



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 4069/1
Permit Holder:	LWP King Road Syndicate Pty Ltd
Duration of Permit:	10 October 2011 – 10 October 2021

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 sand extraction.

2. Land on which clearing is to be done

LOT 441 ON PLAN 202731 (OLDBURY 6121)

LOT 200 ON PLAN 24145 (OLDBURY 6121)

LOT 713 ON PLAN 202731 (OLDBURY 6121)

LOT 1242 ON PLAN 152844 (OLDBURY 6121)

3. Area of Clearing

The Permit Holder must not clear more than 14.8 hectares of native vegetation within the area hatched yellow on attached Plan 4069/1.

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. 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

6. 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*:

- clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- shall only move soils in *dry conditions*;
- 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.

7. Fauna management

- (a) Prior to undertaking any clearing authorised under this Permit, the area(s) shall be inspected by a *fauna specialist* who shall:
- (i) identify *habitat trees* suitable to be utilised by Carnaby's black cockatoo (*Calyptorhynchus latirostris*); and
 - (ii) inspect *habitat trees* identified under condition 7(a)(i) for the presence of Carnaby's black cockatoo (*Calyptorhynchus latirostris*).
- (b) Where *habitat trees* identified under condition 7(a) are suitable to be utilised by Carnaby's black cockatoo (*Calyptorhynchus latirostris*); the Permit Holder shall retain these *habitat trees* in situ, or if this is not possible the Permit Holder shall construct and install 2 artificial nesting hollows, per each *habitat tree* removed, as follows:
- (i) each artificial nesting hollow shall be constructed using PVC pipe 0.3m in diameter, 25mm thickness and 1m in length;
 - (ii) each artificial nesting hollow shall include an external perch constructed of wood, and an internal ladder constructed of 50mm galvanised mesh affixed to the wall, to enable access;
 - (iii) each artificial nesting hollow shall have a free-draining floor constructed of galvanised woven wire mesh and lined with weathered woodchips to a depth of 20cm;
 - (iv) each artificial nesting hollow shall be attached to a tree located within 10km of the area to be cleared;
 - (v) each artificial nesting hollow shall be attached to a tree that must have a diameter, at 1.5 metres above the ground, of at least 300 millimetres;
 - (vi) each artificial nesting hollow shall be attached to a tree at a height of no less than 3 metres above the ground, and no closer than 20 metres from any other tree to which a constructed artificial nesting hollow is attached; and
 - (vii) each artificial nesting hollow shall be attached to a tree in an inconspicuous position with the entrance hole facing away from the prevailing winds and rain, and protected from direct sunlight.
- (c) Where *habitat trees* identified under condition 7(a) contain hollows suitable for use by Carnaby's black cockatoo (*Calyptorhynchus latirostris*), the Permit Holder shall retain these *habitat trees* in situ, or if this is not possible the Permit Holder shall:
- (i) remove and retain intact hollows;
 - (ii) each removed and retained intact hollow shall be attached to a tree located within no more than 10 km from any clearing authorised under this Permit;
 - (iii) each removed and retained intact hollow shall be attached to a tree within one month of removing it; and
- (d) 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 7(a)(ii).

8. 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) within 12 months following completion of the sand extraction under this Permit *revegetate* and *rehabilitate* the area(s) authorised to be cleared by:
- (i) reshaping the surface of the land so that it is consistent with the surrounding 20 metres of uncleared land; and
 - (ii) ripping the ground on the contour to remove soil compaction; and
 - (iii) ripping the pit floor and contour batters within the extraction site; and
 - (iv) laying the vegetative material and topsoil retained under condition 8(a) on the cleared area(s); and

- (v) 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
 - (vi) 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 8(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 8(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 8(b)(v) and (vi) of this Permit.
- (d) where additional *planting* or *direct seeding* of native vegetation is undertaken in accordance with condition 8(c)(ii) of this permit, the Permit Holder shall repeat condition 8(c)(i) and 8(c)(ii) within 24 months of undertaking the additional *planting* or *direct seeding* of native vegetation.
- (e) where a determination by an *environmental specialist* that the composition, structure and density within areas *revegetated* and *rehabilitated* will result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, as determined in condition 8(c)(i) and (ii) of this permit, that determination shall be submitted for the CEO's consideration. If the CEO does not agree with the determination made under condition 8(c)(ii), the CEO may require the Permit Holder to undertake additional *planting* and *direct seeding* in accordance with the requirements under condition 8(c)(ii).

PART III - RECORD KEEPING AND REPORTING

9. 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 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 the fauna management of areas pursuant to condition 7 of this Permit:
- (i) the location of any habitat tree, 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 location of the artificial nesting hollows, 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 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; and
 - (iv) 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 8 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*.

10. 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 9 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 July and 30 June of the preceding year.
- (b) Prior to 10 July 2021, the Permit Holder must provide to the CEO a written report of records required under condition 9 of this Permit where these records have not already been provided under condition 10(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;

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;

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; and

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 50cm, 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; and

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

rehabilitate/ion means actively managing an area containing native vegetation in order to improve the ecological function of that area;

revegetate/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; and

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*.



Kelly Faulkner
MANAGER
NATIVE VEGETATION CONSERVATION BRANCH

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

19 September 2011

Plan 4069/1



LEGEND

- Clearing Instruments**
- Areas Approved to Clear
 - Road Centrelines
 - Cadastre for labelling
 - Local Government Authorities



Scale 1:6253

(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.

[Signature] Date 19/9/11

K Faulkner

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 acknowledged by the agency acronym in the legend.



Department of Environment and Conservation

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1. Application details

1.1. Permit application details

Permit application No.: 4069/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: LWP King Road Syndicate Pty Ltd

1.3. Property details

Property: LOT 441 ON PLAN 202731 (OLDBURY 6121)
LOT 200 ON PLAN 24145 (OLDBURY 6121)
LOT 713 ON PLAN 202731 (House No. 344 KING OLDBURY 6121)
LOT 1242 ON PLAN 152844 (House No. 326 KING OLDBURY 6121)
Local Government Area: Shire of Serpentine Jarrahdale
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
14.8		Mechanical Removal	Extractive Industry

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 19 September 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: 1001: Medium very sparse woodland; jarrah, with low woodland; banksia & casuarina (Shepherd, 2009)	The proposed clearing of 14.8 hectares of native vegetation is required for the purpose of sand extraction. There is an existing sand mine in the northern portion of the application area (DEC, 2011). The application area has been heavily grazed and much of the area is parkland cleared (Landform Research, 2005; DEC, 2011).	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	Vegetation condition was determined by aerial imagery, vegetation survey conducted in 2005 (Landform Research, 2005) and site inspection conducted 22 February 2011 (DEC, 2011).
Hedde Vegetation Complex: Bassendean Complex Central And/South: Vegetation ranges from woodland of Eucalyptus marginata (Jarrah) - Allocasuarina fraseriana (Sheoak) - Banksia species to low woodland of Melaleuca species, and sedgeland on the moister sites. This area includes the transition of Eucalyptus marginata (Jarrah) to Eucalyptus todiana (Pricklybark) in the vicinity of Perth (Hedde et al., 1980)	The majority of the vegetation is in degraded (Keighery, 1994) condition (DEC, 2011). Understorey is open throughout the application area, with native species almost completely absent. Introduced grasses are present and are quite dense in some areas (DEC, 2011). The southern half of the application area (lower elevation areas) consist of Kunzea ericifolia thickets 2-3m in height and tall Scholtzia involucreta (1-2m high) with scattered Banksia attenuata, B. ilicifolia, B. menziesii and Jacksonia furcellata throughout (Landform Research, 2005; DEC, 2011). Vegetation type is relatively uniform across these areas and is in good to degraded (Keighery, 1994) condition (DEC, 2011). Areas of highest elevation in the central to northern parts of the site are very open, with scattered Banksia and Allocasuarina species, Jacksonia furcellata, Macrozamia riedlei and Eucalyptus sp. These areas are considered to be in completely degraded (Keighery,		

1994) condition where the area appears to have been previously parkland cleared and replaced with pasture.

Completely Degraded:
No longer intact;
completely/almost
completely without
native species
(Keighery 1994)

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 not likely to be at variance to this Principle

The application area was amended in response to the Department of Environment and Conservation's letter dated 15 March 2011 to remove areas where native vegetation was absent. Therefore the proposed clearing area has reduced from 18 hectares to 14.8 hectares.

The proposal is to clear native vegetation for the purpose of sand extraction from part of Lots 200, 444, 713 and 1242 King Road, Oldbury, in the Shire of Serpentine-Jarrahdale.

The application area has been historically grazed, with much of the area parkland cleared and turned to pasture. The remaining native vegetation ranges from good to completely degraded (Keighery, 1994) condition, with significantly reduced floristic diversity and an open understory with few native species (DEC, 2011).

The area under application is located in a rural landscape that has been extensively cleared to the south and east. The local area (5km radius) retains approximately 15% (1200ha) native vegetation cover, with approximately 16% (190ha) of this held in two nature reserves and approximately half likely to be in similar or better condition than the vegetation under application.

There are two known Priority Ecological Communities (PEC) occurring in the local area. The priority 1 'Banksia ilicifolia woodlands' (SCP22) PEC is located approximately 1km west and the priority 3 'Low lying Banksia attenuata woodlands or shrublands' (SCP21c) PEC is situated 2.3km north-northwest of the application area. Both of these PECs are mapped as occurring on the same vegetation type and soils as the applied area and are located within Bush Forever sites. The vegetation under application is not considered to be representative of either of these PECs and the proposed clearing is unlikely to impact on their conservation values.

The southwest corner of the application area is mapped as a Multiple Use Wetland (dampland) and the southern edge of the application area is within an Environmentally Sensitive Area, as it is within the 50 metre buffer to five Conservation Category Wetlands (CCW) (damplands) to the south. Conservation Category Wetlands support a high level of attributes and functions and are the highest priority for protection. They are considered 'critical assets' which represent the most important environmental assets in the State that must be fully protected and conserved (EPA, 2006). The CCWs on Lots 200 and 441 are considered to be in highly disturbed condition with evidence of historic grazing and little understorey (DEC, 2011).

The proposed clearing of native vegetation may result in adverse impacts on the nearby wetlands, including increase in recharge, water logging and more extreme fluctuations in water levels. Additionally, nutrient export may result from the clearing of native vegetation, which may also adversely impact the nearby CCWs. The maintenance of a sufficient buffer to the CCWs will assist in minimising the risk of adverse impact from the clearing native vegetation and associated land use. The applicants Environmental Management Plan advises that CCWs will be protected by a greater than 50m buffer to works (Coffey Environments 2010).

A vegetation survey did not identify any declared rare or priority flora species (Landform Research, 2005). Based on the historical and current use of the site for stock and the level of disturbance present, it is unlikely that flora species of conservation significance are present within the applied area.

The vegetation under application may provide suitable habitat for black cockatoo species of conservation significance, however, given the lack of preferred foraging species on site, it is unlikely that the vegetation under application is significant as foraging habitat for black cockatoos.

Soil disturbance and removal of native vegetation increases the risk of weeds and pathogens, such as dieback (*Phytophthora cinnamomi*), being introduced or spread to the application area and surrounding environment. As the application area is in a relatively high (900mm) rainfall area, soil disturbance and the movement of machinery pose a high risk of introducing or spreading dieback to the area under application, as well as the surrounding environment. The applicants Environmental Management Plan advises that management strategies will be implemented to ensure that there is no spread or introduction of dieback or weeds to the site or surrounding area (Coffey Environments 2010).

Considering the above, the vegetation under application is not likely to comprise a high level of biological diversity at a local or regional scale and the proposed clearing is not likely to be at variance with this principle.

Coffey Environments, 2010

Keighery, 1994

Landform Research, 2005

GIS Databases:

- Groundwater Salinity, statewide - DoW 13/07/06
- Hydrogeographic Catchments, Catchments - DoW 01/06/07
- Hydrogeology, statewide - DoW 13/07/06
- Hydrography, linear - DoW 13/7/06
- Rainfall, Mean Annual - BOM 30/09/01
- Pre-European vegetation - DA 01/01
- SAC Biodatasets - 15/12/10
- Soils, Statewide - 30/11/99
- Swan Coastal Plain Central 20cm Orthomosaic - Landgate 2009

(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

The condition of the vegetation under application ranges from good to completely degraded (Keighery, 1994), with significant disturbance and little understorey as a result of extensive grazing and historic parkland clearing (DEC, 2011).

The area under application is located within the distribution range of the Carnaby's black cockatoo (*Calyptorhynchus latirostris*) (Endangered, Wildlife Conservation Act 1950; Endangered, Environment Protection and Biodiversity Conservation Act 1999), with the closest record of this species mapped 2.4km north-northwest of the application area. Carnaby's black cockatoo meets Criterion A for Endangered as it has suffered a population decline of at least 50% over the past 45 years (Cale, 2003). This species nests in large hollows of Eucalyptus trees and forages on the seeds and nectar from the flowers of the proteaceae family including Banksia, Hakea, and Grevillea as well as species from Allocasuarina and Eucalyptus (Valentine and Stock, 2008). One of the major threats to this species is accumulative clearing of feeding habitat on the Swan Coastal Plain (Cale, 2003).

The vegetation under application contains Banksia, Eucalyptus and Allocasuarina species (DEC, 2011) which is suitable feeding habitat for the Carnaby's black cockatoo.

There are scattered mature Eucalyptus trees which have the potential to contain hollows suitable to be utilised for habitat by a range of bird species from small insectivores to the large parrot species, including the Carnaby's black cockatoo.

In addition, the vegetation under application may also provide suitable feeding habitat for the Forest Red-tailed black cockatoo (*Calyptorhynchus banksii naso*) (Vulnerable, Wildlife Conservation Act 1950; Vulnerable, Environment Protection and Biodiversity Conservation Act 1999), which is also known from the area.

The vegetation under application may provide suitable habitat for black cockatoo species of conservation significance, however, given the lack of preferred foraging species on site, it is unlikely that the vegetation under application is significant as foraging habitat for black cockatoos.

Based on the historic use of the site for stock grazing, the reduced floristic diversity of the vegetation and open understorey of exotic pasture, it is unlikely that the vegetation under application provides significant habitat for ground dwelling fauna species known from the local area including Quenda, Western Brush Wallaby and Chuditch.

Given the presence of Banksia, Eucalyptus and Allocasuarina species on site, the proposed clearing may be at variance to this Principle. A Fauna management condition to check habitat trees prior to clearing may mitigate this variance.

Methodology

References:

DEC, 2011

Keighery, 1994

Valentine and Stock, 2008

GIS Databases:

- Pre-European vegetation - DA 01/01
- SAC Biodatasets - 15/12/10
- Soils, Statewide - 30/11/99
- Swan Coastal Plain Central 20cm Orthomosaic - Landgate 2009

(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 three rare flora species known to occur within the local area (5km radius), with known records of *Diuris micrantha* and *Diuris purdiei* 4.9km west-northwest and 3.5km north-northwest, respectively, mapped on the same vegetation and soil type as the application area. Both of these taxa inhabit winter-wet swamps, with preferred soil types being moist grey-black sand for *D. purdiei* brown loamy clay for *D. micrantha* (Western Australian Herbarium, 1998-). Considering the soil preferences of these species, the extensively grazed and highly disturbed condition of the vegetation, the presence of these rare flora species within the application area is unlikely.

Verticordia plumosa var. *pleiobotrya* has also been recorded in the local area, with the closest record 4.6km east of the application area, however these records are located in different vegetation and soil types to those mapped over the application area. This species is not likely to be present within the vegetation under application.

A vegetation survey conducted on the application area did not identify any rare flora species (Landform Research, 2005). Based on the historical and current use of the site for stock and the level of disturbance present, it is unlikely that declared rare flora species exist within the applied area and the proposed clearing is not likely to be at variance with this principle.

Methodology

References:

Landform Research, 2005

Western Australian Herbarium, 1998-

GIS Databases:

- Pre-European vegetation - DA 01/01

- SAC Biodatasets - 15/12/10

- Soils, Statewide - 30/11/99

- Swan Coastal Plain Central 20cm Orthomosaic - Landgate 2009

(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 several threatened ecological communities (TEC) known to occur within the local area (5km radius).

The critically endangered TEC 'Communities of Tumulus Springs (Organic Mound Springs, Swan Coastal Plain)' (Mound Springs SCP) is located 2.3km southwest, on the same vegetation type as the applied area.

The critically endangered TEC 'Eucalyptus calophylla- Xanthorrhoea preissii woodlands and shrublands, Swan Coastal Plain' (SCP3c) and the vulnerable 'Dense shrublands on clay flats' (SCP09) have been recorded 4.4km southwest, on different soil and vegetation types to that of the applied area.

The proposed clearing area is not within the buffer to any of these TECs and the vegetation under application not considered representative of any of these community types. Therefore, the proposed clearing is not likely to be at variance with this principle.

Methodology

GIS Databases:

- Pre-European vegetation - DA 01/01

- SAC Biodatasets - 15/12/10

- Soils, Statewide - 30/11/99

- Swan Coastal Plain Central 20cm Orthomosaic - Landgate 2009

(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 not likely to be at variance to this Principle

The Environmental Protection Authority (EPA, 2006) recognises that the Perth Metropolitan Region is a 'constrained area', and that reduction of vegetation complexes should not exceed 10% of the pre-European extent. The application area is mapped as the Beard 1001 and Bassendean Complex Central And/South vegetation types, which retain approximately 24% (Shepherd, 2009) and 27% (Shepherd, 2007) of their pre-European extents, respectively.

	Pre-European (ha)	Current extent (ha)	Remaining (%)	% In reserves DEC Managed Land
IBRA Bioregion Swan Coastal Plain*	1,501,209	587,889	39%	33%

Shire of Serpentine-Jarrahdale*	90,047	48,845	54%	82%
Beard Vegetation Association within IBRA Bioregion* 1001	57,410	14,111	24%	5%
Heddle Vegetation Complex** Bassendean Central and South	87,477	23,624	27%	0.7%

* (Shepherd, 2009)

** (Shepherd, 2007)

The vegetation under application is highly disturbed, with reduced floristic diversity and altered structure as a result of historical grazing and is no longer considered representative of the mapped vegetation types and is not considered to be significant as a remnant of either of these vegetation types.

Considering this, the proposed clearing is not likely to be at variance with this principle.

Methodology

References:

EPA, 2006

Shepherd, 2007

Shepherd, 2009

GIS Databases:

- Pre-European vegetation - DA 01/01

- SAC Biodatasets - 15/12/10

- Swan Coastal Plain Central 20cm Orthomosaic - Landgate 2009

(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

The southwest corner of the application area is mapped within the Coyle Road Multiple Use Wetland (MUW) (dampland), which also extends along the southern boundary of the applied area, approximately 50 meters from the boundary of the proposed clearing. Damplands are a type of wetland that are seasonally waterlogged basins of varying size and shape (Semeniuk, 1987).

A total of 5 Conservation Category Wetlands (CCW) (damplands) are scattered to the south of the applied area, the closest of which is situated approximately 40 meters to the south. Conservation Category Wetlands support a high level of attributes and functions and are the highest priority for protection (EPA, 2006). The CCWs on Lots 200 and 441 are considered to be in highly disturbed condition with evidence of historic grazing and little understorey (DEC, 2011). The applicants Environmental Management Plan advises that CCWs will be protected by a greater than 50m buffer to works (Coffey Environments 2010).

The proposed clearing of native vegetation may result in adverse impacts on these wetlands, including increase in recharge, water logging and more extreme fluctuations in water levels. Nutrient export and soil erosion as a result of clearing native vegetation also has the potential to adversely impact the wetlands. The applicants Environmental Management Plan advises that planter screens will be implemented and a water cart will be stationed on site to assist with dust suppression. Additionally, the soils on site are free draining and nutrient monitoring of groundwater will be implemented downstream of mining activities (Coffey Environments 2010).

To the north, the Orton Road MUW (dampland) is situated adjacent to the northern boundary of the application area and there is a non-perennial swamp located 60 metres north of the application area, within this MUW.

Additionally, there are two major drains within close proximity to the application area. One is located 180 metres north, the other 310 metres southeast.

Given the proximity to mapped damplands and the presence of *Kunzea ericifolia* (Landform Research, 2005; DEC, 2011), which inhabits moist situations (Western Australian Herbarium, 1998-), it is likely that the vegetation under application is growing in, or in association with, an environment associated with a wetland and as such the proposed clearing is at variance with this principle.

The maintenance of an adequate buffer to the CCWs and wind erosion management will minimise the risk of adverse impact from the clearing native vegetation and associated land use. A condition of the planning approval from the Shire of Serpentine Jarrahdale is to maintain a 50 metre buffer around wetlands.

Methodology

References:

Coffey Environments, 2010
DEC, 2011
Landform Research, 2005
Western Australian Herbarium, 1998-
GIS Databases:
- ANCA, Wetlands - 26/03/99
- Hydrogeology, statewide - DoW 13/07/06
- Hydrography, linear - DoW 13/7/06
- RAMSAR, Wetlands - 15/10/09
- Swan Coastal Plain Central 20cm Orthomosaic - Landgate 2009

(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

Salinity risk is low for the application area and a vegetation survey conducted in 2005 found no evidence of surface salinity on site (Landform Research, 2005).

The application area lies on a ridge of Bassendean Sand that consists of leached white sand over deep yellow sand (Landform Research, 2005). Land degradation risks associated with the removal of vegetation from sandy soils are nutrient export and wind erosion.

The application area varies from 28 to 34m AHD at the ridge from the surrounding land at 22m AHD (Landform Research, 2005).

Given that the proposed clearing is of a relatively large (18ha) area and the area under application has a high risk of wind erosion and nutrient export, the proposal may be at variance to this Principle. The applicants Environmental Management Plan advises that planter screens will be implemented and a water cart will be stationed on site to assist with dust suppression. Additionally, the soils on site are free draining and nutrient monitoring of groundwater will be implemented downstream of mining activities (Coffey Environments 2010).

The maintenance of an adequate buffer to nearby wetlands and wind erosion management conditions will minimise the risk of adverse impact from the clearing native vegetation and associated land use. A condition of planning approval from the Shire of Serpentine Jarrahdale is to maintain a 50 metre buffer around wetlands.

Methodology References:

Coffey Environments, 2010
Landform Research, 2005
GIS Databases:
- Acid Sulfate Soils Risk Map, 50k - DEC 02/07/10
- Evapotranspiration, Area Actual - BOM 30/09/01
- Groundwater Salinity, statewide - DoW 13/07/06
- Hydrogeology, statewide - DoW 13/07/06
- Rainfall, Mean Annual - BOM 30/09/01
- Soils, Statewide - 30/11/99
- Topographic Contours, Statewide - DOLA 12/09/02

(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 known Conservation Category Wetlands (CCW) (damplands) south and southwest of the application area, in close proximity to the proposed clearing. CCWs support a high level of attributes and functions and are the highest priority for protection (EPA, 2006).

The two CCWs closest to the proposed clearing are south of the application area, on Lots 200 and 441. These damplands are considered to be in highly disturbed condition with evidence of historic grazing and little understorey (DEC, 2011). The applicants Environmental Management Plan advises that CCW's will be protected by a greater than 50m buffer to works (Coffey Environments 2010).

The proposed clearing of native vegetation may result in adverse impacts on these wetlands, including increase in recharge, water logging and fluctuations in water levels. Nutrient export as a result of clearing native vegetation also has the potential to adversely impact the wetlands. The applicants Environmental Management Plan advises that the soils on site are free draining and nutrient monitoring of groundwater will be implemented downstream of mining activities (Coffey Environments 2010).

Banksia Nature Reserve is located 665 metres west and Modong Nature Reserve is situated 1.3 kilometres north of the application area. Banksia Nature Reserve is a Bush Forever site and contains the priority 1 Priority Ecological Community (PEC) 'Banksia ilicifolia woodlands' (SCP22). Modong Nature Reserve is also a Bush

Forever site and contains the priority 3 PEC 'Low lying Banksia attenuata woodlands or shrublands' (SCP21c). The proposed clearing is unlikely to impact on the conservation values of these nature reserves or PECs.

Considering the above, the proposed clearing may impact on the nearby Conservation Category Wetlands and therefore may be at variance with this principle.

The maintenance of a sufficient buffer, which is a condition of planning approval from the Shire of Serpentine Jarrahdale to the Conservation Category wetlands will assist in minimising the risk of adverse impact from the clearing native vegetation.

Methodology References:
Coffey Environments, 2010
GIS Databases:
- DEC Managed Lands & Waters - DEC 28/10/09
- Pre-European vegetation - DA 01/01
- Soils, Statewide - 30/11/99

(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

Groundwater on the site is mapped as having a highest known watertable at 19m AHD in the Perth Groundwater Atlas (Landform Research, 2005). According to the Environmental Management Plan, there will be no mining below the water table and mining cut off will be 2 meters above maximum groundwater table, at no less than 21m AHD (Coffey Environments, 2010).

The area under application has a low risk of salinity and is not located within a Public Drinking Water Source Area (PDWSA).

The proposed clearing of 14.8 hectares of native vegetation may result in adverse impacts on the nearby wetlands, including increase in recharge, water logging and fluctuations in water levels. Additionally, nutrient export may result from the clearing of native vegetation, which has the potential to adversely impact water quality.

Given the above, the proposed clearing may be at variance with this principle. The Environmental Management Plan (Coffey Environments, 2010) states that the Conservation Category Wetlands (CCW) (damplands) to the south of the excavation area will be protected by a greater than 50 meter buffer. Furthermore it advises that the soils on site are free draining and nutrient monitoring of groundwater will be implemented downstream of mining activities (Coffey Environments 2010).

Methodology References:
Coffey Environments, 2010
GIS Databases:
- Hydrogeographic Catchments, Catchments - DoW 01/06/07
- Hydrogeology, statewide - DoW 13/07/06
- Public Drinking Water Source Areas (PDWSAs) - DoW 07/02/06
- Rainfall, Mean Annual - BOM 30/09/01
- RIWI Act, Areas - DoW 05/04/02
- RIWI Act, Groundwater Areas - DoW 13/07/06
- RIWI Act, Irrigation Districts - DoW 13/07/06
- Soils, Statewide - 30/11/99
- 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

The application area is largely parkland cleared and remaining native vegetation is in a highly disturbed condition (Landform Research, 2005; DEC, 2011).

The soils are well-drained Bassendean sands.

The proposal is to progressively clear up to 14.8ha of native vegetation, with the area disturbed or open at any one time minimised to 2ha wherever possible (Coffey Environments, 2010).

Given the above, the proposed clearing is not likely to significantly increase or exacerbate the incident or intensity of flooding within the local area.

Methodology References:

Coffey Environments, 2010

DEC, 2011

Landform Research, 2005

GIS Databases:

- Evapotranspiration, Area Actual - BOM 30/09/01
- Hydrogeology, statewide - DoW 13/07/06
- Pre-European vegetation - DA 01/01
- Rainfall, Mean Annual - BOM 30/09/01
- Soils, Statewide - 30/11/99
- Topographic Contours, Statewide - DOLA 12/09/02

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

Comments

The application area was amended in response to the Department of Environment and Conservation's letter dated 15 March 2011 to remove areas where native vegetation was absent. Therefore the proposed clearing area has reduced from 18 hectares to 14.8 hectares.

The area under application is zoned 'rural' under the Shire of Serpentine-Jarrahdale Town Planning Scheme No. 2.

The applied clearing appears to be located near an 'Extraction Area' mapped under the Basic Raw Materials Statement of Planning Policy No. 2.4 (WAPC, 2000). It does not appear to be within a 'Priority Resource Location' or 'Key Extraction Area'.

On 27 February 2006 the Environmental Protection Authority set the level of assessment for the Excavation and rehabilitation Pt Lots 200, 441, 713 & 1242 King Road, Oldbury as 'Not Assessed - Public Advice Given'.

The Western Australian Planning Commission in the Jandakot Structure Plan (2007), defined the area under application as a prominent landform (sand ridges), which is identified as Land Form/Landscape Protection within Clause 7.2.10 of the Jandakot Structure Plan (WAPC, 2007).

The area under application is within the Serpentine Ground Water area proclaimed under the Rights in Water and Irrigation Act 1914. The Environmental Management Plan (Coffey Environments, 2010) states that if the dam water on site is not adequate, a bore may be required on site to service the water requirement for dust control. Annual requirements are estimated at 1,500 to 2,000KL (Coffey Environments, 2010). If groundwater is required, a licence from the Department of Water may be required.

The applicant has obtained Planning Approval and an Extractive Industry Licence from the Shire of Serpentine-Jarrahdale (DEC Ref: A432290).

Works approval from DEC's Industry Regulation Branch is not required for this proposal as screening will be done offsite.

The applicant advised that rehabilitation of the site will be to parkland pasture containing clumps of native trees and shrubs, with 20% of the site planted to a density of 1000 stems per hectare (Coffey Environments, 2010).

No public submissions have been received in relation to this application.

There are no known Aboriginal Sites of Significance within the application area.

Methodology

References:

Coffey Environments, 2010

Shire of Serpentine-Jarrahdale, 2010

WAPC, 2000

WAPC, 2007

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 02/5/07
- Public Drinking Water Source Areas (PDWSAs) - DoW 07/02/06
- RIWI Act, Areas - DoW 05/04/02
- 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

- WAPC (2007) Jandakot Structure Plan: Final Report August 2007. Western Australian Planning Commission, Government of Western Australia, Perth, Western Australia.
- Cale, B. (2003) Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) Recovery Plan 2002- 2012. Department of Environment and Conservation. Wanneroo WA.
- Coffey Environments (2010) King Road Sand Quarry Environmental Management Plan. Coffey Environments Australia Pty Ltd. DEC Ref: A357139
- DEC (2011) Site Inspection Report for Clearing Permit Application CPS 4069/1, King Road, Oldbury. Site inspection undertaken 22/02/2011. Department of Environment and Conservation, Western Australia. DEC Ref: A377677
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- 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.
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- WAPC (2000) Statement of Planning Policy No. 2.4 - Basic Raw Materials. Western Australian Planning Commission, Perth, Western Australia.
- Western Australian Herbarium (1998-) FloraBase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.dec.wa.gov.au/> (Accessed 21/12/2010).

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 DEC)