



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 9311/1
File Number: DWERVT8055
Duration of Permit: From 20 October 2021 to 20 October 2028

PERMIT HOLDER

McGregor Pastoral Pty Ltd

LAND ON WHICH CLEARING IS TO BE DONE

Lot 3454 on Deposited Plan 161973, Yathroo

AUTHORISED ACTIVITY

The permit holder must not clear more than 0.69 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

CONDITIONS

1. Period during which clearing is authorised

The permit holder must not clear any *native vegetation* after 20 October 2023.

2. 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.

3. Weed and dieback management

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

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

4. **Revegetation and rehabilitation – retention of vegetative material and topsoil**

The permit holder must:

- (a) retain the vegetative material and topsoil removed by clearing authorised under this permit and stockpile the vegetative material and topsoil in an area that has already been cleared;
- (b) at an *optimal time* and not later than 20 October 2024, *revegetate* and *rehabilitate* the areas that are no longer required for gravel extraction by:
 - (i) re-shaping the surface of the land so that it is consistent with the surrounding five metres of uncleared land;
 - (ii) ripping the ground on the contour to remove soil compaction;
 - (iii) laying the vegetative material and topsoil retained under condition 4(a) on the cleared area(s); and
 - (iv) undertake *weed* control activities on an ‘as needed’ basis to reduce *weed* cover within the cleared areas to no greater than the *weed* cover within the surrounding five metres of uncleared land.
 - (v) undertake annual monitoring to ensure *revegetation* and *rehabilitation* requirements under condition 4(b)(i) – (iv) will result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area; and
 - (vi) where *revegetation* and *rehabilitation* requirements under condition 4(b)(v) have not been met, the Permit Holder must undertake remedial activities including deliberately planting and/or direct seeding *native vegetation* seeds that will result in a similar species composition, structure, and density of *native vegetation* to pre-clearing vegetation types in that area.

5. **Records that must be kept**

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

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ul style="list-style-type: none"> (a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), 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); and (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 2; and (f) actions taken to minimise the risk of the introduction and spread of weeds and dieback in accordance with condition 3; and
2.	In relation to the <i>Revegetation</i> and <i>Rehabilitation</i> done pursuant to condition 4 of this Permit	<ul style="list-style-type: none"> (a) the date that the area was <i>revegetated</i> and <i>rehabilitated</i>; (b) a description of the <i>revegetation</i> and <i>rehabilitation</i> activities undertaken; (c) the size of the area <i>revegetated</i> and/or <i>rehabilitated</i> (in hectares); (d) Photographic evidence of areas <i>revegetated</i> and/or <i>rehabilitated</i> under condition of this permit; and (e) a description of the monitoring and remedial activities undertaken within the <i>revegetation</i> and <i>rehabilitation</i> area.

6. Reporting

- (a) The Permit Holder must provide to the *CEO* on or before 30 June of each year, a written report:
- (i) of records required under condition 5 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 January to 31 December of the preceding calendar year.
- (b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar, a written report confirming that no clearing under this permit has been carried out, must be provided to the *CEO* on or before 30 June of each 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 5, where these records have not already been provided under condition 6(a).

DEFINITIONS

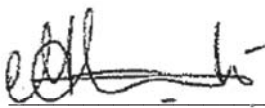
In this permit, the terms in Table 2 have the meanings defined.

Table 2: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
fill	means material used to increase the ground level, or to fill a depression.
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
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.
planting	Means the re-establishment of vegetation by creating favourable soil conditions and planting saplings of the desired species
Rehabilitate/ed/ion	Means actively managing an area containing native vegetation in order to improve the ecological function of that area.
Revegetate/ed/ion	Means the re-establishment of a cover of local provenance native vegetation in an area using planting methods.

Term	Definition
weeds	<p>means any plant –</p> <ul style="list-style-type: none"> (a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i>; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

END OF CONDITIONS



Meenu Vitarana
A/MANAGER
NATIVE VEGETATION REGULATION

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

28 September 2021

SCHEDULE 1

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

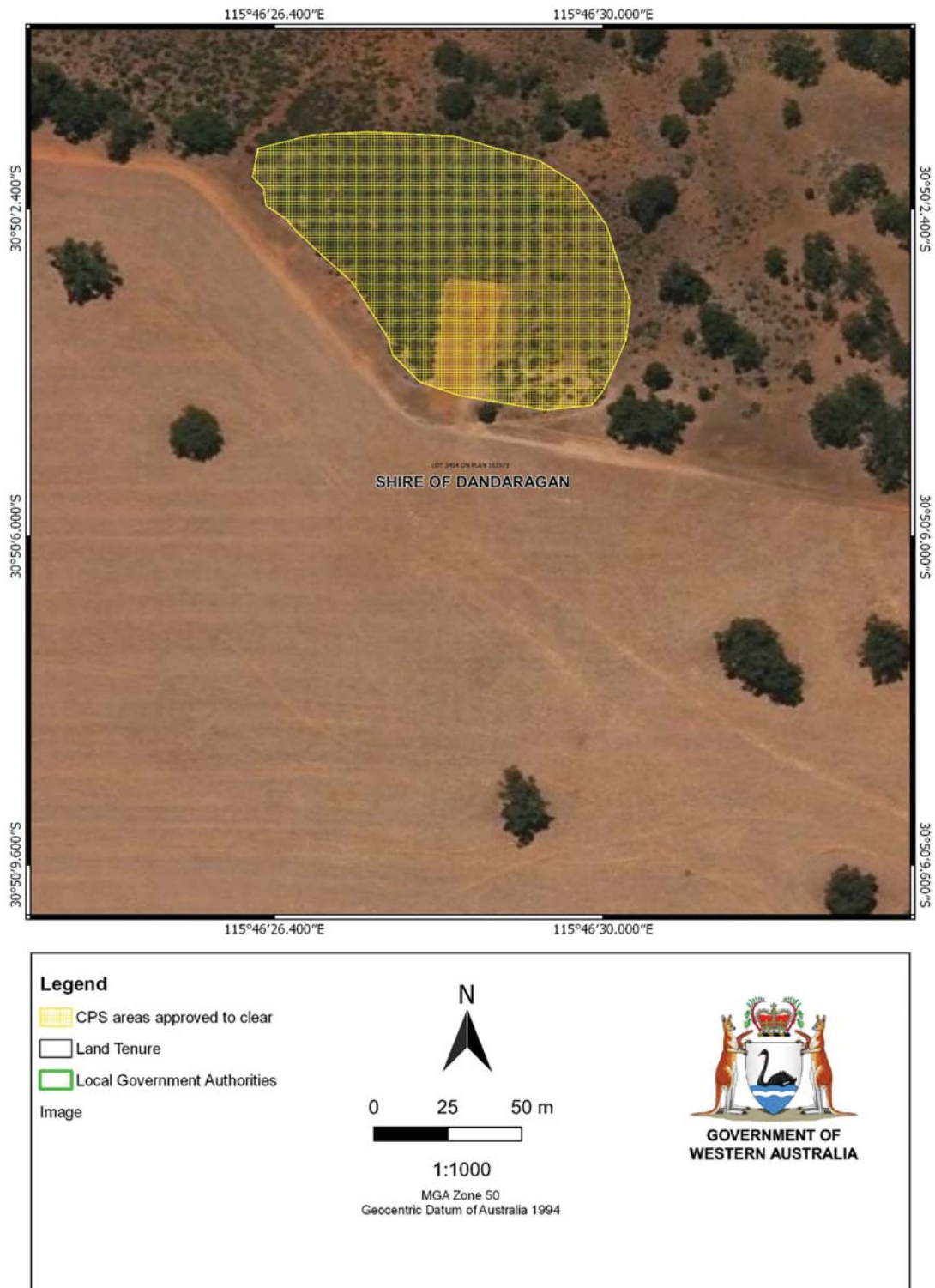


Figure 1: Map of the boundary of the area within which clearing may occur



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9311/1
Permit type:	Area permit
Applicant name:	McGregor Pastoral Pty Ltd
Application received:	3 June 2021
Application area:	0.69 hectares of native vegetation
Purpose of clearing:	Extractive Industry
Method of clearing:	Mechanical removal
Property:	Lot 3454 on Deposited Plan 161973
Location (LGA area/s):	Dandaragan
Localities (suburb/s):	Yathroo

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). An area of 0.69 hectares of clearing is proposed for gravel extraction.

1.3. Decision on application

Decision:	Granted
Decision date:	28 September 2021
Decision area:	0.69 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 no submissions were received.

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

The assessment identified that the proposed clearing will result in:

- The loss of native vegetation that is significant as a remnant of native vegetation in an area that has been extensively cleared
- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values and
- potential localised land degradation in the form of wind erosion.

After consideration of the available information, the Delegated Officer determined the proposed clearing is unlikely to lead to appreciable land degradation and have long-term adverse impacts on environmental values. Impacts can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values.

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

- avoid, minimise to reduce the impacts and extent of clearing
- Take hygiene steps to minimise the risk of the introduction and spread of weeds
- retain cleared vegetation and topsoil and respread this on the cleared area within 12 months of clearing to ensure the remnant vegetation is not permanently lost.

1.5. Site map

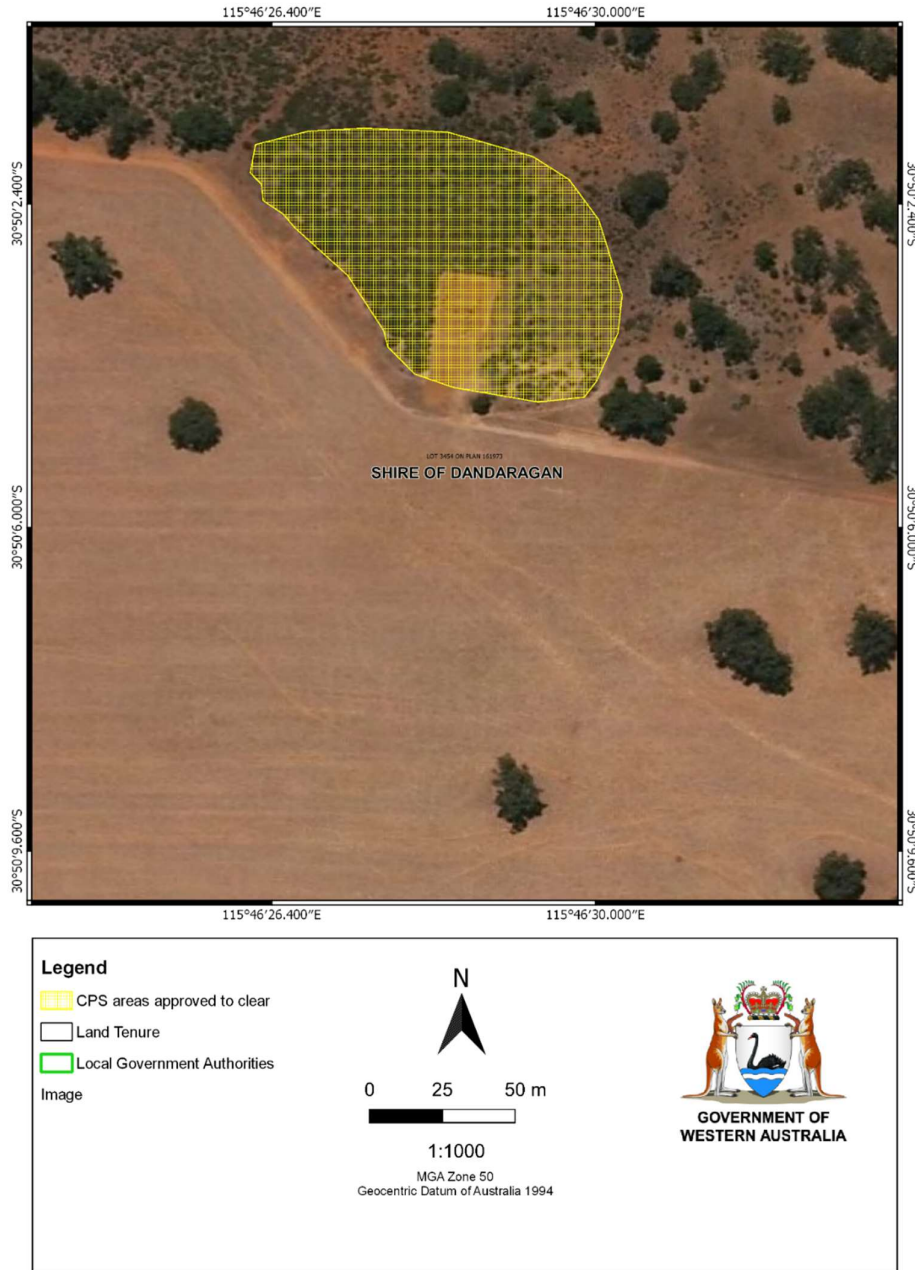


Figure 1: The area crosshatched yellow indicates the area authorised to be cleared under the granted clearing permit.

2 Legislative context

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

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

- the precautionary principle
- the principle of intergenerational equity
- the 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)

The key guidance documents which inform this assessment are:

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

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

No evidence of avoidance or mitigation measures was provided to support the application.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix A) 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 B) identified that the impacts of the proposed clearing present a risk to significant remnant vegetation. 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. Significant remnant vegetation and conservation areas - Clearing Principles (e)

Assessment

The Swan Coastal Plain IBRA region within which the application occurs, is consistent with the national target of biodiversity conservation (Commonwealth of Australia, 2001), with 39.16 per cent of pre-European vegetation remaining, but the mapped vegetation type Dandaragan 999 retains only 11.26 per cent of pre-European vegetation (Government of Western Australia, 2019). However, the mapped vegetation type Dandaragan 999 retains 13,024 hectares, which is well above the 1500 hectares recommended as the amount of a vegetation complex required for retention to maintain ecosystem function level (Molley et al, 2007). Also, based on the flora survey (Bayley Environmental, 2020) the vegetation within the application area is not representative of the mapped vegetation type.

The vegetation under application is part of one of few remnants in the local area (20 kilometres) as the surrounding area is significantly cleared, with approximately 17 per cent vegetation remaining in the local area. However, considering the proposed clearing is relatively small (0.69 hectares), does not comprise significant habitat for indigenous fauna, threatened and priority flora, and doesn't form a regionally significant ecological linkage, the application area is not considered to be a significant remnant within an extensively cleared area. It is also noted that the proposed clearing is temporary, and the application area will be revegetated once the extraction activities have been completed.

3.3. Relevant planning instruments and other matters

Other relevant authorisations required for the proposed land use include:

- Development approval under the *Planning and Development Act 2005* (issued by the Shire of Daldaragan).

- Extractive Industry Licence (issued by the Shire of Daldaragan).

The Shire of Dandaragan advised DWER that local government approvals have been granted, and that the proposed clearing is consistent with the Shire's Local Planning Scheme. The Shire did not have any objections to the proposed clearing (Shire of Dandaragan, 2021).

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

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	<p>The area proposed to be cleared is a 0.69-hectare part of an expansive tract of native vegetation in the intensive land use zone of Western Australia. It is surrounded by crop fields of the Mid-West region. The proposed clearing area is part of a larger 17-hectare area of vegetation.</p> <p>Aerial imagery indicates the local area (20-kilometre radius from the centre of the area proposed to be cleared retains approximately 17 per cent of the original native vegetation cover.</p>
Ecological linkage	No formal ecological linkages have been identified in the application area. Being in a highly cleared landscape the application area contributes to an informal linkage in the area, however does not sever this linkage.
Conservation areas	There are no conservation areas within the application area. Within the local area (20 kilometres) there are 12 DBCA legislated tenure, 19 unmanaged reserves, 7 DBCA lands of interest, 22 DPIRD conservation covenants. The nearest conservation area is DPIRD Conservation Covenant 4.4 kilometres east of the application area.
Vegetation description	<p>The flora and vegetation survey (Bailey Environmental, 2020) indicates the vegetation within the proposed clearing area consists of a dense shrub heath dominated by <i>Banksia strictifolia</i> and <i>Calothamnus quadrifidus</i>, with <i>Melaleuca radula</i> and <i>Hypocalymma angustifolium</i> as common secondary species. The full survey descriptions and maps are available in Appendix D.</p> <p>This is inconsistent with the mapped vegetation type(s):</p> <ul style="list-style-type: none"> Dandaragan 999, which is described as medium woodland of jarrah, marri and wandoo. (Shepherd et al, 2001) <p><i>The mapped vegetation type retain approximately 11.26 per cent of the original extent (Government of Western Australia, 2019).</i></p>
Vegetation condition	<p>Vegetation survey (Bailey Environmental, 2020) indicate the vegetation within the proposed clearing area is in degraded condition on the east side and in very good condition in the central part of the application area (Keighery, 1994), described as:</p> <ul style="list-style-type: none"> 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. 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. <p>The full Keighery (1994) condition rating scale is provided in Appendix C. The full survey descriptions and mapping are available in Appendix D.</p>
Climate and landform	<p>Mean annual rainfall 600 mm</p> <p>Evapotranspiration 600 mm</p> <p>The site is located on a low rise with an elevation of 200 to 210 metres AHD.</p>
Soil description	The soil is mapped as Dandaragan 1 crest Phase (222Da_1a) and Dandaragan 3 Subsystem (222Da_3).

Characteristic	Details	
Land degradation risk	Risk categories	Dandaragan soil phase
	Wind erosion	>70% of map unit has a high to extreme wind erosion risk
	Water erosion	<3% of map unit has a high to extreme water erosion risk
	Salinity	<3% of map unit has a moderate to high salinity risk or is presently saline
	Subsurface Acidification	>70% of map unit has a high subsurface acidification risk or is presently acid
	Flood risk	<3% of the map unit has a moderate to high flood risk
	Waterlogging	<3% of map unit has a moderate to very high waterlogging risk
	Phosphorus export risk	3-10% of map unit has a high to extreme phosphorus export risk
Waterbodies	The desktop assessment and aerial imagery indicated that there are no watercourses within the application area. The nearest being a minor non-perennial known as the Nambung river occurring approximately 1 kilometre north of the application area.	
Hydrogeography	The application area is within the Moore River and certain Tributaries surface water area and the Gingin Groundwater area. The water degradation risk is low as <3% of the map unit has a moderate to high salinity risk.	
Flora	There are records of 73 threatened and priority flora taxa within the local area (20 kilometres), with 27 priority and three threatened flora species occurring on the same soil type as that of the application area.	
Ecological communities	There are 374 records of a priority ecological communities within the local area (20 kilometres) all of which are Banksia Woodlands of the Swan Coastal Plain with the nearest occurring 1.1 kilometres north of the application area.	
Fauna	There are 18 records of conservation significant fauna within the local area. The nearest record is of <i>Calyptorhynchus latirostris</i> (Carnaby's cockatoo) which occurred 8.7 kilometres to the east of the application area. The closest known black cockatoo roost site is 16.6 kilometres away.	

A.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	1,501,209.19	587,889.09	39.16	195,834.87	13.04
Vegetation complex					
Beard vegetation association 999	115,706.59	13,024.44	11.26	3,113.99	3.52
Local Area					
20 Kilometre radius	126,236.96	21,523.06	17.04	-	-

*Government of Western Australia (2019)

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u></p> <p>A flora and vegetation survey was undertaken by Bayley Environmental Services in December 2020 over the 0.69 ha site. A total of 25 native species were recorded from the study area. No declared rare flora or priority flora were found on the site. Given the timing of the survey some plants could only be collected as dead material and some lacked flowers and fruit, the survey states nearly all plants collected were able to be identified to the species level (Bayley Environmental, 2020).</p> <p>Considering the number of native species and condition of the vegetation it is not likely the area comprises a high level of biodiversity.</p>	Not likely to be at variance	No
<p><u>Principle (b):</u> "Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."</p> <p><u>Assessment:</u></p> <p>The application area is a mapped black cockatoo feeding site, however only two recognised Carnaby's cockatoo food species were identified in the survey <i>Acacia saligna</i> and <i>Corymbia calophylla</i> and these were recorded in very low numbers (Bayley Environmental, 2020).</p> <p>Considering the size and isolation of the application area it is unlikely to provide significant habitat for conservation significant fauna.</p>	Not likely to be at variance	No
<p><u>Principle (c):</u> "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."</p> <p><u>Assessment:</u></p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
No declared rare flora or threatened flora were found by the vegetation survey within the application area.		
<p><u>Principle (d):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared does not contain species that can indicate a threatened ecological community.</p>	Not at variance	No
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The 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 pre-1750, as species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). As indicated in Appendix A.2, the mapped Beard vegetation association retains 11.26 per cent of its pre-European extent, being less than the 30 per cent recommended threshold for biodiversity conservation.</p> <p>As per the vegetation and flora survey, the majority of the vegetation within the application area is in ‘Very Good’ condition and approximately one third is in ‘Degraded’ condition (Bayley Environmental, 2020).</p>	May be at variance	Yes <i>Refer to Section 3.2.1 above.</i>
<p><u>Principle (h):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p><u>Assessment:</u></p> <p>Given there are no conservation areas near the application area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas. The closest DBCA-managed reserve is Bundarra Nature Reserve, located 10.6 kilometres to the south-southeast.</p>	Not at variance	No
Environmental value: land and water resources		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u></p> <p>Given no water courses or wetlands are recorded within the application area and it is on elevated dry land the proposed clearing is unlikely to impact on- or off-site hydrology and water quality. The nearest mapped watercourse occurs one kilometre north of the application area.</p>	Not likely to be at variance	No
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u> the application area is situated on elevated soils with a low risk of salinisation in the application area. the site is susceptible to wind erosion and subsurface acidification. Noting that the site will be rehabilitated to native vegetation after quarrying, the proposed clearing is not likely to have an appreciable impact on land degradation. Noting the small size of the proposed clearing and the vegetation within the larger remnant will be largely retained, any impacts from wind erosion are likely to be local and short term.</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (i):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p><u>Assessment:</u></p> <p>The application area is within the Gingin groundwater system, the proposed clearing is unlikely to impact surface or groundwater quality as the proposed extraction operation will maintain several meters clearance between the pit floor and the maximum groundwater level (Bayley Environmental, 2020).</p> <p>The operation will not involve the use of any chemicals, fertilisers or other potentially contaminating materials and no fuels, oils or other hazardous materials will be stored on site. Machinery used on the site is said to be well maintained and in the event of a spill or leak the spilled fluid and any spill affected soil will be cleaned up and placed in a sealed container or removed from site within 24 hours (Bayley Environmental, 2020).</p>	Not likely to be at variance	No
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u></p> <p>The application area is situated on elevated ground between the 200 and 210 metre contours and the mapped soils do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.</p>	Not likely to be at variance	No

Appendix C. Vegetation condition rating scale

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

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

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

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.

Condition	Description
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 D. Biological survey information excerpts

2.3.1 Vegetation Types

The vegetation of the site is mapped by Beard (1981) as Dandaragan 999 (Medium Woodland; Marri, e3Mi).

Bayley Environmental Services surveyed the site in December 2020. The survey was carried out at the level of Reconnaissance Survey (EPA, 2016), using multiple walked traverses during which all plant taxa observed that could not be identified on site were collected and pressed for identification by Dr Frank Obbens of the WA Herbarium. Given the seasonal timing of the survey, some annual plants could only be collected as dead material and some plants lacked flowers and fruit. Nevertheless, nearly all plants collected were able to be identified to species level.

The survey found the vegetation to be a dense shrub heath dominated by *Banksia strictifolia* and *Calothamnus quadrifidus*, with *Melaleuca radula* and *Hypocalymma angustifolium* as common secondary species. The ground cover species were relatively sparse, probably due to a combination of the dense shrub layer, stony soil and past disturbance. *Ptilotus polystachyus* was dominant in some heavily disturbed areas.

Although the vegetation technically meets the description of Beard Association 999, Marri is almost absent from the application area, being present only as one or two saplings. This is most likely due to the gravelly soil and poor water availability within the application area. Mature Marri trees are present on the outside of the application area where clayey soils may retain more soil moisture.

2.3.2 Vegetation Condition

The condition of the vegetation was assessed as fully cleared (no native species) in the paddock, Completely Degraded (one or two native species) in the area adjacent to the paddock, degraded (sparse native species with large bare areas, regenerating) in the east of the site and Very Good (dense native vegetation with few weeds or bare ground) in the central part of the application area.

The highest condition was assessed as Very Good rather than Excellent due to the relatively low number of native species and evidence of past disturbance by grazing.

Figure 3 shows the vegetation condition ratings.



2.3.3 Flora

The vegetation survey found a total of 25 native species on the site. This is considered somewhat low for a site of this size, possibly due to the effects of past grazing and removal of some ground cover species.

Very few weeds were present in the application area, consisting mostly of pasture species such as bearded oat grass (*Avena barbata*) in cleared and disturbed areas adjacent to the paddock. Weed penetration into the uncleared areas was very low.

2.3.4 Rare and Significant Flora

No Declared Rare Flora (DRF) or Priority Flora (PF) were found on the site.

A search of the DBCA Threatened & Priority Flora and WA Herbarium databases returned a list of 73 threatened and priority flora taxa within a 20km radius of the application area. These included twelve Threatened taxa, eight Priority 1, eleven Priority 2, twenty nine Priority 3 and thirteen Priority 4 taxa. Appendix A shows the results of the database search.

Based on the habitat descriptions in Florabase and the database searches, 38 of the listed species have habitat preferences (e.g. marri woodland, lateritic/gravelly soils, dry slopes and ridges) that give them the potential to occur in the application area. Of these, only one (*Drosera prophylla*) is an annual herb and would not have been visible at the time of the survey. The remainder are all shrubs, trees or perennial herbs, and would have been visible at the time of the survey. A number of the listed species occur mainly or only in damp or wet areas, and would be unlikely to be present.

Most of the listed species have flowering periods either before or after December, and few were flowering at the time of the survey (although a number held dead flower material). However, all species collected during the survey were able to be at least provisionally identified to species level.

It is therefore concluded that the likelihood of Threatened or Priority species being present in the application area is low.

2.3.5 Threatened and Priority Ecological Communities

The DBCA Threatened and Priority Ecological Communities lists two Priority Ecological Communities as occurring within a 30km radius of the application area:

- SCP29: Banksia-dominated woodlands of the Swan Coastal Plain; and
- SCP23b: *Banksia attenuata* – *Banksia menziesii* woodlands.

SCP29 is listed as Priority 3(iii) (poorly known). It typically occurs on Bassendean and Spearwood sands and occasionally on Quindalup sands, but also occurs on sandy soils

of the Ridge Hill Shelf, Whicher Scarp and Dandaragan Plateau. The closest mapped occurrence to the application area is on sandy soil about 1,200m to the north-east. Extensive areas of this PEC occur on sandy soils more than 15km to the south-west.

SCP23b is listed as Priority 3(i) (poorly known). It occurs on Bassendean sands from Melaleuca Park (Mandurah) to Gingin. The nearest occurrence to the application area is south of the Moore River, 16.5km south of the site.

Both SCP29 (as Swan Coastal Plain Banksia Woodlands) and SCP23b are also listed as Threatened Ecological Communities (Endangered) under the Commonwealth EPBC Act 2000.

Neither of these ecological communities, nor any other Threatened or Priority Ecological Community, are present in or near the application area.

Appendix E. Sources of information

E.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- 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)

E.2. References

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