



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 10033/1
Permit Holder:	Holcim (Australia) Pty Ltd
Duration of Permit:	From 11 May 2023 to 11 May 2028

The permit holder is authorised to clear *native vegetation* subject to the following conditions of this permit.

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The permit holder is authorised to clear *native vegetation* for the purpose of extractive industry.

2. Land on which clearing is to be done

Lot 348 on Deposited Plan 248930, Gelorup

3. Clearing authorised

The permit holder must not clear more than 6.4 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

4. Period during which clearing is authorised

The permit holder must not clear any *native vegetation* unless extractive industry commences within three (3) months of the authorised clearing being undertaken.

PART II – MANAGEMENT CONDITIONS

5. Avoid, minimise, and reduce impacts and extent of clearing

In determining the *native vegetation* authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending order of preference:

- (a) avoid the clearing of *native vegetation*;
- (b) minimise the amount of *native vegetation* to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

6. Weed and dieback management

When undertaking any clearing authorised under this permit, the permit holder must take the following measures to minimise the risk of introduction and spread of *weeds* and *dieback*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no known *dieback* or *weed*-affected soil, *mulch*, *fill*, or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

7. Directional clearing

The permit holder must conduct clearing activities in a slow, progressive manner towards adjacent *native vegetation* to allow fauna to move into adjacent *native vegetation* ahead of the clearing activity.

8. Western Ringtail Possum Management

- (a) In relation to the area cross hatched yellow Figure 1 of Schedule 1, the permit holder must engage a *fauna specialist* to inspect that area, where it is vegetated with trees and shrubs, immediately prior to, and for the duration of clearing, for the presence of *Pseudocheirus occidentalis* (western ringtail possum(s));
- (b) Clearing activities must cease in any area where fauna referred to in condition 8(a) are identified until either:
 - (i) the western ringtail possum(s) individual has moved on from that area to adjoining *suitable habitat*; or
 - (ii) the western ringtail possum(s) individual(s) has been removed by a *western ringtail possum specialist*
- (c) Any western ringtail possum individuals removed in accordance with condition 8(b)(ii) of this permit must be relocated by a *western ringtail possum specialist* to *suitable habitat*, in accordance an authorisation from the Minister for Environment under Section 40 of the *Biodiversity Conservation Act 2016*.
- (d) Where fauna is identified under condition 8(a) of this permit, the permit holder must provide the following records to the *CEO* as soon as practicable:
 - (i) the number of individuals identified;
 - (ii) the date each individual was identified;
 - (iii) the location where each individual was identified recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020(GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (iv) the number of individuals removed and relocated;
 - (v) the date each individual was removed;
 - (vi) the method of removal;
 - (vii) the date each individual was relocated;
 - (viii) the location where each individual was relocated to, recorded using a GPS unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings or decimal degrees; and

- (ix) details pertaining to the circumstances of any death of, or injury sustained by, an individual.

PART III - RECORD KEEPING AND REPORTING

9. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ul style="list-style-type: none"> (a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) direction of clearing; (e) the date extraction activities commenced; (f) the size of the area cleared (in hectares); (g) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 5; and (h) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> and <i>dieback</i> in accordance with condition 6.7
2.	In relation to western ringtail possum management pursuant to condition 8.	<ul style="list-style-type: none"> (a) The number of individual identified; (b) The date each individual was identified; (c) A description of the inspection methodology employed by the <i>fauna specialist</i>; (d) The location of each individual was identified, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings; and (e) actions taken to relocate each individual.

10. Reporting

The permit holder must provide to the *CEO* the records required under condition 9 of this permit when requested by the *CEO*.

DEFINITIONS

In this permit, the terms in Table have the meanings defined.

Table 2: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
fauna specialist	means a person who holds a tertiary qualification specialising in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, or who is approved by the CEO as a suitable fauna specialist for the bioregion, and who holds a valid fauna licence issued under the <i>Biodiversity Conservation Act 2016</i> .
fill	means material used to increase the ground level, or to fill a depression.
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
suitable (western possum) habitat ringtail	means habitat known to support western ringtail possums (<i>Pseudocheirus occidentalis</i>) within the known current distribution of the species, typically characterised by abundant foliage, presence of suitable nesting structures such as tree hollows, as well as high canopy cover and continuity. Known habitat includes peppermint (<i>Agonis flexuosa</i>) dominated woodlands, jarrah (<i>Eucalyptus marginata</i>) and marri (<i>Corymbia calophylla</i>) forests, riparian vegetation with a canopy of Bullich (<i>Eucalyptus megacarpa</i>) or flooded gum (<i>Eucalyptus rudis</i>), karri (<i>Eucalyptus diversicolor</i>) forests, sheoak (<i>Allocasuarina fraseriana</i>) dominated woodlands, and other stands of myrtaceous trees growing near swamps, watercourses or floodplains.
weeds	means any plant – <ul style="list-style-type: none"> (a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i>; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.
western ringtail possum specialist	means a <i>fauna specialist</i> who holds a tertiary qualification specialising in environmental science or equivalent, has a minimum of two years of work experience in western ringtail possum (<i>Pseudocheirus occidentalis</i>) identification, surveys of western ringtail possums and capture and

Term	Definition
	handling of western ringtail possums, and holds a valid fauna licence issued under the <i>Biodiversity Conservation Act 2016</i> .

END OF CONDITIONS



Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

17 April 2023

Schedule 1

Plan 10033/1

The boundary of the area authorised to be cleared is shown in the map below (Figure 1).

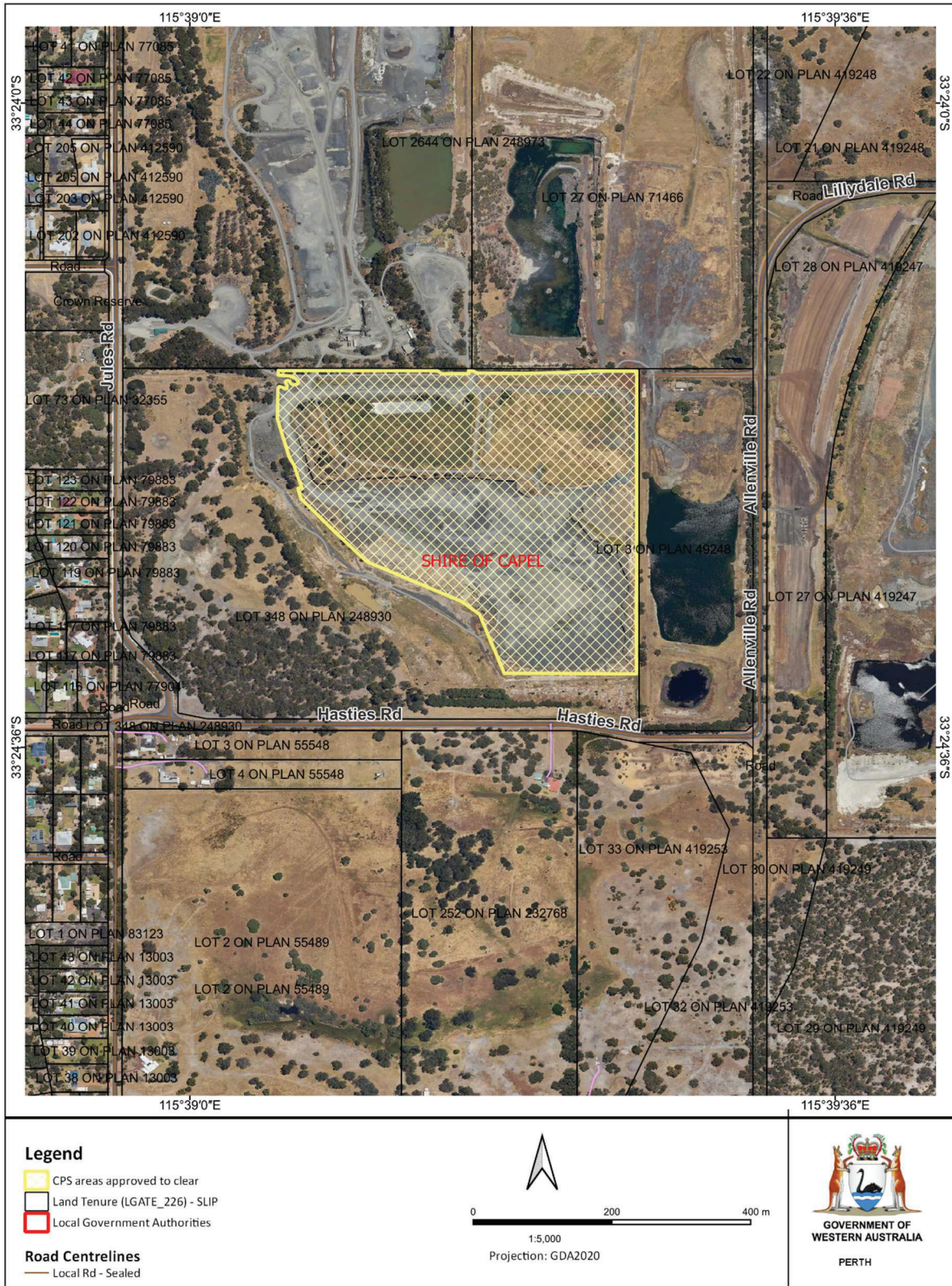


Figure 1: Map of the boundary of the area within which clearing may occur



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 10033/1
Permit type:	Purpose permit
Applicant name:	Holcim (Australia) Pty Ltd
Application received:	22 December 2022
Application area:	6.4 hectares (revised) of native vegetation within a 20.7 hectare footprint
Purpose of clearing:	Extractive Industry
Method of clearing:	Mechanical
Property:	Lot 348 on Deposited Plan 248930
Location (LGA area/s):	Shire of Capel
Localities (suburb/s):	Gelorup

1.2. Description of clearing activities

The vegetation proposed to be cleared is contained within a single contiguous area (see Figure 1, Section 1.5).

1.3. Decision on application

Decision:	Granted
Decision date:	17 April 2023
Decision area:	6.4 hectares of native vegetation, as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and three submissions were received. Consideration of matters raised in the public submissions is summarised in Appendix A.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix B), relevant datasets (see Appendix F.1), the findings of a flora and fauna survey (see Appendix D), the clearing principles set out in Schedule 5 of the EP Act (see Appendix C), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).

The assessment identified that the proposed clearing will result in:

- the potential introduction and spread of weeds and dieback into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- may cause land degradation in the form of wind erosion; and
- potential direct impacts to western ringtail possums and Quenda if present during clearing activities.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing is unlikely to lead to appreciable land degradation, impact environmental values of a wetland, have long-term adverse impacts on significant fauna habitat or threatened or priority flora. Impacts to adjacent vegetation or fauna present during clearing activities can be minimised and managed. The applicant has suitably demonstrated avoidance and minimisation measures.

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback
- staged clearing to minimise wind erosion
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity; and
- have a fauna specialist on site to ensure no western ringtail possums are present during clearing activities

1.5. Site map



Figure 1. Map of the application area

The area crosshatched yellow indicate the area authorised to be cleared under the granted clearing permit.

2 Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the polluter pays principle
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant has proposed the following management actions (Holcim, 2023):

1. Demarcate any native vegetation within the site boundary that will be retained;
2. Demarcate approved clearing area/extraction boundary using GPS coordinates and blue markers with 100m spacing. Adjacent posts on either side to be visible from each post;
3. Excavated vegetation shall be stockpiled for habitat provision or mulched. Clearing of vegetation is kept to the minimum required for efficient operations;
4. Topsoil shall be stockpiled separately from overburden in windrows less than two (2) metres high or reused directly for the rehabilitation of worked areas; and
5. Inspect felled and cleared vegetation and identify those suitable for use in rehabilitation and revegetation works.

The applicant removed 0.2 ha of native vegetation within the application area that consists of *Eucalyptus* (Marri) Woodland (CcXbLs) – *Corymbia calophylla* medium to large trees over *Xanthorrhoea brunonis* and *Lepidosperma squamatum* tall to low open shrubland over common pasture weeds. This area contained approximately five marri, one stag, one flooded gum (*Eucalyptus rudis*) and one York gum (*Eucalyptus loxophleba*) tree (Holcim, 2023a).

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix B) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see Appendix C) identified that the impacts of the proposed clearing present a risk to biological values (fauna, adjacent flora and vegetation), significant remnant vegetation and land and water resources. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Biological values (flora and ecological communities) - Clearing Principles (a, c and d)

Flora

According to available databases, seven threatened flora, eight Priority 3 and 12 Priority 4 flora species have been recorded within the local area. Seventeen of these species have been known to occur within wetlands or open water.

A Rapid Biodiversity Assessment was undertaken in 2015 which encompassed the entire survey area. This assessment included a desktop study, identification of key features including vegetation and habitats, and identify flora and fauna associated with these vegetation and habitat types. A detailed flora and vegetation assessment and Level 1 Fauna Assessment was undertaken by AECOM in 2021 (AECOM, 2022) for the Project. This survey covered an area of 39.5 ha. In addition, a Targeted Black Cockatoo survey was completed by AECOM for the Project.

AECOM (2022) recorded 13 native flora species during the biological survey, representing 11 genera and five families. Twenty (26) introduced species were also recorded, and none were listed as Declared Pests under the *Biosecurity and Agriculture Management Act 2007* or a Weed of National Environmental Significance. No threatened or priority flora species were identified within the application area (AECOM, 2022).

DBCA advised that the flora survey appears adequate to determine the presence of conservation significant flora within the application area. The presence of conservation significant flora occurring within the clearing footprint is considered very unlikely based on regional advice and the current degree of disturbance within the application area (DBCA, 2023).

Vegetation

One vegetation type was recorded within the revised application area being *Eucalyptus rudis* Wetland/Riparian Vegetation (ErBj) – *Eucalyptus rudis* medium isolated to clustered trees over *Machaerina juncea* and *Mesomelaena tetragona* low open sedgeland over *Avena barbata*, *Ehrharta calycina* and *Briza maxima* tall to low grassland. The regenerated area also includes *Viminaria juncea* and other native sedge species (AECOM, 2022; Appendix D, Figure 6).

Of the 6.4 ha of native vegetation present within the application area, approximately 95 per cent is in a degraded (Keighery, 1994) condition, and the remaining five per cent in good (Keighery, 1994) condition.

No Threatened or Priority Ecological Communities (TEC/PEC) were recorded during the biological survey (AECOM, 2022). The vegetation present within the application does not represent any TECs or PECs recorded within the local area.

Conclusion

Noting the above, the extent and composition of the vegetation proposed to be cleared, the application area is not likely to comprise threatened or priority flora, TECs, PECs or a high biological diversity. The proposed clearing activities may result in the introduction or spread of weeds and dieback into adjacent vegetation, which could impact habitat quality and connectivity.

Conditions

To address the above impacts, the following management measure will be required as a condition on the clearing permit:

- Implement weed and dieback management measures to mitigate impacts to adjacent vegetation.

3.2.2. Biological values (fauna) - Clearing Principle (b)

According to available databases, 33 fauna species of conservation significance have been recorded within the local area. AECOM (2022) identified 37 significant fauna species within 12 km of the project footprint. The five considered likely to occur are listed below.

- forest red-tailed black cockatoo (FRTBC) (*Calyptorhynchus banksii naso*) (EPBC Act and BC Act: Vulnerable)
- Baudin's cockatoo (*Calyptorhynchus baudinii*) (EPBC Act and BC Act: Endangered)
- Carnaby's cockatoo (*Calyptorhynchus latirostris*) (EPBC Act and BC Act: Endangered)
- Western Ringtail Possum (*Pseudocheirus occidentalis*) (WRP) (EPBC Act and BC Act: Critically Endangered)
- Quenda (*Isodon fusciventer*) (WA: Priority 4)

No direct observations of significant fauna were recorded during the biological survey. Indirect observations in the form of FRTBC (chewed marri nuts) and the western ringtail possum (WRT) (scats) were recorded. Eighteen (18) vertebrate fauna species were recorded within the project footprint (direct and indirect observation). This comprised of 15 bird, two mammal and one reptile species (AECOM, 2022).

The project footprint is a highly modified landscape of paddocks, historically cleared areas, planted areas, pockets of native vegetation comprising Wetland and Eucalypt Woodland and the existing quarry pit area. Four (including Cleared) fauna habitats were mapped (Figure 5). These included:

- 1.0 ha Trees and Shrubs over Grass.
- 6.2 ha Wetland/Drainage/Riparian Vegetation.

- 0.2 ha Open Eucalypt Woodland.
- 13.8 ha Cleared (AECOM, 2022).

The vegetation proposed to be cleared consists of the wetland/drainage/riparian vegetation fauna habitat.

The fauna survey determined that the vegetation within the application area is considered suitable foraging habitat for black cockatoo species, marginal habitat for quenda, migratory birds and potential hunting habitat for the peregrine falcon (AECOM, 2022). The black cockatoo foraging habitat in planted areas was assessed as low-quality due to the lack of understorey species and small-fruited planted eucalypts. The area is also mapped as supporting habitat for the WRP (DEWHA, 2009).

Black cockatoos

Available databases indicate black cockatoos are locally common with approximately 135 records across the local area. Available database records show 18 records of Baudin's cockatoo, 12 records of forest red-tailed black cockatoo, 78 records of Carnaby's cockatoo and 27 records of 'white-tailed black cockatoo' (either Carnaby's cockatoo or Baudin's cockatoo). Six roost sites and two known breeding sites have been recorded within five kilometres of the proposed clearing. The closest roost site is located approximately one kilometre and the closest breeding site is approximately 2.2 kilometres from the application area.

Black cockatoo habitat can be considered in terms of breeding habitat, night-roosting habitat, and foraging habitat (Commonwealth of Australia, 2022). Black cockatoos preferred foraging habitat includes jarrah and marri woodlands and forests, and proteaceous woodlands and heath dominated by plant species such as *Banksia* spp., *Hakea* spp. and *Grevillea* spp. (Commonwealth of Australia, 2022).

The Targeted Black Cockatoo survey within the 39.5 ha project area determined:

- Foraging evidence for the FRTBC was recorded within the project footprint (within the Open *Eucalyptus* Woodland habitat);
- A total of 118 potential breeding trees were recorded, and none had suitable hollows;
- A total of 7.4 ha of suitable foraging habitat was recorded for all three species, rated from Negligible to Moderate Quality. The majority (over 90%) was Negligible-Low quality foraging habitat; and
- No roosting sites were identified (AECOM, 2022).

The potential breeding trees and suitable foraging habitat recorded for each Black Cockatoo species is shown in Appendix D Figure 5. The applicant removed 0.2 hectares of native vegetation from the original application area that comprised of the 'Open Eucalyptus Woodland' where foraging evidence was identified. This also removed approximately five marri, one stag, one flooded gum (*Eucalyptus rudis*) and one York gum (*Eucalyptus loxophleba*) tree from the application area. This removed the area of mapped as containing moderate foraging habitat (AECOM, 2022).

Eight flooded gums and two stags remain in the amended application area and provide potential breeding and foraging habitat. No hollows were observed within these trees (AECOM, 2022).

Flooded gum are considered to have low foraging value for the black cockatoos species and no hollows were identified within the trees remaining within the application area. The majority of the application area is mapped as having negligible foraging habitat (AECOM, 2022). The clearing proposed is not considered to have an impact upon significant foraging or breeding habitat for black cockatoo species.

Western ringtail possum

A WRP scat was found on the property approximately 50 metres from the application area. It is considered for the application area to be adjacent to western ringtail possum habitat (AECOM, 2022). However, the canopy cover is not well connected or continuous, there is a significant lack of understorey and midstorey species for browse and an absence of other native canopy species (including its preferred feeding and nesting tree *Agonis flexuosa* peppermint tree), it was dominated by weeds, isolated on all sides by internal roads and there were almost no suitable refuges available. The application area is largely assessed as degraded in condition, with one small area of good condition.

DBCA has advised that the *An assessment of habitat for Western Ringtail Possum (Pseudocheirus occidentalis) on the southern Swan Coastal Plain* 2014 report by Shedley and Williams identified and mapped the northern portion of the proposed area as habitat suitability class "C – medium" which suggests the expected density is two to five WRP per hectare. Preliminary survey work undertaken for the Bunbury Outer Ring Road project identified WRP individuals

in roadside vegetation on Hasties Road immediately to the south-west of the project area. Numerous WRP have also been recorded immediately west in the grounds of Lot 73 Bunbury Cathedral Grammar School.

Although the habitat in the northern portions of the project area appears to be highly disturbed (based on the consultant report) there is potential for WRP to occur within the trees to be cleared and provisions to mitigate potential impacts (such as having a fauna spotter present during the vegetation removal phase) should be considered (DBCA, 2023). Whilst the application area may be utilised by WRP to traverse through the landscape, the habitat is not deemed significant for WRP.

Quenda

Quenda are found within scrubby, often swampy, vegetation with dense cover up to one metre high, often feeds in adjacent forest and woodland that is burnt on a regular basis and in areas of pasture and cropland lying close to dense cover. On the Swan Coastal Plain, quenda are often associated with wetlands. Suitable habitat is present for this species within the application area, however, given the highly disturbed and degraded (Keighery, 1994) condition of the application area, the proposed clearing is not likely to have an impact on significant habitat for this species. Fauna management practices will ensure no direct impacts occur to individuals of this species if present.

Migratory birds

The application area is likely to provide habitat for migratory birds recorded within the local area including the Peregrine falcon. However, given the habitat for this species is widespread and varied and that the application area is highly disturbed in a predominantly degraded (Keighery, 1994) condition, the clearing proposed is not likely to impact upon significant habitat for this species.

Ecological linkage

DBCA advised that the vegetation remaining along the northern border of the proposed clearing area likely provides an ecological linkage for conservation significant species including western ringtail possum (CR), quenda (P4) and southwestern brush-tailed phascogale (CD) (DBCA, 2023). The 'Open Eucalyptus Woodland' along the northern border was removed from the application area. The ecological linkage will not be severed by the proposed clearing.

Conclusion

Based on the above assessment, the proposed clearing is not likely to impact upon significant habitat for fauna, however the clearing may result in indirect impacts to fauna present within the application area during the clearing process. The proposed clearing activities may result in the introduction or spread of weeds and dieback into adjacent vegetation, which could impact habitat quality and connectivity.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- Slow, directional clearing towards adjacent native vegetation to allow fauna to escape ahead of the clearing activity.
- Fauna spotter on site to manage impacts to WRP.
- Implement weed and dieback management measures to mitigate impacts to adjacent vegetation.

3.2.3. Biological values (significant remnant) - Clearing Principle (e)

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present prior to the year 1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001).

The Environmental Protection Authority (EPA) recognises the Bunbury Region to be a constrained area, within which a minimum 10 per cent representation threshold for ecological communities is recommended (EPA, 2008). The application area is located within the mapped extent of the Greater Bunbury Region Scheme constrained area.

The application area is located within the Swan Coastal Plain bioregion. The Swan Coastal Plain (IBRA) bioregion retains approximately 38.6 per cent of its pre-European vegetation extent (Government of Western Australia 2019a). The vegetation within the application area is mapped within the Bassendean Complex – Central and South vegetation complex (Hedde et al 1980), which retains approximately 26.9 per cent of its pre-European extent (Government of Western Australia 2019b). Approximately 26 per cent of the native vegetation has been retained within the local area, defined as a ten kilometre radius from the application area (Appendix B.2; Government of Western Australia 2019a).

The local area is highly cleared (less than 26 per cent remaining). However given the vegetation representation outlined above and that the application area occurs within a constrained area, the application area is above the 10 percent threshold.

The vegetation proposed to be cleared is not likely to comprise a high biodiversity, significant habitat for fauna, threatened or priority flora, PECs or TECs. The vegetation present within the application is predominantly in a completely degraded or degraded (Keighery, 1994) condition and therefore is not considered to be a significant remnant of native vegetation.

Conclusion:

The vegetation proposed to be cleared is not considered to be a significant remnant of native vegetation within an extensively cleared landscape. The proposed clearing may impact adjacent vegetation in a better condition that may facilitate fauna movement across the landscape through the spread of weed and dieback.

Conditions: To address the above impacts, the following management measure will be required as a condition on the clearing permit:

- Weed and dieback management to mitigate the impacts to adjacent vegetation.

3.2.4. Biological values (wetlands) - Clearing Principle (f)

The Department of Biodiversity, Conservation and Attractions (DBCA) Geomorphic Wetlands, Swan Coastal Plain dataset shows one Multiple Use Wetland (MUW) intersects the project footprint; ID 13,228. The flora survey identified riparian vegetation within the application area (AECOM, 2022).

AECOM (2022) described the vegetation type as low-lying dampland/wetland with some areas of standing water. With variable habitat complexity from closed sedgeland to open pasture and sporadic mature *Eucalyptus rudis* trees.

Given the project footprint intersects DBCA MUW (ID 13,228), the application area is considered to be growing in association with a wetland. However, given that more than 95 per cent of wetland habitat condition was recorded as either degraded or completely degraded in the biological survey (AECOM, 2022), the proposed clearing is not likely to have a significant impact on the environmental values of this wetland.

The applicant has advised that no dewatering will occur during clearing or extraction. Quarrying is restricted to 8 m AHD to prevent Holcim's operations affecting the underlying Yarragadee aquifer. Groundwater and surface water generated on-site is retained for use on-site and Holcim aims for zero discharge of excess water into the environment. Surface water quality monitoring is undertaken for any discharge of water from the premises in accordance with the discharge criteria set out in the DWER Category 12 licence.

Conclusion

Based on the above assessment, the proposed clearing may increase sedimentation during clearing activities. However impacts are considered to be short term and temporary and no significant impacts to surface water quality is expected. The clearing of 6.4 hectares of native vegetation predominantly in a degraded to completely degraded (Keighery, 1994) condition is not likely to impact upon water quality. Nil conditions are required in relation to this environmental value.

3.2.5. Land degradation - Clearing Principle (g)

Soils mapped within the proposed clearing footprint are highly susceptible to wind erosion and water logging. Noting that, following extraction, the extractive industry licence issued by the Shire of Capel requires the applicant to rehabilitate temporarily cleared areas and requiring the applicant to commence construction activities within three months of undertaking clearing, the proposed management measures will minimise risks of wind erosion.

Conditions:

To address the above impacts, the following management measure will be required as a condition on the clearing permit:

- Wind erosion management, requiring works to commence within three months of undertaking clearing.

3.3. Relevant planning instruments and other matters

Holcim (Australia) Pty Ltd (Holcim) operates a basalt quarry (Bunbury Quarry) in Gelorup, approximately 8 kilometres (km) south of the Bunbury city centre, Western Australia (Figure 1). The Bunbury Quarry has been in operation since the 1950s at Lots 348 and 2644 Jules Road, Gelorup.

The Bunbury Quarry is currently operated in accordance with a Development Approval and Extractive Industry Licence issued by the Shire of Capel on 30 November 2022 for a period of 10 ten years for the extraction of aggregate (Shire of Capel, 2022) and a DWER Category 12 Licence valid until 30 September 2026 for the crushing and screening of aggregate.

The Development approval was issued requiring a number of conditions including a rehabilitation (revegetation) implementation plan to be submitted to the Shire within 90 days of the approval (Shire of Capel, 2022).

The Shire of Capel (2023) has advised that the proposal to clear a total of 7.4 hectares of native and non-native trees is a significant area in this already denuded landscape. The removal of trees that provide an east-west corridor would especially affect wildlife attempting to traverse the area on the northern boundary. Although it is not considered high quality roosting or nesting areas for black cockatoos or habitat for the WRP, any tree in this very degraded landscape would be used by animals and birds traversing the site as a corridor. The Shire of Capel would request the retention of the trees in the tree line on the northern boundary of the site to provide a corridor of over 700 metres to connect the road reserve vegetation to the east with the urban vegetation to the west of the site. The Shire of Capel also requested 3 “Cockatube” black cockatoo nesting boxes in the trees on the western side of the property. The ‘Open Eucalyptus Woodland’ along the northern border was removed from the application area. The ecological linkage will not be severed by the proposed clearing.

One Aboriginal site of significance have been mapped within the application area. It is the permit holder’s responsibility to comply with the *Aboriginal Heritage Act 1972 (WA)* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

End

Appendix A. Details of public submissions

Three submissions were received in relation to the application:

Summary of comments	Consideration of comment
Submission 1 (Submission, 2022a)	
Removing 6.6 hectares of trees that provide foraging and habitat for birds	<p>The applicant has removed 0.2 hectares of native vegetation from the application area that comprised <i>Eucalyptus</i> (Marri) Woodland (CcXbLs) – <i>Corymbia calophylla</i> medium to large trees over <i>Xanthorrhoea brunonis</i> and <i>Lepidosperma squamatum</i> tall to low open shrubland over common pasture weeds including <i>*Briza maxima</i> and <i>*Cenchrus clandestinus</i>. This is the area that was determined to contain the highest foraging and potential breeding value.</p> <p>Some foraging habitat remains within the application however is considered low to negligible quality foraging habitat.</p>
Removal of tree linkage on northern boundary	<p>The applicant removed 0.2 hectares of native vegetation along the northern boundary which will allow a tree linkage to remain within the northern portion of the property.</p>
Infill planting, installing artificial nesting boxes and an offset should enforced to mitigate the impacts of clearing black cockatoo habitat	<p>The 0.2 hectare of native vegetation removed from the original application removed all marri trees that provide high quality foraging and potential breeding habitat within the application area.</p> <p>The department considers that the low to negligible foraging habitat remaining with the application area did not require an offset or further mitigation activities.</p> <p>The applicant will be required to undertake revegetation activities in accordance with the Development Approval and Extractive Industry Licence issued by the Shire of Capel.</p>
Submission 2 (Submission, 2022b)	
A buffer along the northern boundary of the application area should be retained including infill planting to improve fragmentation.	<p>The 0.2 hectare area of native vegetation removed from the original application removed all marri trees that provide high quality foraging and potential breeding habitat within the application area.</p>
Submission 3 (Submission, 2022c)	
Cumulative impacts to black cockatoo habitat and if removed an offset should be provided	<p>The 0.2 hectare of native vegetation removed from the original application removed all marri trees that provide high quality foraging and potential breeding habitat within the application area.</p> <p>The department considers that the low to negligible foraging habitat remaining with the application area did not require an offset or further mitigation activities.</p>

Appendix B. Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to the department at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix C.

B.1. Site characteristics

Characteristic	Details
Local context	<p>The area proposed to be cleared is a 6.4 hectare isolated patch of native vegetation in the intensive land use zone of Western Australia. It is adjacent to cleared and degraded (Keighery, 1994) vegetation.</p> <p>Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 25.8 per cent of the original native vegetation cover.</p>
Ecological linkage	No formal mapped linkages. DBCA (2023) advised that the vegetation remaining along the northern border of the proposed clearing area likely provides an ecological linkage.
Conservation areas	<p>Closest conservation area is a conservation covenant located 1.1 km southeast of the application area.</p> <p>Closest DBCA managed land is Tuart Forest National Park located 10 km southwest of the application area.</p>
Vegetation description	<p>A flora and fauna survey (AECOM, 2022) indicates the vegetation within the proposed clearing area consists of 6.4 hectares of <i>Eucalyptus rudis</i> wetland/riparian vegetation (ErBj) – <i>Eucalyptus rudis</i> medium isolated to clustered trees over <i>Machaerina juncea</i> and <i>Mesomelaena tetragona</i> low open sedgeland over <i>*Avena barbata</i>, <i>*Ehrharta calycina</i> and <i>*Briza maxima</i> tall to low grassland. The regenerated area also includes <i>Viminaria juncea</i> and other native sedge species.</p> <p>The survey maps are available in Appendix E.</p> <p>This is consistent mapped the mapped vegetation complex, Bassendean Complex – Central and South, which is described as vegetation ranges from woodland of <i>Eucalyptus marginata</i> (Jarrah) - <i>Allocasuarina fraseriana</i> (Sheoak) - <i>Banksia</i> species to low woodland of <i>Melaleuca</i> species, and sedgelands on the moister sites. This area includes the transition of <i>Eucalyptus marginata</i> (Jarrah) to <i>Eucalyptus todtiana</i> (Pricklybark) in the vicinity of Perth (Hedde et al 1980).</p> <p>The mapped vegetation complex retains approximately 27 per cent of the original extent (Government of Western Australia, 2019).</p>
Vegetation condition	<p>A flora and fauna survey (AECOM, 2022) indicates the vegetation within the proposed clearing area is predominantly (95%) in a degraded (Keighery, 1994) condition with a small are (5%) in good (Keighery, 1994) condition.</p> <p>The full Keighery (1994) condition rating scale is provided in Appendix D.</p> <p>The full survey descriptions and mapping are available in Appendix E.</p>
Climate and landform	The climate experienced in the area is a Mediterranean climate, with dry, hot summers and cool, wet winters.
Soil description	The soil is mapped as Pinjarra P1b Phase (213Pj__P1b) which is describe as flat to very gently undulating plain with deep acidic mottled yellow duplex (or seffective duplex) soils.

Characteristic	Details																
	Moderately deep pale sand to loamy sand over clay: imperfectly drained and moderately susceptible to salinity in limited areas.																
Land degradation risk	<p>The land degradation risk factors mapped within the application area are detailed below:</p> <table border="1"> <thead> <tr> <th>Risk categories</th> <th>Pinjarra P1b Phase (213Pj_P1b)</th> </tr> </thead> <tbody> <tr> <td>Wind erosion</td> <td>H1: 50-70% of map unit has a high to extreme wind erosion risk</td> </tr> <tr> <td>Water erosion</td> <td>L1: <3% of map unit has a high to extreme water erosion risk</td> </tr> <tr> <td>Salinity</td> <td>L1: <3% of map unit has a moderate to high salinity risk or is presently saline</td> </tr> <tr> <td>Subsurface Acidification</td> <td>H2: >70% of map unit has a high subsurface acidification risk or is presently acid</td> </tr> <tr> <td>Flood risk</td> <td>L1: <3% of the map unit has a moderate to high flood risk</td> </tr> <tr> <td>Water logging</td> <td>H2: >70% of map unit has a moderate to very high waterlogging risk</td> </tr> <tr> <td>Phosphorus export risk</td> <td>L2: 3-10% of map unit has a high to extreme phosphorus export risk</td> </tr> </tbody> </table>	Risk categories	Pinjarra P1b Phase (213Pj_P1b)	Wind erosion	H1: 50-70% of map unit has a high to extreme wind erosion risk	Water erosion	L1: <3% of map unit has a high to extreme water erosion risk	Salinity	L1: <3% of map unit has a moderate to high salinity risk or is presently saline	Subsurface Acidification	H2: >70% of map unit has a high subsurface acidification risk or is presently acid	Flood risk	L1: <3% of the map unit has a moderate to high flood risk	Water logging	H2: >70% of map unit has a moderate to very high waterlogging risk	Phosphorus export risk	L2: 3-10% of map unit has a high to extreme phosphorus export risk
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Water logging	H2: >70% of map unit has a moderate to very high waterlogging risk																
Phosphorus export risk	L2: 3-10% of map unit has a high to extreme phosphorus export risk																
Waterbodies	The desktop assessment and aerial imagery indicated that a multiple use wetland is mapped over the majority of the application area.																
Hydrogeography	<p>The application area is located within the Bunbury Groundwater Area which is proclaimed under the <i>Rights in Water and Irrigation Act 1914</i>.</p> <p>Groundwater salinity is mapped between 500 – 1000 milligrams per litre total dissolved solids.</p>																
Flora	<p>According to available databases seven threatened flora, eight Priority 3 and 12 Priority 4 flora species have been recorded within the local area. Seventeen of these species have been known to occur within wetlands or open water.</p> <p>A flora and fauna survey (AECOM, 2022) did not record any threatened or priority flora within the application area.</p>																
Ecological communities	<p>A number of threatened and priority ecological communities have been recorded within the local area. The TEC 'Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region' has been recorded within the northern boundary of the application area.</p> <p>A flora and fauna survey (AECOM, 2022) did not record any threatened or priority ecological communities within the application area.</p>																
Fauna	<p>According to available databases 33 fauna species of conservation significance have been recorded within the local area.</p> <p>Six black cockatoo roost sites and two known breeding sites have been recorded within 5 km of the proposed clearing. The Closest roost site has been recorded one km from the application area. The closest breeding site has been recorded approximately 2.2 km from the application area.</p> <p>No direct observations of significant fauna were recorded during the biological survey. Indirect observations in the form of FRTBC (chewed marri nuts) and the western ringtail possum (WRT) (scats) were recorded (AECOM, 2022).</p>																

B.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	18
Vegetation complex**					
Hedde vegetation complex Bassendean Complex – Central and South **	87,476.26	23,508.66	26.87	4,377.36	5
Local area					
10km radius	24 469	6 324	25.8	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

B.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix F.1), and biological survey information impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Synaphea odocoileops</i>	1	Y	Y	Y	8.4		Y
<i>Leptomeria furtiva</i>	2	Y	Y	Y	3.2	1	Y
<i>Leucopogon</i> sp. Busselton (D. Cooper 243)	2	Y	Y	Y	2.5	1	Y
<i>Schoenus loliaceus</i>	2	Y	Y	Y	1.4 km	1	Y
<i>Thelymitra variegata</i>	2	Y	Y	Y	3.1	1	Y
<i>Adelphacme minima</i>	3	Y	Y	Y	3.3	1	Y
<i>Angianthus drummondii</i>	3	Y	Y	Y	3	2	Y
<i>Boronia tetragona</i>	3	Y	Y	Y	2.6	1	Y
<i>Carex tereticaulis</i>	3	Y	Y	Y	6.8	5	Y
<i>Chamaescilla gibsonii</i>	3	Y	Y	Y	8.9	1	Y
<i>Schoenus benthamii</i>	3	Y	Y	Y	3.9	3	Y
<i>Aponogeton hexatepalus</i>	4	Y	Y	Y	4.5	5	Y
<i>Caladenia speciosa</i>	4	Y	Y	Y	1.6	14	Y
<i>Stylidium longitubum</i>	4	Y	Y	Y	2	2	Y
<i>Trithuria australis</i>	4	Y			8.5	1	Y
<i>Austrostipa bronweniae</i>	T	Y	Y	Y	4.6	1	Y
<i>Austrostipa jacobsoniae</i>	T	Y	Y	Y	3.4	1	Y
<i>Caladenia huegelii</i>	T	Y	Y	Y	5.4	1	Y
<i>Diuris drummondii</i>	T	Y	Y	Y	5	3	Y
<i>Drakaea elastica</i>	T	Y	Y	Y	7.7	1	Y

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Eleocharis keigheryi</i>	T	Y	Y	Y	9.3	2	Y

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

B.4. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Forest red-tailed black cockatoo (<i>Calyptorhynchus banksii naso</i>)	VU	Y	Y		12	Y
Baudin's cockatoo (<i>Calyptorhynchus baudinii</i>)	EN	Y	Y		18	Y
Carnaby's cockatoo (<i>Calyptorhynchus latirostris</i>)	EN	Y	Y		78	Y
Western ringtail possum (<i>Pseudocheirus occidentalis</i>)	CR	N	Y		2097	Y
Quenda (<i>Isoodon fusciventer</i>)	P4	Y	Y		41	Y

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared does not contain locally or regional significant flora, fauna, habitats or assemblages of plants.</p> <p>A portion of the application area is mapped as the "Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region' (Priority 3) priority ecological community (PEC).</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (b):</u> "Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared comprises low quality foraging habitat for conservation significant fauna.</p>	May be at variance	Yes <i>Refer to Section 3.2.2, above.</i>
<p><u>Principle (c):</u> "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared is unlikely to contain habitat for threatened flora.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (d):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.”</i></p> <p><u>Assessment:</u></p> <p>A TEC ‘Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region’ has been mapped within the application area.</p> <p>The area proposed to be cleared does not contains species that can indicate a threatened ecological community.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The retention and extent of the mapped vegetation type and native vegetation in the local area is consistent with constrained areas.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.3, above.</i>
<p><u>Principle (h):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p><u>Assessment:</u></p> <p>Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>	Not likely to be at variance	No
Environmental value: land and water resources		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u></p> <p>Given a wetland and riparian vegetation are recorded within the application area, the proposed clearing is considered to be growing in association with a wetland. The proposed clearing is unlikely to impact on- or off-site hydrology and water quality.</p>	At variance	Yes <i>Refer to Section 3.2.4 above.</i>
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u></p> <p>The mapped soils types are highly susceptible to wind erosion and water logging. Noting the extent of the application area, the condition of the vegetation and the purpose of clearing, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	May be at variance	Yes <i>Refer to Section 3.2.5, above.</i>
<p><u>Principle (i):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p><u>Assessment:</u></p> <p>A wetland is mapped within the application area, however given the predominantly degraded condition, the proposed clearing unlikely to impact surface or ground water quality.</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (j)</u>: “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</p> <p><u>Assessment</u>:</p> <p>The mapped soil types within the application area are highly susceptible to waterlogging, however given the degraded (Keighery, 1994) condition of the application area the proposed clearing is not likely to exacerbate the incidence or intensity of flooding.</p>	Not likely to be at variance	No

Appendix D. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from: Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix E. Biological survey information excerpts

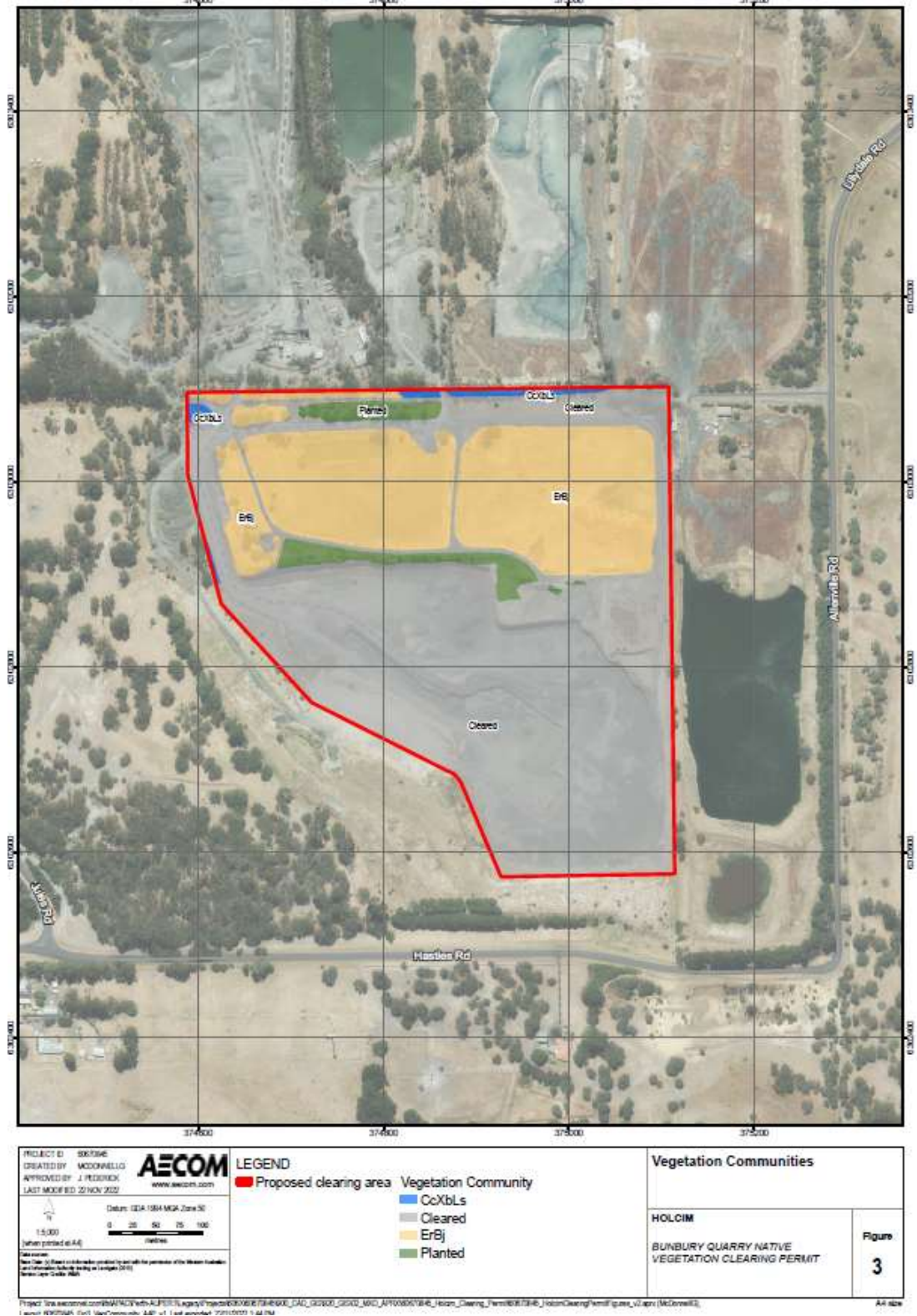


Figure 2: Vegetation communities

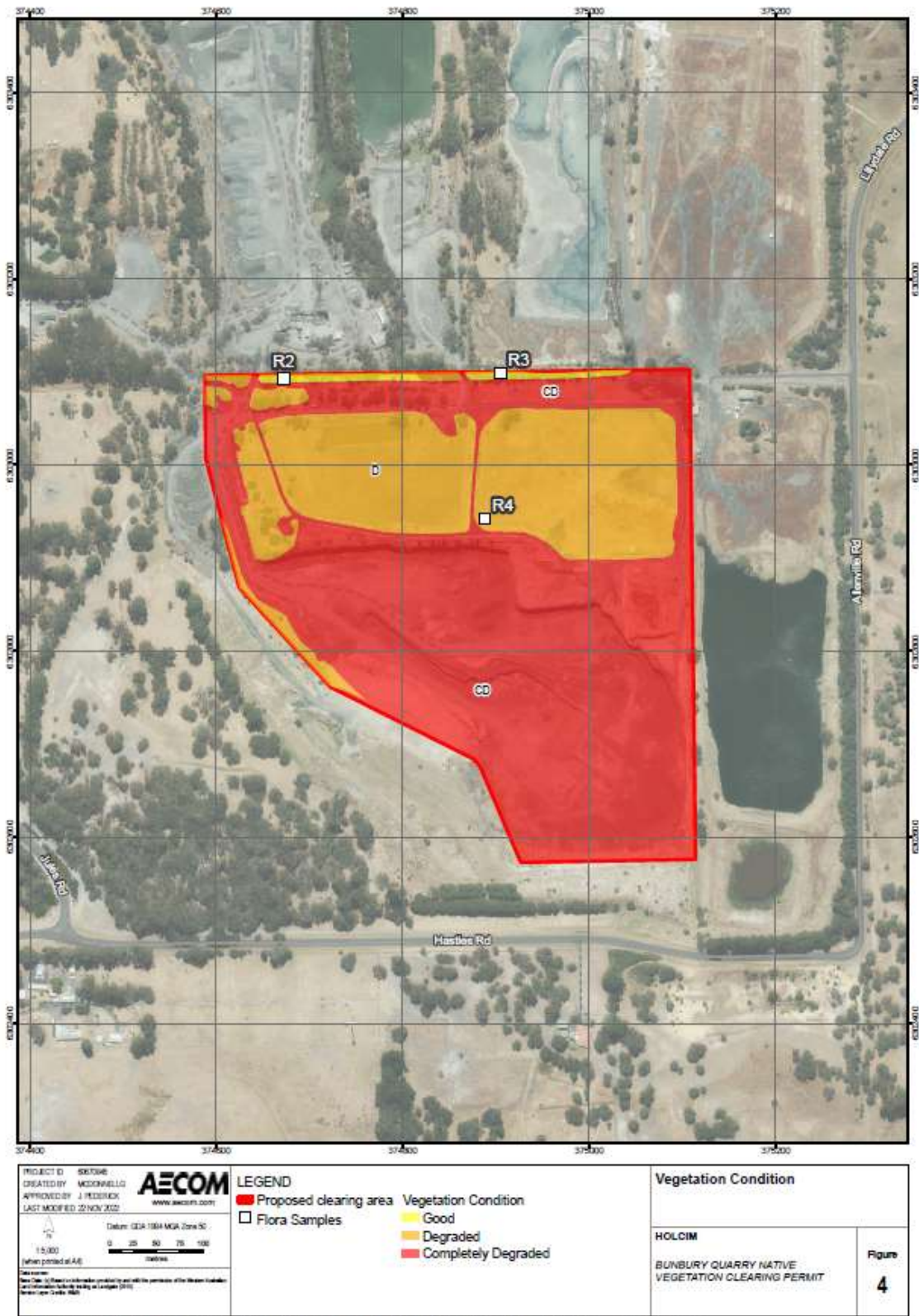


Figure 3: Vegetation Condition (AECOM, 2022)



<p>PROJECT ID: 201906 DRAWN BY: MCCOMB APPROVED BY: J. HENNING LAST MODIFIED: 2022/03/22</p> <p>AECOM</p> <p>Scale: 1:5000 Date: 2022/03/22</p> <p>Project: See document title for details. All rights reserved. All trademarks are the property of their respective owners.</p>		<p>LEGEND</p> <ul style="list-style-type: none"> Proposed clearing area Fauna Habitat Assessment Locations selection TaxonName Forest Red-tailed Black Cockatoo Western Ringtail Possum 		<p>Fauna Habitat</p> <ul style="list-style-type: none"> Hardstand Open Eucalyptus Woodland Trees and Shrubs over Grass Wetland Drainage/Riparian Cleared 		<p>Fauna Habitats</p> <p>HOLDM</p> <p>SUNBURY QUARRY NATIVE VEGETATION CLEARING PERMIT</p> <p style="text-align: right;">Figure 5</p>	
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Figure 4: Fauna Habitats (AECOM, 2022)

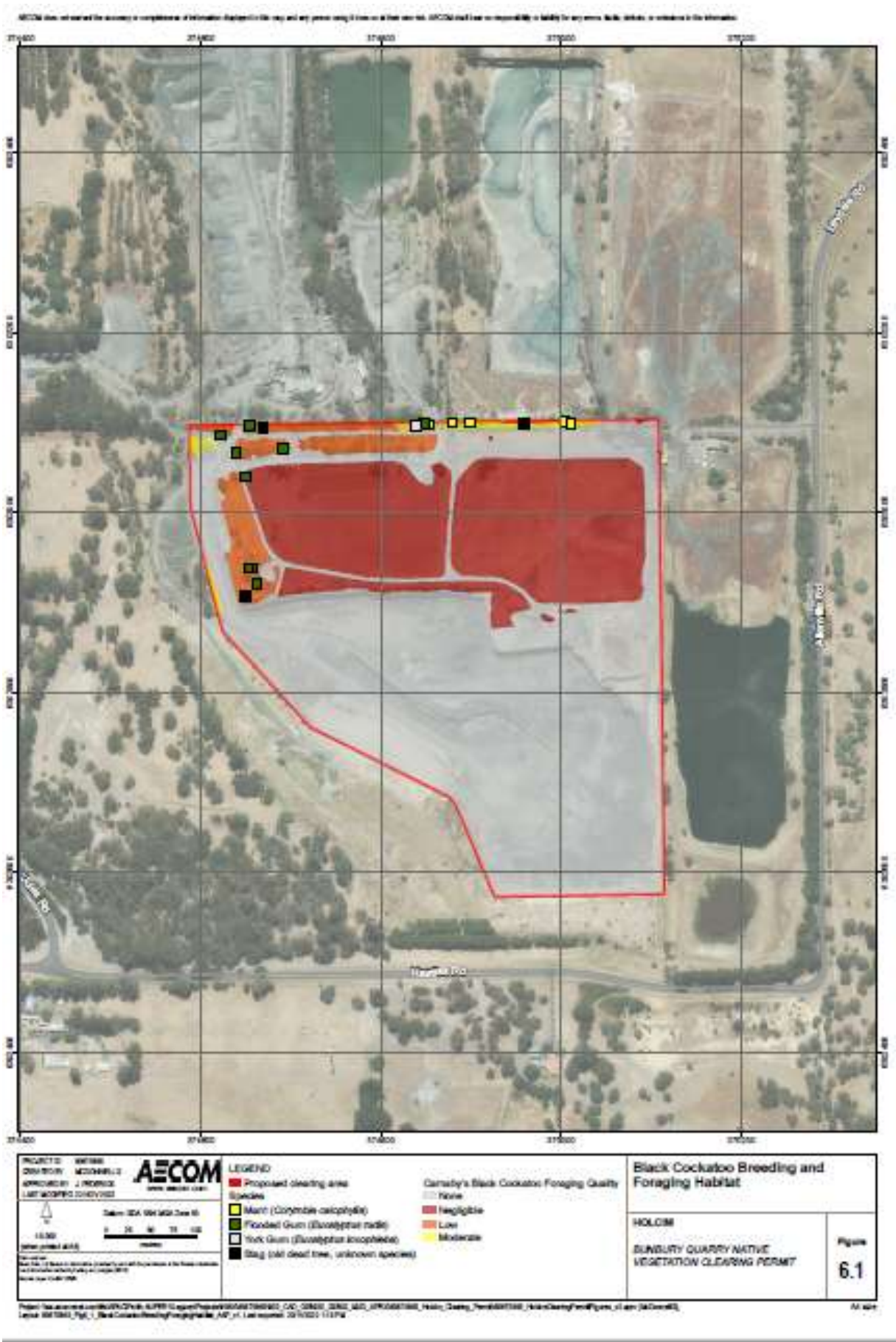


Figure 5: Black cockatoo breeding and Foraging habitat (AECOM, 2022)



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Community Description	Additional Details	Photograph
<p>CcXbLs Eucalyptus (Marri) Woodland</p> <p><i>Corymbia calophylla</i> medium to large trees over <i>Xanthorrhoea brunonis</i> and <i>Lepidosperma squamatum</i> tall to low open shrubland over common pasture weeds including <i>*Briza maxima</i> and <i>*Cenchrus clandestinus</i>.</p> <p>Represents small pockets of remnant native vegetation. Weed invasion has displaced some native understorey species.</p>	<p>Survey effort: R3</p> <p>Species richness: three native and six weed species</p> <p>Area: 1.13 ha</p>	
<p>ErMj Eucalyptus rudis Wetland/Riparian Vegetation</p> <p><i>Eucalyptus rudis</i> medium isolated to clustered trees over <i>Machaerina juncea</i> and <i>Mesomelaena tetragona</i> low open sedgeland over <i>*Avena barbata</i>, <i>*Ehrharta calycina</i> and <i>*Briza maxima</i> tall to low grassland. The regenerated area also includes <i>Viminaria juncea</i> and other native sedge species.</p> <p>Represents wetland/riparian vegetation. Mapped as isolated occurrences. This vegetation represents both planted/modified and native vegetation depicted by the presence of native understorey species and regrowth of native species.</p>	<p>Survey effort: R2 and R4</p> <p>Species richness: eight native and 12 weed species</p> <p>Area: 9.58 ha</p>	

Figure 6: Vegetation community descriptions including mapping code and photographs (AECOM, 2022)



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Appendix F. Sources of information

F.1. GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

F.2. References

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