



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 7783/1
Permit Holder:	Shire of Wyndham – East Kimberley
Duration of Permit:	30 August 2018 – 30 August 2028

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 sourcing road maintenance materials.

2. Land on which clearing is to be done

Lot 331 on Deposited Plan 211565, Kununurra;
Lot 500 on Deposited Plan 44380, Kununurra; and
Lot 796 on Deposited Plan 192978, Kununurra.

3. Area of Clearing

The Permit Holder must not clear more than 156.3 hectares of native vegetation within the areas hatched yellow on attached Plan's 7783/1a, 7783/1b and 7783/1c.

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.

PART II – MANAGEMENT CONDITIONS

5. Avoid, minimise and reduce the impacts and extent of 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:

- avoid the clearing of native vegetation;
- minimise the amount of native vegetation to be cleared; and
- reduce the impact of clearing on any environmental value.

6. Retain vegetative material and topsoil, revegetation and rehabilitation

The Permit Holder shall:

- retain the vegetative material and topsoil removed by clearing authorised under this Permit and stockpile the vegetative material and topsoil in an area that has already been cleared.
- at an *optimal time* following clearing authorised under this Permit, *revegetate* and *rehabilitate* the area(s) that are no longer required for the purpose for which they were cleared under this Permit by:
 - re-shaping the surface of the land so that it is consistent with the surrounding 5 metres of uncleared land; and

- (ii) ripping the ground on the contour to remove soil compaction; and
 - (iii) ripping the pit floor and contour batters within the extraction site; and
 - (iv) laying the vegetative material and topsoil retained under condition 6(a) on the cleared area(s);
 - (v) deliberately *direct seeding* native vegetation that will result in a similar species composition, structure and density of native vegetation to pre-clearing vegetation types in that area; and
 - (vi) ensuring only *local provenance* seeds and propagating material are used to *revegetate* and *rehabilitate* the area.
- (c) within 24 months of undertaking *revegetation* and *rehabilitation* in accordance with condition 6(b) of this Permit:
- (i) engage an *environmental specialist* to determine the species composition, structure and density of the area *revegetated* and *rehabilitated*; and
 - (ii) where, in the opinion of an *environmental specialist*, the composition structure and density determined under condition 6(c)(i) of this Permit will not result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, the Permit Holder must undertake additional *direct seeding* of native vegetation in accordance with the requirements of condition 6(b)(v) and (vi) of this Permit.
- (d) where additional *direct seeding* of native vegetation is undertaken in accordance with condition 6(c)(ii) of this Permit, the Permit Holder shall repeat condition 6(c)(i) and 6(c)(ii) within 24 months of undertaking the additional *direct seeding* of native vegetation.

7. 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*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no *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.

PART III - RECORD KEEPING AND REPORTING

8. 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 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 or decimal degrees;
 - (ii) the date that the area was cleared;
 - (iii) the size of the area cleared (in hectares);
 - (iv) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 5 of this Permit; and
 - (v) actions taken to minimise the risk of the introduction and spread of weeds in accordance with condition 6 of this Permit.
- (b) In relation to the *revegetation* and *rehabilitation* of areas pursuant to condition 6 of this Permit:
 - (i) the location of any areas *revegetated* and *rehabilitated*, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (ii) a description of the *revegetation* and *rehabilitation* activities undertaken;
 - (iii) the size of the area *revegetated* and *rehabilitated* (in hectares);
 - (iv) the species composition, structure and density of *revegetation* and *rehabilitation*, and
 - (v) a copy of the *environmental specialist's* report, detailing the *revegetation* and *rehabilitation* activities undertaken and results for the monitoring of density, diversity, structure and weed cover.

9. Reporting

- (a) The Permit Holder must provide to the CEO on or before 30 June of each year, a written report:
 - (i) of records required under condition 8 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 30 June of each year.
- (c) Prior to 30 June 2028, the Permit Holder must provide to the CEO a written report of records required under condition 8 of this Permit, where these records have not already been provided under condition 9(a) of this Permit.

DEFINITIONS

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

CEO: means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

direct seeding means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species;

environmental specialist: means a person who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit;

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

local provenance means native vegetation seeds and propagating material from natural sources within 50 kilometres and the same Interim Biogeographic Regionalisation for Australia (IBRA) subregion of the area cleared;

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

optimal time means the period from October to December; for undertaking *direct seeding*;

regenerate/ed/ion means re-establishment of vegetation from in situ seed banks and propagating material (such as lignotubers, bulbs, rhizomes) contained either within the topsoil or seed-bearing *mulch*;

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

revegetate/ed/ion means the re-establishment of a cover of *local provenance* native vegetation in an area using methods such as natural *regeneration* and *direct seeding*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area; and

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 Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION


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

31 July 2018

Plan 7783/1(a) - Overview of the Approved Clearing Area



Legend

-  CPS areas approved to clear
- Virtual Mosaic - WA Now



0 1 2 3 4 km

MGA 94
Geocentric Datum of Australia 1994

Matthew Grenaway Date *31/07/2018*

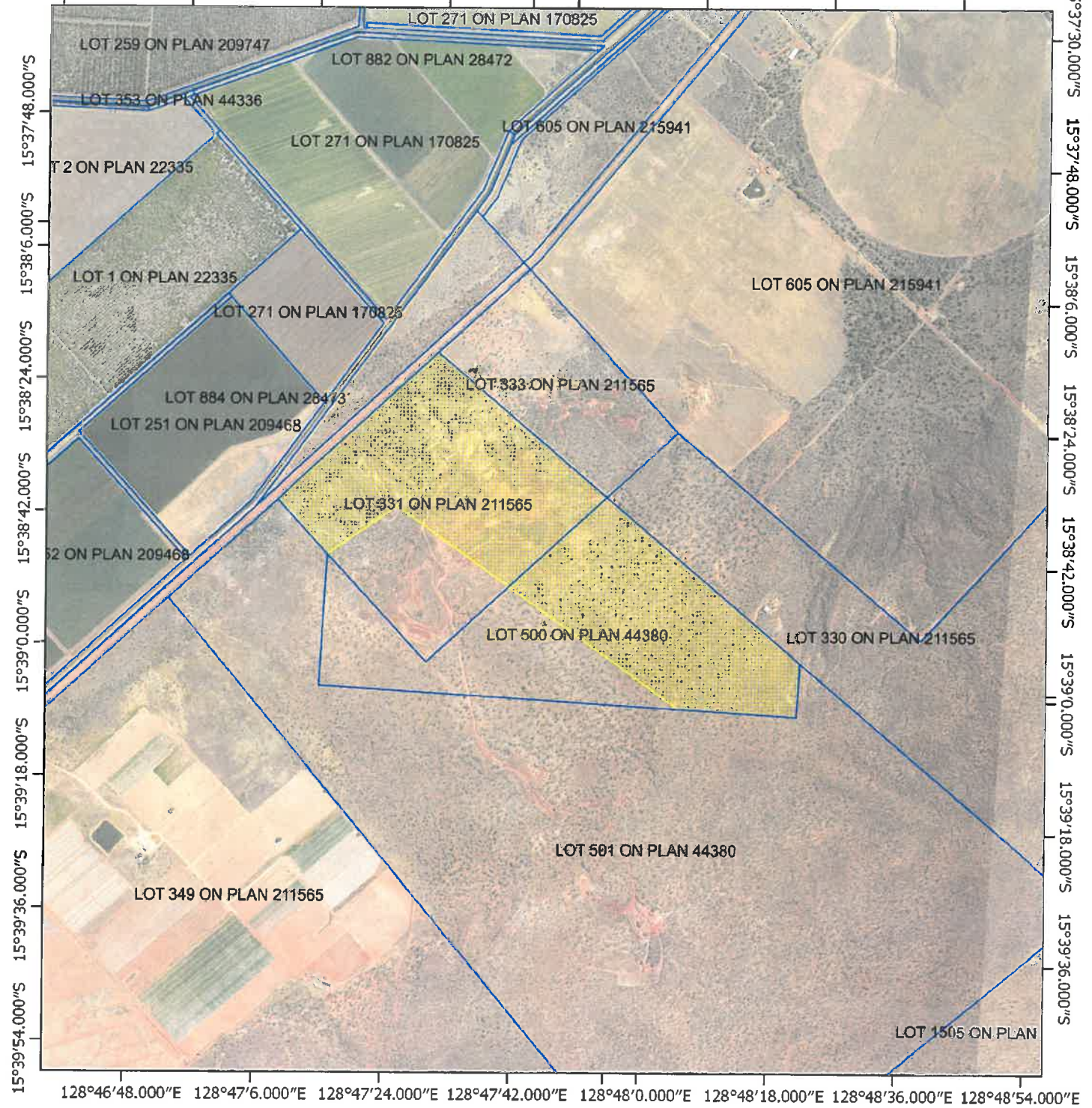
Officer with delegated authority under Section 20
of the Environmental Protection Act 1986



GOVERNMENT OF
WESTERN AUSTRALIA

Plan 7783/1(b) - Approved Clearing Area: Northern Portion

128°46'30.000"E 128°46'48.000"E 128°47'6.000"E 128°47'24.000"E 128°47'42.000"E 128°48'0.000"E 128°48'18.000"E 128°48'36.000"E



Legend

-  Cadastre
 -  CPS areas approved to clear
- Virtual Mosaic - WA Now



MGA94
Geocentric Datum of Australia 1994

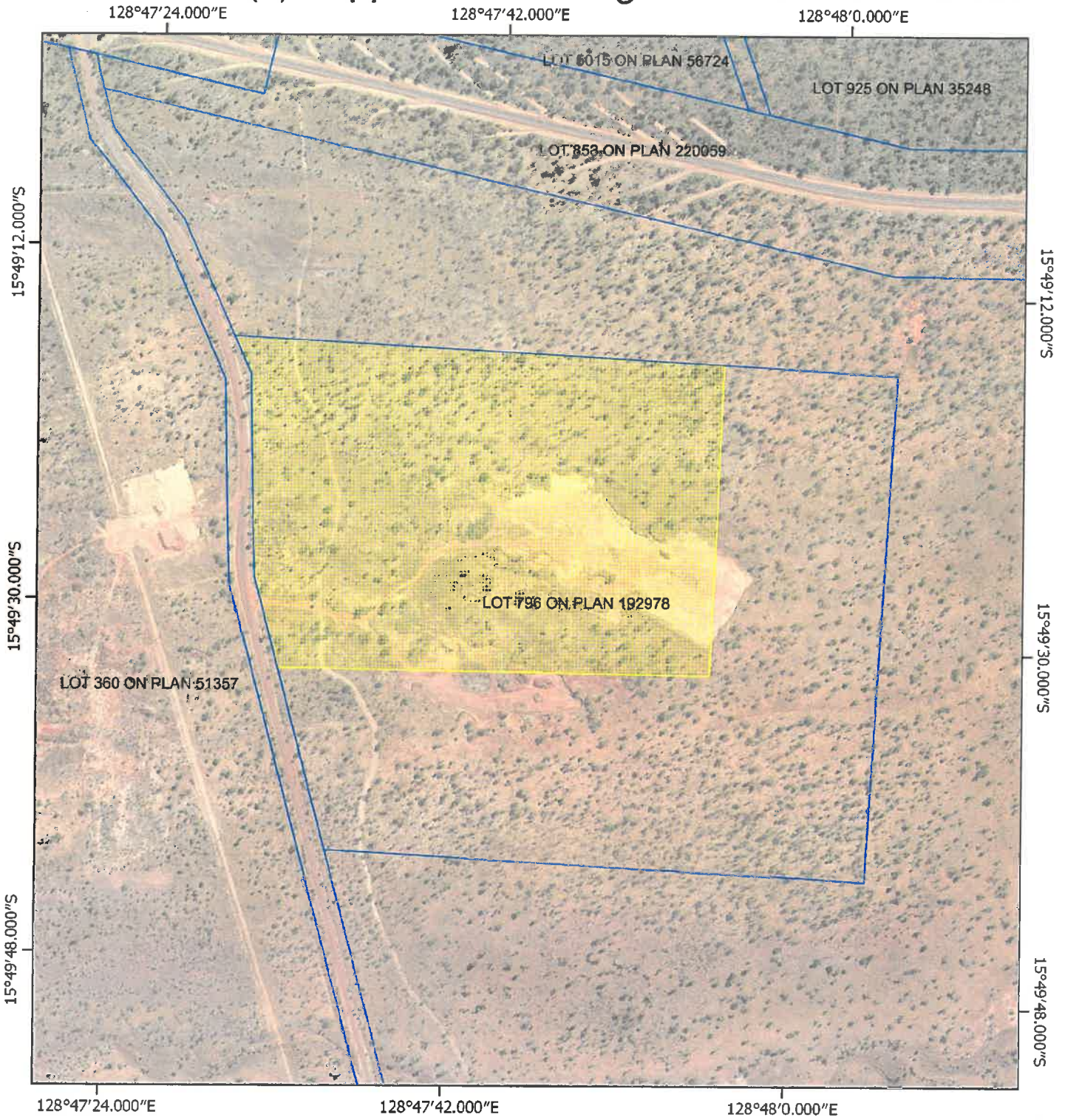
MS
Mathew Gannaway Date 31/07/2018

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



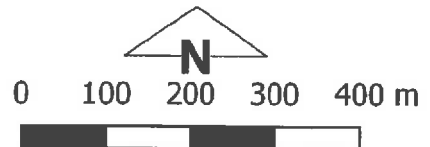
GOVERNMENT OF
WESTERN AUSTRALIA

Plan 7783/1(c) - Approved Clearing Area: Southern Portion



Legend

-  Cadastre
 -  CPS areas approved to clear
- Virtual Mosaic - WA Now



MGA94
Geocentric Datum of Australia 1994

Mathew Gernawcy Date 31/07/2018

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.: 7783/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Shire of Wyndham-East Kimberley
Application received date: 20 September 2017

1.3. Property details

Property: Lot 796 on Deposited Plan 192978, Kununurra
Lot 500 on Deposited Plan 44380, Kununurra
Lot 331 on Deposited Plan 211565, Kununurra
Local Government Authority: Shire of Wyndham-East Kimberley
Localities: Kununurra

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
156.3		Mechanical Removal	Infrastructure Maintenance

1.5. Decision on application

Decision on Permit Application: Grant

Decision Date: 31 July 2018

Reasons for Decision: The clearing permit application has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986* (EP Act). It has been concluded that the proposed clearing is at variance to principle (f), may be at variance to principle (i) and is not likely to be at variance to the remaining principles.

The Delegated Officer took into consideration the applicant's avoidance and minimisation measures, in particular for avoiding impacts to the Priority 3 flora species *Brachychiton tuberculatus*.

The Delegated Officer determined that the proposed clearing may impact on remnant native vegetation in the surrounding areas through the introduction and spread of weeds. The applicant will be required to implement weed hygiene management measures to mitigate the risk of degradation to nearby native vegetation.

As the proposed clearing is for a temporary land use, a rehabilitation management condition has been placed on the permit.

In determining to grant a clearing permit subject to conditions, the Delegated Officer determined that the proposed clearing is unlikely to lead to an unacceptable risk to the environment.

2. Site Information

Clearing Description: This application originally sought approval for the clearing of up to 194 hectares of native vegetation in a 261.8 hectare footprint within Lot 331 on Deposited Plan 211565, Lot 500 on Deposited Plan 44380 and Lot 796 on Deposited Plan 192978, Kununurra. These clearing activities were to allow the continued use and expansion of two existing borrow pits to supply road maintenance materials for road maintenance campaigns within the Shire of Wyndham-East Kimberley.

The revised application area is for the clearing of 156.3 hectares of native vegetation within the same Lots and for the same purposes as the original application. The application area comprises northern and southern portions, depicted in Figures 1, 2 and 3.

Vegetation Description: The application area is mapped as Beard vegetation association 909: Grasslands, high grass savanna woodland; Bloodwood (*Eucalyptus* sp.), Darwin Stringybark (*Eucalyptus tetrodonta*) and Woollybutt (*Eucalyptus miniata*) over upland tall grass and Curly Spinifex (*Triodia bitextura*) on sandplain (Shepherd et al 2001).

Phoenix Environmental Sciences Pty Ltd (Phoenix Environmental) conducted a flora and vegetation assessment in May 2017 over a study area comprising several locations of interest to the applicant for sourcing road maintenance materials, including the application area (Phoenix Environmental, 2017). The flora and vegetation assessment comprised transect searches spaced at a maximum of 30 metres apart over the study

area, to search for flora of conservation significance, declared pests and weeds of national significance (Phoenix Environmental, 2017). The results of the flora and vegetation assessment were provided as supporting information for this application (the environmental assessment report). The flora and vegetation assessment was conducted according to standards set out in the *Environmental Factor Guideline – Flora and Vegetation* (Environmental Protection Authority, 2016a) and *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (Environmental Protection Authority, 2016b).

The environmental assessment report identified five vegetation communities in the application area (Phoenix Environmental, 2017):

- mid open *Corymbia* species woodland over isolated mid *Brachychiton tuberculatus* shrubs over mid closed *Sorghum* sp., *Aristida holathera* and *Triodia* sp. grassland;
- mid *Corymbia flavescens* and *Corymbia* sp. woodland isolated tall Silver-leaf Grevillea (*Grevillea refracta*) shrubs over low closed *Sorghum* sp. and *Triodia? bitextura* grassland;
- mid *Corymbia* sp. woodland over mid-closed *Sorghum* sp. and *Triodia? bitextura* grassland;
- mid *Corymbia* sp. woodland over tall open *Brachychiton tuberculatus* shrubland over mid Kimberley Heather (*Calytrix exstipulata*) shrubland over *Sorghum* sp. grassland; and
- isolated tall Candelbra Wattle (*Acacia holosericea*) shrubs over mid Kimberley Heather (*Calytrix exstipulata*) and *Grevillea agrifolia* subsp. *microcarpa* shrubland over Plume Canegrass (*Sorghum plumosum*) and *Eragrostis* sp. closed grassland.

Vegetation Condition:

Excellent: Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement (Trudgen, 1988).

To

Completely Degraded: Areas that are completely or almost completely without native species in the structure of their vegetation (Trudgen, 1988).

Soil/Landform Type:

The application area is mapped as occurring within the following land systems (Department of Primary Industry and Regional Development, 2017):

- Ivanhoe Land System: Many small to medium areas of gently sloping alluvial "black soil" plains with some timbered "red" soil in the central and northern parts of the area;
- Cockatoo Land System: Sandplains with Eucalypt woodlands and spinifex/tussock grasses; and
- Angallari Land System: Many small areas of gently sloping alluvial plains; leached yellowish loamy and sandy soils; northern box-bloodwood woodland over Tippera tall grass or upland tall grass.

The environmental assessment report provided in support of this application characterises the application area as a flat to undulating plain environment (Phoenix Environmental, 2017). Soils identified within the application area comprise red-orange to white sandy clay soil, brown to white sandy clay soil, red-brown to white sandy clay soil, grey to white sandy clay soil and red-orange to white sandy clay soil with laterite pebbles (Phoenix Environmental, 2017).

Comments:

The local area referred to in this assessment is defined as the area within a 10 kilometre radius of the application area.

The vegetation condition and description within the application was determined by the Phoenix Environmental survey (Phoenix Environmental, 2017).



Figure 1: Overview of the application area proposed for clearing (shown in blue).



Figure 2: Detailed view of the northern portion of the application area (shown in blue). Lot boundaries are shown in yellow and Lot titles are shown in white.



Figure 3: Detailed view of the southern portion of the application area (shown in blue). Lot boundaries are shown in yellow and Lot titles are shown in white.

3. Minimisation and mitigation measures

The applicant advised that both portions of the application area have been located around existing material extraction areas, which are heavily disturbed. The applicant also advised that the proposed clearing will be kept to the minimum required area and that the application area will provide flexibility in where road-maintenance materials will be extracted from. Topsoil and cleared vegetation will be stockpiled for use in rehabilitation, and areas no longer required for material extraction will be rehabilitated prior to the onset of the wet-season.

As discussed within principle (a), the applicant amended the application area to avoid all recorded Priority 3 flora species *Brachychiton tuberculatus* occurrences recorded in the original application areas northern portion and avoids over 80 percent of the *Brachychiton tuberculatus* occurrences recorded in original application areas southern portion.

4. Assessment of application against clearing principles

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

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

The database searches undertaken in support of the flora and vegetation assessment determined that 65 conservation significant flora species have been recorded within a 40 kilometre radius of the study area (Phoenix Environmental, 2017). These species comprised one threatened (rare) species listed under the *Wildlife Conservation Act 1950* (WC Act), 33 Priority 1 species, nine Priority 2 species, 21 Priority 3 species and one Priority 4 species (Phoenix Environmental, 2017). Rare flora are discussed under principle (c). The environmental assessment report identified that suitable habitat exists in the study area for the following Priority species (Phoenix Environmental, 2017):

- *Goodenia brachypoda* (Priority 1) is known from 14 records from the Mitchell and Victoria Bonaparte P1 Interim Biogeographic Regionalisation of Australia (IBRA) subregions from various soil types and habitats (FloraBase website, March 2018). The nearest record is situated approximately 6.5 kilometres from the application area. Noting the soil and habitat types this species has been recorded as occurring within, this species is unlikely to occur in the application area;
- *Iseilema trichopus* (Priority 1) is known from two records in the Hart and Victoria Bonaparte P1 IBRA subregions occurring in cleared hard setting red soil and sandy loam (FloraBase website, March 2018). The nearest record is situated approximately seven kilometres from the application area. Noting the soil types this species has been recorded as occurring within, this species is unlikely to occur in the application area; and
- *Euphorbia stevenii* (Priority 3) is known from 12 records from the Chichester, Hamersley and Victoria Bonaparte P1 IBRA subregions from various soil types and habitats (FloraBase website, March 2018). The nearest record is situated approximately 1.5 kilometres from the application area. Noting the soil types this species has been recorded as occurring within, this species is unlikely to occur in the application area.

The environmental assessment report states that the Priority 3 flora species *Brachychiton tuberculatus* was identified in the original application area (Phoenix Environmental, 2017). This species is known from 17 records from the Victoria Bonaparte P1 IBRA subregion (FloraBase website, March 2018). The northern and southern portions of the original application area were found to host 58 and 1,433 individuals of this species respectively, with this species comprising a notable mid to tall shrub layer in the northern portion of the original application area (Phoenix Environmental, 2017).

The Department of Biodiversity, Conservation and Attractions (DBCA) advised that the populations of *Brachychiton tuberculatus* located in the original application area could be potentially locally and regionally significant (DBCA, 2018a). This was particularly true of the population recorded in the southern portion of the original application area as it would appear to be one of the largest recorded populations of this species (DBCA, 2018a). DBCA further advised that in the absence of a broader local context, the total removal of these populations has the potential to be significant with respect to the conservation of this species (DBCA, 2018a). DBCA recommended that a broad survey for this species be undertaken to provide regional and local context for this species (DBCA, 2018a). DBCA also noted that the timing of the flora and vegetation survey was not ideal for the detection of some of the conservation significant flora species potentially present in the application area, with the DBCA noting that *Poaceae* species would not have been identifiable at the time of the survey (DBCA, 2018a).

The DBCA recommended in additional advice received that the application area be reduced such that a majority of the recorded *Brachychiton tuberculatus* occurrences were maintained, and that these occurrences retained access to contiguous habitats (DBCA, 2018b). The DBCA suggested a revised application area which would leave the majority of the recorded *Brachychiton tuberculatus* occurrences in situ and this application area has been adopted by the applicant, as detailed in Figures 1, 2 and 3 of this report. This revised application area avoids all recorded *Brachychiton tuberculatus* occurrences recorded in the original application areas northern portion and avoids over 80 percent of the *Brachychiton tuberculatus* occurrences recorded in original application areas southern portion.

The environmental assessment report notes that weed species were recorded in existing quarries in the wider study area (Phoenix Environmental, 2017). The proposed clearing may impact on the environmental values of adjacent native vegetation through the introduction and spread of weeds. Weed management practices will assist in managing these impacts.

According to available databases, no threatened ecological communities (TEC) or priority ecological communities (PEC) occur in the local area. The closest occurrence of an ecological community of conservation significance is the Priority 1 'Camaenid land snail and vine thicket assemblage of limestone hills (Jeremiah Hills and Ningbing Ranges)' PEC, situated approximately 17.6 kilometres from the application area. Noting the vegetation associations identified within the application area, the vegetation within the application area is unlikely to comprise a PEC.

A review of available databases indicates that the application area may contain suitable habitat for seven threatened fauna species, one other specially protected fauna species and three Priority 4 fauna species. As discussed under Principle (b), noting the presence of large areas of similar habitat in the surrounding environment and the presence of disturbed areas in both portions of the application area due to prior road maintenance material quarrying campaigns, the application area is unlikely to comprise significant habitat for indigenous fauna, including species of conservation significance.

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

(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.

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

As discussed in Section 2, the vegetation within the application area ranges in condition from Excellent (Trudgen, 1988) to Completely Degraded (Trudgen, 1988) in areas disturbed for prior road maintenance material quarrying campaigns (Phoenix Environmental, 2017). As indicated in Figures 1, 2 and 3, the local area retains extensive native vegetation cover, and the habitats found in the application area are likely to be widespread in the surrounding environment.

A review of the NatureMap database found that the following conservation significant fauna species (excluding any migratory and marine species which are not likely to utilise the habitats within the application area) have been recorded within the local area (Department of Biodiversity, Conservation and Attractions, 2007-):

- Northern Quoll (*Dasyurus hallucatus*) (Endangered under the WC Act, Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act));
- Gouldian Finch (*Erythrura gouldiae*) (Priority 4, Endangered under the EPBC Act);
- Grey Falcon (*Falco hypoleucos*) (Vulnerable under the WC Act);
- Peregrine Falcon (*Falco peregrinus*) (Other specially protected fauna under the WC Act);
- Partridge Pigeon (Eastern) (*Geohaps smithii* subsp. *smithii*) (Priority 4);
- Water-rat (*Hydromys chrysogaster*) (Priority 4);
- Australian Little Bittern (*Ixobrychus dubius*) (Priority 4);
- Lakeland Downs Mouse (*Leggadina lakedownensis*) (Priority 4);
- Ghost Bat (*Macroderma gigas*) (Threatened under the WC Act, Vulnerable under the EPBC Act);
- Barking Owl (*Ninox connivens* subsp. *connivens*) (Priority 2);
- Letter-winged Kite (*Planus scriptus*) (Priority 4); and
- Orange Leaf-nosed Bat (*Rhinonicteris aurantia*) (Priority 4).

A review of the Commonwealth Protected Matters Search Tool determined that the following additional species listed under the EPBC Act (excluding any migratory and marine species which are not likely to utilise the habitats within the application area) may occur in the local area:

- Plains Death Adder (*Acanthophis hawkei*) (Vulnerable under the EPBC Act);
- Red Goshawk (*Erythrotriorchis radiatus*) (Vulnerable under the WC Act, Threatened under the EPBC Act);
- Northern Shrike-tit (*Falcunculus frontatus* subsp. *whitei*) (Vulnerable under the EPBC Act);
- Greater Bilby (*Macrotis lagotis*) (Vulnerable under the WC Act, Threatened under the EPBC Act);
- Purple-crowned Fairy Wren (*Malurus coronatus* subsp. *coronatus*) (Endangered under the WC Act, Threatened under the EPBC Act);
- Night Parrot (*Pezoporus occidentalis*) (Endangered under the WC Act, Threatened under the EPBC Act);
- Australian Painted Snipe (*Rostratula australis*) (Endangered under the WC Act, Threatened under the EPBC Act);
- Bare-rumped Sheath-tailed Bat (*Saccolaimus saccolaimus* subsp. *nudicluniatu*) (Priority 3, Vulnerable under the EPBC Act); and
- Masked Owl (Kimberley) (*Tyto novaehollandiae* subsp. *kimberli*) (Priority 1, Vulnerable under the EPBC Act).

Noting the habitat preferences of the above species and the habitat and vegetation types found within the application area, the application area is not likely to include suitable habitat for the following species:

- The Gouldian Finch inhabits open woodland dominated by *Eucalyptus* spp. trees and supporting a ground cover of Sorghum and other grasses, with a nearby source of surface water (Department of the Environment and Energy, 2018a).
- The Partridge Pigeon (Eastern) is known in Western Australia from a single occurrence recorded near Kununurra in 1902, and the preferred habitat of this species exists primarily in the north of the Northern Territory (Department of Biodiversity, Conservation and Attractions, 2007-, Department of the Environment and Energy, 2018b).
- The Water-rat is usually found near permanent bodies of fresh or brackish water, where it often lives in burrows hidden amongst vegetation alongside river and lake banks (Australian Museum, 2017).
- The Australian Little Bittern is known to occupy freshwater marshes and water bodies lined with reeds and other aquatic plant life, as well as artificial wetland environments, fish farms, canals, ornamental basins and quarry water bodies (Atlas of Living Australia, 2017).
- The Barking Owl and Masked Owl have a preference for forested environments or environments with a density of large trees (Birdlife Australia, 2018, Department of the Environment and Energy, 2018c).
- The distribution of the Plains Death Adder is currently unclear, with suitable habitat for this species comprising flat, treeless, cracking-soil riverine floodplains, and this species has not been recorded in Western Australia (Department of the Environment, Water, Heritage and the Arts, 2011, Department of Biodiversity, Conservation and Attractions, 2007-).
- The Northern Shrike-tit has been recorded in eight different woodland types in northern Australia, mainly those that are dominated by Woollybutt, Darwin Stringybark or *Eucalyptus bleeseri* (Smooth-stemmed Bloodwood) (Department of the Environment and Energy, 2016a).
- The Greater Bilby occupies three main habitats; open tussock grassland on uplands and hills, *Acacia aneura* (Mulga) woodland and shrubland growing on ridges and rises, and hummock grassland in plains and alluvial areas (Department of the Environment and Energy, 2016b).
- The Purple-crowned Fairy-wren is associated with dense, riparian vegetation in the wet-dry tropics of Western Australia and the Northern Territory, and individuals of this species are not often found more than one kilometre from a permanent water source (Department of the Environment and Energy, 2018d).
- The nearest recorded occurrence of the Night Parrot is a single occurrence situated approximately 560 kilometres south of the application area, recorded in 1972 (Department of Biodiversity, Conservation and Attractions, 2007-). While the current distribution of this species is unknown, there are accepted historical records from remote arid and semi-arid inland regions

of Western Australia, the Northern Territory, South Australia and Queensland from habitats with *Triodia* sp. (Spinifex) grasslands and/or chenopod shrub lands in the arid and semi-arid zones, and less frequently from habitats with *Astrelbia* spp. (Mitchell grass), shrubby samphire and chenopod associations, scattered trees and shrubs, Mulga woodland, treeless areas and bare gibber (Department of the Environment and Energy ,2016c).

- The Australian Painted Snipe is known to inhabit shallow terrestrial freshwater and brackish wetlands, as well as inundated or waterlogged grassland and saltmarsh areas and artificial environments such as dams and rice crops (Department of the Environment and Energy, 2018e).

The Northern Quoll typically utilises rocky habitat for denning purposes, with surrounding vegetated areas serving as foraging and dispersal habitat (Department of the Environment and Energy, 2018f). No rocky habitat suitable for denning is located in the application area or its immediate surrounds, however the flat plain habitat found in the application area and its immediate surrounds could serve as foraging and dispersal habitat for this species.

The Grey Falcon and the Peregrine Falcon utilise a wide variety of habitats, including woodland and grasslands (Department of the Environment and Energy, 2018g, New South Wales Scientific Committee, 2009). The Letter-winged Kite and the Red Goshawk have a preference for sparsely wooded or open woodland environments (IUCN Redlist, 2018, Department of the Environment and Energy, 2018h). Suitable habitat for these species may occur in the application area, however noting the highly mobile nature of these species, the application area is not likely to comprise significant habitat for these species.

The Orange Leaf-nosed Bat and the Ghost Bat are known to roost in caves, rock crevices and old mines with stable temperature and high humidity (Department of the Environment and Energy, 2018i, Threatened Species Scientific Committee 2016). A single occurrence of the Bare-rumped Sheath-tailed Bat was recorded in March 2015 approximately 430 kilometres southwest of the town of Kununurra, however its poorly known echolocation calls and cryptic nature have presented challenges in confirming population locations (Department of Biodiversity, Conservation and Attractions, 2007-, Department of the Environment and Energy, 2018j). The open woodland plain environment in the application area could serve as foraging habitat for these species.

The Lakeland Downs mouse is known from 606 records from northern Western Australia (Department of Biodiversity, Conservation and Attractions, 2007-). This species is also known to occur in both the Northern Territory and Queensland (Kutt and Kemp, 2005). The Lakeland Downs Mouse is associated with open grassy woodlands (Kutt and Kemp, 2005). This species has been recorded on Thevenard Island occupying a median home-range of 4.8 hectares, fluctuating between 3 and 5.3 hectares depending on the time of year (Moro and Morris, 2000). This species uses burrows to avoid the heat of the day (Moro and Morris, 2000). Noting the habitats in the application area, the application area may comprise suitable habitat for this species.

The above database searches also identified several migratory bird species which have been recorded or have the potential to occur in the local area. These species are highly mobile and occupy large home ranges, and are not likely to depend on the habitats within the application area.

When appropriate consideration is given to the presence of large areas of similar habitat in the surrounding environment and the presence of disturbed areas in both portions of the application areas due to prior road maintenance material quarrying campaigns, the application area is unlikely to comprise significant habitat for indigenous fauna, including species of conservation significance.

Given the above, the application area is unlikely to comprise the whole or a part of, or be necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia, including species of conservation significance. The proposed clearing is not likely to be at variance to this Principle.

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

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

According to available databases and the environmental assessment report provided in support of this application (Phoenix Environmental, 2017), one rare flora species has been recorded within the local area.

This species is known from 18 records from the Victoria Bonaparte P1 IBRA subregion at sites containing dark grey clay and black soils waterlogged in summer and inundated after rain. (FloraBase website, January 2018). The nearest record of this species is approximately five kilometres from the application area.

The flora and vegetation survey did not record rare flora within the application area (Phoenix Environmental, 2017).

As discussed under Principle (a), the DBCA noted that the timing of the flora and vegetation survey was not ideal for the detection of some of the conservation significant flora species potentially present in the application area (DBCA, 2018a). Notwithstanding, the DBCA advised that the soil types described in the environmental assessment report as occurring within the application area do not appear to be consistent with the known habitat of this flora species, and therefore this species is not likely to occur within the application area (DBCA, 2018a).

Given the above, the application area is unlikely to include, or be necessary for the continued existence of, rare flora. The proposed clearing is not likely to be at variance to this Principle.

(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.

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

A review of available databases determined that no TECs are present in the local area. The environmental assessment report indicates that the vegetation communities present in the application area are not representative of any State or Commonwealth listed TECs (Phoenix Environmental, 2017).

Given the above, the application area is unlikely to include, or be necessary for the continued existence of, a TEC. The proposed clearing is not likely to be at variance to this Principle.

(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.

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

The national objectives and targets for biodiversity conservation in Australia have 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).

As indicated in Table 1, the remaining extents of native vegetation within the mapped IBRA bioregion, and mapped vegetation association are above the 30 per cent representation threshold (Government of Western Australia, 2018).

Based on the above, the application area is unlikely to be significant as a remnant of native vegetation in an extensively cleared area. The proposed clearing is not likely to be at variance to this Principle.

Table 1: Vegetation Extents

	Pre-European	Current Extent	Remaining	Current Extent in DCBA Managed Lands	
	(ha)	(ha)	(%)	(ha)	(%)
IBRA Bioregion*					
Victoria Bonaparte	1,870,996.17	1,847,137.03	98.72	319,201.68	17.28
Beard vegetation association*					
909	281,414.86	278,753.20	99.05	21,933.80	7.87

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Proposed clearing is at variance to this Principle

The northern portion of the application area is traversed by several minor ephemeral watercourses, and the proposed clearing will impact native vegetation growing in association with these watercourses.

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

A review of aerial photography and the mapped extent of local surface water features indicates that the native vegetation in the vicinity of these watercourses appears to be largely consistent with the vegetation found across the remainder of the application area. It is therefore expected that the impacts of the proposed clearing on riparian vegetation are likely to be minimal and consistent with the impacts from existing gravel extraction activities.

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

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

As outlined in Section 2, the application area is situated within the Ivanhoe, Cockatoo and Angallari land systems (Department of Primary Industry and Regional Development, 2017). The Ivanhoe land system is noted for its low susceptibility to erosion, except for its levee systems which have a moderate susceptibility to erosion (Department of Agriculture and Food, 2011). These levee systems represent only 3 per cent of the Ivanhoe Land system and are associated with major stream channels (Department of Agriculture and Food, 2011). Due to the absence of major stream channels in the application area or its immediate surrounds, none of the levee systems associated with the Ivanhoe land system are expected to be present in the application area. The Cockatoo land system is known to experience a low susceptibility to erosion and the Angallari land system is known to not be prone to degradation and has a low susceptibility to erosion (Department of Agriculture and Food, 2011).

The application area is situated in a flat to undulating plain environment approximately three kilometres at its closest point from the Ord River and its associated tributaries. A review of aerial photography (refer Figures 2 and 3) indicates that existing gravel extraction activities have not resulted in observable land degradation impacts in either the application area or the surrounding environment.

Noting the above, the proposed clearing is unlikely to cause appreciable land degradation. The proposed clearing is not likely to be at variance to this Principle.

(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.

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

The application area is situated approximately 2.6 kilometres south of the Mirima National Park, 5.1 kilometres south east of Conservation Reserve R 52321, 5.4 kilometres east of Darram Conservation Park, 5.7 kilometres south west of Gooming Conservation Park and 7.9 kilometres south east of the Kununurra Arboretum. The application area is also situated 900 metres east of a portion of Lake Kununurra, which is listed in the Directory of Important Wetlands, and approximately 2.5 kilometres east from the Ramsar-listed Lake Kununurra and Lake Argyle wetlands.

The application area is situated in a similar landscape position to these conservation areas, and is unlikely to impact on the quality of surface or underground water, or the risk of land degradation, currently associated with these conservation areas. Noting the distances between the application area and these conservation areas, and the extent of native vegetation remaining in the local area, the proposed clearing is unlikely to impact on ecological linkages between these conservation areas or increase the risk of the introduction of weeds into these conservation areas.

Given the above, the proposed clearing is unlikely to impact on the environmental values of any conservation areas. The proposed clearing is not likely to be at variance to this Principle.

(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.

Proposed clearing may be at variance to this Principle

As discussed under Principle (f), ephemeral waterways are present in the northern portion of the application area.

Both portions of the application area contain existing disturbed areas from previous gravel extraction activities. As assessed in Principle (g), a review of aerial photography indicates previous gravel extraction activities have not resulted in observable land degradation impacts, and the mapped soils present a low risk of erosion. Notwithstanding, noting the extent of the proposed clearing, it is possible that sedimentation may occur within surface water flows originating from within the application area.

Noting the extent of native vegetation cover in the local area, and the presence of existing gravel extraction activities within the application area, the proposed clearing is not likely to cause deterioration in the quality of underground water.

Given the risk of sedimentation, the proposed clearing may cause deterioration in the quality of surface water. The proposed clearing may be at variance to this Principle.

The applicant advised that engineering controls will be implemented to limit the potential for erosion and sedimentation as a result of the proposed clearing and subsequent gravel extraction activities, and that areas no longer required for extraction will be rehabilitated. On this basis, it is anticipated that any risk of sedimentation resulting from the proposed clearing would be temporary in nature and unlikely to result in a significant degradation to local surface water quality.

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

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

The application area is situated within the Ord River Basin, which comprises a total area of 57,641.5 square kilometres. In addition, the Kimberley region has a propensity to experience significant rainfall events which commonly result in widespread flooding.

As discussed in Principle (f), the northern portion of the application area is traversed by several minor ephemeral watercourses. A review of the local areas topography has determined that both portions of the application area are situated in a flat to undulating plain environment positioned at a low point in the local areas landscape. Consequently, it is not anticipated that the proposed clearing activities will increase the capability of the application area to convey surface water flows into the surrounding environment. When the above is considered alongside the extent of remnant native vegetation remaining in the local area, the proposed clearing is unlikely to cause or exacerbate the incidence or intensity of flooding within the local area.

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

Planning instruments and other relevant matters.

This application was originally to clear 236 hectares of native vegetation at four sites within Lot 331 on Deposited Plan 211565, Lot 366 on Deposited Plan 211675, Lot 500 on Deposited Plan 44380 and Lot 796 on Deposited Plan 192978, Kununurra, and Lot 1792 on Deposited Plan 40622, Wyndham. The applicant requested that the application be revised to two locations within Lots 331, 500 and 796 on 22 November 2017.

No registered sites of Aboriginal Heritage Significance have been recorded in the application area.

The clearing permit application was advertised on the Department of Water and Environmental Regulation website on 30 October 2017 with a 21 day submission period. No public submissions have been received in relation to this application.

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GIS Databases:

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- Department of Biodiversity, Conservation and Attractions, Tenure
- Hydrography, Basins
- Hydrography, Geodata
- Hydrography, Hierarchy
- Hydrography, Hydro Lines
- Hydrography, Kimberley Waterbodies
- Hydrography, Kimberley Drainage Lines
- Hydrography, Linear
- Remnant vegetation
- Ramsar Sites
- SAC biodatasets
- Soils, Statewide