Highway, approximately 3.5 km to the northeast of the site, on an area completely cleared.

Koala Tracker Map

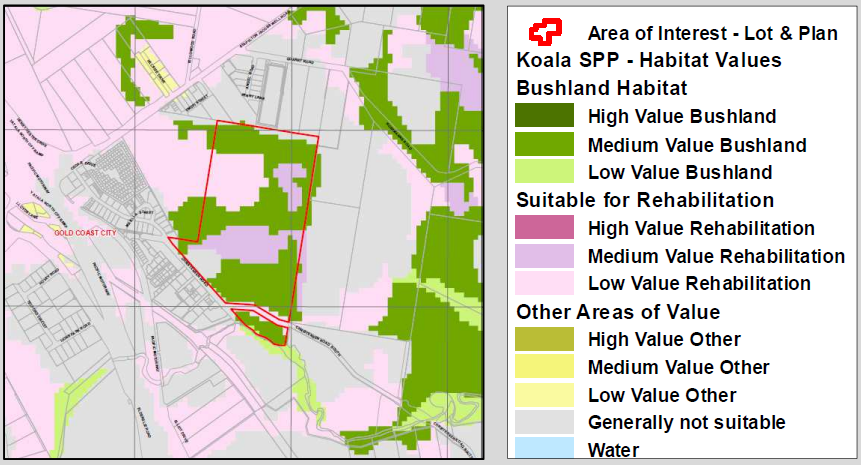


Atlas of Living Australia – 5 km radius



On-ground

The high level of vehicle use in the surrounding area and the expansion of industrial and urban development bringing with it an increased number of dogs and vehicles present significant threats of injury and death to Koalas. As surrounding development expands, these threats are likely to increase in scale and intensity.

		Evidence of dog activity was confirmed throughout the site (**Appendix 2**). Dogs are regarded as one of the most significant threats to Koala via attacks that cause injury and death. In addition, domestic dogs would most likely occur at high densities throughout neighbouring properties given their rural nature. In addition, the site is isolated by relatively significant road networks and vehicular traffic on all sides. While data showing the number of deaths or injuries to Koalas in the immediate vicinity of the site was unavailable, it can be inferred that the impacts of vehicle strike and dog attack are likely to cause death and injury to Koalas. Furthermore, given the partially cleared relatively disturbed nature of the site, dispersal through the area by Koalas would be considered relatively treacherous. **As there is strong evidence of Koala mortality factors in the study area and no evidence of Koala activity on-site, the 'Key Existing Threats' attribute has been given a score of +1 (medium).**
Recovery value	**0 (low)**	The vegetation on the referral site is unlikely to be important in achieving the Interim Recovery Objectives for the coastal context given its foundation on the ability to protect and conserve large connected areas of Koala habitat. Koala Context Attributes listed under Interim Recovery Objectives in Table 1 of the Guidelines for coastal areas are to: 1) Protect and conserve large, connected areas of Koala habitat, particularly large connected areas that support koalas that are: ▪ of sufficient size to be genetically robust or operate as a viable sub-population, or; ▪ are free of disease or have a low incidence of disease, or; ▪ are breeding. 2) Maintain corridors and connective habitat that allow movement of koalas between large areas of habitat. The site does not constitute a large connected area of Koala habitat, but rather an area of partially cleared agricultural and industrial land surrounded by industrial and rural development and significant linear infrastructure. Further, the site does not serve as a corridor or provide habitat connectivity between significant habitat due to fragmentation and isolation by major arterial thoroughfares and encroachment by industrial development. The interim Recovery Objectives for coastal areas listed in Table 1 of the Guidelines are not considered relevant to this site. **Koala Habitat Values Map**  Queensland's Koala Habitat Values Mapping (above, refer to **Attachment 2** for full search results) identifies the site as containing Low and Medium Value Rehabilitation,

		Medium Value Bushland and Generally Not Suitable Habitat. Mapping suggests that this site is not directly connected to any broader Koala habitat areas and maintains limited value in terms of movement opportunities and connectivity values due to its position within an area of extensive industrial development and major arterial roads. As stated above, and shown in **Attachment 4**, the site is heavily fragmented from vegetation patches within the broader landscape. In addition, the regional Koala population is not considered to be genetically diverse from other SEQ Koala populations, they are not free of disease and no evidence of breeding has been found on the site. Overall, its relatively small size, the severe fragmentation of the site from surrounding habitat areas and the lack of safe Koala movement opportunities to the site make it unlikely that its retention will aid the Interim Recovery Objectives for the coastal context being achieved. It is noted that the project will not cause further fragmentation of surrounding habitat as the site is already relatively disconnected from these areas. **The 'Recovery Value' attribute has been given a score of 0 (low).**
Total	**3**	**As the habitat score is less than 5, the impact area is considered not to provide Critical Habitat for the Koala.**

As per the Koala Referral Guidelines, as the impact area does not contain habitat critical to the survival of the Koala (habitat score < 5), referral is not recommended. The proposed action will not have a significant impact on critical Koala habitat.

Will the action adversely affect habitat critical to the survival of the Koala?
The above assessment concludes that the site contains areas of critical habitat for Koala as defined by the EPBC referral guidelines. The Koala Referral Guidelines also require the adversity of impacts to be assessed. This process follows a "yes/no" flowchart as shown in the Guidelines, with responses provided below:

1. **Does your impact area contain habitat critical to the survival of the koala (habitat score ≥5).**
   No. The proposed development area contains habitat that received a habitat score 3 (refer to **Table 4**).

2. **Does the area proposed to be cleared contain known Koala food trees?**
   Yes. Habitat assessments conducted across the site found that site canopy trees contain low proportions of species that are considered to be Primary and Secondary Koala Food Trees.

3. **Are you proposing to clear ≤2 hectares of critical habitat?**
   Yes. The action requires the clearing of approximately 29 ha of vegetation, however the assessment against the guidelines concluded that this vegetation was not critical habitat for the Koala (refer to **Table 4**).

4. **Are you proposing to clear ≥20 hectares of habitat that scored ≥8?**
   No. The action requires the clearing of approximately 29 ha of habitat, which was given a score of 3, therefore not considered to be critical habitat.

5. **Assessment on Characteristics**
   The action does not trigger the requirement for referral based on the low score of critical habitat assessment. Additionally, no Koalas were observed on-site during extensive targeted EPBC Act surveys, nor were any scats found, suggesting this site is unlikely to be used by the Koala. This is likely a result of existing disturbance through vegetation clearing and industrial activities, the surrounding highly disturbed landscape including industrial, agricultural, and residential land uses, and threats to Koala survival. Continuing and increasing fragmentation throughout the region as development expands will further reduce the site's ability to achieve the interim recovery objectives for coastal areas which is based upon protecting large, connected areas of Koala habitat.

Could the action interfere substantially with the recovery of the Koala?
In addition to considering adverse impacts on critical habitat, the potential for the action to interfere with the recovery of the Koala must also be considered as per the Koala Referral Guidelines. Possible impacts listed in the guidelines that must be considered include:

- Introducing or increasing Koala fatalities due to dog attacks;
- Introducing or increasing the risk of vehicle strike;
- Facilitating the introduction or spread of disease and pathogens;
- Creating a barrier to movement; and
- Degrading critical habitat due to hydrological changes.

These impacts, as well as mitigation measures to address impacts, are discussed in **Table 5**.

Table 5: Potential Impacts

Dog Attack
The proposed referral action relates to the development of an industrial park (including a range of manufacturing industries, warehouses, and distribution centres) which is considered unlikely to increase the number of dogs entering the area. However, it is likely that there are dogs in the surrounding area, and increasing development surrounding the site may increase the risk of dog attack. However, the lack of Koala evidence observed on-site suggests that the action will not result in an impact on the species. **No risk of impacts to Koalas as a result of the action are expected to occur.**
Vehicle Strike
Vehicle activity will increase in the area and through the site as a result of the development, as well as the general increase in the surrounding area due to the increase in industrial and residential land uses. The site is surrounded by a road network (including a highway less than 2 km away), as well as various forms of development, and no Koalas (or evidence of use) were recorded on-site, therefore, interaction between vehicles and Koalas is considered unlikely to increase significantly as a result of the development. Road design, signage, and the imposition of a low vehicle speed will help mitigate any potential risks to Koalas. **Risk of impact to Koalas will increase as a result of the development, however no residual impacts are expected to occur.**
Disease and Pathogens
Most of South East Queensland's Koala populations are known to have a high prevalence of *Chlamydia* infection and KoRV. The symptoms of these diseases are often observed within Koala populations undergoing environmental stresses, such as overcrowding and poor nutrition. The project is unlikely to cause pressure on a local Koala population (noting that no Koalas were recorded on-site despite targeted surveys, nor any evidence of usage on-site) to the point where these diseases manifest. Further, the project is extremely unlikely to introduce or spread disease or pathogens into any Koala habitat areas. **No residual impacts are identified.**
Barriers to Dispersal
The proposal will restrict Koala movement through the site, if they were present in the area, however, the majority of vegetation existing on-site is already largely isolated and fragmented from any high value vegetation due to surrounding roads and cleared agricultural lands and industrial use, therefore, it is arguable that this development will not result in impacts to dispersal. In terms of connectivity, the site is constrained by factors associated with industrial development to the north, west, and south, and agricultural development to the east. The proposed layout includes the retention of an open space/reserve area along the eastern boundary of the site, and along the southern portion. It is envisaged that these rehabilitated areas will continue to provide connectivity values on, and around the site. **Given the current level of disturbance and development in the area, no residual impacts are identified.**

Hydrological change
There will be an increase in hardstand areas across the site, due to the establishment of an industrial development in some areas that are currently vegetated. A large portion of the site is already developed, with altered hydrological conditions. The further increase in hardstand areas has the potential to affect the hydrology of the site, however management plans will be implemented to address the requirements of State and Local government guidelines to ensure that impacts are minimised. There is a mapped waterway on-site and the proposed development include management measures specifically addressing this waterway. It is anticipated that the project is unlikely to result in hydrological changes that will further degrade the site or the surrounding area in terms of potential Koala habitat. **No residual impacts are identified.**

Field and desktop assessments against the Referral Guidelines for the Vulnerable Koala were utilised for the following Significant Impact Assessment (**Table 6**) based on the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance.*

Table 6: Significant Impact Assessment – Koala

Significant Impact Criteria	Description	Impact
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:		
1. Lead to a long term decrease in the size of an important population of a species.	The site contains habitat assessed not to be critical habitat for the Koala, with a score of 3. No Koalas were observed on-site, nor any evidence (in the form of scats) observed, despite targeted searches. The site is already heavily disturbed and impacted, and the surrounding area is also heavily disturbed with a range of industrial and commercial land uses, and agricultural uses. As such, it is considered unlikely that Koalas would be utilising the site. It is considered unlikely that an important population is present on-site, and so the action is not expected to decrease the size of an important population.	**No significant impact likely**
2. Reduce the area of occupancy of an important population.	An important population is not considered present on the subject site for the following reasons: ▪ No Koalas have been recorded on-site, despite targeted searches; ▪ No evidence of Koalas was recorded on-site, despite targeted searches; ▪ The site contains habitat scored as non-critical (score 3) for the Koala; ▪ Vegetation on the site is fragmented by industrial and agricultural land and a road network; and ▪ Koala records in the broader landscape include specimens carrying disease. Therefore, it is not considered that the project would result in a reduction of the occupancy of an important population. Further, the retention of vegetated areas in the east and south of the development site will provide ongoing habitat on-site.	**No significant impact likely**
3. Fragment an existing important population into two or more populations.	The action is proposed to occur on a site which is heavily disturbed, and exists within a relatively fragmented and disturbed landscape (refer to **Attachment 4**). While there is vegetation present on the subject site, it is highly fragmented from any other vegetation, with industrial development on most sides, and cleared agricultural land to the east. Further, no Koalas (or evidence of Koalas) were observed on the subject site, and the site is not considered to contain an important population of the Koala. It is not anticipated that the proposed development would fragment an existing important population into two or more populations. The retention of vegetated corridors through the site will allow for ongoing movement of common fauna, and connectivity in the area.	**No significant impact likely**
4. Adversely affect habitat critical to the survival of a species.	Assessment against the guidelines resulted in the identification of score 3 habitat on-site, which is not considered to be critical habitat for the Koala (refer	**No significant impact likely**

	to **Table 4**). Therefore, it is not considered that the proposed action will adversely affect habitat critical to the survival of the Koala.	
5. Disrupt the breeding cycle of an important population.	Targeted surveys of the site did not observe any Koalas, evidence of Koalas, or any breeding Koalas. The site was also concluded to provide habitat of a score 3, therefore not critical habitat for the Koala. As such, it is considered unlikely that the site would support even transient individuals likely to constitute a breeding population or an important population. It is considered unlikely that the breeding cycle of an important population will be disrupted by the proposed action.	**No significant impact likely**
6. Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	The vegetation on this site was not observed to contain any special or unique values. The vegetation was scored as not being critical habitat for the Koala (see **Table 4**), and therefore the removal of site habitat is unlikely to have a significant impact on the availability or quality of habitat throughout the broader landscape. Further, the retention of open space/reserves along the eastern and southern boundaries of the site will continue to provide vegetation and connectivity for common fauna species, if present. The proposal is not considered likely to lead to species decline.	**No significant impact likely**
7. Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.	The proposed action is for an industrial development and therefore is not expected to result in an increase in the density of domestic dogs in the area, or any other invasive species that are harmful to the Koala. The site vegetation was considered to not provide critical habitat for the Koala, and no Koalas were observed, nor evidence of, despite targeted searches. Further, invasive *Lantana camara* was recorded on-site and is a recognised hindrance to Koala dispersal. It is unlikely that the proposal will augment invasive species impacts already present in the area, or result in the introduction of new invasive species in the area.	**No significant impact likely**
8. Introduce disease that may cause the species to decline.	Most of South East Queensland's Koala population is recorded as having a high prevalence of Chlamydia infection and KoRV. No Koalas were observed on-site, nor evidence of the Koala, and the site was not considered to provide habitat critical for the Koala. The project is considered unlikely to place pressure on any Koala populations near to the site (if present), to the point where diseases manifest. Further, the project is extremely unlikely to introduce or spread disease or pathogens into Koala habitat areas.	**No significant impact likely**
9. Interfere substantially with the recovery of the species.	Assessment against the guidelines concluded that the proposed site does not contain habitat critical to the Koala (refer to **Table 4**), therefore, the proposed action is unlikely to interfere substantially with the recovery of Koala (refer to **Table 5**).	**No significant impact likely**

Koala summary

Targeted field surveys (as per EPBC Act guidelines) were conducted across the referral site and resulted in no Koala observations, nor any observations of evidence of Koala. In addition, a 1.5 km SAT transect meander was performed, resulting in no evidence of Koalas on-site. Fifteen habitat assessments were performed and found the canopy cover for Primary species per site ranged from 0.0 to 7.1% of total canopy cover, and Secondary species from 1.1 to 30.0%. The canopy was generally dominated by *Allocasuarina littoralis* (Forest She-oak) and/or *Acacia concurrens* (Black Wattle), which are not recognised habitat for Koala.

These results suggest that the site is unlikely to be used by Koalas, corresponding with the isolated and disturbed nature of the majority of the vegetation on-site and in the surrounding area. The critical habitat on the site was given a habitat assessment score of 3 using the Koala Referral Guidelines (refer to **Table 4**), which is not considered to represent critical habitat for the Koala.

As discussed above, the key findings from the field assessment with regards to the Koala are:

- No Koalas were observed across the site and no evidence of Koala usage was obtained. This suggests that the site is not utilised by Koalas.

- High levels of disturbance were observed across the site as a result of historical pastoral, residential and industrial land uses on and surrounding the site.
- Woodland on-site was dominated by species that are not considered to be primary or secondary Koala Food Trees.
- This site is fragmented as a result of surrounding land uses and roads and does not provide a contiguous, connected area of habitat. As such, it is unlikely the interim recovery objectives can be achieved.
- The assessment against the Koala Habitat Assessment Tool returned a score of '3' (refer next Section). This is below the critical habitat threshold of ≥5.

While the clearing will have some impact on vegetation on-site, it is not considered that the action will have any impact on Koalas populations.

Grey-headed Flying-fox (*Pteropus poliocephalus*)

Pteropus poliocephalus (Grey-headed Flying-fox) requires foraging resources and roosting sites to persist. The species is known to use a wide variety of habitats including subtropical and temperate rainforests, tall sclerophyll forest and woodlands, heaths, swamps and also urban and agricultural areas where food trees have been cultivated. The species is highly adaptive with its diverse native diet, which it can supplement with introduced species and is known to forage within a variety of habitats and locations as each resource does not consistently produce food throughout the entire year.

Approximately half of the referral site is mapped as containing a Least Concern remnant vegetation community, with the remainder of the site consisting of non-remnant vegetation (in the form of cleared paddocks with some scattered regrowth, and industrial development). The Grey-headed Flying Fox was not recorded during site surveys. The habitat characteristics of the site are considered to provide only marginal foraging resources for this species, as follows:

- The majority of vegetation on-site is dominated by *Allocasuarina littoralis* (Forest She-oak) and *Acacia concurrens* (Black Wattle), with associated *Alphitonia excelsa* (Soap Tree), *Eucalyptus siderophloia* (Grey Ironbark), *Corymbia citriodora* (Spotted Gum), *Eucalyptus crebra* (Narrow-leaved Ironbark), *Corymbia intermedia* (Pink Bloodwood), *Eucalyptus acmenoides* (White Mahogany), *Lophostemon confertus* (Brush Box), *Acacia leiocalyx* (Early Black Wattle), *Eucalyptus tereticornis* (Grey Gum) and *Melaleuca decora* (Decorative Paperbark).

- It is considered possible that foraging by Grey-headed Flying-fox could occur on the application site at various times throughout the year, depending on flowering times, however it is not considered that the site is abundant in such resources.

- In the immediate landscape surrounding the referral site there does not appear to be an abundance of winter flowering resources due to the removal of vegetation for industrial, residential, and agricultural purposes. It is therefore considered unlikely that there would be a lot of foraging resources in the broader landscape, so is considered unlikely the site, or the surrounding area, is relied upon by this species.

A *Draft EPBC Act Policy Statement – camp management guidelines for the Grey-headed and Spectacled Flying-fox* (Draft Guidelines) is available and summarises the decision process in considering the likelihood of a significant impact on the Grey-headed Flying-fox or Spectacled Flying-fox schematically. The Draft Guidelines are specifically for the assessment of impacts on Flying-fox camps. No roosting sites are known to be on-site or in the near vicinity, and no roosting sites were recorded during field surveys. The closest known roosting sites are both approximately 5 km (or greater) to the west and northwest of the site, at Mt Warren Park, and in Beenleigh. It is therefore considered highly unlikely that the proposed action will involve impacts to the Grey-headed Flying-fox as per the Draft Guidelines. However, the Draft Guidelines also state that:

- *Maintaining a network of flying-fox camps and foraging habitat across both species' national range is important for their recovery*.

- *Actions that will impact on the foraging habitat of EPBC Act listed flying-foxes may also result in a significant impact. This is beyond the scope of this policy*.

As the site contains known potential foraging habitat for the Grey-headed Flying-fox, an assessment against the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* was performed (see **Table 7**) to ascertain whether or not the action could potentially impose a significant impact on the species.

Table 7: Significant Impact Assessment – Grey-headed Flying-fox

Significant Impact Criteria	Description	Impact
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:		
1. Lead to a long term decrease in the size of an important population of a species.	The proposed referral site contains some potential foraging habitat for the Grey-headed Flying-fox, however, no individuals or roost camps were seen on or adjoining the site during field works. Further, there are no recorded roost camps on or in close proximity to the site (the closest are over 5 km away). South East Queensland has a permanent and relatively abundant population of Grey-headed Flying-foxes, with available habitat (flowering eucalypts) relatively abundant throughout the region. It is noted that the Grey-headed Flying-fox has potential to visit the site for foraging, however it is recognised that their nightly commuting distance spans up to 20 km, and the area surrounding the site does not also offer an abundance of foraging resources. The site is not considered to support an important population of the species and, subsequently, the proposed action is not considered to lead to a long-term decrease in the size of any local or important populations of the Grey-headed Flying-fox.	**No significant impact likely**
2. Reduce the area of occupancy of an important population.	No roost camps were observed on-site, and none are known on, or in proximity to, the site. While the proposed action will remove some potential foraging habitat, given the abundant availability of flowering eucalypts in the broader South East Queensland area, the development proposal is unlikely to have a significant impact on the area of occupancy of the species, or of the occupancy of an important population of the species.	**No significant impact likely**
3. Fragment an existing important population into two or more populations.	The SPRAT species profile outlines that, while there are spatially structured colonies of Grey-headed Flying-fox, there are no separate or distinct populations due to the constant genetic exchange and movement between camps throughout the species' geographic range. In addition, the species is considered highly mobile and capable of foraging over relatively vast distances. Due to the lack of a roosting camp on or adjacent to the subject site, the site is not considered to contain an important population of the Grey-headed Flying-fox. It is not expected that the proposed action will fragment an important population into two or more populations.	**No significant impact likely**
4. Adversely affect habitat critical to the survival of a species.	While the removal of some potential foraging habitat will occur as a result of the proposed action, this habitat is currently heavily disturbed by industrial land practices, and surrounding residential, industrial, and agricultural practices. Vegetation on-site is isolated from other vegetation by roads and cleared land, and is subject to edge effects from surrounding development. The habitat on-site is not considered to be unique or of special value. The South East Queensland landscape provides abundant eucalypt and similar genera, available for Grey-headed Flying-fox foraging. Further, the proposed development incorporates the retention of an open space/reserve along the eastern and southern portions of the site which will maintain foraging resources post-development. Given the relatively disturbed nature of the vegetation on-site, potential foraging habitat to be cleared is not considered to be critical habitat to the survival of the Grey-headed Flying-fox.	**No significant impact likely**
5. Disrupt the breeding cycle of an important population.	Field survey did not identify any evidence of breeding Grey-headed Flying-fox. Mating normally occurs within autumn, and females generally give birth in October, when they carry their young to feeding sites for four to five weeks after giving birth. No individuals or roosting camps were observed on-site or on adjoining properties, and as such, the proposed action is unlikely to disrupt the breeding cycle of an important population.	**No significant impact likely**

6. Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	The habitat on-site is not considered to contain any special or unique values. The removal of this habitat is unlikely to have a significant impact on the availability of habitat throughout the broader landscape, given the vast quantity and availability of eucalypts in the greater area. It is not expected that the removal of this site habitat will be of an extent that the species is likely to decline.	**No significant impact likely**
7. Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.	The proposed action is considered unlikely to result in the introduction of invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.	**No significant impact likely**
8. Introduce disease that may cause the species to decline.	The proposed project is considered unlikely to introduce disease into the area that may cause the species to decline.	**No significant impact likely**
9. Interfere substantially with the recovery of the species.	Recovery of the Grey-headed Flying-fox has specifically targeted broad-scale culling. In addition, conservation efforts for the species have led to the protection of known roosting sites and associated important habitat. The subject site has not been identified as an important habitat or containing a roosting site. The action is considered unlikely to interfere with the recovery of the species.	**No significant impact likely**

As per the assessment against the *Significant Impact Guidelines 1.1* (**Table 7**), the proposed action is considered unlikely to have a significant impact on the Grey-headed Flying-fox.

In summary, it is considered that any vegetation on-site is of low abundance and quality for foraging habitat for the Grey-headed Flying-fox, and is already heavily disturbed on-site and immediately surrounding. Further, the greater surrounding area provides suitable foraging habitat. The retention of open space/reserves along the eastern and southern edges of the project site would likely mitigate any potential negligible impact on Grey-headed Flying-fox.

Swift Parrot (*Lathamus discolor*)

Lathamus discolour (Swift Parrot) is considered very distinctive. It undertakes the longest migration of any parrot species in the world, with breeding occurring only in Tasmania, and migration to mainland Australia occurring within the wintering months to the box-ironbark forests and woodlands as far north as southeast Queensland. This species has been recorded within woodland and forest patches containing *Eucalyptus crebra* (Narrow Leaf Ironbark), *Eucalyptus tereticornis* (Forest Red Gum) as well as yellow box forests, and it feeds mostly on nectar and mainly from eucalypts.

Although records of this species have come from the Gold Coast, Noosa, Toowoomba, Warwick and Lockyer Valley, a search of Wildlife Online for species records using a 10 km radius of the site found one observation of *Lathamus discolour*, however no details on date of sighting etc. are available. A search of the Living Atlas of Australia database of sighting records found one record of *Lathamus discolour* within a five kilometre radius of the site, however this was dated to 1923, with no records since.

There is Least Concern remnant vegetation mapped on approximately half of the subject site, with the remainder of the site mapped as non-remnant vegetation (cleared paddock areas with scattered trees, with some industrial development also). No Swift Parrot individuals were recorded during site surveys. Based on the presence of *Eucalyptus crebra* (Narrow Leaf Ironbark) and *Eucalyptus tereticornis* (Forest Red Gum), the site is considered to provide marginal foraging resources for this species.

As the site contains known foraging habitat for the Swift Parrot, an assessment against *the Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* was conducted (refer to **Table 8**) to ascertain whether or not the action could potentially impose a significant impact on the species.

Table 8: Significant Impact Assessment – Swift Parrot

Significant Impact Criteria	Description	Impact
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:		
1. Lead to a long term decrease in the size of an important population of a species.	While the site contains some potential foraging habitat for the Swift Parrot, no individuals were seen during the site surveys, and there have been no recent records in close proximity. The available foraging habitat on-site is relatively abundant throughout the greater SEQ region. Whilst Swift Parrots have potential to visit the site for foraging, they are highly mobile and their regular commuting activities include a relatively vast area. The site is not considered to support an important population of the species, and subsequently, the proposed action is considered unlikely to lead to a long-term decrease in the size of any Swift Parrot populations.	**No significant impact likely**
2. Reduce the area of occupancy of an important population.	No Swift Parrot individuals (or evidence of) were observed on-site, and it is not considered that an important population exists on-site or in close proximity. The proposed action will remove some potential foraging habitat, however, given the abundance of flowering eucalypts in the greater landscape and within the SEQ region, the proposed action is unlikely to have a significant impact on the area of occupancy of the species, or on the area of occupancy of an important population.	**No significant impact likely**
3. Fragment an existing important population into two or more populations.	The SPRAT species profile outlines that the Swift Parrot population occurs as a single population, although it migrates annually. The population is not considered to be fragmented, or separated. During non-breeding times, their movements cover hundreds of kilometres. No important population is considered to exist on, or adjacent to, the project site, and consequently, the proposed action is considered unlikely to fragment a population into two or more populations.	**No significant impact likely**
4. Adversely affect habitat critical to the survival of a species.	While the proposed action will result in the removal of potential foraging habitat for the Swift Parrot, the majority of the habitat on-site is heavily disturbed and fragmented due to industrial and agricultural practices on and surrounding the site. Vegetation on-site is also subject to edge effects from surrounding development. The habitat on-site is not considered to be unique or of special value. The SPRAT species profile states that while the Swift Parrot habitat is fragmented, this has not caused the populations to fragment, due to their highly mobile lifestyles. The South East Queensland landscape provides abundant eucalypt and similar species, which are available as food sources for the Swift Parrot. Additionally, the retention of open space / reserves in the east and south of the site will maintain foraging resources for this species on-site. Given its relatively disturbed nature, potential foraging habitat to be cleared is not considered to be critical habitat for the survival of the Swift Parrot.	**No significant impact likely**
5. Disrupt the breeding cycle of an important population.	The Swift Parrot breeds in Tasmania, and no individuals were observed on-site. Therefore, the proposed action will have no impact on the breeding cycle of an important population.	**No significant impact likely**
6. Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	The habitat on-site was not considered to contain any special or unique values. The removal of some vegetation is required for the proposed action, however, this vegetation removal is unlikely to have a significant impact on the availability of habitat for the Swift Parrot throughout the broader landscape. The removal of a small area of foraging habitat on-site is not likely to lead to species decline.	**No significant impact likely**
7. Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.	The proposed action is unlikely to result in the introduction of invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.	**No significant impact likely**
8. Introduce disease that may cause the species to decline.	The project is unlikely to introduce disease into the area that may cause the species to decline.	**No significant impact likely**
9. Interfere substantially with the recovery of the species.	Recovery of the Swift Parrot has specifically focused on identifying extent and quality of habitat; managing habitat at the landscape scale; reducing incidents of collision; population and habitat monitoring; community education and	**No significant impact likely**

	information; and managing the recovery process. The subject site has not been identified as an important habitat or population and the action is considered unlikely to interfere with the recovery of the species.	

As per the assessment against the *Significant Impact Guidelines 1.1* (see **Table 8**), the proposed action is considered unlikely to have a significant impact on the Swift Parrot.

In summary, it is considered that the abundance of foraging habitat in the broader landscape suitable for the Swift Parrot, the low abundance and quality of vegetation on-site, and the retention of vegetated corridors within the development site would likely mitigate any potential negligible impact on Swift Parrot.

Nature and extent of likely impact

The proposal involves the removal of approximately 29 ha of relatively degraded Least Concern remnant vegetation from a property that is half cleared and utilised for pastoral and industrial practices to facilitate the development of a 63 ha industrial estate that retains 10 ha of the site for detention basins and an ecological buffer along the western and southern site boundaries. Results of desktop and site investigations concluded that a 'significant impact' on any Matters of National Environmental Significance is considered highly unlikely, as follows.

Swift Parrot

The Swift Parrot was not recorded on-site during site surveys and remnant vegetation present is considered relatively degraded poor quality winter foraging habitat for the Swift Parrot. The species is a highly mobile migratory bird likely to utilise more optimal foraging habitat in the broader surrounding landscape, discussed previously.

Given the relatively poor habitat options available on-site and the level of ongoing disturbance, the project area is considered unlikely to support an 'important population' of Swift Parrot, and so, the proposal is considered unlikely to cause a 'significant impact' on this species.

Grey-Headed Flying-Fox

As stated, no Grey-headed Flying-fox and or any roosting sites or habitat suitable to support a roosting site were located during the site survey. The species is considered an unlikely visitor to the site during flowering and fruiting events and more likely to utilise a much larger range of more optimal habitat in the surrounding landscape. The Carbrook Wetlands Conservation Parks, Buccan Conservation Reserve, Plunkett Conservation Park and Tamborine National Park contain a relative abundance of Grey-headed Flying-fox (and Swift Parrot) foraging habitat and are all located within 13 km of the referral site.

Based on the relatively poor state of site vegetation and the amount of additional clearing proposed, the intermittent potential use of the site and the abundance of immediately available resources in the area, no 'significant impact' is considered likely on the Grey-headed Flying-fox.

Koala

Extensive desktop and field surveys completed across the site resulted in no Koala observations on or surrounding the referral area. In addition, Habitat Assessments found no evidence of Koala activity on-site. This suggests that the site is not utilised by Koalas, which corresponds to the relatively disturbed nature of remaining site vegetation and the lack of significant connectivity values beyond the site. In addition, the Habitat Assessments found that the site is dominated by tree species that are not identified as Koala Food Trees, with primary and secondary Koala Food Trees present only at relatively low densities.

Woodland vegetation on the site obtained a habitat assessment score of 3 under the Koala Referral Guidelines. As such, and based on detailed consideration against the Significant Impact Guidelines for Vulnerable Species and the specific Referral Guideline, the proposal is considered unlikely to result in a 'significant impact' on the Vulnerable Koala species.

3.1 (e) Listed migratory species

Description

An EPBC Act Protected Matters Search Tool using a five kilometre radius from the centre of the subject site identifies 37 migratory species as having potential to occur on-site (**Attachment 1**). During the field survey, none of these listed migratory species were observed on-site, and, given the absence of marine habitat, the site's relatively disturbed nature and the influence of ongoing pastoral and industrial activities, suitable potential habitat was considered to be lacking (**Attachment 2**).

Nature and extent of likely impact

The proposed action is not considered to have a significant impact on migratory species given the lack of significant habitat on-site.

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

Not applicable. Refer to Attachment 1.

Nature and extent of likely impact

Not applicable

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. Refer to Attachment 1.

Nature and extent of likely impact

Not applicable

3.1 (h) The Great Barrier Reef Marine Park

Description

Not applicable. Refer to Attachment 1.

Nature and extent of likely impact

Not applicable

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

Description

Not applicable. Refer to Attachment 1.

Nature and extent of likely impact

Not applicable

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

3.2 (a)	**Is the proposed action a nuclear action?**	**X**	No
			Yes (provide details below)
	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?**	**X**	No
			Yes (provide details below)
	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?**	**X**	No
			Yes (provide details below)
	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?**	**X**	No
			Yes (provide details below)
	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?**	**X**	No
			Yes (provide details below)
	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

3.3 (a) Flora and fauna

The following provides a brief description of other flora and fauna values found on-site during desktop and field surveys (further information is contained within **Attachment 2**).

Flora

- Queensland's Regulated Vegetation Management Map shows the site contains Category X non-remnant and Category B Regulated vegetation (refer Response 3.3(e)).

- Under Queensland's State Planning Policy, the site has been identified as containing the following Matters of State Environmental Significance:
  Regulated Vegetation; and
  Wildlife Habitat (reflective of Koala Habitat Values mapping).

- Almost half of the proposed development area contains no tree or shrub species and has been cleared of vegetation values for pastoral purposes.

- Site vegetation is considered relatively disturbed with a native canopy dominated by regrowth *Allocasuarina littoralis* (Forest She-oak) and *Acacia concurrens* (Black Wattle).

- Wooded areas also included *Alphitonia excelsa* (Soap Tree), *Eucalyptus siderophloia* (Grey Ironbark), *Corymbia citriodora* (Spotted Gum), *Eucalyptus crebra* (Narrow-leaved Ironbark), *Corymbia intermedia* (Pink Bloodwood), *Eucalyptus acmenoides* (White Mahogany), *Lophostemon confertus* (Brush Box), *Acacia leiocalyx* (Early Black Wattle), *Eucalyptus tereticornis* (Grey Gum), and *Melaleuca decora* (Decorative Paperbark) at relatively low densities.

Fauna

- Site habitat was found to be relatively degraded and compromised by ongoing pastoral and industrial practices. As such, only fauna species considered common to the area were observed on-site (**Attachment 2**).

- A Wedge-tailed Eagle (*Aquila audax*) nest located on-site is to be translocated from within the proposed development footprint to the ecological buffer area along the eastern site boundary as per an approved management plan (refer **Attachment 5 – Condition 70**).

- There were several small dams and water holdings on-site, a weedy drainage depression south of the industrial area and a degraded drainage line known as Sandy Creek exists along the southern site boundary. None of these areas were considered to constitute significant habitat values.

- Although Sandy Creek was relatively degraded by surrounding industrial activities, vegetation bordering the flow path was consistent with riparian woodland Of Concern RE 12.3.11 likely to support local fauna species adapted to urbanised environments. Of note, the area bordering Sandy Creek within the referral site is to be retained as an ecological buffer to the proposed development site (refer **Attachment 5**).

- Dogs and Cattle were observed utilising the site.

3.3 (b) Hydrology, including water flows

A mapped watercourse, Sandy Creek, runs along the southern boundary of the site. Any overland flow across the site due to soil saturation during high rainfall events is likely to drain into Sandy Creek. Vegetation immediately adjoining Sandy Creek is to be set aside as an ecological buffer under the development proposal.

Pastoral modifications included the construction of several relatively small dams on-site. In addition, a weedy drainage depression was noted running west to east south of the industrial area (refer **Figure 2 and Attachment 2**). No significant watercourses or riparian corridors traverse the referral area.

As part of the MCU approval conditions (**Attachment 5**), the following measures and Management Plans relevant to site hydrology will be required:

Condition 12: Acid Sulfate Soil Management Plan
Condition 17: Covenant Area Management Plan
Condition 25: Open Space Management Plan
Condition 37: No worsening of hydraulic conditions
Condition 38: No alteration of overland flow paths

Condition 39: Bulk Earthworks hydraulics compliance certification
Condition 42: Stormwater Management Plan
Condition 45: Erosion and Sediment Control Plan
Condition 55: Wastewater Reticulation Schematic plan

It is anticipated that these measures will mitigate any potential impacts on site hydrology, including water flows.

3.3 (c) Soil and Vegetation characteristics

Vegetation values across the site are limited to relatively degraded remnant vegetation areas compromised by pastoral practices.

The Australian Soil Resource Information System (ASRIS) maps the site as containing Hydrosols, however, this is not reflective of field verified Land Zone mapping which indicates that, except for areas adjoining Sandy Creek, the site contains Land Zone 11, described below.

Land Zone	Short Description	General Term
11	Metamorphic rocks	Hills and lowlands on metamorphic rocks
	Metamorphosed rocks, forming ranges, hills and lowlands. Primarily lower Permian and older sedimentary formations which are generally moderately to strongly deformed. Includes low- to high-grade and contact metamorphics such as phyllites, slates, gneisses of indeterminate origin and serpentinite, and interbedded volcanics. Soils are mainly shallow, gravelly Rudosols and Tenosols, with Sodosols and Chromosols on lower slopes and gently undulating areas. Soils are typically of low to moderate fertility.	

Refer to **Attachment 2 – Figure 8** and **Section 3.7**.

3.3 (d) Outstanding natural features

A Wedge-tailed Eagle (*Aquila audax*) nest located within the development footprint is to be relocated under an approved Fauna Management Plan into the ecological buffer area along the eastern site boundary as per Condition 70 of the MCU approval (**Attachment 5**).

No other outstanding natural features have been identified across the site. In particular, the site's proximity to the Pacific Highway and Stapylton Jacobs Well Road and encroaching industrial and agricultural development has fragmented it from other habitat areas in the landscape. Moreton Bay lies more than 11 kilometres to the east of the site and is loosely connected by Sandy Creek via irrigated modified drains running through agricultural flood plains to the east of the site. Previous disturbances in the greater local area have significantly reduced the ecological value of the site and no other outstanding natural features can be identified.

3.3 (e) Remnant native vegetation

Remnant vegetation verified on-ground across the site is mapped as RE 12.11.5 and 12.3.11, described below.

RE 12.3.11 – Of Concern

Description	*Eucalyptus tereticornis* +/- *E. siderophloia* and *Corymbia intermedia* open forest to woodland. *Corymbia tessellaris, Lophostemon suaveolens* and *Melaleuca quinquenervia* frequently occur and often form a low tree layer. Other species present in scattered patches or low densities include *Angophora leiocarpa*, *E. exserta, E. grandis, C. trachyphloia, C. citriodora subsp. variegata, E. latisinensis, E. tindaliae, E. racemosa* and *Melaleuca sieberi. E. seeana* may be present south of Landsborough. Occurs on Quaternary alluvial plains and drainage lines along coastal lowlands. Rainfall usually exceeds 1000mm/y. (BVG1M: 16c). Vegetation communities in this regional ecosystem include: 12.3.11a: Open forest of *Eucalyptus tereticornis* and/or *E. siderophloia* with vine forest understorey. Other canopy species include *Corymbia intermedia*, *Araucaria cunninghamii* and *Agathis robusta*. Frequently occurring understorey species include *Flindersia spp.*, *Lophostemon suaveolens*, *L. confertus*, *Cupaniopsis parvifolia, Acronychia spp., Alphitonia excelsa* and *Acacia disparrima subsp. disparrima*. Occurs on sub-coastal Quaternary alluvial plains. Rainfall usually exceeds 1000mm/y. (BVG1M: 16c).

RE 12.11.5 – Least Concern

Description	Open forest complex in which spotted gum is a relatively common species. Canopy trees include *Corymbia citriodora subsp. variegata, Eucalyptus siderophloia* or *E. crebra* (sub coastal ranges), *E. major* and/or *E. longirostrata* and *E. acmenoides* or *E. portuensis* and/or *E. carnea* and/or *E. eugenioides*. Other species that may be present and abundant locally include *Corymbia henryi*, *C. intermedia*, *C. trachyphloia*, *Eucalyptus tereticornis*, *E. propinqua*, *E. biturbinata*, *E. moluccana*, *E. melliodora*, *E. fibrosa subsp. fibrosa* and *Angophora leiocarpa*. Lophostemon confertus often present in gullies and as a sub-canopy or understorey tree. Mixed understorey of grasses, shrubs and ferns. Occurs on hills and ranges of Palaeozoic and older moderately to strongly deformed and metamorphosed sediments and interbedded volcanics. (BVG1M: 10b) Vegetation communities in this regional ecosystem include: 12.11.5a: *Eucalyptus tindaliae*, *E. carnea*, *Corymbia intermedia* woodland +/- *E. crebra*, *Corymbia citriodora subsp. variegata*, *Eucalyptus major*, *E. helidonica, Corymbia henryi, Angophora woodsiana, C. trachyphloia* (away from the coast) or *E. siderophloia, E. microcorys*, *E. racemosa subsp. racemosa*, *E. propinqua* (closer to the coast). Occurs on Palaeozoic and older moderately to strongly deformed and metamorphosed sediments and interbedded volcanics. (BVG1M: 9g) 12.11.5e: *Corymbia citriodora subsp. variegata* woodland usually including *Eucalyptus siderophloia* or *E. crebra* (sub coastal ranges), *E. propinqua* and *E. acmenoides* or *E. carnea*. Other species that may be present and abundant locally include *Corymbia intermedia*, *C. trachyphloia subsp. trachyphloia*, *Eucalyptus tereticornis*, *E. microcorys*, *E. portuensis*, *E. helidonica*, *E. major*, *E. longirostrata*, *E. biturbinata*, *E. moluccana* and *Angophora leiocarpa*. *Lophostemon confertus* often present in gullies and as a sub-canopy or understorey tree. Mixed understorey of grasses, shrubs and ferns. Occurs on hills and ranges of Palaeozoic and older moderately to strongly deformed and metamorphosed sediments and interbedded volcanics. (BVG1M: 10b) 12.11.5h: Woodland to open forest of *Eucalyptus planchoniana*, *E. carnea* and *Angophora woodsiana* +/- *E. fibrosa subsp. fibrosa*, *E. racemosa subsp. racemosa*, *Corymbia intermedia*, *C. trachyphloia*, *E. tindaliae*, *E. helidonica* and *E. resinifera*. Occurs on Palaeozoic and older moderately to strongly deformed and metamorphosed sediments and interbedded volcanics. (BVG1M: 9h) 12.11.5j: *Eucalyptus racemosa subsp. racemosa* and/or *E. seeana* and *Corymbia intermedia* woodland. Other characteristic species include *E. siderophloia*, *Angophora leiocarpa*, *C. trachyphloia subsp. trachyphloia* and rarely *E. pilularis*. *Melaleuca quinquenervia* may be present and at times becomes locally co-dominant. Occurs on Palaeozoic and older moderately to strongly deformed and metamorphosed sediments and interbedded volcanics. (BVG1M: 9g) 12.11.5k: *Corymbia henryi* woodland +/- *Eucalyptus crebra*, *E. carnea*, *E. tindaliae*, *E. fibrosa subsp. fibrosa*, *E. siderophloia*, *C. citriodora subsp. variegata*, *Angophora leiocarpa*, *E. acmenoides*, *E. helidonica, E. propinqua*, *C. intermedia*. Includes patches of *E. dura*. Occurs on drier ridges and slopes in near coastal areas on Palaeozoic and older moderately to strongly deformed and metamorphosed sediments and interbedded volcanics. (BVG1M: 10b)

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

The site is relatively flat to mildly undulating, with a total contour variation of approximately 10 metres.

3.3 (g) Current state of the environment

The site is comprised of open pastoral paddocks and farm infrastructure, an established industrial area and grazed woodlands of varying density predominately covered by relatively disturbed native canopy vegetation, with the majority being *Allocasuarina littoralis* (Forest She-oak) and *Acacia concurrens* (Black Wattle). There is an area of vegetation to the south isolated by a road from the remainder of the property bordering Sandy Creek that is to be set aside as an ecological buffer. Adjacent properties have been developed as rural or industrial enterprises, including a large refuse tip along the eastern boundary, with associated clearing and relatively large allotment infrastructure. The subject allotment is bounded by a significant arterial corridor to the west and roads to the north and south.

Thirty-nine (39) flora species were identified within the investigation on-site. Of these, twenty-nine (29) are native to the local area and the remaining ten (10) have been introduced and dominate the ground layer. Exotic species identified are considered indicative of highly disturbed landscapes (refer to **Attachment 2 Table 8**). In addition, thirty-nine (39) fauna

species were identified within the investigation site, and all are considered common to the local area (refer to **Attachment 2 Table 9**). None of the fauna recorded on-site are listed threatened species. There were several small dams and water holdings on-site, a weedy drainage depression south of the industrial area and a degraded drainage line (Sandy Creek) exists along the southern site boundary.

Overall, the application area has been highly disturbed by clearing activities associated with pastoral practices and industrial uses. Refer to **Attachment 2** for further information.

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

Not applicable. There have been no Commonwealth Heritage Places or other heritage places identified across the site (refer to **Attachment 1**).

3.3 (i) Indigenous heritage values

The have been no indigenous heritage values identified on-site.

3.3 (j) Other important or unique values of the environment

The site is not located near other notable environmental features that are likely to be affected by the proposed action.

3.3 (k) Tenure of the action area (eg freehold, leasehold)

The entire extent of the site is freehold land.

3.3 (l) Existing land/marine uses of area

The site is currently utilised for pastoral cattle production and light industrial (fertiliser storage) uses. Surrounding land uses are rural, industrial and arterial roads.

3.3 (m) Any proposed land/marine uses of area

The proposed use of the land is a major industrial park development as per surrounding local planning intent.

4 Environmental Outcomes

Not Applicable.

5 Measures to avoid or reduce impacts

The primary impact on the natural environment as a result of the project is the clearing of approximately 29 ha of native trees. As part of the development approval conditions imposed by **City of Gold Coast**, a number of management measures to mitigate impacts must be implemented by the proponent. These conditions are contained in the development approval provided in **Attachment 5** and aim at mitigating environmental impacts as a result of clearing and construction. These measures are summarised below:

1. Vegetation Management Plan

A Vegetation Management Plan must be included within the Operational Works application and include the following information:

- Location of protected vegetation, vegetation to be retained and vegetation to be removed
- Particulars on how vegetation is proposed to be cleared (clearing sequence plan)
- Letter from EPA approved Fauna spotter/catcher and necessary Fauna Management Plan and/or Translocation Plan
- Disposal methods

2. Fauna Management Plan

All works must be undertaken in accordance with the approved Fauna Management Plan. This will include details on:

- Species surveyed as using the site
- A plan showing existing habitat areas
- Details of threats to existing fauna
- Clearing sequence plan
- Management and mitigation measures - e.g. temporary fauna exclusion fencing
- Fauna spotter role, contacts and certification
- Specific fauna management procedures for potential or known habitat trees

3. Stormwater Management Plan

All works must be carried out and completed in accordance with the approved Stormwater Management Plan. This provides details on:

- Stormwater quality improvement devices
- Mechanisms for monitoring and reporting

The implementation of the Stormwater Management Plan will ensure that water quality standards set by State and Local governments are achieved.

4. Erosion and Sediment Control Plan

Operational works must be carried out as per the approved Erosion and Sediment Control Plan and as indicated on inspection by Council. It contains details on:

- Catchment boundary and overland flow path
- Estimated soil loss from each catchment
- Length, width and depth of each sediment basin
- Spillway details and levels
- Energy dissipation/ scour protection
- High flow bypass
- Cross section, capacity and spacing of each catch/ diversion drain
- Location and spacing of silt fences
- Frequency and location of water quality monitoring
- Maintenance requirements and frequency

- Maintenance access and
- Contingency measures in case of failure to achieve water quality objectives.

Summary

Each of the above mentioned management measures are specifically aimed at avoiding and reducing impacts on the natural environment as a result of the development. In particular, the use of a fauna-spotter catcher during clearing and construction phases will ensure that impacts to fauna, if present, are avoided.

6 Conclusion on the likelihood of significant impacts

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

X	No, complete section 6.2
	Yes, complete section 6.3

6.2 Proposed action IS NOT a controlled action.

The construction and operational phases of the Generations Industrial Park are not considered to have a significant impact on Matters of National Environmental Significance (MNES) and as such, do not warrant a 'Controlled Action' determination. As detailed in this referral, no MNES are considered to be significantly impacted by the proposal. In particular, the project is not considered to have a significant impact on Koalas as a result of the clearing of vegetation due to the following conclusions:

- No Koalas or evidence of Koalas were observed on-site.
- Site vegetation has been cleared or is considered of a degraded sate due to the encroachment of pastoral and industrial influences.
- The site is extremely fragmented by surrounding development and major arterial road networks.
- Using the Habitat Assessment Tool contained in the Koala Referral Guidelines, the site was assessed as containing habitat with a score of '3', which does not meet the threshold definition of habitat critical to the survival of the Koala. As such, the proposed action will not have an impact on habitat critical to the survival of the Koala.

In addition, site vegetation was not considered of significant value to foraging Grey-headed Flying-fox or Swift Parrot due to its relatively small isolated patch size, degraded condition and the prevalence of more optimal foraging habitat in the surrounding landscape.

Management measures will be imposed to ensure that injury to fauna as a result of vegetation clearing is avoided or minimised. This will include the use of a fauna spotter-catcher during all stages of clearing and the implementation of sequential clearing to allow fauna to disperse away from clearing areas.

Given these factors, it is unlikely that the proposed action will have a significant impact on MNES and, as such, is not considered to be a Controlled Action.

6.3 Proposed action IS a controlled action

Not applicable

7 Environmental record of the responsible party

		Yes	No
7.1	**Does the party taking the action have a satisfactory record of responsible environmental management?** **Provide details** The party has no prior development history, having only owned and occupied rural properties.	**X**	
7.2	**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**		**X**
7.3	**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** Individual party, not a corporation.	**N/A**	
7.4	**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?** **Provide name of proposal and EPBC reference number (if known)** No, the party has not undertaken an action referred under the EPBC Act.		**X**

8 Information sources and attachments

(For the information provided above)

8.1 References

- **Australian Koala Foundation** 2012, *National Koala Tree Protection List; Recommended Tree Species for Protection and Planting of Koala Habitat*.
- **Australian Soil Resource Information System**, http://www.asris.csiro.au/
- **Gold Coast City Council** 2011, Yatala Enterprise Area Local Area Plan, available online http://www.goldcoast.qld.gov.au/gcplanningscheme_1111/attachments/planning_scheme_documents/part6_local_area_plans/div2_LAPS/chapter_29_yatala_enterprise_area.pdf
- **Phillips & Callaghan** 2011, *The Spot Assessment Technique: a tool for determining localised levels of habitat use by Koalas Phascolarctos cinereus*. ***Australian Zoologist 35(3)****: 774-780.*
- **Saunders Havill Group** 2015, *EPBC Act Ecological Assessment Report commissioned by* ***Patricia and William Hester.***

8.2 Reliability and date of information

Refer to response at 8.1

8.3 Attachments

		✓ attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the project locality (section 1)	✓	- Project locality – Figures 1 & 2 - GIS file
	GIS file delineating the boundary of the referral area (section 1)		
	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)	✓	- Project locality - Figures 1 & 2 - Attachment 4 – Connectivity Analysis Plan
If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.5)	✓	-Attachment 5 (Development Approval)
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.6)	✓	-Attachment 5 (Development Approval)
	copies of any flora and fauna investigations and surveys (section 3)	✓	-Attachment 1 – Protected Matters Search Results -Attachment 2- Ecological Assessment Report -Attachment 3 – Field Survey Plan
	technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3 and 5)	✓	-Attachment 2- Ecological Assessment Report
	report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)	N/A	N/A

9 Contacts, signatures and declarations

Project title: Generations Industrial Park

9.1 Person proposing to take action

1. Name and Title:	Mrs Patricia Hester and Mr William Hester
2. Organisation:	N/A
3. EPBC Referral Number:	N/A
4: ACN / ABN:	N/A
5. Postal address:	60 Stapylton-Jacobs Well Road, Stapylton, QLD 4207
6. Telephone:	0407 287 211
7. Email:	pillowqueen92@hotmail.com
8. Name of designated proponent (if not the same person at item 1 above:	N/A
9. ACN/ABN of designated proponent (if not the same person named at item 1 above):	N/A

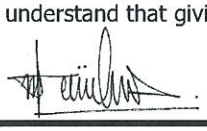
I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:	✓ an individual; OR □ a small business entity (within the meaning given by section 328-110 (other than subsection 328-119(4)) of the *Income Tax Assessment Act 1997*); OR □ not applicable.
If you are small business entity you must provide the Date/Income Year that you became a small business entity:	N/A
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:	N/A

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 P R Hester W a Hester Date 16-7-2016

9.2 Person preparing the referral information (if different from 9.1)

Name	Murray Saunders
Title	Director
Organisation	Saunders Havill Group Pty Ltd
ACN / ABN (if applicable)	24 144 972 949
Postal address	9 Thompson Street, Bowen Hills, QLD 4006
Telephone	(07) 3251 9415
Email	murraysaunders@saundershavill.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 13.07.2016