



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 4412/1
Permit Holder:	Shire of Quairading
Duration of Permit:	5 September 2011 – 5 September 2016

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 road widening and upgrades.

2. Land on which clearing is to be done

LOT 2 ON DIAGRAM 65967 (CUBBINE ROAD, CUBBINE 6383)
LOT 1 ON PLAN 4943 (CUBBINE ROAD, CUBBINE 6383)
LOT 17568 ON PLAN 139934 (CUBBINE 6383)
LOT 7839 ON PLAN 128413 (CUBBINE 6383)
LOT 15 ON PLAN 16491 (CUBBINE 6383)
ROAD RESERVE (CUBBINE ROAD, CUBBINE 6383)
ROAD RESERVE (JUNCTION ROAD (PIN: 1309488), QUAIRADING 6383)
ROAD RESERVE (CUBBINE ROAD (PIN: 1309492), QUAIRADING 6383)
ROAD RESERVE (CUNDERDIN-QUAIRADING ROAD (PIN: 11661069, 1293485 AND 1293484), CUBBINE 6383)
ROAD RESERVE (CUNDERDIN-QUAIRADING ROAD (PIN: 1309567, 1309456 AND 11661771), QUAIRADING 6383)
LOT 3287 ON PLAN 103767 (QUAIRADING 6383)
ROAD RESERVE (CUNDERDIN-QUAIRADING ROAD (PIN: 1293486, 1293479 AND 1293479), YOUNDEGIN 6407)

3. Area of Clearing

The Permit Holder shall not clear more than 5.6 hectares of native vegetation within the combined areas cross hatched yellow on attached Plan 4412/1a and Plan 4412/1b and Plan 4412/1c and Plan 4412/1d and Plan 4412/1e and Plan 4412/1f and Plan 4412/1g and Plan 4412/1h and Plan 4412/1i.

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.

5. Type of clearing authorised

This Permit authorises the Permit Holder to clear native vegetation for activities to the extent that the Permit Holder has the power to clear native vegetation for those activities under the *Local Government Act 1995* or any other written law.

6. Compliance with Assessment Sequence and Management Procedures

Prior to clearing any native vegetation under conditions 1, 2 and 3 of this Permit, the Permit Holder must comply with the Assessment Sequence and the Management Procedures set out in Part II of this Permit.

PART II – ASSESSMENT SEQUENCE AND MANAGEMENT PROCEDURES

7. Avoid, minimise etc 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:

- (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.

8. Weed control

(a) 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*:

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

9. Flora management

(a) Prior to undertaking any clearing authorised under this Permit within Lot 2 on Diagram 65967 Cubbine Road, Cubbine, the Permit Holder shall engage a *botanist* to inspect that area for the presence of rare flora listed in the *Wildlife Conservation (Rare Flora) Notice 2010 (2)* and *priority flora*.

(b) Where rare flora or *priority flora* are identified in relation to condition 9(a) of this Permit, the Permit Holder shall ensure that:

- (i) no clearing occurs within 50 metres of identified rare flora, unless approved by the CEO; and
- (ii) no clearing of identified *priority flora* occurs and no clearing occurs within 20 metres of identified *priority flora*, unless approved by the CEO.

10. Fauna management

(a) Prior to undertaking any clearing authorised under this Permit within the area hatched red on attached Plan 4412/1i, the area(s) shall be inspected by a *fauna specialist* for the presence of Shield-backed trapdoor spider (*Idiosoma nigrum*) burrow.

(b) Where Shield-backed trapdoor spider (*Idiosoma nigrum*) burrow are identified in relation to condition 10(a) of this Permit, the Permit Holder shall ensure that no clearing occurs within 50 metres of the identified Shield-backed trapdoor spider (*Idiosoma nigrum*) burrow, unless approved by the CEO.

(c) Prior to undertaking any clearing authorised under this Permit, the area(s) shall be inspected by a *fauna specialist* who shall identify tree(s) that contain hollows suitable to be utilised as *habitat tree(s)* by fauna listed in the *Wildlife Conservation (Specially Protected Fauna) Notice 2010(2)*.

(d) Prior to clearing, any *habitat tree(s)* identified by condition 10(a) shall be inspected by a *fauna specialist* for the presence of fauna listed in the *Wildlife Conservation (Specially Protected Fauna) Notice 2010(2)*.

(e) Within one week prior to undertaking any clearing authorised under this Permit, the Permit Holder shall engage a *fauna clearing person* to remove and relocate fauna identified under condition 10(b).

11. Retain vegetative material and topsoil, revegetation and rehabilitation

The Permit Holder shall:

- (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* following clearing authorised under this Permit, *revegetate* and *rehabilitate* no less than 3.5ha within the three s-bend areas along Cunderdin-Quairading Road reserve as shown on Plan 4412/1d and Plan 4412/1f and Plan 4412/1i by:
 - (i) re-shaping the surface of the land so that it is consistent with the surrounding 5 metres of uncleared land; and
 - (ii) ripping the ground on the contour to remove soil compaction; and
 - (iii) laying the vegetative material and topsoil retained under condition 11(a) on the areas to be *revegetated* and *rehabilitated* as outlined in condition 11(b); and
 - (iv) deliberately *planting* and/or *direct seeding* native vegetation that will result in a similar species composition, structure and density of native vegetation to pre-clearing vegetation types in that area; and
 - (v) ensuring only *local provenance* seeds and propagating material are used to *revegetate* and *rehabilitate* the area.
- (c) within 24 months of undertaking *revegetation* and *rehabilitation* in accordance with condition 11(b) of this Permit:
 - (i) engage an *environmental specialist* to determine the species composition, structure and density of the area *revegetated* and *rehabilitated*; and
 - (ii) where, in the opinion of an *environmental specialist*, the composition structure and density determined under condition 11(c)(i) of this Permit will not result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, the Permit Holder must undertake additional *planting* or *direct seeding* of native vegetation in accordance with the requirements of condition 11(b)(iv) and (v) of this Permit.

PART III - RECORD KEEPING AND REPORTING

12. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

- (a) In relation to the clearing of native vegetation authorised under this Permit:
 - (i) 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;
 - (ii) the date that the area was cleared; and
 - (iii) the size of the area cleared (in hectares).
- (b) In relation to flora management pursuant to condition 9 of this Permit:
 - (i) the location of each rare and/or priority flora species 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;
 - (ii) the species name of each rare and/or priority species identified; and
 - (iii) a copy of the botanists flora survey report.
- (c) In relation to fauna management pursuant to condition 10 of this Permit:
 - (i) the location of each Shield-backed Trapdoor Spider (*Idiosoma nigrum*) burrow identified 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;

- (ii) the location of each tree that contains hollows, 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;
 - (iii) the species name of fauna reasonably likely to utilise, or that have been observed utilising, the trees that contain hollows;
 - (iv) the location of surrogate trees for relocation with vacant hollows, 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; and
 - (v) the location and date where relocated fauna was released, 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.
- (d) In relation to the *revegetation* and *rehabilitation* of areas pursuant to condition 11 of this Permit:
- (i) the location of any areas *revegetated* and *rehabilitated*, 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;
 - (ii) a description of the *revegetation* and *rehabilitation* activities undertaken;
 - (iii) the size of the area *revegetated* and *rehabilitated* (in hectares);
 - (iv) the species composition, structure and density of *revegetation* and *rehabilitation*, and
 - (v) a copy of the environmental specialist's report.

13. 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 12 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding year.
- (b) Prior to 5 June 2016, the Permit Holder must provide to the CEO a written report of records required under condition 12 of this Permit where these records have not already been provided under condition 13(a) of this Permit.

Definitions

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

botanist means a person with specific training and/or experience in the ecology and taxonomy of Western Australian flora;

direct seeding means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species;

environmental specialist means a person who is engaged by the Permit Holder for the purpose of providing environmental advice, who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit;

fauna clearing person means a person who has obtained a licence from the Department, issued pursuant to the *Wildlife Conservation Regulations 1970* authorising them to take fauna;

fauna specialist means a person with training and specific work experience in fauna identification or faunal assemblage surveys of Western Australian fauna;

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

habitat tree(s) means trees that have a diameter, at average adult human chest height, of greater than 70cm, healthy but with dead limbs and broken crowns that are likely to contain hollows and roosts suitable for native fauna, or where these are not present then healthy but with the potential to contain hollows and roosts;

local provenance means native vegetation seeds and propagating material from natural sources within 40 kilometres of the area cleared;

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;

optimal time means the period from May to June for undertaking *direct seeding*, and the period from June to July for undertaking *planting*;

priority flora means those plant taxa described as priority flora classes 1, 2, 3 or 4 in the *Department's Declared Rare and Priority Flora List for Western Australia* (as amended);

planting means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;

regenerate/ed/ion means re-establishment of vegetation from in situ seed banks and propagating material (such as lignotubers, bulbs, rhizomes) contained either within the topsoil or seed-bearing *mulch*;

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 methods such as natural *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area;

weed/s means a species listed in Appendix 3 of the "Environmental Weed Strategy" published by the Department of Conservation and Land Management (1999), and plants declared under section 37 of the *Agriculture and Related Resources Protection Act 1976*.



Matthew Warnock
A/MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

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

11 August 2011

Plan 4412/1a



LEGEND

Cunderdin 50cm Orthomosaic - Landgate 2004

Brookton 80cm Orthomosaic - Landgate 2005

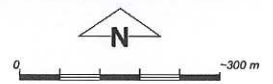
Clearing Instruments

(cont)

- Areas Applied to Clear
- Areas Subject to Conditions
- Areas Approved to Clear
- Road Centrelines
- Cadastre

- Local Government Authorities
 - Cadastre for labelling
 - Towns
- (cont)

- A
- B
- C



Geocentric Datum Australia 1994
Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

M Warnock Date 11/8/11

M Warnock
Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

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Plan 4412/1b



LEGEND

Cunderdin 50cm Orthomosaic - Landgate 2004

Brookton 80cm Orthomosaic - Landgate 2005

Clearing Instruments (cont)

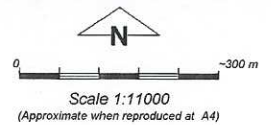
- Areas Applied to Clear
- Areas Subject to Conditions
- Areas Approved to Clear
- Road Centrelines
- Cadastre

Local Government Authorities

Cadastre for labelling

Towns (cont)

- A
- B
- C



Geocentric Datum Australia 1994

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Plan 4412/1c



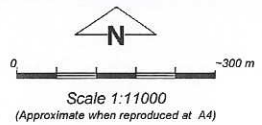
LEGEND

Cunderdin 50cm Orthomosaic - Landgate 2004
 Brookton 80cm Orthomosaic - Landgate 2005
 Clearing Instruments (cont)

- Areas Applied to Clear
- Areas Subject to Conditions
- Areas Approved to Clear
- Road Centrelines
- Cadastre

- Local Government Authorities
- Cadastre for labelling
- Towns (cont)

- A
- B
- C



Geocentric Datum Australia 1994

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M Warnock Date 11/8/11
 M Warnock

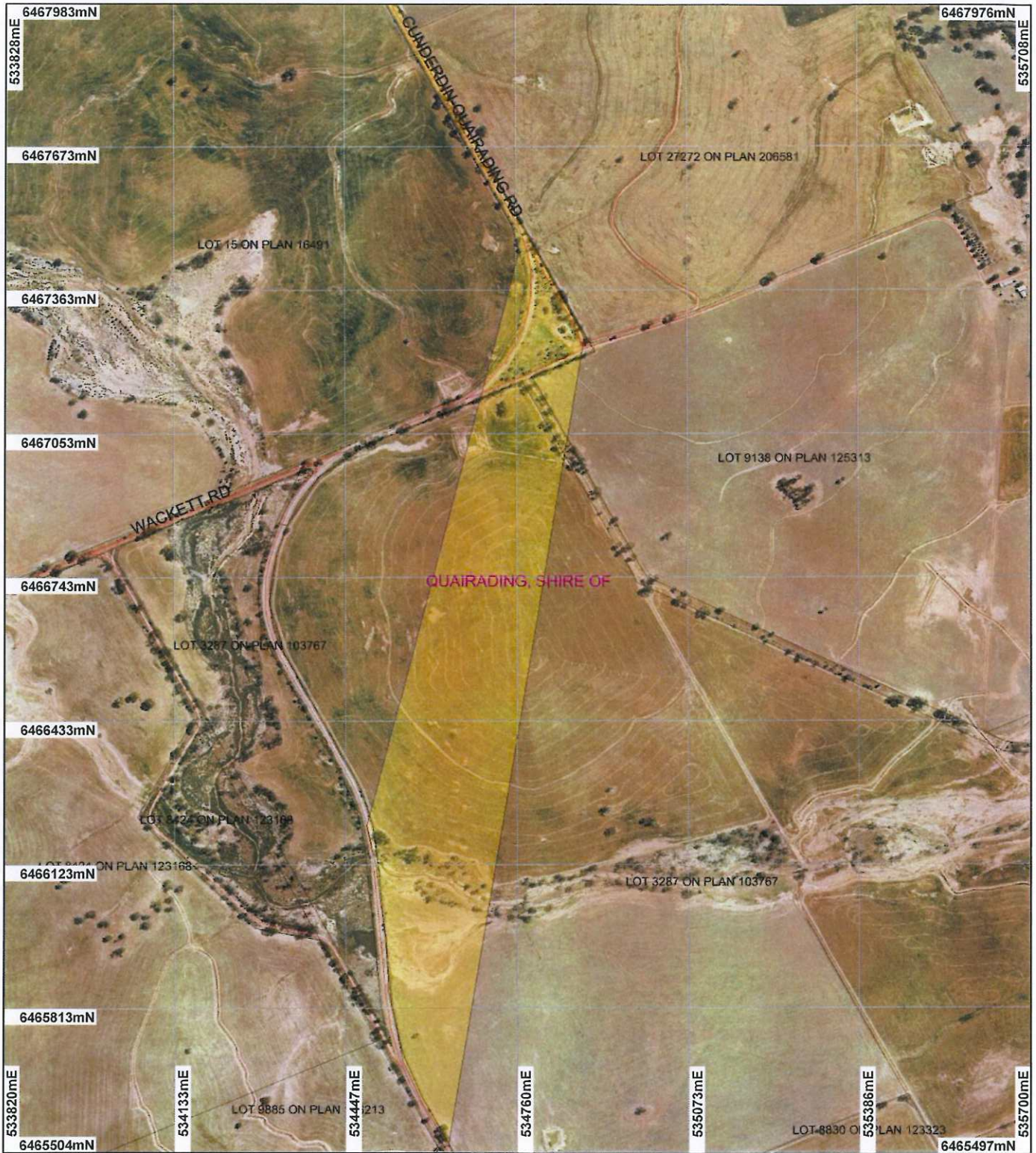
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Plan 4412/1d



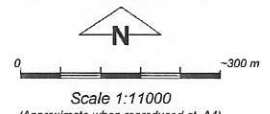
LEGEND

Cunderdin 50cm Orthomosaic - Landgate 2004
 Brookton 80cm Orthomosaic - Landgate 2005
 Clearing Instruments (cont)

- Areas Applied to Clear
- Areas Subject to Conditions
- Areas Approved to Clear
- Road Centrelines
- Cadastre

- Local Government Authorities
- Cadastre for labelling
- Towns (cont)

- A
- B
- C



Geocentric Datum Australia 1994
 Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

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Plan 4412/1e



LEGEND

Cunderdin 50cm Orthomosaic - Landgate 2004

Brookton 80cm Orthomosaic - Landgate 2005

Clearing Instruments (cont)

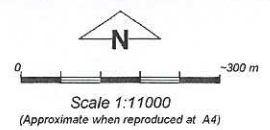
- Areas Applied to Clear
- Areas Subject to Conditions
- Areas Approved to Clear
- Road Centrelines
- Cadastre

Local Government Authorities

Cadastre for labelling

Towns (cont)

- A
- B
- C



Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

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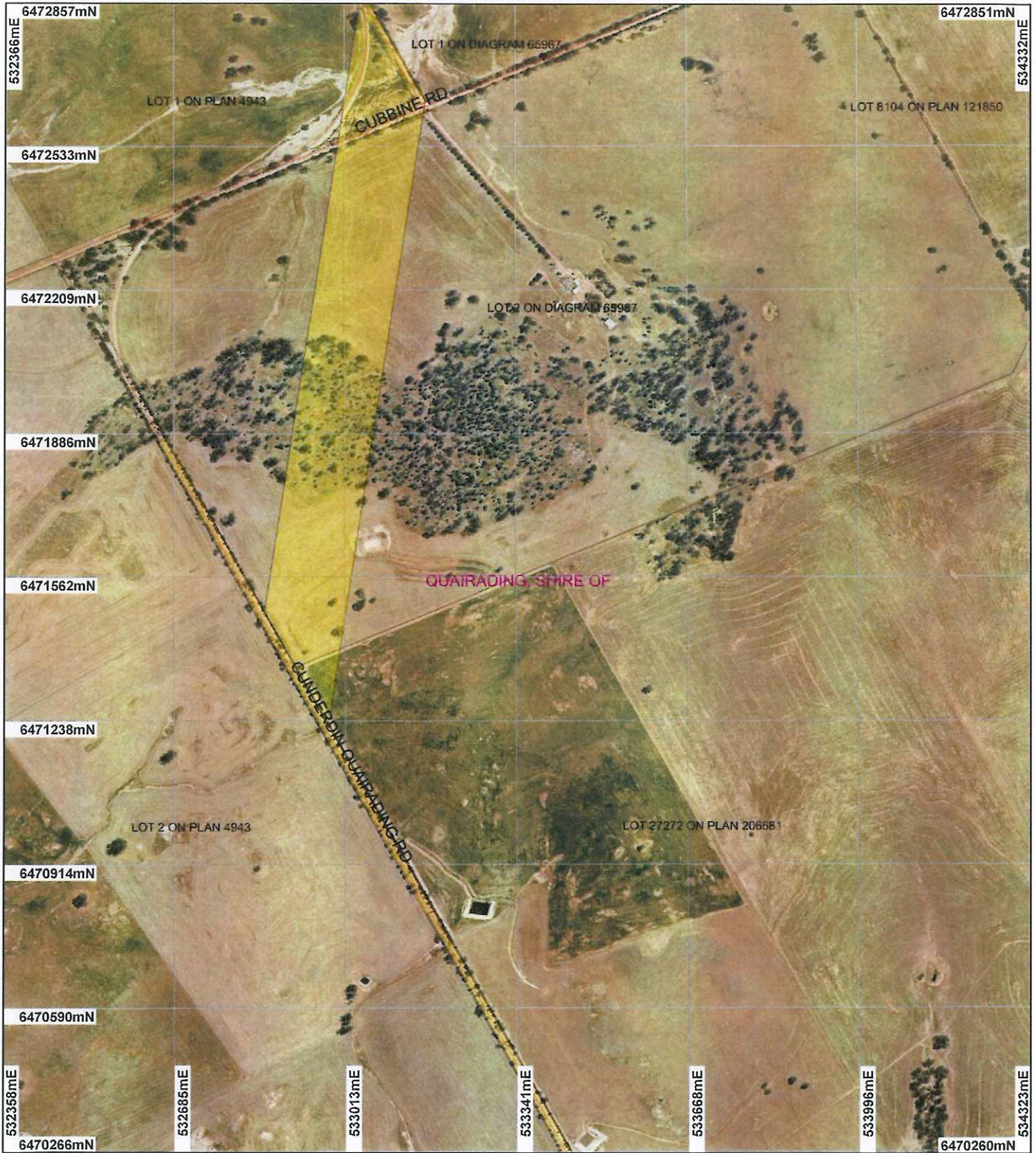
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Plan 4412/1f



LEGEND

Cunderdin 50cm Orthomosaic - Landgate 2004

Brookton 80cm Orthomosaic - Landgate 2005

Clearing Instruments (cont)

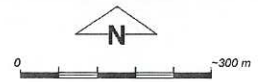
- Areas Applied to Clear
- Areas Subject to Conditions
- Areas Approved to Clear
- Road Centrelines
- Cadastre

Local Government Authorities

Cadastre for labelling

Towns (cont)

- A
- B
- C



Geocentric Datum Australia 1994

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Plan 4412/1g



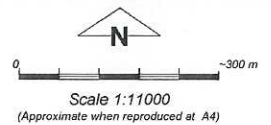
LEGEND

Cunderdin 50cm Orthomosaic - Landgate 2004
 Brookton 80cm Orthomosaic - Landgate 2005
 Clearing Instruments
 (cont)

- Areas Applied to Clear
- Areas Subject to Conditions
- Areas Approved to Clear
- Road Centrelines
- Cadastre

- Local Government Authorities
- Cadastre for labelling
- Towns
- (cont)

- A
- B
- C



Geocentric Datum Australia 1994

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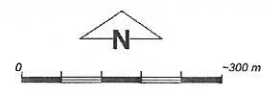
Plan 4412/1h



LEGEND

- Cunderdin 50cm Orthomosaic - Landgate 2004
- Brookton 80cm Orthomosaic - Landgate 2005
- Clearing Instruments
- Areas Applied to Clear (cont)
- Areas Approved to Clear
- Road Centrelines
- Cadastre
- Local Government Authorities

- Cadastre for labelling**
- Towns**
- A
 - B
 - C



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Plan 4412/1i



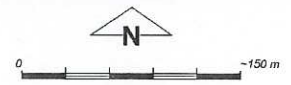
LEGEND

Cunderdin 50cm Orthomosaic - Landgate 2004
 Brookton 80cm Orthomosaic - Landgate 2005
 Clearing Instruments
 (cont)

Areas Applied to Clear
 Areas Subject to Conditions
 Areas Approved to Clear
 Road Centrelines
 Cadastre

Local Government Authorities
 Cadastre for labelling
 Towns
 (cont)

A
 B
 C



Scale 1:5000
 (Approximate when reproduced at A4)

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1. Application details

1.1. Permit application details

Permit application No.: 4412/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: Shire of Quairading

1.3. Property details

Property:
ROAD RESERVE (CUBBINE 6383)
ROAD RESERVE (QUAIRADING 6383)
ROAD RESERVE (QUAIRADING 6383)
ROAD RESERVE (QUAIRADING 6383)
ROAD RESERVE (CUBBINE 6383)
LOT 2 ON DIAGRAM 65967 (CUBBINE ROAD, CUBBINE 6383)
LOT 1 ON PLAN 4943 (CUBBINE ROAD, CUBBINE 6383)
LOT 17568 ON PLAN 139934 (CUBBINE 6383)
LOT 7839 ON PLAN 128413 (CUBBINE 6383)
LOT 15 ON PLAN 16491 (CUBBINE 6383)
ROAD RESERVE (CUBBINE 6383)
LOT 3287 ON PLAN 103767 (QUAIRADING 6383)
ROAD RESERVE (YOUNDEGIN 6407)
Local Government Area: SHIRE OF QUAIRADING

1.4. Application

Clearing Area (ha) 5.6
Method of Clearing Mechanical Removal
For the purpose of: Road construction or maintenance

1.5. Decision on application

Decision on Permit Application: GRANT
Decision Date: 11 AUGUST 2011

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Beard Vegetation Association: 1049 - Medium woodland; Wandoo, York gum, Salmon gum, Morrel and Gimlet (Hopkins et al., 2001).	The areas under application comprises 5.6ha of native vegetation consistent with the mapped vegetation association. The vegetation overall is in 'good' (Keighery, 1994) condition ranging from 'completely degraded' to 'very good' (Keighery, 1994) with the majority of the better condition vegetation being within remnants on freehold land proposed for the realignment of two of the three s-bends, one near Cubbine Road and one close to the northern boundary of the Shire of Quairading.	Completely Degraded: No longer intact; completely/almost completely without native species (Keighery 1994)	Vegetation condition was confirmed during a DEC site inspection (DEC, 2011) undertaken on 26 July 2011 and through aerial imagery Brookton 80cm Orthomosaic - Landgate 2005 and Cunderdin 50cm Orthomosaic - Landgate 2004.
As above.	As above.	Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994)	As above.
As above.	As above.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	As above.
As above.	As above.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	As above.

3. Assessment of application against clearing principles

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

Comments

Proposal is at variance to this Principle

The vegetation under application comprises 5.6ha within the Cunderdin-Quairading Road reserve and adjacent freehold land for the re-alignment of s-bends in the existing road. The vegetation is consistent with the Beard Hopkins Vegetation Association 1049 'Medium woodland; Wandoo, York gum, Salmon gum, Morrel and Gimlet' (Hopkins et al., 2001 & DEC, 2011) and ranges in condition from 'completely degraded' to 'very good' (Keighery, 1994).

This vegetation association is endemic to the Avon Wheatbelt Region and has been identified as a priority 1 ecosystem in need of protection within the Wheatbelt NRM region (Richardson, 2007) given that this vegetation type is under-represented with less than 10% of vegetation protected within conservation estate and less than 10% of its pre-European extent remaining within the Avon Wheatbelt bioregion (Shepherd, 2009).

Twenty nine priority flora species have been recorded within the local area of the applied clearing with twenty five of these species recorded within similar Beard vegetation and soil types to the areas under application and five of these within 1km of the proposed clearing. The remnant vegetation proposed to be impacted as a result of the realignment of the s-bend near Cubbine Road provides potential habitat for flora of conservation significance and as such this area will be required to be inspected prior to any clearing or proposed road works.

The Shield-backed trapdoor spider (*Idiosoma nigrum*) ranked as Vulnerable and listed under the Wildlife Conservation Act 1950, has been recorded within the local area. The remnant Salmon gum woodland proposed to be impacted by the straightening of the northern s-bend near Gimbel Road is in overall 'good' (Keighery, 1994) condition, has a combination of gravel (with an area directly adjacent previously used for gravel extraction) and sandy loam soils as well as available leaf litter for feeding habitat and burrow construction (ACC, 2007 & DEC, 2011). This remnant therefore has the potential to provide habitat for this species and therefore a targeted survey prior to any clearing or road works should be required to confirm the presence or absence of this species in this area.

The Shire of Quairading are reducing the level of impact to native vegetation for the road widening by limiting impact through disturbance to one side of the road and where possible, clearing the side of the road with the least amount of vegetation remaining.

Given that the proposed clearing includes areas of vegetation in 'good' (Keighery, 1994) condition in an area that has been significantly cleared, the applied clearing areas are considered to comprise a high level of biological diversity within the context of the local area. It is therefore concluded that the proposed clearing is at variance to this principle. A condition to revegetate areas of Cunderdin-Quairading Road that are no longer going to be in use as a result of the realignment of the s-bends will assist in mitigating the loss of the vegetation under application. In addition, weed hygiene measures will assist in reducing the risk of weed spread across the areas under application and nearby vegetation.

Methodology

References:

- ACC (2011)
- DEC (2011)
- Hopkins et al (2001)
- Keighery (1994)
- NatureMap (2011)
- Richardson (2007)
- Shepherd (2009)

GIS Databases:

- Brookton 80cm Orthomosaic - Landgate 2005
- Cunderdin 50cm Orthomosaic - Landgate 2004
- SAC Biodatasets - Accessed 28 June 2011

(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.

Comments

Proposal may be at variance to this Principle

Eleven threatened and priority fauna species have been recorded within a 20km radius of the applied clearing area, with the closest records being Shield-backed Trapdoor Spider (*Idiosoma nigrum*, Vulnerable) and *Ixalodectes flectocercus* (cricket species, priority 1).

The vegetation under application, both within the road reserves and the adjoining remnants proposed for the s-bend realignments, provide corridors and stepping stones across an extensively cleared landscape. The Shire has endeavoured to minimise clearing to restrict disturbance to the side of the road that retains the least amount of native vegetation to ensure the retention of available habitat for fauna in the local area.

Approximately three trees with hollows were identified within the road reserve during the DEC site inspection, providing habitat opportunities for indigenous arboreal mammals, such as Red-tailed Phascogale (*Phascogale calura*, Endangered), and avian species.

Shield-backed trapdoor spider (*Idiosoma nigrum*) ranked as Vulnerable and protected under the Wildlife Conservation Act 1950, has been recorded within the local area. *Idiosoma nigrum* is known to inhabit areas of Eucalypt woodlands over granite and loam soils and the critical habitat for this species comprises 'York gum (*Eucalyptus loxophleba*), Salmon gum (*Eucalyptus salmonophloia*) and wheatbelt wandoo (*Eucalyptus capillosa*) woodland, where Jam (*Acacia acuminata*) forms a sparse understorey in heavy clay soils' (ACC, 2007). The remnant Salmon gum woodland proposed to be impacted by the straightening of the northern s-bend near the boundary of Cunderdin and Quairading Shires is in 'good' (Keighery, 1994) condition, has a combination of gravel (an area directly adjacent have previously been used for gravel extraction) and loam soils as well as available leaf litter for feeding habitat and burrow construction (ACC, 2007 & DEC, 2011). This remnant therefore has the potential to provide habitat for this species and therefore it is concluded that the proposed clearing may be at variance to this principle. A targeted survey prior to any clearing or road works should be required to confirm the presence or absence of this species in this area.

- Methodology** References:
- ACC (2007)
 - DEC (2011)
 - Keighery (1994)
 - NatureMap (2011)
- GIS Databases:
- Brookton 80cm Orthomosaic - Landgate 2005
 - Cunderdin 50cm Orthomosaic - Landgate 2004

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

Comments **Proposal may be at variance to this Principle**

Eight threatened flora species have been recorded within a 10km radius of the areas under application within similar soil and vegetation types, with three of the species, *Acacia volubilis*, *Hakea aculeata* and *Jacksonia quairading*, being recorded within 1km.

There is a possibility that threatened flora species known from the area occur within the remnant vegetation on freehold land through which the proposed straightening of the s-bend near Cubbine Road will be constructed.

It is therefore concluded that the proposed clearing may be at variance to this principle.

Therefore, in order to determine the presence or absence of threatened and priority flora within this proposed clearing area a targeted flora survey will be required prior to any clearing or proposed road works.

- Methodology** GIS Databases:
- Pre-European Vegetation - DA
 - SAC Biodatasets - July 2011
 - Soils, Statewide - DA

(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.

Comments **Proposal is not likely to be at variance to this Principle**

The closest threatened ecological community (TEC) is the Critically Endangered 'Toolibin - Perched wetlands of the Wheatbelt Region with extensive stands of *Casuarina obesa* and *Melaleuca strobophylla*.' This community has been recorded approx. 47km (to the buffer) south west of the applied clearing area within different mapped vegetation types. This community and the areas under application are also separated by vast areas of substantially cleared landscape.

During the DEC (2011) site inspection of the areas under application, vegetation representative of threatened ecological communities was not observed. Given this, and the distance to the nearest community, the vegetation under application is considered not likely to comprise the whole or a part of, or is necessary for the maintenance of a TEC and therefore the proposed clearing is considered not likely to be at variance to this principle.

- Methodology** References:
- DEC (2011)
- GIS Databases:
- Beverley 50cm Orthomosaic - Landgate 2006
 - Brookton 80cm Orthomosaic - Landgate 2005
 - Cunderdin 50cm Orthomosaic - Landgate 2004
 - Pre-European Vegetation - DA
 - SAC Biodatasets - Accessed 28 June 2011

(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.

Comments Proposal is at variance to this Principle

The vegetation under application is mapped as Beard vegetation type 1049 - 'medium woodland; wandoo, York gum, Salmon gum, Morrel and Gimlet' which had 6.84% of its pre-European extent remaining within the Avon Wheatbelt Region in 2009. 5.71% of this vegetation type is retained in secure tenure (Shepherd, 2009). The Shire of Quairading is also extensively cleared with 9.37% of the pre-European extent of vegetation still remaining (Shepherd, 2009).

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30% of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). In addition, this vegetation association is endemic to the Avon Wheatbelt Region and has been identified as a priority 1 ecosystem in need of protection within the Wheatbelt NRM region (Richardson, 2007).

Given the low level (less than 10%) of vegetation type 1049 remaining within the Shire, the proposed clearing is considered to be at variance to this principle. An offset is required to reduce the overall impact of the proposed clearing.

The Shire of Quairading are limiting the level of impact to native vegetation for the road widening by, where possible, clearing the side of the road with the least amount of vegetation remaining and also limiting impact through disturbance to one side of the road.

In order to mitigate the clearing of native vegetation in an extensively cleared area and of significant remnants, the Shire of Quairading has committed to revegetate no less than 3.5ha of land within the existing three s-bends along Cunderdin-Quairading Road proposed for realignment as part of the proposed road upgrades (Shire of Quairading, 2011b).

Methodology References:

- Commonwealth of Australia (2001)
 - DEC (2011)
 - Richardson (2007)
 - Shepherd (2009)
 - Shire of Quairading (2011b)
- GIS Databases:
- Brookton 80cm Orthomosaic - Landgate 2005
 - Cunderdin 50cm Orthomosaic - Landgate 2004
 - Local Government Authorities - Landgate
 - Pre-European Vegetation - DA

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

Comments Proposal is at variance to this Principle

One significant stream and a number of minor, non-perennial watercourses cross the area under application. Headwaters and through flow wetland areas have also been mapped close to the applied clearing area for the realignment of the Wackett Road s-bend and appear to extend into the area under application.

Although there may be some clearing of native vegetation growing in association with watercourses and wetland areas and therefore the proposed clearing is considered to be at variance to this principle, the majority of the proposed clearing, the road widening, is confined to being adjacent to the existing road and therefore is not likely to result in any further significant deterioration to these areas than has already occurred as a result of the initial road construction and impacts associated with previous clearing, grazing and cropping within freehold land.

Methodology GIS Databases:

- Geomorphic wetlands, Wheatbelt - DEC
- Hydrography, linear - DoW
- Hydrography, linear (hierarchy) - DoW

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

Comments Proposal may be at variance to this Principle

The vegetation under application occurs on a number of different mapped soil types including hard neutral red soils, hard alkaline yellow soils underlain by acidic lateritic clays, hard broad undulating ridges and spurs with sandy, neutral, acidic yellow mottled soils containing ironstone gravels and sandy acid yellow earths, sandy acid and neutral red earths and shallow sand soils on ridges and slopes with associated ferruginized rock and ironstone gravels (Northcote et al 1960-68).

The salinity risk across the site ranges from low to high with a groundwater salinity ranging from 14000 - 35000mg/L total dissolved solids. Given the high salinity risk and existing groundwater salinity levels, the removal of deep rooted vegetation in this area may result in increased salinity in this location.

The proposed road upgrades will also cross a number of minor, non-perennial watercourses including Warralling Creek. Although many of these watercourses have already been previously impacted through the initial construction of the Cunderdin-Quairading Road, the further clearing may result in some soil erosion through water flows.

The Shire has attempted to minimise clearing along this road reserve and have also proposed to revegetate no less than 3.5ha within the existing s-bends of the Cunderdin-Quairading Road that will no longer be in use post road construction of the realignment of these bends (Shire of Quairading, 2011b).

The proposed clearing may be at variance to this principle due to the risk of salinisation and potential soil erosion through water flows across the landscape however, the proposed revegetation and the selective clearing will help to mitigate these land degradation risks.

Methodology

References:

- Northcote et al (1960-68)
- Shire of Quairading (2011b)

GIS Databases:

- Hydrography, linear - DoW
- Hydrography, linear (hierarchy) - DoW
- Soils, Statewide - DA

(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.

Comments

Proposal is not likely to be at variance to this Principle

Eight nature reserves exist within a 10km radius of the applied clearing area with the closest being Quairading Spring Nature Reserve approximately 4.3km south.

Given the small scale and sporadic nature of the proposed clearing within the road reserve and the distance to conservation areas, it is unlikely that this proposal will impact upon the environmental values of any of these nearby conservation areas within the local area. Therefore the proposed clearing is not considered likely to be at variance to this principle.

Methodology

GIS Databases:

- Brookton 80cm Orthomosaic - Landgate 2005
- Cunderdin 50cm Orthomosaic - Landgate 2006
- DEC Tenure - DEC

(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.

Comments

Proposal may be at variance to this Principle

The areas under application lie within the Swan Avon_ Salt River Catchment within the Avon River Basin.

One significant stream and a number of minor, non-perennial watercourses cross the area under application. Headwaters and throughflow wetland areas have also been mapped close to the applied clearing area for the realignment of the Wackett Road s-bend and appear to extend into the area under application. Although some short term sedimentation may arise as a result of the clearing close to watercourses appropriate infrastructure including culverts should limit impacts to watercourses and as the road widening is confined to adjacent to the existing road the proposed clearing is not likely to cause further substantial impact to the watercourses than the existing road.

There is the potential for the clearing of the deep rooted vegetation to result in increased salinity in water resources within this area. The Shire have tried to minimise clearing for the road works where possible and have committed to revegetating no less than 3.5ha within the s-bend areas post realignment to assist in mitigating potential impacts to the local area (Shire of Quairading, 2011b).

Methodology

References:

- Shire of Quairading (2011b)

GIS Databases:

- Geomorphic wetlands, Wheatbelt - DEC
- Groundwater salinity, statewide - DoW
- Hydrographic Catchment, Basins - DoW
- Hydrography, linear - DoW
- Hydrography, linear (hierarchy) - DoW

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

Comments Proposal is not likely to be at variance to this Principle

One significant stream and many other minor, non-perennial watercourses and drains cross the areas under application. The topography of the area ranges from 260 to 330m AHD with a low to medium relief.

Given the selective nature of the clearing and that the Shire has proposed to revegetate no less than 3.5ha within the existing three s-bend areas after the realignment of Cunderdin-Quairading Road, it is unlikely that the clearing will cause, or exacerbate, the incidence or intensity of flooding and therefore the proposed clearing is considered not likely to be at variance to this principle.

Methodology GIS Databases:
- Hydrography, linear - DoW
- Hydrography, linear (hierarchy) - DoW
- Topographical contours, statewide - DOLA and ARMY

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

The proposed upgrades to Cunderdin-Quairading Road are necessary to accommodate increased traffic that will result due to the recent announcement of the Tier 3 grain freight railway line closures (Shire of Quairading, 2011a). The Shire has received funding from Main Roads WA in order to complete the proposed road works (Shire of Quairading, 2011a).

The majority of the areas under application with the exception of the straitening of the s-bends are contained within the Cunderdin-Quairading road reserve, vested to the Shire of Quairading. The s-bends are proposed to be straightened to provide for increased road safety and will be negotiated with landholders and obtained through procedures under the Local Government Act 1995. The properties through which the proposed alignment for the s-bends will run are zoned for 'Rural' and 'Farming.'

The area under application lies within the EPA Position Statement No. 2 agricultural area where significant clearing has already occurred (EPA, 2000). The clearing however, is for the purposes of road upgrades and safety as a result of future increased traffic for grain freight and not for agricultural purposes. The Shire have demonstrated that they will avoid and minimise clearing for the road upgrades where possible and have committed to revegetating no less than 3.5ha of land to assist in mitigating the loss of this vegetation (Shire of Quairading, 2011b).

The applied clearing areas lie within the Avon River Catchment RiWI Area and the Avon River System surface water area proclaimed and managed under the Rights in Water and Irrigation Act 1914 administered by the Department of Water (DoW). Any impact to the beds and banks of watercourses or taking of water resources associated with this proposal may require approval from DoW.

Methodology References:
- EPA (2000)
- Shire of Quairading (2011a)
- Shire of Quairading (2011b)
GIS Databases:
- EPA Position Paper No. 2 Agricultural Region - DEP
- Local Government Authorities - Landgate
- RiWI Act, Areas - DoW
- RiWI Act, Surface Water Areas and Irrigation Districts - DoW
- Town Planning Scheme Zones - MFP

4. References

- Avon Catchment Council (2007) Shield - backed Trapdoor Spider (*Idiosoma nigrum*) Conservation Plan 2008-2013. Avon Catchment Council, Western Australia.
- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- DEC (2007 - 2011) NatureMap: Mapping Western Australia's Biodiversity. Department of Environment and Conservation. URL: <http://naturemap.dec.wa.gov.au/>. Accessed 30/06/2011.
- DEC (2011) Site Inspection Report for Clearing Permit Application CPS 4412/1, Cunderdin-Quairading Road upgrades, Quairading and Cubbine. Site inspection undertaken 26/07/2011. Department of Environment and Conservation, Western Australia (DEC Ref. A418443).
- EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority, Western Australia.
- Hopkins, A.J.M., Beeston, G.R. and Harvey J.M. (2001) A database on the vegetation of Western Australia. Stage 1. CALMScience after J. S. Beard, late 1960's to early 1980's Vegetation Survey of Western Australia, UWA Press.

- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.
- Richardson, J. (2007) Ecosystem Prioritization Workshop. Avon Natural Diversity Alliance. Department of Environment and Conservation, Perth, Western Australia.
- Shepherd, D.P. (2009) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.
- Shire of Quairading (2011a) Application for a clearing permit (area permit) for proposed upgrades to Cunderdin-Quairading Road. Shire of Quairading, Quairading, Western Australia. DEC ref A402780.
- Shire of Quairading (2011b) Proposed Revegetation Sites to Offset Cunderdin-Quairading Road upgrades. Shire of Quairading, Quairading, Western Australia. DEC ref A418442.

5. Glossary

Term	Meaning
CALM	Department of Conservation and Land Management (now DEC)
DA	Department of Agriculture (now DAFWA)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment
DoIR	Department of Industry and Resources
DOLA	Department of Land Administration (now Landgate)
DoW	Department of Water
DRF	Declared Rare Flora
EPA	Environmental Protection Authority
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
MFP	Ministry for Planning
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DoW)