**Title of Proposal** - Baldivis District Sporting Complex at Lots 4, 103, 104 and 105 Eighty Road, Baldivis, WA

# Section 1 - Summary of your proposed action

Provide a summary of your proposed action, including any consultations undertaken.

### 1.1 Project Industry Type

Tourism and Recreation

### 1.2 Provide a detailed description of the proposed action, including all proposed activities.

The City of Rockingham proposes to develop the Baldivis District Sporting Complex (BDSC) to meet the current and future demand for organised sporting spaces in the locality. The project will include five large playing fields (consisting of cricket, AFL and soccer ovals), cricket nets, two club rooms, change rooms, 18 outdoor hard courts, an indoor recreation centre, an outdoor youth recreation space, a nature play area, a maintenance shed and car parking. The site location can be seen in Figure 1 and a plan of the future BDSC development layout can be found in Appendix A.

The City is currently at the Master Planning stage of the future development and will shortly commence detailed design stage. A number of detailed studies have been undertaken ahead of the detailed design stage in order to inform the Federal Environment Protection and Biodiversity Conservation Act 1999 (the EPBC Act) Referral and the State clearing permit application.

Photos of the study area can be found in Appendix B.

The development has been designed in an environmentally sensitive manner to reduce clearing of vegetation as much as possible. The proposed action will result in majority of the study area having minimal differences in pre and post development site levels which enables vegetation retention to be maximised (Appendix C). There is a large patch of vegetation in the north-western portion of the study area that will be retained and left in its natural state. A path and interpretive shelter will be installed through this large retained patch of vegetation, however these will be strategically placed in areas devoid of native vegetation.

The proposed action will require the clearing of 2.48 ha of potential Black Cockatoo foraging habitat which includes 82 potential breeding trees (greater than or equal to 500 mm diameter at breast height (DBH)), nine of which contain hollows (Figure 2). The proposed action will achieve a positive environmental outcome, with 56% of potential Black Cockatoo foraging habitat, 54% of potential breeding trees and 65% of trees with hollows proposed to be retained.

### 1.3 What is the extent and location of your proposed action? Use the polygon tool on the map below to mark the location of your proposed action.

| Area | Point | Latitude | Longitude |
|---|---|---|---|
| study area | 1 | -32.345522853152 | 115.79248457578 |
| study area | 2 | -32.345527385211 | 115.79806357053 |
| study area | 3 | -32.349120070445 | 115.79827240077 |
| study area | 4 | -32.349929532352 | 115.79790373857 |
| study area | 5 | -32.349929532352 | 115.79479774053 |
| study area | 6 | -32.347169600824 | 115.79480310495 |
| study area | 7 | -32.3471741328 | 115.79248031194 |
| study area | 8 | -32.345525611447 | 115.79248299415 |
| study area | 9 | -32.345522853152 | 115.79248457578 |

**1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland).**

The study area consists of the following Lots along Eighty Road in Baldivis (see Figure 1):
- Lot 4 on Plan D031062 (9.7 ha)
- Lot 103 on Plan D050627 (3.24 ha)
- Lot 104 on Plan D050627 (3.24 ha)
- Lot 105 on Plan D050627 (3.23 ha)

The study area is a total of 19.4 ha and exists approximately 44 km to the south of the Perth central business district (CBD) in Western Australia.

**1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?**

Study area=19.4 ha. Proposed disturbance footprint (work area)=15.9 ha, avoidance footprint=3.5 ha, clearing footprint=2.48 ha

**1.7 Is the proposed action a street address or lot?**

Lot

**1.7.2 Describe the lot number and title.**Lot 4 on Plan D031062, Lot 103 on Plan D050627, Lot 104 on Plan D050627, Lot 105 on Plan D050627

**1.8 Primary Jurisdiction.**

Western Australia

**1.9 Has the person proposing to take the action received any Australian Government**

**grant funding to undertake this project?**

No

**1.10 Is the proposed action subject to local government planning approval?**

No

**1.11 Provide an estimated start and estimated end date for the proposed action.**

Start date 07/2019

End date 06/2023

**1.12 Provide details of the context, planning framework and State and/or Local government requirements.**

The BDSC does not require planning approval from the Western Australian Planning Commission (WAPC) as the development is considered public works for public recreation. Correspondence from the WAPC confirming this is included in Appendix D. The only State approvals required for the development to commence are a Native Vegetation Clearing Permit (NVCP) and Groundwater Licence issued through the Department of Water and Environmental Regulation (DWER). The NVCP application (CPS 8172/1) has been lodged with DWER, but a decision is still pending. DWER approved a Groundwater Licence for the site (GWL201976(1)) on the 1st October 2018. The Licence allows the City to take 98,250 kL of groundwater per annum for the BDSC site.

**1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders.**

Key stakeholders who have been identified as potential users of the facility have been and will continue to be consulted throughout the master plan and detailed design process. These groups include the Baldivis Football Club, White Knights Cricket Club and Rockingham Districts Netball Association. Surrounding residents are being kept informed of the projects progress through newsletters distributed at key milestones.

The draft master plan was presented to a Councillor Engagement Session prior to being released for public comment on the 10 October 2018. Public comment will be open until the 31 October 2018 and provides the wider community, as well as members of the two prospective sporting clubs the opportunity to comment and have input into the final master plan. As part of the public comment period, a presentation on the draft master plan was held on Tuesday 16 October 2018. The presentation was attended by 35 community members who were provided an opportunity to ask questions and speak with members of the project team. The draft master plan and opportunity to provide comment has been advertised to the wider community through:

- The City's online platforms including Share Your Thoughts, Rock Port, social media, website and through direct mail out to residents within a 200m radius of the proposed development and those who have elected to be included on the email database.

- Advertisements placed in the two local community newspapers and

- A media release sent to local newspapers and radio stations.

Following the completion of the master plan, the community will continue to be kept informed of the project using the City's online platforms and direct mail outs as described above. Key stakeholders will have the opportunity to provide input into the facility design (pavilions, indoor recreation centre, youth space etc.) and will continue to be kept informed of the project until it is fully complete and operational.

**1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project.**

As specified under Section 1.12, the City has submitted an application for a NVCP with DWER to obtain approval under Part V of the *Environmental Protection Act 1986* (EP Act) to clear native vegetation. To inform the NVCP application the City undertook an environmental impact assessment to determine whether the proposed clearing would likely be at variance to any of the ten clearing principles listed under Schedule 5 of the EP Act. The assessment against the ten clearing principles found the proposed clearing is unlikely to be at variance to any of the principles. The City is pending a decision from DWER on the application.

**1.15 Is this action part of a staged development (or a component of a larger project)?**

No

**1.16 Is the proposed action related to other actions or proposals in the region?**

No

## Section 2 - Matters of National Environmental Significance

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

Your assessment of likely impacts should consider whether a bioregional plan is relevant to your proposal. The following resources can assist you in your assessment of likely impacts:

• Profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;

• Significant Impact Guidelines 1.1 – Matters of National Environmental Significance;

• Significant Impact Guideline 1.2 – Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies.

**2.1 Is the proposed action likely to have ANY direct or indirect impact on the values of any World Heritage properties?**

No

**2.2 Is the proposed action likely to have ANY direct or indirect impact on the values of any National Heritage places?**

No

**2.3 Is the proposed action likely to have ANY direct or indirect impact on the ecological character of a Ramsar wetland?**

No

**2.4 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?**

Yes

**2.4.1 Impact table**

| Species | Impact |
| --- | --- |
| Carnaby's Cockatoo (Calyptorhynchus latirostris), Baudin's Cockatoo (Calyptorhynchus baudinii) and Forest Red- | The Department of the Environment and Energy (DotEE) latest modelled distribution maps identify the three species of Black |

| Species | Impact |
| --- | --- |
| tailed Black Cockatoo [FRBC] (Calyptorhynchus banksii naso) | Cockatoos (Carnaby's Cockatoo, Baudin's Cockatoo and FRBC) as being likely to occur within the study area (DotEE 2018). The study area is within the predicted breeding range of Carnaby's Cockatoo, however it is outside the predicted and known breeding and known foraging areas for Baudin's Cockatoo (DotEE 2017). There are no predicted breeding or foraging areas for FRBC. The Department of Biodiversity, Conservation and Attractions (DBCAs) NatureMap identified numerous records of Carnaby's Cockatoo and Forest Red-tailed Black Cockatoo surrounding the survey area (GHD 2018a). There is however only one record of Baudin's Cockatoo occurring within 10 km of the survey area. Mapping provided by the Western Australian Department of Planning (2011) for Carnaby's Cockatoo identify five known roosting sites within 5 km of the survey area, the closest approximately 1.8 km south (GHD 2018a). There is only one known breeding site in the locality which is located approximately 7 km south/south-east of the survey area, along the Forest Highway. A targeted black cockatoo habitat assessment was undertaken GHD on the 2 August 2017 (GHD 2018a; see Appendix E). The assessment was conducted in accordance with the EPBC Act referral guidelines for three threatened black cockatoo species (DSEWPaC 2012). The purpose of the assessment was to identify suitable foraging, breeding and roosting habitat for black cockatoos and determine their presence on site. Calls of Carnaby's Cockatoo were heard in a nearby bushland during the fauna survey by GHD in October 2017. Additionally the FRBC was heard calling in nearby bushland during the black cockatoo habitat assessment by GHD in August 2017. The black cockatoo habitat assessment found the study area contains 5.59 ha* of potential foraging habitat, consisting of Eucalyptus marginata (jarrah), Corymbia calophylla (marri), Eucalyptus gomphocephala (tuart), Allocasuarina fraseriana, Banksia attenuata, B. grandis, B. menziesii, B. sessilis, Hakea prostrata and planted Pinus sp (Figure 3). No black cockatoo species were directly seen |

| Species | Impact |
| --- | --- |
| | feeding or observed flying over the survey area during the assessment. However evidence of foraging was observed during the survey in the form of chewed marri and jarrah nuts, with bite marks typical of the FRBC. The study area contains 177 potential breeding trees with a diameter at breast height (DBH) greater than or equal to 500 mm (Figure 3). This consisted of tuart (157), jarrah (8) and marri (12) trees which are known nesting trees for all three species of black cockatoos. Twenty six (26) potential breeding trees contain one or more hollow, of which 19 contain medium to large nest hollows (5 to greater than 10cm) that are considered may be currently suitable for black cockatoo breeding (GHD 2018). Two tuart trees with hollows showed some signs of previous use due to the presence of chew marks (Tree ID 45 and 86). Three trees with hollows were found to contain bee hives. A breakdown of potential breeding trees within the property based on size is provided below and shown on Figure 3: 138 trees have a DBH between 500 mm and 1,000mm; 26 trees have a DBH between 1,000 mm and 1,500 mm; 9 trees have a DBH between 1,500 mm and 2,000 mm; 4 trees have a DBH between 2,000 and 2,800 mm. No evidence of breeding was recorded within the survey area for any species of black cockatoo at the time of the survey. The Carnaby's Cockatoo and FRBC are likely to inhabit the study area, as the study area is within the species known distributions, there are several nearby records of the species surrounding the study area and the study area contains suitable foraging, roosting and breeding habitat for both of the species. The survey area is located just outside of the currently documented range for the Baudin’s Black Cockatoo, however there is potential for this species to utilise the area in the future. The proposed action will result in 2.48 ha of potential black cockatoo foraging habitat being cleared, consisting of 82 potential breeding trees, of which 9 contain hollows. The development has been designed to maximise the retention of potential black cockatoo habitat, in particular the largest trees containing hollows. The proposed action will result in 3.11 |

| Species | Impact |
| --- | --- |
| | ha of the potential black cockatoo foraging habitat being retained (56%) consisting of 95 potential breeding trees, of which 17 contain hollows. Through careful design of the development, three out of four of the largest potential breeding trees on site will be retained (ID's 92, 110 and 174). Typically, night roost sites have a standing water source nearby for drinking. This may be a natural waterway or lake, however constructed lakes, farm dams and stock water troughs are also used (Glossop et al. 2011). No evidence of roosting by black cockatoos was identified within the survey area during the field assessment. The survey area provides suitable roosting habitat based on the presence of suitable roosting trees, the close proximity of the study area to known roosting sites (Department of Planning WA 2011) and the presence of suitable foraging habitat. Although there is no permanent standing water within the survey area, there are lake systems in the nearby area. Measures that will be taken as part of the development to mitigate any adverse impacts to the black cockatoos will include (to be discussed further under Section 4): significant retention of potential black cockatoo foraging habitat (56%) and breeding habitat (54%); installation of five nesting boxes in the large patch of Tuart/Jarrah Forest in the north-western portion of the study area (Figure 4); extermination of introduced bees from the hollows in trees 48 and 119 to be retained; revegetation within the retained Tuart/Jarrah Woodland; landscaping with known black cockatoo trees throughout the development; fauna relocation (including searching trees for active nests prior to clearing). Given the above mitigation measures, the proposed action is considered unlikely to have a significant impact on the three species of black cockatoos. It must be noted that the City engaged a qualified arborist, Bowden Tree Consultancy to undertake an assessment of all potential black cockatoo breeding trees to be retained around future developed areas to ensure they are safe for retention. The arborist identified the potential black cockatoo breeding trees 153, 154 and 176 were structurally compromised and pose |

| Species | Impact |
| --- | --- |
| | risks to human safety. In order the investigate the potential for retaining Tree 176 by making it safe, the City commissioned the arborist to undertake a PiCUS sonic tomography test to evaluate the internal wood condition of the tree. The test found that there is a high risk of stem failure. Based on the arborists recommendations, the City decided that Trees 153, 154 and 176 require removal. A further arborist assessment may be undertaken prior to development to confirm the safety of trees with a DBH of <500 mm to be retained around future developed areas. * Since the flora and vegetation survey and fauna assessment (including the black cockatoo habitat assessment) were undertaken, the City constructed a firebreak along the perimeter of the site to reduce the bushfire risk. This included the removal of the Grevillea shrubland (0.19 ha). This clearing was determined by the City to be exempt under Schedule 6, Clause 10 under the WA Environmental Protection (Clearing of Native Vegetation) Regulations 2004. The clearing of the small patch of Grevillea shrubland was not deemed to be significant and was therefore not referred to the DotEE. No trees were cleared for the fire management works. The figures accompanying the EPBC referral show the vegetation currently present in the study area following fire management works. |

**2.4.2 Do you consider this impact to be significant?**

No

**2.5 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed migratory species, or their habitat?**

Yes

**2.5.1 Impact table**

| Species | Impact |
| --- | --- |
| Rainbow Bee-eater (Merops ornatus) | The fauna assessment undertaken by GHD |

| Species | Impact |
| --- | --- |
| | found the study area is likely to contain suitable habitat for the Rainbow Bee-eater (GHD 2018a). This includes the Tuart/Jarrah Woodland and cleared to semi-cleared areas of the study area. There are known records of the species in close proximity to the survey area, however the species is common and widespread across the whole of Australia (GHD 2018a). It is likely if Rainbow Bee-eaters were present in the study area they would have been detected during the fauna survey as they are readily detectable and described as noisy and conspicuous (DotEE 2018). The rainbow Bee-eaters mainly feed on insects, where they forage from open perches to scan for prey (DotEE 2018). It is therefore likely, if present in the study area they would forage within the 5.59 ha of Parkland Cleared or Tuart/Jarrah Woodland within the site. The proposed action will result in 2.48 ha of potential Rainbow Bee-eater foraging habitat being cleared and 3.11 ha being retained. The proposed action has the potential to disrupt the breeding cycle of Rainbow Bee-eaters through disturbance to their eggs and/or nestlings if nests are present at the time of clearing. Disturbance to Rainbow Bee-eater nests may take place during fauna relocation activities, clearing and earthworks. Approximately 15.9 ha of the site (consisting of predominantly cleared areas) will undergo earthworks, which has the potential to disrupt Rainbow Bee-eater nests. The proposed action may force the Rainbow Bee-eaters into new habitat, including the Tuart Woodland to be retained in the north-western portion of the site. Majority of the most suitable habitat to support the Rainbow Bee-eater, the Tuart/Jarrah Woodland, will be retained as part of the development. The City is committed to undertaking fauna relocation prior to clearing which will ensure any Rainbow Bee-eaters present on-site are safely moved on. Open areas will also be checked for Rainbow Bee-eater nests if clearing is undertaken between August and January when the species is known to breed in Australia (DotEE 2018). Any chicks found will be removed and delivered to a wildlife refuge, with the rehabilitation to be funded by |

| Species | Impact |
| --- | --- |
| | the City. As Rainbow Bee-eaters have a widespread distribution and inhabit a wide variety of habitats, the proposed disturbance is unlikely to cause any significant impacts to the Rainbow Bee-eater, particularly given that fauna relocation will be undertaken prior to clearing. |

**2.5.2 Do you consider this impact to be significant?**

No

**2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?**

No

**2.7 Is the proposed action to be taken on or near Commonwealth land?**

No

**2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?**

No

**2.9 Is the proposed action likely to have ANY direct or indirect impact on a water resource related to coal/gas/mining?**

No

**2.10 Is the proposed action a nuclear action?**

No

**2.11 Is the proposed action to be taken by the Commonwealth agency?**

No

**2.12 Is the proposed action to be undertaken in a Commonwealth Heritage Place Overseas?**

No

**2.13 Is the proposed action likely to have ANY direct or indirect impact on any part of the environment in the Commonwealth marine area?**

No

# Section 3 - Description of the project area

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed in Section 2).

**3.1 Describe the flora and fauna relevant to the project area.**

**FLORA AND VEGETATION**

A targeted and detailed flora and vegetation survey was undertaken in accordance with the Environmental Protection Authority (EPA) Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment (EIA) on the 11th of October 2017 by GHD (Appendix F). Searches for conservation significant flora and ecological communities were undertaken. A revised Protected Matters Search Tool (PMST) Report on the 9 August 2018 (Appendix G) confirmed the same Threatened flora species that were in the PMST Report supporting the flora and vegetation Assessment Report (GHD 2018b).

A total of 87 flora species, representing 41 families and 71 genera were identified in the study area, which consisted on 45 introduced species. The survey area is not considered representative of the floristic diversity in the area due to the highly degraded nature of the site. No conservation significant flora species, consisting of Priority species list by DBCA or Threatened species listed under the EPBC Act or *Wildlife Conservation Act 1950* (WC Act), are considered likely to occur within the study area (See Appendix F). In addition the spring flora and vegetation survey did not identify any conservation significant flora species.

**FAUNA**

A targeted black cockatoo habitat assessment was undertaken on the 2nd August 2017 and a Level 1 (reconnaissance) fauna survey was undertaken on the 11th of October 2017 by GHD. The Level 1 fauna survey was undertaken with reference to the EPA Technical Guidance – Sampling methods for terrestrial vertebrate fauna and Technical Guidance –Terrestrial Fauna Surveys. The black cockatoo habitat assessment was conducted in accordance with the EPBC Act referral guidelines for three threatened black cockatoo species (DSEWPaC 2012).

A revised PMST Report on the 9 August 2018 confirmed the same Threatened and Migratory fauna species that were in the PMST Report supporting the Fauna Assessment Report, with the addition of the Carter's Freshwater Mussel (*Westralunio carteri*) which is unlikely to occur within the study area due to the absence of a waterbody.

A total of 30 fauna species, including 21 birds, five reptiles and four mammals, were recorded in the survey area. Of these, three species are introduced. All species recorded during the survey are generally common and are known to occur in the locality. The study area contains suitable foraging, roosting and breeding habitat for all three species of black cockatoos: Carnaby’s Cockatoo, Baudin’s Cockatoo and FRBC. The Carnaby’s Cockatoo and FRBC were recorded as part of the fauna assessments.

In addition to the black cockatoos, the following conservation significant species list by DBCA or Threatened species listed under the EPBC Act or the WC Act are also considered likely to occur within the study area:

- Peregrine Falcon (*Falco peregrinus*): Other specially protected fauna under the WC Act

- Rainbow Bee-eater (*Merops ornatus*): Marine and Migratory under the EPBC Act and International Agreement under the WC Act

- Perth Slider (*Lerista lineata*): Listed as Priority 3 by DBCA

- Black-striped Snake (*Neelaps calonotos*): Listed as Priority 3 by DBCA

- Brush-tailed Phascogale (*Phascogale tapoatafa* subsp. *wambenger*): Other specially protected fauna under the WC Act

**3.2 Describe the hydrology relevant to the project area (including water flows).**

The study area does not contain any watercourses or wetlands, however it is surrounded by a number of wetlands mapped under the Geomorphic Wetlands of the Swan Coastal Plain Dataset (DBCA 2018) (see Figure 5). Lake Walyungup, a large CCW managed by DBCA that forms part of the Rockingham Lakes Regional Park exists approximately 460 m to the west of the study area (see Figure 5). The closest RAMSAR site, the Becher Point Wetlands (Site No. 54) are 4.6 km to the south-west of the study area. Due to the distance of the RAMSAR site from the study area, it is highly unlikely the proposed action will adversely impact on the RAMSAR site.

The study area forms part of the generic 50 m buffer of a Conservation Category Wetland (CCW), Outridge Swamp (UFI: 6394) in the south-western corner of the site (Figure 5). No development is proposed within the CCW buffer. The entirety of the CCW buffer is currently devoid of vegetation but it will be revegetated with native species at a density of one plant per m2. The revegetation will be undertaken prior to the opening of the facility, which is projected to be in 2023. The CCW buffer within the study area adjoins a City managed natural area reserve ‘Baldivis Children’s Forest’ (Figure 5). The City endeavours to enhance the entirety of the CCW and its buffer within both of the adjoining reserves.

The Perth Groundwater Map identifies the depth to groundwater below ground level (bgl) within the study area ranges from 2.5 m in the northern portion in the Tuart/Jarrah Woodland to be retained to 7 m in the southern portion of the site (DWER 2018).

Water Sensitive Urban Design (WSUD) infrastructure and principles will be applied to the study area. The development will ensure 100 year Average Recurrence Interval (ARI) rainfall events are appropriately detained on-site. WSUD principles will include:

- Tree infiltration pits

- Vegetated swales

- Parkland infiltration/sediment basins

- Car parks landscaped with native plants, open kerbing and vegetated swales to contain and managed their own drainage flow.

The City will use two production bores within the study area for the construction and operation of the BDSC through its Groundwater Licence (see Figure 4 of Appendix G). The City identified it would need approximately 150,000 kL/year of groundwater for the irrigating the BDSC, with a flow rate of approximately 17 L/second per bore for 200 days a year. However, DWER proposed a groundwater allocation of 98,250 kL/year. After further consideration, the City determined this would meet its requirements for irrigating turf and gardens. A Groundwater Pumping Assessment undertaken in 2018 by JDA Consultant Hydrologists demonstrates that the proposed groundwater pumping will not impact on the two surrounding CCW's, Outridge Swamp and Fount Swamp located to the north and south-west of the study area (Appendix H). The City will prepare a Nutrient and Irrigation Management Plan (NIMP) at detailed design stage to the satisfaction of DWER to ensure groundwater and surface water quality and quantity are not adversely impacted from the development.

**3.3 Describe the soil and vegetation characteristics relevant to the project area.**

**SOIL**

The Department of Primary Industries and Regional Development (DPIRD) soil subsystems mapping identified three soil subsystems within the study area:

- Spearwood S1b Phase (in the very north-western portion of the study area)- Dune ridges with deep siliceous yellow brown sands or pale sands with yellow-brown subsoil and slopes up to 15%

- Spearwood S2a Phase (a very small part portion of the northern boundary)- Lower slopes (1-5%) of dune ridge with moderately deep to deep siliceous yellow-brown sands or pale sands with yellow-brown subsoils and minor limestone outcrop

- Spearwood S4a Phase (across majority of the study area)- Flat to gently undulating sandplain with deep, pale and sometimes bleached sands with yellow-brown subsoils (DPIRD 2016).

**VEGETATION**

Two vegetation types are present within the study area (Figure 4):

- Tuart/Jarrah woodland: *Eucalyptus gomphocephala*, *E. marginata* and *Banksia attenuata* woodland over *Macrozamia riedlei* and *Xanthorrhoea gracilis* isolated shrubs over *Iridaceae* sp. and **Lupinus* spp. open herbland over **Ehrharta calycina*, **Briza maxima* and **Bromus diandrus* grassland (3.08 ha).

- Parkland cleared: Cleared paddocks where the understorey has been completely cleared of native vegetation. Consists of scattered individual or clumps of trees (mix of native, introduced and planted species) and/or tall shrubs over introduced grasses and herbs. The natural

structure of the vegetation is no longer intact (2.52 ha).

The ‘Tuart/Jarrah woodland’ consisted of degraded to completely degraded vegetation, whereas the ‘Parkland cleared’ areas were completely degraded (Figure 4).

A search of the DBCA Threatened and Priority Ecological Communities database and DotEE PMST identified three TECs as potentially occurring within the study area:

- Banksia dominated woodlands of the Swan Coastal Plain (Endangered – EPBC Act)

- Sedgelands in Holocene dune swales of the southern Swan Coastal Plain (Endangered – EPBC Act and Critically Endangered – WC Act)

- Woodlands over Sedgelands in Holocene Dune Swales of the southern Swan Coastal Plain (Endangered – EPBC Act and Critically Endangered – WC Act)

No TECs were identified during the flora and vegetation survey (GHD 2018a).

**3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area.**

The elevation of the study area ranges from 3.5 m Australian Height Datum (AHD) in the south-western portion of the study area and 3.7 m AHD in the northern portion of the study area to 24.5 m AHD in the north-western portion of the study area (Appendix C). There is a significant increase in elevation in the north-western portion of the study area which forms part of a natural ridgeline. This ridgeline will be retained as part of the proposed development, therefore there will be no significant cut and fill required for the proposed action.

**3.5 Describe the status of native vegetation relevant to the project area.**

The study area contains 4.84 ha of remnant native vegetation and the remaining 0.76 ha of vegetation within the study area has been planted around the houses that previously existed. The condition of vegetation within the study area ranges from 'Degraded' to 'Completely Degraded' (Figure 4). Majority of vegetation within the study area is classified as 'Completely Degraded' (59.6%).

**3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.**

As mentioned under Section 3.4, the elevation of the study area ranges from 3.5 m Australian Height Datum (AHD) in the south-western portion of the study area and 3.7 m AHD in the northern portion of the study area to 24.5 m AHD in the north-western portion of the study area (Appendix C).

**3.7 Describe the current condition of the environment relevant to the project area.**

Lot 105 is completely devoid of vegetation, whereas Lots 103, 104 and half of Lot 4 are parkland cleared, consisting mostly of scattered trees/shrubs over introduced grasses and herbs. The other half of Lot 4 contains remnant Tuart/Jarrah woodland. The study area is highly modified due to historical clearing, logging, grazing, fencing, tracks and weed invasion. The vegetation structure has been significantly altered with an understorey completely dominated by common herbaceous and grassy weeds. The survey area is not considered representative of the floristic diversity in the area due to the highly degraded nature of the site.

A breakdown of vegetation condition within the study area is:

- Completely Degraded: 3.34 ha

- Degraded: 2.26 ha

**3.8 Describe any Commonwealth Heritage Places or other places recognised as having heritage values relevant to the project area.**

There are no World, Commonwealth, State Registered or Local Municipal Heritage Places within close proximity to the study area (HCWA 2018). The closest European Heritage site is a Municpial Heritage Site at Martell Street, Warnbro, approximately 4.3 km to the north-west of the study area (CoR 2018). The proposed action will not impact on any heritage places.

**3.9 Describe any Indigenous heritage values relevant to the project area.**

There are no registered Aboriginal Sites within the vicinity of the study area. The closest Registered Aboriginal Site is 'Serpentine River' (Place ID: 3582) approximately 2.5 km to the south-east of the study area (HCWA 2018). One lodged Aborigial site exists approximately 250 m to the north-east of the study area: Baldivis Road (Place ID: 3405; artefacts/scatter). The status of this place is 'Stored Data/Not a site' which means it has been assessed as not meeting Section 5 of the *Aboriginal Heritage Act 1972*. The proposed action will not impact on any aboriginal heritage places.

**3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area.**

Freehold

**3.11 Describe any existing or any proposed uses relevant to the project area.**

The study area is currently unused. It was previously used for agricultural purposes. The proposed development will include: five large playing fields (consisting of cricket, AFL and soccer ovals), cricket nets, two club rooms, change rooms, 18 outdoor hard courts, an indoor recreation centre, an outdoor youth recreation space, a nature play area, a maintenance shed and car parking (See Appendix A).

# Section 4 - Measures to avoid or reduce impacts

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

**4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action.**

The development has been designed in an environmentally sensitive manner to reduce clearing of vegetation as much as possible (including both native and non-native that provide foraging value for black cockatoos). The majority of the study area will have minimal differences in pre and post development site levels which enables vegetation retention to be maximised (Appendix C). There is a large patch of vegetation in the north-western portion of the site that will be retained and left in its natural state. A path and interpretive shelter will be installed through this large retained patch of vegetation, however these will be strategically placed in areas devoid of native vegetation.

The development will achieve a positive environmental outcome, with 56% of potential black cockatoo foraging habitat, 54% of potential black cockatoo breeding trees and 65% of trees with hollows proposed to be retained (Figure 3). A breakdown of the clearing footprint and the vegetation proposed to be retained is shown in a table on Figure 3.

The City is committed to minimising the environmental impacts from the proposed BDSC development. Mitigation measures that will be undertaken as part of the development are discussed below.

**Enhancement of environmental values as part of the future BDSC**

The retained patch of Tuart/Jarrah woodland in the north-western portion of the study area and the Outridge Swamp Conservation Category Wetland (CCW) buffer in the south-western portion of the study area will be actively managed by the City. This will include: revegetation; weed control; and controlled access with fencing and paths where appropriate.

The entirety of the CCW buffer (approximately 400 m2) within the study area will be revegetated with native species at a density of one plant per m2 (except a small proportion may contain infrastructure for recreation such as a footpath around the perimeter). The CCW buffer adjoins the City managed Baldivis Children’s Forest (Reserve 30269), which is also managed to enhance the integrity of the CCW. The City endeavours to enhance the entirety of the Outridge Swamp CCW and its buffer within both of the adjoining reserves. Outridge Swamp may be used by the black cockatoos as a water source as it is seasonally inundated and surrounded by intact vegetation which offers protection from predators. Therefore, the further enhancement of the

wetland and its buffer may provide benefits to the black cockatoos.

Revegetation within the retained Tuart/Jarrah woodland will be progressively implemented on an ongoing basis, at an average density of one plant per m2 over approximately 3.3 ha.

Landscaping along the boundaries of the development will consist of native trees known to provide habitat for black cockatoos and trees listed as 'Plants Used by Carnaby's Black Cockatoo' (DEC 2011). Planting within car parks will endeavour to also consist of native trees known to provide habitat for black cockatoos, if suitable. It is estimated that a minimum of 90 trees will be planted as part of the landscaping in car parks and along site boundaries. Landscape planting will also consist of middle to understorey species where suitable. Bio-retention swales will also be planted will native nutrient stripping species.

The proposed species list for the future revegetation areas and tree species proposed for the general landscaping at the site are provided below:

**Retained Tuart/Jarrah woodland in the north-western portion of the study area**

*Allocasuarina fraseriana, Banksia attenuata*, *B. grandis*, *B. menziesii*, *B. sessilis*, *Corymbia calophylla*, *Eucalyptus gomphocephala*, *E. marginata*, *Hardenbergia comptoniana*, *Jacksonia furcellata*, *Macrozamia riedlei*, *Xanthorrhoea gracilis*, *Xanthorrhoea preissii*, *Spyridium globulosum.*

**CCW Buffer in the south-western portion of the site**

*Enchylaena tomentosa var. tomentose, Gahnia trifida, Lepidosperma gladiatum, Melaleuca rhaphiophylla, Melaleuca incana* subsp. *incana, Rhagodia baccata* subsp. *baccata, Spyridium globulosum.*

**Landscaping around the development**

*Agonis flexuosa, B. attenuata, B. grandis, B. menziesii, Corymbia calophylla, E. gomphocephala, E. marginata, E. rudis, E, caesia, E. todtiana*

**Fauna Relocation**

The City will engage a Contractor to undertake fauna relocation works prior to commencement of site works. This will include trapping for reptiles and mammals and searching trees for active nests prior to clearing. Open areas will also be checked for Rainbow Bee-eater nests if clearing is undertaken between August and January when the species is known to breed in Australia (DotEE 2018). Any chicks found will be removed and delivered to a wildlife refuge. The City will fund the refuge to cover the costs of treating and rearing the chicks. If clearing takes place between May and August then active foraging and searching for reptiles will be undertaken. A qualified zoologist will be present on-site during clearing works to ensure the clearing procedure is followed and to capture any fauna present or attend to injured fauna. The relocation works will be completed within four days of clearing to ensure native fauna do not re-colonise within the study area.

**Defining the Areas to be Cleared**

The City will ensure that work areas and vehicle compounds are located in areas that do not require unnecessary vegetation to be cleared or destroyed. The boundaries of areas to be disturbed within the study area will be clearly defined to prevent any unintended clearing.

**Installation of Artificial Nesting Boxes**

The City will install five artificial nesting boxes for black cockatoos in the patch of vegetation being retained in the north-western portion of the site. The artificial nesting boxes will be installed in areas away from the main sporting complex activities where there will be less disturbance to the black cockatoos during breeding. Optimal breeding size nesting boxes for the FRBC and Carnaby's Cockatoo as recommended by the Western Australian Department of Biodiversity, Conservation and Attractions (DBCA) will be installed. Of the nine potential breeding trees with hollows proposed to be cleared as part of the development (tree ID's 52, 53, 57, 86, 146, 148, 162, 165 and 168), five trees contain a total of eight small hollows (<5 cm), five trees contain a total of five medium hollows (5-10 cm) and only one tree contains one large hollow (>10cm). The nesting boxes are considered to offset the potential breeding trees with hollows proposed to be cleared as only one tree (ID 86) to be cleared is considered to be currently suitable for black cockatoos to breed in. The other trees with hollows proposed to be cleared would eventually become suitable for breeding with time, but cannot currently be used by the black cockatoos. The installation of five nesting boxes will add an additional four currently suitable nesting hollows to the study area.

**Extermination of Bees in Potential Nesting Hollows**

Two potential breeding trees to be retained as part of the development contain bees hives in their medium sized hollows (Tree ID's 48 and 119). One tree (Tree ID 168) proposed to be cleared also contains a bee-hive in its small hollow. European Honey Bees compete with black cockatoos for hollows and are a major threat to the survival of all three species of black cockatoos. The City will commit to exterminating the bees in the hollows to make them available for the black cockatoos to breed in when they become a suitable size. The tree containing a bee-hive in its hollow to be cleared will also have the bees exterminated to ensure they do not move into another tree hollow on-site.

**4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved.**

**Vegetation Retention**

The development will achieve a positive environmental outcome. A breakdown of the potential black cockatoo habitat to be cleared vs retained are shown below and on Figure 3:

- 56% of potential black cockatoo foraging habitat will be retained. 2.48 ha will be cleared and 3.11 ha will be retained.

- 54% of potential black cockatoo breeding trees (>500 mm DBH) will be retained. 82 trees will be cleared and 95 trees will be retained.

- 65% of potential black cockatoo breeding trees with hollows will be retained. 9 trees with

hollows will be cleared and 17 trees with hollows will be retained.

- 50% of potential breeding trees with large hollows that showed signs of previous use (chew marks) will be retained. Tree ID's 45 and 86 showed signs of previous use, of which Tree 45 will be retained and Tree 86 will be cleared.

- A survey of all trees <500 mm DBH was undertaken to determine non-significant trees suitable for retention as part of the development. A total of 426 trees <500 mm DBH were identified in the study area consisting of *Eucalyptus marginata, E. gomphocephala, Banksia attenuata, B. grandis, B. menziesii, B. sessilis, Corymbia calophylla* and *Allocasuarina fraseriana*. 116 non-significant trees will be cleared and 310 non-significant trees (73%) will be retained as part of the development. All of these trees provide potential foraging habitat for black cockatoos and many will grow into potential breeding trees.

**Revegetation**

- It is estimated that a minimum of 90 trees, predominantly consisting of native trees known to provide habitat for black cockatoos will be planted as part of the landscaping in car parks and along site boundaries.

- Revegetation within the retained Tuart/Jarrah woodland will be progressively implemented on an ongoing basis, at an average density of one plant per m2 over approximately 3.3 ha. This will increase the amount of and the quality of potential foraging, roosting and breeding habitat within the study area.

- The entirety of the CCW buffer (approximately 400 m2) within the study area will be revegetated with native species at a density of one plant per m2 (except a small proportion may contain infrastructure for recreation such as a footpath around the perimeter). Outridge Swamp may be used by the black cockatoos as a water source as it is seasonally inundated and surrounded by intact vegetation which offers protection from predators. The further enhancement of the wetland and its buffer will likely provide benefits to the black cockatoos.

# Section 5 – Conclusion on the likelihood of significant impacts

A checkbox tick identifies each of the matters of National Environmental Significance you identified in section 2 of this application as likely to be a significant impact.

Review the matters you have identified below. If a matter ticked below has been incorrectly identified you will need to return to Section 2 to edit.

### 5.1.1 World Heritage Properties

No

### 5.1.2 National Heritage Places

No

### 5.1.3 Wetlands of International Importance (declared Ramsar Wetlands)

No

### 5.1.4 Listed threatened species or any threatened ecological community

No

### 5.1.5 Listed migratory species

No

### 5.1.6 Commonwealth marine environment

No

### 5.1.7 Protection of the environment from actions involving Commonwealth land

No

### 5.1.8 Great Barrier Reef Marine Park

No

### 5.1.9 A water resource, in relation to coal/gas/mining

No

### 5.1.10 Protection of the environment from nuclear actions

No

### 5.1.11 Protection of the environment from Commonwealth actions

No

### 5.1.12 Commonwealth Heritage places overseas

No

### 5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action.

An assessment of the proposed action against the significant impact criteria for endangered, vulnerable species and listed migratory species was undertaken to determine whether the proposed action would likely have a significant impact on the three species of black cockatoos and the Rainbow Bee-eater (see below). The conclusion of the below assessment is that the proposed action is not likely to have a significant impact on the three species of black cockatoos or the Rainbow Bee-eater.

**BLACK COCKATOOS**

**Lead to long term decrease in the size of a population**

The study area contains 5.59 ha of potential foraging habitat for the three species of black cockatoos, which consists of a total of 177 potential breeding trees. Of the 177 potential breeding trees, nine contain hollows, of which two trees contain hollows that are considered currently suitable for black cockatoos to breed in. As a result of careful design, the proposed development will result in a positive environmental outcome, with 56% of potential foraging habitat being retained (3.11 ha), 54% of potential breeding trees being retained (95 trees) and 65% of potential breeding trees with hollows being retained (17 trees) (Figure 3). The City will install five artificial nesting boxes for black cockatoos in the patch of vegetation being retained in the north-western portion of the site. The nesting boxes are considered to offset the potential breeding trees with hollows proposed to be cleared as only one tree (ID 86) being cleared is considered to be currently suitable for black cockatoos to breed in. The other trees with hollows proposed to be cleared would eventually become suitable for breeding with time, but cannot currently be used by the black cockatoos for breeding. The installation of five nesting boxes will result in an additional four currently suitable nesting hollows within the study area.

Revegetation within the retained Tuart/Jarrah woodland will be progressively implemented on an ongoing basis, at an average density of one plant per m2 over approximately 3.3 ha. It is estimated that a minimum of 90 trees will be planted as part of the landscaping in car parks and along site boundaries, which will endeavour to also consist of native trees known to provide habitat for black cockatoos. It is considered the mitigation measures proposed to be implemented within the study area will offset the impacts of clearing 2.48 ha of potential black cockatoo foraging habitat, consisting of 82 potential breeding trees. It is therefore unlikely the proposed action will lead to a long term decrease in the size of black cockatoo species populations.

**Reduce the area of occupancy of the species**

The City of Rockingham engaged Eco Logical Australia in 2017 to undertake a Natural Areas Technical Assessment* to identify natural areas across the whole of its municipality. The Natural Areas Technical Assessment found that approximately 4,615 ha of potential Carnaby's Cockatoo foraging, roosting and breeding habitat exists across the City's municipality that covers 260km2. Of this, 1,787 ha is protected by the DBCA and 374 ha exists within City managed land that is primarily set aside for conservation. Significant areas of potential black cockatoo habitat exists within Rockingham Lakes Regional Park, a Bush Forever site that lies approximately 400 m to the west of the study area (Figure 5). Given the significant retention of vegetation on-site (56% of potential foraging habitat) and the extensive habitat surrounding the study area, it is unlikely the proposed clearing of 0.05% of Carnaby's Cockatoo habitat (which also consists of FRBC and Baudin's Cockatoo habitat) within the local government area (LGA) will reduce the area of occupancy of any of the three species of black cockatoos.

*Note that the Technical Assessment was prepared as an internal document to inform the development of the future Local Planning Strategy and Environmental Planning Strategy, therefore the outputs are not yet publically available.

**Fragment an existing population into two or more populations**

The proposed clearing within the study area will not fragment an existing population into two or more populations as the majority of intact vegetation within the Tuart/Jarrah Woodland will be retained. The clearing proposed predominantly consists of Parkland Cleared vegetation which is already highly fragmented. The Natural Areas Technical Assessment in 2017 identified ecological linkages within the City's LGA. As shown in Figure 5, the western portion of the study area forms part of an ecological linkage that provides an extensive north-south corridor for Black Cockatoos (Eco Logical Australia 2017). Majority of the vegetation within the ecological linkage will be retained as part of the development. The EPBC Act referral guidelines for three threatened black cockatoo species (DSEWPaC 2012) states that creating a gap of greater than 4 km between patches of black cockatoo habitat is at high risk of causing a significant impact. Clearing for the proposed action will not create a gap of more than 4km between patches of black cockatoo habitat, as there are numerous areas of native vegetation consisting of potential black cockatoo habitat within 4km of the study area.

**Adversely affect habitat critical to the survival of the species**

The seasonal movements of black cockatoos means they require large areas of habitat for breeding, roosting and foraging, as well as connectivity between habitats to assist their movement through the landscape (DSEWPaC 2012). Based on the EPBC Act referral guidelines for three threatened black cockatoo species, critical habitat for the Black Cockatoos is defined as providing breeding, roosting and foraging habitat which also provides connectivity between habitats. Habitat that accommodates for all three black cockatoo species would be defined as most critical.

The study area contains important habitat for the black cockatoos, however it is not considered habitat critical to the survival of all three species as it is not a known roosting site for the black cockatoos and although it contains suitable habitat for Baudin's Cockatoos, it is not within the species currently known breeding range. In addition the proposed clearing will retain the most

intact black cockatoo habitat on-site and the exisiting north-south corridor for black cockatoo movement. As the proposed action will result in the retention of connected habitat throughout the landscape it is not considered it will adversely affect habitat critical to the survival of the three species of black cockatoos.

**Disrupt the breeding cycle of a population**

As a result of careful design, the proposed action will retain 54% of potential breeding trees (95 out of 177 trees) and 65% of potential breeding trees with hollows (17 out of 26 trees). Of the nine potential breeding trees with hollows proposed to be cleared as part of the development (tree ID's 52, 53, 57, 86, 146, 148, 162, 165 and 168), five trees contain a total of eight small hollows (<5 cm), five trees contain a total of five medium hollows (5-10 cm) and only one tree contains one large hollow (>10cm). The nesting boxes are considered to offset the potential breeding trees with hollows proposed to be cleared as only one tree (ID 86) to be cleared is considered to be currently suitable for black cockatoos to breed in. The other trees with hollows proposed to be cleared would eventually become suitable for breeding with time, but cannot currently be used by the black cockatoos. The installation of five nesting boxes will add an additional four currently suitable nesting hollows to the study area.

Two potential breeding trees to be retained as part of the development contain bees hives in their medium sized hollows (Tree ID's 48 and 119). The City will commit to exterminating the bees in the hollows (including those to be cleared) to make them available for the black cockatoos to breed in when they become a suitable size.

It is considered that the proposed mitigation measures will ensure the proposed action does not disrupt the breeding cycle of the populations of the three species of black cockatoos.

**Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline**

The proposed action will not result in the isolation or significant reduction of habitat for the black cockatoos. The development will retain a large patch of vegetation in the north-western portion of the study area. The City proposes to enhance the Tuart/Jarrah Woodland in the north-western portion of the study area through revegetation and weed control which will result in improved habitat quality for the black cockatoos along a defined ecological linkage. (Figure 5). As over 50% of the potential black cockatoo foraging and breeding habitat on-site is proposed to be retained, and significant planting is proposed as part of the future development, it is considered unlikely the proposed action will modify, destroy, isolate or decrease the availability or quality of habitat to the extent any of the three species of black cockatoos will decline.

**Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat**

European Honey Bee's compete with black cockatoos for hollows and are a major threat to the survival of all three species of black cockatoos. The City will commit to exterminating the bees in the hollows of two potential breeding trees to be retained to make them available for the black cockatoos to breed in when they become a suitable size. In addition the bees in the tree hollow to be cleared will be exterminated to ensure they do not spread to other tree hollows. The proposed action is unlikely to introduce or spread invasive species that are harmful to black

cockatoos, rather it will remove invasive species known to be harmful to black cockatoos becoming established in the habitat on-site.

**Introduce disease that may cause the species to decline**

The proposed action is unlikely to introduce disease that could cause the three species of black cockatoos to decline. The only possible disease and parasite vector associated with developing the study area would be the attraction of cats and foxes which are known to favour 'edge effects' created from fragmented habitats. However as the habitat proposed to be cleared is already highly fragmented it is unlikely to increase the presence of foxes and cats. In addition the proposed sporting complex will bring traffic and human interference, which is unlikely to be favourable habitat for foxes and cats.

**Interfere with the recovery of the species**

Given the proposed action will result in significant retention of habitat (>50%) and will include a range of mitigation measures (including revegetation, installation of artificial hollows, extermination of bees in hollows, fauna relocation etc) it is unlikely to interfere with the recovery of the three species of black cockatoos. In addition the proposed action will retain majority of vegetation within a known north-south corridor and there are large areas of intact protected habitat in close proximity to the study area (Figure 5).

**RAINBOW BEE-EATER**

**Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for migratory species**

Given the Rainbow Bee-eater is common and widespread and occurs across a variety of habitats throughout the whole of Australia, it is considered the proposed clearing of 2.48 ha of predominantly fragmented, parkland cleared vegetation will not modify, destroy or isolate an area of important habitat for the species. Majority of the suitable habitat to support the Rainbow Bee-eater, the Tuart/Jarrah Woodland in the north-western portion of the study area will be retained as part of the development. Rainbow Bee-eaters are often located in close proximity to permanent water (DotEE 2018). The generic 50 m wetland buffer that encroaches the study area will be retained and revegetated as part of the development which will improve habitat for Rainbow Bee-eaters. As can be seen in Figure 5, there are extensive areas of intact vegetation, including wetland habitats and DBCA managed lands (including Rockingham Lakes Regional Park) surrounding the study area that provide important connected habitat for Rainbow Bee-eaters.

**Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species**

The DotEE Species Profile and Threats (SPRAT) Database states that the only actual identified threat to the Rainbow Bee-eater is the Cane Toad (*Bufo marinus*). Cane Toads reduce the breeding success and productivity of the Rainbow Bee-eater by feeding on eggs and nestlings, and take over their nesting burrows (DotEE 2018). The proposed action is highly unlikely to introduce or spread invasive species that are harmful to Rainbow Bee-eaters as there are no Cane Toads in proximity to the study area. The closest known location of cane toads are on the

very north-eastern parts of Western Australia (Department of the Environment, Water, Heritage and the Arts, 2010).

**Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species**

The Fauna Survey undertaken by GHD in October 2017 did not find any evidence of Rainbow Bee-eaters on-site. It is likely if Rainbow Bee-eaters were present in the study area they would have been detected during the fauna survey as they are readily detectable and described as noisy and conspicuous (DotEE 2018). The site is therefore not considered to contain an ecologically significant population of Rainbow Bee-eaters. Fauna relocation will be undertaken prior to clearing, which will including searching for any Rainbow Bee-eater nests that may be present in open areas if clearing is undertaken between August and January, when the species is known to breed in Australia (DotEE 2018).

# Section 6 – Environmental record of the person proposing to take the action

Provide details of any proceedings under Commonwealth, State or Territory law against the person proposing to take the action that pertain to the protection of the environment or the conservation and sustainable use of natural resources.

**6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Please explain in further detail.**

Yes. The City of Rockingham has a team of Environmental Planning Officers dedicated to ensuring the City takes all measures possible to protect the marine and terrestrial environment. The City expects a high standard of environmental management from proponents undertaking developments within the City and therefore aims to deliver environmentally responsible developments for its own projects.

**6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application.**

N/A

**6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?**

Yes

**6.3.1 If the person taking the action is a corporation, please provide details of the corporation's environmental policy and planning framework.**

The City does not have an environmental policy for implementation of developments, however the City expects all developments to maximise environmental outcomes, including the retention of vegetation through appropriate design and protection measures during site works.

**6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?**

Yes

**6.4.1 EPBC Act No and/or Name of Proposal.**

EPBC Ref: 2011/5864 - Mundijong Road Ext Realignment Project, Baldivis, WA

EPBC Ref: 2011/5971- Mundijong Road Extension, Rockingham

EPBC Ref: 2013/6977- Lake Richmond Boardwalk installation, Rockingham

# Section 7 – Information sources

You are required to provide the references used in preparing the referral including the reliability of the source.

**7.1 List references used in preparing the referral (please provide the reference source reliability and any uncertainties of source).**

| Reference Source | Reliability | Uncertainties |
|---|---|---|
| City of Rockingham (CoR) 2018, Municipal Heritage Inventory Review, retrieved September 2018 from: http://rockingham.wa.gov.au/getmedia/e5f0777b-e663-4363-8559-5bdc3bcf3fbf/PD_Municipal_Heritage_Inventory_September-2012.pdf.aspx | Reliable- City document | N/A |
| Department of Biodiversity, Conservation and Attractions (DBCA) 2018b, Geomorphic Wetlands of the Swan Coastal Plain Dataset. Government of Western Australia. | Reliable State Government dataset | N/A |
| Department of the Environment, Water, Heritage and the Arts 2010, The cane toad (Bufo marinus), retrieved September 2018 from: http://www.environment.gov.au/biodiversity/invasive-species/publications/factsheet-cane-toad-bufo-marinus | Reliable DotEE current source | N/A |
| Department of the Environment and Energy (DotEE) 2018, Species Profile and Threats (SPRAT), retrieved September 2018 from: Databasehttp://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl | Reliable DotEE current source | N/A |
| Department of Water and Environmental Regulation (DWER) 2018a, Perth Groundwater Map, retrieved August 2018 from: https://maps.water.wa.gov.au/#/webmap/gwm. | Reliable State Government dataset | N/A |

| Reference Source | Reliability | Uncertainties |
|---|---|---|
| Department of the Environment and Energy (DotEE) 2017, Revised draft referral guideline for the three threatened black cockatoo species. Commonwealth of Australia. | Reliable DotEE current source | N/A |
| Department of Sustainability, Environment, Water, Populations, and Communities [DSEWPaC] 2012, Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) referral guidelines for three threatened black cockatoo species. Commonwealth of Australia. | Reliable DotEE current source | N/A |
| Department of Primary Industries and Regional Development (DPIRD) 2016, Soil Subsystems GIS Dataset. Government of Western Australia. | Reliable State Government dataset | N/A |
| GHD 2018b, Proposed Baldivis District Sporting Complex: Fauna Assessment. Prepared January 2018 for the City of Rockingham. | Reputable environmental consultancy with qualified Biologist | N/A |
| GHD 2018b, Proposed Baldivis District Sporting Complex: Flora and Vegetation Assessment. Prepared January 2018 for the City of Rockingham. | Reputable environmental consultancy with qualified Biologist. Survey undertaken during spring, the correct timing for flora and vegetation surveys. | N/A |
| Glossop B, Clarke K, Mitchell D, and Barrett G, 2011, Methods for mapping of Carnaby's Cockatoo Habitat, Government of Western Australia. | Reliable State Government source | N/A |
| Heritage Council of Western Australia (HCWA) 2018, State Heritage Register, retrieved September 2018 from: https://maps.water.wa.gov.au/#/webmap/gwm.http://inherit.stateheritage.wa.gov.au/public | Reliable State Government source | N/A |
| Eco Logical Australia 2017, Natural Areas Technical | Mostly reliable. | There were a few errors in the mapping and calculations that |

| Reference Source | Reliability | Uncertainties |
| --- | --- | --- |
| Assessment. Prepared for City of Rockingham. | | was refined by the City of Rockingham |

# Section 8 – Proposed alternatives

You are required to complete this section if you have any feasible alternatives to taking the proposed action (including not taking the action) that were considered but not proposed.

**8.0 Provide a description of the feasible alternative?**

No alternative proposed.

**8.1 Select the relevant alternatives related to your proposed action.**

**8.27 Do you have another alternative?**

No

# Section 9 – Contacts, signatures and declarations

Where applicable, you must provide the contact details of each of the following entities: Person Proposing the Action; Proposed Designated Proponent and; Person Preparing the Referral. You will also be required to provide signed declarations from each of the identified entities.

**9.0 Is the person proposing to take the action an Organisation or an Individual?**

Organisation

**9.2 Organisation**

**9.2.1 Job Title**

Chief Executive Officer

**9.2.2 First Name**

Michael

**9.2.3 Last Name**

Parker

**9.2.4 E-mail**

michael.parker@rockingham.wa.gov.au

**9.2.5 Postal Address**

PO Box 2142
Rockingham DC WA 6967
Australia

**9.2.6 ABN/ACN**

ABN

63101842180 - CITY OF ROCKINGHAM

**9.2.7 Organisation Telephone**

(08) 9528 0333

**9.2.8 Organisation E-mail**

customer@rockingham.wa.gov.au

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

Not applicable

**Small Business Declaration**

I have read the Department of the Environment and Energy's guidance in the online form concerning the definition of a small a business entity and confirm that I qualify for a small business exemption.

Signature:..... Date: .....

**9.2.9.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations**

No

**9.2.9.3 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**

**Person proposing the action - Declaration**

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

Signature:..... Date: 23/10/2018.....

I, Michael Parker, the person proposing the action, consent to the designation of the City of Rockingham as the proponent of the purposes of the action describe in this EPBC Act Referral.

Signature:..... Date: 23/10/2018.

**9.3 Is the Proposed Designated Proponent an Organisation or Individual?**

Organisation

**9.5 Organisation**

**9.5.1 Job Title**

Chief Executive Officer

**9.5.2 First Name**

Michael

**9.5.3 Last Name**

Parker

**9.5.4 E-mail**

michael.parker@rockingham.wa.gov.au

**9.5.5 Postal Address**

PO Box 2142
Rockingham DC WA 6967
Australia

**9.5.6 ABN/ACN**

ABN

63101842180 - CITY OF ROCKINGHAM

**9.5.7 Organisation Telephone**

(08) 9528 0333

**9.5.8 Organisation E-mail**

customer@rockingham.wa.gov.au

**Proposed designated proponent - Declaration**

I, Michael Parker, the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature: ..... Date: 23.10.2018.

**9.6 Is the Referring Party an Organisation or Individual?**

Organisation

**9.8 Organisation**

**9.8.1 Job Title**

Environmental Planning Officer

**9.8.2 First Name**

Rachel

**9.8.3 Last Name**

Halton

**9.8.4 E-mail**

rachel.halton@rockingham.wa.gov.au

**9.8.5 Postal Address**

PO Box 2142
Rockingham DC WA 6967
Australia

**9.8.6 ABN/ACN**

ABN

63101842180 - CITY OF ROCKINGHAM

**9.8.7 Organisation Telephone**

(08) 9528 0381

**9.8.8 Organisation E-mail**

customer@rockingham.wa.gov.au

**Referring Party - Declaration**

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

Signature: RHalton Date: 22/10/2018

## Appendix A - Attachments

The following attachments have been supplied with this EPBC Act Referral:

1. Figure 1. Site Location.pdf
2. Figure 2. Proposed Development and Clearing Footprint.pdf
3. Figure 3. Potential Black Cockatoo Habitat.pdf
4. Figure 4. Vegetation Types and Condition.pdf
5. Figure 5. Surrounding Conservation Areas.pdf
6. Potential Black Cockatoo Breeding Trees to be Cleared vs Retained.zip
7. Potential Black Cockatoo Foraging Habitat to be Retained vs Cleared.zip
8. Trees less than 500 mm DBH to be Cleared vs Retained.zip
9. appendix_a-_bdsc_final_master_plan_reduced.pdf
10. appendix_b-_photos_of_the_study_area_reduced.pdf
11. appendix_c-_bdsc_earthworks_plan_reduced.pdf
12. appendix_d-_bdsc_correspondence_from_wapc_reduced.pdf
13. appendix_e-_bdsc_fauna_assessment_reduced.pdf
14. appendix_f_-bdsc_flora_and_vegetation_assessment_reduced.pdf
15. appendix_g-_bdsc_pmst.pdf
16. appendix_h-_bdsc_groundwater_pumping_assessment_report_reduced.pdf
17. bdsc_study_area.zip