GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 4935/1
Permit Holder:	Hanson Construction Materials Pty Ltd
Duration of Permit:	7 August 2016 to 7 August 2034

ADVICE NOTE
The funds referred to in condition 10 of this permit are intended for contributing towards the purchase of 35.46 hectares of native vegetation with similar environmental values containing black cockatoo habitat within the Swan Coastal Plain Bioregion.

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 301 ON DIAGRAM 75682, OLDBURY
   LOT 300 ON DIAGRAM 75682, OLDBURY
   LOT 6 ON DIAGRAM 47557, OLDBURY

3. **Area of Clearing**
   The Permit Holder must not clear more than 11.6 hectares of native vegetation within the area hatched yellow on attached Plan 4935/1a.

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**
   The Permit Holder shall not clear any native vegetation after 6 December 2024.

PART II – MANAGEMENT CONDITIONS

6. **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.

7. 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.

(b) Prior to leaving the area(s) cross-hatched yellow on attached Plan 4935/1a, the Permit Holder must clean earth-moving machinery of soil and vegetation.

8. Site Restoration plan

The Permit Holder must implement and adhere to the document Boomerang Road Oldbury - Site Restoration Management Plan, March 2016 (V1b) submitted to the Department of Environment Regulation on 1 April 2016, within the area of land cross-hatched red on attached Plan 4935/1c.

9. Hydrological Management Plan

The Permit Holder must implement and adhere to the document Groundwater Profile Modelling, Version Rev 2, March 2016, submitted to the Department of Environment Regulation on 1 April 2016.

10. Monetary contributions to a fund maintained for the purpose of establishing or maintaining vegetation (offset)

Prior to undertaking any clearing authorised under this Permit and no later than 7 October 2016, the Permit Holder shall provide documentary evidence to the CEO that funding of $301,410 has been transferred to the Department of Environment Regulation for the purpose of establishing or maintaining native vegetation.

11. Offsets – conservation covenant

Prior to 8 July 2017, the Permit Holder shall:

(a) give a conservation covenant under section 30B of the *Soil and Land Conservation Act 1945* setting aside the *covenant area* for the protection and management of vegetation in perpetuity; and

(b) provide to the CEO a copy of the executed conservation covenant.

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 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 actions done to implement the Site Restoration Plan and Hydrological Management Plan under this Permit:

(i) a description of the Site Restoration Plan activities undertaken;

(ii) the date(s) the Site Restoration Plan activities were undertaken;

(iii) a description of the Hydrological Management Plan activities undertaken; and

(iv) the date(s) the Hydrological Management Plan activities were undertaken;

13.Reporting

(a) The Permit Holder must provide to the CEO on or before 1 July 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 to 31 December of the preceding calendar year.

(b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this permit has been carried out, must be provided to the CEO on or before 1 July of each year.

(c) Prior to 7 July 2034, 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:

Covenant area means the area of land cross-hatched red on attached Plan 4935/1b;

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

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

weed/s means any plant -

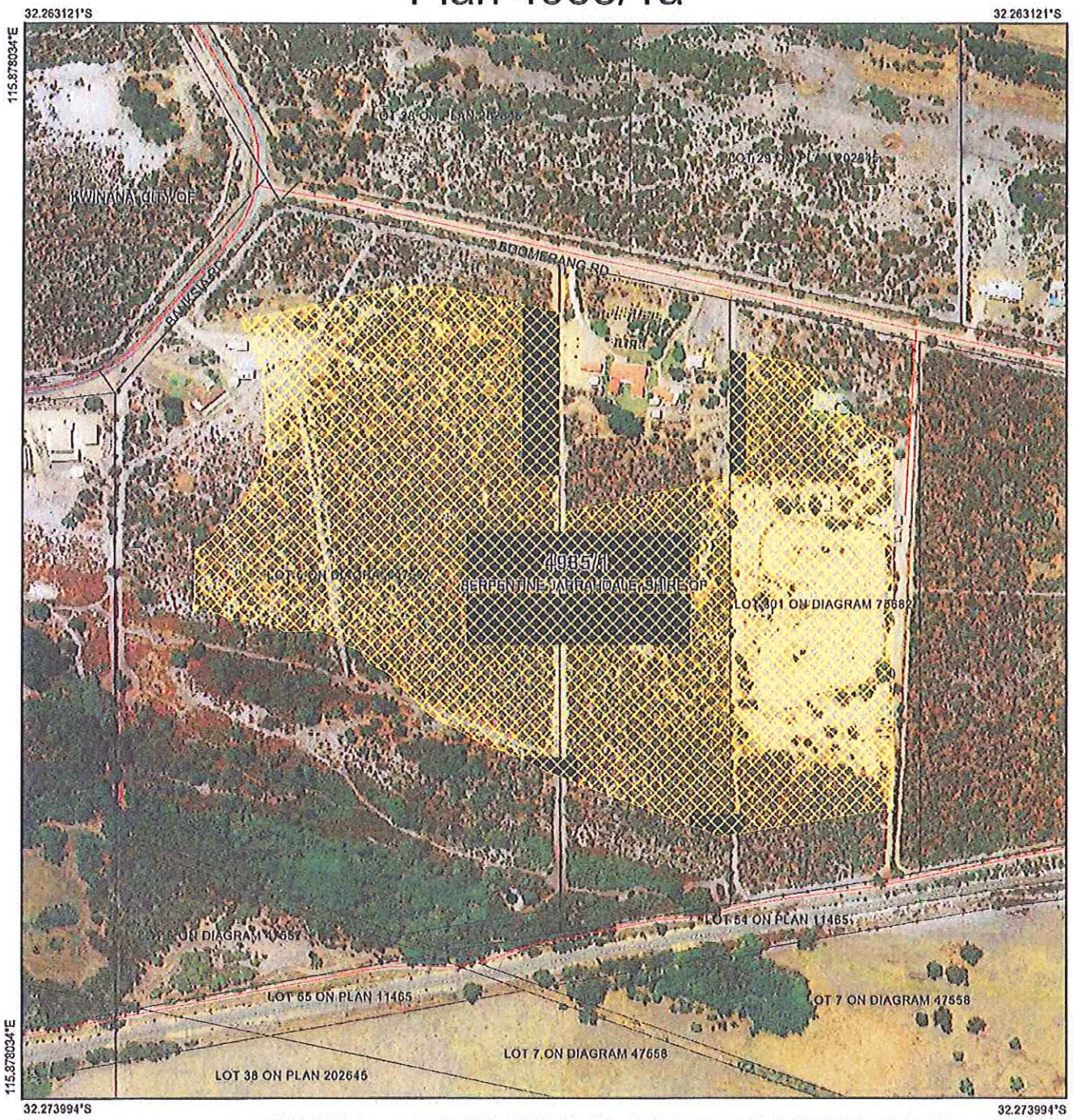
(a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
(b) published in a Department of Parks and Wildlife Regional Weed Rankings Summary, regardless of ranking; or
(c) not indigenous to the area concerned.

Kelly Faulkner
EXECUTIVE DIRECTOR
LICENSING AND APPROVALS

Officer delegated under Section 20
of the Environmental Protection Act 1986

7 July 2016

Plan 4935/1a



Legend

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

N

0 200m

1:4,000

(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

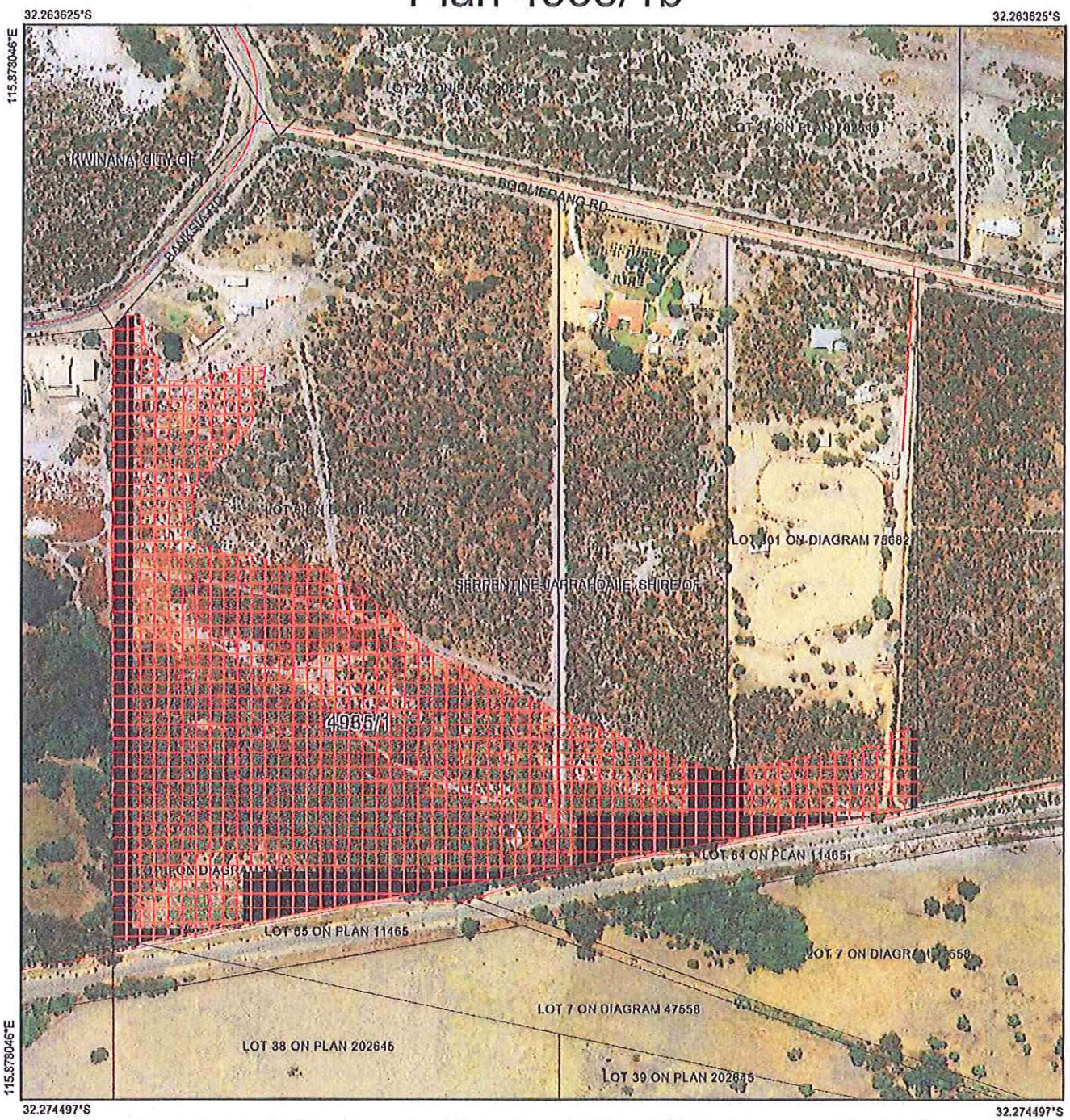
..... Date 7/7/16.....

Kelly Faulkner

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

GOVERNMENT OF WESTERN AUSTRALIA

Plan 4935/1b



Legend

- Roads
- Imagery
- Local Government Authority
- Clearing Instruments Conditions
- Cadastre

N

0 200m

1:4,000

(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

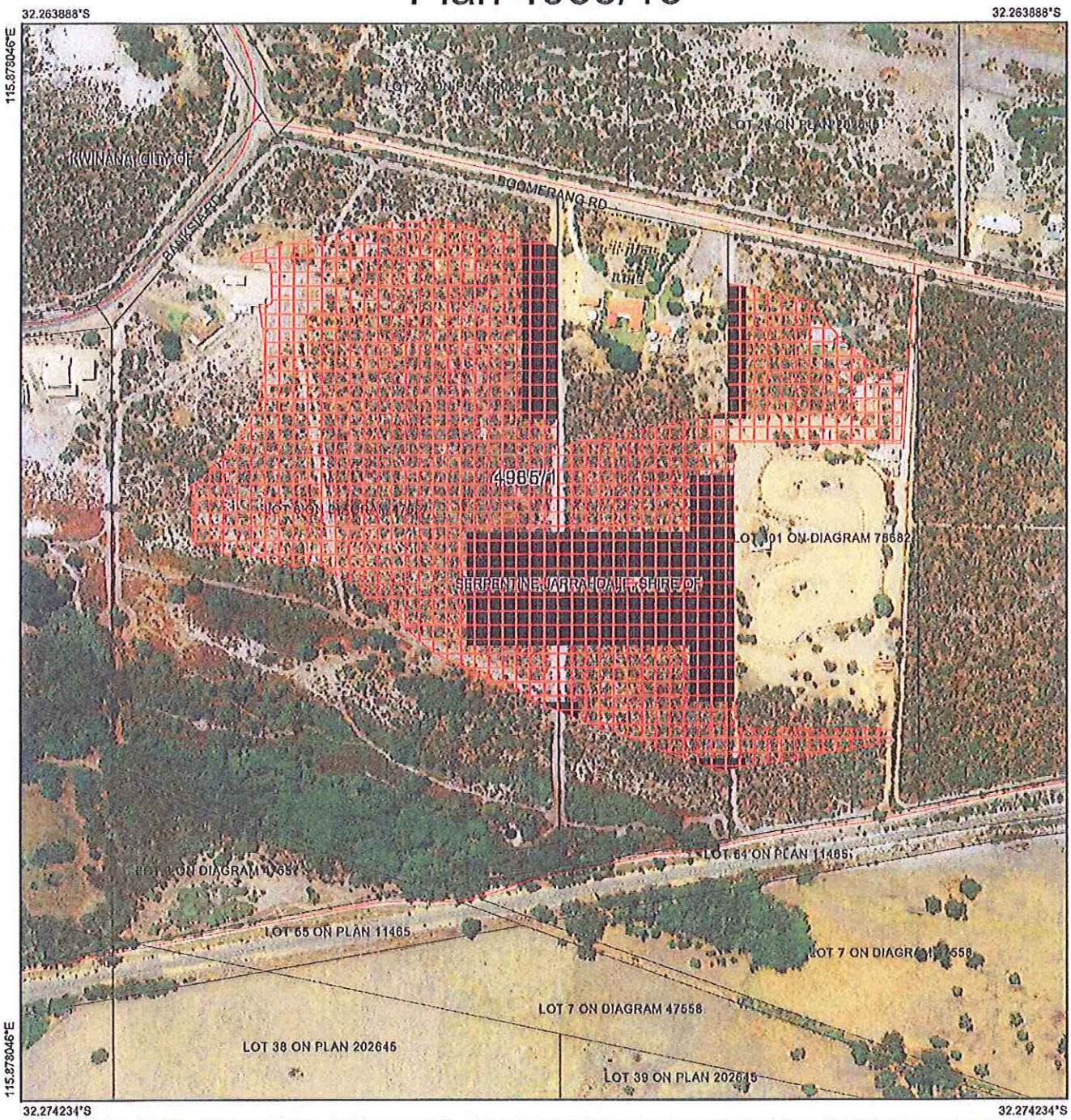
..... Date 7/7/16

Kelly Faulkner

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

GOVERNMENT OF WESTERN AUSTRALIA

Plan 4935/1c



Legend

- Roads
- Imagery
- Local Government Authority
- Clearing Instruments Conditions
- Cadastre

N

0 200m

1:4,000

(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

..... Date 7/7/16

Kelly Faulkner

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

GOVERNMENT OF WESTERN AUSTRALIA

Government of Western Australia
Department of Environment Regulation

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4935/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Hanson Construction Materials Pty Ltd

1.3. Property details

Property: LOT 301 ON DIAGRAM 75682, OLDBURY
LOT 300 ON DIAGRAM 75682, OLDBURY
LOT 6 ON DIAGRAM 47557, OLDBURY

Local Government Authority: SERPENTINE-JARRAHDALE, SHIRE OF
DER Region: Greater Swan
DPaW District: SWAN COASTAL
LCDC:
Localities: OLDBURY

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 7 July 2016
Reasons for Decision: The clearing application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986 (EP Act), and it has been concluded that the proposed clearing is at variance to clearing principles (a), (b) and (e), may be at variance to principles (d), (g), (h), (i) and (j) and is not likely to be at variance to the remaining clearing principles.

An assessment determined that the proposed clearing of 11.6 hectares of native vegetation includes:

- foraging habitat and potential nesting habitat for Carnaby's cockatoo (Calyptorhynchus latirostris), Baudin's cockatoo (Calyptorhynchus baudinii) and the forest red-tailed black cockatoo (Calyptorhynchus banksii naso);
- high biologocial diversity and a regionally significant ecological linkage; and
- native vegetation considered to be a signicant remnant of native vegetation in an area that has been extensively cleared.

Consistent with the WA Environmental Offset Policy (2011) and WA Environmental Offsets Guidelines (2014), and pursuant to section 51I(2)(b) of the EP Act, in order to mitigate the significant environment impacts described above the Permit Holder is required to provide an offset that comprised the following components:

- documented evidence that a monetary contribution towards the purchase of 35.46 hectares of remnant vegetation that includes habitat for the three black cockatoos has been transferred to the Department of Environment Regulation;
- develop a Site Restoration Plan for the revegetation of 12.5 hectares; and
- place a conservation covenant on 11.6 hectares of vegetation on Lot 6 on Diagram 47557 and Lot 300 and Lot 301 on Diagram 75682, Oldbury.

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
The application area has been mapped as the following Beard vegetation associations: -968 - Medium woodland; jarrah, marri & wandoo; and	The proposal is to clear 11.6 hectares of native vegetation within a 24 hectare area for the purpose	Degraded; Structure severely disturbed; regeneration to good condition requires intensive	The vegetation condition was obtained from the former Department of Environment and Conservation (DEC) site inspection (DEC 2012a) conducted on 13 April 2012 and a flora report

-1001- Medium very sparse woodland; jarrah, with low woodland; banksia & casuarina (Shepherd et al. 2001). And Heddle vegetation complexs: -Bassendean Complex Central And South - Transition Vegetation Complex - Woodland of *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri) with well defined second storey of *Allocasuarina fraseriana* (Sheoak) and *Banksia grandis* (Bull Banksia) on the deeper soils and a closed scrub on the moister sites. The understorey species reflect similarities with the adjacent vegetation complexes; and Serpentine River Complex - Closed scrub of Melaleuca species and fringing woodland of *Eucalyptus rudis* (Flooded Gum) - *Melaleuca rhaphiophylla* (Swamp Paperbark) along streams (Heddle et al. 1980).	of sand extraction.	management (Keighery 1994). To Excellent; Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery 1994).	undertaken in October 2008 (RPS 2012a). Three community types occur within the application area: The majority of the application area (central portion) consisted of low woodland of *Banksia attenuata* and *Banksia menziesii* with *Allocasuarina fraseriana* over *Jacksonia furcellata*, *Macrozamia fraseri* over sedgeland of *Lyginia barbata*, *Desmocladus flexuosa* and *Burchardia congesta* and *Dasypogon bromeliifolius*. The majority of this community occurs in excellent (Keighery 1994) condition with some degraded and very good (Keighery 1994) condition areas (DEC 2012a). *Banksia menziesii* and *Banksia attenuata* woodland with *Allocasuarina fraseriana* over *Kunzea glabrescens*, *Hibbertia hypericoides*, *Macrozamia fraseri* and *Xanthorrhoea preissii* over *Desmocladus flexuosus* and *Mesomelaena pseudostygia*. This area occurs in very good (Keighery 1994) condition with some grassy weeds (DEC 2012a). *Eucalyptus marginata* and *Allocasuarina fraseriana* woodland with *Banksia illicifolia* and *Kunzea glabrescens* over weeds. This area occurs in a good (Keighery 1994) condition (DEC 2012a).

3. Assessment of application against clearing principles

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

Comments

Proposed clearing is at variance to this Principle

The application proposes to clear 11.6 hectares of native vegetation within a 24 hectare footprint area on Lot 6 on Diagram 47557 and Lots 300 and 301 on Diagram 75682, Oldbury for the purpose of sand extraction.

The vegetation within the application area ranges from degraded to excellent (Keighery 1994) condition, with the majority of the vegetation within the applied area being in excellent (Keighery 1994) condition (nine hectares) (DEC 2012a). The areas that are in a degraded to completely degraded (Keighery 1994) condition (1.6 hectares) are limited to areas of disturbance including access tracks, previously disturbed areas on Lot 300 and a motor cross track which is located in the central portion of Lot 301. A small portion (one hectare) occurs in a good (Keighery 1994) condition in the southwest corner of the application area.

An appropriately timed flora survey of the application area conducted by RPS Environment and Planning Pty Ltd (RPS) was undertaken in October 2008 and identified 122 flora species. The survey did not identify any flora of conservation significance within the application area (RPS 2012a).

Eight fauna species listed as rare or likely to become extinct under the Wildlife Conservation Act 1950 (WC Act) have been recorded within the local area (10 kilometre radius); including Carnaby's cockatoo (Calyptorhynchus latirostris); Baudin's cockatoo (Calyptorhynchus baudinii); forest red-tailed cockatoo (Calyptorhynchus banksii subsp. naso); chuditch (Dasyurus geoffroii); and the southern brush-tailed phascogale (Phascogale tapoatafa subsp. tapoatafa) (Parks and Wildlife 2007-).

The application area is located within the distribution range of Carnaby's Cockatoo, Baudin's cockatoo and forest red-tailed cockatoo. Black cockatoos have a preference for feeding habitat that includes jarrah and marri woodlands and forest heathland and woodland dominated by proteaceous plant species such as Banksia sp. Hakea sp. and Grevillea sp. (Commonwealth of Australia 2012). The application area comprises of Eucalyptus and Banksia woodland in a predominantly excellent (Keighery 1994) condition and is mapped as unconfirmed Carnaby's cockatoo feeding habitat with one confirmed roost site mapped within the local area. The application area is likely to be used as significant foraging habitat for individuals that roost nearby (DEC 2012b).

The application area also contains habitat for quenda (Isoodon obesulus fusciventer) listed as priority 5 under the WC Act. A former Department of Environment and Conservation (DEC) site inspection in 2012 identified numerous quenda diggings throughout the application area (DEC 2012a).

The application area has been identified as part of an ecological linkage under the Perth Greenways Plan and the Shire of Serpentine-Jarrahdale Local Biodiversity Strategy (Del Marco and Penna 2007). Ecological linkages have been defined as 'a series of (both contiguous and non-contiguous) patches of native vegetation which, by virtue of their proximity to each other, act as stepping stones of habitat which facilitate the maintenance of ecological processes and the movement of organisms within, and across, a landscape' (Molloy et al. 2009). The application area forms part of a chain of remnants linking reserves to the north, south and west of the application area as well as the darling range to the east, through a highly cleared local area. Given this, the application area is significant in the movement of local fauna within the landscape.

On the basis that the application area contains significant foraging habitat for black cockatoos and conservation significant fauna, contains vegetation in a very good to excellent (Keighery 1994) condition and forms part of an important ecological linkage, it is considered that the application area comprises a high level of biological diversity.

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

To counterbalance the significant residual impacts the proposed clearing will have on biological diversity, the applicant has agreed to an offset which consists of:

- providing a monetary contribution towards the purchase of 35.46 hectares of land within the local area, containing foraging and potential breeding habitat for the three black cockatoos;
- placing a conservation covenant on 11.6 hectares of remnant native vegetation in the south western corner of Lot 6 on Diagram 47557 and Lot 300 and Lot 301 on Diagram 75682, Oldbury. This area will maintain some ecological linkage function of Lots 6, 300 and 301 and contains significant habitat for quenda; and
- revegetation of 12.5 hectares of a previously cleared area with species suitable for black cockatoo foraging and breeding habitat.

Methodology

References:
Commonwealth of Australia (2001)
Commonwealth of Australia (2012)
Cockerill et al. (2013)
DEC (2012a)
DEC (2012b)
DEC (2012d)
Del Marco and Penna (2007)
Keighery (1994)
Molloy et al. (2009)
Parks and Wildlife (2007-)
Rocla and Hanson (2015)
RPS (2012a)
RPS (2016)

GIS Databases
-SAC Bio Datasets – accessed March 2016
-NLWRA, Current Extent of Native Vegetation

(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

Proposed clearing is at variance to this Principle

Eight fauna species listed as rare or likely to become extinct under the Wildlife Conservation Act 1950 (WC Act) have been recorded within the local area (10 kilometre radius); including Carnaby's cockatoo (Calyptorhynchus latirostris); Baudin's cockatoo (Calyptorhynchus baudinii); forest red-tailed cockatoo (Calyptorhynchus banksii subsp. naso); chuditch (Dasyurus geoffroii); and the southern brush-tailed phascogale (Phascogale tapoatafa subsp. tapoatafa). In addition, there are two priority 3 species, six priority 4 species and two priority 5 species within the local area; including quenda (Isoodon obesulus fusciventer); western brush wallaby (Macropus irma); lined skink (Lerista lineata) and black-striped snake (Neelaps calonotos) (Parks and Wildlife 2007-).

The application area is located within the distribution range of Carnaby's Cockatoo, Baudin's cockatoo and forest red-tailed cockatoo. Black cockatoos have a preference for feeding habitat that includes jarrah and marri woodlands and forest heathland and woodland dominated by proteaceous plant species such as *Banksia* sp. *Hakea* sp. and *Grevillea* sp. (Commonwealth of Australia 2012). Basic ecological theory, expert opinion and recent evidence, suggests that the remaining native and pine plantation feeding habitat on the Swan Coastal Plain is just sufficient to support the current population of Carnaby's cockatoo. Therefore, it is considered that any reduction in feeding habitat will result in a reduction in the carrying capacity of the region and therefore a decline in the population of Carnaby's cockatoo. A recent study involving population analysis modelling suggests that if clearing continues to occur at its current rate without effective habitat restoration, the species is likely to decline to extinction in less than 20 years (Cockerill et al. 2013). The application area comprises of Eucalyptus and Banksia woodland in a predominantly excellent (Keighery 1994) condition, is mapped as unconfirmed Carnaby's cockatoo feeding habitat and there is one confirmed roost site mapped within the local

area (10 kilometre radius). The application area is likely to contain significant foraging habitat for individuals that roost nearby (DEC 2012b).

A tree survey of the application area identified seven habitat trees that have a diameter at breast height (DBH) of 500 millimetres or greater (RPS 2011a); however it is not identified if these trees contained hollows. A site visit (DEC 2012a) of the application area did note several mature Eucalyptus trees that may have the potential to develop suitable hollows in the future and one mature tree containing a hollow that may be suitable for Carnaby's cockatoo.

The Carnaby's cockatoo recovery plan (DEC 2012b) summarises habitat critical to the survival of Carnaby's cockatoos as:

- The eucalypt woodlands that provides nest hollows used for breeding, together with nearby vegetation that provides feeding, roosting and watering habitat that supports successful breeding;
- Woodland sites known to have supported breeding in the past and which could be used in the future, provided adequate nearby food and/or water resources are available or are re-established; and
- In the non-breeding season the vegetation that provides food resources as well as the sites for nearby watering and night roosting that enable the cockatoos to effectively utilise the available food resources.

The recovery plan also states, "Success in breeding is dependent on the quality and proximity of feeding habitat within 12 kilometre of nesting sites. Along with the trees that provide nest hollows, the protection, management and increase of this feeding habitat that supports the breeding of Carnaby's cockatoo is a critical requirement for the conservation of the species" (DEC 2012b). Given the above, the application area contains significant habitat for black cockatoo's.

Quenda are listed as priority 5 by the Department of Parks and Wildlife. Priority 5 is defined as species that are managed under a specific conservation program, the cessation of which would result in the species becoming threatened. A DEC (2012a) site inspection observed numerous quenda diggings within the application area, consistent with a resident population occurring near the wetland to the south. Vegetation within the application area in good (Keighery 1994) or better condition would provide habitat for the local population of quenda. The proposed clearing of 11.6 hectares will reduce available habitat for the locally occurring quenda population (DEC 2012d).

Fifteen avian species protected under international agreement have been recorded within the local area (Parks and Wildlife 2007-). Fourteen of these species are associated with wetland environments and the application area falls approximately 430 metres away from a conservation category wetland and under 75 metres from a resource enhancement wetland and a multiple use wetland. The rainbow bee-eater is a migratory species that arrives in the south west of Western Australia in late September-early October nesting in burrows dug in the ground (DotE 15). This species was observed within Lot 6 during the fauna survey (GHD 2006), and it is likely that the application area provides significant local habitat for this protected species. Threat abatement and recovery for the rainbow bee-eater is currently considered to be a low priority for management (DotE 2015). The fauna survey on Lot 6 (GHD 2006) also identified local bird species including the scarlet robin (Petroica multicolor), common bronzewing (Phaps chalcoptera) and the New Holland honeyeater (Phylidonyris novaehollandiae) which are listed as Regionally Significant birds on the Swan Coastal Plain (Government of Western Australia 2000). These species have a limited distribution range and are particularly sensitive to habitat loss.

The application area has been identified as part of an ecological linkage under the Perth Greenways Plan and the Shire of Serpentine-Jarrahdale Local Biodiversity Strategy (Del Marco and Penna 2007). Ecological linkages have been defined as 'a series of (both contiguous and non-contiguous) patches of native vegetation which, by virtue of their proximity to each other, act as stepping stones of habitat which facilitate the maintenance of ecological processes and the movement of organisms within, and across, a landscape' (Molloy et al. 2009). The application area forms part of a chain of remnants linking reserves to the north, south and west of the application area as well as the darling range to the east, through a highly cleared local area. Given this, the application area is significant in the movement of local fauna within the landscape.

On the basis that the application area includes significant foraging habitat for the three black cockatoos and significant habitat for other conservation significant fauna within an extensively cleared area, it is considered that the application area comprises significant habitat for indigenous fauna.

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

To counterbalance the significant residual impacts the proposed clearing will have on biological diversity, the applicant has agreed to an offset which consists of:

- providing a monetary contribution towards the purchase of 35.46 hectares of land within the local area, containing foraging and potential breeding habitat for the three black cockatoos;
- placing a conservation covenant on 11.6 hectares of remnant native vegetation in the south western corner of Lot 6 on Diagram 47557 and Lot 300 and Lot 301 on Diagram 75682, Oldbury. This area will maintain some ecological linkage function of Lots 6, 300 and 301 and contains significant habitat for quenda; and
- revegetation of 12.5 hectares of a previously cleared area with species suitable for black cockatoo foraging and breeding habitat.

Methodology References:

Commonwealth of Australia (2001)
Commonwealth of Australia (2012)
Cockerill et al (2013)
DEC (2012a)
DEC (2012b)
Del Marco and Penna (2007)
DotE (2015)
GHD (2006)
Government of Western Australia (2000)
Keighery (1994)
Molloy et al (2009)
RPS (2011a)

GIS Datasets:
- Carnaby Cockatoo breeding sites
- Carnaby Cockatoo feeding
- Hydrography linear

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

Comments **Proposed clearing is not likely to be at variance to this Principle**
Seven rare flora species have been recorded within the local area (10 kilometre radius).

A spring flora and vegetation survey of the application area undertaken in 2012 (RPS 2012a) did not record any declared rare flora species. The site was surveyed through plot based survey and opportunistic collection.

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

Methodology References:
RPS (2012a)

GIS Databases:
- SAC Bio Datasets - accessed March 2016

(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 **Proposed clearing may be at variance to this Principle**

Seven threatened ecological communities (TEC) have been recorded within the local area (10 kilometre radius).

A flora survey of the application area (RPS 2012a) did not identify any TEC's within the application area, therefore it is not likely that the vegetation within the application area comprises a TEC.

An occurrence of the TEC - Communities of Tumulus Springs (organic mound springs, Swan Coastal Plain), has been recorded approximately 87 metres south of the application area on the same soil and vegetation type. There are eight occurrences of this mound springs TEC, with a total area of 21 hectares recorded. The Oldbury occurrence covers about 0.75 hectares (3.6 per cent of total mapped occurrences) and is the southern most occurrence of this TEC on the Swan Coastal Plain. Unlike the other known occurrences, its hydrology is not driven by the Gnangara Mound (DEC 2012d).

Wetlands on the Swan Coastal Plain fall into recharge, discharge and throughflow systems. Recharge systems depend on local flow systems, while discharge systems are generally reliant on both local and regional flow systems. The conceptual model for this TEC occurrence is a discharge system, which means the organic mound spring responds to local, as well as regional groundwater changes. In order to evaluate impacts to the spring, it is necessary to map and understand the ground and surface water flow paths and volumes into and out of the spring itself (ie determining water balance) for both the local and regional flow systems (DEC 2012c and DEC 2012d).

The groundwater flowpaths in the local (shallow) system will be impacted upon by the proposed clearing and impact the water regium of the TEC given the size of the application area and likely increase in the groundwater discharge to the nearby wetlands (DEC 2012d). A local (shallow) flow system investigation was required including the identification of local flow system boundaries to establish the full impact of the proposed clearing on the TEC. The water level increase or decrease within the TEC may cause changes to solute balances. Therefore the former DEC and DER requested the applicant undertake additional hydrological assessments and prepare a Hydrological Management Plan. Additional work was undertaken in conjunction with the Department of Parks and Wildlife (RPS 2016) to determine the degree of detail required to determine the impact of the clearing on the hydrology of the TEC.

The applicant has undertaken a further series of hydrological assessments and groundwater profile modelling (RPS 2016) to estimate the potential impacts of the proposed clearing on the TEC. The hydrological assessments concluded that the hydrology of the TEC is significantly controlled by anthropogenic factors. Groundwater modelling of the proposed clearing indicates that groundwater levels are predicted to increase by up to 0.14 meters during the proposed clearing (RPS 2016).

Therefore the application area may be necessary for the maintenance of a TEC and the proposed clearing may be at variance to this Principle.

A condition has been placed on the permit requiring the applicant to adhere to a groundwater profile modelling document that contains management and contingency measures if the groundwater level trigger within the TEC is breached.

Methodology

References:
DEC (2012c)
DEC (2012d)
RPS (2012a)
RPS (2016)

GIS Datasets
- SAC Bio Datasets - accessed March 2016
- Soils, statewide
- Pre-European Vegetation

(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

Proposed clearing is at variance to this Principle

The application area is located within the Swan Coastal Plain Interim Biogeographic Regionalisation of Australia (IBRA) Bioregion, which has approximately 39 per cent of its pre-European vegetation extent remaining (Government of Western Australia 2014).

The application area is mapped as Beard vegetation associations 968 and 1001, which have approximately seven and 23 per cent of their pre-European extents remaining within the Swan Coastal Plain bioregion respectively (Government of Western Australia 2014), and has Heddle vegetation complexs Serpentine River Complex and Bassendean Complex-Central And\South which retain approximately 10 and 26 per cent of their pre-European extent respectively (Parks and Wildlife 2015).

The application area is located within the Shire of Serpentine Jarrahdale, within which there is approximately 53 per cent pre-European extent remaining (Government of Western Australia 2014).

The local area (10 kilometre radius) retains approximately 25 per cent native vegetation.

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001). However, the Environmental Protection Authority recognises the Perth Metropolitan Region to be a constrained area, which provides for the reduction of this threshold to 10 per cent of the pre-European extent (EPA 2006). As the application area is zoned rural it does not fit the definition of a "constrained area" as defined by the Environmental Protection Authorities Guidance for the Assessment of Environmental Factors (EPA 2006).

The application area contains significant habitat for conservation significant fauna. It also forms part of a regionally significant ecological linkage aiding in the dispersal of fauna and biological material across the landscape. The application area also comprises of a high level of biological diversity and includes vegetation in excellent (Keighery 1994) condition. Therefore the application area is considered a significant remnant.

Noting that the mapped vegetation types and the vegetation cover within the local government or local area retain less than the 30 per cent threshold, it is considered that the application area is located within an extensively cleared area.

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

To counterbalance the significant residual impacts the proposed clearing will have on biological diversity, the applicant has agreed to an offset which consists of:
- providing a monetary contribution towards the purchase of 35.46 hectares of land within the local area, containing foraging and potential breeding habitat for the three black cockatoos;
- placing a conservation covenant on 11.6 hectares of remnant native vegetation in the south western corner of Lot 6 on Diagram 47557 and Lot 300 and Lot 301 on Diagram 75682, Oldbury. This area will maintain some ecological linkage function of Lots 6, 300 and 301 and contains significant habitat for quenda; and
- revegetation of 12.5 hectares of a previously cleared area with species suitable for black cockatoo foraging and breeding habitat.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks and Wildlife Managed Lands (%)
IBRA Bioregion*				
Swan Coastal Plain	1,501,221	580,697	39	37
Local government authority*				
Shire of Serpentine-Jarrahdale	90,049	47,610	53	86
Beard Vegetation Association in Bioregion*				
968	136,188	9,143	7	18
1001	57,410	13,240	23	13
Heddle Vegetation Complex**				
Serpentine River Complex	19,855	2,028	10	3
Bassendean Complex-Central And\South:	87,476	22,869	26	5

Methodology

References:
Commonwealth of Australia (2001)
EPA (2006)
*Government of Western Australia (2014)
**Heddle et al. (1980)
Parks and Wildlife (2015)

GIS Datasets
- Heddle Vegetation Complexes
- NLWRA, Current Extent of Native Vegetation
- Pre-European Vegetation

(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

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

According to available datasets, no wetlands or watercourses are mapped within the application area.

There are multiple wetlands mapped within 5 kilometres of the application area, the closest wetland is a resource enhancement wetland (REW) located under 75 metres south of the application area. This REW is located within Lot 6 and a conservation covenant will be placed over the wetland. There is also a multiple use wetland (MUW) 75 metres south an 200 metres north of the application area and two conservation category wetlands (CCW) located 436 metres south west of the application area and 700 metres west of the application area. The nearest watercourses are the Birriga Main Drain and Manjedal Brook, located approximately 815 metres south-east and 1.8 kilometres south of the application area.

Noting the soil and vegetation types found within the application area, and given the distance to the nearest wetland, it is considered that the application area is unlikely to include vegetation growing in association with a wetland or watercourse.

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

Methodology

GIS Databases:
- Hydrography, linear
- Geomorphic Wetlands, (Mgt Categories), Swan Coastal Plain

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

Comments

Proposed clearing may be at variance to this Principle

The soil types mapped within the application area are Cb39 and Kf9. CB39 is described as subdued dune-swale terraine: chief soils are leached sands and Kf9 is described as low lying, poorly drained flats with some gilgais: chief soils are black and grey cracking clays (Northcote et al. 1960-68).

Noting the extent of clearing proposed (11.6 hectares), and noting that sandy soils typically have a high risk of

wind erosion and phosphorus export, it is considered that the proposed clearing may cause land degradation in the form of wind erosion.

Given the porous nature of the soils the proposed clearing is unlikely to case appreciable land degradation through waterlogging and water erosion.

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

The applicant has advised that clearing will occur over seven stages across 20 years with sequential revegetation (RPS 2011b and RPS 2016). It is considered that staged clearing will assist in mitigating appreciable land degradation in the form of wind erosion.

Methodology

References:
Northcote et al. (1960-68)
RPS (2011b)
RPS (2016)

GIS Databases:
- Soils, statewide

(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

Proposed clearing may be at variance to this Principle

Banksia Nature Reserve (R28167) is located approximately 850 metres north of the application area and separated from the application area by cleared land and remnant vegetation. Banksia Nature Reserve forms part of Jandakot Regional Park, is listed on the Register of National Estate and identified as a System 6 Reserve.

The nearest Bush Forever sites are 70 (Duckpond Bushland, Peel Estate) and 68 (Jackson Road Bushland, Peel Estate), which are located approximately 600 metres south and 600 metres east south-east of the application area respectively. Twenty eight other Bush Forever sites are located within the local area (10 kilometre radius).

The application area has been identified as part of an ecological linkage under the Perth Greenways Plan and the Shire of Serpentine-Jarrahdale Local Biodiversity Strategy (Del Marco and Penna 2007). Ecological linkages have been defined as 'a series of (both contiguous and non-contiguous) patches of native vegetation which, by virtue of their proximity to each other, act as stepping stones of habitat which facilitate the maintenance of ecological processes and the movement of organisms within, and across, a landscape' (Molloy et al. 2009). The application area forms part of a chain of remnants linking reserves to the north, south and west of the application area as well as the darling range to the east, through a highly cleared local area.

The proposed clearing may cause degradation of local ecological linkages and impede fauna movement between local conservation areas.

On the basis of the distance to the closest conservation area, and noting the connectivity between the application area and nearby conservation areas, it is considered that the proposed clearing may impact on the environmental values of nearby conservation areas.

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

Methodology

References:
Del Marco and Penna (2007)
Molloy et al (2009)

GIS Databases:
- Bush Forever Sites
- Parks and Wildlife Tenure

(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

Proposed clearing may be at variance to this Principle

According to available datasets, no wetlands or watercourses are mapped within the application area. There are multiple wetlands mapped within 5 kilometres of the application area, the closest wetland is a resource enhancement wetland (REW) located under 75 metres south of the application area. This REW is located within Lot 6 and a conservation covenant will be placed over this wetland. There is also a multiple use wetland (MUW) 75 metres south and 200 metres north of the application area and two conservation category wetlands (CCW) located 436 metres south west of the application area and 700 metres west of the application area. The nearest watercourses are the Birriga Main Drain and Manjedal Brook, located approximately 815 metres south-

east and 1.8 kilometres south of the application area.

Groundwater salinity is mapped between 500-1000 milligrams per litre total dissolved solids which is considered to be marginal.

An occurrence of the TEC - Communities of Tumulus Springs (organic mound springs, swan coastal plain), has been recorded approximately 87 metres south of the application area on the same soil and vegetation type. The conceptual model for this TEC occurrence is a discharge system, which means the organic mound spring responds to local, as well as regional groundwater changes.

The applicant has undertaken a series of hydrological assessments and groundwater profile modelling (RPS 2016) to estimate the potential impacts of the proposed clearing on groundwater and the nearby organic mound spring. Additional work was undertaken with the Parks and Wildlife (RPS 2016) to determine the degree of detail required to determine the impact of the clearing on local hydrology.

The groundwater modelling of the proposed clearing indicates that groundwater levels are predicted to increase by up to 0.14 metres during the proposed clearing (RPS 2016). The predicted water level increase within the groundwater table may cause changes to solute balances within adjacent wetlands. Sulfide minerals and acidity can be altered by changes to water levels resulting in the formation of acid sulfate soils and release of other contaminants such as aluminium (DEC 2012b).

Given the close proximity of the application area to the organic mound spring distance, the proposed clearing may cause deterioration in the quality of surface or underground water entering nearby wetland areas.

Given the predicted increase in groundwater levels and potential changes, it is considered that the proposed clearing may cause deterioration in the quality of groundwater.

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

Methodology

References:
RPS (2016)
DEC (2012b)

GIS Databases:
- Hydrography, linear
- Geomorphic Wetlands, (Mgt Categories), Swan Coastal Plain
- Groundwater salinity
- Salinity Risk LM 25m

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

Comments

Proposed clearing may be at variance to this Principle

According to available datasets, no wetlands or watercourses are mapped within the application area. There are multiple wetlands mapped within 5 kilometres of the application area, the closest wetland is a resource enhancement wetland (REW) located under 75 metres south of the application area. This REW is located within Lot 6 and a conservation covenant will be placed over this wetland. There is also a multiple use wetland (MUW) 75 metres south and 200 metres north of the application area and two conservation category wetlands (CCW) located 436 metres south west of the application area and 700 metres west of the application area. The nearest watercourses are the Birriga Main Drain and Manjedal Brook, located approximately 815 metres south-east and 1.8 kilometres south of the application area.

An occurrence of the TEC - Communities of Tumulus Springs (organic mound springs, swan coastal plain), has been recorded approximately 87metres south of the application area on the same soil and vegetation type. The conceptual model for this TEC occurrence is a discharge system, which means the organic mound spring responds to local, as well as regional groundwater changes.

The applicant has undertaken a series of hydrological assessments and Groundwater profile modelling (RPS 2016) to estimate the potential impacts of the proposed clearing on groundwater and the nearby organic mound spring. Additional work was undertaken with the Parks and Wildlife (RPS 2016) to determine the degree of detail required to determine the impact of the clearing on local hydrology. The groundwater modelling of the proposed clearing indicates that groundwater levels are predicted to increase by up to 0.14m during the proposed clearing (RPS 2016).

Therefore it is considered that the proposed clearing may result in an increase in the incidence or intensity of flooding on nearby wetlands.

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

Methodology

References:
RPS (2016)

GIS Datasets:
- Geomorphic Wetlands (Mgt Categories), Swan Coastal Plain
- Hydrography, Linear
- SAC Biodatasets - accessed March 2016
- Soils, statewide

Planning instruments and other relevant matters.

Comments

On 23 September 2008 Rocla Pty Ltd trading as Rocla Quarry Products (Rocla) submitted an application CPS 2757/1 to clear 24.78 ha of native vegetation for sand extraction on Lot 300 and 301 on Diagram 75682 and Lot 6 on Diagram 47557, Oldbury. On 15 October 2009 this application was refused based on environmental grounds. The applicant appealed this decision on 23 November 2009.

On 7 October 2010 the Minister for Environment dismissed the appeal and stated that: 'If Rocla wish to clear vegetation at this site in the future, in addition to undertaking restoration, the Minister noted that it will also need to identify measures to offset the loss of the values identified through the DEC's assessment of the proposal. This may include, for example, identification of offsite vegetation which might be secured or restored to ensure ecological linkages are maintained' (Minister for Environment 2010).

On 13 March 2012 Rocla reapplied for a clearing permit and reduced the application area from the original 24.78 hectares to 11.6 hectares of native vegetation within Lot 300, 301 and Lot 6, Oldbury, for the purpose of sand extraction, in the Shire of Serpentine-Jarrahdale. The application was received by the former Department of Environment and Conservation (DEC) and included a proposed offset.

On 29 January 2016 Rocla Pty Ltd (Rocla) sold its extractive industry business, including its Western Australian assets to Hanson Construction Materials Pty Ltd (Hanson). In a letter to DER on 11 December 2015, Rocla requested that all permit applications be transferred to Hanson (Rocla and Hanson 2015).

The application area comprises three adjacent properties. The applicant provided approval from the land owners that Rocla has approval to apply to clear the application area for sand extraction.

The application area has been identified as containing regionally significant basic raw materials (sand) by the Geological Survey of Western Australia (DMP 2012 and DMP 2011). The mapping shows basic raw material areas and does not indicate government endorsement of approval or priority to mine in these areas and that further consideration such as environmental constraints will need to be taken into account before it can be used for planning purposes (DMP 2011).

The application area is not within a priority resource location or a key extraction area within the Basic Raw Materials Statement of Planning Policy No. 2.4 (SPP2.4) (WAPC 2000). State Planning Policy 2.4 identifies the location and extent of known basic raw material resources, protects priority resource locations, ensures that the use of development of land for the extraction of basic raw materials does not adversely affect the environment or amenity and provides a consistent planning approval process for extractive industry proposals. On 26 March 2014, the Western Australian Planning Commission (WAPC) resolved to approve the development application WAPC 29-50066-2 for Lot 6 Banksia Road and Lots 300 and 301 Boomerang Road, Oldbury (WAPC 2014) as the area was recognised as a sand extraction area in SPP2.4 (WAPC 2014).

The application area is zoned 'Rural' under the local town planning scheme. On 7 July 2014 Rocla were granted Planning approval - Extractive Industry by the Shire of Serpentine Jarrahdale for L6 Banksia Road, L300 Boomerang Road and L301Boomerang Road, Oldbury (Shire of Serpentine Jarrahdale 2014).

The Department of Water (2012) advised that the application area is located within the Serpentine groundwater area, proclaimed under the Rights in Water Irrigation Act 1914. Therefore a licence is required if groundwater abstraction is to take place.

No Aboriginal Sites of Significance have been recorded within the application area.

The application was advertised for public comment in The West Australian newspaper on 26 March 2012 with a 21 day submission period. One public submission was received in relation to this project. The submission objected to the proposed clearing on the basis that the application is likely to impact on a tumulus spring TEC, the local hydrology of the area and in turn on species that rely on the TEC, such as Carnaby's cockatoo and graceful sun moth (Submission 2012). The submission also states that revegetation would be difficult on the site and that research and provision of restoration documents is not a suitable offset. Additionally, offsetting clearing in Gingin does not appear to meet the intent of biodiversity conservation in the local area and does not offset the impact on the offset mound spring TEC. These matters have been considered under the relevant Clearing Principles.

Methodology

References:
Department of Water (2012)
DMP (2011)
DMP (2012)
Minister for Environment (2010)

Rocla and Hanson (2015)
Submission (2012)
Shire of Serpentine Jarrahdale (2014)
WAPC (2014)
WAPC (2000)

GIS Databases:
- Aboriginal Sites of Significance

4. References

Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.

Commonwealth of Australia (2012) EPBC Act referral guidelines for three threatened black cockatoo species, Canberra.

Cockerill, A., Lambert, T, Conole, L. and Pickett, E. (2013). Carnaby's Cockatoo Population Viability Analysis Model Report. Report funded by the Department of Sustainability, Environment, Water, Population, and Communities through the Sustainable Regional Development Program. Parsons Brinckerhoff, Perth.

DEC (2012a) Site Inspection Report for Clearing Permit Application CPS 4935/1, Lot 6, 301 and 300 Boomerang Road, Oldbury. Site inspection undertaken 13 April 2012. Department of Environment and Conservation, Western Australia (DEC ref A493380)

DEC (2012b). Carnaby's cockatoo (Calyptorhynchus latirostris) Recovery Plan. Department of Environment and Conservation, Perth, Western Australia.

DEC (2012c) Hydrology Advice for CPS 4935/1 - Rocla Pty Ltd - Rocla Pty Ltd - Lot 6 Banksia Road, Lot 300and 301 Boomerang Road, Oldbury. DEC Ref A503350

DEC (2012d) Threatened Ecological Community (TEC) and hydrology advice for CPS 4935/1 - Rocla Pty Ltd - Lot 6 Banksia Road, Lot 300 and 301 Boomerang Road, Oldbury. DEC ref A502456

Del Marco A and Penna A (2007) Shire of Serpentine-Jarrahdale Local Biodiversity Strategy, Stage One: Draft Public draft Strategy, A consultant's report to the Shire, Perth.

Department of Water (2012) Advice for CPS 4935/1 - Rocla Pty Ltd - Rocla Pty Ltd - Lot 6 Banksia Road, Lot 300and 301 Boomerang Road, Oldbury. DEC Ref A489945

DMP (2011) Regionally Significant Basic Raw materials - Swan Coastal Plain and Adjoining Areas. Geological Survey of Western Australia. Department of Mines and Petroleum. 22 December 2011. DER ref: A537465

DMP (2012) Regionally Significant Basic Raw Materials Fremantle – Jarrahdale Map. Resource potential for land use planning. Geological Survey of Western Australia. 29 June 2012.

DotE (2015) SPRAT species Profile, Merops ornatus' Rainbow Bee-eater. Accessed at http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl taxon_id=670. Accessed January 2015.

EPA (2006) Guidance for the Assessment of Environmental Factors - Level of Assessment for Proposals Affecting Natural Areas Within the System 6 Region and Swan Coastal Plain Portion of the System 1 Region. Guidance Statement No 10. Environmental Protection Authority, Western Australia.

GHD (2006) Flora and Fauna Assessment Report for the Lot 6 Banksia Road, Oldbury, unpublished report prepared for Peter Piercy.

Government of Western Australia (2000) Bush Forever Volumes 1 and 2. Western Australian Planning Commission, Perth WA.

Government of Western Australia (2014) 2014 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2014. WA Department of Parks and Wildlife, Perth.

Heddle, E. M., Loneragan, O. W., and Havel, J. J. (1980) Vegetation Complexes of the Darling System, Western Australia. In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Minister for Environment (2010) Minister's Appeal Determination. Appeal against refusal to grant clearing permit 2757/1 - Lot 6 Banksia Road and Lots 300 and 301 Boomerang Road, Oldbury, Shire of Serpentine - Jarrahdale.

Molloy, S, Wood, J, Hall, S, Wallrodt, S and Whisson G (2009) South Western Regional Ecological Linkages Technical report, Western Australian Local Government Association and Department of Environment and Conservation, Perth.

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.

Parks and Wildlife (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: http://naturemap.dpaw.wa.gov.au/. Accessed 14 March 2016

Parks and Wildlife (2015) 2015 South West Forest and Swan Coastal Plain Vegetation Complex Statistics: a report prepared for the Department of Environment Regulation. Current as of March 2015. Department of Parks and Wildlife, Perth, Western Australia.

Rocla (2016) Boomerang Road Oldbury - Site Restoration Management Plan. March 2016 (V1b). DER ref: A1075774

Rocla and Hanson (2015) Transfer of Clearing Permits Associated with Sale of Business. 11 July 2015. DER ref: A1021058

RPS (2011a) Rocla Tree Surveys for Lot 6 Banksia Road, and Lots 300and 301 Boomerang Road, Oldbury. Prepared for Rocla Quarry Products. DEC ref A482574

RPS (2011b) Groundwater Modelling Assessment Lot 6 Banksia Road, and Lots 300and 301 Boomerang Road, Oldbury. Prepared for Rocla Quarry Products. Version Rev 1, October 2011. DEC ref A488243

RPS (2012a) Level 1 Flora and Vegetation Survey Lots 6, 300 and 301 Boomerang Road, Oldbury, prepared by RPS Environment and Planning Pty Ltd for Rocla Quarry Products

RPS (2016) Groundwater Profile modelling. Lot 6 Banksia Road and Lots 300 and 301 Boomerang Road, Oldbury. RPS Environment and Planning Pty Ltd. Rev 2. March 2016.

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

Shire of Serpentine - Jarrahdale (2012) Direct Interest Submission for CPS 4935/1 - Rocla Pty Ltd - Lot 6 Banksia Road, and

Lots 300and 301 Boomerang Road, Oldbury. DEC ref A502913
Shire of Serpentine Jarrahdale (2014) Banksia Road #194 (L6), Boomerang Road #391 (L300) and Boomerang Road, Oldbury #375 (L301) - Extractive Industry (Sand). DER ref: A920542
Submission (2012) Direct Interest Submission for CPS 4935/1 - Rocla Pty Ltd - Lot 6 Banksia Road, Lot 300 and 301 Boomerang Road, Oldbury. DEC ref A493327
WAPC (2000) Statement of Planning Policy No 2.4 Basic Raw Materials. Western Australian Planning Commission, Perth Western Australia.
WAPC (2014) Section 31 reconsideration of deemed refusal. Lot 6 Banksia road 7 Lots 300 & 301 Boomerang road, Oldbury. Western Australian Planning Commission. 26 March 2014. DER ref: A747318