



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: 6861/1
File Number: DER2015/002816
Duration of Permit: From 2 April 2016 to 2 April 2018

PERMIT HOLDER

Peter Colin Ansell
Beverley Dawn Ansell

LAND ON WHICH CLEARING IS TO BE DONE

Lot 1892 on Deposited Plan 115764, Neergabby

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 2.76 hectares of native vegetation within the area cross hatched yellow on attached Plan 6861/1.

CONDITIONS

1. Dieback and weed control

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

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

DEFINITIONS

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

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

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

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

weed/s means any plant -

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

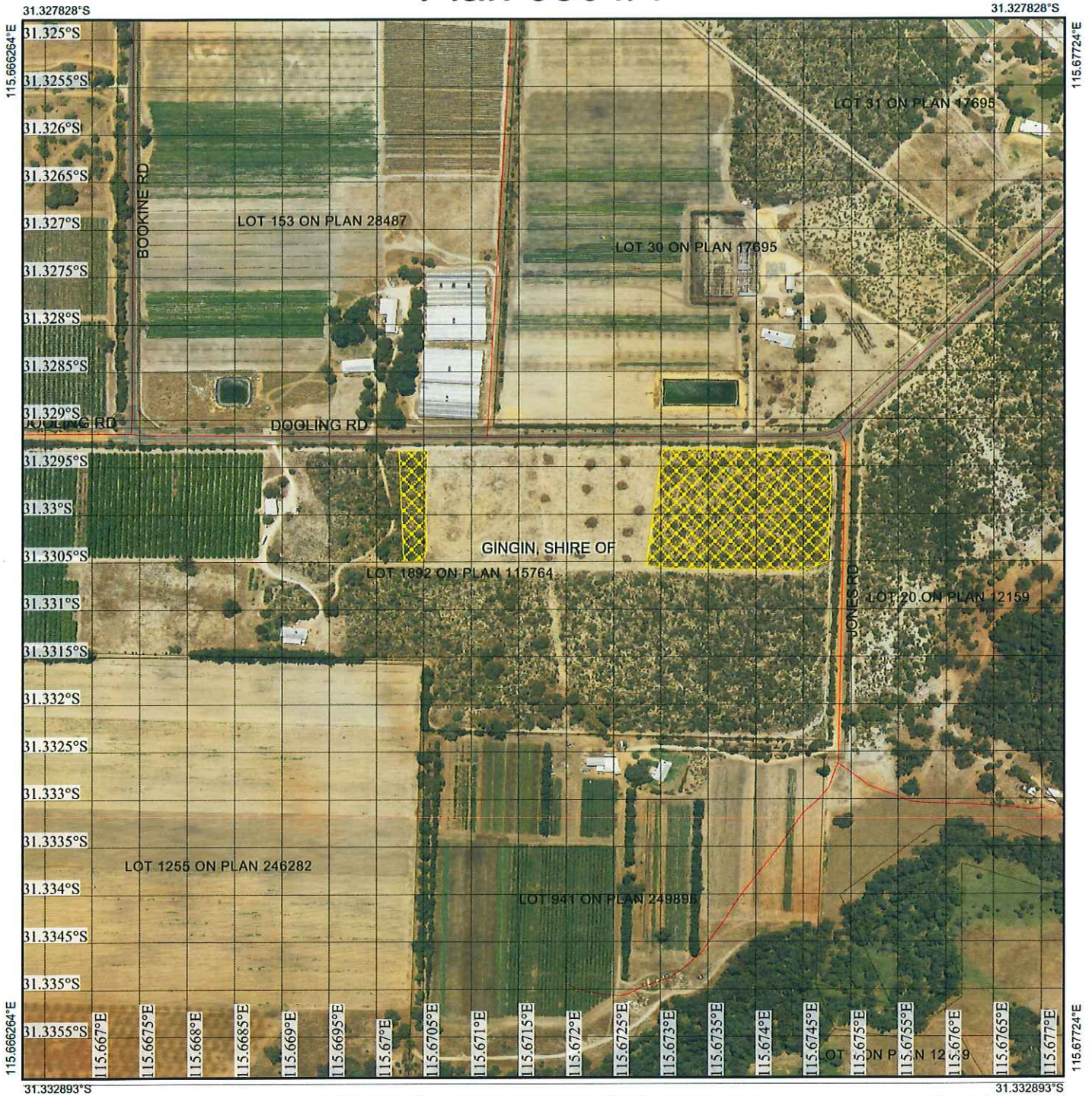
A handwritten signature in blue ink, appearing to read "J Widenbar".

James Widenbar
MANAGER
CLEARING REGULATION

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

3 March 2016

Plan 6861/1



Legend

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



1:5,534

(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

James Widenbar Date *3/3/2016*
James Widenbar

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



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1. Application details

1.1. Permit application details

Permit application No.: 6861/1
Permit type: Area Permit

1.2. Applicant details

Applicant's name: Mrs Beverley Dawn Ansell
Mr Peter Colin Ansell

1.3. Property details

Property: LOT 1892 ON PLAN 115764, NEERGABBY
Local Government Authority: GINGIN, SHIRE OF
DER Region: Greater Swan
DPaW District: SWAN COASTAL
Localities: NEERGABBY

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
2.76		Mechanical Removal	Horticulture

1.5. Decision on application

Decision on Permit Application: Granted

Decision Date: 25 February 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, and has concluded that the proposed clearing is at variance to principle (b), may be at variance to principles (a) and (h) and is not likely to be at variance to the remaining clearing principles.

Through assessment it has been determined that the clearing will lead to the loss of 2.76 hectares of native vegetation in very good (Keighery, 1994) condition that provides suitable habitat for ground dwelling indigenous fauna and contributes towards an east west ecological linkage that connects conservation areas.

A previous clearing permit to clear five hectares of native vegetation (CPS 5598/1), which included the current application area was issued to the applicant on 11 July 2013, expiring on 10 August 2015. The permit has now expired and 2.76 hectares of the area approved to clear under CPS 5598/1 remains, hence the current application. To offset residual impacts identified during the assessment of CPS 5598/1, the applicant was required to place a conservation covenant over an adjacent area of remnant vegetation (9.5 hectares) that was in the same or better condition as the clearing area. This covenant has since been finalised. Given this, the environmental impacts identified above have been accounted for and do not require further offsetting.

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 1008 is described as medium open woodland of marri (Shepherd et al., 2001).	The applicant proposes to clear 2.76 hectares of native vegetation within Lot 1892 on Deposited Plan 115764, Neergabby, for the purpose of expanding an existing citrus orchard.	Very Good; Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).	The condition of the vegetation was determined via a site inspection conducted by the former Department of Environment and Conservation (DEC, 2013). The application area is dominated by four species; <i>Banksia attenuata</i> , <i>Eucalyptus todtiana</i> , <i>Xanthorrhoea preissii</i> and <i>Mesomelaena</i> sp. Other species identified include; <i>Nuytsia floribunda</i> , <i>Macrozamia</i> sp., <i>Allocasuarina</i> sp. and <i>Banksia grandis</i> . The <i>Banksia</i> sp. were in a very poor condition.
Beard vegetation association 1014 is described as mosaic of low woodland of banksia and shrublands of teatree thicket (Shepherd et al., 2001).			The application area is very open with little groundcover. Weeds were few and only observed close to fire breaks around the boundary of the property. (DEC, 2013).
Heddle vegetation Karrakatta Complex-North is comprised of low open forest and low woodland of Banksia species and			

Eucalyptus tottiana, and less consistently open forest of Eucalyptus gomphocephala, Eucalyptus tottiana (Pricklybark) and Banksia species (Hedde et al., 1980).

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 may be at variance to this Principle

The applicant proposes to clear 2.76 hectares of native vegetation within Lot 1892 on Deposited Plan 115764, Neergabby, for the purpose of expanding an existing citrus orchard. The application area is in a very good (Keighery, 1994) condition and is dominated by four species, being; *Banksia attenuata*, *Eucalyptus tottiana*, *Xanthorrhoea preissii* and *Mesomelaena* sp. (DEC, 2013) Other species observed in small numbers include; *Nuytsia floribunda*, *Macrozamia* sp., *Allocasuarina* sp., and *Banksia grandis* (DEC, 2013). The *Banksia* species on site were in a very poor condition (DEC, 2013).

The closest priority ecological community (PEC) to the application area is located approximately three kilometres south east and is known as 'Swan Coastal Plain *Banksia attenuata* - *Banksia menziesii* woodlands'. This priority 3 classified PEC extends from Melaleuca Park to the Gingin area. This community largely occurs on the Bassendean landform unit. The area under application is located on a different soil type, being the northern Karrakatta soil unit (DEC, 2011), therefore the proposed clearing is not likely to impact on this community.

One priority flora species and one rare flora species have been recorded within five kilometres of the application area. The priority flora species (priority 1) is an erect, robust shrub that grows to four metres high. This species grows amongst medium trees, or low trees in sand, loam, or clay occupying winter wet flats (Western Australian Herbarium, 1998-). The application area occupies the upper slope positions in the landscape and is not considered a winter wet flat (DEC, 2013), therefore the proposed clearing is not likely to impact on this species. The rare flora species is a tuberous perennial herb that grows from 0.12 to 0.3 metres high and grows on white or grey sand within low lying areas adjoining winter-wet swamps (Western Australian Herbarium, 1998-). As noted above, the application area occupies the upper positions in the landscape (CSLC, 2012) and is not likely to provide suitable habitat for this species.

There are eight conservation significant fauna species recorded within ten kilometres of the application area (Parks and Wildlife, 2007-). Of these species, the vegetation under application contains suitable habitat for Carnaby's cockatoo (*Calyptorhynchus latirostris*) listed as rare or likely to become extinct under the *Wildlife Conservation Act 1950*, western brush wallaby (*Macropus irma*), classified as Priority 4 by the Department of Parks and Wildlife (Parks and Wildlife), and quenda (*Isodon obesulus fusciventer*) classified as Priority 5 by Parks and Wildlife.

The application area contains banksia woodland, which is considered the preferred foraging habitat of Carnaby's cockatoo, however the banksias are in a very poor condition and are not producing new cones (DEC, 2013). Therefore the application area is not likely to provide significant foraging habitat for Carnaby's cockatoo. The application area does however provide suitable habitat for ground dwelling fauna such as the western brush wallaby and quenda, and this habitat may be significant for these species.

The application area is located approximately 300 metres north of Gingin Brook. This watercourse is mapped as a conservation category wetland which provides a significant east west ecological linkage. The vegetation under application contributes to this linkage and is likely to be utilised by fauna as they move across the local landscape.

The disturbance caused by the proposed clearing will increase the risk of weeds and dieback spreading or being introduced into the adjacent covenant area. Weed and dieback management practices will assist to minimise this risk.

The application area is in very good (Keighery, 1994) condition, provides suitable habitat for conservation significant fauna and supports an ecological linkage. Therefore, the proposed clearing may be at variance to this principle.

A previous clearing permit to clear five hectares of native vegetation (CPS 5598/1), which included the current application area was issued to the applicant on 11 July 2013, expiring on 10 August 2015. The permit has now expired and 2.76 hectares of the area approved to clear under CPS 5598/1 remains, hence the current application. To offset the residual impacts identified during the assessment of CPS 5598/1, the applicant was required to place a conservation covenant over an adjacent area of remnant vegetation (9.5 hectares) that was in the same or better condition as the clearing area. This covenant has since been finalised. Given this, the environmental impacts identified above have been accounted for and do not require further offsetting.

Methodology

References:
CSLC (2012)
DEC (2011)

DEC (2013)
Keighery (1994)
Parks and Wildlife (2007-)
Western Australian Herbarium (1998-)

GIS Databases:
Hydrography, hierarchy
SAC Bio Datasets (accessed February 2016)
Geomorphic Wetlands, Swan Coastal Plain

(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

There are eight conservation significant fauna species recorded within ten kilometres of the application area (Parks and Wildlife, 2007-). Of these species, the vegetation under application contains suitable habitat for Carnaby's cockatoo (*Calyptorhynchus latirostris*) listed as rare or likely to become extinct under the *Wildlife Conservation Act 1950*, western brush wallaby (*Macropus irma*), classified as Priority 4 by the Department of Parks and Wildlife (Parks and Wildlife), and quenda (*Isodon obesulus fusciventer*) classified as Priority 5 by Parks and Wildlife.

Carnaby's cockatoo nests in large hollows of eucalyptus trees and forage on the seeds, nuts and flowers of a large variety of plants including Proteaceous species (*Banksia*, *Hakea*, *Grevillea*), as well as *Allocasuarina* and *Eucalyptus* species, *Corymbia calophylla* and a range of introduced species, especially seeds from cones of *Pinus* species (Shah, 2006; Valentine and Stock, 2008).

Carnaby's cockatoo was once abundant in Western Australia. Since the late 1940s the species has suffered a 30 per cent contraction in range, a 50 per cent decline in population, and between 1968 and 1990 disappeared from more than a third of its breeding range (Saunders 1990; Johnstone and Storr 1998; Saunders and Ingram 1998; Garnett et al. 2011). Basic ecological theory, expert opinion and recent evidence, suggests that the remaining native and pine plantation foraging habitat on the Swan Coastal Plain is just sufficient to support the current population of Carnaby's cockatoo. Therefore any reduction in the amount of food source will result in a reduction in the carrying capacity of the region and therefore a decline in the population of Carnaby's cockatoo.

Although the application area contains banksia woodland, which is considered to be the preferred foraging habitat of Carnaby's cockatoo (Shah, 2006), the banksias under application are in very poor condition and no new cones were observed (DEC, 2013). The applicant advised that since obtaining the property in 2007, no new cones have been identified within the application area. There was no Carnaby's cockatoo foraging evidence identified within the application area (DEC, 2013).

There were no large habitat trees (diameter at breast height of greater than 500 millimetres) identified within the application area (DEC, 2013); therefore the proposed clearing is not likely to impact on Carnaby's cockatoo breeding habitat.

The application area is located approximately 300 metres north of Gingin Brook. This watercourse is mapped as a conservation category wetland which provides a significant east west ecological linkage. The vegetation under application contributes towards this linkage and is likely to be utilised by fauna moving across the landscape. Whilst the proposed clearing will not sever the linkage, it may reduce its effectiveness and result in fauna dispersal limitations.

The application area provides suitable habitat for indigenous ground dwelling fauna such as quenda and western brush wallaby and supports an east west ecological linkage. Therefore the proposed clearing is at variance to this principle.

A previous clearing permit to clear five hectares of native vegetation (CPS 5598/1), which included the current application area was issued to the applicant on 11 July 2013, expiring on 10 August 2015. To offset the residual impacts identified during the assessment of CPS 5598/1, the applicant was required to place a conservation covenant over an adjacent area of remnant vegetation (9.5 hectares) that was in the same or better condition as the clearing area. This covenant has since been finalised. Given this, the environmental impacts identified above have been accounted for and do not require further offsetting.

Methodology

References:
Garnett et al (2011)
Johnstone and Storr (1998)
Keighery (1994)
Parks and Wildlife (2007-)
Saunders (1990)
Saunders and Ingram (1998)
Shah (2006)
Valentine and Stock (1998)
GIS Databases:
Hydrography, hierarchy

(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

One species of rare flora has been recorded within five kilometres of the application area. This species is a tuberous perennial herb that grows from 0.12 to 0.3 metres high on white or grey sand within low lying areas adjoining winter-wet swamps (Western Australian Herbarium, 1998-).

The application area occupies the upper positions in the landscape (CSLC, 2012), and given that no wetlands or watercourses were identified within the application area (DEC, 2013), the proposed clearing is not likely to impact on this species.

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

Methodology

References:

CSLC (2012)

DER (2013)

Western Australian Herbarium (1998-)

GIS Databases:

SAC Bio Datasets (accessed February 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 is not likely to be at variance to this Principle

The closest threatened ecological community (TEC) to the application area is known as Melaleuca huegelii - Melaleuca acerosa shrublands on limestone ridges (Floristic Community Type SCP 26a).

The application area does not contain Melaleuca species or limestone ridges (DEC, 2013) and is therefore not likely to be representative of this TEC.

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

Methodology

References:

DEC (2013)

GIS Databases:

SAC Bio Datasets (Accessed February 2016)

(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 not likely to be at variance to this Principle

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

The application area is mapped as Beard vegetation associations (BVA) 1014 and 1008. These vegetation associations retain approximately 55 and 25 per cent of their pre-European vegetation extents within the Swan Coastal Plain bioregion respectively (Government of Western Australia, 2014). The application area is also mapped as Hedde vegetation complex Karrakatta Complex-North, which retains approximately 45 per cent of its pre-European vegetation extent (Parks and Wildlife, 2015).

Aerial imagery indicates that the local area (10 kilometre radius) surrounding the application retains approximately 60 per cent 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). One of the vegetation associations mapped within the application area (BVA 1008) retains less than the 30 per cent threshold, however BVA 1008 is described as "medium open woodland of mallee" (Shepherd et al., 2001), which is not consistent with the vegetation identified within the application area (DEC, 2013). Therefore the application area is not representative of BVA 1008.

The application area is considered to be a significant remnant as it provides habitat for conservation significant fauna and contributes towards an ecological linkage, however, given that the other mapped vegetation types within the application area, and vegetation extents within Shire of Gingin and Swan Coastal Plain all retain greater than the 30 per cent vegetation retention threshold, the application area is not considered to be within an extensively cleared area.

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

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks and Wildlife Managed Lands (%)
IBRA Bioregion*				
Swan Coastal Plain	1,501,222	580,697	39	37
Shire*				
Gingin, Shire of	319,676	176,709	55	47
Beard Vegetation Association in Bioregion*				
1014	41,064	22,759	55	54
1008	4,561	1,138	25	0
Heddle Vegetation Complex **				
Karrakatta complex-north: low open forest and low woodland	44,273	20,001	45	28

Methodology References:
Commonwealth of Australia (2001)
DEC (2013)
Government of Western Australia (2014)
Heddie et al. (1980)
Parks and Wildlife (2015)
Shepherd et al. (2001)

(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**
The closest mapped watercourse to the application area is Gingin Brook, which is located approximately 300 metres south east of the application area.

No wetlands or watercourses were identified within the application area during a site inspection (DEC, 2013). Therefore the proposed clearing is not likely to be at variance to this principle.

Methodology References:
DEC (2013)

GIS Databases:
Hydrography, linear

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

Comments **Proposed clearing is not likely to be at variance to this Principle**
A land degradation assessment undertaken within a larger five hectare area encompassing the application area identified that the application area occupies the upper slope positions in the landscape and is mapped as Spearwood, Phase 5 and 6, Map Unit 211Sp_5 and 6 (CSLC, 2012). This map unit is comprised of pale brown to light grey sand to 90 centimetres depth overlying brown to yellow sand to weak clayey sand and light grey sand to a depth of between 90 and 150 centimetres, overlying pale yellow sand (CSLC, 2012).

The land degradation assessment identified that the risk of salinity, water erosion, waterlogging and flooding causing land degradation is low (CSLC, 2012).

Whilst sandy soils are generally prone to wind erosion, the risk of wind erosion is also considered to be low, given the relatively small area of clearing proposed (2.76 hectares) and assuming that good management practices immediately post clearing are undertaken, prior to the initial stages of orchid establishment (CSLC, 2012).

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

Methodology References:
CSLC (2012)

(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**
The closest conservation reserve to the application area is Gngangara Moore River State Forest which at its closest point is located approximately 1.8 kilometres south east of the application area.

The application area is located approximately 300 metres north of Gingin Brook. This watercourse is mapped as a conservation category wetland which provides a significant east west ecological linkage. The vegetation under application contributes towards this linkage and is likely to be utilised by fauna moving across the landscape. Whilst the proposed clearing will not sever the linkage, it may reduce its effectiveness and result in fauna dispersal limitations within the landscape and between conservation areas.

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

A previous clearing permit to clear five hectares of native vegetation (CPS 5598/1), which included the current application area was issued to the applicant on 11 July 2013, expiring on 10 August 2015. To offset the residual impacts identified during the assessment of CPS 5598/1, the applicant was required to place a conservation covenant over an adjacent area of remnant vegetation (9.5 hectares) that was in the same or better condition to the clearing area. This covenant has since been finalised. Given this, the environmental impacts identified above have been accounted for and do not require further offsetting.

Methodology GIS Databases:
Parks and Wildlife Tenure
Hydrography, hierarchy
Geomorphic Wetlands, Swan Coastal Plain

(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 is not likely to be at variance to this Principle

The closest mapped wetland or watercourse to the application area is Gingin Brook, which is located approximately 300 metres south east. No watercourses or wetlands were identified during a site inspection of the application area (DEC, 2013), therefore the proposed clearing is not likely to impact upon surface water.

The soils mapped within the application area are described as pale brown to light grey sand to 90 centimetres depth overlying brown to yellow sand to weak clayey sand and light grey sand to a depth of between 90 and 150 centimetres, overlying pale yellow sand (CSLC, 2012). A land degradation assessment of the application area identified that given the soils present, it is unlikely that eutrophication of Gingin Brook will result from the proposed clearing (CSLC, 2012).

The groundwater salinity within the application area is mapped at between 500 and 1000 milligrams per litre total dissolved solids. This level of groundwater salinity is considered to be marginal. The land degradation assessment identified that the proposed clearing is not expected to alter salinity levels (CSLC, 2012).

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

Methodology References:
CSLC (2012)
DEC (2013)

(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 is not likely to be at variance to this Principle

Given the porous nature of the sandy soils within the application area (CSLC, 2012) and the relatively moderate annual rainfall of the landscape (800 millimetres per annum), the proposed clearing is not likely to cause or exacerbate the incidence or intensity of flooding.

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

Methodology References:
CSLC (2012)

GIS Databases:
Rainfall, Mean Annual

Planning instruments and other relevant matters.

Comments A previous permit to clear five hectares of native vegetation (CPS 5598/1), which included the current application area, was issued to the applicant on 11 July 2013, expiring on 10 August 2015. The permit has now expired and 2.76 hectares of the area approved to clear under CPS 5598/1 remains uncleared, hence the applicant has submitted the current application.

To offset the residual impacts identified during the assessment of CPS 5598/1, the applicant was required to place a conservation covenant over an adjacent area of remnant vegetation (9.5 hectares) that was in the same or better condition as the clearing area. This covenant has since been finalised and an Agreement to Reserve has been registered on the Certificate of Title.

The area under application is zoned 'rural' under the Town Planning Scheme.

The Shire of Gingin initially issued the applicant with planning approval for irrigated horticulture on 27 June 2011 for a period of two years (Shire of Gingin, 2011). The Shire provided an extension to this approval on 2 July 2013, and has advised that the proposed clearing to be undertaken forms part of the planning approval and has not lapsed as the applicant has substantially commenced works.

The area under application is within the Gingin Groundwater Area which is an area proclaimed under the Rights in Water and Irrigation Act 1914. The applicant currently holds a Licence to Take Water. This licence allows for the irrigation of up to 12 hectares of orchard.

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

Methodology References:
Shire of Gingin (2011)
Shire of Gingin (2016)

GIS Databases:
Town Planning Scheme Zones

4. References

- CSLC (2012) Land Degradation Advice and Assessment Report for clearing permit application CPS 5066/1 received 25 June 2012; Commissioner of Soil and Land Conservation, Department of Agriculture and Food WA (Ref DER Ref A517091).
- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- DEC (2011) Species and Communities Branch advice in relation to Priority Ecological Communities. Department of Environment and Conservation, Western Australia (DEC Ref: A370547).
- DEC (2013) Site Inspection Report for Clearing Permit Application CPS 5598/1, Lot 1892 Dooling Road, Neergabby. Site inspection undertaken 6 June 2013. Department of Environment and Conservation, Western Australia (DEC Ref: A643807).
- Garnett, S., Szabo, J. and Dutson, G. (2011). The Action Plan for Australian Birds 2010. CSIRO Publishing, Melbourne.
- 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.
- Hedde, 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.
- Johnstone, R.E. and Storr, G.M. (1998). Handbook of Western Australian Birds, Volume I, Non-passerines (Emu to Dollarbird). Western Australian Museum, Perth.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
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- Parks and Wildlife (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.
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- Shah, B. (2006) Conservation of Carnaby's Black-Cockatoo on the Swan Coastal Plain, Western Australia. December 2006. Carnaby's Black-Cockatoo Recovery Project. Birds Australia, Western Australia.
- 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 Gingin (2011) Direct Interest Submission to Clearing Permit Application CPS 5066/1. DER Ref A515083.
- Shire of Gingin (2016) Direct Interest Submission to Clearing Permit Application CPS 6861/1. DER Ref A1052343.
- Valentine, L.E. and Stock, W. (2008) Food Resources of Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) in the Gnamptara Sustainability Strategy Study Area. Edith Cowan University and Department of Environment and Conservation. December 2008.
- Western Australian Herbarium (1998-) FloraBase - The Western Australian Flora. Department of Parks and Wildlife. <http://florabase.dpaw.wa.gov.au/> (Accessed February 2016).