



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

<b>Purpose Permit number:</b>	CPS 8113/1
<b>Permit Holder:</b>	Shire of Boddington
<b>Duration of Permit:</b>	27 March 2019 to 27 March 2024

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

### PART I – CLEARING AUTHORISED

**1. Purpose for which clearing may be done**

Clearing for the purpose of constructing a new sealed road.

**2. Land on which clearing is to be done**

Harvey Quindanning Road reserve (PINs 1251857, 1251859, 1251861, 1251863, 1251860, 1251862, 1251867, 1251865 and 1251864), Upper Murray

**3. Area of Clearing**

The Permit Holder must not clear more than 5.82 hectares of native vegetation within the area shaded yellow on attached Plan 8113/1a, Plan 8113/1b, Plan 8113/1c, Plan 8113/1d and Plan 8113/1e

**4. Application**

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

### PART II – MANAGEMENT CONDITIONS

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

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- avoid the clearing of native vegetation;
- minimise the amount of native vegetation to be cleared; and
- reduce the impact of clearing on any environmental value.

**6. Weed and Dieback control**

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds* and *dieback*:

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

### PART III – RECORD KEEPING AND REPORTING

#### 7. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit, in relation to the clearing of native vegetation authorised under this Permit:

- (a) 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 or decimal degrees;
- (b) the date that the area was cleared;
- (c) the size of the area cleared (in hectares); and
- (d) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 5 of this Permit.
- (e) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 6 of this Permit.

#### 8. Records must be kept

- (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 7 of this Permit; and
  - (ii) concerning activities done by the Permit Holder under this Permit between 1 January and 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 year, 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) Prior to 27 December 2023 the Permit Holder must provide to the CEO a written report of records required under condition 7 of this Permit where these records have not already been provided under condition 8(a) of this Permit.

### DEFINITIONS

The following meanings are given to terms used in this Permit:


**dieback** means the effect of *Phytophthora* species on native vegetation;

**fill** means material used to increase the ground level, or fill a hollow;

**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;

**weed/s** means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; 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.

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Ryan Mincham  
MANAGER  
NATIVE VEGETATION REGULATION





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

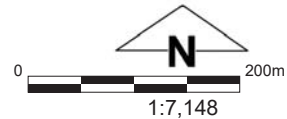
25 February 2019

# Plan 8113/1a



## Legend

-  Imagery
-  Clearing Instruments Activities
-  Roads
-  Local Government Authority



(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

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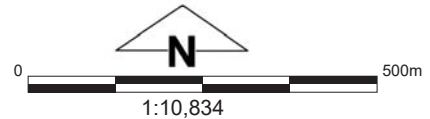
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# Plan 8113/1b



## Legend

-  Imagery
-  Clearing Instruments Activities
-  Roads
-  Localities
-  Local Government Authority



(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

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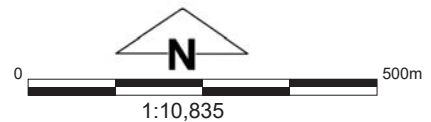
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# Plan 8113/1c



## Legend

-  Imagery
-  Clearing Instruments Activities
-  Roads
-  Localities
-  Local Government Authority



(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994






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# Plan 8113/1d



## Legend

-  Imagery
-  Clearing Instruments Activities
-  Roads
-  Localities
-  Local Government Authority



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# Plan 8113/1e



## Legend

-  Imagery
-  Clearing Instruments Activities
-  Roads
-  Local Government Authority



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## 1. Application details

### 1.1. Permit application details

Permit application No.: 8113/1  
Permit type: Purpose Permit

### 1.2. Applicant details

Applicant's name: Shire of Boddington

### 1.3. Property details

Property: Harvey Quindanning Road reserve (PINs 1251857, 1251859, 1251861, 1251863, 1251860, 1251862, 1251867, 1251865 and 1251864)  
Local Government Authority: BODDINGTON, SHIRE OF  
DWER Region: South West  
DBCA District: Perth Hills and Wellington  
Localities: Upper Murray

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
5.82 hectares		Mechanical Removal	Road widening

### 1.5. Decision on application

Decision on Permit Application: Granted  
Decision Date: 25 February 2019  
Reasons for Decision: The clearing permit application was received on 25 June 2018 and has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*. It has been concluded that the proposed clearing is at variance to clearing principle (f) and (h) and is not likely to be at variance to the remaining clearing principles.

The Delegated Officer noted that the proposed clearing may impact on riparian vegetation growing in association with nearby watercourses, however determined that the proposed clearing is unlikely to have any significant environmental impacts. The Delegated Officer also noted that the proposed clearing may increase the risk of weeds and dieback being introduced or spread into adjacent areas. Weed and dieback management measures will minimise impacts to adjacent areas.

## 2. Site Information

**Clearing Description:** The application is to clear up to 5.82 hectares of native vegetation within Harvey Quindanning Road reserve (PINs 1251857, 1251859, 1251861, 1251863, 1251860, 1251862, 1251867, 1251865 and 1251864) Upper Murray, for the purpose of constructing a new sealed road.

**Vegetation Description:** The application area is mapped as two Matisse vegetation complexes:

- My1: Open forest of *Eucalyptus marginata* subsp. *marginata*-*Corymbia calophylla*-*Eucalyptus patens* on valley slopes to woodland of *Eucalyptus rudis*-*Melaleuca raphiophylla* on the valley floors in humid and subhumid zones; and
- D4: Open forest to woodland of *Eucalyptus marginata* subsp. *thalassica*-*Corymbia calophylla* on lateritic uplands in semiarid and arid zones (Matisse and Havel, 1998).

The vegetation type within the application areas consists of *Eucalyptus rudis* (flooded gum) *Eucalyptus marginata* (jarrah) and with the occasional *Corymbia calophylla* (marri) over a midstorey of *Acacia* sp. and *Pteridium esculentum* (bracken fern) (DWER, 2018). There was very little ground cover species with a large amount of the vegetation consisting of regrowth (*Acacia* and juvenile flooded gum) from a result of a recent fire that went through the area (DWER, 2018).

**Vegetation Condition:** Good; Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994).  
To  
Completely Degraded; No longer intact, completely/almost completely without native species (Keighery, 1994).

The majority of the vegetation within the application area is in a degraded (Keighery, 1994) condition.

**Soil and Landform Type:** The application area is mapped within the following land subsystems;

- Murray Subsystem described as deep incised valley of the Murray River; red and yellow earths and minor duplex soils; occasional rock outcrops; narrow sandy terrace;

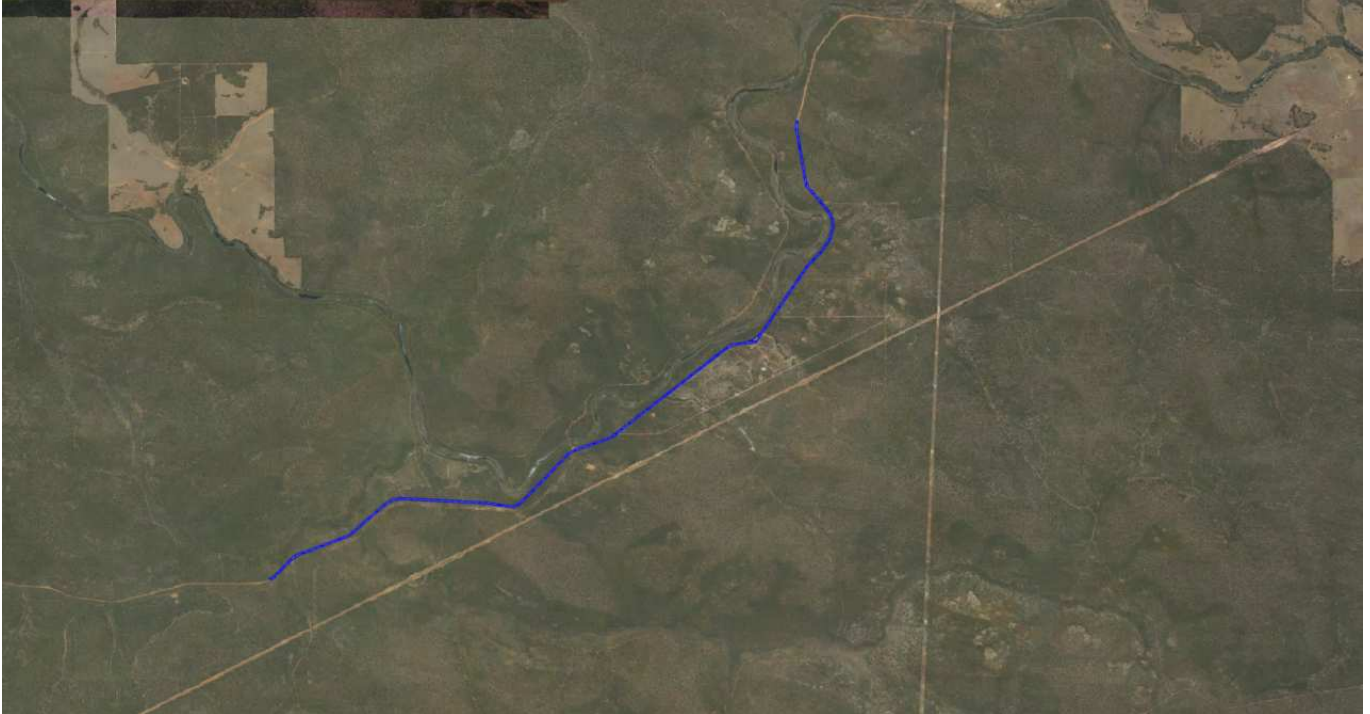


- Murray, very rocky Phase Subsystem described as deeply incised valley of the Murray River; areas dominated by rock outcrop; and
- Hester Subsystem (Murray) described as ridges and hill crests on laterite and gneiss, relief 5-40 metres, slopes 5-15 per cent. Soils are sandy gravels, loamy gravels and loamy earths (Schoknecht et al., 2004).

**Comment:**

The local area referred to in this assessment is defined as the area within a 10 kilometre radius of the application area. Aerial imagery indicates that the local area retains approximately 80 per cent native vegetation cover.

**Figure 1: Map of application area**



**Figure 2: Photographs of vegetation within the application area**



Photo 1:



Photo 2:



Photo 3:



Photo 4:

### 3. Assessment of application against clearing principles

#### (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

##### Proposed clearing is not likely to be at variance to this Principle

The application is to clear up to 5.82 hectares of native vegetation within Harvey Quindanning Road reserve Upper Murray, for the purpose of constructing a new sealed road.

As discussed in Section 2, the vegetation within the application area comprises *Eucalyptus rudis* (flooded gum) and *Eucalyptus marginata* (jarrah) with the occasional *Corymbia calophylla* (marri) over a midstorey of *Acacia sp.* and *Pteridium esculentum* (bracken fern), the majority of which is in a degraded (Keighery, 1994) condition.

According to available databases, *Calyptorhynchus banksii subsp. naso* (Forest Red-tailed Black-Cockatoo), *Calyptorhynchus baudinii* (Baudin's Cockatoo), *Calyptorhynchus latirostris* (Carnaby's Cockatoo), *Galaxiella munda* (Western Mud Minnow), *Pseudocheirus occidentalis* (Western Ringtail Possum) and *Setonix brachyurus* (Quokka) have been recorded within the local area, however based on the application area is unlikely to provide significant habitat for these species. Fauna habitat and conservation significant fauna species are discussed under Principle (b).

According to available databases received from the Department of Biodiversity, Conservation and Attractions (DBCA), six priority flora species and no threatened flora species have been recorded within the local area. Threatened flora are discussed under Principle (c). Of the priority flora recorded in the local area, two species have been mapped as occurring within the same vegetation and soil types as the application area;

- *Senecio leucoglossus* (Priority 4) is known from 41 records at sites generally associated with gravelly lateritic or granitic soils and granite outcrops, on slopes (WA Herbarium, 1998). The nearest record of this species is approximately 3.2 kilometres from the application area.
- *Byblis gigantea* (Priority 3) is known from 40 records at sites generally associated with sandy-peat swamps and seasonally wet areas (WA Herbarium, 19918). The nearest record of this species is approximately 4.1 kilometres from the application area.

Advice received from DBCA south west region suggest that it is possible the application could impact on *Senecio leucoglossus* or *Grevillea prominens* which are known from the larger area (DBCA, 2018). However, if plants of these species are present it is unlikely that impact would be considered significant in regards to the species conservation status (DBCA, 2018). Noting this, it is unlikely the application will significantly impact on priority flora in the local area.

According to available databases, no priority ecological communities (PEC) have been recorded within the local area. The closest PEC is the 'Mount Saddleback heath communities (P1)' located approximately 14 kilometres east of the application area.

Given the above, the application area is unlikely to comprise a high level of biological diversity. The proposed clearing is not likely to be at variance to this 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 indigenous to Western Australia.

##### Proposed clearing is not likely to be at variance to this Principle

According to available databases, five fauna species specially protected under the *Biodiversity Conservation Act 2016*, one specially protected fauna species and three priority fauna have been recorded within the local area (DBCA, 2007-). Based upon the application area comprising of *Eucalyptus rudis* (flooded gum) and *Eucalyptus marginata* (jarrah) with the occasional *Corymbia calophylla* (marri), it is considered that the application areas could provide habitat for black cockatoos (DWER, 2018), however, the vegetation is not considered significant habitat for black cockatoos as discussed below.

Black cockatoo species nest in hollows in live or dead trees of *Eucalyptus gomphocephala* (tuart), *Eucalyptus marginata* (jarrah), *Corymbia calophylla* (marri), *Eucalyptus diversicolor* (karri), *Eucalyptus wandoo* (wandoo), *Eucalyptus salmonophloia* (salmon gum), *Eucalyptus rudis* (flooded gum), *Eucalyptus loxophleba* (York gum), *Eucalyptus accedens* (powder bark), *Eucalyptus megacarpa* (bullich) and *Eucalyptus patens* (blackbutt) (Commonwealth of Australia, 2012). Black cockatoos have a preference for foraging habitat that includes jarrah and marri woodlands and forest heathland and woodland dominated by proteaceae plant species such as *Banksia* sp., *Hakea* sp. and *Grevillea* sp. (Commonwealth of Australia, 2012).

A site inspection of the application area did not record any trees with suitable nesting hollows with the majority of the trees not being of the appropriate size for breeding, having also been impacted from recent fires that went through the area (DWER, 2018). Whilst the application area provides foraging habitat for black cockatoos, it is considered to be of a low quality based upon impacts by fire that went through the area, however it is likely to regenerate to a better condition in the future. In addition, the local area retains approximately 80 per cent of vegetation cover in a similar or better condition in the local area, with large portions of this being in the adjoining Dwellingup State Forest and nearby Lane Pool Reserve and Harris River State Forest. Noting this, it is unlikely the application area comprises of significant habitat for black cockatoos.

It is considered based upon the available databases that the application area could provide habitat for the Western Mud Minnow, Western Ringtail Possum and Quokka. The Western Ringtail Possum preferred habitat is peppermint (*Agonis flexuosa*) woodland, while the Quokka's preferred habitat is dense riparian vegetation to protect them from predation. The Western Mud Minnow generally occurs in swift flowing streams within karri forests and is typically found near submerged vegetation. Noting the application area consists of *Eucalyptus rudis* (flooded gum) and *Eucalyptus marginata* (jarrah) with the occasional *Corymbia calophylla* (marri) over a midstorey of *Acacia* sp. and *Pteridium esculentum* (bracken fern) (DWER, 2018), combined with the linear nature of the proposed clearing and the large extent of vegetation remaining within the local area, it is unlikely the application area comprises of significant habitat for the Western Mud Minnow, Western Ringtail Possum and Quokka, or other fauna species that occur in the local area.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

**(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.**

**Proposed clearing is not likely to be at variance to this Principle**

According to available databases, no threatened flora species have been recorded within the local area. The closest threatened flora species is *Caladenia hopperiana* located approximately 20 kilometres from the application area.

Noting the distance to the closest known threatened flora species and the linear nature of the proposed clearing next to an existing gravel road, the application area is not likely to include, or be necessary for the continued existence of, rare flora including the abovementioned conservation significant species.

Given the above, the proposed clearing is not likely to be at variance to this 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.**

**Proposed clearing is not likely to be at variance to this Principle**

According to available databases, no threatened ecological communities (TEC) are known to occur within the local area. The closest TEC is the '*Banksia attenuata* and/or *Eucalyptus marginata* woodlands of the eastern side of the Swan Coastal Plain' located approximately 30 kilometres west of the application area.

Noting the vegetation type within the application area and the distance to the nearest known TEC, the application area is unlikely to comprise the whole or part of, or be necessary for the maintenance of, a TEC.

Given the above, the proposed clearing is not likely to be at variance to this 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.**

**Proposed clearing is not likely to be at variance to this Principle**

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, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

As indicated in Table 1, the extents of native vegetation within the bioregion, local government authority and mapped vegetation complexes within the bioregion are above the 30 per cent threshold (Government of Western Australia, 2018).

As discussed in Section 2, the local area retains approximately 80 per cent native vegetation cover. Noting this and that the application area does not contain significant habitat for conservation significant fauna or flora, it is considered that the vegetation under application is unlikely to be significant as a remnant in an area that has been extensively cleared.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

**Table 1: Vegetation extents**

	Pre-European	Current Extent	Remaining	Current Extent in DCBA Managed Lands	
	(ha)	(ha)	(%)	(ha)	(%)
<b>IBRA Bioregion*</b>					
Jarrah Forest	4,506,660	2,425,551	54	222,766	38
<b>Local government authority*</b>					
Shire of Boddington	211,681	131,717	62	84,004	56
<b>Mittisike vegetation complex**</b>					
My1	68,695	52,387	76	44,539	64
D4	132,415	115,649	87	92,880	70

**(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.**

**Proposed clearing is at variance to this Principle**

According to available databases, two watercourses intersect with the application area. One of the watercourses is the Chalk Brook, while the other is a minor, perennial watercourse. Both watercourses are currently supported by a culvert/drain channel that is constructed underneath the existing road. Both watercourses are likely to be associated with the nearby Murray River.

As indicated in Photo 4, the application area will impact on vegetation growing in association with a watercourse (DWER, 2018). The site inspection identified the extent of clearing associated with the two watercourses is relatively small and noting the linear nature of the application area adjoining an existing gravel road, the clearing within the application area is not likely to have a significant impact on the environmental values of the watercourses.

Given the above, the proposed clearing is at variance to this Principle.

**(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.**

**Proposed is not likely to be at variance to this Principle**

As discussed in Section 2, the application area is located within three land subsystems (255MvMY) (Schoknecht et al., 2004).

The land degradation risk categories that apply to this subsystems indicate the following;

- Water Erosion:
  - >70% of map unit has a high to extreme wind erosion risk.
- Wind Erosion:
  - >70% of map unit has a high to extreme water erosion risk
- Salinity:
  - 3-10% of map unit has a moderate to high salinity risk or is presently saline
- Subsurface Acidification:
  - <3-% of map unit has a high subsurface acidification risk or is presently acid
- Flood risk:
  - 3-10% of the map unit has a moderate to high flood risk
- Water logging:
  - 3-10% of map unit has a moderate to very high waterlogging risk

The mapping indicates that the soil unit present within the application area has a high to extreme risk of wind erosion, the highest rating out of six risk categories (Schoknecht et al., 2004). Noting the linear shape of the application area and that the proposed clearing does not include the entire width of the roadside vegetation, it is expected that this risk can be managed through appropriate land management practices which do not expose soils for extended durations.

The mapping also indicates the soil unit has a high to extreme risk of water erosion. Noting the extent of vegetation within the local area, the condition of the vegetation and the long, linear shape of the application area, the proposed clearing is unlikely to cause appreciable land degradation in the form of water erosion. It is also noted that water erosion risk would be further reduced through the construction of the sealed road and through the installation of culverts.

Based on the above, the proposed clearing is not likely to be at variance to this 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.**

**Proposed clearing is at variance to this Principle**

According to available datasets, a number of conservation areas have been recorded within the local area, most notably being the Dwellingup State Forest and Lane Poole Reserve which are adjacent to the application area. Additionally, the Harris River State Forest boundary also lies approximately 470 metres away from the application area.

Noting this, the disturbance caused by the proposed clearing may increase the risk of weed and dieback being spread into the nearby conservation areas. Weed and dieback management practices will assist in mitigating the risk.

The South West Regional Ecological Linkage (SWREL) report (Molloy et al.,2009) is located approximately 200 metres west from the application area. The ecological linkage is defined as a series of both contiguous and non-contiguous patches of vegetation which, by virtue of their proximity to each other, act as stepping stones of habitat which facilitate the maintenance of ecological processes and movement of organisms within, and across a landscape (Molloy et al.,2009).

Remnant vegetation within the SWREL boundary can be assigned a 'proximity analysis' group. A patch of vegetation with an edge touching or less than 100 metres from a linkage is assigned to proximity analysis group 1(a) which is the highest category group (Molloy et al.,2009). Noting that the application area is a part of patch of contiguous vegetation that touches the axis line, the proposed clearing could degrade to the quality of the linkage. However the proposed clearing will not sever this linkage and noting the linkage is surrounded by vegetation in good or better condition, it is unlikely the proposed clearing will significantly impact on the values of this linkage.

Given the above, the proposed clearing is at variance to this 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.**

**Proposed clearing is not likely to be at variance to this Principle**

As discussed under Principle (f), two watercourse intersects with the application area.

The application area has relatively flat topography, an average rainfall of 500 millimetres per annum, and groundwater salinity mapped at 500-1,000 total dissolved solids (milligrams per litre). Noting the linear nature of the proposed clearing and the extent of vegetation in the local area, the proposed clearing is unlikely to cause deterioration in the quality of surface or underground water.

The proposed clearing is not likely to be at variance to this Principle.

**(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.**

**Proposed clearing is not likely to be at variance to this Principle**

Noting the extent of vegetation within the local area, the condition of the vegetation within the application area and the linear shape of the application area, the proposed clearing is not likely to cause or exacerbate the incidence or intensity of flooding.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

**Planning instruments and other relevant matters.**

The application was advertised on the Department of Water and Environmental Regulation's website on 2 August 2018 for a 21 day submission period. One submission was received during this period. The submission raised the following concerns and gave the following advice;

- A flora and fauna survey should be undertaken before any of the works commence;
- WALGA/RCC road construction and maintenance training for the construction work crew;
- Suggestions around the road design layout and structure;
- Close supervision of Shire plant drivers undertaking the clearing and frequent site inspections visits by suitably experienced environmental personnel; and
- Detailed surveying post-clearing to confirm adherence to the design clearing envelope, clearly showing and confirming extent of clearing actually undertaken, to be provided and made publically available at the close of the project.

In relation to the request for the applicant to undertake biological surveys prior to the commencement of works, through the use of available datasets, information obtained through a site inspection and advice provided by DBCA regional staff, it is considered that surveys are not required. Principle (a), (b) and (c) explain the reason behind this in more detail. In relation to the other concerns raised from the submission, dot points two and three are considered to be outside of the scope of the assessment. In relation to the last dot point, through permit conditions the applicant is required to record the actions undertaken through the clearing process and report them to the Department each calendar year until the permit expires. These reports are not available to the public.

The proposed clearance area is located within the Murray River Surface Water Area proclaimed under the *Rights in Water and Irrigation Act 1914 (RIWI Act)*. As discussed under Principle (f), two watercourse that intersect with the application area will be impacted. The applicant has been issued a permit to interfere with the Bed and Banks of a watercourse (DWER, 2019).

No registered Aboriginal Sites of Significance occur within the application area.

#### 4. References

- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- Commonwealth of Australia (2012) EPBC Act referral guidelines for three threatened black cockatoo species. Department of Sustainability, Environment, Water, Populations and Communities, Canberra.
- Department of Biodiversity Conservation and Attractions (DBCA) (2007- ) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: <http://naturemap.dpaw.wa.gov.au/>. Accessed October 2018
- Department of Biodiversity Conservation and Attractions (2018) Regional advice received in relation to Clearing Permit Application CPS 8113/1 – Shire of Boddington DWER Ref:A1734638
- Department of Water and Environmental Regulation (2018). Site Inspection Report for Clearing Permit Application CPS 8113/1 – Shire of Boddington. DWER Ref:A1734650
- Department of Water and Environmental Regulation (2019). Landuse Planning. Permit issued under the *Right in Water and Irrigation Act 1914* (DWER Ref:A1762823).
- Government of Western Australia. (2018a). 2017 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of December 2017. WA Department of Biodiversity and Attractions, Perth
- Government of Western Australia. (2018b). 2017 South West Vegetation Complex Statistics. Current as of October 2017. WA Department of Biodiversity, Conservation and Attractions, Perth, <https://catalogue.data.wa.gov.au/dataset/dbca>
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mattiske, E.M. and Havel, J.J. (1998) Vegetation Complexes of the South-west Forest Region of Western Australia. Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.
- Malloy, S., Wood, J., Hall, S., Wallrodt, S. and Whisson, G. (2009) South West Regional Ecological Linkages Technical Report, Western Australian Local Government Association and Department of Environment and Conservation, Perth.
- Schoknecht, N., Tille, P. and Purdie, B. (2004) Soil-landscape mapping in South-Western Australia – Overview of Methodology and outputs' Resource Management Technical Report No. 280. Department of Agriculture.
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#### GIS Databases:

Aboriginal Sites of Significance  
DBCA Estate  
Groundwater salinity  
Hydrography, Linear  
Hydrography, Hierarchy  
Remnant vegetation  
SAC bio datasets (accessed February 2019)  
Topographic contours