



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 6851/1
Permit Holder:	Shire of Northam
Duration of Permit:	19 March 2016 – 19 March 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 shoulder widening and drainage infrastructure maintenance.

2. Land on which clearing is to be done

Werribee Road reserve (PINs: 1292209, 1292208, 1292204 and 1292203), Wundowie

Hawke Avenue road reserve (PIN: 1292202), Wundowie

Spencers Brook Road reserve (PINs: 11618905, 11618903, 11618901 and 11418083), Northam and Muluckine

Lot 28955 on Deposited Plan 217150, Clackline

Carter Road reserve (PIN: 11589036), Throssell

Clydesdale Road reserve (PINs: 11469200, 11469203, 11469202 and 11469204), Malabaine and Grass Valley

Southern Brooke Road reserve (PIN: 11437527), Malabaine

Jennapullin Road reserve (PINs: 11441249 and 11441251), Jennapullin and Southern Brook

3. Area of Clearing

The Permit Holder must not clear more than five hectares of native vegetation within the combined areas hatched yellow on attached Plan 6851/1a, Plan 6851/1b, Plan 6851/1c, Plan 6851/1d and Plan 6851/1e.

4. Application

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

5. Type of clearing authorised

This Permit authorises the Permit Holder to clear native vegetation for the activities described in condition 1 of this Permit to the extent that the Permit Holder has the power to carry out works involving clearing for those activities under the *Local Government Act 1995* or any other written law.

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.



James Widenbar
A/SENIOR MANAGER
CLEARING REGULATION

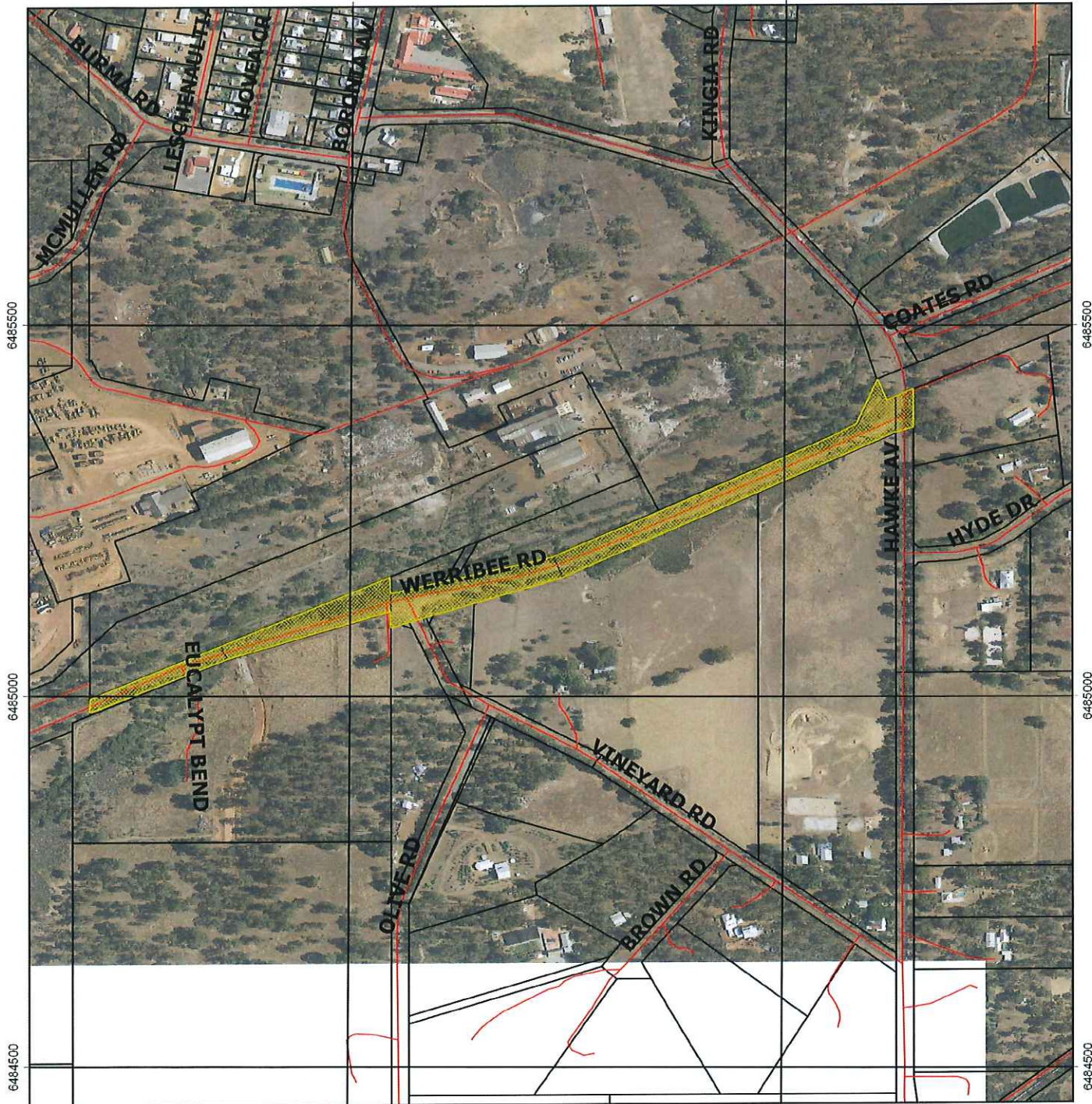
*Officer delegated under Section 20
of the Environmental Protection Act 1986*

18 February 2016

Plan 6851/1a

441500

442000



441500

442000

Legend

-  Areas approved to clear
 -  Roads
 -  Cadastre
- Virtual Mosaic (LGATE-V001)



1:4,949

MGA 94
Geocentric Datum of Australia 1994

 Date 18/2/2016
James Widenbar

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



GOVERNMENT OF
WESTERN AUSTRALIA

Plan 6851/1b



Legend

-  Areas approved to clear
 -  Roads
 -  Cadastre
- Virtual Mosaic (LGATE-V001)



1:14,131

MGA 94
Geocentric Datum of Australia 1994

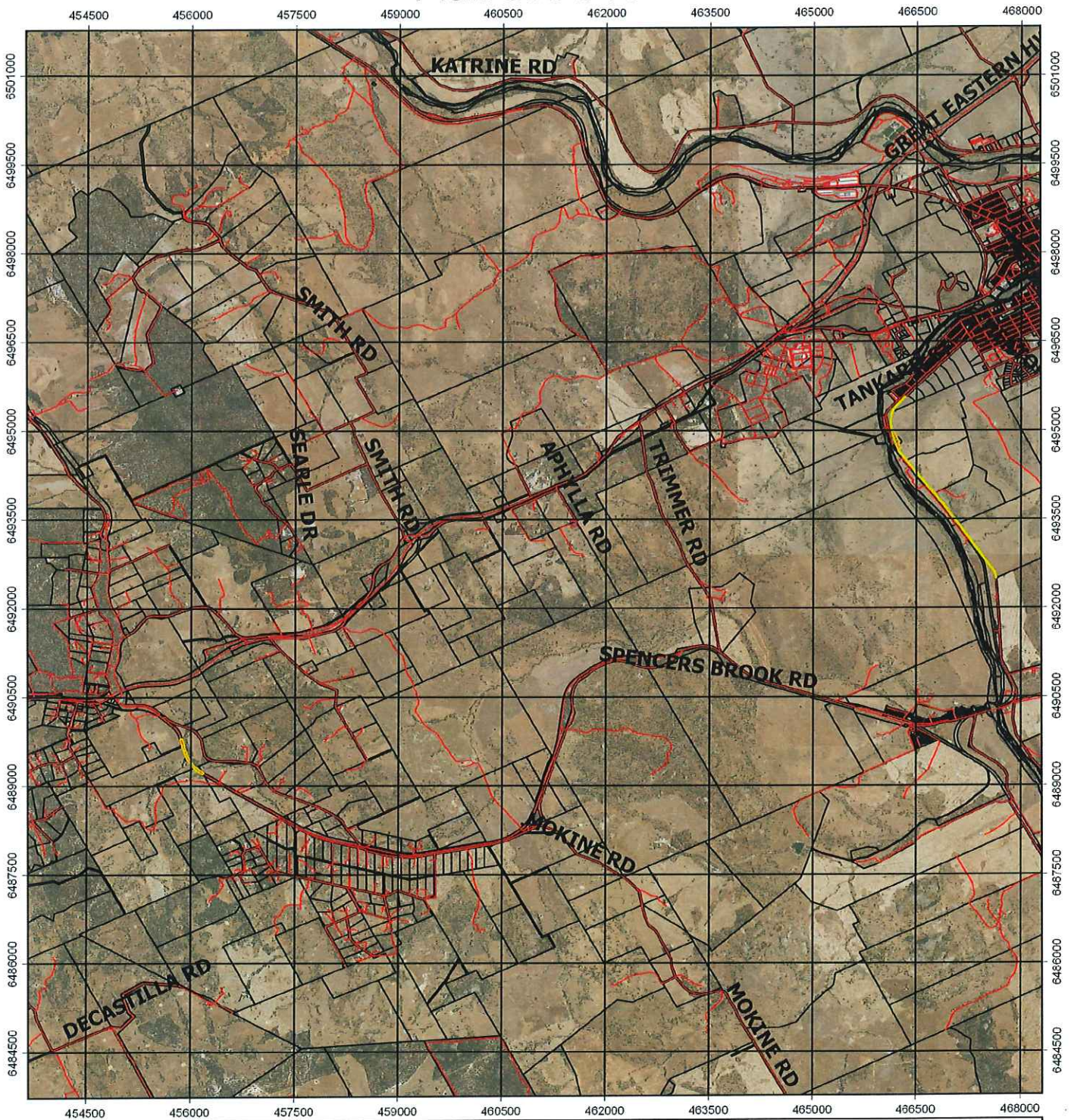
 Date 18/2/2016
James Widenbar

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



GOVERNMENT OF
WESTERN AUSTRALIA

Plan 6851/1c



Legend

-  Areas approved to clear
 -  Roads
 -  Cadastre
- Virtual Mosaic (LGATE-V001)



1:60,399

MGA 94
Geocentric Datum of Australia 1994

 Date 18/12/2016
James Widenbar

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



GOVERNMENT OF
WESTERN AUSTRALIA

Plan 6851/1d



Legend

 Areas approved to clear

 Roads

 Cadastre

Virtual Mosaic (LGATE-V001)



1:28,759

MGA 94
Geocentric Datum of Australia 1994

 Date: 18/12/2016
James Widenbar

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

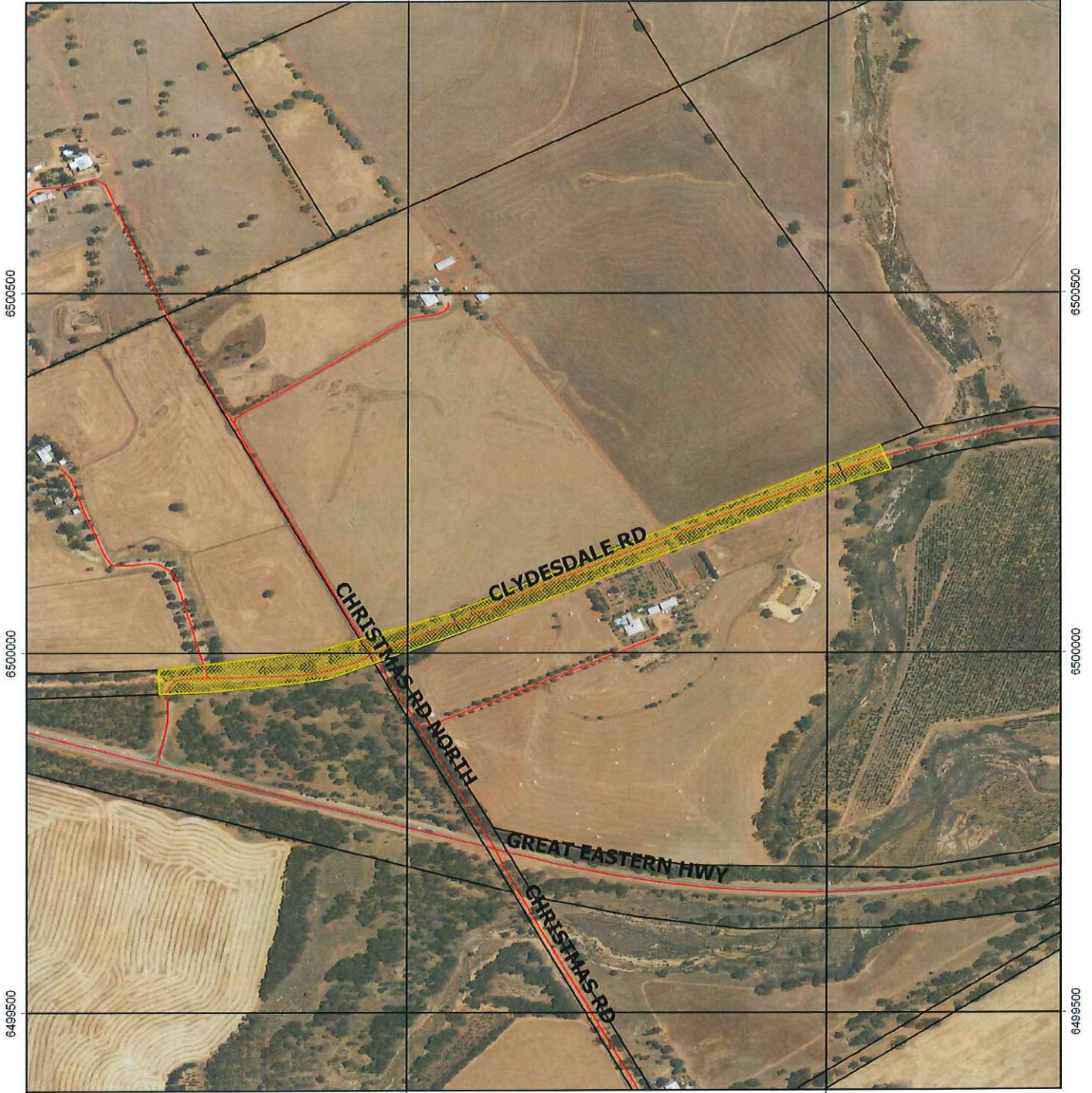


GOVERNMENT OF
WESTERN AUSTRALIA

Plan 6851/1e

476500

477000



Legend

 Areas approved to clear

 Roads

 Cadastre

Virtual Mosaic (LGATE-V001)



1:5,069

MGA 94
Geocentric Datum of Australia 1994

 Date: 18/2/2016
James Widenbar

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



GOVERNMENT OF
WESTERN AUSTRALIA



1. Application details

1.1. Permit application details

Permit application No.: 6851/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Shire of Northam

1.3. Property details

Property: LOT 28955 ON PLAN 217150, CLACKLINE ROAD RESERVE - 11441249, SOUTHERN BROOK ROAD RESERVE - 11469204, GRASS VALLEY ROAD RESERVE - 11441251, JENNAPULLIN ROAD RESERVE - 11469202, MALABAIN ROAD RESERVE - 11469203, MALABAIN ROAD RESERVE - 11589036, THROSSELL ROAD RESERVE - 11469200, MALABAIN ROAD RESERVE - 11437527, MALABAIN ROAD RESERVE - 11618901, MULUCKINE ROAD RESERVE - 11618903, MULUCKINE ROAD RESERVE - 11418083, NORTHAM ROAD RESERVE - 11618905, MULUCKINE ROAD RESERVE - 1292202, WUNDOWIE ROAD RESERVE - 1292203, WUNDOWIE ROAD RESERVE - 1292204, WUNDOWIE ROAD RESERVE - 1292208, WUNDOWIE ROAD RESERVE - 1292209, WUNDOWIE

Local Government Authority: NORTHAM, SHIRE OF
Localities: GRASS VALLEY and MULUCKINE and NORTHAM and THROSSELL and SOUTHERN BROOK and JENNAPULLIN and MALABAIN and WUNDOWIE and CLACKLINE

1.4. Application

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

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 18 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 it has been concluded that the proposed clearing is at variance to Principle (f) and is not likely to be at variance to any of the remaining clearing principles.

A number of watercourses intersect the areas under application. The purpose of the proposed clearing is for shoulder widening of roads and maintenance of drainage infrastructure and therefore there is likely to be road side infrastructure, such as drains and culverts, already in place to minimise impacts to these watercourses.

Through assessment it has been determined that the clearing is unlikely to have any significant environmental impacts. State policies and other relevant policies have been taken into consideration in the decision to grant a clearing permit.

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 vegetation under application is mapped as: Mattiske vegetation complex Mi consists of mixture of woodland of Eucalyptus rudis-Melaleuca	The application is to clear five hectares of native vegetation within various road reserves in the Shire of Northam for the purpose of shoulder widening and	Degraded; Structure severely disturbed; regeneration to good condition requires intensive management (Keighery 1994).	The condition and description of the vegetation under application was determined by a site inspection undertaken by the Department of Environment Regulation (DER 2016).

rhaphiophylla, low forest of Casuarina obesa and tall shrubland of Melaleuca spp. on major valley systems in arid and perarid zones (Mattiske and Havel 1998).

Mattiske vegetation complex Wi consists of open woodland of Eucalyptus wandoo over Acacia acuminata with some Eucalyptus loxophleba on valley slopes, with low woodland of Allocasuarina huegeliana on or near shallow granite outcrops in arid and perarid zones (Mattiske and Havel 1998).

Mattiske vegetation complex Pn consists of open forest of Eucalyptus marginata subsp. thalassica-Corymbia calophylla on slopes and open woodland of Eucalyptus wandoo with some Eucalyptus patens on the lower slopes in semiarid and arid zones (Mattiske and Havel 1998).

Beard vegetation association 1049 is described as medium woodland; wandoo, York gum, salmon gum, morrel & gimlet (Shepherd et al 2001).

Beard vegetation association 3003 is described as medium forest; jarrah & marri on laterite with wandoo in valleys, sandy swamps with teatree and Banksia (Shepherd et al 2001).

Beard vegetation association 1006 is described as medium woodland; jarrah, wandoo & powderbark (Shepherd et al 2001).

Beard vegetation association 352 is described as medium woodland; York gum (Shepherd et al 2001).

maintaining drainage infrastructure.

To

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

The condition of the vegetation under application within all roads reserves is completely degraded to degraded (Keighery 1994).

Werribee Road reserve consists predominantly of Eucalyptus sp. and some kunzea with an understorey dominated by weeds. Some Xanthorrhoea sp. were present in patches along the road reserve (DER 2016).

Spencer Brooke Road (west) consists predominantly of weeds within the understorey and there was no distinct mid storey. The area consists of numerous large Eucalyptus species (DER 2016).

Spencer Brooke Road (east) consisted predominantly of Acacia sp. with a weedy understorey. There was a small path of sheoak, amongst Acacia sp. A few scattered large Eucalyptus sp. were identified along the road reserve (DER 2016).

Carter Road reserve consisted predominantly of Eucalyptus species with a weedy understorey. Some regeneration of native shrubs and sedges was observed. An area of sheoak was also identified within the area under application (DER 2016).

Clydesdale Road reserve predominantly consisted of Eucalyptus sp. with a weedy understorey (DER 2016).

Jennapullin Road reserve consisted of Eucalyptus salmonophloia and Eucalyptus sp with a weedy understorey. A small patch of Xanthorrhoea sp. was identified (DER 2016).

Southern Brooke Road reserve consisted predominantly of large Eucalyptus salmonophloia within the most eastern portion of the application area. The remainder of the area under application consisted of smaller Eucalyptus sp. The understorey consisted predominantly of weeds (DER 2016).

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 not likely to be at variance to this Principle

The application is to clear five hectares of native vegetation within various road reserves in the Shire of Northam for the purpose of shoulder widening and maintaining drainage infrastructure. The applicant has advised the shoulder widening will involve clearing approximately one metre either side of the road.

The vegetation under application within all road reserves was in a completely degraded to degraded (Keighery 1994) condition with predominantly weeds within the understorey (DER 2016).

Forty three priority flora species have been recorded within the local area (10 kilometre radius), of these 39 are listed as Priority 3 or Priority 4 flora species. Priority 3 species are known from several locations, and do not appear to be under imminent threat, and Priority 4 species are considered to have been adequately surveyed, and are considered not currently threatened or in need of special protection, but could be if present circumstances change. Given this and that the areas under application are in a completely degraded to degraded (Keighery 1994) condition, the clearing as proposed is not likely to have a significant impact on the conservation status of any of the Priority 3 or Priority 4 flora species recorded within the local area (10 kilometre radius).

One Priority 1 flora species has been recorded approximately 8.2 kilometres east of the area under application within Werribee road reserve. This species is found on peaty sand within swamps and slopes (Western Australia 1998-). Suitable habitat for this species was not identified within the areas under application (DER 2016).

Three Priority 2 flora species have been recorded within the local area (10 kilometre radius). The first Priority 2 species has been recorded approximately 2.3 kilometres south of the western area under application within Spencer Brook road reserve, this species is found on sandy soils within open low woodland and low forest and is associated with other native shrubs and sedges (Western Australian Herbarium 1998-).

The second Priority 2 flora species has been recorded approximately 2.5 kilometres north west of the western application area within Spencer Brooke Road reserve. This species is found on laterite, lateritic loam on hillsides amongst tall (sclerophyll) shrubland associated with other native shrubs (Western Australian Herbarium 1998). The areas under application are located within road reserves in a completely degraded to degraded (Keighery 1994) condition. The clearing as proposed is not likely to impact on the conservation status of these two priority flora species.

The third Priority 2 species has been recorded approximately 9.6 kilometres from the area under application within Werribee Road reserve (Western Australian Herbarium 1998-). This species has been found in low-lying damp areas, swamps. No damplands or swamps have been recorded within the area under application, therefore the clearing proposed is unlikely to impact this species.

Four rare flora species have been recorded within the local area (10 kilometre radius), suitable habitat is not likely to be located within the areas under application.

Additionally in October 2014, Ecoscape (2014) undertook a targeted search for conservation significant flora along both sides of Jennapullin and Southern Brook roads. No rare or priority flora were identified within the survey area of which a portion is within the application area.

The area under application is in a completely degraded to degraded (Keighery 1994) condition, does not comprise significant habitat for fauna or is likely to impact upon priority or rare flora species and therefore is not likely to comprise a high biological diversity.

The clearing as is not likely to be at variance to this Principle.

Methodology References:
DER (2016)
Ecoscape (2014)
Keighery (1994)
Western Australian Herbarium (1998-)

GIS Databases
SAC Bio Datasets – accessed December 2015

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

Nine fauna species listed as rare or likely to become extinct under the Wildlife Conservation Act 1950 have been recorded within the Shire of Northam, being: woylie (*Bettongia penicillata* subsp. *ogilbyi*), forest red-tailed black-cockatoo (*Calyptorhynchus banksii* subsp. *Naso*), Baudin's cockatoo (*Calyptorhynchus baudinii*), Carnaby's cockatoo (*Calyptorhynchus latirostris*), chuditch (*Dasyurus geoffroyi*), shield-backed trapdoor spider (*Idiosoma nigrum*), malleefowl (*Leipoa ocellata*), bilby (*Macrotis lagotis*), southern brush-tailed phascogale (*Phascogale tapoatafa* subsp. *tapoatafa*) (Parks and Wildlife 2007-).

Carnaby's cockatoo is listed as endangered and Baudin's cockatoo and forest red-tailed cockatoo are listed as vulnerable under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Black cockatoos breed in large hollow-bearing trees, generally within woodlands or forests or in isolated trees. These species nest in hollows in live or dead trees of karri, marri, wandoo, tuart, salmon gum, jarrah, flooded gum, York gum, powderbark, bullich and blackbutt.

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 area under application within Jennapullin Road reserve and the eastern portion of Southern Brooke Road reserve contain large salmon gums and Eucalyptus sp. that contain hollows. Although no hollows suitable for black cockatoo's were identified within these two road reserves (DER 2016), one large dead tree containing a hollow potentially large enough to be utilised for nesting by the black cockatoos was identified within Werribee Road reserve. However, this tree appeared to be impacted by white ants and therefore is not likely to be suitable for nesting by the black cockatoos (DER 2016).

Suitable foraging habitat for the black cockatoo species is located within the areas under application. However, the applicant has advised that clearing on either side of the road reserves will be to a maximum of one metre either side. The clearing proposed is likely to impact upon some foraging habitat, however vegetation will remain within the road reserves which also provides habitat for these species.

The area under application may provide potential nesting habitat and foraging habitat for the black cockatoo species, however given the five hectares of native vegetation occurs across seven road the clearing as proposed is not likely to contain significant habitat for these species.

The chuditch currently inhabit most kinds of wooded habitat within its current range including eucalypt forest (especially jarrah, dry woodland and mallee shrublands). In jarrah forest, chuditch populations occur in both moist, densely vegetated, steeply sloping forest and drier, open, gently sloping forest (Department of the Environment 2016a). Given the completely degraded to degraded (Keighery 1994) condition of the areas under application, significant habitat for this species is not likely to be impacted by the proposed clearing.

In the Wheatbelt, the shield-backed trapdoor spider typically inhabits clay soils whereas the arid Midwest populations are associated with rocky habitats, primarily in positions with increased moisture retention properties like gullies and drainage lines on southern facing slope. In the Wheatbelt, populations are associated with eucalypt woodland and acacia shrubland, and in the arid Midwest they are associated with acacia shrubland (Department of the Environment 2016b). Suitable habitat for this species is not likely to be located within the area under application.

The malleefowl occurs in semi-arid and arid zones of temperate Australia, where it occupies shrublands and low woodlands that are dominated by mallee vegetation. It also occurs in other habitat types including eucalypt or native pine woodlands, acacia shrublands, broombush, Melaleuca uncinata vegetation or coastal heathlands. The breeding habitat of the Malleefowl, within its home range, is characterised by light soil and an abundant leaf litter, which is used in the construction of nesting mounds (Department of the Environment 2016c). No malleefowl mounds were identified during a site inspection undertaken by DER (2016) and given the completely degraded to degraded (Keighery 1994) condition of the application area the clearing as proposed is not likely to comprise significant habitat for this species.

In southwest Western Australia brush-tailed phascogale has been observed in dry sclerophyll forests and open woodlands that contain hollow-bearing trees (Parks and Wildlife 2012). Suitable habitat for this species may be located within large eucalypts with small hollows identified within the areas under application. However, only one record of the southern brush-tailed phascogale has been recorded within the Shire of Northam and therefore this species is unlikely to occur within the proposed clearing areas.

One record of the woylie, in 2002, has been recorded with the Shire of Northam. Nine records of bilby have been recorded within the Shire of Northam, the most recent being in 1969. Given the low number and age of the records of these species it is unlikely that these species will occur within the area under application.

The areas under application are in a completely degraded to degraded (Keighery 1994) condition and predominantly lack any native understorey. The clearing of a maximum of one metre each side of the roads is not likely to sever or disrupt any ecological linkages allowing fauna to move between conservation areas within the Shire of Northam.

The areas under application area in a completely degraded to degraded (Keighery 1994) condition and therefore the vegetation under application is not likely to comprise of significant habitat for ground dwelling species.

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

Methodology

References:

Commonwealth of Australia (2012)
Department of the Environment (2016a)
Department of the Environment (2016b)
Department of the Environment (2016c)
DER (2016)
Keighery (1994)
Parks and Wildlife (2007-)
Parks and Wildlife (2012)

GIS Databases

SAC Bio Datasets – accessed December 2015

(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

Four rare flora species have been recorded with the local area (10 kilometre radius). The closest being recorded 1.2 kilometres from the western area within Spencer Brooke Road reserve. This species grows on and around granite outcrops, often in rock crevices (Brown et al. 1998). A site inspection undertaken by DER (2016) did not identify any granite outcrops within the areas under application. Suitable habitat for this species is not likely to be located within the area under application.

The second rare flora species inhabits white sand over laterite, adjacent to winter-wet seepage areas in open woodland of flooded gum (*Eucalyptus rudis*) and wandoo (*Eucalyptus wandoo*) (Brown et al. 1998). This species colonises in disturbed sites, however its growth is suppressed by weed invasion. The majority of the area under application is dominated by weeds and therefore the area under application is not likely to contain suitable habitat for this species.

The third rare flora species has been recorded approximately 3.4 kilometres from the areas under application and has been found on the fringe saline lakes or wetlands (Western Australian Herbarium 1998-). Suitable habitat for this species is not likely to be located within the area under application.

The fourth rare flora species grows in pale yellowish clay loam with some sand and gravel on clay flats, or in white and grey sand or sandy clay. It sometimes occurs in disturbed areas found with other colonising shrubs, or in low heath with tamma, melaleucas, eucalypts and tall sedges. It has also been recorded from quartzite ridges. The areas under application are in a completely degraded to degraded (Keighery 1994) condition with very few native species within the understorey (DER 2016). Therefore the areas under application are not likely to contain habitat for this species.

Given the above the vegetation under application is not likely to be necessary for the continued existence of rare flora.

Therefore the clearing as proposed is not likely to be at variance to this Principle.

Methodology

References:

Brown et al. (1998)

DER (2016)

Keighery (1994)

Western Australian Herbarium (1998-)

GIS Databases

SAC Bio Datasets – accessed December 2015

(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

No threatened ecological communities (TECs) have been recorded within the application area.

The Western Australian Wheatbelt Woodlands listed as critically endangered TEC under the EPBC Act is known within the Wheatbelt region and the Shire of Northam. The Western Australian Wheatbelt Woodlands are found on the flatter landscapes and lower rises of the Wheatbelt. This TEC consists of eucalypts with a single trunk, a tree canopy of at least 10 per cent canopy cover and a native understorey. WA Wheatbelt Woodlands do not include vegetation within a sparse tree cover, under 10 per cent, paddock trees, small or narrow tree lines and shelterbelts or other low condition patches (TSSC 2015).

The areas under application are narrow and linear, in a completely degraded to degraded (Keighery 1994) condition, with little native understorey present. Therefore the vegetation under application is not likely to comprise or be necessary for the maintenance of the abovementioned TEC.

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

Methodology

References:

Keighery (1994)

TSSC (2015)

GIS Databases

SAC Bio Datasets – accessed December 2015

(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 area under application is located within the Jarrah Forest and Avon Wheatbelt Interim Biogeographic Regionalisation of Australia (IBRA) bioregion. These IBRA bioregions have approximately 54 and 18 per cent of their pre-European vegetation extent remaining (Government of Western Australia, 2014).

The vegetation under application is mapped as Beard vegetation associations 352, 1006, 1049 and 3003 and Mattiske vegetation complexes Pn, Wi and Mi of which there is approximately 17, 7, 48, 59, 77, 26 and 26 per cent of their pre-European vegetation extents remaining within the Jarrah Forest and/or Avon Wheatbelt bioregion respectively (Government of Western Australia, 2014).

The area under application is located within Shire of Northam, within which there is approximately 24 percent pre-European vegetation extent remaining (Government of Western Australia, 2014).

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 percent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

The Avon Wheatbelt Bioregion, Shire of Northam, Beard vegetation associations 352 and 1006 and Mattiske vegetation complexes Wi and Mi retain less than the recommended 30 per cent threshold and therefore the areas under application are considered to be located within an extensively clearing area.

However, the areas under application are in completely degraded to degraded (Keighery 1994) condition, in a linear shape over seven different road reserves and does not contain a high biological diversity, significant habitat for fauna or rare and priority flora and therefore is not considered to be significant remnant.

Therefore the clearing as proposed is not likely to be at variance to this Principle.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in DEC Managed Lands (%)
IBRA Bioregion*				
Avon Wheatbelt	9,517,110	1,765,881	18	10
Jarrah Forest	4,506,660	2,425,551	54	69
Shire*				
Shire of Northam	143,131	33,863	24	25
Beard Vegetation Association in Bioregions*				
352	662,188	116,086	17	10
1006	833,385	56,842	7	6
1049	44,908	21,813	48	46
3003	66,452	39,176	59	46
Mattiske vegetation complexes**				
Pn	167,149	128,674	77	60
Wi	28,984.03	7,662	26	0.3
Mi	168,040	43,815	26	5

Methodology

References:

- Commonwealth of Australia (2001)
- *Government of Western Australia (2014)
- Keighery (1994)
- ** Parks and Wildlife (2015)

GIS Databases:

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 at variance to this Principle

A number of minor watercourses intersect each road reserve under application.

The Avon River is located approximately 70 metres west of the area under application within Spencer Brooke Road, tributaries of this major watercourse intersect the area under application.

A site inspection undertaken by DER (2016) identified riparian vegetation with a number of the areas under application.

Given the above the vegetation under application is considered to be growing in association with a watercourse and is therefore at variance to this Principle. However, given the small amount of vegetation to potentially be cleared within each watercourse the clearing as proposed is not likely to have a significant impact on the environmental values of these watercourses.

Methodology References:
DER (2016)

GIS Databases:
Hydrology, 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

Four soil types have been recorded within the application areas which Northcote et al. (1960 – 1968) describes as:

Va63: undulating terrain with ridges, spurs, and lateritic mesas and buttes: chief soils on the broad undulating ridges and spurs are hard, and also sandy, neutral, and also acidic, yellow mottled soils all containing ironstone gravels.

Qb29: river terraces: chief soils are hard alkaline red soils.

Tf3: low hilly to hilly terrain which comprises valleys that are frequently narrow and have short fairly steep pediments, along with breakaways, mesas, and occasional granite tors. Chief soils are hard acidic yellow mottled soils along with sandy acidic yellow mottled soils all of which contain moderate to large amounts of ironstone gravels in their surface horizons.

Oc30: low hilly to hilly portions of dissected lateritic plateau with gently undulating ridge crests and narrow incised valleys. Chief soils are hard acidic yellow mottled soils containing moderate to large amounts of ironstone gravel.

The proposed clearing of five hectares within seven different road reserves, in a linear shape, to a maximum of one metre either side of the road is not likely cause appreciable land degradation.

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

Methodology References:
Northcote et al. (1960 – 1968)

GIS databases:
Hydrology, linear
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 is not likely to be at variance to this Principle

Numerous conservation areas are located within the Shire of Northam. Ten conservation areas have been recorded within five kilometres of the areas under application, the closest being Warranine Nature Reserve located approximately one kilometre from the area under application within Spencer Brooke Road reserve (west).

The areas under application are in a completely degraded to degraded (Keighery 1994) condition and predominantly lack any native understorey. The clearing of a maximum of one metre each side of the areas under application is not likely to sever or disrupt any ecological linkages allowing fauna to move between conservation areas within the Shire of Northam.

Given the distance to the closest conservation area the clearing as proposed is not likely to have an impact on the environmental values of any conservation areas.

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

Methodology References:
Keighery (1994)

GIS Databases:
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 is not likely to be at variance to this Principle**
A number of minor watercourses intersect each road reserve under application.

The Avon River is located approximately 70 metres west of the area under application within Spencer Brooke Road, tributaries of this major watercourse intersect the area under application.

The clearing as proposed may increase run-off and sedimentation into the watercourses intersecting the areas under application, however this impact is likely to minimal and short term. In addition, there are likely to already be culverts in place which will ensure that surface water flow is not disturbed.

Groundwater salinity is mapped between 3000 and more than 35 000 milligrams per litre which ranges between moderately saline to brine. Although some areas under application are highly saline, the application is for five hectares over seven different road reserves within the Shire of Northam in a linear shape. The clearing as proposed is not likely to cause deterioration in the quality of underground water.

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

Methodology GIS Databases:
Hydrology, linear
Groundwater salinity.

(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**
The clearing of five hectares of native vegetation occurs over seven different road reserves to maximum of one metre either side of each road reserve. Therefore the clearing as proposed is not likely to cause or exacerbate the incidence or intensity of flooding.

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

Methodology GIS Databases:
Hydrology, linear

Planning instruments and other relevant matters.

Comments Three Aboriginal Sites of Significance have been recorded within the areas under application. The applicant will be notified of their obligation under the Aboriginal Heritage Act 1972.

The areas under application are located the Avon River Catchment Surface Water Area proclaimed under the Rights in Water and Irrigation Act 1914 (RIWI Act). Approvals under the RIWI Act 1914 may be required for this project. The applicant will be notified to liaise with the Department of Water to determine if approvals are required.

No submissions have been received in relation to this application.

Methodology References:
GIS Databases:
Aboriginal Sites of Significance

4. References

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