Clearing Permit Decision Report

1. Application details and outcome

1.1. Permit application details

Permit number:	CPS 9177/1
Permit type:	Area permit
Applicant name:	Shire of Katanning
Application received:	12 January 2021
Application area:	7.19 hectares (ha) of native vegetation (as revised)
Purpose of clearing:	Maintenance of catchment area and dam banks and walls
Method of clearing:	Machines (Dozer) and hand tools (chainsaw) where applicable.
Property:	Lot 995 on Deposited Plan 214737 (Reserve 27092)
LGA area:	Shire of Katanning
Localities:	Katanning

1.2. Description of clearing activities

The application area consists of a previously constructed dam (Kupara Park Dam), and an associated previously-cleared 'roaded catchment'. A roaded catchment is a water-harvesting structure designed to increase the amount of run-off from the catchment above the receiving dam. The objective is a smooth surface that reduces infiltration and increases water run-off. The roaded catchment and dam have not been maintained, and to secure an increased water supply for Katanning, clearing of regrowth vegetation is required over the catchment area, as well as the dam banks and walls.

1.3. Decision on application and key considerations

Decision:	Granted
Decision date:	23 June 2021
Decision area:	7.19 hectares (ha) of native vegetation as depicted in Section 1.5, and Figure 1 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 (Appendix B), relevant datasets (Appendix F2), representative photographs of the application area (Appendix E), the clearing principles set out in Schedule 5 of the EP Act (Appendix C), relevant planning instruments and any other matters considered relevant to the assessment (Section 3). The Delegated Officer also took into consideration the purpose of the clearing to improve the water supply for the town of Katanning.

The assessment identified that the proposed clearing may result in the potential introduction and spread of weeds into adjacent native vegetation which could impact on the quality of that vegetation and its habitat values, and potential land degradation in the form of wind erosion. The vegetation within the application area is predominantly regrowth *Allocasuarina huegeliana* and does not align with the Eucalypt woodlands of the Western Australian Wheatbelt ecological community. The scattered regrowth *Allocasuarina huegeliana* habitat over the application area is very open in nature, and does not provide a continuous or semi-continuous canopy, nor provide suitable hollows for Red-tailed Phascogale *(Phascogale calura)*.

The application area consists of regrowth vegetation within a landscape that has been extensively cleared, but the vegetation present is not representative of the regional vegetation type, and is not considered a significant remnant. Areas of mature eucalypt woodland that qualify have been excluded from the application area. The adjacent remnant vegetation will not be severed, thereby maintaining an ecological linkage in the immediate vicinity of the application

area. In addition, the entire 7.19 ha application area does not contain regrowth vegetation, with large areas devoid of native vegetation.

After consideration of the available information, as well as the applicant's avoidance, minimisation, and mitigation measures (Section 3.1), the Delegated Officer determined the proposed clearing can be managed to unlikely lead to an unacceptable risk to environmental values. The Delegated Officer decided to grant a clearing permit subject to conditions to:

- 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
- undertake staged clearing with the commencement of roaded catchment formation no later than three months after clearing to reduce the potential for wind erosion.

1.5. Site map

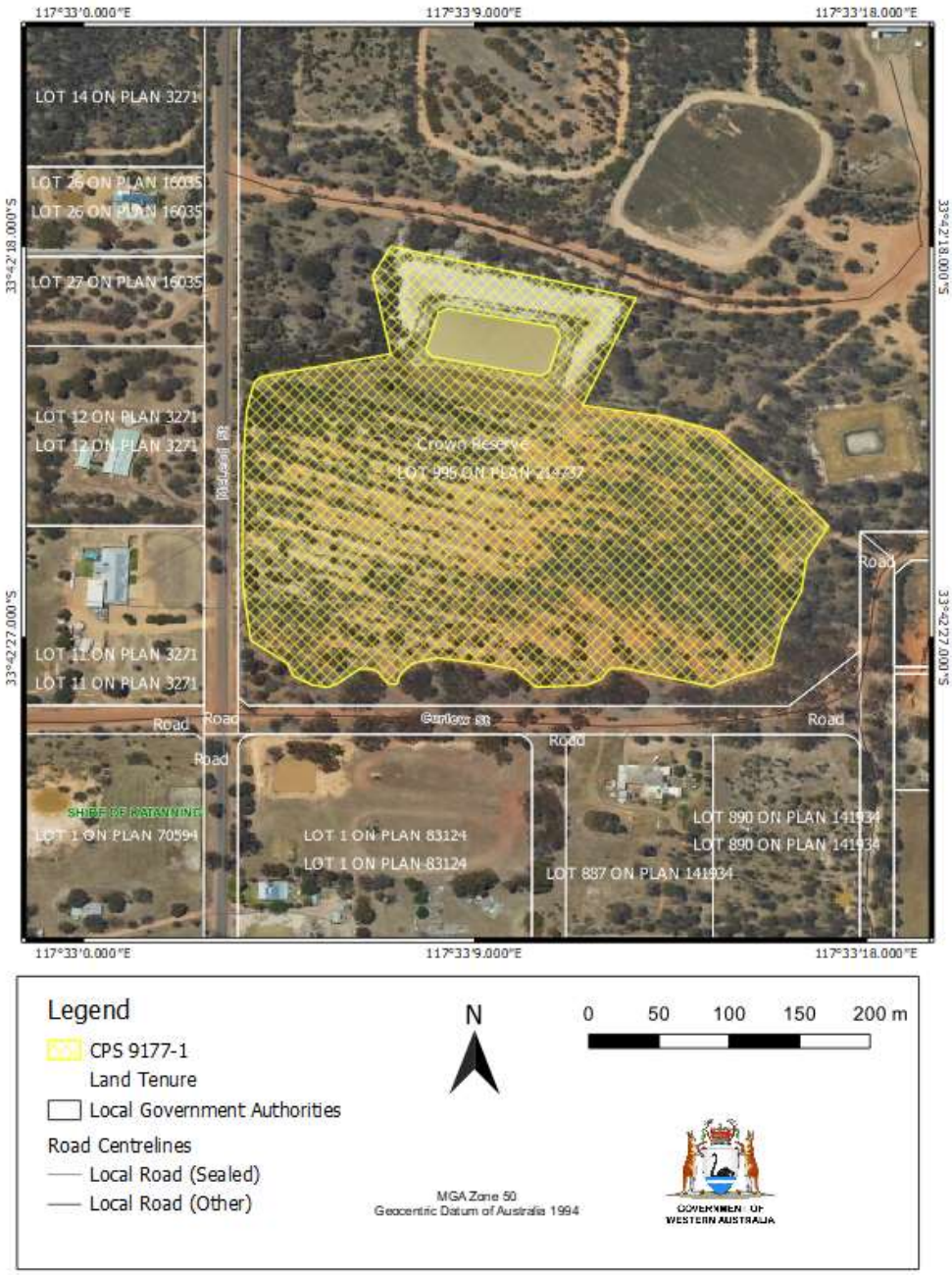

Figure 1. Map of the application area. The areas cross-hatched yellow indicates the area authorised to be cleared under the granted clearing permit.

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 1.3), 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* (December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

The Kupara Park Dam and associated roaded catchment area is a key water supply area for the Shire of Katanning (the Shire). The requirement to sustain and retain higher volumes of water are critical to achieving strategic outcomes as rainfall volumes continue to be sporadic (Shire of Katanning 2021c). Catchments of both the Kupara Park Dam, as well as the integrated Saleyards Dams, are required to sustain base water volumes to provide a water supply for the town of Katanning (Shire of Katanning 2021c).

The Shire assessed the clearing application area provided with the original submission and, after a comprehensive review as advocated by Katanning Landcare (2021), was able to significantly reduce the clearing area required (Shire of Katanning 2021b; Shire of Katanning 2021c). The area of clearing required for the dam was reduced from the original proposal of 12.89 hectares down to 8.38 hectares (Shire of Katanning 2021b). This revised area included the original cleared upstream roaded catchment, as well as the banks and toe of the Kupara Park Dam. The clearing zone around the base of the dam was also included to prevent potential problems with tree roots undermining the dam bank (Shire of Katanning 2021b).

A further fine-scale reduction of the clearing application area to 7.19 hectares was possible by excluding mature eucalypts from the southern and eastern portions of the application area that were not a component of the original roaded catchment (and therefore not previously cleared).

These reductions of the application area enabled the exclusion of approximately 5.05 hectares of remnant native vegetation from the application area including mature eucalypts to the south and east of the application area, as well as to the north and east of the dam, and enables a narrow vegetated buffer along the western boundary to be maintained. The revised application area comprises solely previously-cleared areas consisting of regrowth vegetation only.

The Shire Works Team and Parks and Landscape Team are responsible for maintaining the roaded catchment to ensure water erosion and sedimentation is managed, and that the catchment is compacted to avoid wind erosion or dust issues (Shire of Katanning 2021c).

3.2. Assessment of environmental impacts

In assessing the application in accordance with section 51O of the EP Act, the Delegated Officer has examined the application and site characteristics (Appendix B) and considered whether the clearing poses a risk to environmental values. The assessment against the Clearing Principles is contained in Appendix C.

This assessment identified that the clearing may potentially pose a risk to the environmental values of biological values (Priority Ecological Communities and Fauna), significant remnant vegetation, and land and water resources, and that these required further consideration. The detailed consideration and assessment of the clearing impacts against the specific environmental values is provided below. Where the assessment found that the clearing presents an unacceptable risk to environmental values, conditions aimed at controlling and/or ameliorating the impacts have been imposed under sections 51H and 51I of the EP Act. These are also identified below.

3.2.1. Environmental value: biological values (Biological diversity) – Clearing Principle (a)

Assessment: The application area consists of a previously-cleared roaded catchment and the banks and toe of the Kupara Park Dam (the dam) (Figure 1). The roaded catchment consists predominantly of regrowth *Allocasuarina huegeliana* (Rock Sheoak), with occasional regrowth eucalypts surrounding the banks and toe of the dam. Vegetation is in Completely Degraded to Degraded condition using the vegetation condition scale of Keighery (1994) (Appendix D), with very little understorey and largely 'parkland cleared' (Appendix E1).

No Threatened or Priority flora taxa have been recorded within 1.6 kilometres of the application area and are unlikely to occur due to the separation distance, compacted soils, vegetation condition, and in particular the lack of understorey.

Regional mapping of the *Eucalypt woodlands of the Western Australian Wheatbelt* (Eucalypt Woodlands), a significant vegetation community listed as Critically Endangered under the EPBC Act and Priority 3 by the Department of Biodiversity Conservation and Attractions (DBCA), includes a portion of the application area (Figure 2). Figure 2 shows an area of the mapped Eucalypt Woodlands over the application area. Figure 4 show mapped remnant vegetation, as well as the constructed roaded catchment and Kupara Park Dam.

Regional vegetation mapping for both TECs and PECs as well as remnant vegetation is at a coarse scale, however, the regional remnant vegetation mapping (Figure 4) more accurately delineates the extent of surrounding native vegetation.

Adjacent areas outside of the application area to south and east support mature mallet eucalypts (possibly *Eucalyptus gardneri)* (Google Maps 2021) that were not previously cleared at the time of the roaded catchment construction, and are not associated with, but lay adjacent to, the roaded catchment. These areas have been avoided by a revision of the application area that utilised recent aerial photography to delineate mature eucalypts from regrowth *Allocasuarina huegeliana*.

Vegetation within the application area is predominantly regrowth *Allocasuarina huegeliana* (Appendix E) and does not align with the attributes required to represent the Eucalypt Woodlands community (DoEE 2015; DoEE 2016), and does not comprise a high level of biodiversity. Environmental weeds including Tagasaste (**Chamaecytisus palmensis*) may occur over the application area (Katanning Landcare 2021), and adjacent vegetation is susceptible to weed invasion. The clearing process may exacerbate the occurrence of weeds, thereby reducing habitat quality.

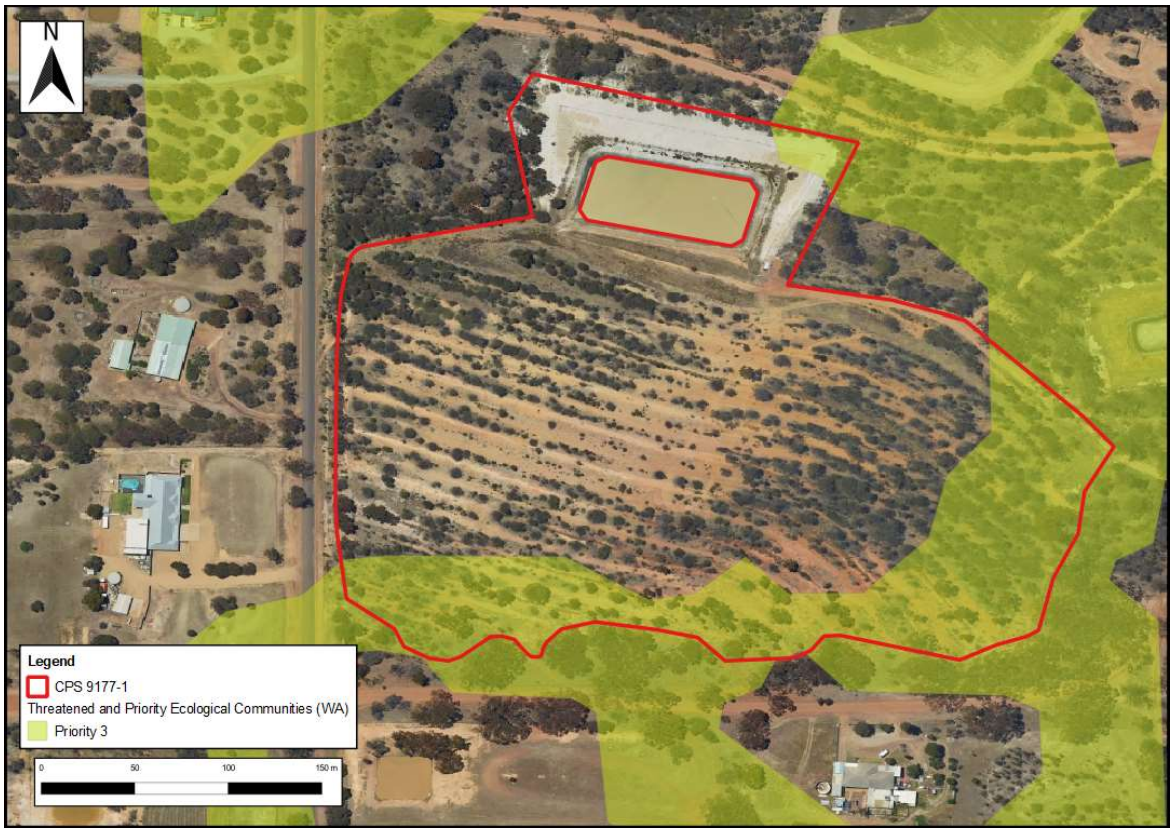

Figure 2: Mapped Eucalypt woodlands of the Western Australian Wheatbelt over the application area

Conclusion: For the reasons set out above, and the avoidance and mitigation measures provided by the Shire (Section 3.1), it is considered that the potential impacts of the proposed clearing on biological values have been managed by excluding areas of mature eucalypts from the application area, and that areas within the application area do not represent the Eucalypt Woodlands community. It is considered that the impacts of the proposed clearing on adjacent remnant vegetation can be managed by taking steps to minimise the risk of the introduction and spread of weeds.

Conditions: To address the above impacts, weed management measures to mitigate impacts to adjacent vegetation will be required as a condition on the clearing permit.

3.2.2. Environmental value: biological values (fauna) – Clearing Principle (b)

Assessment: Based on available datasets, eight birds and four mammals of conservation significance have been recorded within ten kilometres of the application area (Appendix B2).

Vegetation structure and condition is not suitable to support the Vulnerable Mallefowl *(Leipoa ocellata)* which requires dense, long-unburnt shrublands, and low woodlands dominated by mallee and/or acacia over a sandy substrate (Benshemesh 2007). The Priority 4 Hooded Plover *(Thinornis rubricollis)* is unlikely to utilise the steep banks and degraded vegetation of the Kupara Park Dam. The specially protected Peregrine Falcon *(Falco peregrinus)* may overfly the area without utilising the habitat present, and the priority species Barking Owl (*Ninox connivens connivens)* and Western Rosella *(Platycercus icterotis xanthogenys)* are more likely to utilise adjacent mature eucalypt woodland rather than the predominantly regrowth *Allocasuarina huegeliana* of the application area (Appendix B2).

Three Threatened species of black-cockatoo have been recorded within ten kilometres of the application area. The application area, however is located well outside of the modelled distributions of both the Endangered Baudin's Cockatoo *(Calyptorhynchus baudinii)* and the Vulnerable Forest Red-tailed Black Cockatoo *(Calyptorhynchus banksii naso)* (Commonwealth of Australia 2017) (Appendix B2), with only historical Western Australian Museum voucher specimens recorded from the local area, and these species are unlikely to occur.

Food resources within the range of breeding sites and roost sites of black cockatoos are important to sustain populations, and foraging resources are therefore viewed in the context of known breeding and night roosting sites within 12 kilometres of an impact area (DSEWPaC 2012). No known roosts of any black cockatoo species have been recorded within 12 kilometres of the application area.

The application area is located within the modelled distribution of the Endangered Carnaby's Cockatoo (*Calyptorhynchus latirostris*). Thirty-four records have been made within ten kilometres of the application area, with the most recent in 2013. A breeding location that was in use during one year in 1998 is located within six kilometres to the north-east of the application area (DBCA 2019).

Carnaby's Cockatoo feeds on native shrubland, kwongan heathland and woodland dominated by proteaceous plant species such as Banksia (including the former Dryandra), Hakea, Grevillea, and Callistemon, as well as native eucalypt woodland and forest that contains foraging species, including along roadsides (Commonwealth of Australia 2012; DSEWPaC 2012; Valentine and Stock 2008). These preferred species do not occur within the application area. Potential Carnaby's Cockatoo foraging resources over the application area is represented by *Allocasuarina huegeliana.* Carnaby's Cockatoo's can forage on Allocasuarina species (Gole 2003), however, Allocasuarina is not considered a preferred foraging species (Bamford 2013; Commonwealth of Australia, 2012; Groom 2011). The regrowth *Allocasuarina huegeliana* occurring over the application area is considered low quality (Commonwealth of Australia 2012), and unlikely to be significant in providing foraging resources to support any roosting or breeding black cockatoos.

The Threatened Woylie (*Bettongia penicillata ogilbyi),* Numbat *(Myrmecobius fasciatus)* and Chuditch (*Dasyurus geoffroii*) are 'critical weight range' (CWR) mammals (with a weight between 35 grams and 5,500 grams) whose distribution and abundance have declined severely, most likely due to fox predation (Burbidge and McKenzie 1989). These species require large areas of habitat where predator control is being implemented, and due to the floristics and condition of the vegetation, and the regional context, are not likely to occur over the application area.

The Conservation Dependant Red-tailed Phascogale *(Phascogale calura)* is listed as Vulnerable under the EPBC Act. Eleven records have been made within ten kilometres of the application area with one record from 2017 within 2.5 kilometres to the north. The local community has installed nest boxes for the Red-tailed Phascogale, with nine installed within one kilometres to the west (Katanning Landcare 2021).

The Red-tailed Phascogale inhabits Wandoo *(Eucalyptus wandoo)* and *Allocasuarina huegeliana* woodland associations (DEC 2012). Red-tailed Phascogales are arboreal and show a preference for long-unburnt and dense habitat that contains tree hollows, providing a continuous canopy that facilitates protection from predation by both feral cats and foxes (DEC 2012). Wandoo trees provide excellent nesting sites in the form of hollow logs and limbs,

and the best habitat has numerous tree hollows for shelter and a continuous or at least semi-continuous canopy (DEC no date).

The scaterred regrowth *Allocasuarina huegeliana* habitat over the application area is very open in nature (Appendix E1), and does not provide a continuous or semi-continuous canopy, nor provide suitable hollows. Approximately 4.4 hectares of eucalypt woodland with the potential to provide hollows has been excluded from the application area and adjoins remnant vegetation, thereby maintaining an ecological linkage in the immediate vicinity of the application area in the event of Red-tailed Phascogales dispersing through the area.

Conclusion: For the reasons set out above, and the avoidance and mitigation measures provided by the Shire of Katanning (Section 3.1), it is considered that the potential impacts of the proposed clearing on fauna and fauna habitat can be managed by excluding areas of mature eucalypts from the application area. The clearing of regrowth *Allocasuarina huegeliana* is not considered to comprise of significant habitat for fauna.

Conditions: No fauna management conditions required.

3.2.3. Environmental value: significant remnant vegetation– Clearing Principle (e)

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

The application area is located within the Avon Wheatbelt Bioregion (AVW) as described by Thackway and Cresswell (1995). The Avon Wheatbelt has approximately 1,761,187 hectares of native vegetation remaining, equating to approximately 18.5 per cent of its original extent (Government of Western Australia 2019) (Appendix B3).

The regional vegetation association 1085 of Shepherd *et al.* (2001) has been mapped over the application area. Vegetation association 1085 has approximately 5,935 hectares of native vegetation remaining, equating to approximately 11.5 per cent of its original extent (Government of Western Australia 2019) (Appendix B3), which is below that advocated by the Commonwealth of Australia (2001). Vegetation association 1085 is restricted to the Avon Wheatbelt Bioregion.

Remnant vegetation has been mapped regionally, and within a ten kilometre radius of the application area approximately 5,593 hectares of mapped native vegetation remains, or approximately 17.02 per cent of its original extent. Within this area, over 800 remnant patches remain, from over 400 hectares in size to less than one hectare in size (Figure 3). Very little of this native vegetation is reserved for conservation in the local area, with less than 60 hectares managed by the DBCA.

Figure 4 shows mapped remnant vegetation in the vicinity of the application area. The majority of the application area is not mapped as remnant vegetation, and therefore does not contribute to native vegetation retention statistics (Government of Western Australia 2019).

The regional vegetation association 1085 is described as a medium woodland; wandoo and blue mallet *(Eucalyptus gardneri)*. The application area consists predominantly of a monoculture of regrowth *Allocasuarina huegeliana* (Appendix E1) and is not representative of vegetation association 1085, nor does it qualify as remnant vegetation (Figure 4).

The application area consists of regrowth vegetation within a landscape that has been extensively cleared, but the vegetation present is not representative of the regional vegetation type, and is not considered a significant remnant. In addition, the entire 7.19 ha application area does not contain regrowth vegetation, with large areas devoid of native vegetation. Areas of mature eucalypt woodland have been excluded from the application area and adjoin adjacent remnant vegetation thereby maintaining an ecological linkage in the immediate vicinity of the application area. Environmental weeds including Tagasaste may occur over the application area (Katanning Landcare 2021), and adjacent vegetation is susceptible to weed invasion which the clearing process may exacerbate, thereby reducing habitat quality.

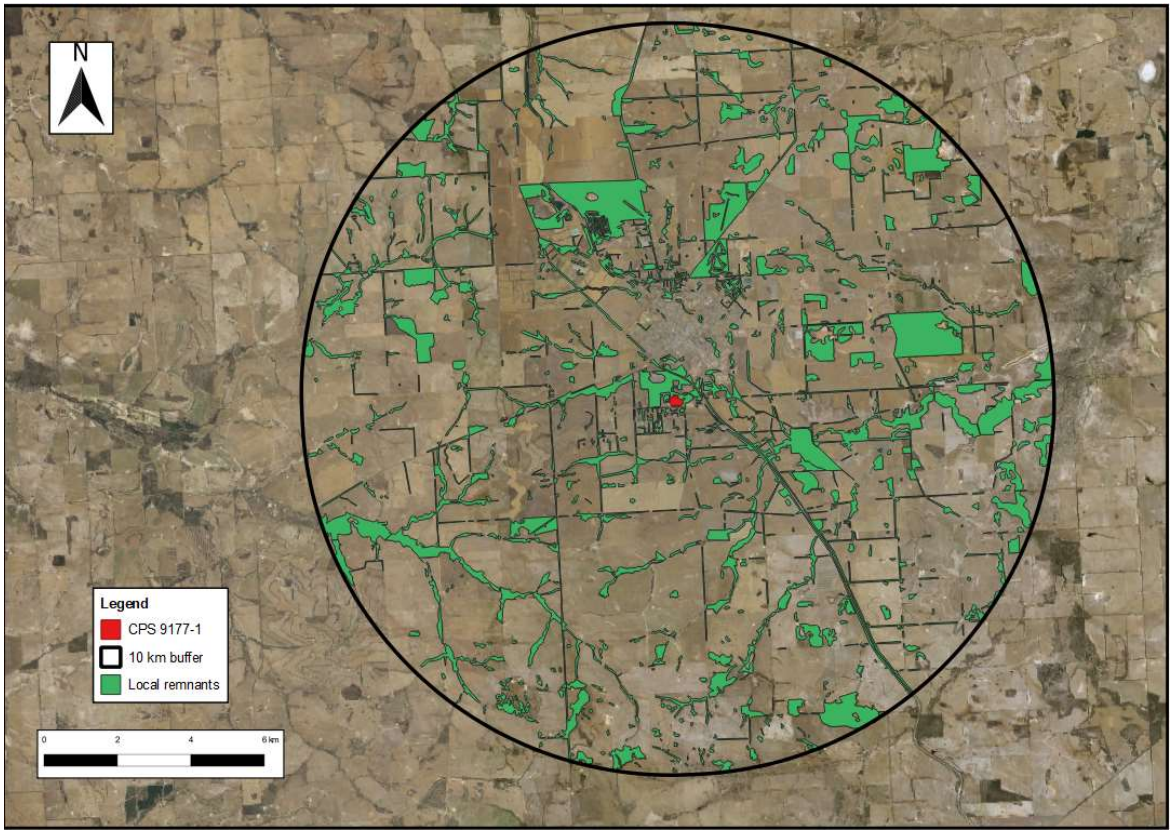

Figure 3: Mapped remnant native vegetation within 10 kilometres of the application area

Conclusion: For the reasons set out above, and the avoidance and mitigation measures provided by the Shire (Section 3.1), it is considered that the potential impacts of the proposed clearing on remnant vegetation can be managed by excluding areas of mature eucalypts from the application area. It is considered that the impacts of the proposed clearing on adjacent remnant vegetation can be managed by taking steps to minimise the risk of the introduction and spread of weeds. The application area is considered to be a significant remnant within an extensively cleared landscape.

Conditions: To address the above impacts, weed management measures to mitigate impacts to adjacent vegetation will be required as a condition on the clearing permit.

3.2.4. Environmental value: land and water resources – Clearing Principles (g) and (i)

Assessment: The land degradation risk factors for the mapped soils of the Carrolup 2 Subsystem (257Ca_2) are generally low (Appendix B1), with water repellence and wind erosion mapped at a medium risk (Appendix B1). Water repellence will not be a factor in the land-use of a catchment area, however, clearing of native vegetation over the application area has the potential to contribute to wind erosion initiating dust.

There are no mapped annual exceedance probability floodplains within the vicinity of the application area, and the area is located within a low risk area for flooding (Appendix B1). Given the distance to the nearest watercourse at approximately 600 metres (Blackwood_ AB0031), and the roaded catchment area flowing to the Kupara Park Dam (Figure 4), there is a low risk of impacts to natural surface waters. Similarly, due to the land-use as a roaded catchment, infiltration will be discouraged with compacted surfaces. Given the mapped groundwater salinity at 14,000 to 35,000 TDS/Mg/L, the proposed clearing is not likely to impact the quality of groundwater, nor contribute to a rising groundwater table.

At the site scale, there is potential for water erosion to occur leading to sedimentation and reduced water quality. The purpose of the clearing is to provide a water catchment for Kupara Park Dam, and water will be collected and stored at a quality appropriate for use by the Shire.

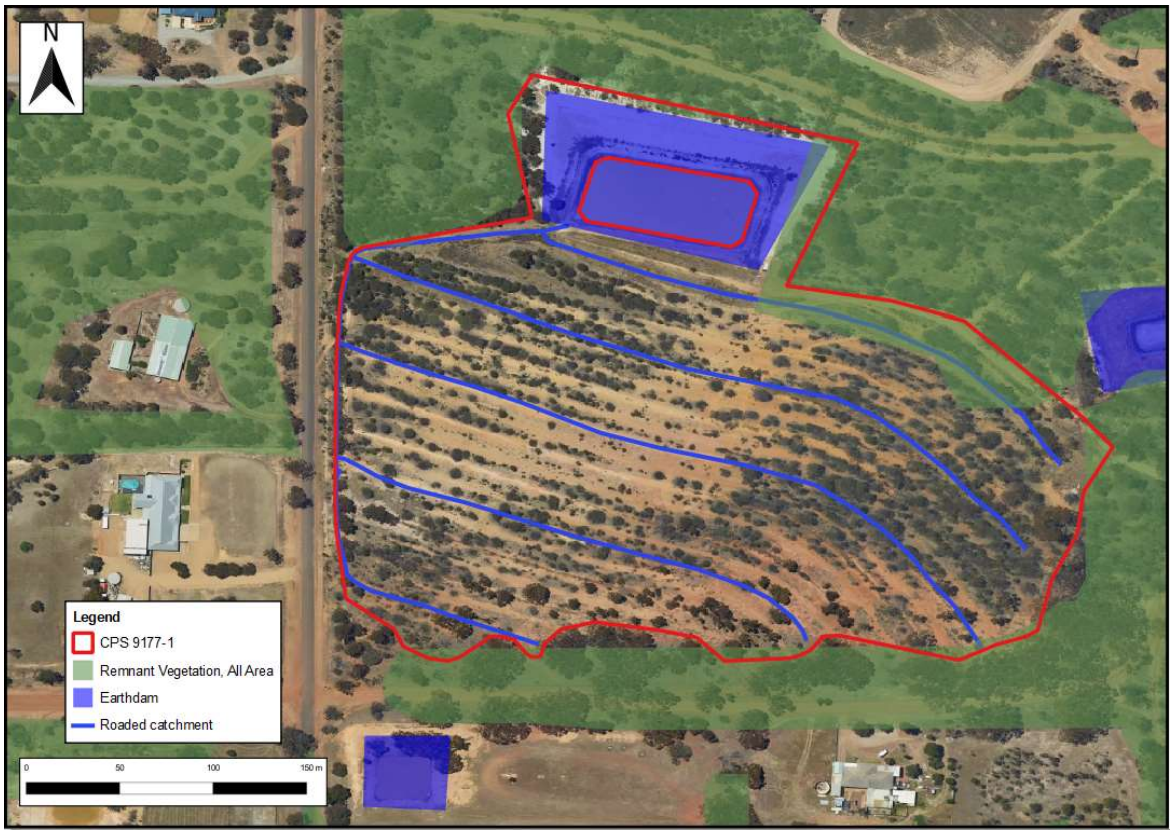

Figure 4: Mapped remnant native vegetation and hydrography in the vicinity of the application area

Contour banks and the roaded areas of the catchment are, or will be, compacted to increase catchment flows and mitigate against potential wind erosion and dust issues. Sediment traps will be installed into the contour banks to maintain water quality (Shire of Katanning 2021c).

The Shire has a Works Team and Parks and Landscape Team who will inspect the catchment on a scheduled basis, as well as after any extreme event (Shire of Katanning 2021c). Implementation of routine maintenance procedures will be undertaken by the Shire's Works Team at regular intervals including inspections after heavy rainfall, monitoring any erosion, and undertaking corrective actions as required (Shire of Katanning 2021c).

A reduction of application area during the assessment has enabled the exclusion of remnant vegetation to the south and east of the application area, as well as to the north and east of the dam, and provides a narrow vegetated buffer along the western boundary.

Conclusion: For the reasons set out above, and the avoidance and mitigation measures provided by the Shire (Section 3.1), it is considered that the potential impacts of the proposed clearing on land and water resources can be managed by the implementation of staged clearing and the management of wind erosion.

Conditions: To address the above impacts, a staged clearing and wind erosion management condition to mitigate impacts of the proposed clearing on adjacent vegetation will be required on the permit.

3.3. Relevant planning instruments and other matters

Clearing Permit application CPS 9177/1 was advertised on the DWER website for a 21 day public comment period on 27 January 2021. No public submissions were received in relation to this application.

Katanning Landcare provided comments as a direct interest response to clearing permit application CPS 9177/1 (Katanning Landcare 2021) and relevant comments are incorporated into this decision report.

Proposed clearing is within Lot 995 on Deposited Plan 214737 (Reserve 27092); a C class reserve vested with the Shire that is zoned as public open space. The applicant is the public authority that manages the land within which the application area is located.

The application area is not located within any Surface Water Areas, Irrigation Districts, or Groundwater Areas proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act). No rivers proclaimed under the RIWI Act intersect the application area. The application is not located in any *Country Areas Water Supply Act 1947* (CAWS Act) clearing control catchments, nor any Public Drinking Water Source Areas.

Registered Native Title claims encompassing the application area include Southern Noongar (WAD6134/1998) and WAGYL KAIP (WAD6286/1998), incorporated into the WAGYL KAIP and Southern Noongar registered Indigenous Land Use Agreement (ILUA) (WI2017/014). A Native Title Claim has also been filed that encompasses the application area. That is, the Single Noongar Claim - Area 1 (WAD6006/2003).

Spatial data indicates that no Registered Aboriginal Heritage sites listed in accordance with Section 5 of the *Aboriginal Heritage Act 1972* (WA) occur within the proposed clearing area. Place ID 22816 (Katanning Town Creek) is located approximately 1,100 metres to the east of 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.

Appendix A – Additional information provided by applicant

Information	Description
Representative photographs of the application area (Shire of Katanning 2021a)	Representative photographs of the application area (Appendix E1 and Appendix E2)
Further information regarding the reduction and avoidance and minimisation measures, including a reduction in the application area size (Shire of Katanning 2021b; Shire of Katanning 2021c).	This information was included in the consideration of avoidance and minimisation measures (Section 3.1) and within the assessment of environmental impacts (Section 3.2 and Appendix C).

Appendix B – Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to 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 C.

B.1 Site characteristics

<table>
<tr><th>Site characteristic</th><th>Details</th></tr>
<tr><td>Local context</td><td>The application area is located within the Avon Weatbelt IBRA Bioregion, (AVW) and the Katanning IBRA sub-region (AVW02) of Thackway and Cresswell (1995).

The proposed clearing of predominantly regrowth vegetation is required over the roaded catchment area and dam banks and walls of the Kupara Park Dam in Katanning.</td></tr>
<tr><td>Vegetation description</td><td>The application area has been mapped by Shepherd et al, (2001) as Vegetation Association 1085 described as a medium woodland; wandoo and blue mallet (Eucalyptus gardneri).

Vegetation over the roaded catchment consists primarily of regrowth Allocasuarina huegeliana (Appendix E1; Appendix E2).</td></tr>
<tr><td>Vegetation condition</td><td>Vegetation condition over the application area is Degraded to Completely Degraded (Keighery 1994; Appendix D), with little to no understorey (Appendix E1; Appendix E2).

The full description of vegetation condition ratings is provided in Appendix D.</td></tr>
<tr><td>Soil description</td><td>The proposed clearing area occurs within the mapped Carrolup 2 Subsystem (257Ca_2) of grey sandy duplex soils on slopes, hill crests and less commonly minor drainage lines, within the Carrolup System. The Department of Agriculture (2002) describe the CA2 soil-landscape unit as occurring on lower to upper slopes, with grey deep sandy duplex soils with minor areas of grey shallow sandy duplex soils.</td></tr>
<tr><td>Land degradation risk</td><td>Land degradation risk for the Carrolup 2 Subsystem is summarised in the table below (DPIRD 2017), and is expressed as the percentage of that subsystem being at risk, and its associated risk rating.
<table>
<tr><th>Aspect</th><th colspan="2">Risk rating</th></tr>
<tr><td>Wind erosion</td><td>M2</td><td>30-50% of mapped unit has a high to extreme risk</td></tr>
<tr><td>Water Erosion</td><td>L1</td><td><3% of mapped unit has a high to extreme risk</td></tr>
<tr><td>Water repellance</td><td>M2</td><td>30-50% of mapped unit has a high to extreme risk</td></tr>
<tr><td>Salinity risk</td><td>L2</td><td>3-10% of mapped unit has a high to extreme risk</td></tr>
<tr><td>Phosphorus export</td><td>L1</td><td><3% of mapped unit has a high to extreme risk</td></tr>
<tr><td>Waterlogging</td><td>L2</td><td>3-10% of mapped unit has a high to extreme risk</td></tr>
<tr><td>Flooding</td><td>L1</td><td><3% of mapped unit has a high to extreme risk</td></tr>
</table></td></tr>
<tr><td>Waterbodies</td><td>The application area is located within the Hardy Estuary-Coblinine River Catchment of the Southern Zone of rejuvenated drainage Hydrological Zone.

The application area is significantly altered and supports a dam with an associated roaded catchment area. No other wetlands or watercourses occur over the application area. No riparian vegetation occurs over the application area.</td></tr>
<tr><td>Hydrogeography</td><td>The application area is:
Not located within any Surface Water Areas or Irrigation Districts proclaimed under the RIWI Act;
Not located within any Groundwater Areas proclaimed under the RIWI Act;
Not located within any CAWS Act Clearing Control Catchments; and
Not located within any Public Drinking Water Source Areas.</td></tr>
</table>

Site characteristic	Details
	Groundwater has been mapped at 14,000-35,000 TDS/Mg/L (that is, saline)
Conservation areas	The Application Area does not intersect with any DBCA managed lands. The small DBCA managed reserve P222683-325 is located approximately two kilometres to the north, and R 20987, vested in the Conservation and Parks Commission is located approximately 9.5 kilometres to the north-east.
Climate and Landform	The proposed clearing area is situated within the 'Temperate – distinctly dry and warm summer' Köppen climate class (Commonwealth of Australia 2005). Katanning has an average rainfall of 444.5 millimetres per year (BOM 2021). The application area is situated within the Carrolup 2 subsystem (Ca2) of lower to upper slopes and hillcrests with mainly grey deep sandy duplex soils and lesser areas of grey shallow sandy duplex soils, red shallow loamy and sandy duplex soils.

B.2 Ecosystem, flora and fauna analysis

With consideration for the site characteristics set out above, relevant datasets (Appendix F2), the following conservation significant ecological communities, flora, and fauna species may be impacted by the clearing.

Ecological Community	Distance of closest record to application area (kilometres)	Suitable soil type? (flora, ecological community)	Suitable vegetation type? (flora, ecological community)	Are surveys adequate to identify? (Y,N)
Eucalypt woodlands of the Western Australian Wheatbelt (P3 DBCA, 'Critically Endangered' EPBC Act)	0	Yes	No	Yes. Vegetation does not qualify as TEC or PEC due to floristic composition and vegetation condition thresholds

One Threatened flora species and six Priority listed taxa have been identified within ten kilometres of the application area, none of which have been recorded within 1.6 kilometres of the Application Area.

Taxon	WA Status	Likelihood	
Tribonanthes purpurea	VU	Unlikely	Separation distance, floristics, vegetation condition.
Banksia acanthopoda	P2	Unlikely	Separation distance, floristics, vegetation condition.
Acacia parkerae	P3	Unlikely	Separation distance, floristics, vegetation condition.
Hakea oldfieldii	P3	Unlikely	Separation distance, floristics, vegetation condition.
Verticordia brevifolia subsp. brevifolia	P3	Unlikely	Separation distance, floristics, vegetation condition.
Acacia grisea	P4	Unlikely	Separation distance, floristics, vegetation condition.
Caladenia integra	P4	Unlikely	Separation distance, floristics, vegetation condition.

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

Eight birds and four mammals of conservation significance have been recorded from within the local area..

Birds		WA Status	Likelihood	
Carnaby's Cockatoo	*Calyptorhynchus latirostris*	EN	Possible	Records from vicinity
Baudin's Cockatoo	*Calyptorhynchus baudinii*	EN	Unlikely	Outside modelled distribution
Forest Red-tailed Black Cockatoo	*Calyptorhynchus banksii naso*	VU	Unlikely	Outside modelled distribution
Malleefowl	*Leipoa ocellata*	VU	Unlikely	Separation distance, vegetation structure, vegetation condition.
Peregrine Falcon	*Falco peregrinus*	OS	Unlikely	Overfly application area
Barking Owl (S-W)	*Ninox connivens connivens* (S-W)	P3	Unlikely	Floristics and vegetation condition
Western Rosella (inland)	*Platycercus icterotis xanthogenys*	P4	Unlikely	Floristics and vegetation condition
Hooded Plover	*Thinornis rubricollis*	P4	Unlikely	Floristics and vegetation condition
Mammals		**WA Status**		
Woylie	*Bettongia penicillata ogilbyi*	CR	Unlikely	Separation distance, floristics, vegetation condition.
Numbat	*Myrmecobius fasciatus*	EN	Unlikely	Separation distance, floristics, vegetation condition.
Chuditch	*Dasyurus geoffroii*	VU	Unlikely	Separation distance, floristics, vegetation condition.
Red-tailed Phascogale	*Phascogale calura*	CR	Possible	Records from vicinity

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, OS: Other Specially Protected Fauna, P: priority

Three Threatened species of black-cockatoo have been recorded within ten kilometres of the application area. The application area is located outside of the modelled current distributions of Baudin's Cockatoo and the Forest Red-tailed Black Cockatoo, and within a breeding area for Carnaby's Cockatoo.

Species	Status	Within modelled Distribution	Roosts within 12 km	Breeding Roosts within 12 km	Foraging habitat
Baudin's Cockatoo	EN	No 28 km west	No	No	No
Carnaby's Cockatoo	EN	Yes Breeding dist.	No	1998 (first and last) 4.3 km N-E	Within foraging range of known breeding location
Forest Red-tailed Black Cockatoo	VU	No 40 km west	No	No	No

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

B.3 Vegetation extent

Factor	Pre-European extent (ha)	Current extent (ha)	Remaining (%)	Current extent in all DBCA managed land (ha)	Current extent in all DBCA managed land (proportion of current extent) (%)
IBRA Bioregion					
Avon Wheatbelt (AVW)	9,517,110	1,761,187	18.5	174,981	9.9
Beard vegetation association 1085: Medium woodland; wandoo and blue mallet *(Eucalyptus gardneri)*					
1085: TOTAL	51,787	5,935	11.5	16.3	0.3
1085: Within AVW Bioregion	51,787	5,935	11.5	16.3	0.3
Remnant vegetation					
10 km radius	32,861	5,593	17.02		

Appendix C – 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: Native vegetation over the application area is predominantly regrowth and in a Degraded to Completely Degraded condition with little to no ground cover. No Threatened or Priority flora taxa are unlikely to occur due to the vegetation condition and in particular the lack of understorey. The native vegetation proposed to be cleared does not comprise a high level of biodiversity. Regional mapping of the *Eucalypt woodlands of the Western Australian Wheatbelt,* a significant vegetation community listed as Critically Endangered under the EPBC Act and Priority 3 by the DBCA, includes a portion of the application area.	Not at variance	Yes (Section 3.2.1)
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: Native vegetation over the application area is predominantly regrowth and in a Degraded to Completely Degraded condition and is unlikely to comprise the whole or a part of, or be necessary for the maintenance of, a significant habitat for fauna. The application area is located outside of the modelled current distributions of Baudin's Cockatoo and the Forest Red-tailed Black Cockatoo, but within a breeding area for Carnaby's Cockatoo. The Red-tailed Phascogale *(Phascogale calura)* has been recorded within 2.5 kilometres of the application area with *Allocasuarina huegeliana* present in the proposed clearing area.	Is not likely to be at variance	Yes (Section 3.2.2)
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: Just one species of Threatened flora listed under the *Biodiversity Conservation Act 2016* has been recorded within ten kilometres of the application area, with a record of the Vulnerable *Tribonanthes purpurea* occurring approximately 1.68 kilometres to the north. This record in located within a long-developed residential area of Katanning. Due to the lack of records and the Degraded to Completely Degraded condition of vegetation with little ground cover, the proposed clearing area in not likely to include, or be necessary for, the continued existence of Threatened flora.	Not at variance	No
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: No Threatened Ecological Communities endorsed by the Western Australian Minister for Environment have been mapped within ten kilometres of the application area. Native vegetation occurring over the application area is primarily in a Completely Degraded to Degraded condition and does not meet the criteria for any Threatened Ecological Communities endorsed by the Western Australian Minister for Environment. Native vegetation proposed to be cleared is unlikely to comprise the whole, or a part of, or be necessary for the maintenance of a Threatened Ecological Community.	Not at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
Environmental values: 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: Vegetation association 1085 has been mapped over the application area. The extent of vegetation association 1085 remaining is inconsistent with the national objectives and targets for biodiversity conservation in Australia. Native vegetation over the application area consists primarily of regrowth *Allocasuarina huegeliana* that is not representative of vegetation association 1085. Regrowth vegetation over the application area occurs within a landscape that has been extensively cleared, but is not representative of the regional vegetation type, and is not considered a significant remnant.	Is not likely to be at variance	Yes Section 3.2.3
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: The application area does not intersect with any DBCA managed lands. A very small DBCA managed reserve P222683-325 (less than 0.2 hectare) is located approximately two kilometres to the north of the application area, and R 20987, vested in the Conservation and Parks Commission (59 hectares) is located approximately 9.5 kilometres to the north-east. Given the separation distances, the proposed clearing is not likely to have an impact on the environmental values of adjacent and/or nearby conservation areas.	Not at variance	No
Environmental values: 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: The application area is significantly altered and supports a dam with an associated roaded catchment area. No other wetlands or watercourses occur over the application area. The closest mapped Wheatbelt Wetland (Blackwood_AB0031) occurs approximately 600 metres to the north-west. The native vegetation occurring is not riparian vegetation nor growing in, or in association with, an environment associated 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 land degradation risk factors for the mapped soils of the Carrolup 2 Subsystem (257Ca_2) are generally low (Appendix B1). Water repellence and wind erosion are mapped at a medium risk. If not managed appropriately clearing of native vegetation over the application area has the potential to contribute to wind erosion initiating dust.	Is not likely to be at variance	Yes Section 3.2.4
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 nearest watercourse (Blackwood_ AB0031, at approximately 600 metres), low risk of groundwater salinity (Appendix B1), and groundwater salinity at 14,000 to 35,000 TDS/Mg/L, the proposed clearing is not considered likely to impact the quality of surface or underground water. The purpose of the clearing is to provide a water	Is not likely to be at variance	Yes Section 3.2.4

Assessment against the Clearing Principles	Variance level	Is further consideration required?
catchment for Kupara Park Dam, and water will be collected and stored at a quality appropriate for use by the Shire.		
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: There are no mapped annual exceedance probability (AEP) floodplains within the vicinity of the application area. The application area is mapped in a low risk (L1) area for flood risk (Appendix B1). The purpose of the clearing is to provide a water catchment for Kupara Park Dam, and water will be collected and stored at a quantity appropriate for use by the Shire. Proposed clearing of native vegetation is not likely to cause, or exacerbate, the incidence or intensity of flooding.	Is not likely to be at variance	No

Appendix D – Vegetation condition rating scale

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

Measuring Vegetation Condition for the South West and Interzone Botanical Province (Keighery, 1994)

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

Appendix E –Photographs of the vegetation within the application area (Shire of Katanning 2021a)

E.1 Roaded catchment

E.2 Kupara Park Dam

Appendix F – References and databases

F.1 References

Bamford Consulting Ecologists (Bamford) (2013). Plants known to be used for foraging, roosting and nesting by black cockatoos in south-western Western Australia. Data compiled from the literature (Davies, 1966; Saunders, 1974, 1979a, b, 1980; Saunders et al. 1982; Saunders, 1986; Johnstone and Storr, 1998; Higgins 1999; Johnstone and Kirkby, 1999, 2008; Groom, 2011; Johnstone et al. 2011; DSEWPaC, 2012a, b; c, R. Johnstone pers. comm.) in Bamford (2013) Wedgetail Circle, Parkerville Fauna Assessment. Prepared for Coterra Environment. Bamford Consulting Ecologists. Prepared by Jeff Turpin, Simon Cherriman and Mike Bamford. 14th August 2013.

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Shire of Katanning (2021c) Supporting Information for clearing permit application CPS 9177/1. Further reduction of clearing area, and clarification of clearing requirement. Shire of Katanning. Received by DWER on 7 April 2021 and 27 April 2021 (DWER Ref: A1994876 and DWER Ref: A2000053).

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F.2 GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)

- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Pre-European Vegetation Statistics
- Remnant Vegetation, All Areas
- Native Vegetation Extent (DPIRD-005)
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)