GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS
Area Permit Number: 3841/1
File Number: 2010/005200-1
Duration of Permit: From 14 November 2010 to 14 November 2015

PERMIT HOLDER
Shire of West Arthur

LAND ON WHICH CLEARING IS TO BE DONE
ROAD RESERVE (BOYUP BROOK – ARTHUR ROAD, TRIGWELL 6244)
ROAD RESERVE (BOYUP BROOK – ARTHUR ROAD, MOODIARRUP 6393)
ROAD RESERVE (BOYUP BROOK – ARTHUR ROAD, MOKUP 6394)

AUTHORISED ACTIVITY
The Permit Holder shall not clear more than 2.01 hectares of native vegetation within the area shaded yellow on attached Plan 3841/1a.

CONDITIONS

1. 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.

2. Dieback and weed 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*:
(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
(b) shall only move soils in *dry conditions*;
(c) ensure that no *dieback* or *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
(d) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

3. Fauna management
(a) Prior to undertaking any clearing authorised under this Permit, the areas shall be inspected by a *fauna specialist* who shall identify *habitat trees* suitable to be utilised as habitat by fauna listed in the *Wildlife Conservation (Specially Protected Fauna) Notice* 2010(2).

(b) Prior to clearing, any *habitat trees* identified by condition 3(a) shall be inspected by a *fauna specialist* for the presence of fauna listed in the *Wildlife Conservation (Specially Protected Fauna) Notice* 2010(2).

(c) 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 3(b).

4. Revegetation and rehabilitation

(a) Prior to 31 December 2012 the Permit Holder shall *revegetate* and *rehabilitate* at least 2 hectares of native vegetation within the area shaded red on attached Plan 3841/1b and 2 hectares of native vegetation within the area cross-hatched red on attached Plan 3841/1c by:
   (i) ripping the ground on the contour to remove soil compaction prior to undertaking works pursuant to condition 4(a)(ii); and
   (ii) at an *optimal time*, deliberately *planting* and/or *direct seeding* native vegetation within the area shaded red on attached Plan 3841/1b and cross-hatched red on attached Plan 3841/1c that will result in a similar species composition, structure and density of native vegetation to pre-clearing vegetation types in that area; and
   (iii) ensuring only *local provenance* seeds and propagating material are used to *revegetate* and *rehabilitate* the area.

(b) Within 2 years of undertaking *revegetation* and *rehabilitation* in accordance with condition 4(a) 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 4(b)(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 4(a)(ii) and (iii) of this Permit.

5. Records to 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 species composition, structure and density of the cleared area;
   (ii) 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;
   (iii) the date that the area was cleared; and
   (iv) the size of the area cleared (in hectares).

(b) In relation to fauna management pursuant to condition 3 of this Permit:
   (i) the location of each habitat tree identified 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 species name of fauna reasonably likely to utilise, or that have been observed utilising, the habitat tree(s); and
   (iii) 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.

(c) In relation to the *revegetation* and *rehabilitation* of areas pursuant to condition 4 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;
   (ii) a description of the *revegetation* and *rehabilitation* activities undertaken;
   (iii) the size of the area *revegetated* and *rehabilitated* (in hectares); and
   (iv) the species composition, structure and density of *revegetation* and *rehabilitation*.

6. Reporting

(a) The Permit Holder must provide to the CEO, on or before 30 June of each year, a written report of records required under condition 5 of this Permit and activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding year.

(b) Prior to 14 August 2015, the Permit Holder must provide to the CEO a written report of records required under condition 5 of this Permit where these records have not already been provided under condition 6(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;

dry conditions means when soils (not dust) do not freely adhere to rubber tyres, tracks, vehicle chassis or wheel arches;

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 20 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;

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
ACTING MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

Officer delegated under Section 20
of the Environmental Protection Act 1986

14 October 2010

Plan 3841/1a

LEGEND

- Towns
- Road Centrelines
- Clearing Instruments
- Areas Approved to Clear
- --> Image Index

(cont)

- Recently added Coverage
- Cadastre
  Dinninup 50cm Orthomosaic - Landgate 2004
- Local Government Authorities

N

0 ~3 km

Scale 1:108088
(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

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

Date 14/10/10

M Warnock

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

Information derived from this map should be confirmed with the data custodian acknowleged by the agency acronym in the legend.

Department of Environment and Conservation

Our environment, our future

Plan 3841/1b

LEGEND

- Towns
- Road Centrelines
  Clearing Instruments
- Areas Subject to Conditions
  --> Image Index
  (cont)
- Recently added Coverage
- Cadastre
  Dinninup 50cm Orthomosaic - Landgate 2004
- Local Government Authorities

N

0 ~3 km

Scale 1:108088
(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

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

Date 14/10/10

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

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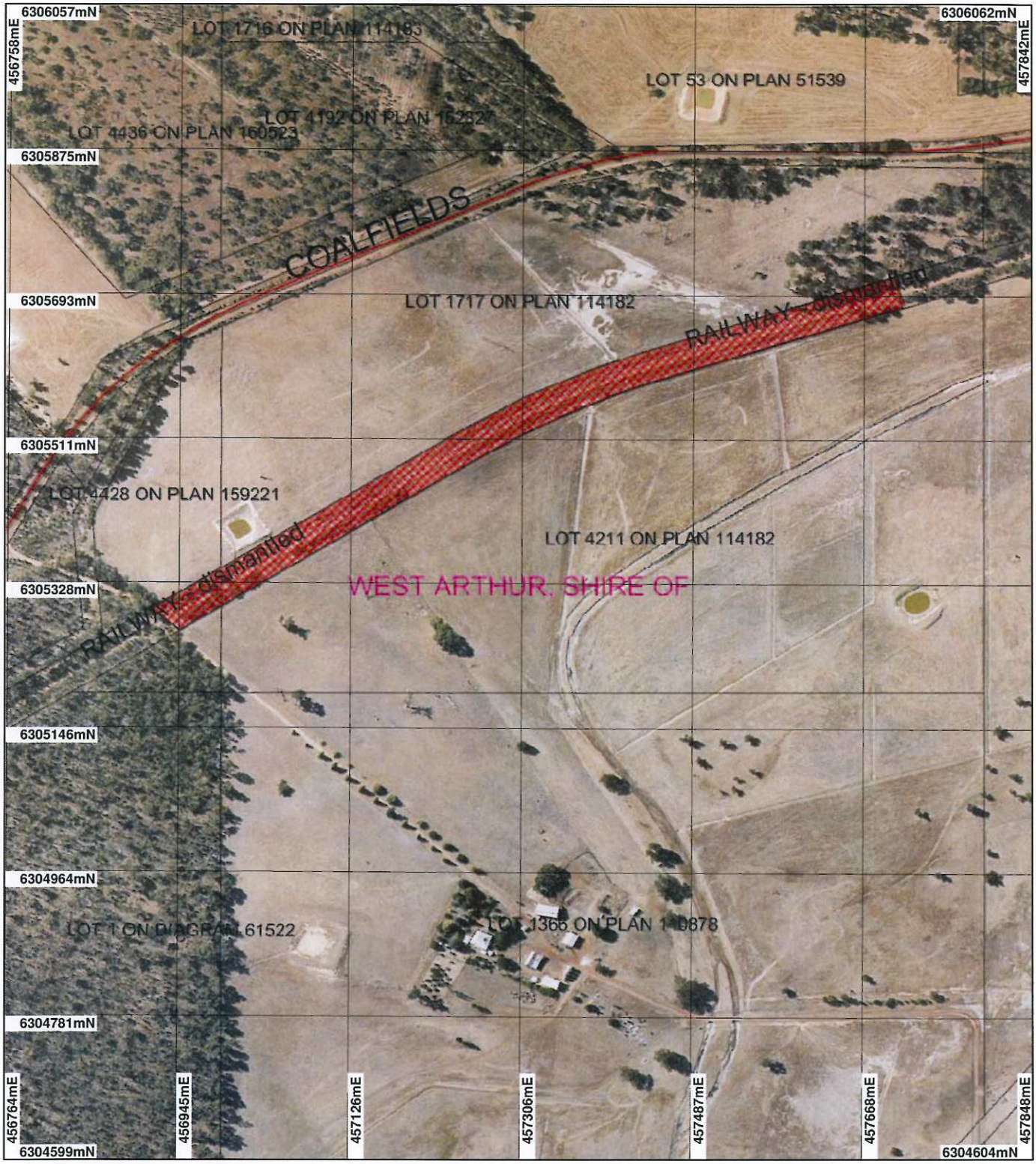
Plan 3841/1c



LEGEND

- Cadastre
- Local Government Authorities

Clearing Instruments

- Areas Subject to Conditions

Darkan 50cm Orthomosaic - Landgate 2006

Railways

- 0
- 5
- 6
- 8
- 9

Road Centrelines

- FW
- HY
- LRD
- LRS
- MR
- N (cont)
- TR

N

0 ~150 m

Scale 1:6415
(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

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

Date 14/10/10

M Warnock

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

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Department of Environment and Conservation

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Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3841/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: **Shire of West Arthur**

1.3. Property details

Property: ROAD RESERVE (TRIGWELL 6244)
ROAD RESERVE (MOODIARRUP 6393)
ROAD RESERVE (MOKUP 6394)
Local Government Area: SHIRE OF WEST ARTHUR
Colloquial name: BOYUP BROOK – ARTHUR ROAD

1.4. Application

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

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 Associations: 3 - Medium forest; jarrah-marri 4 - Medium woodland; marri & wandoo 992 - Medium forest; jarrah & wandoo (Eucalyptus wandoo) Mattiske Vegetation Complex: Darkin 1 (Dk1) - Woodland of Eucalyptus marginata subsp. marginata-Eucalyptus wandoo-Corymbia calophylla over Dryandra sessilis on uplands in the arid zone. Darkin 2 (Dk2) - Mixture of open woodland of Eucalyptus marginata subsp. marginata-Banksia attenuata and low open woodland of Eucalyptus wandoo and stands of Eucalyptus drummondii (northern) and Eucalyptus decipiens (southern) on lower slopes in the arid zone. Darkin 3 (Dk3) - Open woodland of Allocasuarina huegeliana-Acacia acuminata with occasional Eucalyptus rudis and Eucalyptus wandoo on variable slopes near granite outcrops and woodland of Eucalyptus astringens-Eucalyptus wandoo on breakaways in the arid zone. Darkin 4 (Dk4) - Woodland of Eucalyptus wandoo-Allocasuarina huegeliana-Acacia acuminata on slopes and woodland of Eucalyptus rudis on lower slopes in the arid zone.	The proposal is to clear 2.01 hectares of native vegetation within the Shire of West Arthur for the purpose of road construction. The clearing will involve the removal of vegetation to a maximum of 1 metre either side of the existing carriageway. The vegetation within the area applied to be cleared traverses a large range of habitats and terrain. A DEC site inspection noted that the dominant overstorey species of plant communities along the alignment included: At the Darlinup Creek crossing: Melaleuca viminea low open woodland over Lepidosperma longitudinale sedges. In lower areas of the landscape combinations of: Melaleuca rhaphiophylla low woodland; Eucalyptus rudis, Acacia acuminata low open forest; Eucalyptus wandoo, Eucalyptus rudis open to low open forest. In mid slope and upland areas of the landscape combinations of: Eucalyptus wandoo open forest; Acacia acuminata low open forest; Eucalyptus wandoo, Acacia acuminata open forest; Eucalyptus marginata, Corymbia calophylla open forest; Eucalyptus wandoo, Eucalyptus marginata open forest. The vegetation ranged from completely degraded to excellent (Keighery 1994) condition. The best condition vegetation was generally the upland vegetation found between Eulin Crossing and Trigwell Roads (DEC 2010).	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994)	Vegetation condition was determined from aerial photography and site inspection advice (DEC 2010).

Darkin 5 (Dk5) - Low woodland of Casuarina obesa-Melaleuca spp. on low lying moister soils, and woodland of Banksia prionotes with occasional Corymbia calophylla and Eucalyptus rudis over Acacia acuminata on sandy lunettes in the arid zone.			
Darkin 5f (Dk5f) - Woodland of Eucalyptus rudis-Melaleuca spp. on lower slopes, low forest of Casuarina obesa and shrubland of Melaleuca spp. on broad valley floors in the arid zone.			
As above.	As above.	Completely Degraded: No longer intact; completely/almost completely without native species (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 proposal is to clear 2.01 hectares of native vegetation along 23kms of the Boyup Brook - Arthur Road for road construction. The clearing will involve the removal of vegetation to a maximum of 1 metre either side of the existing carriageway. The vegetation within the area applied to be cleared traverses a large range of habitats and terrain and ranges from completely degraded to excellent (Keighery 1994) condition. The Boyup Brook - Arthur Road is mapped by the Roadside Conservation Committee as having high conservation value (RCC 2010).

There are six threatened fauna species recorded within the local area (10km radius). Small hollows and potential hollow forming sites were observed in many Eucalyptus wandoo trees in the road reserve which may provide habitat for small arboreal fauna. A Nankine Night Heron and a Heron nest were observed in a large Eucalyptus wandoo approximately 5km west of the Darkan Road intersection (DEC 2010).

There are four records of rare flora and eleven known occurrences of priority flora in the local area (10km radius) which are found within similar mapped vegetation and soil types to those within the area under application. Although the vegetation within the area applied to be cleared traverses a large range of habitats and terrain a recent site inspection found no suitable habitat for these species (DEC 2010).

There are six Mattiske vegetation complexes and one Beard vegetation association represented within the Boyup Brook - Arthur Road that have less than the 30% threshold level recommended in the National Objectives Targets for Biodiversity Conservation below which, species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001). Given that the vegetation is not well represented locally or regionally and considering that the Shire of West Arthur retains 35% of its pre European vegetation extent the vegetation within the Boyup Brook - Arthur Rd is likely to be significant as a remnant in a highly cleared landscape and is also likely to serve as a corridor for native fauna dispersal throughout this highly fragmented landscape.

Given that the vegetation complexes within the Boyup Brook - Arthur Road are not well represented regionally and locally and considering that this road reserve provides habitat for local fauna species and a corridor for fauna movement in an extensively cleared landscape, the area proposed to be cleared contains a high level of biodiversity in a local context and therefore, is at variance to this clearing principle.

The proponent has provided two sites for revegetation to a total of four hectares and conditions to manage the proposed revegetation will mitigate the impacts of the proposed clearing.

Methodology

DEC (2010)
Commonwealth of Australia (2001)
RCC (2010)
Shepherd (2009)
Keighery (1994)
GIS Databases:
- Mattiske Vegetation (01/03/1998)
- Pre European Vegetation - DA 01/01
- Bridgetown/Dinningup 50cm Orthomosaic - Landgate 2003
- SAC Biodatasets - accessed 3 August 2010

(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 is at variance to this Principle

The following threatened and priority fauna species are recorded within the local area (10 km radius):

- Western Brush Wallaby (Macropus irma) - P4
- Red-tailed Phascogale (Phascogale calura) - Vulnerable
- Forest Red Tailed Black Cockatoo (Calyptorhynchus banksii naso) - Vulnerable
- Peregrine Falcon (Falco peregrinus) - Other Specially Protected Fauna
- Australian Bustard (Ardeotis australis) - P4
- Crested Shrike - Tit (Falcunculus frontatus leucogaster) - P4

Small hollows and potential hollow forming sites were observed in many Eucalyptus wandoo trees in the road reserve which may provide habitat for small arboreal fauna. A Nankine Night Heron and a nest were found in a large Eucalyptus wandoo approximately 5km west of the Darkan Road intersection (DEC 2010).

Given that the vegetation types found within the Boyup Brook - Arthur Rd reserve are not well represented locally or regionally and considering that the Shire of West Arthur only retains 35% of its pre European vegetation extent, the vegetation within the road reserve is likely to serve as a corridor for native fauna dispersal throughout this highly fragmented landscape and therefore, comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia and the proposed clearing is at variance to this clearing principle.

The proponent has provided two sites for revegetation to a total of four hectares and conditions to manage the proposed revegetation will mitigate the impacts of the proposed clearing.

Methodology

DEC (2010)
Keighery (1994)
GIS Databases:
- Bridgetown/Dinningup 50cm Orthomosaic - Landgate 2003
- SAC Biodatasets - accessed 3 August 2010

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

Comments

Proposal is not likely to be at variance to this Principle

There are four records of rare flora recorded in the local area (10km Radius) which occur in similar vegetation and soil types to those in the Boyup Brook - Arthur Road:

- Caladenia bryceana subsp. bryceana
- Drakaea confluens
- Grevillea elongata
- Rulingia sp. Trigwell Bridge (R. Smith s.n. 20.6.89)

The proposal is to clear 2.01 hectares of native vegetation along 23kms of the Boyup Brook - Arthur Road for road construction. The clearing will involve the removal of vegetation to a maximum of 1 metre either side of the existing carriageway and although the area applied to be cleared traverses a large range of habitats and terrain a site inspection did not identify suitable habitat for these species (DEC 2010). Therefore the proposed clearing is considered not likely to be at variance with this Principle.

Methodology

DEC (2010)
Keighery (1994)
WA Herbarium (1998)
GIS Databases:
- Mattiske Vegetation (01/03/1998)
- Pre European Vegetation - DA 01/01
- Bridgetown/Dinningup 50cm Orthomosaic - Landgate 2003
- SAC Biodatasets - accessed 3 August 2010
- Soils, Statewide DA 11/99

(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

There are no known records of Threatened Ecological Communities (TECs) within the local area (10km radius) and the clearing is therefore not likely to be at variance to this principle.

Methodology

GIS Databases:
- Bridgetown/Dinningup 50cm Orthomosaic - Landgate 2003
- SAC Biodatasets - accessed 3 August 2010

(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

Pre-European	Current extent (ha)	Remaining (ha)	Bioregion (%)	(%)
IBRA Bioregions*				
Jarrah Forest^	4506656	2514549	55.8	
Shire*				
West Arthur	283182	99281	35.06	
Mattiske Vegetation Complex**				
DK1	18620	4871	26.16	
DK2	17314	2004	11.58	
DK3	9037	924	10.23	
DK4	9037	924	10.23	
DK5	4901	1168	23.8	
DK5f	5779	1067	18.47	
Beard Vegetation Association*				
3	2661405	1863719	70	69
4	1054279	317912	30	30.37
992	122048	32612	26	26.31

* (Shepherd 2009)
** (Mattiske Consulting 1998)
^ Area within Intensive Land Use Zone

There are six Mattiske vegetation complexes and one Beard vegetation association represented within the Boyup Brook - Arthur Road that have less than the 30% threshold level recommended in the National Objectives Targets for Biodiversity Conservation below which, species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001). Given that the vegetation is not well represented locally or regionally and considering that the Shire of West Arthur retains 35% of its pre European vegetation extent the vegetation within the Boyup Brook - Arthur Rd is likely to be significant as a remnant in a highly cleared landscape and is also likely to serve as a corridor for native fauna dispersal throughout this highly fragmented landscape.

Given that the vegetation is not well represented locally or regionally the vegetation within the Boyup Brook - Arthur Road is likely to be significant as a remnant in a highly cleared landscape and serve as a corridor for native fauna dispersal throughout this highly fragmented landscape and the clearing as proposed is at variance to this principle.

The proponent has provided two sites for revegetation to a total of four hectares and conditions to manage the proposed revegetation will mitigate the impacts of the proposed clearing.

Methodology

Commonwealth of Australia (2001)
Mattiske Consulting (1998)
Shepherd (2009)
GIS Databases:
- Bridgetown/Dinningup 50cm Orthomosaic - Landgate 2003
- SAC Biodatasets - accessed 3 August 2010
- Interim Biogeographic Regionalisation of Australia - EA 18/10/00
- Mattiske Vegetation - CALM 1/03/1998
- Pre European Vegetation - DA 01/01

(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 not likely to be at variance to this Principle

The Blackwood River is located 2kms south of the area under application. The Arthur River (a tributary to the Blackwood River) runs within 100 metres of the Boyup Brook- Arthur Road. The Boyup Brook - Arthur Road crosses the Eulin Brook and several minor non perennial watercourses.

The proposal is to clear 2.01 hectares of native vegetation along 23kms of the Boyup Brook - Arthur Road for road construction. The clearing will involve the removal of vegetation to a maximum of 1 metre either side of the existing carriageway within the Boyup Brook - Arthur Road Reserve and it is therefore unlikely that vegetation will be cleared which is growing in association with watercourses and wetlands. The clearing as proposed is not likely to be at variance to this principle.

Methodology GIS Databases:
- Bridgetown/Dinningup 50cm Orthomosaic - Landgate 2003
- SAC Biodatasets - accessed 3 August 2010
- ANCA wetlands - Environment Australia 26/3/99
- CALM Managed Lands and Waters - CALM 01/06/05
- EPP Lakes Policy Area - DEP 14/05/97
- EPP, Wetlands 2004 (DRAFT) - EPA 21/7/04
- Hydrography linear - DOW 13/7/06
- Hydrography linear (hierarchy) - DoW 13/7/06
- Ramsar wetlands - DEC 03

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

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

Given the nature of the clearing application, localised land degradation may occur during the construction period however this will be short term and these issues should be minimal given the roadside infrastructure which is in place to prevent land degradation. The proposed clearing is not likely to be at variance to this principle.

Methodology GIS Databases:
- Average Annual Rainfall Isohyets - WRC 29/09/98
- Annual Evaporation Contours (Isopleths) - WRC 29/09/98
- Hydrogeology, statewide - DOW 13/07/06
- Hydrographic catchments, catchments - DoW 01/06/07
- Hydrography, linear - DOW 13/7/06
- Salinity Risk LM 25m - DOLA 00
- Soils, Statewide DA 11/99
- Topographic contours statewide - DOLA and ARMY 12/09/02
- Hydrogeology, Statewide 05 Feb 2002

(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 may be at variance to this Principle**

There are five areas of conservation significance located within the local area. The closest is the Wild Horse Swamp Nature Reserve which is located 1.5km south of the area under application.

Given that the vegetation types found within the Boyup Brook - Arthur Road reserve are not well represented locally or regionally and considering that the Shire of West Arthur retains 35% of its pre European vegetation extent the vegetation within the road reserve may serve as a corridor for native fauna dispersal throughout this highly fragmented landscape and between these areas of conservation significance.

The area under application lies within a region that is subject to moderate levels of rainfall (600mm per annum) and there may be increased potential for the intrusion of dieback (Phytophthora cinnamomi) or weed species through the movement of topsoil during the construction phase. Dieback and weed management would minimise this potential risk.

Given the above the proposed clearing may be at variance to this principle.

Methodology GIS Databases:
- Register of National Estate - Environment Australia, Australian and world heritage division 12 Mar 02
- System 1 to 5 and 7 to 12 areas DEC 11/7/06
- CALM Managed Lands and Waters - CALM 01/06/05
- Bridgetown/Dinningup 50cm Orthomosaic - Landgate 2003

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

Given the nature of the application, localised deterioration in surface water quality may occur during the construction period however this will be short term and these issues should be minimal given the presence of existing roadside infrastructure. It is not likely that the proposed clearing of native vegetation will cause deterioration in the quality of surface or underground water and the clearing as proposed is not likely to be at variance to this principle.

Methodology GIS Databases:
- Evapotransporation Isopleths - WRC 29/09/98
- Groundwater Salinity Statewide DoW 13/07/06

- Hydrographic catchments - DoW 01/06/07
- Hydrography, linear - DOW 13/7/06
- Mean Annual Rainfall Isohytes (1975 - 2003) - DEC 02/08/05
- Salinity Risk LM 25m - DOLA 00
- Topographic Contours, Statewide - DOLA 12/09/02

(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

Given the nature of the application, and the presence of existing roadside infrastructure it is not likely that the proposed clearing of native vegetation will cause, or exacerbate, the incidence or intensity of flooding and the clearing as proposed is not likely to be at variance to this principle.

Methodology

GIS Databases:
- Evaporation Isopleths - WRC 29/09/98
- Hydrographic catchments - DoW 01/06/07
- Hydrography, linear - DoW 13/7/06
- Mean Annual Rainfall Isohytes (1975 - 2003) - DEC 02/08/05
- Topographic Contours, Statewide - DOLA 12/09/02

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

Comments

The proponent has provided two sites for revegetation to a total of four hectares and conditions to manage the proposed revegetation will mitigate the impacts of the proposed clearing.

The Roadside Conservation Committee (RCC) has advised that this road is part of the 2025 Regional Road Development Strategy and has been ear marked as an inter district link road and that the Shire has considered clearing to one side of the road where they can to minimize the removal of vegetation.(RCC, 2010).

Methodology

References:
RCC (2010)
GIS Databases:
- Aboriginal Sites of Significance - DIA 02/10
- Cadastre - Landgate 12/09
- Country Area Water Supply Act (Part IIA) Clearing Control Catchments - DoW 29/06/06
- Environmental Impact Assessments - EPA 08/03/05
- Native Title Claims - LA 2/5/07
- Public Drinking Water Source Areas (PDWSAs) - 07/02/06
- RIWI Act, Groundwater Areas - DoW 13/07/06
- RIWI Act, Irrigation Districts - DoW 13/07/06
- Town Planning Scheme Zones - MFP 31/08/98

4. References

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5. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now BCS)
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
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DoW)