GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

ADVICE NOTE

Allocation of offset site

In relation to condition 8 of this Permit, 110.92 hectares of Lot 100 on Deposited Plan 33432, Breton Bay, will be attributed to the offset for this project. The nominated 110.92 hectare area contains 96.83 hectares of high quality foraging habitat for Carnaby's cockatoo (*Zanda latirostris*), in addition to other environmental values.

PERMIT DETAILS

Area Permit Number:	CPS 9197/1
File Number:	DWERVT7413
Duration of Permit:	From 23 May 2025 to 05 December 2034

PERMIT HOLDER

PMR Quarries Pty Ltd

LAND ON WHICH CLEARING IS TO BE DONE

Lot 8 on Diagram 53380, Nowergup

AUTHORISED ACTIVITY

The permit holder must not clear more than 14.92 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

CONDITIONS

1. 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.

2. 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;

(c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared;

(d) only move soils in *dry conditions*;

(e) where *dieback* or *weed*-affected soil, *mulch, fill,* or other material is to be removed from the area to be cleared, ensure it is transferred to areas of comparable soil disease status;

(f) at least once in each 12-month period, the permit holder must remove or kill any *weeds* growing within areas cleared under this permit.

3. Wind erosion management - Staged clearing

The permit holder must not clear *native vegetation* unless limestone extraction activities commence within three months of the authorised clearing being undertaken.

4. Directional clearing – Fauna management

The permit holder must:

(a) conduct all clearing authorised under this permit in a slow, progressive manner, in one direction towards adjacent *native vegetation*; and

(b) allow a reasonable time for fauna present within the area being cleared to move into that adjacent *native vegetation* ahead of the clearing activity.

5. Offset – Land transfer

Prior to commencing the clearing authorised under this permit, the permit holder must provide documentary evidence to the *CEO* that the area cross-hatched red in Figure 2 of Schedule 1 has been ceded to the Department of Biodiversity, Conservation and Attractions for the purpose of conservation, to offset clearing associated with this permit.

6. 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	(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 GDA2020, expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the size of the area cleared (in hectares); (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 1; and (f) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 2; (g) actions taken to manage wind erosion in

No.	Relevant matter	Specifications
		accordance with condition 3; and (h) actions taken to conduct directional clearing in accordance with condition 4; (i) actions taken in accordance with condition 5.

7. Reporting

(a) The permit holder must provide to the *CEO*, on or before 31 July of each financial year, a written report containing:

(i) the records required to be kept under condition 6; and

(ii) records of activities done by the permit holder under this permit between 1 July of the preceding financial year and 30 June of the current financial year.

(b) If no clearing authorised under this permit has been undertaken, a written report confirming that no clearing under this permit has been undertaken, must be provided to the *CEO* on or before 31 July of each financial year.

(c) The permit holder must provide to the *CEO*, no later than 90 calendar days prior to the expiry date of the permit, a written report of records required under condition 6, where these records have not already been provided under condition 7(a).

DEFINITIONS

In this permit, the terms in Table 2 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 *Environmental Protection Act 1986*.
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.
fill	means material used to increase the ground level, or to fill a depression.
dieback	means the effect of *Phytophthora* species on native vegetation.
department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 2.
dry conditions	means when soils (not dust) do not freely adhere to rubber tyres, tracks, vehicle chassis or wheel arches.
EP Act	*Environmental Protection Act 1986* (WA)
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.
weeds	means any plant – (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or

Term	Definition
	(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.

END OF CONDITIONS

Chris Shaw
DEPUTY DIRECTOR GENERAL APPROVALS

Officer delegated under Section 20
of the Environmental Protection Act 1986

29 April 2025

Schedule 1

Figure 1: Map of the boundary of the area within which clearing may occur (area cross-hatched yellow).

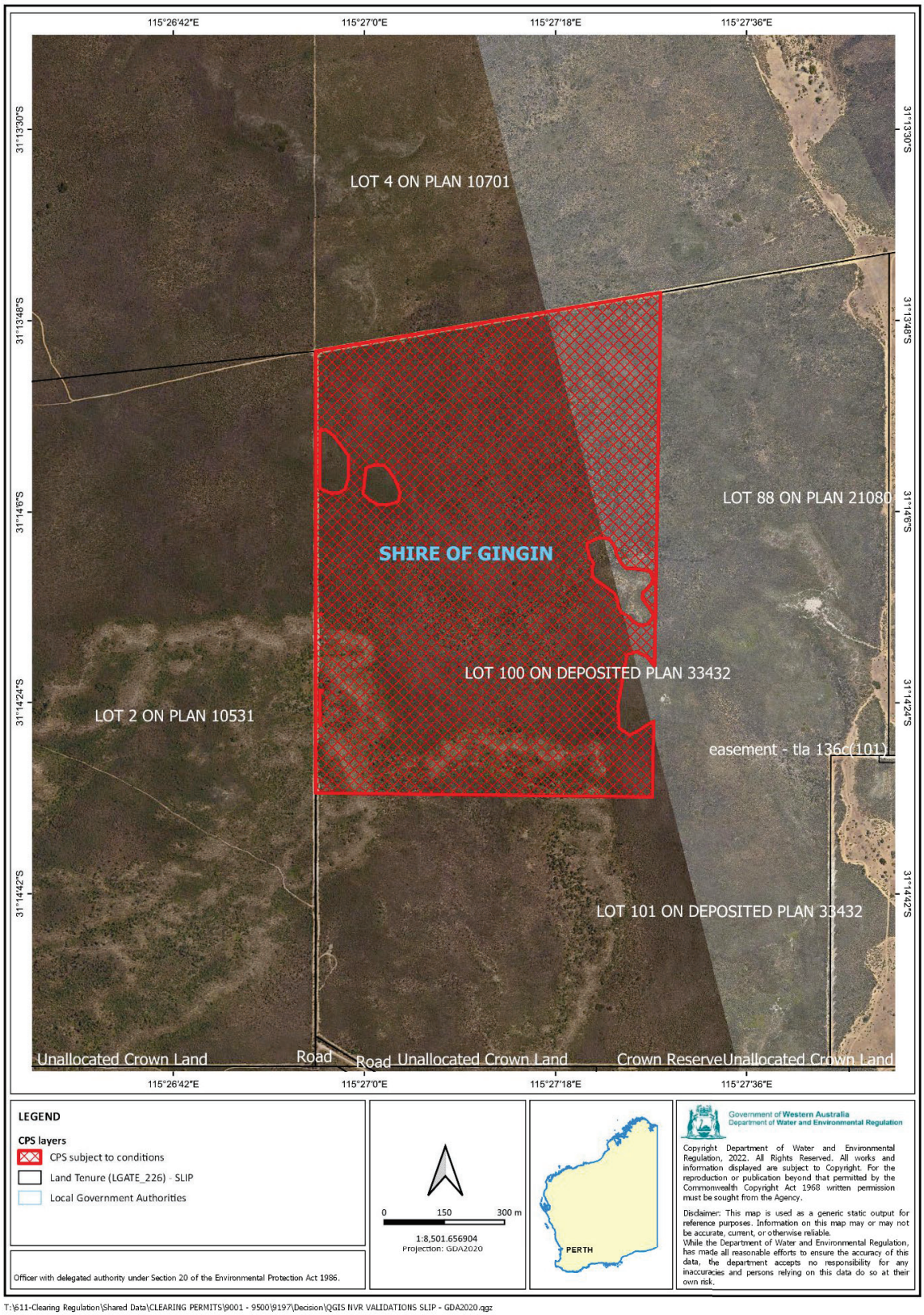

Figure 2: Map of the boundary of the area within which condition 8 applies (cross-hatched red).

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9197/1
Permit type:	Area permit
Applicant name:	PMR Quarries Pty Ltd
Application received:	29 January 2021
Application area:	14.92 hectares of native vegetation
Purpose of clearing:	Limestone quarrying
Method of clearing:	Mechanical
Property:	Lot 8 on Diagram 53380
Location (LGA area/s):	City of Wanneroo
Localities (suburb/s):	Nowergup

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). Clearing is proposed to facilitate the expansion of a limestone quarry. The project is located approximately 35 kilometres north of Perth, within the City of Wanneroo.

The application area was revised during the assessment process in response to a request that the applicant avoid or minimise impacts of the clearing. The changes included:

- a reduction in the amount of clearing from 15.54 hectares to 14.92 hectares to remove a 0.62 area of vegetation consistent with the Banksia Woodlands of the Swan Coastal Plain (Banksia Woodlands) Priority Ecological Community (PEC), which is also listed as a Threatened Ecological Community (TEC), from the application area (refer to Section 3.1 for further details).

1.3. Decision on application

Decision:	Granted
Decision date:	29 April 2025
Decision area:	14.92 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 are summarised in Appendix B.

In making this decision, the Chief Executive Officer (CEO) had regard for:

- the site characteristics (see Appendix C),
- relevant datasets (see Appendix J.1),
- the findings of flora and vegetation surveys and a fauna assessment (See Appendix H),

- expert advice from the Department of Biodiversity, Conservation and Attractions (DBCA)
- the clearing principles set out in Schedule 5 of the EP Act (see Appendix D), and
- relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).

The CEO also took into consideration the increasing pressures on the supply of basic raw materials in the Perth-Peel region, particularly for limestone, and took into consideration the importance of this geological resource for economic development of new housing and road projects within the Perth Metropolitan Area. The CEO also considered that the proposed clearing is to allow the expansion of an existing quarry site which has been identified as a key extraction area for high-quality Tamala limestone, Development Approval (DA) has been granted for the proposal and the implementation of the proposal is consistent with the planning framework for the use of the site (see Section 3.3).

The assessment identified that the proposed clearing will result in:

- the loss of 14.025 ha of high-quality foraging habitat for Carnaby's cockatoo (*Zanda latirostris*);
- indirect impacts to an adjacent patch of the Banksia Woodlands PEC/TEC;
- 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,
- the loss of 14.92 ha of native vegetation that forms part of a regional ecological linkage; and
- increased risk of appreciable land degradation in the form of wind erosion.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the CEO determined that some of the impacts of the proposed clearing, including direct impacts to individual fauna, the risk of land degradation, indirect impacts to Banksia Woodland TEC/PEC and the potential to facilitate the introduction of weeds and dieback, can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values through permit conditioning and implementation of the applicant's impact management commitments (see Section 3.1). However, impacts to native vegetation that is significant foraging habitat for Carnaby's cockatoo remained significant even after the application of minimisation and mitigation measures and constitutes a significant residual impact.

The CEO determined that the proposed clearing is likely to have long-term adverse impacts on Carnaby's cockatoo and is seriously at variance to clearing principle (b). Under section 51O(3) of the EP Act, the CEO may approve clearing which is seriously at variance with a clearing principle if, and only if, in the CEO's opinion there is a good reason for doing so. In this instance, the CEO considers that the following good reasons exist for granting a clearing permit:

- the limestone within the application area has been identified as a significant geological resource of regional significance and the location as a 'Key Extraction Area' under State Planning Policy 2.4;
- the limestone proposed to be extracted is of high grade and suitable for construction purposes;
- the limestone resource is required in the construction of new houses, roads and other infrastructure;
- the impacts of clearing have been avoided or mitigated to the extent practicable;
- the limestone resource will be used for significant developments including, but not limited to:
    - road upgrades for the larger Mitchell Freeway extension project. The Mitchell Freeway extension project is understood to provide the following social and economic benefits:
        - Improved network connectivity, accessibility and road safety for all road users;
        - A more direct route to Perth's northern suburbs and relieve traffic build up on nearby roads;
        - Facilitate economic and social development to communities in Perth's northern suburbs;
    - other major road projects such as the future Great Eastern Highway bypass
    - ongoing residential developments in Perth's Northern suburbs such as Ellenbrook, Butler, etc;
- the significant residual impacts of the clearing have been appropriately offset in accordance with the WA Offset Policy 2011 and WA Environmental Offset Guidelines (2014).

Given the above, the CEO decided to grant a clearing permit subject to the following conditions:

- avoid, minimise and reduce the impacts and extent of clearing
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback
- undertake slow directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity to minimise impact to fauna individuals
- commence extraction no later than three months after undertaking clearing to reduce the risk of soil erosion; and
- the provision of an offset through the ceding of 110.92-hectares of high-quality black cockatoo habitat within Lot 100 on Deposited Plan 33432, Breton Bay, to DBCA for conservation in perpetuity.

1.5. Site map

Figure 1. Map of the application area. The area crosshatched yellow indicates the area authorised to be cleared under the granted clearing permit.

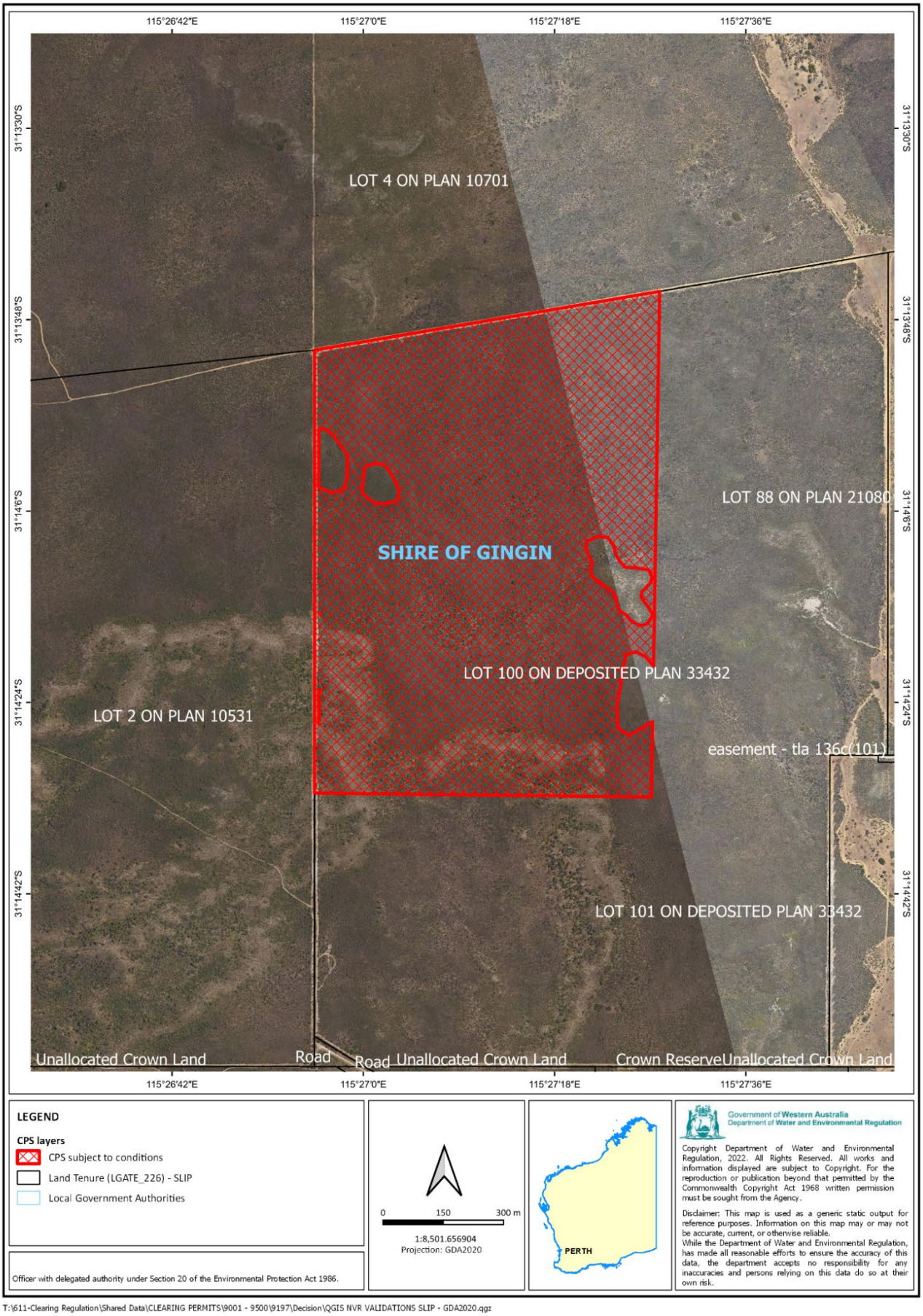

Figure 2. Map of the offset area. The area crosshatched red indicates the area in which the offset permit condition applies.

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)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)

Relevant policies considered during the assessment include:

- *Environmental Offsets Policy* (2011)
- *State Planning Policy 2.4 – Planning for Basic Raw Materials* (2021)

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)
- *Environmental Offsets Guidelines* (August 2014)
- 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

In their application (WA Limestone, 2021), the applicant submitted the following information to demonstrate their consideration of avoidance and mitigation measures “No viable alternative sources of limestone resource exist in the region. Area of clearing within subject land has been minimised to the smallest practical area”.

During the assessment of the proposed clearing, DWER asked the applicant to provide further information on avoidance and minimise measures, and the following information was provided (WA Limestone, 2022):

- Management Strategies:
  - The development footprint area will be clearly demarcated prior to any earthworks/clearing activities being undertaken to ensure no vegetation is cleared outside the designated footprint area;
  - A fauna relocation program will be implemented prior to clearing with a qualified zoologist on site during clearing works to collect and relocate disturbed fauna;
  - Clearing will take place in such a manner that fauna can escape into the remaining bushland; and
  - Access control measures will be put in place to restrict access to environmentally sensitive areas.
- Weeds:
  - All mobile plant will be cleaned of soil and vegetation prior to entering and leaving areas to be cleared; and
  - Hygiene steps to minimise the risk of the introduction and spread of weeds will be undertaken.
- Measures undertaken to minimise/mitigate the clearing of vegetation regarding significant flora and vegetation communities:
  - 0.62-hectares of vegetation consistent with the Banksia Woodlands PEC was removed from the application area, reducing the area of clearing from 15.54 hectares to 14.92 hectares (refer to figure 2 below). This area will be demarcated off to prevent accidental ingress by mobile plant.

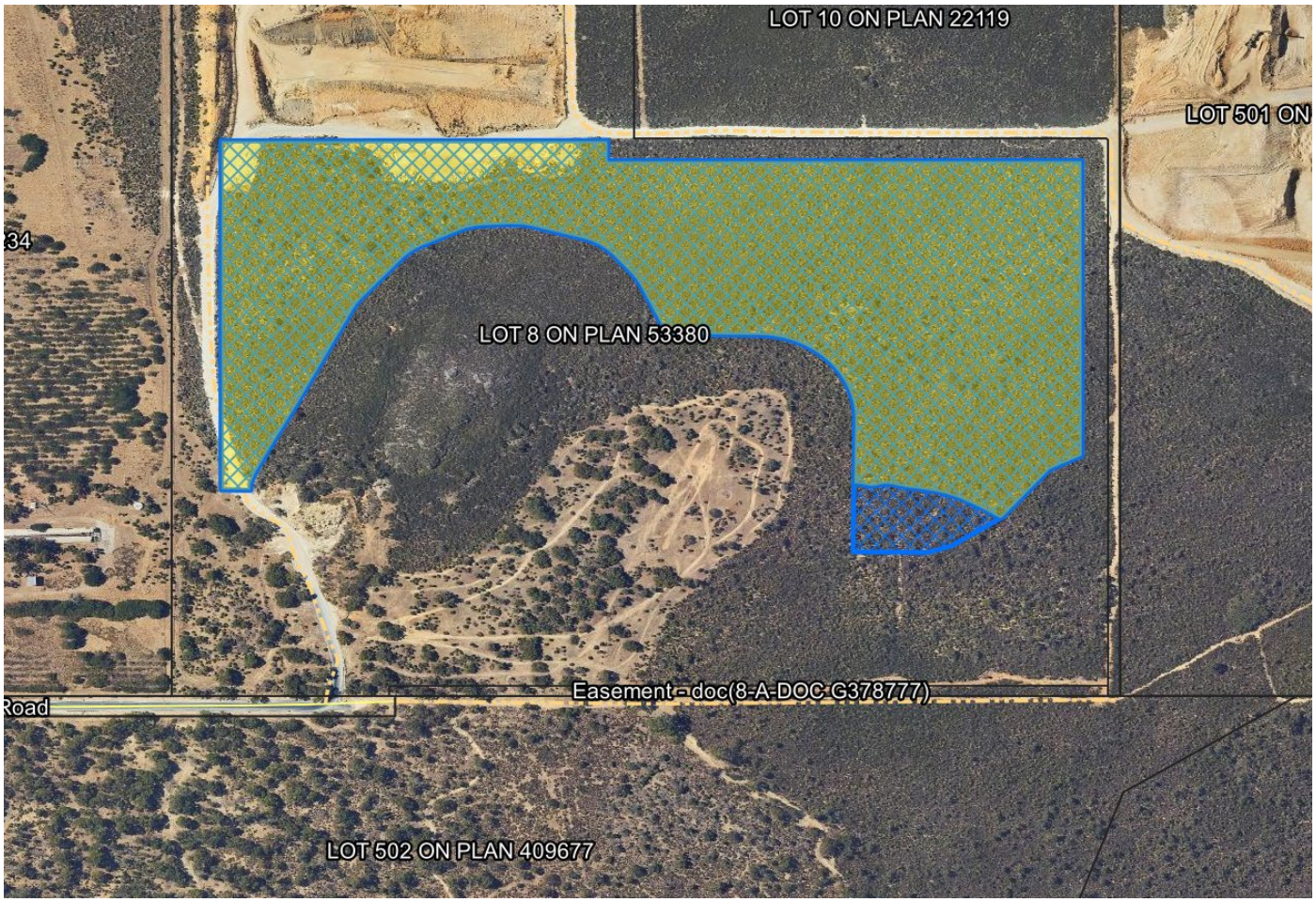

Figure 3. Original application area (blue outlined area) and area permitted to clear under CPS 9197/1 (yellow shaded area).

The applicant has also advised that under their approved DA from the City of Wanneroo, they must develop and implement an Environmental Management Plan in consultation with DBCA and develop and implement a Fauna Management Plan to manage the environmental impacts of the proposal. The Environmental Management Plan must include but is not limited to:

- the provision of appropriate interface treatments;
- maintenance of hydrological regimes;
- dust suppression;
- Phytophthora dieback management;
- rubbish removal;
- a monitoring and maintenance program;
- weed mapping and control; and
- access control measures.

In addition, under the Western Australian Planning Commission (WAPC) Planning Approval for this project, the applicant is required to ensure that:

- The development including construction, access, drainage, dust management processing and ongoing maintenance, is not to result in any clearing or disturbance to the regionally significant bushland within Bush Forever Site 293.
- No construction materials, rubbish or any deleterious matter shall be deposited within Bush Forever Site 293.
- Uniform fencing, that is compatible with the natural environment, is to be provided along the boundary of Bush Forever Site 293, or the landscaped buffer, to the specification of the DBCA and the satisfaction WAPC (as the adjacent land owner).
- The provision of a 20 – 100m landscape buffer (see Figure 4 below) of undisturbed native vegetation during excavation between Bush Forever Site 293 and the development site, to the specification of the DBCA and the satisfaction of the WAPC.

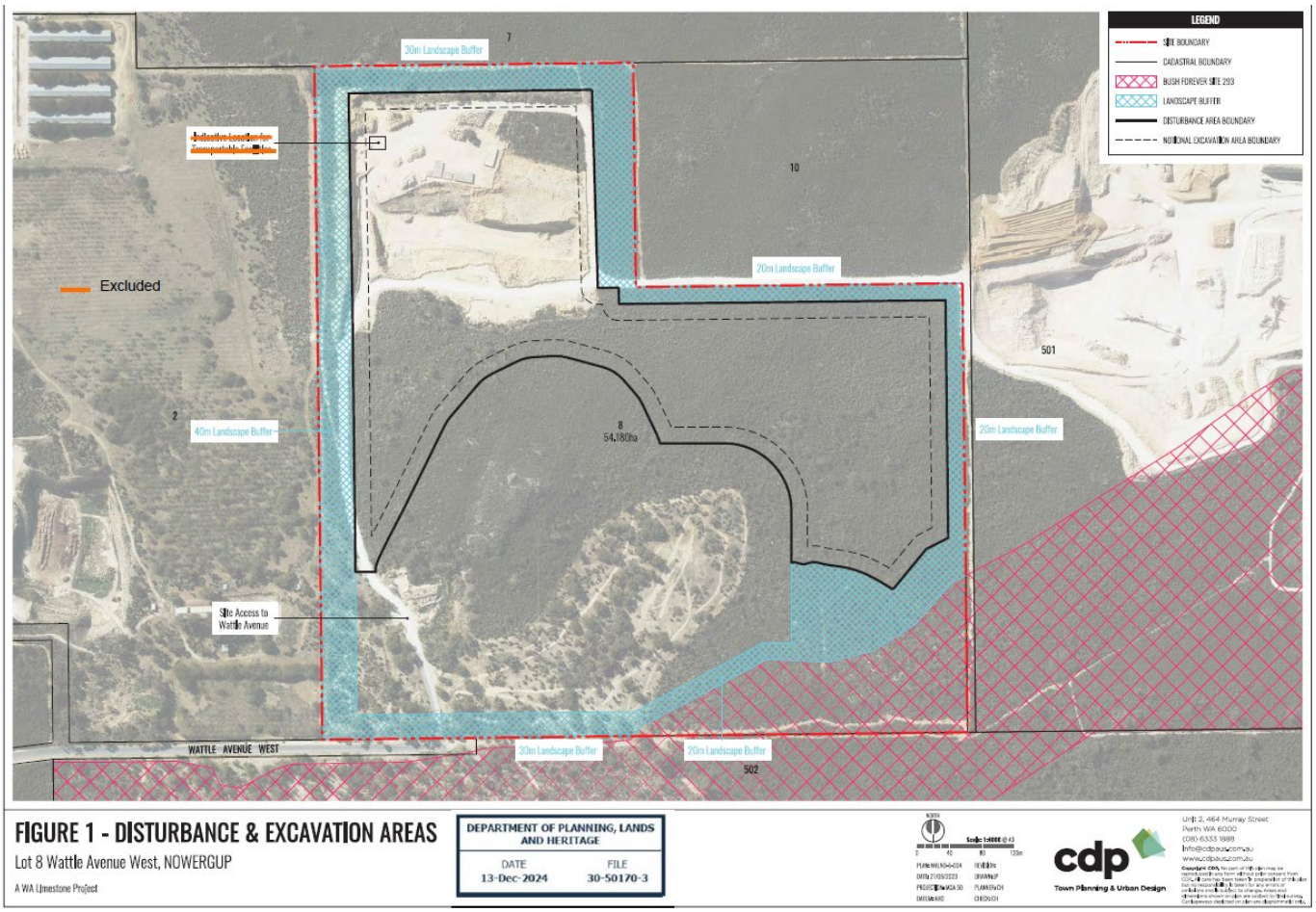

Figure 4. Extraction area and landscape buffer (blue outlined area) approved under the WAPC Planning Approval.

The applicant also advised during the assessment of this application that revegetation and rehabilitation of the application area post extraction, with native vegetation, is not proposed as the end land use is expected to include a hard stand and an area for manufacturing limestone blocks that will be sourced from nearby pit operations. The applicant further advised that (Western Environmental, 2025):

- the quarry is expected to have a life of over 20 years meaning that any rehabilitation activities would not commence for a substantial period;
- given the land is privately held by WA Limestone, there is a reasonable expectation that following quarrying the land will be used for an alternative commercial purpose compatible with the relevant regulatory frameworks at the time;
- to address the regulatory uncertainty, the quarry completion criteria have been designed to be as flexible as possible to avoid sterilising or restricting future land uses; and
- any future post-quarrying land use will require separate town planning and environmental assessment and approvals prior to commencing.

The applicant also provided further information to justify the importance of the limestone resource necessitating its extraction and the required clearing (WA Limestone 2021b and 2022). This information can be found in Appendix I.

After consideration of avoidance and mitigation measures and the offset proposal, it was determined that an offset to counterbalance the significant residual impacts to Carnaby's cockatoo foraging habitat is required. In accordance with the Government of Western Australia's *Environmental Offsets Policy* and *Environmental Offsets Guidelines*, these significant residual impacts have been addressed through the conditioning of environmental offset requirements on the permit. The nature and suitability of the offset provided are summarised in Section 4.

3.2. Assessment of impacts on environmental values

In assessing the application, the CEO has had regard for the site characteristics (see Appendix C) 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 D) identified that the risk of impacts of the proposed clearing to biological values (fauna and vegetation), significant remnant vegetation and conservation areas, and soil

required further consideration. 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 (fauna) - Clearing Principles (a) and (b)

Assessment

According to available GIS datasets, the Carnaby's cockatoo (*Zanda latirostris*) (Endangered, under the EP Act and EPBC Act) has been recorded within the local area (10 km radius). Carnaby's cockatoos' nest in hollows in live or dead trees of karri, marri, wandoo, tuart, salmon gum, jarrah, flooded gum, York gum, powder bark, bullich and blackbutt (Commonwealth of Australia, 2017). They are known to forage on the seeds and flowers of a large variety of plants including Banksia, Eucalypt and Corymbia species (Valentine & Stock, 2008). Carnaby's cockatoo habitat can be considered in terms of breeding habitat, night roosting habitat, and foraging habitat. Carnaby's cockatoos will generally forage up to 12 kilometres from an active breeding site (DAWE, 2022). Following breeding, they will flock in search of food, usually within six kilometres of a night roost (DAWE, 2022), but may range up to 20 kilometres (DAWE, 2022). Given this, food resources within the range of breeding sites and roost sites are important to sustain populations, and foraging resources are therefore viewed in the context of known breeding and night roosting sites, particularly within 12 kilometres of an impact area (DAWE, 2022).

The Carnaby's cockatoo recovery plan (DPaW, 2013) summarises habitat critical to the survival for Carnaby's cockatoos as:

- 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; and
- 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 resource.

The Carnaby's cockatoo recovery plan states that there are multiple reasons for the decline of Carnaby's cockatoos, however the decline to date has primarily been through the extensive clearing of nesting and feeding habitat (DPaW, 2013). Ongoing counts of Carnaby's cockatoo numbers on the Perth-Peel Coastal Plain estimate that there has been a 35 per cent reduction in their population from 2010-2019 (Peck, Barrett and Williams, 2019). The long-term survival of Carnaby's cockatoos depends on the availability of suitable breeding habitat and hollows, as well as foraging habitat capable of providing enough food to sustain the population (DPaW, 2013).

The application area does not contain any tall Eucalypts which could be used by Carnaby's cockatoos for breeding or roosting (Bamford, 2022a) and therefore it is not considered for the proposed clearing to impact breeding or roosting habitat for black cockatoos.

The vegetation within the application area includes known foraging species for Carnaby's cockatoos including the high value foraging species *Banksia attenuata, B. grandis* and *B. sessilis* and the medium value foraging species *Xanthorrhoea preissii* (Bamford, 2022a). *Banksia sessilis* was the most abundant species across the application area generally in moderate to high density (Bamford, 2022a). Foraging evidence by black cockatoos was mostly observed on *Banksia sessilis* during a fauna survey of the application area (Bamford, 2022a).

The northern banksia woodlands of the Perth metropolitan area, within which the application area occurs, are a known important foraging area during the non-breeding season for the Carnaby's cockatoo. The EPA technical advice for Carnaby's cockatoo notes that Banksia species (predominately *Banksia attenuata*, *Banksia menziesii* and *Banksia sessilis*) provide the most important natural food source on the Swan Coastal Plain (SCP) for this species (EPA, 2019). The significance of the banksia woodland habitat on the SCP has been confirmed through foraging studies which determine that Carnaby's cockatoo exploit all areas of available Banksia food resources on the SCP (EPA, 2019). Banksia woodland in the Perth metropolitan area has been reduced to one third of its pre-European extent. The remaining portions are fragmented with the majority (82 per cent) of remnant patches under 10 hectares in size (EPA, 2019).

Pine plantations on the Swan Coastal Plain have become an increasing important food source for Carnaby's cockatoos in areas where insufficient native foraging habitat remains (Valentine & Stock, 2008). Results from the Great Cocky Count in 2019 found that over 70% of the Carnaby's cockatoos recorded in the Perth-Peel region were recorded within the Gnangara pine plantation and a roost in Yanchep National Park which has historically been used by cockatoos feeding in the Gnangara pine plantation (Peck, Barrett and Williams, 2019). Tracking of individual birds has shown that the cockatoos will primarily feed on pine seeds before switching to exclusive use of native vegetation following the depletion of pinecones (Murdoch University, 2022). As pine plantations are cleared, it will force Carnaby's cockatoos to switch to feeding on native vegetation earlier in the season as pinecones are depleted more

quickly. Therefore, areas of foraging habitat in proximity to cleared pine plantations are of greater significance to help provide enough food to sustain large numbers of Carnaby's cockatoos. The application area is located approximately one kilometre from pine plantations within the Gnangara-Moore River State Forest (GIS Database). Significant areas of the pine plantation in the local area (surrounding 10 kilometres) have been progressively felled over the previous 25 years, reducing the availability of foraging areas for Carnaby's cockatoos (GIS Database).

Adding to the pressures of food availability were the bushfires which have occurred in the previous five years. The 2019-20 Yanchep bushfires destroyed over 12,000 hectares of foraging habitat and within the local area, approximately 20% of the native vegetation has also been burnt during this time period (GIS Database). This elevates the importance of the foraging habitat within the application area in the short term as these burn areas recover and pines continued to be harvested.

There are 72 known black cockatoo roosting sites within 20 km of the application area; the range in which black cockatoos are known to forage from their roost sites. The closest of these is 1 km south of the application area. In addition, the application area is within 12 kilometres of one of the last remaining breeding areas for Carnaby's cockatoo in the Perth metropolitan area (GIS Database). There are 17 known breeding sites present within 12 km; the range in which black cockatoos are known to forage from their breeding sites. The closest of these is 8 kilometres south of the application area. Success of breeding is dependent on the availability of adequate foraging habitat within 12 kilometres of the breeding site (Glossop et al., 2011). Given the vegetation within the application area provides high value foraging habitat that is likely to support black cockatoo populations roosting and breeding in the local area, it is considered that the proposed clearing of significant foraging habitat for Carnaby's cockatoos is likely to impact the species at a local and regional scale.

Other fauna

The application area may also provide habitat for the following conservation significant fauna species:

- *Hylaeus globuliferus* (woolybush bee) (Priority 3) – This bee species is known to be associated with *Adenanthos cygnorum* (woolybush) and *Banksia* species (Houston 2018), with records present from Arrowsmith in the northwest to Fitzgerald River National Park in the southeast. It is considered that this species may occur within the application area, however noting its wide range and remaining suitable habitat adjacent to and surrounding the application area, the proposed clearing would be unlikely to significantly impact this species, if present.
- The graceful sun-moth (*Synemon gratiosa*) (Priority 4) is known to occur in disjunct populations from Kalbarri to Binningup (GIS Database). The larvae of the species feed only on *Lomandra hermaphrodita* and *Lomandra maritima* (DEC, 2012a). There is *L. maritima* recorded within the application area (PGV Environmental, 2022a). Given the presence of this host species and the large number of graceful sun-moth records in the local area, it is likely that this species would utilise the application area. Noting its wide range and remaining suitable habitat adjacent to and surrounding the application area, the proposed clearing would be unlikely to result in significant impacts to this species.
- Douglas's broad headed bee (*Hesperocolletes douglasi*) (Critically Endangered) was gazetted as 'Presumed Extinct' in 1994 and had only been recorded on one occasion, a single male species recorded at Rottnest Island in 1938. A second individual was collected in 2015 at the Australian Department of Defence Muchea Air Weapons Range. This species was recorded from Banksia woodland however, the species may be a generalist forager as it was carrying pollen from a diverse set of plant species from Banksia woodland (Pille Arnold et al., 2019). Whilst its preferred habitat is unknown, it is possible the vegetation proposed to be cleared could be utilised by the species. Noting the rarity of this species and similar habitat adjacent to and surrounding the application area, the proposed clearing would be unlikely to result in significant impacts to this species.
- *Leioproctus contrarius* (a short-tongued bee) (Priority 3) has been recorded from Eurardy in the north to Dardanup in the south. It uses the native species *Scaevola repens* var. *repens* and *Lechenaultia* spp. (Houston 2000). A *Lechenaultia* species was recorded in a 2006 flora survey encompassing the application area (Regeneration Technology Pty Ltd, 2006). As such, it is possible that this species may occur within the application area, however noting its wide range and remaining suitable habitat adjacent to and surrounding the application area the proposed clearing would be unlikely to result in significant impacts to this species.
- *Neelaps calonotos* (black-striped snake, black-striped burrowing snake) (Priority 3) is restricted to coastal sandplains from near Dongara to Mandurah (Bush et al., 2010). Within the Perth Metropolitan area this species may be restricted to large reserves (How and Shine, 1999). It is possible that this species may occur within the application area, however noting its wide range and remaining suitable habitat adjacent to and surrounding the application area the proposed clearing would be unlikely to result in significant impacts to this species.
- *Isoodon fusciventer* (quenda, southwestern brown bandicoot) (Priority 4) – This species inhabits dense scrubby, often swampy, vegetation with dense cover and adjacent forest and woodland (DBCA, 2018). This species is likely to occur within the application area, however noting its wide range and remaining suitable

habitat adjacent to and surrounding the application area the proposed clearing would be unlikely to result in significant impacts to this species.

- *Notamacropus irma* (western brush wallaby) (Priority 4) - Optimum habitat for this species is open forest or woodland, particularly favouring open, seasonally-wet flats with low grasses and open scrubby thickets across the south west of Western Australia (DEC, 2012). While this species may utilise the application area as habitat, noting the range of this species and remaining suitable habitat adjacent to and surrounding the application area the proposed clearing is unlikely to have a significant impact upon this species.

A condition requiring the applicant to conduct clearing in a slow progressive manner towards adjacent vegetation will reduce impacts to individuals of the above species, particularly western brush wallaby, black-striped snake and quenda.

Conclusion

Based on the above assessment, the proposed clearing will result in the clearing of 14.025 hectares of significant foraging habitat for Carnaby's cockatoos and will have significant residual impacts for this species. The vegetation is also part of an ecological linkage (see section 3.2.3) and provides habitat for other species of conservation significance.

Conditions

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

- directional clearing, which requires slow, progressive, one directional clearing to allow terrestrial fauna to disperse ahead of the clearing activity should they occur on site at the time of clearing;
- the provision of an offset through the ceding a 110.92-hectares of Lot 100 on Deposited Plan 33432, Breton Bay, which contains high quality foraging habitat for black cockatoos, to DBCA for conservation in perpetuity.

3.2.2. Biological values (flora and vegetation) - Clearing Principles (a), (c) and (d)

Assessment

Based on known records and the vegetation present in the application area, there are 15 species of threatened or priority flora for which the application area potentially provides habitat (DBCA, 2021; GIS Database; PGV Environmental, 2022a). The most recent survey did not record any threatened or priority flora within the proposed clearing area or broader survey area (PGV Environmental, 2022a). A previous survey in 2006 area recorded *Jacksonia sericea* (P4) within the proposed clearing area, however, this was later re-classified to *Jacksonia gracillima* (P3) in a 2016 survey (PGV Environmental, 2022a). The most recent flora and vegetation survey noted that this was also likely mis-identified and is more likely to be *Jacksonia calcicola* which was recorded within the proposed clearing area and is a relatively common species (PGV Environmental, 2022a). Given these findings, the proposed clearing is not likely to impact on conservation significant flora.

The flora and vegetation survey (PGV Environmental, 2022a) conducted in 2021 included a targeted survey for *Eucalyptus argutifolia* (VU), *Melaleuca* sp. Wanneroo (EN), *Baeckea* sp. Limestone (P1), *Haloragis luminosa* (P1) and *Acacia benthamii* (P2). None of these species were found within the application area. While the survey occurred outside the flowering time for *Eucalyptus argutifolia* (March-April), *Melaleuca* sp. Wanneroo and *Acacia benthamii,* noting the following it is considered that the survey timing was appropriate:

- no mallee eucalypts were found within the application area, ruling out the presence of *Eucalyptus argutifolia*
- PGV Environmental (2022a) considered that *Melaleuca* sp. Wanneroo, could be distinguished from similar species by its leaves. Leaf shape is also noted to be an identifying feature for this species by the Threatened Species Scientific Committee (TSSC) (2019);
- PGV Environmental (2022a) considered that *Acacia benthamii* leaves are recognisable by their phyllodes, which are similar to the phyllodes of *A. cochlearis*; no *A. cochlearis* was also found in either the 2021 survey or the Regeneration Technology Pty Ltd survey conducted in 2006.

The flora and vegetation survey identified the following vegetation types within the original (15.34 ha) clearing footprint (PGV Environmental, 2022a):

- Bs: *Banksia sessilis* Tall Shrubland to Tall Open Scrub over *Xanthorrhoea preissii*/*Hibbertia hypericoides*/*Melaleuca systena*/*Calothamnus quadrifidus* Closed Low Heath,
- EdBs: *Eucalyptus decipiens* Low Open Woodland over *Banksia sessilis* Shrubland over *Xanthorrhoea preissii/Hibbertia hypericoides* Open Low Heath
- BaBg: *Banksia attenuata/B. grandis* Low Open Woodland over *Xanthorrhoea preissii/Hibbertia hypericoides* Open Low Heath.

PGV Environmental (2022a) found that both Bs and EdBs vegetation types present within the application area had greatest similarity to Floristic Community Type (FCT) 28 'Spearwood *Banksia attenuata* or *Banksia attenuata–Eucalyptus marginata* woodlands'. FCT 28 has been associated with the Banksia Woodlands TEC (DoEE, 2016),

and therefore also the DBCA-listed PEC. However, the vegetation in the application area does not meet the key diagnostic characteristics of the Banksia Woodlands PEC/TEC, as it is not dominated or co-dominated by *Banksia attenuata*, *Banksia menziesii*, *Banksia prionotes* or *Banksia ilicifolia*, as per the criteria specified by *EPBC Act (s 266B) Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community* (DoEE, 2016).

The flora and vegetation survey determined that the BaBg vegetation type was consistent with the Banksia Woodlands TEC/PEC (PGV Environmental, 2022a). The applicant subsequently revised the application area (see Section 3.1) to remove the vegetation type from the proposed clearing. While the proposed clearing will not remove vegetation representative of the community, it still has the potential to impact this adjacent patch of Banksia Woodlands TEC/PEC through the spread of weeds and dieback and possible introduction of dust. However, noting the extent of the Banksia Woodlands PEC/TEC within the local area and that no Banksia Woodlands PEC/TEC will be directly cleared, it is considered that impacts to the conservation status of this PEC/TEC are unlikely to be significant. Impacts to the adjacent patch of Banksia Woodlands PEC/TEC will be partially managed through conditions on the permit to manage weeds, dieback and wind erosion.

PGV Environmental (2022a) found that both mapped vegetation types present within the application area had greatest similarity to FCT28, which is described as having moderate to high species richness (Department of the Environment and Energy, 2016). However, FCT28 has been recorded across a reasonably wide range, from Seabird south to Thomsons Lake, and from a relatively large number of sites across the Swan Coastal Plain as compared to other floristic community types (Gibson et. al. 1994). As such, it is considered that the biodiversity present within the application area is likely to be relatively well represented elsewhere across the Swan Coastal Plain, and that the clearing of this vegetation type is unlikely to result in significant impacts to biodiversity at a regional level.

A patch of the *Melaleuca huegelii - Melaleuca systena* shrublands on limestone ridges (floristic community type 26a as originally described in Gibson et al. (1994)) TEC (FCT26a TEC) has been mapped 100 metres south of the west side of the application area. It is considered that the clearing is unlikely to result in significant impacts to this TEC patch, or the conservation status of this TEC, noting that there is 100 metres of vegetation between the application area and the patch, which is considered to be large enough to prevent the spread of weeds and dieback and prevent impacts from dust. Permit conditions to manage weeds, dieback and wind erosion will further reduce the likelihood of any potential impacts.

Weeds were identified during the greater flora survey which included the application area (PGV Environmental, 2022a). Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area. No dieback assessment has been undertaken over the application area. Potential impacts to the biodiversity as a result of the proposed clearing will be minimised by the implementation of a weed and dieback management condition.

Conclusion

Based on the above assessment, the proposed clearing is not likely to result in the clearing of conservation significant flora or ecological communities or result in significant impacts to biodiversity at a regional level. The clearing may result in indirect impacts to an adjacent patch of Banksia Woodlands PEC/TEC, which can be managed through conditions placed on the permit.

Conditions

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

- Take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback; and
- Commence extraction no later than three months after undertaking clearing to reduce the risk of erosion and dust impacting surrounding vegetation.

3.2.3. Significant remnant vegetation and conservation areas - Clearing Principles (e) and (h)

Assessment

The application area falls within the Swan Coastal Plain Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 38.62% of the pre-European vegetation still exists in the Swan Coastal Plain Bioregion (Government of Western Australia, 2019a). Heddle et al. (1980) described and mapped the area as the Cottesloe complex-central and south which has approximately 32% remaining (GIS Database). Spatial data indicates the local area (10-kilometre radius from area proposed to be cleared) retains approximately 40% of the original native vegetation cover.

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 before the year 1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). These vegetation units are all above the 30 per cent threshold.

The eastern portion of the application area is within a linkage (9 - Links Bush Forever Sites 290, 293) mapped in the *Perth Regional Ecological Linkages* (WALGA, 2004). This ecological linkage dataset represents the first step in the process of identifying patches of native vegetation that can act as stepping stones to form Regional Ecological Linkages. This linkage corresponds with conceptual linkage identified by the *Ecological linkages proposed for the Gnangara Groundwater System* (Brown et al, 2009). Conceptual linkages are described by Brown et. al. (2009) as "proposed ecological linkages based on past studies and new linkages across the landscapes with <60% native vegetation retained or on core landscapes that are predominantly over private property".

While it is acknowledged that the application area is within the above mapped linkage and the clearing will remove a portion of this linkage, it is considered that the proposed clearing will not entirely remove this linkage and that there is sufficient vegetation remaining outside the application area to allow for fauna and flora movement within the landscape. Nevertheless, the proposed clearing will impact on vegetation that is a part of a linkage between vegetation immediately to the north and Lake Joondalup to the south.

The application area is located within a remnant of vegetation surrounded by pine plantation to the east, cleared agricultural area to the west with existing cleared areas for limestone extraction in the east and north. The application area is located within the south-western portion of this remnant. The location of the clearing has the potential to increase the impact of edge effects and increase the spread of weeds throughout the remnant.

The proposed clearing footprint has been minimised to reduce the amount of clearing of this remnant. Whilst most of the remnant will be retained, there are two additional clearing permit applications (CPS 8020/1 and CPS 10772/1) which propose to clear 1.967 hectares and 15.06 hectares respectively and one recently granted clearing permit (CPS 9804/1) to clear 6.495 hectares. Therefore, this remnant faces threats from potential cumulative impacts. Taking into consideration the total clearing of all four applications, the remnant will still retain sufficient vegetation to act as an ecological linkage and will maintain ecological function.

Bush Forever site 293 is located approximately 50 metres south-east of the application area. The Department for Planning and Infrastructure (2007) recommended a minimum 50 metre buffer of undisturbed vegetation to Bush Forever site 293. As such, the buffer is considered likely to be sufficient to prevent impacts to the Bush Forever area. Conditions placed on the permit to manage weeds, dieback and dust will further reduce the risk of impacts to this Bush Forever Area.

Conclusion

Based on the above assessment, the proposed clearing will contribute to the fragmentation and has potential to further degrade a local and mapped regional ecological linkage and will therefore impact on a significant remnant of vegetation in a highly cleared area. Whilst the clearing will impact a significant remnant, it will not completely sever the ecological linkage and there will be enough vegetation retained for the remnant to maintain its ecological function. The proposed clearing is considered unlikely to impact on nearby Bush Forever site 293, and weed, dieback and wind erosion management conditions will further reduce the risk of impacts to this area.

Conditions

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

- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback; and
- commence extraction no later than three months after undertaking clearing to reduce the risk of erosion and dust impacting surrounding vegetation.

3.2.4. Land and water resources (wind erosion) - Clearing Principle (g)

Assessment

Soils within the application area have a high risk of wind erosion. Without appropriate ground cover, windbreaks or adequate dust suppression on exposed surfaces, the proposed clearing may cause appreciable land degradation. To minimise the degree of soil wind erosion, a wind erosion management condition, requiring the applicant to begin extractive activities within 3 months of the clearing being undertaken, has been placed on the permit. It is noted that the applicant plans to place a hardstand over the application area post extraction, which once established will preclude wind erosion from occurring.

Conclusion

The proposed clearing is likely to result in wind erosion, however impacts can be minimised through wind erosion management conditions on the permit.

Conditions

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

- commence extraction no later than three months after undertaking clearing to reduce the risk of erosion and dust impacting surrounding vegetation.

3.3. Relevant planning instruments and other matters

In accordance with section 51O(4) of the EP Act, in considering a clearing matter the CEO shall have regard to any development approval, planning instrument, or other matter, that they consider relevant. The planning instruments and other matters considered relevant by the CEO in determining to grant Clearing Permit CPS 9197/1, are outlined below.

Necessity of the clearing
The department's 'A guide to the assessment of applications to clear native vegetation' (DER, 2013) indicates that the necessity of the clearing is an 'other relevant matter' to be considered when making decisions as to whether a clearing permit should be granted. The assessment guideline prioritises clearing for public benefit over private benefit or commercial gain (DER, 2013).

In considering the clearing permit application, the CEO had regard to the fact that Tamala limestone is a relatively scarce resource due to planning and environmental constraints and that the extraction of the Tamala limestone is expected to have a direct public benefit as the material is used in most public infrastructure developments such as, but not limited to, new housing, major road works and railways.

Relevant Authorisations
Relevant authorisations required for the proposed land use include:

- Approval to commence development under the P&D Act (issued by the Western Australian Planning Commission (WAPC))
- DA under the P&D Act (issued by the City of Wanneroo)
- Licence issued under Part V Division 3 of the EP Act.

Lot 8 is zoned "Rural" under the Perth Metropolitan Scheme (MRS). Extractive Industry proposed to occur within Rural Land is identified as requiring a DA from the WAPC (PMR Quarries, 2024). The WAPC granted a DA for extractive industry on 19 December 2024 for a duration of ten years (30-50170-3). The DA includes the requirement to prepare an environment and excavation management plan, in addition to stormwater management and dust management requirements (WAPC, 2024).

The City of Wanneroo granted a DA for extractive industry at Lot 8 on 5 December 2024 which is valid for a period of ten years (DA 2023/1379). The DA includes the requirement of the development of an environmental management plan in consultation with DBCA and a fauna management plan (City of Wanneroo, 2024).

The applicant holds a licence (L8605/2011/2) for screening etc. of material within Lot 8 on Diagram 53380, in an area to the north of the application area, which commenced on 17 February 2021 and will expire 16 February 2031.

EPBC Act
Limestone extraction within the clearing area was referred under the EPBC Act by Oakford Land Company Pty Ltd and deemed a controlled action due to impacts to Carnaby's cockatoo under the EPBC Act on 3 April 2013 (2013/6767). The proposal was approved on 14 January 2014 subject to conditions to submit a Clearing and Rehabilitation Management Plan for the Minister's approval. The approval was transferred to the applicant on 24 January 2020. An extension for the approval was granted on 21 February 2022 and is due to expire on 14 December 2027.

Planning framework
State Planning Policy 2.4 (SPP 2.4) - Basic Raw Materials identifies Lot 8 Wattle Avenue as being within an area of Significant Geological Supplies (SGS) for extraction of limestone. This policy identifies SGS areas as the highest priority extraction sites for basic raw materials and as a Key Extraction Area. The status of the site as an SGS is a matter of relevance in decision making for the purposes of section 51O of the EP Act. SPP 2.4 specifically states that the development of land for the extraction of basic raw materials should not adversely affect the environment.

City of Wanneroo Local Planning Scheme No. 2
The subject land is zoned "Rural Resource" under the City of Wanneroo Local Planning Scheme No. 2 (LPS 2). The Rural Resource zoning recognises the regional significance of the limestone resource in this locality and the requirements of State Planning Policy 2.4. LPS 2 defines the objectives of the Rural Resource zone as:

(a) Protect from incompatible uses or subdivision, intensive agriculture, horticultural and animal husbandry areas with the best prospects for continued or expanded use;
(b) Protect from incompatible uses or subdivision basic raw materials priority areas and basic raw materials key extraction areas.

LPS 2 provides the following definitions:
rural resource means a rural land use or basic raw material which has been deemed, in policies adopted by the WAPC, to have State or regional strategic significance.

industry – extractive means the extraction of sand, gravel, clay, peat, soil, rock, stone, minerals or other similar substance from land, and includes the manufacture of products from those materials when the manufacture and storage is carried out on the land from which any of those materials is extracted or on land adjacent thereto.

RIWI Act
It is noted that the application area is in the Wanneroo Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act). It is understood that a separation of at least 3 metres will be maintained between the extraction and the historical highest groundwater level (Landform Research, 2007) and as such groundwater will not be impacted by the proposed extractive activities.

End land use
The applicant has advised that at this time it is expected for the post-mining landuse will be reconstituted limestone block making and hardstand. Limestone for the blocks would be sourced from WA Limestone's adjacent quarrying operations.

Additional information regarding the planning framework supporting the proposed extraction is available in Appendix I.

Site history
CPS 4924/1, CPS 4924/2 and CPS 4924/3 have been in force within the application area in the past. CPS 4924/1, authorising the clearing of 15.54 hectares, was granted to Oakford Land Company Pty Ltd in November 2012. An administrative amendment (CPS 4924/2) to permit conditions 10 and 11 was made in January 2013. The Department further amended the permit (CPS 4924/3) in July 2019 to extend the period within which clearing could occur and to allow for the option of a monetary contribution offset instead of acquisition of land. Third party appeals (041 of 2019) were lodged against the July 2019 amendment; the Minister for Environment's 4 December 2020 appeal decision allowed the appeals in full, noting that title to the property had transferred from Oakford to PMR Quarries Pty Ltd in January 2018. The clearing permit in force accordingly reverted to CPS 4924/2, which expired in December 2022. No clearing occurred under CPS 4924.

The then Department of Environment and Conservation gave a vegetation conservation notice (VCN; CPS 2191/1) to Oakford Land Company Pty Ltd over an 8.5-hectare area immediately south to the western portion of the application area in February 2008. The VCN required restoration, monitoring and weed control of the vegetation within the previously cleared area. This VCN was revoked on 28 May 2021.

Aboriginal Heritage
One Aboriginal site of significance has 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.

4 Suitability of offsets

Through the detailed assessment outlined in Section 3.2 above, the Delegated Officer has determined that the clearing of 14.025 hectares of high-quality foraging habitat for Carnaby's cockatoo is a significant residual impact, after the application of the avoidance and mitigation measures summarised in Section 3.1.

To counteract these impacts, the applicant proposed an environmental offset consisting of ceding a 110.92-hectare portion of Lot 100 on Deposited Plan 33432, Breton Bay, to DBCA for the purpose of conservation.

In assessing whether the proposed offset is adequate and proportionate to the significance of environmental values being impacted, a calculation using the WA State Offset Metric was undertaken for the vegetation yet to be cleared under CPS 9197/1. The calculation indicates that the proposed offset will counterbalance 100 percent of the significant residual impacts of clearing and is therefore consistent with the WA Environmental Offsets Policy, September 2011.

The offset area contains 96.83 hectares of vegetation considered to provide high quality Carnaby's cockatoo foraging habitat of a similar type and quality to that within the application area (PGV Environmental, 2022b and Bamford Consulting Ecologists, 2022b), primarily comprised of *Banksia sessilis/Calothamnus quadrifidus* Open to Closed Heath over *Hibbertia hypericoides/Melaleuca systena* Low Open Shrubland to Closed Low Heath (PGV Environmental, 2022b). Flora and fauna survey excerpts for Lot 100 (Offset site) are available in Appendix G.

It is noted that the offset site is also mapped as a significant geological resource for limestone. The ceding of this property to DBCA to be conserved in perpetuity will protect the offset site from future development.

The CEO considers that this offset adequately counterbalances the significant residual impacts listed above. The justification for the values used in the offset calculation is provided in Appendix F.

End

Appendix A. Additional information provided by applicant

The applicant provided the following additional information during the assessment of this application.

Summary of comments	Consideration of comment
Flora and vegetation survey (PGV Environmental, 2022a)	Considered in Section 3, and excerpts included in Appendix H
Fauna assessment (Bamford Consulting Ecologists, 2022)	Considered Section 3, and excerpts included in Appendix H
Information provided regarding limestone resource (WA Limestone, 2021b)	Considered in Section 1.4 and Section 3.1, and excerpts included in Appendix I
Additional avoidance and mitigation measures and justification of the importance of the limestone resource (WA Limestone, 2022)	Considered in Section 1.4 and Section 3.1, and excerpts included in Appendix I
Offset strategy, including flora and vegetation (PGV Environmental, 2022b) and fauna surveys (Bamford Consulting Ecologists, 2022b) for offset site	Considered in Section 4, and survey excerpts included in Appendix G.
Approved DAs from the WAPC (2024) and City of Wanneroo (2024)	Considered in Section 3.3
Information provided regarding the end land-use of the quarry site (Western Environmental, 2025).	Considered in Section 3.1

Appendix B. Details of public submissions

A summary of comments contained within the three public submissions received for this assessment are outlined below.

Summary of comments	Consideration of comment
Adequacy of flora and vegetation survey provided with application • The vegetation survey provided with the application is from 2006 and therefore not current – since then changes to taxa, identification of new species and required changes to survey methodology have occurred	Following a request from DWER, the applicant provided an updated flora and vegetation survey (PGV Environmental, 2022a) to aid in the assessment of this application. DWER considers that this survey is adequate to provide the information required for its assessment of flora and vegetation.
• Although the survey identified three vegetation communities, only five quadrats were installed. This is inconsistent with the EPA technical guidance for flora and vegetation surveys which outlines "a minimum of three quadrats should be sampled in each vegetation unit."	Although only two quadrats were undertaken within vegetation community EdBs, noting the relatively small extent of this vegetation unit (1.367 ha) this is considered acceptable.
• The survey identified that the northern area may be "regenerated bushland and completely cleared in the past" due to old fencing and "Gladioli that would normally not penetrate beyond the edges." However, present bushland management data identifies Gladiolus as invading throughout otherwise weed-free bushlands.	DWER has considered the vegetation condition mapping from the PGV Environmental (2022a) survey to provide a more accurate representation of vegetation condition than the 2006 survey.
• The survey recorded a total of 96 flora taxa. This species richness seems low given the vegetation condition assigned to the application area, most of which is in very good to excellent condition. For example, SCP28, an inferred community type in the southern portion of the site, has an average species richness of 55 species per 100m2.	DWER notes that 129 plant species (105 native and 24 introduced) were recorded within the PGV Environmental (2022a) survey area, which was a smaller area than the 2006 survey.
• Threatened flora species have been recorded within the Lot. The 2006 survey provided with the application did not identify any threatened flora species and is not	DWER considers that PGV Environmental (2022a) adequately considered the presence of all potential threatened flora species, of which none were found

Summary of comments	Consideration of comment
likely to have adequately targeted all potential threatened flora species. Flora surveys should be conducted that properly consider all potential threatened flora species and such species should be considered in DWER's assessment. If the impacts on such species are significant, mitigation measures need to be conditioned.	within the application area, as discussed in Section 3.2.2.
Impacts to FCT26a TEC • Although the application has taken into account an appropriate buffer to the *Melaleuca huegelii — Melaleuca systena* shrublands on limestone ridges (floristic community type 26a as originally described in Gibson et al. (1994)) TEC (FCT26a TEC), the extent of occurrence should be confirmed for the community to ensure it is not within the application area. • Additionally, the proposed clearing will isolate this community and its buffer from other remnant vegetation within the local area. This needs to be considered in the assessment as it will likely reduce the long-term viability of this community without mitigation.	PGV Environmental (2022a) did not find vegetation consistent with the FCT26a TEC within the application area. A 100 m buffer has been provided to an occurrence of this TEC on the property. There is an ecological corridor between the mapped occurrence of the FCT26a TEC to the south of the application area and Bush Forever site 293. This corridor consists of a band of remnant native vegetation with a minimum width of 50 metres. It is considered that this corridor sufficiently connects the mapped occurrence of the FCT26a TEC to existing remnant vegetation.
Potential impacts to Banksia Woodlands PEC/TEC Some of the application area was identified as SCP28 - Spearwood *Banksia attenuata* or *Banksia attenuata* - *Eucalyptus marginata* woodlands. This community forms part of the EPBC Act listed Banksia Woodlands TEC.	While PGV Environmental (2022a) found that SCP28 Floristic Community Type (FCT) 28 'Spearwood *Banksia attenuata* or *Banksia attenuata*– *Eucalyptus marginata woodlands*' was present within the application area, as discussed in Section 3.2.2, the vegetation in the application area does not meet the criteria to be considered representative of the Banksia Woodlands TEC given the dominance of *Banksia sessilis*.
Impacts to Banksia Woodlands PEC/TEC The original application area includes 0.42 hectares of vegetation considered representative of the Banksia Woodlands PEC/TEC.	Following a request from DWER to avoid and minimise impacts of the clearing, a 0.62-hectare area of vegetation consistent with the Banksia Woodlands PEC/TEC (as mapped by PGV Environmental, 2022a), corresponding to the 0.42 hectare area identified by DWER in the decision report for CPS 4924/3 (DWER, 2018) has been removed from the application area (refer to Section 3.1).
Biodiversity of vegetation in application area • The presence of the *Melaleuca huegelii — Melaleuca systena* shrublands on limestone ridges TEC close to the application area indicates that the biodiversity values of this area are not likely to be well represented elsewhere • Community type SCP28 is also typically species-rich.	DWER notes that the applicant has left a 100 metre buffer from the application area to the nearby area of *Melaleuca huegelii — Melaleuca systena* shrublands on limestone ridges, and also that the application area does not contain the limestone ridges that provide habitat for this community. It is acknowledged that vegetation within the application area is likely to be moderately to highly species-rich, as discussed in Section 3.2.2.
Fauna has not been assessed The fauna values within the application area, including for black cockatoos, have not been assessed.	Following a request from DWER, the applicant provided a fauna assessment (Bamford Consulting Ecologists, 2022) to aid in the assessment of this application. DWER considers that this survey is adequate to provide the information required for its assessment of fauna.

Summary of comments	Consideration of comment
Fauna offset • DWER should undertake a reassessment (from CPS 4294/1) of the impacts to Carnaby's cockatoo and the offsets required for this species to ensure the offset calculations are current (since the grant of CPS 4924/3). • Submission 1: Given the rapid decline of this species and the time taken for monetary contributions to secure offsets, offsets should be conditioned through land acquisition and rehabilitation and revegetation rather than monetary contributions. • Submission 2: Offsets for black cockatoos should compensate adequately for actual habitat loss for the flocks that are affected by the clearing, within appropriate times (i.e. now). Direct offsets are not solely sufficient without revegetation as they do not prevent net habitat loss. For this particular clearing, rehabilitation of the development footprint after operations cease will not be appropriate noting the time taken for vegetation to mature. Proposed that proponents offset the loss of foraging habitat by buying an area of mature pines slated for clearing around (and including) one of the large Carnaby's cockatoo roost sites in the plantations.	DWER has assessed the impacts to Carnaby's cockatoo habitat for this clearing permit application based on currently available information (refer to Section 3.2.1), resulting in a different offset to CPS 4294/1 being required for this permit, including the requirement for a land acquisition offset as outlined in Section 4. The purchase of an area of pine plantation is not considered to be in accordance with the WA Environmental Offsets Guidelines as it would not be a 'like for like' offset. While it is acknowledged that pine plantations provide foraging habitat for Carnaby's cockatoo, the habitat structure and calorific value provided by pine plantation is quite different than in vegetation in the application area. Furthermore, non-native vegetation such as pine plantations is not subject to the same protections as native vegetation under the EP Act and cannot be placed under a conservation covenant and as such the security of pine vegetation in the long term cannot be guaranteed or sufficiently quantified in offset calculations. Additionally, the Forest Management Plan 2024-2033 includes the cease of pine harvesting within the Gnangara State Forest to preserve important black cockatoo roosting habitat. The offset required by DWER was considered appropriate to mitigate impacts to Carnaby's cockatoo foraging habitat within an appropriate time period, factoring in the reduced risk of loss of this property and the time taken to transfer this property into the conservation estate (refer to Section 4 and Appendix G).
Rehabilitation proposal In their application documentation, the applicant has stated that the final land use is "Area to be revegetated to reflect pre-clearing conditions". This is unlikely to be successful noting the vegetation present.	During the assessment process, the applicant has since advised they will no longer be revegetating the application area. Offsets for Carnaby's cockatoo foraging habitat have taken into account that no on-site mitigation will take place.
Importance of vegetation as black cockatoo foraging habitat All remaining foraging habitat in this area is important for Carnaby's cockatoo, given that: • Application area within an area found to be used to Carnaby's cockatoos prior to their annual breeding migration • Location is near pine plantations, a major foraging source, of which clearing has started. Once pine is depleted as a food source for these birds they forage on surrounding native vegetation • Evidence of foraging within development envelope • *Banksia sessilis*, which dominates the application area, is the species Carnaby's cockatoos have most commonly been observed to feed on in the Gnangara area	As discussed in Section 3.2.1, DWER considers that the clearing will result in significant impacts to Carnaby's cockatoo foraging habitat. The applicant will be required to provide an offset (as outlined in Section 4) to mitigate these impacts.

Summary of comments	Consideration of comment
• Destruction of very large areas of foraging habitat have recently occurred in this area from clearing of the Gnangara Pine Plantation, the 2019-20 Yanchep fires, and potentially the January 2021 fires	
Importance of assessing cumulative impacts when considering black cockatoo habitat Importance of considering cumulative impacts when assessing the impacts of development actions on black cockatoo populations, noting the many clearing actions of black cockatoo habitat occurring on the Swan Coastal Plain, including those of smaller size, that together have a large impact.	Cumulative impacts have been considered through Clearing Principle (e). The offset required by DWER was considered appropriate to mitigate impacts to Carnaby's cockatoo foraging habitat.
Impacts to Bush Forever site The clearing is likely to impact adjacent Bush Forever site (Site 293), which is acting as a significant east-west wildlife corridor on the Swan Coastal Plain. The risk of weeds, dust and disease entering and impacting this conservation area should be considered in the assessment, and appropriate conditions put in place to ensure impacts are minimised	Considered in Section 3.2.3
EPBC Act Referral It is unclear whether the proponents plan to refer this proposed clearing under the EPBC Act.	As discussed in Section 3.3, the clearing has been referred to DCCEEW and an approval under the EPBC Act has been granted.

Appendix C. Site characteristics

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

C.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of an expansive tract of native vegetation in the intensive land use zone of Western Australia. It is surrounded by cultivated land to the west, native vegetation and an existing quarry to the north, native vegetation and an existing quarry to the east and native vegetation to the south. Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 35 per cent of the original native vegetation cover.
Ecological linkage	The eastern portion of the application area is within a linkage (9 - Links Bush Forever Sites 290, 293) mapped in the *Perth Regional Ecological Linkages* (WALGA, 2004). This linkage corresponds with conceptual linkage identified by the *Ecological linkages proposed for the Gnangara Groundwater System* (Brown et al, 2009). On a local level, vegetation in the application area is likely to be part of a linkage between vegetation immediately to the north and south.
Conservation areas	The closest conservation area to the application area is Bush Forever site 293 (Shire View Hill and adjacent Bushland, Nowergup/ Neerabup (North Flynn Drive)), located approximately 50 m south-east of the application area.

Characteristic	Details
	The Gnangara-Moore River State Forest is located approximately 850 m north-east of the application area and an offset site managed by DBCA is located approximately 960 m west of the application area.
Vegetation description	A flora survey (PGV Environmental, 2022a) found that vegetation within the application area consisted of: • 12.658 ha – Bs - *Banksia sessilis* Tall Shrubland to Tall Open Scrub over *Xanthorrhoea preissii/Hibbertia hypericoides/Melaleuca systena/Calothamnus quadrifidus* Closed Low Heath • 1.367 ha – EdBs - *Eucalyptus decipiens* Low Open Woodland over *Banksia sessilis Shrubland* over *Xanthorrhoea preissii/Hibbertia hypericoides* Open Low Heath • 0.895 ha - Cleared Vegetation type mapping and photographs of the vegetation are available in Appendix H. This is consistent with the Heddle et al (1980) mapped vegetation type Cottesloe Complex-Central and South (52) which is described as a mosaic of woodland of *Eucalyptus gomphocephala* (Tuart) and open forest of *Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri); closed heath on the Limestone outcrops. The mapped vegetation type retains approximately 32.16 per cent of the original extent (Government of Western Australia, 2019).
Vegetation condition	A flora survey (PGV Environmental, 2022a) found that vegetation within the application area (other than cleared areas) is in Excellent (Keighery, 1994) condition. The full Keighery (1994) condition rating scale is provided in Appendix E. Representative photos are available in Appendix H.
Climate and landform	The application area is mapped within elevations of 55-95 metres AHD. The annual average rainfall (Perth Metro) is 736.8 millimetres (BoM, 2022).
Soil description	The soil is mapped as Karrakatta shallow soils Phase (211Sp_Kls), described as Low hills and ridges. Bare limestone or shallow siliceous or calcareous sand over limestone. Dense low shrub dominated by *Banksia sessilis, Melaleuca huegelii* and species of *Grevillea*.
Land degradation risk	The soil within the proposed clearing area is mapped as high to extreme risk of land degradation from wind erosion and is not considered to be high risk for other forms of land degradation.
Waterbodies	The closest mapped surface waterbody to the application area is Neerabup Lake, a Resource Enhancement wetland located approximately 1.1 km south-west of the application area.
Hydrogeography	The application area is mapped within the Wanneroo Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914*. Depth to groundwater: Historical maximum groundwater contours range from 31 m AHD in the east to 27 m AHD in the west of the application area. This corresponds to a depth to groundwater of approximately 69 m to 35 m below the ground surface.
Flora	There are records of three threatened and 22 priority flora species within the local area (10-kilometre radius). A flora and vegetation survey (PGV Environmental, 2022a) did not record any conservation significant flora species within the application area.
Ecological communities	There are records of two threatened and three priority flora ecological communities within the local area (10-kilometre radius), the nearest being the *Melaleuca huegelii - Melaleuca systena shrublands* on limestone ridges (floristic community type 26a as originally described in Gibson et al. (1994)) TEC located approximately 100 m south of the application area. A flora and vegetation survey (PGV Environmental, 2022a) did not record any TEC/PEC within the application area, although did record an approximately 2.7 ha patch of

Characteristic	Details
	Excellent condition vegetation that was consistent with the *Banksia* Woodlands PEC/TEC immediately south of the application area.
Fauna	There are records of 17 threatened fauna species, 10 priority fauna species, nine migratory fauna species, one conservation dependent fauna species and one other specially protected fauna species within the local area. The closest species of these to the application area is Carnaby's cockatoo (*Zanda latirostris*) recorded approximately 850 m south of the application area. The application area is within the mapped distribution and breeding distribution for Carnaby's cockatoo and is just outside (2.7 km) of the mapped distribution for forest red-tailed black cockatoo. There are 72 confirmed black cockatoo roosting sites within 20 km of the application area. There are 17 white tailed black cockatoo breeding sites and no red-tailed black cockatoo breeding sites within 12km of the application area. A basic fauna assessment (Bamford Consulting Ecologists, 2021) recorded the presence and indirect evidence (i.e. foraging debris) of Carnaby's cockatoo, within the application area, although noting the survey intensity the presence of other conservation significant fauna species cannot be ruled out.

C.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	14.85
Vegetation complex**					
Cottesloe Complex-Central and South	45,299.61	14,567.87	32.16	6,606.12	14.58
Local area					
10km radius	33,563.67	10,628.24	34.95	-	-

*Government of Western Australia (2019a)
**Government of Western Australia (2019b)

C.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix J.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 soil type? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of records in local area (total)	Are surveys adequate to identify? [Y,N,N/A]
Acacia benthamii	P2	Y	Y	Y	3.4	3	Y
Baeckea sp. Limestone (N. Gibson & M.N. Lyons 1425)	P1	Y	Y	Y	5.2	4	Y
Eucalyptus argutifolia	T	Y	Y	Y	0.47	15	Y
Haloragis luminosa	P1	Y	Y	Y	18	0	Y
Jacksonia gracillima	P3	N	Y	Y	6.6	1	N
Jacksonia sericea	P4	Y	Y	Y	1.3	9	Y
Melaleuca sp. Wanneroo (G.J. Keighery 16705)	T	Y	Y	Y	0.10	16	Y

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

C.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 records in local area	Are surveys adequate to identify?
Calyptorhynchus banksii naso (forest red-tailed black cockatoo)	VU	Y	Y	5.7	4	Y
Hesperocolletes douglasi (Douglas's broad-headed bee)	CR	Y	Y	8.8	1	N
Hylaeus globuliferus (woolybush bee)	P3	Y	Y	3.7	5	N
Isoodon fusciventer (quenda, southwestern brown bandicoot)	P4	Y	Y	2.6	111	N
Leioproctus contrarius (a short-tongued bee)	P3	Y	Y	7.1	1	N
Neelaps calonotos (black-striped snake, black-striped burrowing snake)	P3	Y	Y	6.4	7	N
Notamacropus irma (western brush wallaby)	P4	Y	Y	2.8	10	N
Synemon gratiosa (graceful sunmoth)	P4	Y	Y	3.7	171	N
Zanda baudinii (Baudin's cockatoo)	EN	Y	Y	6.8	3*	Y
Zanda latirostris (Carnaby's cockatoo)	EN	Y	Y	0.85	536*	Y

*An additional 39 records of *Zanda* sp. 'white-tailed black cockatoo' (White-tailed black cockatoo) were recorded within the local area, which could comprise either of these species

C.5. Ecological community analysis table

Community 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 records in local area (total)	Are surveys adequate to identify? [Y, N, N/A]
Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	P3 (DBCA) EN (EPBC Act)	N	Y	Y	1.1	247	Y
Melaleuca huegelii - Melaleuca systena shrublands on limestone ridges (floristic community type 26a as originally described in Gibson et al. (1994))	CR (BC Act & EPBC Act)	N	N	Y	0.10	22	Y

Appendix D. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The area proposed to be cleared contains significant habitat for fauna, may impact adjacent conservation significant ecological communities and contains moderately biodiverse vegetation.	At variance	Yes *Refer to Sections 3.2.1 and 3.2.2 above*

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (b): *"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."* Assessment: The area proposed to be cleared contains foraging habitat significant for Carnaby's cockatoo, as well as habitat for other conservation significant fauna.	Seriously at variance	Yes *Refer to Section 3.2.1 above*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The area proposed to be cleared is not likely to contain Threatened flora species.	Not likely to be at variance	Yes *Refer to Section 3.2.2 above*
Principle (d): *"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."* Assessment: The area proposed to be cleared is unlikely to contain species that can indicate a threatened ecological community or be necessary for the maintenance of a TEC but may have minor impacts upon an adjacent patch of the Banksia Woodlands EPBC Act listed threatened ecological community.	May be at variance	Yes *Refer to Section 3.2.2 above*
Environmental value: significant remnant vegetation and conservation areas		
Principle (e): *"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."* Assessment: The extents of the mapped vegetation type and native vegetation in the local area are consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is within formal mapped linkages and is likely to form part of a corridor used by fauna at a local level, however alternative corridors exist such that the function of these linkages are not significantly altered.	Not likely to be at variance	Yes *Refer to Section 3.2.3 above*
Principle (h): *"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."* Assessment: Given the distance to the nearest conservation area, the proposed clearing is considered unlikely to have an impact on the environmental values of nearby conservation areas.	Not likely to be at variance	Yes *Refer to Section 3.2.3 above*
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: Vegetation within the application area is not growing in, or in association with, a watercourse or wetland.	Not at variance	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The mapped soils are highly susceptible to wind erosion. Wind erosion management conditions will mitigate these impacts.	At variance	Yes *Refer to Section 3.2.4 above*

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (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."* Assessment: Given the distance to the closest surface waterbodies, the depth to groundwater and the lack of salinity risk, the proposed clearing is unlikely to impact surface or ground water quality.	Not likely to be at variance	No
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: The mapped soils and topographic contours do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding, and noting the distance to the nearest surface waterbodies the clearing is unlikely to result in waterlogging.	Not likely to be at variance	No

Appendix E. 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, extracted from Keighery (1994), was used to measure the condition of the vegetation proposed to be cleared.

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 F. Offset calculator value justification

WA Environmental Offset Calculator
Rationale for scores used in the offset calculator

Calculation/Element	*Score (Area)*	*Rationale*
Conservation significance		

Description	High-quality foraging habitat	The application area includes known foraging species for Carnaby's cockatoos including the high value species *Banksia attenuata, B. grandis* and *B. sessilis* and the medium value species *Xanthorrhoea preissii* (Bamford, 2022a). Extensive foraging evidence by black cockatoos was mostly observed on *Banksia sessilis* during the fauna survey (Bamford, 2022a).
Type of environmental value	Species (flora/fauna)	Carnaby's cockatoo (*Zanda latirostris*)
Conservation significance of environmental value	Rare/threatened species - endangered	Carnaby's cockatoos are listed as endangered under the BC Act and EPBC Act.
Landscape-level value impacted	Yes/No	Yes, the proposed clearing will result in the loss of significant foraging habitat on the Swan Coastal Plain in proximity to known breeding and roosting sites
Significant impact		
Description	High-quality foraging habitat	Native vegetation comprised of suitable habitat for Carnaby's cockatoo is proposed to be cleared for the purpose of extractive industry.
Significant impact (hectares)	14.03	All the identified vegetation is suitable foraging habitat for Carnaby's cockatoo, minus the existing cleared areas (Bamford, 2022a).
Quality (scale)	8.00	The flora and vegetation survey (PGV Environmental, 2022a) identified that the native vegetation is in excellent (Keighery, 1994) condition with very few weeds present and extensive evidence of foraging was observed during the fauna survey (Bamford, 2022a).
Rehabilitation credit		
Description	N/A	No revegetation is proposed.
Offset		
Description	Conservation in perpetuity	Ceding a portion of Lot 100 on Deposited Plan 33432, Breton Bay, to DBCA for inclusion within the State conservation estate.
Proposed offset (area in hectares)	94.62	The minimum value required to offset 100 per cent of the impacts of the proposed clearing to Carnaby's cockatoo. The applicant is ceding a 110.92 hectare portion of Lot 100. This area contains 96.83 hectares of vegetation considered likely to provide Carnaby's cockatoo foraging habitat of a similar type and quality to that within the application area (PGV Environmental, 2022b and Bamford Consulting Ecologists, 2022b).
Current quality of offset site	8.00	The flora and vegetation survey (PGV Environmental, 2022b) identified that the native vegetation is in excellent (Keighery, 1994) condition with very few weeds present and evidence of foraging was observed during the fauna survey (Bamford, 2022b).
Future quality WITHOUT offset (scale)	8.00	Change in vegetation quality not expected given the offset site is surrounded by native vegetation and there are no ongoing activities on the land likely to result in the degradation of the vegetation
Future quality WITH offset (scale)	8.00	The site will be protected and managed in perpetuity. It is unlikely that ongoing management will result in a significant increase in quality given that the vegetation is already in excellent (Keighery, 1994) condition.
Time until ecological benefit (years)	1.00	It is expected that the land transfer will occur within 12 months of the permit being granted
Confidence in offset result (%)	90.0%	There is a high level of confidence that the offset will be achieved, and that conservation of the offset site (in perpetuity) would successfully mitigate the future risk of loss of the site.
Duration of offset implementation (maximum 20 years)	20.00	The offset site will be conserved in perpetuity within the State's conservation estate. Therefore, the maximum of 20 years for this field is applied.
Time until offset site secured (years)	1.00	Time until the land can be transferred to DBCA.
Risk of future loss WITHOUT offset (%)	20.0%	The offset site is currently 'general rural' zoned freehold land. A portion of the offset site and much of the larger Lot is also mapped

		within a significant geological supply of Limestone, identified by the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS). Therefore, there is a reasonable risk that the offset site could be developed in future without the implementation of the offset.
Risk of future loss WITH offset (%)	5.0%	The future conservation (in perpetuity) of the offset site would result in a substantial increased security and substantially reduce the risk of loss. The risk of catastrophic events (fire, dieback, etc.) remain.

Appendix G. Offset site biological survey excerpts

Flora and vegetation survey excerpts (PGV Environmental, 2022b)

Vegetation Type	Description	Photograph
BsCq *Banksia sessilis/ Calothamnus quadrifidus* Open to Closed Heath over *Hibbertia hypericoides/ Melaleuca systena* Low Open Shrubland to Closed Low Heath	This is the main vegetation type on the dominant Spearwood soils on the site. *Banksia sessilis* is the dominant shrub up to 2m high with *Calothamnus quadrifidus, Hakea trifurcata* and *Spyridium globulosum* usually present to 2m. Other common smaller native species include *Hibbertia hypericoides, Melaleuca systena, Jacksonia calcicola, Mesomelaena pseudostygia* and *Lechenaultia linarioides.* The soils are orange-brown sand over shallow limestone Quadrats SB1, 6, 7 and 13 are representative of this vegetation type.	

Figure 5. Vegetation type recorded within the offset area.

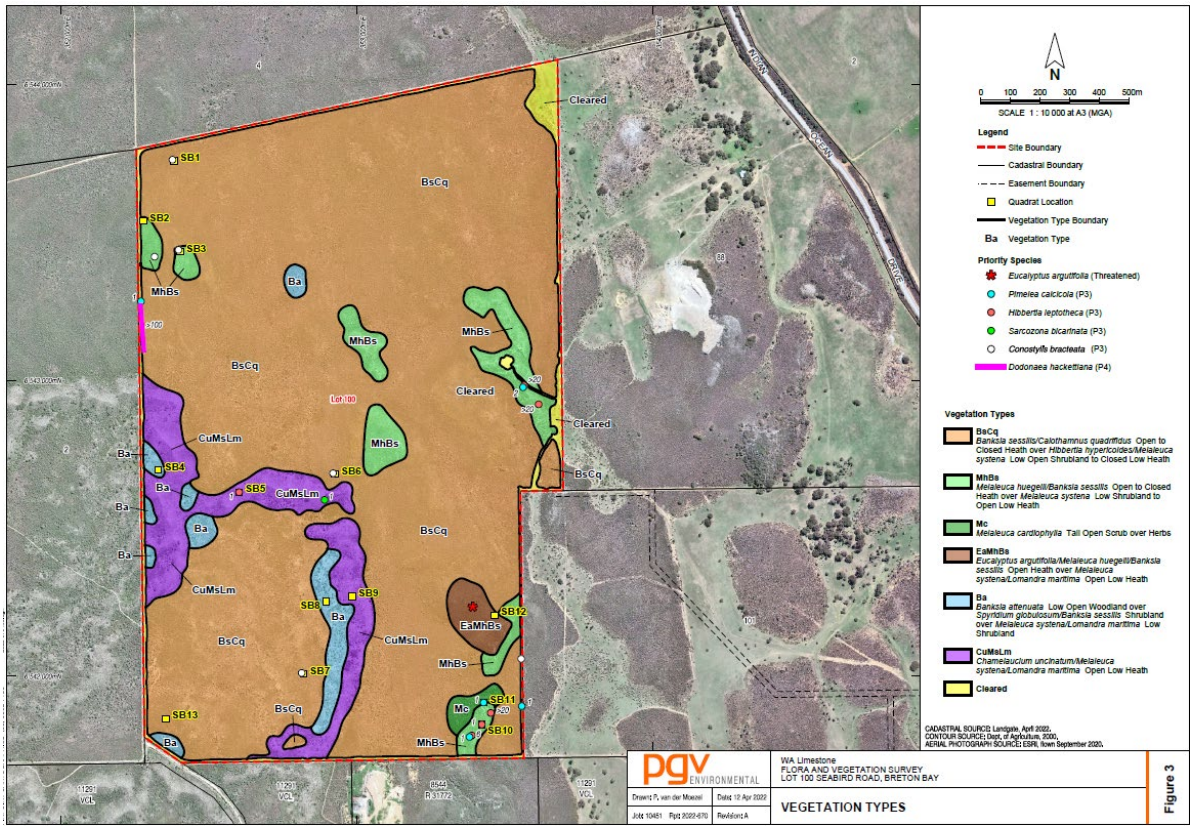

Figure 6. Mapped vegetation types and flora records within Lot 100 (The offset site is in the north-west section of the Lot.

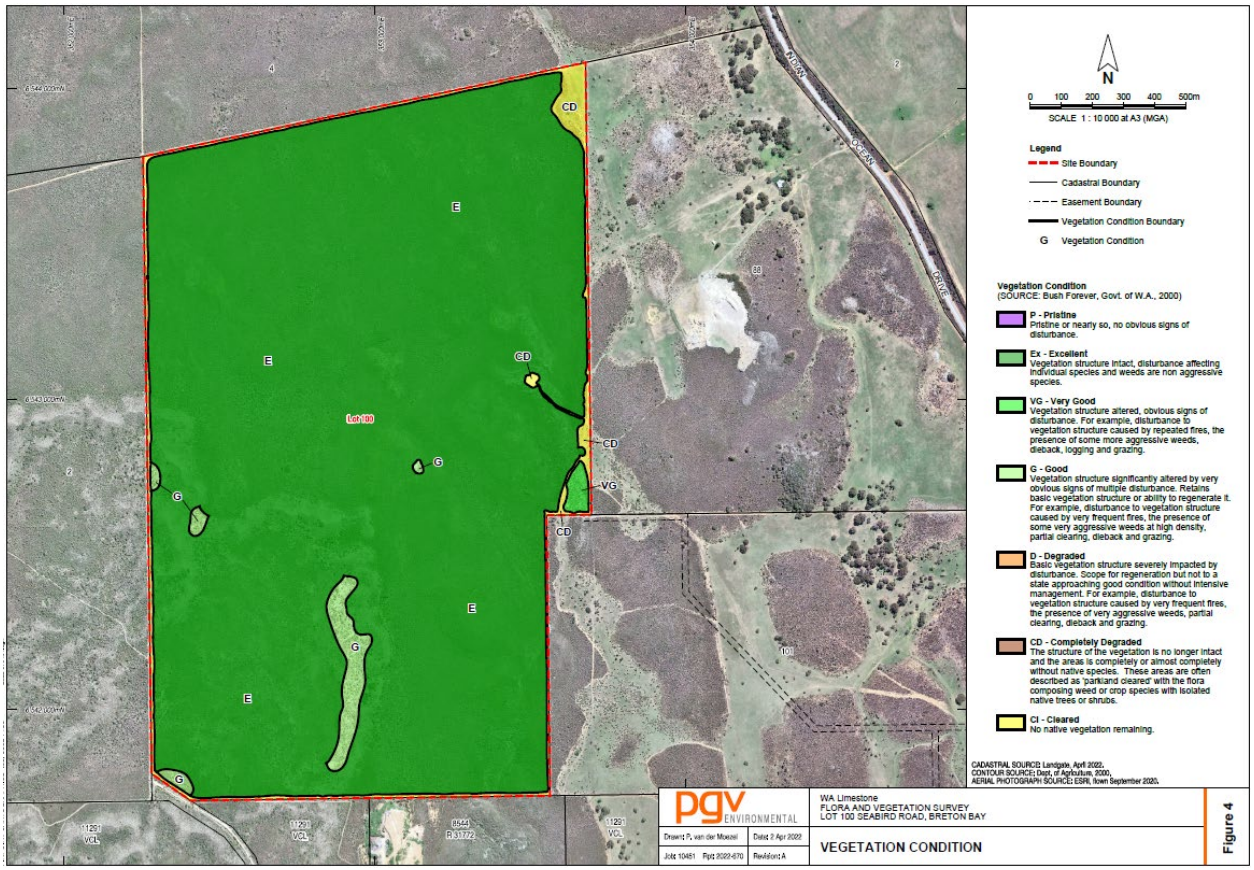

Figure 7. Mapped vegetation condition (Keighery, 1994) within Lot 100.

Fauna Survey excerpts (Bamford, 2022b): Habitat type descriptions within the offset area.

VSA 1. Parrot Bush heath. Heath dominated by Parrot Bush (*Banksia sessilis*) and other mixed shrubs (of modest diversity) over Hibbertia on yellow-grey sands. VSA 1 corresponds to the PGV (2022) vegetation category 'BsCq': *Banksia sessilis/Calothamnus quadrifidus* Open to Closed Heath over *Hibbertia hypericoides/Melaleuca systena* Low Open Shrubland to Closed Low Heath. See Plate 1.

VSA 2. Geraldton Wax heath. Heath dominated by Geraldton Wax (*Chamelaucium uncinatum*) and other mixed shrubs on cream sands. VSA 2 corresponds to the PGV (2022) vegetation category 'CuMsLm': *Chamelaucium uncinatum/Melaleuca systena/Lomandra maritima* Open Low Heath.

VSA 4. Banksia woodland. Low woodland dominated by Candlestick Banksia (*Banksia attenuata*) on cream sands. VSA 4 corresponds to the PGV (2022) vegetation category 'Ba': *Banksia attenuata* Low Open Woodland over *Spyridium globulosum, Banksia sessilis* Shrubland over *Melaleuca systena/Lomandra maritima* Low Shrubland. See Plate 3.

Figure 8. Habitat types within Lot 100. The proposed offset is in the north-west portion of the proposed clearing excluding VSA3.

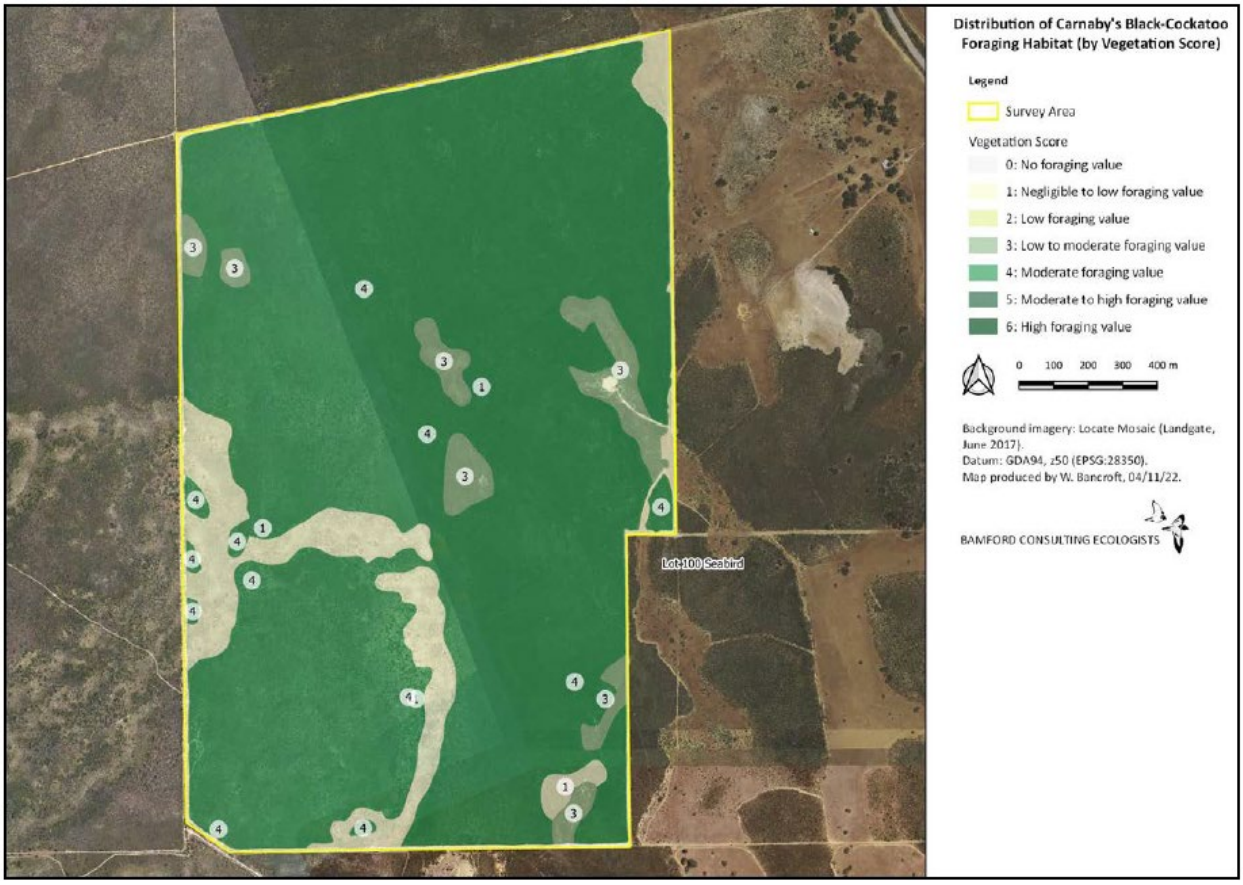

Figure 9. Map of suitable Carnaby's cockatoo foraging habitat within Lot 100.

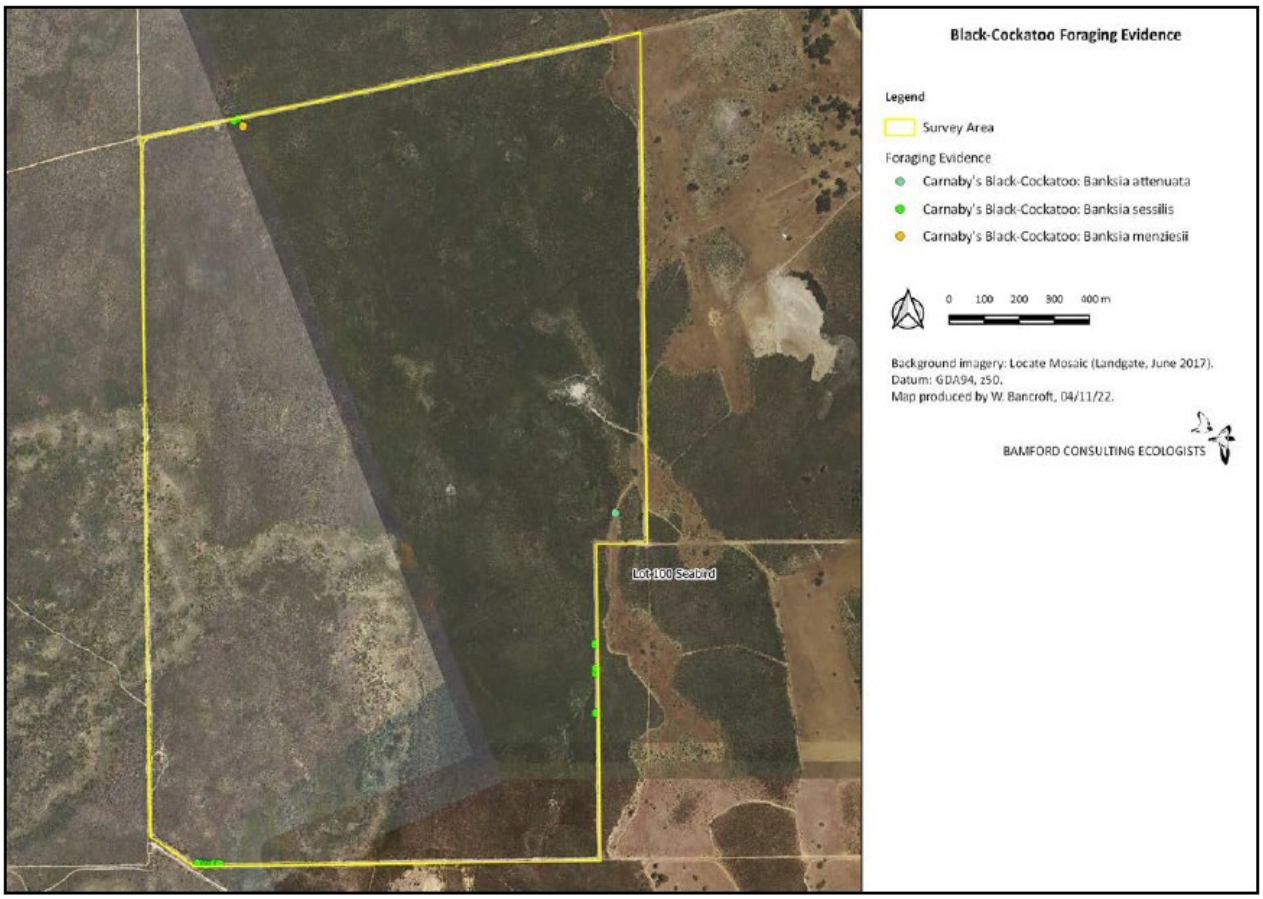

Figure 10. Map of foraging evidence by Carnaby's cockatoo within Lot 100.

Appendix H. Biological survey information excerpts and photographs of the application area

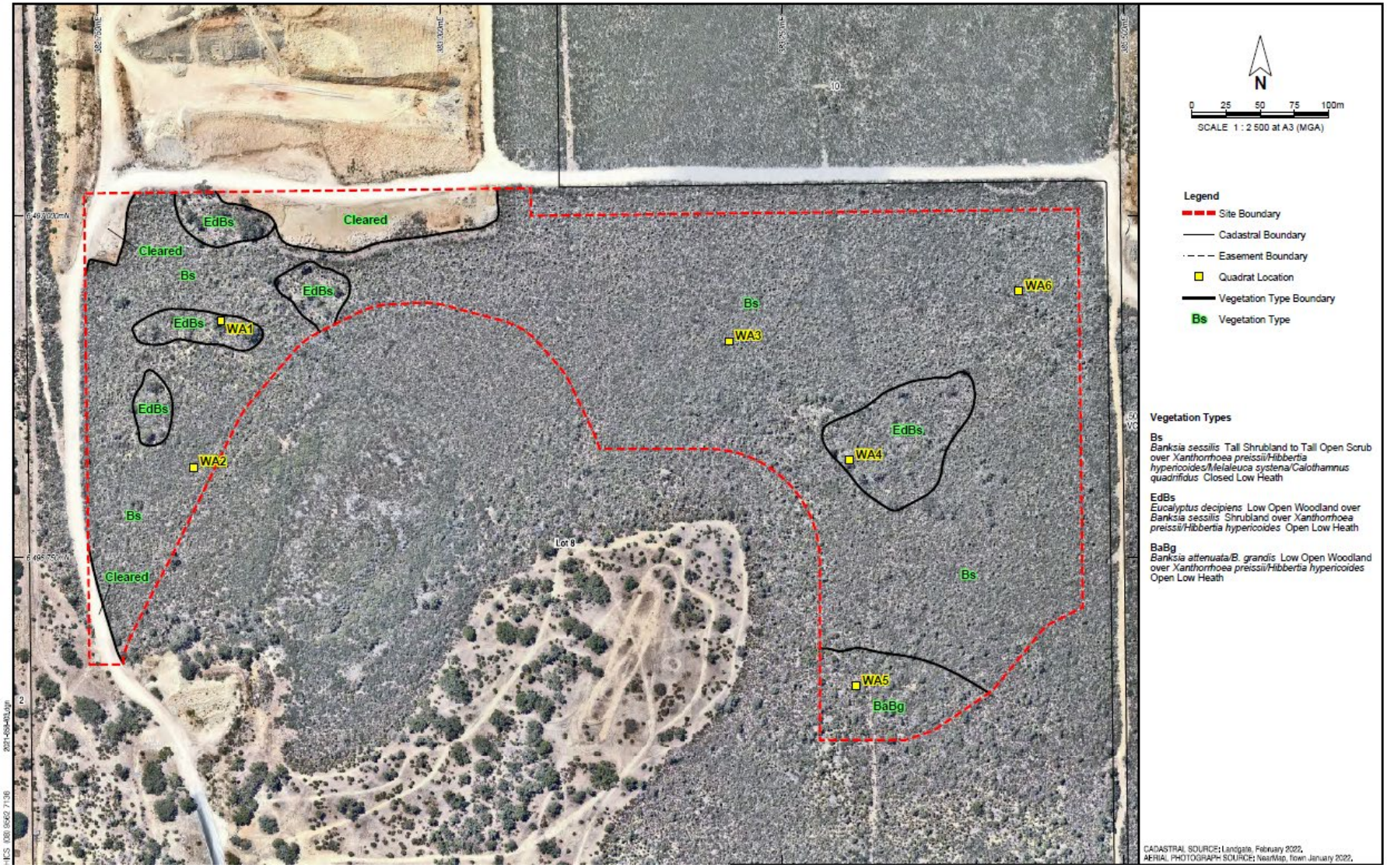

Figure 11. Vegetation types within the application area (PGV Environmental, 2022a).

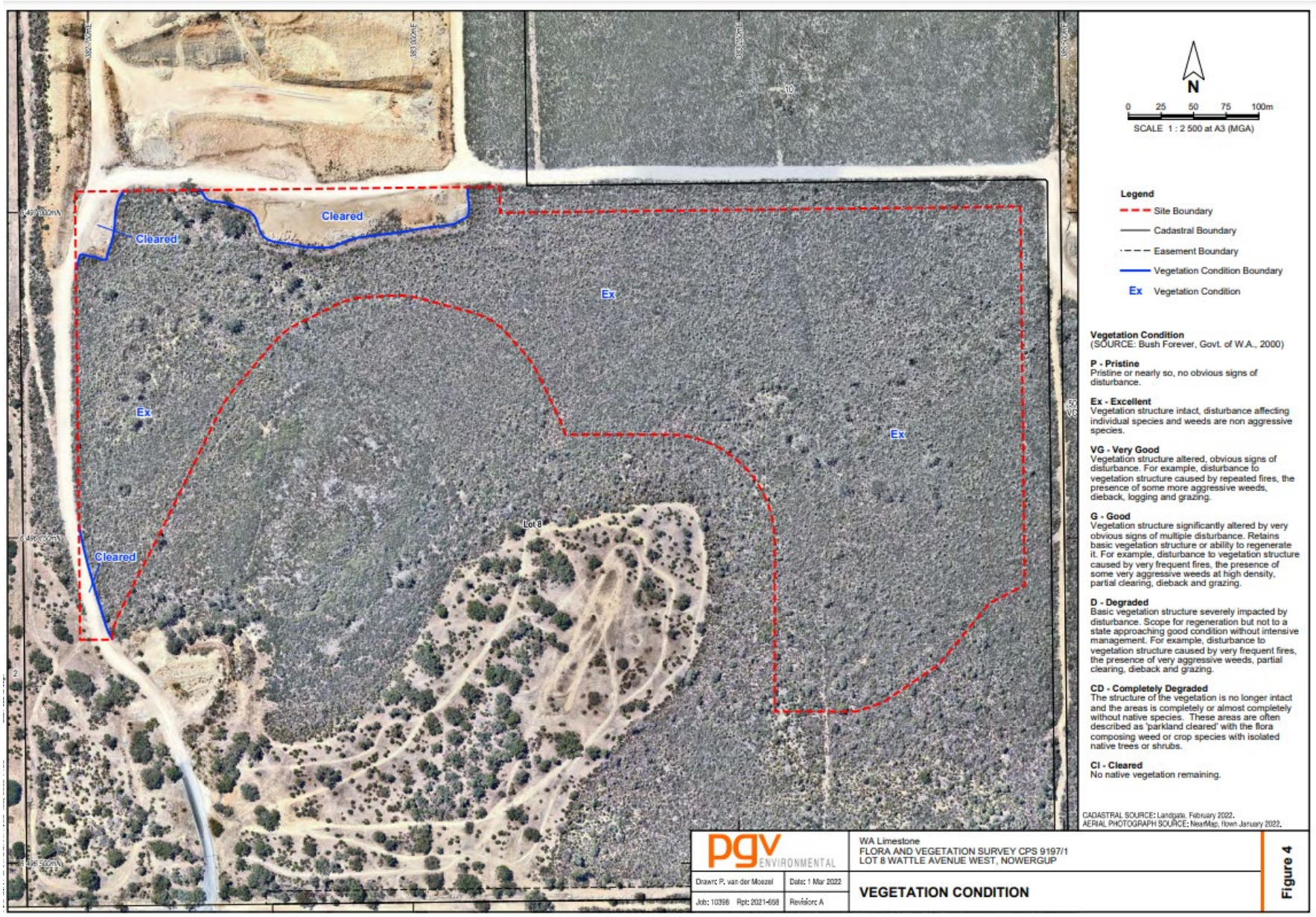

Figure 12. Vegetation condition within the application area (PGV Environmental, 2022a)

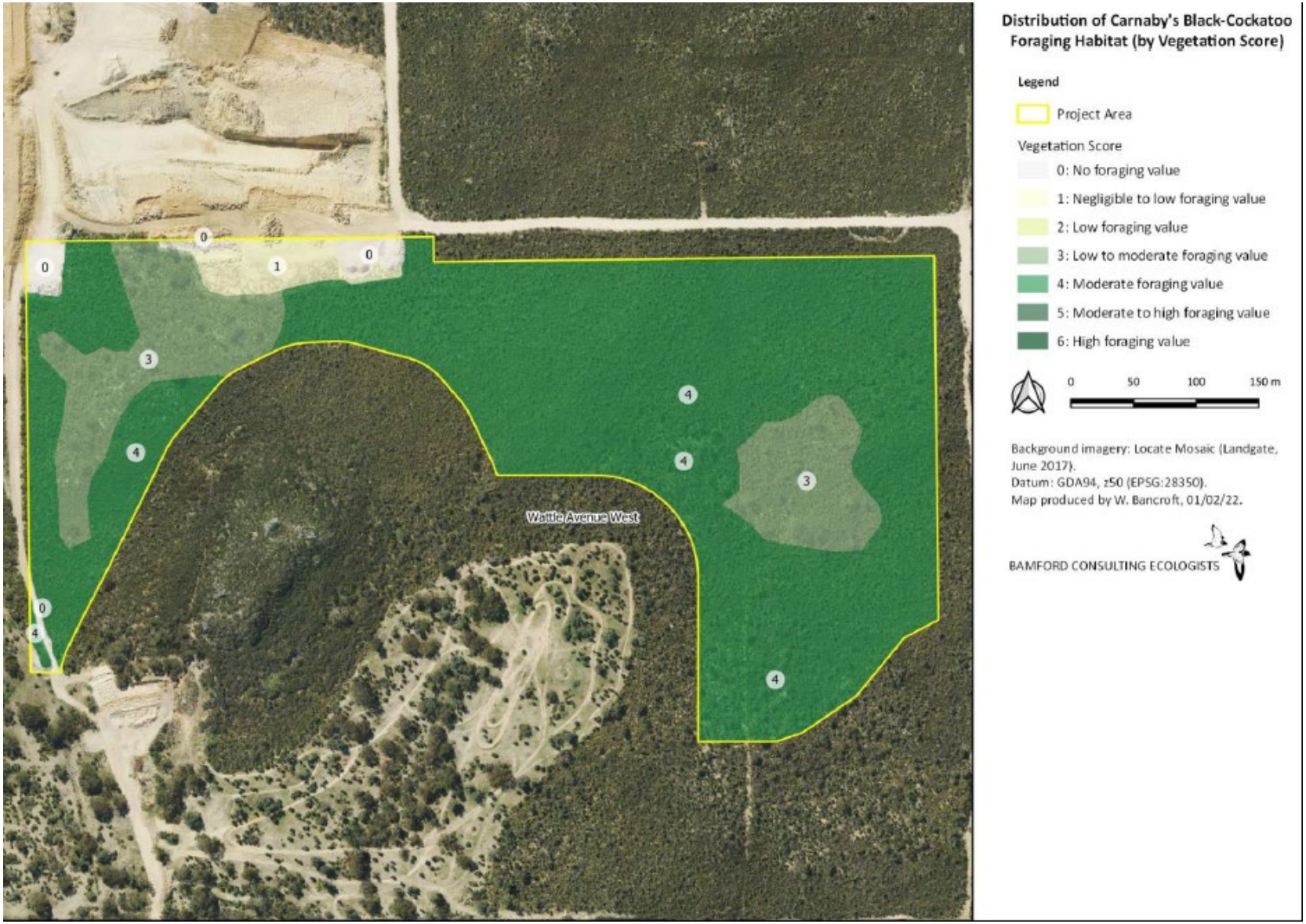

Figure 13. Carnaby's cockatoo foraging habitat value within the application area (Bamford Consulting Ecologists, 2021).

Figure 14. *Banksia sessilis* shrubland within application area (PGV Environmental, 2022a).

Figure 15. *Banksia sessilis* shrubland within application area (Bamford Consulting Ecologists, 2022a).

Figure 16. *Eucalyptus decipiens* woodland vegetation within application area (PGV Environmental, 2022a).

Figure 17. *Eucalyptus decipiens* woodland vegetation within application area (Bamford Consulting Ecologists, 2022a).

Figure 18. *Banksia* woodland vegetation within application area (PGV Environmental, 2022a).

Figure 19. *Banksia* woodland vegetation within application area (Bamford Consulting Ecologists, 2022a).

Appendix I. Justification regarding importance of the limestone resource

Information provided regarding significance of the limestone resource (WA Limestone, 2021a)

In regard to the significance of the limestone resource within the subject land, there have been numerous assessments and publications by government over the past 50 years which have consistently identified the subject land as containing a high grade limestone resource of state significance.

GEOLOGY

GSWA Record 1966/12 (1966)

In 1966 the Geological Survey of Western Australia (GSWA) published an assessment of the limestone resources within the Perth Metropolitan Area under the title of *"Details of Limestone, Bog Limestone and Limesand samples taken during a geological survey of Perth and Environs"*. This report included detailed mapping of limestone occurrences as well as test results for Calcium Carbonate ($CaCO_2$) concentrations, which is the primary indicator of limestone quality and suitability for construction purposes.

This report identified the subject land as being entirely composed of limestone, with adjacent test results indicating the limestone to be above 87% $CaCO_2$ content, which is very high quality and suitable for all construction applications.

Mineral Exploration (1967-1970)

During the period 1967-1970 the subject land and surrounding area was extensively explored and drilled by private companies in search of high quality limestone deposits. Principally this was undertaken by Swan Portland Limited and Cockburn Cement Limited to identify future reserves lime and cement manufacturing, which require limestone with a minimum $CaCO_2$ content of 80%. The exploration confirmed the presence of large deposits of high grade limestone.

GSWA Record 1987/5 (1987)

In 1987 the Geological Survey of Western Australia (GSWA) published GSWA Record 1987/5 - Limesand and Limestone Resources between Lancelin and Bunbury. This report provided a comprehensive summary of the construction applications for limestone and the significance of limestone to future development within the region.

"The importance of Tamala Limestone as a source of lime is evident by the fact that most of the material for industrial and constructional use is quarried from this rock unit".

"Until recently, planning authorities have failed to recognize the need to conserve long-term resources of industrial minerals. Whilst it is accepted that the major activities in the rural areas will be agriculture and recreation, these areas also contain resources of industrial minerals whose conservation is of vital importance to the future development of the area".

The report concluded that even with recognition there is likely to be a future shortage of material as a result of planning considerations rather than actual physical scarcity of the resource. These predictions have proven to be highly accurate and continue to be the principal threats to limestone availability for the community.

GSWA Bulletin 18 (1988)

In 1988 the GSWA published Mineral Resources Bulletin 18 – Limestone and Limesand Resources of Western Australia. This report was a compilation of earlier public and private geological investigations and incorporated new research and findings to refine the mapping of the limestone resource within the subject land and surrounding area.

The report identified landuse constraints as the principal threat to long term access to limestone with the majority of the State's limestone resources occurring in national parks, nature reserves, or in areas identified for major development projects close to population centres.

"Most of the State's limestone resources occur in national parks, nature reserves, or in areas identified for major development projects close proximity to population centres"

"Mining of limestone resources close to the Perth Metropolitan Area is becoming increasingly difficult due to environmental constraints and competing landuses"

Again, these predictions made more than 30 years ago have proven to be highly accurate.

DMP Regionally Significant Basic Raw Materials (2012-Present)

In 2012, the Department of Mines Industry Regulation and Safety (formerly Department of Mines and Petroleum), published a series of maps identifying regionally significant deposits of basic raw materials (which includes limestone). These maps identified the subject land as containing a limestone deposit of regional significance.

The accompanying documentation further identified:

"A ready supply of BRM close to established and developing parts of the state is essential in keeping down the costs of land development and contributing to affordable housing."

"The need for BRM is driven by local demand, which in turn is driven by population growth – this mainly occurs around the larger population centres. Proximity to the market is paramount due to transport costs. Land use issues mostly occur when an expanding growth centre encroaches upon the BRM quarry sites."

TOWN PLANNING

Metropolitan Region Scheme

The subject land is zoned "Rural" under the Metropolitan Region Scheme (MRS). Extractive Industry (quarries) are a permitted use and majority of extractive industry premises (quarries) occur within rural zoned land.

The current MRS zoning supports the current proposed post-mining landuse of reconstituted limestone block manufacturing.

City of Wanneroo Local Planning Scheme No. 2

The subject land is zoned "Rural Resource" under the City of Wanneroo Local Planning Scheme No. 2 (LPS 2). The Rural Resource zoning recognises the regional significance of the limestone resource in this locality and the requirements of State Planning Policy 2.4. LPS 2 defines the objectives of the Rural Resource zone as:

(a) *Protect from incompatible uses or subdivision, intensive agriculture, horticultural and animal husbandry areas with the best prospects for continued or expanded use;*
(b) *Protect from incompatible uses or subdivision basic raw materials priority areas and basic raw materials key extraction areas.*

LPS 2 provides the following definitions:

rural resource *means a rural land use or basic raw material which has been deemed, in policies adopted by the Western Australian Planning Commission, to have State or regional strategic significance.*

industry – extractive *means the extraction of sand, gravel, clay, peat, soil, rock, stone, minerals or other similar substance from land, and includes the manufacture of products from those materials when the manufacture and storage is carried out on the land from which any of those materials is extracted or on land adjacent thereto.*

The subject land is classified as both a priority area and key extraction area under State Planning Policy 2.4. Both the current and proposed post-mining land use are consistent with LPS 2.

State Planning Policy 2.4 (2004)

State Planning Policy sets out the matters which are to be taken into consideration and given effect to in considering extractive industry developments and development within the vicinity of identified basic raw materials resource areas.

State Planning Policy 2.4 (2004) identifies the subject land as a "Priority Resource Location" and "Extraction Area". This is the highest level of recognition and protection available under the town planning framework for basic raw materials.

(Draft) State Planning Policy 2.4 (2018)

A draft revision of State Planning Policy 2.4 was released in 2018 for public comment. This revision is heavily based on the work undertaken by the (currently suspended) Strategic Assessment for the Perth and Peel Regions (SAPPR) project.

The policy identifies the subject land as a "Significant Geological Supply Area" for Limestone. The draft mapping does not identify the site as an "Extraction Site" however this is an error with the mapping and WA Limestone notes that numerous other approved and operating quarries in the area are similarly not identified. These errors have been reported to DMIRS and DPLH as part of the consultation process and are expected to be rectified in the final version of the Policy.

Economic and Employment Lands Strategy: non-heavy industrial (2012)

The Economic and Employment Land Strategy was produced by the Department of Planning in 2012 to identify land suitable for non-heavy industrial activity in the long-term and consider ways to address constraints on the land.

This report identifies the subject land as being part of a future extension to the Neerabup Industrial Area and long-term "Potential non-heavy Industrial Area".

Perth and Peel @ 3.5 Million (2018)

Perth and Peel @ 2.5 Million is a strategic planning document produced by DPLH and WAPC in 2018 which sets out long term development requirements to accommodate a population of 3.5 million people by 2050.

The plan is divided into a series of sub-regional frameworks, of which the subject land is located within the Northwest sub-region. Within each sub-region the plan is further divided into different classes of future action. Plan 1 – The Planning Framework identifies the ultimate landuse of the subject land as "Industrial Investigation". Plan 9 – Environment and Natural Resources identifies the land within CPS 9197/1 as strategic for Basic Raw Materials. Plan 9 further identifies that no portion of the subject land is designated for conservation or retention of native vegetation, including the portion of Bush Forever Site 293 which intersects the subject property.

Further information provided (WA Limestone, 2022)

Justifying the Importance of the limestone resource

Under State Planning Policy 2.4 Planning for Basic Raw Materials (BRM) the limestone deposit at Lot 8 is recognised as a Significant Geological Source (SGS). SGS are identified as the highest priority extraction areas for BRM. SGS are BRM identified by the Department of Mines, Industry Regulation and Safety (DMIRS) that represent strategic, long-term supplies of BRM which is critical to the future development needs of the state and the community and requires protection.

The objectives of State Planning Policy 2.4 (SPP 2.4) are to identify and protect significant limestone and other Basic Raw Materials (BRM) resources required by the community and future development. SPP 2.4 identifies the subject site as both a "Priority Resource Location" and "Key Extraction Area". This is the highest level of significance able to be given to a Basic Raw Materials site.

The 2021 SPP 2.4 mapping was derived from the currently suspended State Strategic Assessment of the Perth and Peel Regions (SAPPR) and Basic Raw Materials Mapping by DMIRS. These projects sought to identify the basic raw materials resources requirements necessary to support the development of the Perth and Peel regions to a population of 3.5 million, which is expected to be reached by 2050. The plans make no allowance for basic raw materials requirements beyond 2050 and rely on the entirety of the identified resource being extracted to meet the 2050 requirements.

As part of this process, other areas were identified for future conservation to offset the loss of the identified extraction areas which sterilise large areas of these critical finite resources. These conservation areas were subsequently included in the 2021 revision of State Planning Policy 2.4 as "Exclusion Areas" (Figure 1). Any sterilisation restriction on the extraction of Basic Raw Materials from within the Significant Geological Source (SGS) Areas identified by the state will impact the future needs of the state and community.

Furthermore, the rationale and significance of the "Exclusion Areas" imposed by SPP 2.4 must be given full and proper recognition by the department in the assessment of extraction within areas identified by the state as critical for extraction, such as Lot 8 Wattle Avenue. As of time of writing. SPP 2.4 exclusion areas sterilised about 16,000 ha of basic raw materials including limestone (Figure 1.

The Perth and Peel regions have a limited – and rapidly diminishing – supply of basic raw materials (BRM), the sand, limestone, clay and hard rock used by the development industry in construction, for clean fill and as road base. An estimated 90 per cent of all extracted BRM is used in commercial and residential development and demand is increasing (DPLH 2018)

At the same time, the number of economically viable deposits are decreasing, with availability of these finite resources generally restricted by a range of environmental and land use constraints and while extraction costs are moderate, considerable transportation costs are impacting on housing affordability.

Limestone is an economic/community resource used in construction of public amenities. Much of the renaming limestone has been sterilised under Bush Forever, planning exclusion zones, national parks and residential development.

Limestone has been an integral and culturally expected aspect of the built landscape of Perth since the first European settlements. It is also a critical material for the construction of affordable public infrastructure (schools, hospitals, roads, railways, etc.) as well as affordable urban development and housing.

Despite this, virtually all limestone resources on the Swan Coastal Plain have now been permanently sterilised by conservation and urban development. If put in the same context as environmental matters, limestone available for use by the community would be classified as "Critically Endangered".

Any action to sterilise or restrict what little resource remains represents a direct risk and threat to the growth and prosperity of the community. It also raises serious issues of inter-generational equity with respect to limestone availability and affordable development by future generations.

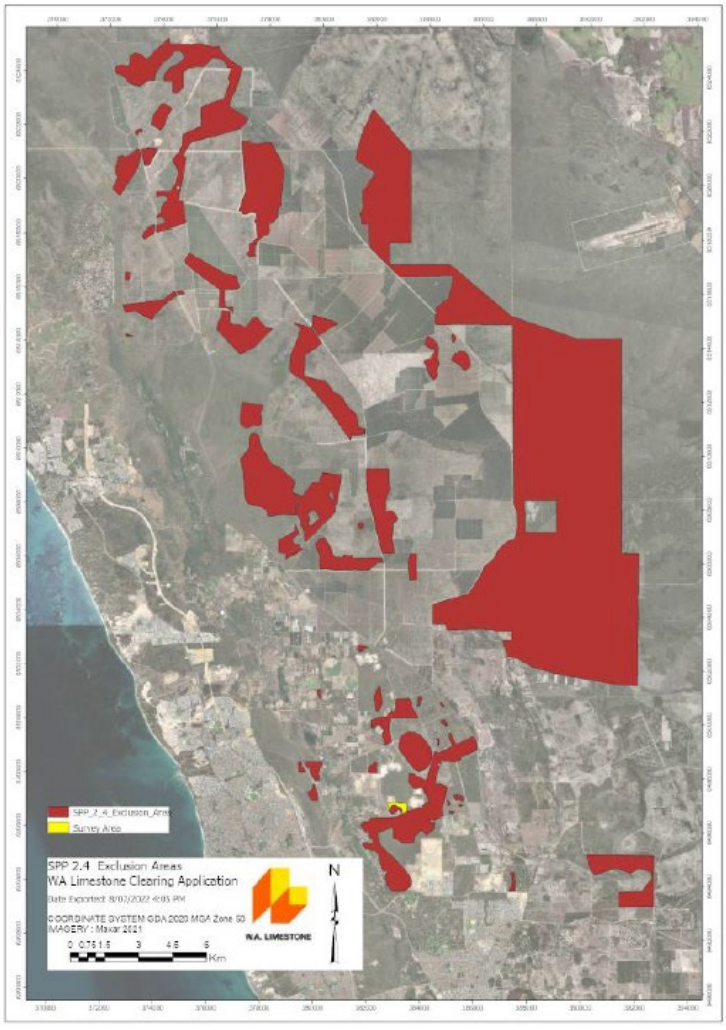

Figure 1 SPP 2.4 Exclusion Areas

To expand on this, more than 16,000 hectares of remnant native vegetation was identified and excluded from future urban, industrial and rural residential development sites, and sites for the extraction of basic raw materials (DPLH 2018).

Alternative Sources of Limestone

DWER have made comment on sourcing limestone on areas with less sensitive environmental values. This is extremely difficult as the quarries are all constrained by the geology of the Tamala Limestone, planning restrictions, conservation and economic factors.

Lot 8 Wattle Avenue was specifically purchased due to the sterilisation of more than 90% of WA Limestone's future reserves by Bush Forever, SPP 2.4 Exclusion Areas and previous refusals of clearing applications by DWER and DMIRS. In particular, the Exclusion Areas which came into effect in 2021 after the 2019 permit was approved have sterilised significant amounts of alternative limestone and further reduced alternative sources. This has occurred at Lot 8 with a significant portion of the area under SPP 2.4 Exclusion Area.

At the time of acquisition, Lot 8 had all approvals in place to extract the limestone resource including approval by both state and commonwealth on multiple occasions to clear the vegetation. The previous clearing Permit (CPS4924/3), approved by DWER in 2019 was overturned on an administrative technicality, not on any environmental factor.

Since the previous approval approved by the department in 2019, State Planning Policy 2.4 (SPP 2.4) (2021) has been adopted which sterilises large areas of limestone resource as "Exclusion Areas", including virtually all of WA Limestone's existing future reserves. This significantly reduces the area available for future limestone extraction and the remaining volume of limestone resource for the future development needs of the state. The SPP 2.4 Exclusion Areas impact the majority of WA Limestone's alternative future limestone reserves including a part of Lot 8.

The Tamala Limestone deposits occurring at Wanneroo/Yanchep area remain the only SGS left in the Perth Metropolitan Area and represent the last economically viable high-quality deposits not sterilised by conservation and planning policies.

The next nearest alternative limestone deposits are located at Guilderton and Seabird, around 50 kilometres to the north. However, these limestone deposits are typically shallow and of low quality, unsuitable for construction use.

The location and quality of the Tamala limestone in the north metro area is critical to the economic viability of public amenity projects. Its proximity to the north metro area makes the limestone a valuable economic material for Main Roads and Development WA. Other deposits located further to the north at Guilderton and Seabird are low quality and cost prohibitive to these projects.

Transport costs

Transport costs are a significant component of any public development. The further out limestone is the higher costs of construction increasing pressure on public infrastructure project costs to entities like Development WA and Main Roads. Carbon emissions will rise from hauling from further away impacting WA's net zero emissions targets

Other rock sources

The only feasible alternative construction to limestone in the Neerabup/Carabooda region is granite from the Darling Scarp. Granite is substantially more expensive to extract and transport, and the granite quarries are similarly constrained by environmental factors.

Use of the Limestone

Limestone is critical to the development of Perth and WA Limestone has supplied around 90% of all limestone products to public amenity projects in the North Metro Area. The following list of projects have all used limestone materials.

Remaining Limestone

The clearing at Lot 8 represents some of the last remaining limestone available for extraction that can still be accessed that isn't under a conservation, in an exclusion zone under State Policy 2.4 or residential development.

Completed Projects

Road Projects

- All Mitchell & Kwinana Freeway Extensions and Duplications
- All Reid Hwy Duplications and extensions
- Flynn Drive Upgrade
- Marmion Ave Extensions
- Tonkin Hwy Extension
- Reid Highway extension (West Swan Road and Great Northern Highway)
- Great Northern Highway extension – Bullsbrook
- Roe Hwy Extensions

Rail Projects

- Perth Mandurah Railway Line

Subdivisions

- Various Sub-divisions including Ellenbrook, The Vines, Butler, Yanchep and many more though out the North metro area.

Major Projects

- Elizabeth Quay
- Perth Stadium
- Perth Airport Redevelopment
- Quinns Rocks Breakwater

Current Projects

- Development WA Ocean Reef Marina Breakwater – Over 1 million tonnes of limestone
- Rottenest Island Sea Wall
- Point Peron Sea Wall
- Mitchell Freeway Extension
- Leach Welshpool Interchange upgrade
- Tonkin Highway upgrade and extension
- Metronet - Morley Ellenbrook Line

Future Projects

- Great Eastern Highway Bypass – 200,000 tonnes
- Mindarie Seawall – 25,000 tonnes
- Metronet Ellenbrook line (continuing) – 400,000 tonnes
- Mitchell Fwy Ext – 200,000 tonnes
- Reid Hey Ext – 100,000 tonnes
- General Sub-divisions – 300,000 tons per year

Appendix J. Sources of information

J.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)
- 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)
- Geomorphic wetlands – Swan Coastal Plain (DBCA-019)
- 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

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)

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