Australian Government
Department of the Environment and Energy

Title of Proposal - Hammond West Urban Development

Section 1 - Summary of your proposed action

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

1.1 Project Industry Type

Residential Development

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

QUBE Spare Company No.21 Pty Ltd and QUBE Wattleup Development Pty Ltd propose to develop Lots 71, 74, 75, 303, 304 and 305 Wattleup Road, Hammond Park (the site, see Figure 1) for residential purposes (the Proposed Action). The Proposed Action will involve urban development of the site for residential use in accordance with the current Metropolitan Region Scheme (MRS) “Urban” zoning and the City of Cockburn (CoC) Town Planning Scheme (TPS) No. 3 “Development” zoning.

The CoC TPS No. 3 outlines that all proposed developments within areas zoned “Development” are required to be in accordance with a comprehensive structure plan, that must be lodged and approved by the CoC prior to subdivision occurring. A Structure Plan (SP) has been prepared for the site by Roberts Day. The SP has now been approved by the CoC and has been referred to the WAPC for final endorsement.
The spatial extent and nature of the development and future land uses within the site will be guided by the SP (subject to approval and endorsement from local and state agencies). The SP has been based on the outcomes of a comprehensive multi-disciplinary planning and design process (including town planning, urban design, environmental, civil engineering and traffic management), which included a number of detailed technical investigations and assessments. The SP area covers a total land area of approximately 15.7 ha and the proposed land uses include:

- Residential lots
- Road reserves
- Public Open Space (POS).

The SP design is in accordance with the CoC’s Southern Suburbs District Structure Plan (SSDSP) Stage 3, which outlines the planned urban land use for the site and local area. The SSDSP Stage 3 was initially prepared by the CoC in 2005 and later updated in 2012, and more recently in 2015.

A large portion of the site has historically been cleared to support agricultural land uses, and is currently occupied by a market garden in the western portion of the site, a storage yard in the central portion of the site, and remnant vegetation in the eastern portion of the site. Historical aerials (1955-2016) indicate that Lots 71, 304 and 305 were completely cleared between 1979

and 1981 for use as market gardens, and these areas have been maintained in a cleared state since this time. Clearing also extended into the western portion of Lot 74 resulting in degradation of the remnant vegetation within this lot. The historical aerials also indicate that since 1955 the eastern portion of Lot 74 and the entirety of Lot 75 have never been cleared and contain intact remnant vegetation.

In order to support the proposed urban development of the site for residential purposes, approximately 5.7 hectares (ha) of remnant Banksia woodland vegetation within the site (proposed action area) will be cleared and ground levels altered in order to achieve the required conditions for the provision of services (i.e. sewer connection) to future lots.

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
Lot 71, 74, 75, 303, 304, 305 Wattleup Road, Hammond Park	1	-32.173489227722	115.82942510082
Lot 71, 74, 75, 303, 304, 305 Wattleup Road, Hammond Park	2	-32.173489227722	115.82942510082
Lot 71, 74, 75, 303, 304, 305 Wattleup Road, Hammond Park	3	-32.173489227722	115.83346987201
Lot 71, 74, 75, 303, 304, 305 Wattleup Road, Hammond Park	4	-32.177212489577	115.83350205852
Lot 71, 74, 75, 303, 304, 305 Wattleup Road, Hammond Park	5	-32.177194327693	115.82946801616
Lot 71, 74, 75, 303, 304, 305 Wattleup Road, Hammond Park	6	-32.173489227722	115.82942510082

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 site is located approximately 24 kilometres (km) south of the Perth Central Business District and approximately 2 km west of the Kwinana Freeway. The site is approximately 15.7 ha in size and forms part of the CoC's SSDSP. The site is bound by Wattleup Road to the south, Harry Waring Marsupial Reserve to the north (also known as Bush Forever (BF) site No. 392),

"Urban" zoned land to the east and "Rural" zoned land to the west.

A large portion of the site has historically been cleared to support agricultural land uses, specifically market gardening. The western-most lot is currently occupied by a market garden, the central portion of the site is currently occupied by a storage yard, and remnant vegetation occurs across the eastern portion of the site. Historical aerials (1955-2016) indicate that Lots 71, 304 and 305 were completely cleared between 1979 and 1981 for use as market gardens. Clearing also extended into the western portion of Lot 74 resulting in degradation of the remnant vegetation within this lot. The historical aerials also indicate that since 1955 the eastern portion of Lot 74 and the entirety of Lot 75 have never been cleared and contain intact remnant vegetation.

Vegetation condition within the site ranges from 'Completely Degraded' to 'Excellent' condition, based on the Keighery (1994) vegetation condition scale. The 5.7 ha area of remnant vegetation represents a single community which aligns closely with floristic community type (FCT) 28 which is characterised as 'Spearwood B*anksia attenuata* or *Banksia attenuata* – Eucalyptus woodlands'. Approximately 3.72 ha of this community was assessed as being in an 'Excellent' condition , 0.41 ha 'Very Good' and 1.11 ha 'Good'.

FCT 28 is associated with the 'Banksia Woodlands of the Swan Coastal Plain' threatened ecological community (TEC) which has recently been listed as endangered under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). This FCT is also associated with the state listed Priority 3 Priority Ecological Community (PEC) 'Banksia dominated woodlands of the Swan Coastal Plain IBRA region'.

FCT 28 is considered well reserved (i.e. occurs in two widely separated National Parks and/or Nature Reserves) and at low risk (i.e. community is not destroyed/ extensively modified/in danger of modification/destruction) (Gibson et al. (1994)), and is represented within BF site 392 'Harry Waring Marsupial Reserve' immediately north of the site.

1.6 What is the size of the development footprint or work area?

15.7 hectares

1.7 Is the proposed action a street address or lot?

Lot

1.7.2 Describe the lot number and title. Lots 71, 74, 75, 303, 304 and 305 Wattleup Road, Hammond Park,

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?

Yes

1.10.1 Is there a local government area and council contact for the proposal?

Yes

1.10.1.0 Council contact officer details

1.10.1.1 Name of relevant council contact officer.

Rachel Pleasant- Senior Strategic Planner- Strategic Planning Services

1.10.1.2 E-mail

rpleasant@cockburn.wa.gov.au

1.10.1.3 Telephone Number

08 9411 3448

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

Start date 07/2017

End date 12/2027

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

The Proposed Action has been informed and guided by strategic planning which has shaped the land uses within the wider region, including the zoning of the site. The site was historically zoned “Urban Deferred” as part of major MRS Amendment No. 938/33 in December 1994, which involved the rezoning of the greater south-west corridor, a large coastal area between Fremantle in the north and Mandurah in the south.

Since then the SSDSP Stage 3 was approved by the CoC in February 2005 (updated in 2012, and more recently in 2015), which identified the site for future urban growth. In 2008 the “Urban Deferred” zoning was lifted (MRS Amendment 1165/27) over the Hammond Park area to allow for urban development in accordance with the SSDSP Stage 3. This rezoning resulted in the site’s current zoning of “Urban” and “Development” under the MRS and TPS No. 3 respectively.

Proposed developments within the spatial extent of the SSDSP Stage 3 are required to prepare a SP in accordance with the guidelines and objectives of the SSDSP Stage 3. Furthermore, all proposed developments within the "Development" zone as defined by the TPS No. 3 are required to be in accordance with an approved SP.

The SP has now been approved by the CoC and has been referred to the WAPC for final endorsement. The future planning process will include the preparation and submission of subdivision and/or development approval applications. It is usual for this process to involve the imposition of subdivision conditions, in accordance with the Western Australian planning Commission's (WAPCs) Model Subdivision Conditions Schedule 2016. Generally these conditions include considerations such as flora and fauna.

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

MRS and Local Planning Scheme amendment processes, in this case involving the change of land use zoning within the site to "Urban Deferred" (MRS amendment 938/33) then subsequently to "Urban" (MRS amendment 1165/27) are public processes that involve the advertising of the proposed land use change and the opportunity for any member of the public to provide a submission.

Furthermore, the preparation of the SSDSP Stage 3 by the CoC in 2005 involved a five week public comment period, allowing the local community to provide comment on the structure plan and the long-term planning future for the area. Following this process, the SSDSP Stage 3 was adopted in 2005 and updated in 2012 and 2015.

A similar process of public consultation has occurred following the submission of the proposed SP to the CoC, in which the SP and supporting documents have been advertised and made available for public review, allowing the community to provide comment on the SP. This has provided the public an opportunity to provide direct comment on the design and layout of the SP and subsequently the Proposed Action.

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.

Under Section 48 of the *Environmental Protection Act 1986* (EP Act), all proposed amendments to regional and local planning schemes are referred to the Environmental Protection Authority (EPA) for consideration and a decision is made whether to formally assess a proposed amendment. However, this Section of the EP Act was only included into the EP Act in 1996 and any proposed scheme amendments prior to this time were likely referred to the EPA as a "proposal" under Section 38 of the EP Act.

The site was rezoned from 'Rural' to 'Urban Deferred' in December 1994 as part of major MRS Amendment 938/33 – *South West Corridor Stage A*. This proposal involved the rezoning

of the greater south-west corridor and was referred to the EPA in September 1993. The EPA split the proposal and assessed certain high-risk components (mainly relating to major transport corridors, significant wetlands and “Industrial” zones) at a “Public Environmental Review” level. The remainder of land use changes proposed by the MRS Amendment, which included the site, were addressed at the level of “informal review with public advice”. The EPA released a report outlining their findings and recommendations on all components of the proposal in EPA Bulletin 746 (EPA 1994).

While the Proposed Action has not been formally assessed under commonwealth or state legislation, informal public advice has been provided by the EPA, outlining their views on the relevant environmental considerations and/or requirements. Informal advice provided for the most recent amendment referred to the EPA (938/33, December 1994) identified the following environmental issues raised by the proposed amendment:

- System Six areas and wetlands

- Jandakot Botanic Park

- Other vegetation

- Groundwater management

- Water quality and water balance

- Buffers

The EPA’s advice stated that the potential environmental impacts of the rezoning to “Urban Deferred” could be adequately managed through the planning process and were not considered to be fatal constraints to the proposed amendment, although it was expected that these environmental factors would be “adequately managed”.

In addition, the EPA previously considered this area through the CoC TPS 3 Amendment 28 introducing two new Development Contribution Areas and Development Areas to the Hammond Park/Wattleup area. The EPA advised that it was not necessary to formally assess Amendment 28 pursuant to the *Environmental Protection Act 1986*.

All of the environmental issues raised in the EPA’s MRS amendment advice with the exception of ‘other vegetation’ and ‘water quality and water balance’ are not relevant to the site and are not related to the Proposed Action, as discussed throughout this referral. EPA advice on ‘other vegetation’ outlines that the decisions on the use of bushland areas outside conservation areas (such as remnant vegetation within the site) should be made through the planning process, both at a state and local level.

The removal of remnant vegetation within the site will be assessed and reviewed at a local and state level before being granted final approval from the WAPC. The SP was designed to align with the SSDSP Stage 3, which considers areas for conservation, such as Regional Open Space and wetlands within its defined spatial extent. Specifically, the SSDSP Stage 3 does not

identify any conservation areas (through Regional or Public Open Space) within the site.

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 impact on the values of any World Heritage properties?

No

2.2 Is the proposed action likely to impact on the values of any National Heritage places?

No

2.3 Is the proposed action likely to impact on the ecological character of a Ramsar wetland?

No

2.4 Is the proposed action likely to impact on the members of any listed threatened species (except a conservation dependent species) or any threatened ecological community, or their habitat?

Yes

2.4.1 Impact table

Species	Impact
Calyptorhynchus latirostris (Carnaby`s Black-	The proposed development will necessitate the

Species	Impact
Cockatoo)	removal of 5.7 ha of Banksia foraging habitat, which was assessed as comprising 3.72 ha 'Excellent', 0.41 ha 'Very Good' and 1.11 ha 'Good' condition (in accordance with the Keighery scale). The proposed development will also necessitate the removal of 15 trees >500 mm diameter at breast height (DBH). Eight of these trees had hollows, none of which were of a size which is considered suitable for black cockatoo nesting (Harewood 2016). No known roosting/breeding habitat or activities occur within the site. CBC is a mobile species and will be able to move through the landscape and access feed trees around the around the site. There is not expected to be any fragmentation of habitat, however the proposed action will result in the permanent clearing of potential foraging habitat. Similar suitable habitat is available around the proposed development area. Approximately 8,476 ha of potential CBC foraging habitat occurs within 10 km of the site, with approximately 4,238 ha (50%) of this protected within conservation reserves such as Bush Forever, Parks and Recreation reserves and/or DPaW managed lands. The clearing of 5.7 ha of CBC foraging habitat associated with the Proposed Action equates to approximately 0.07% of the potential habitat within 10km of the site, therefore the potential impact on the CBC is not considered significant.
Forest Red-tailed black cockatoo (Calyptorhynchus banksii naso)	The Proposed Action will necessitate the removal of vegetation within the site which contains 'small areas of Jarrah and Sheoak' (Harewood 2016) which are suitable species for Forest Red-tailed black cockatoo foraging and provide potential foraging value. The proposed development will also necessitate the removal of 15 trees >500 mm diameter at breast height (DBH). Eight of these trees had hollows, none of which were of a size which is considered suitable for black cockatoo nesting (Harewood 2016). No evidence of Jarrah or Sheoak onsite being utilised as a food source was seen which would suggest the FRT black cockatoo is an infrequent visitor to the site at best (Harewood

Species	Impact
	2016). Therefore the impact of the Proposed Action on FRT is not considered significant. Similar suitable habitat is available around the proposed development area. FRT is a mobile species and will be able to move through the landscape and access feed trees around the site.
Banksia Woodlands of the Swan Coastal Plain TEC	The proposed development will necessitate the removal of 5.7 ha of the Banksia Woodlands of the Swan Coastal Plain TEC. The areas consistent with this TEC identified within the site were assessed as comprising 3.72 ha 'Excellent', 0.41 ha 'Very Good' and 1.11 ha 'Good' condition (in accordance with the Keighery scale) which meets the DoEE diagnostic criteria for patch size. This vegetation is separated by less than 30 m from Banksia woodland to the north and east of the site, and therefore is considered part of a larger contiguous patch which includes vegetation within BF site 392 'Harry Waring Marsupial Reserve' (BF Site 392) immediately north of the site (separated by approximately 13 m of mineral earth firebreak, as shown in Figure 2), which support approximately 270 ha of Banksia Woodland vegetation known to include FCT 28 and likely to be representative of the listed TEC. The clearing of the site associated with the Proposed Action will not result in any fragmentation of vegetation values (as all vegetation is proposed to be cleared due to earthwork requirements associated with residential development), given the large areas of similar vegetation retained within conservation reserves in the surrounding area . Based on data taken from DoEE (2016) in relation to the spatial extent of Banksia Woodland remaining on the Swan Coastal Plain, approximately 1,560 ha of the Banksia TEC occurs within 5 km of the site, with over 670 ha of this provided a level of protection through land use zoning ('Reserves', DPaW management and Bush Forever classification. Therefore the clearing of the TEC associated within the proposed action equates to only 0.4% of the TECs potential extent within the local

Species	Impact
	area (within 5 km of the site). The clearing of the site associated within the Proposed Action therefore equates to only 0.37% of the Banksia Woodland vegetation extent within 5 km of the site which is likely to represent the Banksia Woodlands of the Swan Coastal Plain TEC. Vegetation within the site is representative of floristic community type (FCT) 28 which is characterised as 'Spearwood Banksia attenuata or Banksia attenuata – Eucalyptus woodlands', and is associated with the listed TEC. FCT 28 is considered well reserved (i.e. occurs in two widely separated National Parks and/or Nature Reserves) and at low risk (i.e. community is not destroyed/ extensively modified/in danger of modification/destruction) (Gibson et al. (1994)). FCT 28 is associated with the state listed Priority 3 Priority Ecological Community (PEC) 'Banksia dominated woodlands of the Swan Coastal Plain IBRA region'. FCT 28 is known from 80 point locations over a range of about 150 km from Red Gully to Wellard, and the following number of vegetation quadrats representing FCT 28 were recorded by Gibson et al. (1994): 7 in nature reserves, 7 in National Parks, 10 in state forests, 5 in local government reserves, 7 in Crown land, 2 in vested Crown land. The approved Conservation Advice for the Banksia Woodland TEC (DoEE 2016) states that FCT 28 has a medium-high Average Species Richness (ASR) of 55.1 species per 100 m2 (spp/100m2). Based on a Spring flora and vegetation survey (Emerge Associates 2016) vegetation within the site has an estimated average species richness of 39 spp/100m2, which is less than (approximately 71%) the ASR listed in the Approved Conservation Advice (DoEE 2016).

2.4.2 Do you consider this impact to be significant?

No

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

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 likely to impact on any part of the environment in the Commonwealth land?

No

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

No

2.9 Will there be any 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 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 Spring Flora and Vegetation Survey was undertaken for the site as well as Lot 76 Wattleup Road by Emerge Associates (2016) to support the SP. Two botanists from Emerge visited the SP area on 8 September 2016 to conduct the flora and vegetation assessment.

The survey identified a total of 88 native and 19 non-native (weed) species within the surveyed area (covering the site and Lot 76 Wattleup Road), representing 37 families and 83 genera. The dominant families containing native taxa were Fabaceae (14 native taxa and one weed taxa), Asteraceae (five native taxa and five weed taxa) and Asparagaceae (seven native taxa). The most common genus was Acacia with five taxa.

No threatened or priority flora species were recorded within the survey area. No species listed as a declared pest pursuant to the BAM Act were recorded within the site.

Fauna

A fauna survey for the site was undertaken by Greg Harewood on 27 September 2016. This survey included Lot 76 Wattleup road, which is external to the site and area of the Proposed Action.

Two broad fauna habitats were identified within the site as part of the Fauna Assessment (Harewood 2016), these include:

- Low woodland of occasional Eucalyptus marginata trees over scattered Allocasuarina fraseriana over Banksia attenuata and Banksia menziesii over open shrubland of Jacksonia sternbergiana, Macrozamia riedlei and Xanthorrhoea preissii over low shrubland of Hibbertia hypericoides, Acacia pulchella and open sedgeland of Mesomelaena pseudostygia and occasional introduced pasture weeds on sand (approximately 5.7 ha within the Proposed Action area), and

- Heavily disturbed areas comprising buildings, roads, market gardens, scattered native shrubs over closed grassland of scattered introduced pasture weeds and planted vegetation on sand (approximately 10 ha).

The fauna survey identified that 110 native animals have previously been recorded in the general area (based on database searches). Of the 110 native animals that are listed as potentially occurring in the area, three are considered to be endangered/vulnerable or in need of special protection under State and/or Federal law, these being two species of black cockatoo (Carnaby's and the forest red-tailed black-cockatoo) and the peregrine falcon.

A total of eight native fauna species were observed or positively identified from evidence within the study area during the one day survey period including the following evidence of conservation significant fauna:

- Chewed banksia cones attributed to Carnaby's black cockatoo (Threatened); and

- Diggings attributed to the southern brown bandicoot (DPaW Priority 4) found at several locations.

Based on those species identified within database results as potentially occurring in the area and the habitat within the site, four additional conservation significant species were determined to potentially use the site, which are:

- Perth lined lerista (*Lerista lineata*) (DPaW Priority 3),

- Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) (listed as Vulnerable under EPBC Act and Wildlife Conservation Act 1950 (WC Act)),

- Peregrine falcon (*Falco peregrinus)* (list under Schedule 7 WC Act) and

- Rainbow bee-eater (*Merops ornatus*) (listed as Marine under EPBC Act and listed under Schedule 5 WC Act).

A black cockatoo habitat tree assessment identified 26 trees with a DBH of >500mm within the site. Thirteen trees appeared not to contain hollows of any size. Thirteen trees appear to contained small hollows or possible small hollows, however none of these hollows were considered to be a suitable size for black cockatoos to use for nesting purposes (Harewood 2016). In addition, the possibility of these trees being used for breeding purposes now and in the future is considered extremely low (Harewood 2016). None of these trees are able to be retained due to the considerable earthworks required to facilitate development.

Approximately 5.7 ha of black cockatoo foraging habitat was identified within the site mostly consisting of *Banksia attenuata* and *Banksia menziesii* and to a much lesser extent *Eucalyptus marginate*(Jarrah) and *Allocasuarina fraseriana* (Sheoak). The vegetation within the site provides favourable foraging habitat (1.11 ha in 'Good' condition, 0.41 ha 'Very Good' and 3.72 ha 'Excellent') for Carnaby's Black cockatoos. The forest red-tailed black cockatoo does not utilise Banksia sp. as a food source but often feeds on Jarrah and in some circumstances Sheoak and therefore may use small areas of the site for foraging.

No existing roosting trees (trees used at night by black cockatoos to rest) were positively identified during the survey and given the limited number of larger trees present at the site,

black cockatoos are considered very unlikely to use the study area for this purpose.

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

Emerge Associates have prepared a Local Water Management Strategy (LWMS) to support the Structure Plan over the site, and includes consideration of the below hydrological attributes. The LWMS has been prepared in accordance with the Better Urban Water Management framework (WAPC 2008) and is currently under the consideration of the CoC and the Department of Water.

Groundwater

Site specific groundwater level monitoring has been carried out in four bores across the site between September and November 2016 with two more months monitoring still to be carried out to ensure the winter peak is recorded. Groundwater levels for the site have been referenced to a DoW monitoring bore located east of the site which has also been monitored over this period and has a long term historical record. Referenced MGL across the site ranges from 13.37 m AHD in the west to 13.57 m AHD in the east. Depth to groundwater therefore ranges between 3.63 m and 16.43 m.

Based on the groundwater monitoring results, groundwater is expected to flow in an east to west direction.

Surface Water

No surface water features occur within the site and any surface water generated from rainfall drains freely due to the underlying highly permeable sands. The site is of significant distance (approximately 40km) from the Peel-Yalgorup System and does not fall within the Peel-Harvey Catchment (as defined by Environmental Protection Peel Inlet – Harvey Estuary Policy (EPA 1992)). Therefore there is no connectivity between the site and the Peel-Harvey Catchment, which is not expected to change following implementation of the Proposed Action.

Wetlands

The site does not contain any wetland features, as confirmed by Geomorphic Wetlands of the Swan Coastal Plain mapping provided by DPaW (2014). A conservation category wetland (CCW) (UFI #6612) and a multiple use wetland (MUW) (UFI #6609) are situated approximately 400 m to the west of the site. The site is also situated approximately 1.6 km south of an internationally important (RAMSAR) wetland, Thomsons Lake, which is also a CCW.

In addition to the considerable separation distance, any potential impacts to these wetlands are required to be managed in accordance with the measures outlined within the LWMS and future

Urban Water Management Plan. These documents outline how the development proposes to maintain pre-development hydrological conditions including management of groundwater and surface water quality and flows, and are required as part of the planning approval process. Therefore the Proposed Action will not impact upon any wetlands.

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

Soil

The site is located in the central part of the Swan Coastal Plain, which forms the central portion of the Perth Basin. The Perth Basin extends from the Darling Fault in the east to the continental slope west of Rottnest Island, and from the Murchison River in the north to the Southern Ocean in the south. The Perth Basin is sedimentary in origin and is marginal to the west of the Australian Shield (Seddon 2004).

The Swan Coastal Plain is composed of two wide belts of sediment that differ in origin, with one formed from alluvial deposits (water-laid) and the other formed from aeolian origins (wind-laid). It is approximately 20 to 30 kilometres wide, consisting of a series of geomorphic entities that run parallel to the coastline with the alluvial deposits in the east and the aeolian deposits in the west. The youngest and western most geomorphic entity of aeolian origin is the Quindalup Dunes, followed by the Spearwood Dunes and the Bassendean Dunes (Beard 1990, Seddon 2004). The Pinjarra Plain follows the Bassendean Dunes and is alluvial in origin, which then joins the Ridge Hill Shelf at the eastern most edge of the Swan Coastal Plain. The site is located within the Bassendean Dune System, which is described as low relief, leached grey, siliceous Pleistocene sand dunes with well drained grey sands intervening sandy and clayey swamps and gently undulating plains.

Landform and soil mapping undertaken by Churchward and McArthur (1980) indicates that the site is within the Bassendean soil association, described as sand plains with low dunes and occasional swamps; iron or humus podzols; areas of complex steep dunes.

The Perth Metropolitan Region 1: 50,000 Environmental Geology Series, Perth (Fremantle Part Sheets 2033 I and 2033 IV) (Gozzard 1986) shows the site is comprised mostly of ‘Sand’ (S7), with a band of ‘peaty clay’ (Cps) occurring north to south through the centre of the site.

Vegetation

Vegetation complex mapping undertaken by Heddle et al. (1980) which uses a combination of landform, soil and rainfall parameters, indicates the site is within the Bassendean Complex – Central and South. This complex is described as vegetation which ranges from “woodland of *Eucalyptus marginata – A. fraseriana – Banksia* spp. to low woodland of *Melaleuca* spp. and sedgelands on the moister sites. This area includes the transition of *E. marginata* to *E. todtiana* in the vicinity of Perth”. In 2013, there was 22.7% of the pre-European extent of this vegetation complex remaining on the Swan Coastal Plain (LBP 2013).

A formal flora and vegetation survey was conducted by Emerge Associates for the SP area (which also included Lot 76, external to the SP area) in September 2016 which identified:

- non-native vegetation and cleared areas present across much of the site including the entirety of lots 71, 305 and 304.

- Remnant native vegetation present across 5.7 ha of the site within Lots 74 and 75 (see **Figure 2**) and is representative of a single plant community (BaBm) described as: 'Low woodland of occasional *Eucalyptus marginata* trees over scattered *Allocasuarina fraseriana* over *Banksia attenuata* and *Banksia menziesii* over open shrubland of *Jacksonia sternbergiana*, *Macrozamia riedlei* and *Xanthorrhoea preissii* over low shrubland of *Hibbertia hypericoides*, *Acacia pulchella* and open sedgeland of *Mesomelaena pseudostygia* and occasional introduced pasture weeds'.

- The BaBm vegetation aligns closely FCT '28 -Spearwood *Banksia attenuata* or *Banksia attenuata* – Eucalyptus woodlands'. Based on the relevant criteria, the remnant native vegetation represents the 'Banksia Woodlands of the Swan Coastal Plain' TEC, which was recently listed under the EPBC Act. FCT 28 is known from 80 point locations over a range of about 150 km from Red Gully to Wellard, and the following number of vegetation quadrats representing FCT 28 were recorded by Gibson et al. (1994): 7 in nature reserves, 7 in National Parks, 10 in state forests, 5 in local government reserves, 7 in Crown land, 2 in vested Crown land. A number of these areas are reserved for conservation and protected in perpetuity, including BF site 392. Based on a Spring flora and vegetation survey (Emerge Associates 2016) vegetation within the site has an estimated average species richness of 39 spp/100m2, which is less than (approximately 71%) the ASR listed in the Approved Conservation Advice (DoEE 2016).

- Native vegetation ranges from 'Completely Degraded' to 'Very good' in condition within Lot 74, (see **Figure 3**). In Lot 75 the majority of native vegetation is in 'Excellent' condition. The structure of the native vegetation in Lot 75 is intact, and the native species biodiversity is high and disturbance low. Weed cover is also low in Lot 75 and mostly a result of less aggressive species. Where disturbance exists it is in the form of narrow sand tracks or firebreaks. Cumulatively these tracks comprise a small area and they were not separated out in vegetation condition mapping.

- No threatened or priority flora species were recorded or are considered likely to occur within the site due to lack of suitable habitat.

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

No outstanding environmental features were identified within the site, however several BF sites and conservation reserves are located in the broader area, as shown in Figure 1 (attached).

The Harry Warring Marsupial Reserve is located immediately adjacent to the northern boundary of the site. This 270 ha area of conservation bushland is of regional significance given its flora, vegetation and fauna habitat values and is mapped as a Bush Forever Site 392 (BF 392). BF 392 is the southern-most portion of a group of BF sites (Site Numbers 244, 254, 256, 391 and 392) that extend north-south in the region, covering a total area of approximately 1500 ha, primarily associated with Thomsons Lake (RAMSAR wetland), Kogolup Lake, Yangebup Lake and Bibra Lake. These lakes and surrounding areas collectively form the Beeliar Regional Park which has significant conservation, recreation and landscape values. Each lake has different land tenure agreements, however the majority of the land is owned by either local government, the WAPC or the Conservation Commission of Western Australia.

The Proposed Action will be confined to the site boundary, and will be managed to ensure no impacts to any adjacent areas, including these BF sites and reserves.

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

At a local level, the site is mapped as containing the Bassendean Complex – Central and South complex which is described as “woodland of E. marginata – C. fraseriana – Banksia spp. to low woodland of Melaleuca spp. and sedgelands on the moister sites. This area includes the transition of E. marginata to E. todtiana in the vicinity of Perth” (Heddle et al. 1980).

Prior to European settlement and the extensive land clearing that followed, the Bassendean Complex – Central and South covered 87,393 ha of the Swan Coastal Plain. In 2013, 24,206 ha (27.7%) of this complex was estimated to remain on the Swan Coastal Plain (LBP 2013).

State-wide mapping carried out by John Beard between 1964 and 1981 identified 900 vegetation associations across the state, which were then classified into 50 major vegetation types, five categories of bare and poorly-vegetated ground and 20 vegetation mosaics (combinations of vegetation types). One vegetation association is mapped as occurring within the site which is ‘Spearwood 6’ described as medium woodland; tuart and jarrah (Beard et al. 2013). This vegetation association has 24.04% of its pre-European extent remaining in the Swan Coastal Plain Bioregion with 3.31% protected for conservation purposes (Government of Western Australia 2014).

EPA Guidance Statement No. 10 (Level of Assessment for Proposals Affecting Natural Areas Within the System 6 Region and Swan Coastal Plain Portion of the System 1 Region) outlines the target to conserve at least 10% of the original extent of each vegetation complex across the Swan Coastal Plain (within the Perth Metropolitan Region). Given 27.7% of the Bassendean Complex – Central and South currently remains, and 24.04% of the ‘Spearwood 6’ association remains, the Proposed Action will not result to reducing this figure below 10%. Of the complex’s pre-European extent 7,479 ha (or 8.56%) is under some form of protection (for example, within Department of Parks and Wildlife (DPaW) conservation estate, Bush Forever on DPaW managed lands or Bush Forever in Regional Parks) (LBP 2013).

Vegetation within the site is representative of FCT 28 which is characterised as 'Spearwood Banksia attenuata or Banksia attenuata – Eucalyptus woodlands', and is associated with the 'Banksia Woodlands of the Swan Coastal Plain' threatened ecological community (TEC). FCT 28 is considered well reserved (i.e. occurs in two widely separated National Parks and/or Nature Reserves) and at low risk (i.e. community is not destroyed/ extensively modified/in danger of modification/destruction). The Approved Conservation Advice for the Banksia Woodland TEC (DoEE 2016) states that FCT 28 has a medium-high Average Species Richness (ASR) of 55.1 species per 100 m2 (spp/100m2). Based on a Spring flora and vegetation survey (Emerge Associates 2016) vegetation within the site has an estimated average species richness of 39 spp/100m2, which is less than (approximately 71%) the ASR listed in the Approved Conservation Advice (DoEE 2016).

Approximately 270 ha of similar vegetation is represented within BF Site 392 immediately north of the site, and multiple conservation reserves in the broader area. FCT 28 is known from 80 point locations over a range of about 150 km from Red Gully to Wellard, and the following number of vegetation quadrats representing FCT 28 were recorded by Gibson et al. (1994): seven in nature reserves, seven in National Parks, 10 in state forests, five in local government reserves, seven in Crown land, two in vested Crown land. FCT 28 is also associated with the state listed Priority 3 PEC 'Banksia dominated woodlands of the Swan Coastal Plain IBRA region'. FCT 28 as a standalone community is not a state listed TEC or PEC.

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

Lidar data indicates that the topography of the site is flat to gently undulating in the western portion of the site, ranging from 23 meters Australian Height Datum (m AHD) at the western boundary to 17 m AHD within the central portion of the site, as shown in Figure 4. The eastern portion of the site is gently sloping, with a western aspect ranging from 19 m AHD within the central portion of the site, to 36 m AHD at the eastern boundary.

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

The suburb of Hammond Park and surrounding local area is currently in a general state of transition from historical semi-rural land uses to urban development. The Proposed Action is contributing to this transition in land use. Surrounding land is primarily made up of existing semi-rural land uses, such as market gardening and rural-residential properties. In addition, there are large areas of remnant vegetation in the local area, primarily within the Harry Warring Marsupial Reserve immediately north of the site. It is expected that the local area will continue to transition to urban land uses, in accordance with the SSDSP Stage 3.

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

Not applicable. There are no Commonwealth or any other Heritage Places within the site.

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

Not applicable. There are no registered Aboriginal Heritage Sites within the site.

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

The site is freehold land owned by QUBE Spare Company No.21 Pty Ltd, QUBE Wattleup Development Pty Ltd and private landowners.

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

The site was historically, and is currently utilised for a number of land uses including rural residential dwellings, market gardening and as a storage yard. Market gardening currently occurs in the western portion of the site, with the central portion of the site used as a storage yard as shown in photographs, previously attached. Three rural residences are located in the southern portion of the site, interfacing Wattleup Road.

Surrounding land uses include semi-rural residential (along Wattleup Road), commercial (market gardening along Wattleup Road) and conservation (BF 392 to the north). The local area is currently in a transitional period, with development occurring at various rates in accordance with the SSDSP Stage 3.

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.

As discussed in Section 3.1 (d), limited FRBC habitat occurs within the site and no evidence of foraging by the FRTBC was observed during the fauna survey (Harewood 2016). Given this and the lack of suitable breeding trees, the FRTBC is unlikely to frequently utilise the site and the impact to this species is considered minimal. Therefore measures to avoid or reduce impacts on MNES potentially arising from the Proposed Action will be focused largely on foraging habitat for the CBC species.

Approximately 5.7 ha of Carnaby's Black Cockatoo(CBC)foraging habitat occurs within the site and evidence of CBC foraging onsite was observed during the field assessment in the form of chewed banksia cones.

No trees were assessed at the time of the fauna survey (Harewood 2016) to contain hollows suitable for black cockatoos to use for nesting purposes. In addition, a review of available data showed no known records of black cockatoo's breeding near the study area, the closest documented site being near Karnup/Baldivis approximately 20 km to the south (Johnstone et al. 2011).

Unfortunately, remnant vegetation within the site is unable to be retained due to engineering constraints and the considerable earthworks necessary for the implementation of drainage, water supply, roads and lots, as well as the interface between the site and adjoining development sites.

The development layout aims to avoid or reduce any impacts on the CBC species by incorporating the replanting of known CBC foraging, roosting and nesting species in its design. A number of the tree species proposed to be planted within road reserves and streetscapes will be known CBC and FRT black cockatoo foraging, roosting and breeding habitat species, including (but not limited to):

- *Corymbia Calophylla* (Marri)

- *Eucalyptus gomphocephala* (Tuart)

- *Callistemon viminalis* (Captain Cook Bottlebrush)

- *Hakea laurina* (Pin-cushion Hakea)

- *Agonis flexuosa* (Peppermint Tree)

- *Banksia ashbyi* (Ashby's Banksia)

Furthermore Public Open Space areas will be landscaped with known CBC foraging habitat species, including:

- *Banksia* (sp.)

- *Corymbia* (sp.)

- *Eremophila* (sp.)

- *Eucalyptus* (sp.)

- *Hakea* (sp.)

Some of these species may also be consistent with those naturally occurring within Banksia woodlands of the Swan Coastal Plain.

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.

The implementation of the Proposed Action will require the clearing of all vegetation from the site, therefore the impacts to matters protected by the EPBC Act are restricted to the removal of Banksia Woodland vegetation and the ecological and habitat values this vegetation represents. Based on the results of the flora (Emerge Associates 2016) and fauna surveys (Harewood 2016), two matters of national environmental significance are considered likely to be impacted:

- Banksia woodlands of the Swan Coastal Plain TEC, and

- Carnaby's Black Cockatoo (foraging habitat).

Although 5.7 ha of CBC foraging habitat and Banksia woodlands of the Swan Coastal Plain TEC will be removed as part of the Proposed Action, approximately 270 ha of Banksia woodland (known to be consistent with FCT 28 and likely to represent the TEC) is located adjacent to the site protected within BF site 392. This vegetation is considered to be part of the broader TEC patch contiguous with vegetation within the site and provided CBC foraging habitat. No trees were identified which contained hollows of a suitable size for CBC breeding.

Based on the information above, the removal of 5.7 ha of CBC foraging habitat and Banksia woodlands of the Swan Coastal Plain TEC is not considered to pose a significant threat to the survival of the TEC or CBC.

In order to mitigate the impact associated with the Proposed Action on those matters, the proponent will implement specific design and management measures through the planning process and future detailed landscape design to manage the interface with BF Site 392 (known to support vegetation associated with FCT 28 and likely to be representative of the Banksia Woodland TEC) to the north of the site. This will ensure that there is no change in the values associated with BF Site 392 (considered part of the same Banksia Woodland vegetation patch as the site). The proposed residential development will also implement best practice construction management to ensure that the action will not modify or destroy any portion of BF Site 392.

Landscaping within POS area adjacent to BF Site 392 is proposed to include the use of native, non-invasive species representative of what is currently on site, and where relevant a hard barrier such as a footpath will be incorporated between areas of turf and the BF Site to minimise the likelihood of non-native species becoming established in the reserve.

In addition, the proponent will aim to replenish as much foraging habitat as possible in POS areas and streetscapes. Species such as Marri and Tuart will also provide potential roosting and nesting value in future, however it is considered that larger areas of intact remnant vegetation within the local area would provide preferential habitat for these purposes.

Some of these species utilised in landscaping may also be consistent with those naturally occurring within Banksia woodlands of the Swan Coastal Plain, however the development does not proposed to replicate/ rehabilitate the TEC currently existing within the site given the limited space available and bushfire hazards posed by woodland vegetation on future residents.

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.

The Department of Environment's Significant Impact Guidelines 1.1 outline the criteria for what constitutes a significant impact on a Matter of National Environmental Significance. An action is likely to have a significant impact of a MNES if it triggers any of the nine criteria outlined in the guidelines. The potential impacts of the Proposed Action have been assessed against these criteria for the Carnaby's black cockatoo species and the Banksia Woodlands of the Swan Coastal Plain TEC, as outlined below.

Carnaby's black cockatoo:

It should be noted that a population of Carnaby's black cockatoo can be split into two definitions:

- A 'population' is any seasonally migratory group of Carnaby's black cockatoos that is present on the Swan Coastal Plain throughout different times of the year.

- A 'resident population' is any group of Carnaby's black cockatoos that are known to be based in a defined spatial location and are unlikely to leave this area for any significant amount of time.

No resident populations have been identified within or in proximity to the site, therefore the definition of 'population' will be applied for the purpose of this referral, given the Proposed Action will not impact on any resident populations.

Significant impact criteria for Carnaby's black cockatoo in relation to the Proposed Action

1. Lead to a long-term decrease in the size of a population

Likelihood: Unlikely

Comment: The Proposed Action in unlikely to lead to a long term decrease in the size of a CBC

population. In order to lead to a long term decrease in the size of a population, the Proposed Action would need to bring about a sustained reduction in birth rates and/or a sustained increased in mortality rates for the species.

Given no potential nesting and breeding habitat trees were located within the site (no trees contained suitably sized hollows to support such uses) no breeding is expected to occur within the site, if not zero within the site. Furthermore the nearest known record of a CBC breeding area is 22 km east of the site (Glossop et al. 2011). Therefore, the Proposed Action is unlikely to disrupt existing

breeding activity or preclude future potential breeding activity within the site that would result in a sustained reduction in CBC birth rates.

In addition, the Proposed Action is unlikely to increase mortality rates through direct bird deaths (vehicle strikes, hunting etc.) as the site occurs in an already disturbed landscape and because CBC are a mobile species that are able to avoid dangers associated with residential development.

The Proposed Action is also unlikely to increase mortality rates indirectly through a reduction of foraging resources due to the replanting of foraging habitat within the site and due to the large areas of potential foraging habitat that is available adjacent to the site.

Approximately 2,822 ha of CBC foraging habitat is expected to occur within a 5 km radius of the site, with approximately 8,406 ha expected to be located within 10 km of the site, see Figure 5.

Given the above, the clearing of 5.7 ha of CBC foraging habitat associated with the Proposed Action equates to less than 0.5%. of the potential habitat within 10km of the site. Therefore the Proposed Action in unlikely to lead to a long term decrease in the size of a CBC population.

2. Reduce the area of occupancy of the species

Likelihood: Unlikely

Comment: Approximately 5.7 ha of CBC foraging habitat will be cleared from the site as part of the Proposed Action, however large areas of quality CBC foraging habitat are available and protected in the local area. Approximately 2,822 ha occurs within a 5 km radius and 8,406 ha within a 10 km radius of the site (based on potential foraging habitat mapping for CBC (DEC 2010). CBC foraging habitat within the site equates to <0.5% of the available habitat in the local area.

In addition the proponent will replant CBC foraging species within road reserves, street scapes and within POS will, once established provide a foraging source within the site.

Based on the above information, the clearing of 5.7 ha of CBC foraging habitat is not expected to reduce the area of occupancy of the species.

3. Fragment an existing population into two or more populations

Likelihood: Unlikely

Comment: CBC are a highly mobile species and known to routinely cover large distances that does not require continuous habitat coverage. The Proposed Action only covers an area of 15.7 ha (5.7 ha of which represent CBC foraging habitat) and is situated in proximity to large areas of CBC foraging habitat, including BF site 392 immediately north of the site, as outlined in previous sections.

Future landscaping of the site will also incorporate planting of native flora species which provide CBC foraging habitat within POS areas and road reserves (where possible), and is representative of vegetation existing on site.

Based on the above information, the Proposed Action will not lead to an increase in existing gaps between known patches of habitat, nor fragment an existing population of Carnaby's black cockatoo into two or more populations.

4. Adversely affect habitat critical to the survival of a species

Likelihood: Unlikely

Comment: Habitat critical to survival for the CBC can be summarised as (DPaW 2013):

- The eucalypt woodlands that provide nest hollows used for breeding, together with nearby vegetation that provides feeding, roosting and watering habitat that supports successful breeding.

- Woodland sites known to have supported breeding in the past and which could be used in the future, provided adequate nearby food and/or water resources are available or are re-established;

- In the non-breeding season the vegetation that provides food resources as well as the sites for nearby watering and night roosting that enable the cockatoos to effectively utilise the available food resources.

The site was not identified to contain any suitable nest hollows and there are no available records of breeding or roosting occurring within the site.

Foraging evidence was identified within the site, therefore the site does contain 'vegetation that provides a food source' in accordance with the descriptions above. However the large area of vegetation to the north of the site protected within BF site 392 is located in close proximity to permanent water bodies (Thomsons and Banganup Lake). The site is unlikely to be habitat critical to survival of the CBC.

In addition, replanted trees and plants will aim to re-establish some foraging habitat values of the site, through the use of known CBC foraging species. Therefore the Proposed Action is unlikely to adversely affect habitat critical to the survival of Carnaby's black cockatoo.

5. Disrupt the breeding cycle of a population

Likelihood: Unlikely

Comment: The availability of foraging habitat in close proximity to breeding sites is important for the breeding success of the CBC species. However, no known breeding sites occur within the site nor in its proximity, with the closest known record located over 22 km to the east, near the Darling Scarp (Glossop et al. 2011).

Therefore the clearing of foraging habitat within the site does not have the potential to disrupt the breeding cycle of a population of Carnaby's black cockatoo.

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

Likelihood: Unlikely

Comment: Decline in this sense has been interpreted to mean a decline in the distribution and abundance of Carnaby's black cockatoo.

The Proposed Action involves the removal of 5.7 ha of CBC foraging habitat, however given the small extent of clearing in contrast to large areas of CBC foraging habitat immediately adjacent (for example, BF site 392) and in close proximity to the site (2822 ha within a 5 km radius), the Proposed Action is unlikely to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

7. Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat

Likelihood: Unlikely

Comment: The key consideration for this criteria would be the introduction of species that are known to compete with black cockatoos for nesting hollows. These species include the native and introduced corellas (*Cacatua* species), galahs (*Cacatua roseicapilla*), Australian shelducks (*Tadorna tadornoides*), Australian wood ducks (*Chenonetta jubata*) and feral European honey bees (*Apis mellifera*).

The Proposed Action is located in an area that is already highly modified with a variety of historical and existing land uses. Therefore it is likely that these species already exist in the area as is confirmed by the NatureMap search results undertaken as part of the fauna assessment (Harewood 2016). The Proposed Action is unlikely to either introduce or further establish any of these species within the site or in immediate surrounding areas.

8. Introduce disease that may cause the species to decline

Likelihood: Unlikely

Comment: Carnaby's black cockatoo is potentially susceptible to diseases such as beak and feather disease virus (BFDV), avian polyomavirus (APV) and chlamydophilosis. *Phytophthora cinnamomi* (dieback), other soil-borne, foliar and canker pathogens, and insects can affect the health of CBC habitat. The Proposed Action is very unlikely to be responsible for the introduction of these diseases or increase the susceptibility of birds to these as the site is already highly modified with a variety of historical land uses. Earthworks within the site will be a cut to fill balance and therefore no imported fill is expected to be required. Nevertheless, any soil brought into the site to facilitate development and/or landscaping will be certified dieback free and therefore will not introduce dieback into the adjacent BF site (392). In addition best practice construction management will ensure the implementation of measures to avoid the introduction of soil borne pathogens that could impact surrounding habitat.

Based on the above, the Proposed Action is unlikely to introduce disease/s that may cause the CBC species to decline.

9. Interfere with the recovery of the species.

Likelihood: Unlikely

Comment: The recovery objective for CBC is "to stop further decline in the distribution and abundance of CBC by protecting the birds throughout their life stages and enhancing habitat critical

for survival throughout their breeding and non-breeding range, ensuring that the reproductive capacity of the species remains stable or increases" (DPaW 2013).

Given the substantial foraging habitat located directly north of the site within BF site 392, it is considered that clearing of 5.7 ha of foraging habitat within the site will not interfere with the recovery of the species. In addition the clearing associated with the Proposed Action only represents approximately 0.07% of the potential habitat within 10km of the site.

Furthermore, there are no existing or potential breeding trees located within the site and nearest recorded breeding site for the CBC species is 23 km north-east (Glossop et al. 2011) of the site.

Therefore the Proposed Action is unlikely to interfere with the recovery of Carnaby's black cockatoo.

Banksia woodland TEC:

The presence of the Banksia woodland TEC at the site has been determined through an assessment against the criteria outlined in the DoEE's EPBC Act (s 266B) Approved Conservation Advice (incorporating listing advice) for the *Banksia Woodlands of the Swan Coastal Plain* ecological community (DoEE 2016). These criteria are listed below, along with their relevance to vegetation within the site.

1. Must meet key diagnostic characteristics

The key diagnostic characteristics of the TEC include:

- Location

- Soils and landform

- Structure

- Composition

The site meets these criteria as described in the Approved Conservation Advice (DoEE 2016).

The vegetation within the site includes the key diagnostic feature of a tree layer of *Banksia attenuata* and *Banksia menziesii*, and meets structure and composition criterion. Vegetation within the site is representative of floristic community type (FCT) 28 which is characterised as 'Spearwood Banksia attenuata or *Banksia attenuata* – Eucalyptus woodlands', and is associated with the listed TEC. FCT 28 is considered well reserved (i.e. occurs in two widely separated National Parks and/or Nature Reserves) and at low risk (i.e. community is not destroyed/ extensively modified/in danger of modification/destruction) (Gibson et al. (1994)). FCT 28 is associated with the state listed Priority 3 Priority Ecological Community (PEC) 'Banksia dominated woodlands of the Swan Coastal Plain IBRA region'. FCT 28 is known from 80 point locations over a range of about 150 km from Red Gully to Wellard, and the following number of vegetation quadrats representing FCT 28 were recorded by Gibson et al. (1994): 7 in nature reserves, 7 in National Parks, 10 in state forests, 5 in local government reserves, 7 in Crown land, 2 in vested Crown land.

The Approved Conservation Advice for the Banksia Woodland TEC (DoEE 2016) states that FCT 28 has a medium-high Average Species Richness (ASR) of 55.1 species per 100 m2 (spp/100m2). Based on a Spring flora and vegetation survey (Emerge Associates 2016) vegetation within the site has an estimated average species richness of 39 spp/100m2, approximately 71% of the ASR listed in the Approved Conservation Advice for FCT 28 (DoEE 2016), which is indicative of the previous disturbance of the site through historic clearing activities.

The extent of Banksia Woodland within the site is shown in the attached Figure 2.

2. Must meet condition thresholds

A patch should at least meet the 'good' condition category. The site was identified as containing FCT 28 vegetation in a 'good', 'very good' and 'excellent' condition (as well as areas of 'degraded' and 'completely degraded'. Vegetation within the site therefore meets the condition threshold criteria.

3. Must meet minimum patch size

The minimum size of patch to meet the TEC criteria varies depending on vegetation condition, as listed below:

- Pristine=no minimum size

- Excellent=0.5 ha

- Very Good=1 ha

- Good=2 ha

Of the 5.7 ha of TEC vegetation identified within the site, approximately 3.72 ha was assessed as being in an ‘Excellent’ condition , 0.41 ha ‘Very Good’ and 1.11 ha ‘Good’, as shown in **Figure 3**. The vegetation within the site therefore meets the 0.5 ha threshold for ‘excellent’ condition vegetation.

4. Must incorporate surrounding context

The following points are relevant considerations in incorporating surrounding context:

- Breaks (e.g. tracks) < 30 m do not separate vegetation into separate patches

- Buffer zones may apply (20-50 m recommended from patch edge)

- The site should be thoroughly sampled (2 surveys in spring) and survey timing should be appropriate.

- Surrounding environment should be considered (e.g. connectivity, conservation values, fauna habitat)

As outlined in the conservation advice (DoEE 2016), breaks (e.g. tracks) < 30 m do not separate vegetation into separate patches. Tracks and firebreaks occurring within vegetation in the eastern portion of the site have been included in the vegetation mapping and patch size determination.

The vegetation within the site is connected (<30 m breaks) to vegetation to the north and north-east of the site, and could therefore be considered part of a much larger patch assuming vegetation to the north within Bush forever Site 392 is consistent with the TEC vegetation.

One early spring survey conducted as part of the spring flora and vegetation assessment was undertaken by Emerge Associates (2016). The results of this single survey are considered conclusive and therefore a second survey is not required. The timing of this spring survey is considered appropriate for the site in accordance with the Approved Conservation Advice (DoEE 2016).

The Proposed Action will require the clearing of 5.7 ha of banksia woodland that ranges from ‘degraded’ to ‘excellent’ condition (the broadest area in ‘excellent’ condition) that represents

the Banksia woodland TEC. The impact on the listed TEC has been assessed against the criteria outlined in the DoEE's approved conservation advice (DoEE 2016), as outlined below.

The significance of the impact on this TEC has been assessed against the criteria outlined in the Department of Environment's Significant Impact Guidelines 1.1 (DotE 2013).

Significant impact criteria for Banksia woodlands TEC in relation to the Proposed Action

1. Will the action reduce the extent of an ecological community?

Likelihood: Unlikely

Comment: The Proposed Action will involve the clearing of 5.7ha of the Banksia woodland TEC from within the site.

In order to quantify the impact of the Proposed Action in the context of the local extent of the Banksia TEC, Emerge Associates mapped the potential occurrences of the TEC in the local area (Figure 6) based on the draft Banksia woodlands of the Swan Coastal Plain ecological community map produced by ERIN 2016.

Based on this mapping, approximately 1,560 ha of the Banksia woodland thought to be the TEC occurs within 5 km of the site, with approximately 43% (670 ha) of this provided a level of protection through land use zoning ('Reserves', DPaW management and Bush Forever classification). Therefore the clearing of the TEC associated within the proposed action equates to only 0.4% of Banksia woodland within 5 km of the site.

While the actual extent of the TEC within these areas of Banksia woodland vegetation is unknown, given the large areas of Banksia woodland vegetation protected within 5 km of the site it is highly likely that the TEC is well protected in the local area. FCT 28 was the single community identified within the site which is considered well reserved (i.e. occurs in two widely separated National Parks and/or Nature Reserves) and at low risk (i.e. community is not destroyed/ extensively modified/in danger of modification/destruction) (Gibson et al. (1994)), and is represented within BF site 392 'Harry Waring Marsupial Reserve' immediately north of the site.

Given the above, the proposed action is considered unlikely to significantly reduce the extent of the Banksia woodland TEC.

2. Will the action fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines?

Likelihood: Unlikely

Comment: The proposed action will involve the clearing of 5.7 ha of the Banksia woodland TEC.

The site is situated between two significantly large conservation estates, BF site 392 (280 ha)

and Frankland Park (21 ha); both conservation areas remain in direct connection with other conservation estates locally and are approximately 1.5 km apart, as shown in Figure 6. This distance does not represent a significant gap in regional ecological connectivity.

FCT 28 is considered well reserved (i.e. occurs in two widely separated National Parks and/or Nature Reserves) and at low risk (i.e. community is not destroyed/ extensively modified/in danger of modification/destruction) (Gibson et al. (1994)). FCT 28 is known from 80 point locations over a range of about 150 km from Red Gully to Wellard, and the following number of vegetation quadrats representing FCT 28 were recorded by Gibson et al. (1994): seven in nature reserves, seven in National Parks, 10 in state forests, five in local government reserves, seven in Crown land, two in vested Crown land.

Given the small scale clearing associated with the proposed action and given the large areas of the TEC that are protected in the local area, the proposed action area will not significantly increase fragmentation of the ecological community.

3. Will the action adversely affect habitat critical to the survival of an ecological community?

Likelihood: Unlikely

Comment: The proposed action will involve the clearing of 5.7 ha of the Banksia woodland TEC. As described above, this portion of TEC forms part of a larger much larger patch which includes vegetation protected within BF site 392 (270 ha). In addition, as described previously, approximately 1,560 ha of the Banksia woodland thought to be the TEC occurs within 5 km of the site, with approximately 43% (670 ha) of this provided a level of protection through land use zoning (‘Reserves’, DPaW management and Bush Forever classification). Therefore the clearing of the TEC associated within the proposed action equates to only 0.4% of Banksia woodland within 5 km of the site.

Based on a Spring flora and vegetation survey (Emerge Associates 2016) vegetation within the site has an estimated average species richness of 39 spp/100m2, approximately 71% of the ASR listed in the Approved Conservation Advice for FCT 28 (DoEE 2016). FCT 28 is considered well reserved (i.e. occurs in two widely separated National Parks and/or Nature Reserves) and at low risk (i.e. community is not destroyed/ extensively modified/in danger of modification/destruction) (Gibson et al. (1994)). FCT 28 is known from 80 point locations over a range of about 150 km from Red Gully to Wellard, and the following number of vegetation quadrats representing FCT 28 were recorded by Gibson et al. (1994): seven in nature reserves, seven in National Parks, 10 in state forests, five in local government reserves, seven in Crown land, two in vested Crown land.

Given the above, vegetation within the site is unlikely to represent critical habitat, and therefore the proposed action is unlikely to adversely affect habitat critical to the survival of the TEC.

4. Will the action modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community’s survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns?

Likelihood: Unlikely

Comment: No surface water features were identified within the site. As outlined previously, a series of water management plans are required to be prepared and approved as part of the planning approvals process, which demonstrate that the pre-development hydrological regimes applicable to the site will be maintained. The development will therefore not contribute to groundwater drawdown.

Earthworks within the site will be a cut to fill balance and therefore no imported fill is expected to be required. Nevertheless any soil brought into the site to facilitate development and/or landscaping will be certified dieback free and therefore will not introduce dieback into the adjacent BF site (392). In addition, no intrusion (battering, soil spill etc.) is allowed or proposed within the adjacent BF site (392).

The proposed residential development will also implement best practice construction management to ensure that the action will not modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival. The impacts from the proposed action are confined to the clearing of 5.7 ha of the community.

As such the proposed action is unlikely to modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns.

5. Will the action cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting?

Likelihood: Unlikely

Comment: Vegetation within the site is considered to be part of a larger 'patch' incorporating vegetation to the north of the site within BF site 329, given that 'patches' can contain small-scale breaks of up to 30 m. BF site 329 is an actively managed DPaW reserve containing Banksia woodland vegetation considered to be consistent with the TEC.

The Proposed Action will involve the clearing of all vegetation within the site, however this equates to a very small portion of the broader 'patch' and only 0.4% of the expected occurrence of the TEC within 5 km of the site. This small scale clearing (5.7 ha) is unlikely to cause a substantial change in the species composition of the ecological community given the large extent of the TEC which occurs and is protected in surrounding reserves. In addition, the site has already been subject to previous disturbance including rural land uses and access tracks which has reduced the ASR to 71% of the ASR referred to for FCT 28 in Gibson et al. (1994).

Disturbance for the Proposed Action will also be managed and monitored to ensure no disturbance outside of the approved development footprint.

Given the above, the Proposed Action is unlikely to cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting.

6. Will the action cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:

- assisting invasive species, that are harmful to the listed ecological community, to become established, or

- causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community?

Likelihood: Unlikely

Comment: A large portion of the site is already considered disturbed, as is evident by the existing market garden and storage area, as well as a number of firebreaks that exist through the TEC. The existing land uses of the site regularly apply chemicals to market gardens, as well as vehicle movement within the storage area potentially transporting invasive species and disease to areas adjacent to the TEC.

The approved Conservation Advice for the Banksia Woodland TEC (DoEE 2016) states that FCT 28 has a medium-high Average Species Richness (ASR) of 55.1 species per 100 m2 (spp/100m2). Based on a Spring flora and vegetation survey (Emerge Associates 2016) vegetation within the site has an estimated average species richness of 39 spp/100m2, which is less than (approximately 71%) the ASR listed in the Approved Conservation Advice (DoEE 2016).

The Proposed Action will be managed and monitored to ensure no disturbance outside of the approved development footprint. The proposed residential development will also implement best practice construction management and urban water management which will assist to maintain the current hydrological regime and manage stormwater to achieve acceptable water quality outcomes.

It is therefore considered that the Proposed Action is unlikely to cause a substantial reduction in the quality or integrity of an occurrence of an ecological community.

7. Will the action interfere with the recovery of an ecological community?

Likelihood: Unlikely

Comment: Clearing associated with the proposed action only equates to 0.4 % of the expected extent of Banksia woodland within 5 km of the site. Approximately 45 % (680 ha) of Banksia woodland within 5 km of the site is protected in BF sites and reserves. This includes BF site 392 which is located immediately north of the site and supports approximately 270 ha of Banksia woodland vegetation likely to represent the TEC.

Given the above, the proposed action is unlikely to interfere with the recovery of the ecological community.

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.

QUBE Spare Company No.21 Pty Ltd and QUBE Wattleup Development Pty Ltd are the entities responsible for the development of the site, and are affiliated with QUBE Property Group, an Australian property development company with extensive experience in residential development. In undertaking its projects, QUBE Property Group has a satisfactory record of responsible environmental management.

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.

Not applicable.

6.3 Will the action be taken in accordance with the corporation's environmental policy and planning 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.

QUBE Property Group has a planning and environmental policy framework which seeks to adhere to or exceed all requirements of any subdivision conditions, management plans or DA works conditions imposed upon any of its developments.

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.

Lot 682 Rowley Road Mandogalup submitted by affiliated entity ‘QUBE Mandogalup Development Pty Ltd’, Greta White and Jeff White. Reference: 2014/7126

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
Beard, J. S., 1990, Plant life of Western Australia, Kangaroo Press, Perth.	Reliable	Nil
Churchward, H. M. and McArthur, W. M., 1980, Landforms and Soils of the Darling System, Atlas of Natural Resources, Darling System, Western Australia, Department of Conservation and Environment, Perth.	Reliable	Nil
City of Cockburn, 2012, Southern Suburbs District Structure Plan - Stage 3 Hammond Park/Wattleup 2012, City of Cockburn, Western Australia.	Reliable	Nil
Department of Sustainability Environment Water Populations and Communities (DSEWPaC) 2012, EPBC Act referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo (endangered) Calyptorhynchus latirostris, Baudin's cockatoo (vulnerable) Calyptorhynchus baudinii and Forest red-tailed black cockatoo (vulnerable) Calyptorhynchus banksii naso, Commonwealth of Australia, Canberra.	Reliable	Nil
Department of the Environment and Energy 2016, Environment Protection and Biodiversity	Reliable	Nil

Reference Source	Reliability	Uncertainties
Conservation Act 1999 (EPBC Act) (s 266B) Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community, Australian Government, Canberra		
Department of the Environment, Water Heritage and the Arts 2009, Significant Impact Guidelines 1.1, Environment Protection and Biodiversity Conservation Act 1999 Commonwealth of Australia	Reliable	Nil
Department of Environment and Conservation 1992, Geomorphic Wetlands of the Swan Coastal Plain, GIS dataset, updated 2014.	Reliable	Database is accurate as of 2014, however given the known separation to groundwater at the site it is highly unlikely that wetlands occur within the site.
DEC 2008, Forest Black Cockatoo (Baudin's Cockatoo Calyptorhynchus baudinii and Forest Redtailed Black Cockatoo Calyptorhynchus banksii naso) Recovery Plan, Government of Western Australia.	Reliable	Nil
Department of Environment Conservation 2010, Areas requiring investigation as Carnaby's cockatoo feeding habitat – Swan Coastal Plain IBRA region, Government of Western Australia, Perth.	Reliable	Nil
Department of Parks and Wildlife, 2013, Western Australian Wildlife Management Program No. 52: Carnaby's Cockatoo (Calyptorhynchus latirostris) Recovery Plan, Australian Government, Canberra.	Reliable	Nil
Department of Planning (DoP), 2011, Metropolitan Region Scheme (MRS) - potential	Reliable	Nil

Reference Source	Reliability	Uncertainties
habitat for the Carnaby's Black Cockatoo which may require further assessment, GIS dataset, Western Australian Planning Commission, Western Australia.		
Department of Water (DoW) 2014a, Perth Groundwater Atlas, DoW, Perth. [18 November 2014] DoW, Perth.	Reliable	Nil
EcoLogical, 2013, Carnaby's Cockatoo Habitat Survey Assessment of the Perth-Peel Region, Report prepared for the Department of Sustainability, Environment, Water, Population and Communities, Western Australia.	Reliable	Nil
Emerge Associates 2016, Spring Flora and Vegetation Survey, Unpublished report prepared for QUBE Property Group.	Reliable. Assessment based on site specific survey by qualified consultant/s.	Nil
Environment Australia 2000, Revision of the Interim Biogeographic Regionalisation for Australia (IBRA) and Development of Version 5.1 - Summary Report, Department of Environment and Heritage, Canberra	Reliable	Nil
Environmental Protection Authority, 1992, Environmental Protection Peel Inlet - Harvey Estuary Policy, Environmental Protection Authority, Western Australia.	Reliable	Nil
Environmental Protection Authority, 1994, Proposal to change land use affecting System Six areas and lakes protected under the Environmental Protection Policy to Urban, Industrial, Special Uses and transportation purposes, to be reflected in the	Reliable	Nil

Reference Source	Reliability	Uncertainties
major Metropolitan Region Scheme Amendments for the South West Corridor, Bulletin 746, Environmental Protection Authority, Western Australia.		
(ERIN) 2016, draft Banksia woodlands of the Swan Coastal Plain ecological community map (PDF), prepared for the Department of the Environment, Australian Government, Canberra.	Somewhat reliable, based on a variety of reliable information sources however in draft.	Draft and indicative mapping only.
Finn, H., Barret, G., Groom, C., Blythman, M., and Williams, M. (2014). 2014 Great Cocky Count: a community-based survey for Carnaby's Black-Cockatoos (Calyptorhynchus latirostris) and Forest Red-tailed Black-Cockatoos (Calyptorhynchus banksii naso).	Reliable	Nil
Gibson, N., Keighery, B. J., Keighery, G. J., Burbidge, A. H. and Lyons, M. N., 1994, A Floristic Survey of the Southern Swan Coastal Plain, Unpublished report for the Australian Heritage Commission, Perth.	Reliable	Nil
Glossop, B., Clarke, K., Mitchell, D. and Barrett, G. 2011, Methods for mapping Carnaby's cockatoo habitat, Department of Environment and Conservation, Perth.	Reliable	Nil
Gozzard JR, 1983, Perth Metropolitan Region 1: 50,000 Environmental Geology Series, Perth (Fremantle Part Sheets 2033 I and 2033 IV), Geological Survey of Western Australia.	Reliable	Nil
Harewood, G., 2016, Fauna Assessment of Lots 71, 74-76 & 303-305 Wattleup Road, unpublished report prepared for	Reliable. Assessment based on site specific survey by qualified consultant/s.	Nil

Reference Source	Reliability	Uncertainties
QUBE Property Group.		
Higgins, P.J. (ed.) (1999). Handbook of Australian, New Zealand and Antarctic Birds. Volume Four - Parrots to Dollarbird. Melbourne: Oxford University Press.	Reliable	Nil
Government of Western Australia, 2000, Bush Forever – Volume 1: Policies, principles and processes, Government of Western Australia, Perth.	Reliable	Nil
Heddle, E.M., Loneragan, O.W and Havel, J.J., 1980, Darling Systems – Vegetation Complexes, In: Atlas of Natural Resources, Darling System, Western Australia, Department of Conservation and Environment, Perth.	Reliable	Nil
Hill, A. L., Semeniuk, C. A., Semeniuk, V and Del Marco, A., 1996, Wetlands of the Swan Coastal Plain Vol 12B: Wetland Atlas, Department of Environmental Protection/Water and Rivers Commission, Perth.	Reliable	Nil
Johnstone, R.E., Johnstone, C. and Kirkby, T., 2011, Black Cockatoos on the Swan Coastal Plain: Carnaby's cockatoo (Calyptorhynchus latirostris), Baudin's cockatoo (Calyptorhynchus baudinii) and the Forest Red-tailed Black cockatoo (Calyptorhynchus banksia naso) on the Swan Coastal Plain (Lancelin – Dunsborough), Western Australia. Studies on distribution, status, breeding, food, movements and historical changes, Department of Planning, Western Australia.	Reliable	Nil
Johnstone, R.E. and Storr, G.M. (1998). Handbook of	Reliable	Nil

Reference Source	Reliability	Uncertainties
Western Australian Birds: Volume 1 – Non-passerines (Emu to Dollarbird). Western Australian Museum, Perth Western Australia.		
Kabat, T. J, Barrett, G & Kabat, A. P, 2013, Great Cocky Count: Identification of roost sites for Carnaby's Black-Cockatoo (Calyptorhynchus latirostris) and population count for the DPaW Swan Region, BirdLife Australia, Department of Parks and Wildlife & Australian Wildlife Conservancy, Western Australia.	Reliable	Nil
Keighery, B.J., 1994, Bushland Plant Survey: A guide to plant community survey for the community, Wildflower Society of WA (Inc.), Nedlands.	Reliable	Nil
Local Biodiversity Project (LBP) 2013, 2013 Native Vegetation extent by Vegetation complexes on the Swan Coastal Plain south of Moore River, Western Australian Local Government Association, Perth, http://pbp.walga.asn.au/Portals/1/Templates/docs/SCP%202013%20remnant%20veg.pdf	Reliable	Nil
Seddon, G., 2004, Sense of Place: A Response to an Environment: The Swan Coastal Plain, Western Australia, Melbourne.	Reliable	Nil
Western Australian Planning Commission (WAPC) 2010, Directions 2031 and Beyond: Metropolitan Planning Beyond the Horizon, Department of Planning and Western Australian Planning Commission, Western Australia.	Reliable	Nil

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?

Not applicable.

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

Managing Director

9.2.2 First Name

Mark

9.2.3 Last Name

Hector

9.2.4 E-mail

mark@qubeproperty.com.au

9.2.5 Postal Address

Suite 3 Level 1

437 Roberts Road
Subiaco WA 6008
Australia

9.2.6 ABN/ACN

ACN

117433084 - QUBE WATTLEUP DEVELOPMENT PTY LTD

9.2.7 Organisation Telephone

08 9386 8080

9.2.8 Organisation E-mail

reception@qubeproperty.com.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

Declaration

I, Mark Peter Hay Hector, 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: 11/4/17

I, Mark Peter Hay Hector, the person proposing the action, consent to the designation of _____ as the proponent of the purposes of the action describe in this EPBC Act Referral.

Signature:..... Date: 11/4/17

9.3 Is the Proposed Designated Proponent an Organisation or Individual?

Organisation

9.5 Organisation

9.5.1 Job Title

Managing Director

9.5.2 First Name

Mark

9.5.3 Last Name

Hector

9.5.4 E-mail

mark@qubeproperty.com.au

9.5.5 Postal Address

Suite 3, Level 1

437 Roberts Road
SUBIACO WA 6008
Australia

9.5.6 ABN/ACN

ACN

117433084 - QUBE WATTLEUP DEVELOPMENT PTY LTD

9.5.7 Organisation Telephone

08 9386 8080

9.5.8 Organisation E-mail

reception@qubeproperty.com.au

Declaration

I, Mark Peter Hay Hector, 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: 11/4/17

9.6 Is the Referring Party an Organisation or Individual?

Organisation

9.8 Organisation

9.8.1 Job Title

Senior Environmental Consultant

9.8.2 First Name

Jen

9.8.3 Last Name

Longstaff

9.8.4 E-mail

Jen.Longstaff@emergeassociates.com.au

9.8.5 Postal Address

Suite 4

26 Railway Road
Subiaco WA 6008
Australia

9.8.6 ABN/ACN

ABN

57144772510 - Emerge Environmental Services Pty Ltd

9.8.7 Organisation Telephone

08 9380 4988

9.8.8 Organisation E-mail

admin@emergeassociates.com.au

Declaration

I, Jen Longstaff, 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:..... Date: 12 APRIL 2017

Appendix A - Attachments

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

1. ep16-01104-009a_rao_final_compiled_reduced.pdf
2. figures_combined_reduced.pdf
3. hammond_park_west_fauna_assessment_report_v2a.pdf
4. part_a_ep16-01103-002c_smf_lwms.reduced.pdf
5. pmst_6tu4ty.pdf
6. site_boundary_ep16-011_16.03.04.shp
7. site_photographs_0.pdf