

Clearing Desktop Report – CPS 818

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Western Australia.*

Great Northern Highway (GNH) Nellies
Spring Creek SLK [REDACTED]
& Un-named Creek SLK [REDACTED] Floodway
Upgrades
(H006)
Kimberley Region

EOS 1176

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1 PROPOSAL

1.1 Purpose and Justification

Main Roads is upgrading the Nellies Spring Creek (SLK [REDACTED]) and Un-named Creek (SLK [REDACTED]) floodways on the Great Northern Highway (GNH), with additional proposal works to range between SLK [REDACTED] and SLK [REDACTED] as part of the “GNH Two Floodways” project. The works will involve constructing two multi-barrel reinforced concrete box culvert structures to replace the existing floodways, which are frequently inundated during the wet season. These flooding events often result in road closures that pose safety risks for road users and disrupt essential transport links. As an important freight, tourist, and inter-town route, the Great Northern Highway plays a critical role in supporting the mining and agricultural sectors across the Kimberley Region. Upgrading these floodways will significantly improve road safety, reduce wet-season disruptions, and enhance the reliability and efficiency of this vital transport corridor, supporting the region’s heavy-vehicle-dependent economy.

1.1.1 Main Roads Approach to Road Safety and the Environment

Main Roads is committed to minimising the environmental impacts of all of its activities and manages the State road network to achieve balanced economic, social, safety and environmental benefits for the community. Main Roads recognises that Western Australia’s environment is significant from a global perspective and the unique conservation values that are contained within its road reserve. Main Roads road network often adjoins natural areas and, in some locations, the reserve itself hosts remnant vegetation with high environmental values. Although the reserves were not established for this purpose, Main Roads recognises that it has a responsibility to conserve the environmental values that occur within the State’s road network and minimise the impact its proposals have on the environment. In addition to providing a safe and efficient road network for all people using the roads under its control, Main Roads is also committed to protecting the natural environment.

In accordance with National and State Government road safety policies, Main Roads is also committed to substantially reducing road trauma on the road network through Safe System principles. The Safe System approach acknowledges that more than two thirds of all serious crashes are due to human error rather than deliberate risk taking (e.g. speeding or drink driving) and seeks to improve behaviour through education and enforcement while managing the safety of vehicles, speeds and the road and road infrastructure. It is shown that improving sub-optimal road formation will substantially reduce the likelihood and severity of road crashes. For example, according to the Road Safety Management Guideline, increasing the sealed shoulder from 0.5 m to 2 m will reduce Killed and Seriously Injured numbers by more than 50%.

As the statutory authority responsible for providing and managing a safe and efficient main road network in Western Australia, Main Roads focuses on improving road safety by thoroughly considering all environmental, economic and community benefits and impacts. It operates on a hierarchy of avoiding, minimising, reducing and then, if required, offsetting our environmental impacts. This has been achieved through changes in proposal scope and design. Main Roads regularly reduces its clearing footprint by restricting earthworks limits for proposals, steepening batters, installing barriers, establishing borrow pits in cleared paddocks and avoiding temporary clearing for storage, stockpiles and turn around bays to avoid and minimise its impacts.

Further details on measures to avoid, minimise and reduce are provided in Section 1.5.

1.2 Proposal Scope

Main Roads proposes to upgrade two floodways on a 45 km section of the GNH between the town sites of Halls Creek and Warmun. The upgrade will comprise the following components:

- Road Widening – Sealed road width will increase from 9m to 11m.
- Upgrade of low-lying culverts to raised multi-barrel reinforced concrete box culverts.
- Fill material will be sourced from SLK [REDACTED], SLK [REDACTED] and SLK [REDACTED]. Pavement material and rock will be sourced from Laura Quarry (SLK [REDACTED]), if already stockpiled material is available, otherwise will be sourced from the existing quarry at Tanami Rd (SLK [REDACTED]).
- Access tracks, laydown and turnaround areas within existing cleared areas.
- Water extracted from licenced waterpoints at SLK [REDACTED] & SLK [REDACTED].

1.3 Proposal Location

The Development Envelope is located on Great Northern Highway, SLK [REDACTED] in the Shire of Halls Creek, as shown in Figure 1. The central coordinate of the proposal is [REDACTED], [REDACTED]. Refer to Appendix 1 for further figures on the sites Development Envelope for each of the proposal sites.

[Redacted]

Figure 1. Proposal Location and Study Area

Proposed Clearing to be undertaken using CPS 818:

21.30 ha

Areas of Native Vegetation Clearing:

The areas of native vegetation to be cleared are shown in Appendix 2.

Type of Native Vegetation:

The type of vegetation to be cleared under this Proposal is described in detail in Table 3 and shown in Appendix 2.

1.4 Alternatives to Native Vegetation Clearing Considered During Proposal Development

The following alternatives to clearing were considered during the development of the proposal:

- Do not upgrade the floodways; however, this will potentially result in a poorer safety outcome and may result in future fatalities or serious injuries and further degradation of the State road asset.
- Source material from commercial sources or existing material pits located within the region; however, this would significantly increase the costs associated with delivery of the project and there is limited suitable material available in existing regional pits.
- Main Roads retains frangible vegetation where a clear zone is to be established for road projects. For this project, however, clearing will only be required to accommodate the road formation, with no clear zone being established. Accordingly, the retention of frangible vegetation does not apply to this proposal.
- Reducing the speed limit to minimise clearing requirements, while still balancing safety (driver fatigue) and freight efficiency. Speed Limits are an essential mechanism to ensure the safe and efficient operation of road networks. The application of appropriate speed limits and other traffic management measures is a key mechanism in managing vehicle speeds to achieve desired safety, mobility, traffic management, local amenity, and road user expectations. There are several factors involved in road safety, including road conditions, driver behaviour and overall road design. Except in special situations, reducing speed limits below national standards on state and national roads is not typically supported as it has the potential to contribute to driver frustration, impatience, tiredness and recklessness. The environmental values protected by reducing the speed limit, do not justify the impacts on freight efficiencies nor road user safety. Accordingly, the reduction of the speed limits to avoid clearing of native vegetation for this proposal is not proposed.

1.5 Measures to Avoid, Minimise, Reduce and Manage Proposal Clearing Impacts

The design and management measures implemented to avoid and minimise the potential clearing impacts of the Proposal are provided in Table 1.

Table 1. Measures Undertaken to Avoid, Minimise, Reduce and Manage the Proposal Clearing Impacts

Design or Management Measure	Discussion and Justification
Altering Development Envelope	The Development Envelope has been altered to avoid as much native vegetation as possible and utilise existing cleared areas.
Use of existing cleared areas for access tracks, construction storage and stockpiling	All areas will be accessed by existing station tracks. Existing cleared areas for laydown and turnaround areas will be utilised with permission from the pastoral leaseholder. This will reduce the amount of native vegetation to be cleared and minimise potential environmental impacts.

1.6 Approved Policies and Planning Instruments

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act, Main Roads has also had regard to the below instruments where relevant.

Other Legislation potentially relevant for assessment of clearing and planning/other matters:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Country Areas Water Supply Act 1947* (WA) (CAWS Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P and D Act)
- *Soil and Land Conservation Act 1945* (WA)
- *Rights in Water and Irrigation Act 1914* (WA) (RIWI Act)
- *Aboriginal Heritage Act 1972* (WA).

Environmental Protection Policies:

- Environmental Protection (Peel Inlet - Harvey Estuary) Policy 1992
- Environmental Protection (Western Swamp Tortoise Habitat) Policy 2011.

Other relevant policies and guidance documents:

- Environmental Offsets Policy (Government of Western Australia, 2011)
- A guide to the assessment of applications to clear native vegetation (DER, 2014)
- Procedure: Native vegetation clearing permits (Government of WA, October 2021)
- Environmental Offsets Guidelines (Government of Western Australia, 2014)
- Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016)
- Technical guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA, 2020)
- Approved conservation advice under section 266B of the EPBC Act for threatened flora/fauna/vegetation communities.

2 SCOPE AND METHODOLOGY ASSESSMENT OF CLEARING

Native vegetation will be cleared to accommodate this Proposal. This clearing will be undertaken using the Main Roads Statewide Clearing Permit CPS 818.

To comply with CPS 818, Main Roads must prepare a Clearing Desktop Report (CDR).

The CDR outlines the key activities associated with the Proposal, the existing environment and an assessment of native vegetation clearing. This assessment provides an evaluation of the vegetation clearing impacts associated with the Proposal using the ten Clearing Principles listed under s51 of the *Environmental Protection Act 1986* (EP Act) and strategies used to manage vegetation clearing.

2.1 Report Terminology and Sources

The following terms are used in this Clearing Report:

- **Native Vegetation Clearing Area (Clearing Area)** - The maximum amount of native vegetation to be cleared for the Proposal that will accommodate the designed earthworks and, typically, a nominal buffer to allow for the safe movement of machinery during construction. The Clearing Area for the Proposal is **21.30 ha**.
- **Development Envelope** – The maximum extent within which the Clearing Area will be located. This envelope is larger than the Clearing Area to allow for minor changes to the Proposal footprint as the design process continues, and to account for minor and unexpected changes that may occur during construction, such as working to avoid a large tree or encountering buried boulders or services. This flexibility allows the site personnel to make modifications to the Proposal to avoid areas that may contain better environmental values. The CDR has assessed all environmental values within the Development Envelope as though all of these values will be impacted, up to the amount specified within the Clearing Area. The Development Envelope for this Proposal is **118.56 ha**.
- **Study Area** – Area covered by the Desktop Assessment. The Study Area for the Proposal is confined to a local area of a 40 km radius and is shown in Figure 1.
- **Survey Area** – Area covered by the Biological Survey, which is typically larger than the Development Envelope. For this assessment, this refers to Biota's 2023 Biological Survey Area (446.2 ha). A 2,020.2 ha contextual area, comprising a 400 m buffer around the Survey Area was included as part of Biota's (2023) study to provide additional contextual information.

2.2 Desktop Assessment

A desktop assessment of the Development Envelope was undertaken by viewing internal datasets and other government agency managed databases, and consulting with relevant stakeholders where necessary.

GIS layer viewing and mapping is done using ArcMap and/or Main Roads corporate mapping system known as iMaps. Referencing of the GIS layers accessed is done under the relevant methodology section of each clearing principle. Government managed databases were searched to locate additional information, which are found under References in Section 9.

2.3 Surveys and Assessments

Biological and targeted surveys conducted for the proposal are outlined in Table 2 and a summary of the findings in these reports are presented in Sections 3.

Table 2. Summary of Biological and Targeted Surveys Relevant to the Proposal

Consultant and Survey Name	Survey Details
Biota (2023) GNH 4 Bridges Construction Project Biological Survey	Survey Area: The Survey Area included five locations along GNH from SLK [REDACTED], approximately 200 and 300 m wide, with sections jutting out for material investigations. This covered 446.2 ha. Type: A Detailed Flora and Vegetation Survey and a Basic and Targeted Terrestrial Fauna Survey. Timing: The Detailed Flora and Vegetation Survey was conducted from 24th March to 2nd April 2023, and the Basic and Targeted Terrestrial Fauna Survey was conducted from 27th March to 3rd April 2023. Survey Results Shapefile TRIM Ref: [REDACTED]. Document TRIM Ref: [REDACTED].

3 SURVEY RESULTS

3.1 Summary of Biota's 2023 Biological Survey

A 446.2 ha area was surveyed incorporating and extending beyond the Development Envelope assessed in this CDR, consisting of a desktop study and Basic Fauna and Detailed/Targeted Flora component (Biota, 2023).

The desktop study consolidated all available and relevant existing data to identify known biological features and constraints near the Survey Area, and to inform the field survey. The Detailed Flora and Vegetation Survey was conducted from 24th March to 2nd April 2023, and the basic and targeted terrestrial fauna survey was conducted from 27th March to 3rd April 2023.

No State or Federally listed Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) were recorded in the Survey Area. Five vegetation types associated with four habitats were mapped, one of which may be groundwater-dependent and is of local significance. The majority of vegetation was in 'Good' condition due to weed invasion and degradation by livestock.

A total of 193 native flora species from 119 genera and 46 families were recorded during the survey. No significant flora species were recorded. A total of 24 weed species were recorded, including one Declared Pest (**Calotropis procera*).

Seven broad fauna habitats were identified from the Survey Area, with open woodland on low rolling hills as the dominant habitat type (86% of the Survey Area). The seven habitat types identified were:

- Open woodland on low rolling hills;
- Major drainage lines (and associated tributaries);
- Stony riverine plains;
- Man-made wetlands;
- Minor drainage lines;
- Rocky hillslopes; and
- Cleared / disturbed areas.

A total of 114 fauna species were recorded from the Survey Area during the current survey, comprising 14 mammals (four introduced), 80 birds, 14 reptiles and six amphibians (one introduced). One significant fauna species, the Gouldian Finch (*Chloebia gouldiae*), was recorded from the Survey Area during the field survey, and possible records were obtained of a second species, the Yellow-lipped Cave-Bat (*Vespadelus douglasorum*). Likelihood of occurrence assessments based on the desktop study results and an assessment of habitats undertaken during the field survey indicated that a further six significant vertebrate species are likely to occur in the survey, while 13 may occur (Appendix 4).

Four mygalomorph spiders were collected during the current field survey, with molecular analysis indicating that these belonged to two lineages (both putative species), the theraphosid Selenotholus H-T5 and the anamid Aname H-N187 (Helix 2023). Neither taxon has been recorded previously and both are therefore currently known only from the Survey Area. Selenotholus H-T5, in particular, was recorded widely across the Survey Area and is considered likely to also occur outside of the Survey Area. The stony riverine plains habitat from which the specimen of Aname H-187 was collected is also found extensively outside of the Survey Area.

4 VEGETATION DETAILS

4.1 Proposal Site Vegetation Description

Biota (2023) identified four vegetation types within the Development Envelope (in addition to cleared areas) based on a combination of structural vegetation types as identified in the field, floristic composition analysis and subsequent desktop review. None of these vegetation types are representative of a TEC or PEC. Details of the two vegetation types and mapped cleared areas within the Development Envelope are detailed below in Table 3. The condition of vegetation in this area ranges from Excellent-Very Good, to Good-Poor, and some sections of existing tracks mapped as Cleared. Some weed infestation is also occurring, although none of these species are Weeds of National Significance.

Table 3 and Table 4 provide details of the vegetation types and their condition within the Development Envelope and the remaining extent of these associations.

Table 3. Summary of Vegetation Types within Development Envelope

Vegetation Type	Vegetation Description	Extent within Development Envelope (ha)	Total Extent Mapped (ha) within Survey Area (+ Contextual)
5	Scattered emergent low trees including <i>Corymbia opaca</i> and <i>Grevillea pyramidalis</i> subsp. <i>leucadendron</i> over open hummock grassland of <i>Triodia wiseana</i> , with mixed tussock grassland dominated by <i>Heteropogon contortus</i> .	7.39	82.52
8	Low open woodland of <i>Corymbia opaca</i> , <i>Eucalyptus brevifolia</i> , <i>Lysiphyllum cunninghamii</i> over	98.78	1,457.72

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	open shrubland of <i>Carissa lanceolata</i> , <i>Gossypium australe</i> over low open shrubland of <i>Crotalaria novae-hollandiae</i> , <i>Indigofera</i> spp. over mixed tussock grassland.		
10	Scattered emergent trees including <i>Corymbia opaca</i> over tussock grassland dominated by <i>Sorghum stipoides</i> and <i>Heteropogon contortus</i> .	10.26	98.47
11	Very open bunch grassland of <i>Xerochloa imberbis</i> , <i>Sporobolus australasicus</i> , * <i>Cynodon dactylon</i> over very open herbland of <i>Trianthema oxycalyptum</i> var. <i>oxycalyptum</i> .	2.05	97.77
Cleared	Cleared	0.03	16.97

Table 4. Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	% Current Extent in DBCA Managed Land (proportion of pre-European Extent)
Veg Assoc No. 842 described as "Mosaic: Grasslands, short bunch grass savanna, low tree, Mt House box & bloodwood over enneapogon short grass / Hummock grasslands, open low tree-steppe; snappy gum over <i>Triodia wiseana</i> & <i>T. intermedia</i> "	Statewide	348,357.07	347,872.14	99.86	36.05
	IBRA Bioregion <i>Central Kimberley</i>	98,272.37	98,179.16	99.91	-
	IBRA Sub-region <i>Hart</i>	98,272.37	98,179.16	99.91	-
	Local Government Authority <i>Shire of Halls Creek</i>	344,565.86	344,472.64	99.97	36.45
Veg Assoc No. 837 described as "Grasslands, short bunch grass savanna low tree; snappy gum over arid short grass on plains"	Statewide	172,815.95	172,553.02	99.85	-
	IBRA Bioregion <i>Central Kimberley</i>	151,537.39	151,274.46	99.83	-
	IBRA Sub-region <i>Hart</i>	148,106.42	147,843.49	99.82	-
	Local Government Authority <i>Shire of Halls Creek</i>	151,971.74	151,708.81	99.83	-
Veg Assoc No. 808 described as "Grasslands, curly spinifex, low tree"	Statewide	1,201,800.25	1,201,483.04	99.97	0.88
	IBRA Bioregion <i>Central Kimberley</i>	1,128,243.76	1,128,218.30	100.00	0.94
	IBRA Sub-region <i>Hart</i>	889,464.33	889,438.87	100.00	-

Pre-European Vegetation Association	Scale	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	% Current Extent in DBCA Managed Land (proportion of pre-European Extent)
savanna; snappy gum over curly spinifex"	Local Government Authority <i>Shire of Halls Creek</i>	823,035.49	823,010.04	100.00	-
Veg Assoc No. 77 described as "Grasslands, curly spinifex & short grass low tree savanna; snappy gum over enneapogon & curly spinifex"	Statewide	439,393.93	439,221.53	99.96	-
	IBRA Bioregion <i>Central Kimberley</i>	432,657.25	432,484.84	99.96	-
	IBRA Sub-region <i>Hart</i>	430,803.52	430,631.11	99.96	-
	Local Government Authority <i>Shire of Halls Creek</i>	302,989.74	302,817.34	99.94	-

5 ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES

In assessing whether the Proposal's proposed clearing is likely to have a significant impact on the environment, the Proposal was assessed against the ten Clearing Principles (EP Act, Schedule 5).

Each principle has been assessed in accordance with the former Department of Environment Regulation (now Department of Water and Environmental Regulation (DWER) '[A Guide to the Assessment of Applications to Clear Native Vegetation](#)' (Department of Environment Regulation, 2014) and other relevant clearing permit application decision reports prepared by DWER.

The proposed clearing is not at variance, or not likely to be at variance, with the ten 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 Development Envelope does not occur in any of the eight Biodiversity Hotspots located in Western Australia. The nearest Biodiversity Hotspot is the Northern Kimberley IBRA region, located over 157 km northwest of the Development Envelope.

Current guidance on the assessment of biological diversity, described in DER (2014), includes the following five metrics as indicators of high diversity:

1. Flora and Fauna species diversity;
2. Priority and other Significant Flora;
3. Fauna Habitat & Priority Fauna;
4. Significant Ecological Communities;
5. Vegetation Condition.

1. Flora and Fauna species diversity

Flora

A total of 193 native flora species from 119 genera and 46 families were recorded during Biota's 2023 Biological Survey. A total of 24 weed species were recorded, including one Declared Pest, *Calotropis procera**. No conservation significant flora species were recorded.

The proposed clearing will have a maximum impact of 10.42 % or 8.96 % on vegetation types 10 and 5 respectively. Over 82 % of the mapped extent from Biota's (2023) Biological Survey within the DE will remain, and this habitat is likely to be common and widespread at a local and regional scale, based on the remaining extent of pre-European vegetation as outlined in Table 4. Flora species within the Development Envelope are common within the local area and widely available across the region, with no conservation significant flora recorded in the Survey Area. Vegetation types and flora within the Development Envelope are unlikely to comprise a high level of biodiversity in comparison to surrounding uncleared areas both locally and regionally.

Fauna & Fauna Habitat

A total of 114 vertebrate fauna species were recorded from the Biota's (2023) Biological Survey, comprising 14 mammals (four introduced), 80 birds, 14 reptiles and six amphibians (one introduced). One conservation significant fauna species, the Gouldian Finch (*Chloebia gouldiae*), was recorded from the Survey Area during the field survey, and possible records were obtained of a second species, the Yellow-lipped Cave-Bat (*Vespadelus douglasorum*). Likelihood of occurrence assessments based on the desktop study results and an assessment of habitats undertaken during the field survey indicated that a further six conservation significant vertebrate fauna species are likely to occur in the Survey Area, while 13 may occur.

Four fauna habitats, in addition to cleared areas, were identified in the Development Envelope outlined in Table 5. These habitats are widespread across the local area, with over 1749.15 ha mapped from Biota's (2023) Survey. The proposed clearing would result in a maximum impact of 21.30 ha. From Biota's (2023) Biological Survey, over 99 % of the mapped extent of Type 6 and Type 4 habitat will remain, over 98 % of Type 1 habitat will remain, and over 97 % of Type 3 Habitat will remain. Fauna habitat within the Development Envelope is common within the local area and is widely available across the region (Biota, 2023), therefore, this habitat is unlikely to comprise a high level of biodiversity in comparison to surrounding uncleared areas both locally and regionally.

Table 5. Fauna Habitat within the Development Envelope (DE) as mapped by Biota's (2023) Biological Survey.

Fauna Habitat	Fauna Habitat Description	DE* (ha)	Survey Area* (ha)	Proportion of Survey Area* (%)	Maximum Impact (%)
Open Woodland on Low Rolling Hills (Type 1)	Open woodland on low rolling hills. Overstorey of open woodland or scattered emergent trees, including <i>Corymbia opaca</i> , <i>Eucalyptus brevifolia</i> , <i>Lysiphyllum cunninghamii</i> and <i>Grevillea pyramidalis</i> , over an open shrubland, with ground cover of tussock grasses, herbs, and some patches of spinifex. Occurred on low rolling hills with variably stony substrate, with isolated small areas of rock outcropping.	116.38	1596.47	7.29	1.33
Stony riverine	Open flats bordering major drainage lines. Extensive bare				

plains (Type 3)	ground, with extensive stony areas, and patches of open low tussock grassland and herbs, with occasional isolated trees and shrubs.	2.05	97.77	2.10	2.10
Man-made wetlands (Type 4)	Man-made excavations that fill with water following the wet season.	0.01	1.18	0.85	0.85
Rocky hillslopes (Type 6)	Stony hillslopes vegetated primarily with tussock and hummock grasses, with isolated trees and shrubs.	0.05	32.45	0.15	0.15
Cleared/disturbed area	Cleared bituminised road (Great Northern Highway), cleared dirt tracks and old infrastructure.	0.026	21.28	0.12	0.12
Total		118.52	1749.15	10.51	4.55

DE* = Development Envelope

Proportion of Survey Area = (DE ÷ Survey Area*) x 100 = Percentage (%)

Maximum Impact = (21.30 ha ÷ Survey Area*) x 100 = Percentage (%)

2. Priority and other Significant Flora

A desktop search of DBCA TPFL and WA Herbarium records six Priority flora species within 40 km of the Development Envelope:

- Three Priority 1 species:
 1. *Aristida polyclados* (Tufted Annual Grass);
 2. *Pentalepis trichodesmoides* subsp. *incana*;
 3. *Polygala crassitesta* (Thick-leaved Milkwort);
- One Priority 2 species:
 1. *Stephania japonica* var. *japonica*
- Two Priority 3 species:
 1. *Goodenia crenata* (Purple Goodenia);
 2. *Tephrosia rosea* var. Napier Range (C.R. Dunlop 7760 & B.K. Simon)

None of these flora species were identified in Biota's (2023) Biological Survey and none were considered to have a high likelihood of occurring in the Survey Area based on their distribution and habitat preferences.

The nearest recorded conservation significant flora species is over 8.2 km from the Development Envelope. Biota's (2023) survey, conducted during the recommended season, found flora and vegetation in good condition, indicating no limitations due to rainfall or season. None of these species were found by Biota (2023) and given the survey was undertaken in favourable conditions, none are considered likely to occur in the Development Envelope.

3. Fauna Habitat & Priority Fauna

Biota's (2023) Biological survey mapped five fauna habitat types in the Development Envelope.

The Type 1-6 Fauna Habitats recorded are likely to be widespread at local and regional scales across the Kimberley region, with the remaining extent of pre-European vegetation associations exceeding 99 % on all scales (see Table 4). The proposed clearing will impact a maximum of 4.55 % of the Survey's mapped extent of the five Types 1-6 Fauna Habitats.

The removal of 2.10 % of Type 3 and 1.33 % of Type 1 habitat is unlikely to significantly impact biodiversity, as this habitat is widespread, both locally and regionally. Further assessment of the significance of fauna habitat is provided in Clearing Principle (b).

4. Significant Ecological Communities

A DBCA Desktop Study Area of 40 km identified three Priority 3 PECs, Gordon Land System, Vegetation Association 834 and Nelson Land Systems. However, these PECs were not identified in Biota's 2023 Survey Area. No TECs or PECs will be impacted by the proposed clearing.

5. Vegetation Condition

Table 6. Vegetation Condition within the Development Envelope.

Vegetation Condition	Survey Area (ha)	DE (ha)	DE (ha) (%)	Maximum Impact (%)
Excellent-Very Good	70.77	7.58	10.71	10.71
Very Good to Good	313.89	54.97	17.51	6.79
Good	1209.27	53.89	4.46	1.76
Good-Poor	381.36	2.05	0.54	0.54
Cleared	16.97	0.03	0.18	0.18
Total	1992.26	118.52	33.39	1.07

DE* = Development Envelope

Maximum Impact = $(21.30 \text{ ha} \div \text{Survey Area}) \times 100 = \text{Percentage } (\%)$

The Development Envelope predominantly consists of vegetation mapped as Very Good-Good (17.51 %), followed by Excellent-Very Good (10.71 %), Good (4.46 %), and Cleared (0.18 %). However, the maximum potential impact to the mapped vegetation in Very Good-Good condition is 6.79 % and Excellent-Very Good condition is 10.71 %. The availability of high-quality vegetation is unlikely to be significantly impacted by the proposed clearing, with over 89 % of Excellent to Very Good and 93.21 % of Very Good to Good vegetation remaining, and this high-quality vegetation is likely to extend beyond the Survey Area, both locally and regionally.

No significant impact on the availability of quality vegetation is anticipated.

Summary

The Development Envelope does not contain any TECs, PECs, or known conservation significant flora, nor does it support significant fauna habitat features such as caves, watercourses or associated riparian vegetation. The proposed clearing affects a small extent of vegetation in Excellent to Very good and Very Good to Good condition, and available habitat for conservation significant fauna remains abundant across the broader landscape. Given the absence of key indicators of high biodiversity value and the limited scale of impact, the Development Envelope is unlikely to comprise a high level of biodiversity.

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

Methodology

- Biota (2023)
- DCCEEW ((2026b)
- Government of Western Australia (2019)
- Government GIS Shapefiles:
 - Threatened and Priority Fauna (DBCA-037) (Accessed March 2026)
 - Threatened and Priority Flora (TPFL) (DBCA-036) (Accessed March 2026)
 - Threatened Ecological Communities (DBCA-038) (Accessed March 2026)
 - Western Australian Herbarium Specimen Database (WAHerb) (Accessed March 2026)

(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.

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

Biota's (2023) Biological survey mapped four fauna habitats, in addition to cleared areas, within the Development Envelope and outlined below in Table 5.

Fauna Habitat	Fauna Habitat Description	DE* (ha)	Survey Area* (ha)	Proportion of Survey Area* (%)	Maximum Impact (%)
Open Woodland on Low Rolling Hills (Type 1)	Open woodland on low rolling hills. Overstorey of open woodland or scattered emergent trees, including <i>Corymbia opaca</i> , <i>Eucalyptus brevifolia</i> , <i>Lysiphyllum cunninghamii</i> and <i>Grevillea pyramidalis</i> , over an open shrubland, with ground cover of tussock grasses, herbs, and some patches of spinifex. Occurred on low rolling hills with variably stony substrate, with isolated small areas of rock outcropping.	116.38	1596.47	7.29	1.33
Stony riverine plains (Type 3)	Open flats bordering major drainage lines. Extensive bare ground, with extensive stony areas, and patches of open low tussock grassland and herbs, with occasional isolated trees and shrubs.	2.05	97.77	2.10	2.10
Man-made wetlands (Type 4)	Man-made excavations that fill with water following the wet season.	0.01	1.18	0.85	0.85
Rocky hillslopes (Type 6)	Stony hillslopes vegetated primarily with tussock and hummock grasses, with isolated trees and shrubs.	0.05	32.45	0.15	0.15
Cleared/disturbed area	Cleared bituminised road (Great Northern Highway), cleared dirt tracks and old infrastructure.	0.026	21.28	0.12	0.12
Total		118.52	1749.15	10.51	4.55

DE* = Development Envelope

Proportion of Survey Area = $(DE \div Survey Area^*) \times 100 = \text{Percentage } (\%)$

Maximum Impact = $(21.30 \text{ ha} \div Survey Area^*) \times 100 = \text{Percentage } (\%)$

All fauna habitats are widespread across the local area, with over 1,749.15 ha mapped from Biota's (2023) Survey. The proposed clearing would result in a maximum impact of 21.30 ha. From Biota's (2023) Biological Survey, over 99 % of the mapped extent of Type 4 and Type 6 habitat will remain, over 98 % of Type 1 habitat will remain, and over 97 % of Habitat Type 3 will remain. Fauna habitat within the Development Envelope is common within the local area and is widely available across the region (Biota, 2023), therefore, this habitat is unlikely to comprise a high level of biodiversity in comparison to surrounding uncleared areas both locally and regionally. Notably, significant

fauna habitat, such as caves, watercourses or associated riparian vegetation is not present within the Development Envelope.

Threatened and Priority Fauna

A desktop search of DBCA TPFA records identified seven conservation significant fauna species within 40 km of the Development Envelope. These comprised of:

- ***Chloebia gouldiae* (Gouldian Finch)** (P4)
- *Leggadina lakedownensis* (Northern Short-tailed Mouse, kerakenga) (P4)
- ***Vespadelus douglasorum* (Yellow-lipped Cave Bat)** (P2)
- *Falco hypoleucos* (Grey Falcon) (VU)
- *Crocodylus johnstoni* (Freshwater Crocodile) (OS)
- *Charadrius veredus* (oriental plover) (MI)
- *Plegadis falcinellus* (Glossy Ibis) (MI)

Biota (2023) undertook a post-survey likelihood assessment of the conservation significant fauna species identified during the desktop assessment taking into consideration their habitat requirements and the findings of the field survey (see Table 7). This assessment identified 21 species, with two recorded, six likely to occur, and thirteen may occur in the Survey Area.

Table 7. Post Survey Likelihood of Occurrence Assessment (Conservation significant fauna)

Common Name	Scientific Name	Conservation Status
Recorded (2)		
Gouldian Finch	<i>Chloebia gouldiae</i>	DBCA Priority 4 & EPBC Act Endangered
Yellow-lipped Cave Bat	<i>Vespadelus douglasorum</i>	DBCA Priority 2
Likely to Occur (6)		
Northern Short-tailed Mouse	<i>Leggadina lakedownensis</i>	DBCA Priority 4
Fork-tailed Swift	<i>Apus pacificus</i>	BC Act & EPBC Act - Migratory
Oriental Pratincole	<i>Glareola maldivarum</i>	BC Act & EPBC Act - Migratory
Grey Falcon	<i>Falco hypoleucos</i>	BC Act & EPBC Act - Vulnerable
Peregrine Falcon	<i>Falco peregrinus</i>	BC Act - Other Specially Protected Fauna
Freshwater Crocodile	<i>Crocodylus johnstoni</i>	BC Act - Other Specially Protected Fauna
May Occur (13)		
Ghost Bat	<i>Macroderma gigas</i>	BC Act & EPBC Act - Vulnerable
Oriental Plover	<i>Charadrius veredus</i>	BC Act & EPBC Act - Migratory
Australian Painted-snipe	<i>Rostratula australis</i>	BC Act & EPBC Act Endangered
Little Curlew	<i>Numenius minutus</i>	BC Act & EPBC Act - Migratory
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	BC Act & EPBC Act - Migratory
Common Sandpiper	<i>Actitis hypoleucos</i>	BC Act & EPBC Act - Migratory
Marsh Sandpiper	<i>Tringa stagnatilis</i>	BC Act & EPBC Act - Migratory
Wood Sandpiper	<i>Tringa glareola</i>	BC Act & EPBC Act - Migratory
Common Greenshank	<i>Tringa nebularia</i>	BC Act & EPBC Act - Migratory
Australian [Gull-billed] Tern	<i>Gelochelidon [nilotica] macrotarsa</i>	BC Act & EPBC Act - Migratory
Glossy Ibis	<i>Plegadis falcinellus</i>	BC Act & EPBC Act - Migratory
Red Goshawk	<i>Erythrorhynchus radiatus</i>	BC Act & EPBC Act - Vulnerable
Gravel Dragon	<i>Cryptagama aurita</i>	DBCA Priority 1

Eleven of the species identified in Biota's Likelihood of Occurrence Assessment are migratory, marine or wetland bird species. These species may utilise drainage lines within the Survey Area for

foraging purposes, however, none of this habitat is present within the Development Envelope. As such, no impact on these eleven bird species is anticipated.

Three additional bird species (Peregrine Falcon, Australian Painted-snipe, and Red Goshawk) forage over drainage lines. Drainage habitat is present in the Survey Area; however, it is not present within the Development Envelope. These species were not observed by Biota (2023), and there are no records within 40 km of the Development Envelope. These species either breed in other countries, or utilise cliff faces, tree hollows along rivers, or tall trees (e.g., river red gums). Given the absence of drainage line habitat within the Development Envelope, the proposed clearing is not expected to impact foraging, roosting or breeding habitat for any of these five species.

Gouldian Finch (*Chloebia gouldiae*)

Gouldian Finch habitat includes savannah woodland on stony hills with eucalypts over dense, tall native grasses; grassy flats; trees by water; vegetation on watercourses; and scrublands with spinifex. The Gouldian Finch is granivorous, primarily feeding on Sorghum species during the breeding season and Triodia species during the wet season. Gouldian Finches are obligate cavity nesters, utilising hollows of eucalypt trees between January and August (Tidemann et al. 1999).

The nearest record from DBCA TPFA data is over 25 km from the Development Envelope, however, the species was observed twice during Biota's field survey at two separate locations, the nearest of which was outside of the Development Envelope. Suitable foraging habitat is present within the Development Envelope from open woodland on low rolling hills habitat type and human-made dams, and nearby (not within the DE) major and minor drainage lines that provide important drinking water sources. Type 1 habitat with larger numbers of eucalypts would also represent a potentially suitable breeding habitat.

The proposed works will occur in April, which leads toward the end of breeding season for the Gouldian Finch (January – May), therefore avoiding the majority of the breeding season. Trees with hollows are unlikely to be impacted, as the proposed clearing will avoid large trees where practicable. Where large trees cannot be avoided, these will be inspected prior to clearing by a Main Roads Environmental Officer to identify hollows and utilisation by Gouldian Finches. No trees will be cleared where nest hollows are determined to be occupied. The proposed clearing will result in a maximum potential impact of 7.29 ha (1.33%) on Type 1 habitat which represents foraging and potentially suitable breeding habitat for the species, which is widely distributed across the Survey Area and greater Kimberley region. Given the abundance of available foraging and breeding habitat for Gouldian Finches beyond the proposed clearing area, combined with the proposed mitigation measures outlined above, the Development Envelope is unlikely to constitute significant habitat for this species.

Yellow-lipped Cave Bat (*Vespadelus douglasorum*)

This large species of *Vespadelus* occurs most commonly in the western Kimberley, primarily in areas where the annual rainfall exceeds 800 mm (Churchill, 2008). It has been recorded foraging in habitats including *Melaleuca* and *Pandanus*-lined waterways and adjacent tropical woodlands, and roosts in colonies of up to 80 individuals in sandstone and limestone caves, typically near water (Churchill, 2008).

The species was recorded from Acoustic Recording Units (ARUs) within the Survey Area. No caves were identified within the Survey Area, and no clearing of mapped drainage habitat will occur as this habitat is not within the Development Envelope. As such, the proposed clearing will not impact roosting or preferred foraging habitat for this species.

Grey Falcon (*Falco hypoleucos*)

This species is sparsely distributed, with a large home range, across much of arid inland and northern Australia, occurring mainly on lightly wooded plains and along major watercourses (Johnstone et al. 2013). Breeding usually takes place in taller trees such as river red gums, or on isolated man-made structures such as communications towers. This species is also considered nomadic, moving to where conditions are more favourable (Spectrum, 2023).

Three previous records of Grey Falcon were identified from the Desktop Study Area, however this species not recorded during the Biota (2023) Survey. All habitats within the Survey area are likely to be suitable for foraging. There are no drainage line habitats within the DE that would offer tall trees for potential breeding habitat. The species is likely to occur within the Development Envelope for foraging, however, foraging habitat is widely available beyond the Development Envelope, therefore clearing will not impact habitat critical for the Grey Falcon.

Oriental Plover (*Charadrius veredus*)

The species is a non-breeding summer migrant to Australia, occurring primarily from September to April (Johnstone and Storr, 1998). Their preferred foraging habitats are sparsely vegetated open areas, including short-grassed or bare plains, bare wetland margins, and recently burnt areas (Johnstone and Storr, 1998). No Oriental Plovers were recorded during the Biota (2023) survey; however there are previous records in the 40 km Desktop Study Area, and there are small amounts of suitable habitat within the DE, primarily in the stony riverine plains (2.05 ha in the DE) and man-made dam habitat types (0.01 ha in the DE). The Oriental Plover may occur as a non-breeding visitor, however clearing would be considered an unlikely impact to the species due to the mobile nature of the species, no impact to breeding, and the widespread distribution of their preferred habitat type both locally and regionally.

Glossy Ibis (*Plegadis falcinellus*)

This species is widely distributed globally but within Western Australia are primarily found in well-watered flatlands of the Kimberley and Swan Coastal Plain (Johnstone and Storr, 1998). They are common in the Kimberley during and after the wet season. Preferred habitat includes shallow freshwater wetlands and adjacent flats, river pools, and flooded samphire (Johnstone and Storr, 1998).

The Glossy Ibis was not recorded during the Biota (2023) Survey, but a previous record was identified from the Desktop Study Area, along a major drainage line approximately 6 km northwest of the Survey Area. Some potentially suitable habitats exist within the Survey Area in the man-made dam and Drainage line habitat types, however most of their preferred habitat is not within the DE. Clearing within the man-made wetland habitat type will have a maximum impact of 0.85%, so clearing will likely have an insignificant impact on the Glossy Ibis.

Ghost Bat (*Macroderma gigas*)

Ghost Bats previously occurred across most of inland and northern Australia, but are now restricted to the tropical and subtropical north of the continent (Churchill, 2008). The distribution of this species is fragmented, with each population showing some genetic differentiation (Armstrong and Wilmer, 2004). Ghost Bats occur in a broad range of habitats, with distribution influenced by the availability of suitable caves for roost sites, and are known to forage over areas up to 60 ha

(Churchill, 2008). Scat material from the Ghost Bat is quite distinctive and can be used to identify temporary roosts or feeding sites. Feeding sites are also usually readily identifiable based on the accumulation of discarded remains of prey animals (van Dyck and Strahan, 2008).

No Ghost Bats were recorded during the survey, and no regional records exist within 40 km of the Development Envelope. However, the survey area falls within published distributions for the species (e.g. Churchill 2008, Menkhorst and Knight 2011) and potentially suitable foraging habitat exists within the survey area across most habitat types, so it may occur. Given the lack of known roosting habitat present in the Development Envelope, and noting that foraging habitat for the species is locally and regionally abundant, the proposed clearing area is not likely to constitute significant habitat for this species.

Northern Short-tailed Mouse (*Leggadina lakedownensis*)

In Western Australia, the Northern Short-tailed Mouse occurs primarily in the Pilbara and Kimberley regions. Regional records suggest that the primary mainland habitat comprises areas of cracking clay and adjacent habitats. However, other sources provide a more diverse picture of habitat utilisation that includes areas of open tussock and hummock grassland, *Acacia* shrubland and savannah woodland, sandy soils, cracking clays (Aplin et al., 2016, hilltops and sandy coastal areas (Biota 2023).

The Northern Short-tailed Mouse was not recorded during the survey, however, there is a previous record within 11 km of the Development Envelope. There is suitable habitat within the Development Envelope, and the proposed clearing will have a maximum impact up to 3.58 % of the mapped extent of Biota's (2023) potential habitat types. This impact will be spread across a 118.56 ha Development Envelope, minimising the impact on any one patch of habitat. The species' home range averages 5.3 ha and is higher in the non-breeding season than the breeding season. Suitable habitat for the species is widely available as mapped in Biota's Survey Area, and impacts will be minimal given the low impact nature of the clearing and large home range of the species. The proposed clearing area is unlikely to constitute significant habitat for this species.

Freshwater Crocodile (*Crocodylus johnstoni*)

The species is restricted to tropical northern Australia (Western Australia, Northern Territory and Queensland), and occurs primarily in freshwater areas upstream of tidal influence (Webb et al. 1987). This includes almost any type of permanent freshwater habitat, such as rivers, creeks, swamps, floodplain lakes and billabongs (Wilson and Swan, 2021). The species was not observed during Biota's (2023) Survey; however, the nearest observation of the species is 8 km from the Development Envelope.

The species was considered likely to occur in the Survey Area, however, no drainage habitat is present within the Development Envelope and therefore preferred habitat for this species will not be impacted by the proposed clearing.

Gravel Dragon (*Cryptagama aurita*)

The species is known to occur in the north-eastern interior of Western Australia and in the adjacent Northern Territory (Wilson and Swan, 2021). It is superbly adapted to mimic a gibber stone and has so far only been recorded from stony 'gibber' soils with spinifex (Wilson and Swan, 2021).

Cryptagama aurita was not recorded during Biota's (2023) survey, and no records were identified from the desktop study area. The Development Envelope is however within the published distribution of the species. There is suitable habitat within the Development Envelope in some areas of the open woodland on low rolling hills habitat type. The proposed clearing will have a maximum impact up to 3.58 % of the mapped extent of Biota's potentially suitable habitat. This

impact will be spread across a 118.56 ha Development Envelope, minimising the impact on any one patch of habitat. The 3.58 % impact to suitable habitat in the Survey Area, spread across the Development Envelope, is unlikely to significantly impact habitat availability for this species

Invertebrate Fauna

Biota (2023) conducted a targeted search for Short Range Endemics (SREs) such as mygalomorph spiders, scorpions, pseudoscorpions and land snails. Four mygalomorph spiders were collected and a molecular analysis indicated these belonged to two lineages (both putative species), the theraphosid *Selenotholus* H-T5 and the anamid *Aname* H-N187 (Helix, 2023). Neither taxon has been recorded previously, and both are therefore currently known only from the Survey Area.

Selenotholus H-T5 was recorded widely across the 446.2 ha Survey Area and from habitats that also occur widely in the broader locality beyond the Survey Area. The specimen of *Aname* H-N187 was collected from the stony riverine plains habitat, of which 2.05 ha occurs within the Development Envelope; representing less than 2.10 % of the 97.77 ha of this habitat type mapped from the Survey Area. Biota (2023) noted that this habitat type is also found extensively outside of the Survey Area. Due to the wide availability of suitable habitat in the Survey Area and beyond, the proposed clearing area is unlikely to constitute significant habitat for these species.

Summary:

The fauna habitat types mapped in the Development Envelope are widespread at a local and regional scale and don't include important features such as caves, watercourses or riparian vegetation, all of which are often associated with breeding and roosting habitat for bats and various avian species. The removal of 4.43 % of the mapped extent of fauna habitat from Biota's 2023 Biological Survey is unlikely to have a significant impact on the availability of habitat, or the species that utilise it.

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

Methodology

- ALA (2026)
- Aplin et al. (2016)
- Armstrong and Wilmer (2004)
- Biota (2023)
- Churchill (2008)
- DBCA (2023)
- Helix (2023)
- Johnstone and Storr (1998)
- Menkhorst and Knight (2011)
- Spectrum (2023)
- Tidemann et al. (1999)
- van Dyck and Strahan (2008)
- Watts (1976)
- Webb et al. (1987)

- Wilson and Swan (2021)
- Government GIS shapefiles:
 - Threatened and Priority Flora (TPFL) (DBCA-036) (Accessed March 2026)
- Western Australian Herbarium Specimen Database (WAHerb) (Accessed March 2026)

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

Proposed clearing is not at variance to this Principle.

Desktop database searches identified no known records of Threatened flora listed under the *Biodiversity Conservation Act 2016* within a 40 km radius of the Development Envelope.

Biota (2023) did not record any Threatened flora taxa from the Development Envelope or the Survey Area, and none are considered likely to occur.

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- Biota (2023)
- Government GIS shapefiles:
 - Threatened and Priority Flora (TPFL) (DBCA-036) (Accessed March 2026)
- Western Australian Herbarium Specimen Database (WAHerb) (Accessed March 2026)

(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 at variance to this Principle.

Neither the desktop study nor Biota’s Biological Survey identified any TECs in the Survey Area or within 40 km of the Development Envelope (Study Area).

Based on the above, the native vegetation proposed for clearing does not comprise the whole or a part of, and is not necessary for the maintenance of a TEC.

The proposed clearing is not at variance to this Principle.

Methodology

- Biota (2023)
- Government GIS shapefiles:
- Threatened Ecological Communities (DBCA-038) (Accessed March 2026)

(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 at variance to this Principle.

The National Objectives and Targets for Biodiversity Conservation recognise that the retention of 30% or more of the pre-clearing extent of each ecological community is necessary if Australia’s biological diversity is to be protected (Commonwealth of Australia 2001) except in constrained areas (Perth & Peel) where 10% representation should be maintained.

Vegetation within the Development Envelope is broadly mapped as pre-European Vegetation Associations , 842, 837, 808, and 77 (as seen in Table 4), all of which have over 99 % of their pre-European extent remaining (Government of Western Australia, 2019). The proposal is not located in an area that has been extensively cleared and the vegetation proposed for clearing is not significant as a remnant.

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- Biota (2023)
- Commonwealth of Australia (2001)
- Government of Western Australia (2019)
- Government GIS shapefiles:
 - Pre-European Vegetation (DPIRD-006) (Accessed March 2026)

(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 not at variance to this Principle.

Biota (2023) mapped riparian vegetation growing in association with major and minor watercourses within the Survey Area (vegetation type 9), however, riparian vegetation does not occur within the Development Envelope as no watercourses or wetlands are present.

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- Biota (2023)
- Government GIS shapefiles:
 - Directory of Important Wetlands in Australia (DBCA-045) (Accessed March 2026)
 - Ramsar Sites (DBCA-010) (Accessed March 2026)
 - RiWI Act, Rivers (DWER-036) (Accessed March 2026)
 - WWYS Geoscience Australia Regional Surface Hydrology Lines (Accessed March 2026)

(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.**

The Development Envelope intersects two Soil Landscape Systems: the O'Donnell System and Richenda System. The O'Donnell System is characterised by undulating plains and scattered low hills on granite and gneiss, loamy skeletal soils, supporting snappy gum and bloodwood very open woodlands with arid short grasses and ribbon grass; also minor Mitchell grass grasslands. The system supports grass pastures which are highly preferred by cattle and prone to degradation; interfluves and drainage floors (units 3 and 5) have moderate susceptibility to erosion. Control of grazing pressure is essential. The Richenda System covers only 0.61 % of the DE and is characterised by mountains and hills on granite and gneiss with narrow valleys and lower slopes supporting snappy gum and grey box low open woodlands with curly spinifex, ribbon grass and other grasses.

Whilst the Soil Landscape Systems of the Development Envelope have a moderate susceptibility to erosion, the low impact nature of the clearing, including avoidance of large trees, drainage areas and retention of approximately 82% of vegetation within the Development Envelope, is unlikely to cause appreciable land degradation.

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

Methodology

- Biota (2023)
- Government GIS shapefiles:
 - Soil Landscape Mapping – Systems (DPIRD-064) (Accessed March 2026)

(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 at variance to this Principle.

The Development Envelope is not located within or adjacent to any conservation areas, nor does it provide important ecological linkage or connectivity values. The nearest DBCA-managed reserve is the Purnululu Conservation Reserve, located approximately 32 km east of the Development Envelope. The nearest mapped Environmentally Sensitive Area (ESA) is approximately 18 km to the east.

The proposed clearing will not impact any buffers, ecological linkages or environmental values of any conservation areas.

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- Government GIS Shapefiles:
 - DBCA Legislated Lands and Waters (DBCA-011) (Accessed March 2026)
 - DBCA Lands of Interest (DBCA-012) (Accessed March 2026)
 - Directory of Important Wetlands in Australia (DBCA-045) (Accessed March 2026)
 - Ramsar Sites (DBCA-010) (Accessed March 2026)

(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 is not likely to be at variance to this Principle.

No watercourses or wetlands occur within the Development Envelope. The nearest watercourses are a minor non-perennial watercourse, approximately 70 m from the Development Envelope in the Nellie Spring Floodway area.

The Development Envelope is located within the Ord River and Tributaries Surface Water Area and Canning-Kimberley Groundwater Area, both proclaimed under the RiWI Act, however it is not located within or near any Public Drinking Water Source Area (PDWSA). The proposed clearing of 21.30 ha, spaced over a Development Envelope of approximately 118.56 ha, is unlikely to result in deterioration in the quality of surface or underground water given clearing will be undertaken during the dry season, the vast extent of native vegetation remaining within and beyond the Development Envelope, the absence of drainage areas within the Development Envelope and no groundwater-dependent vegetation being recorded in the Development Envelope by Biota (2023).

The Australian Soil Resource Information System (ASRIS) Acid Sulfate Soils (ASS) risk mapping indicates that the Development Envelope is classified as Extremely Low Probability of Occurrence (Cq(p4)). The proposed clearing is unlikely to expose acid sulfate soils.

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

Methodology

- Government GIS Shapefiles:
 - CAWSA Part 2A Clearing Control Catchments (DWER-004) (Accessed March 2026)
 - CSIRO ASRIS Acid Sulfate Soils (Accessed March 2026)
 - RIWI Act, Groundwater Areas (DWER-034) (Accessed March 2026)
 - RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037) (Accessed March 2026)
 - Soil Landscape Mapping – Systems (DPIRD-064) (Accessed March 2026)

(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 at variance to this Principle.

The subregional climate is described as dry winter and hot semi-arid summer with an average annual rainfall of 665.5 mm (Springvale (Station Number 2050) (BoM, 2026). Extreme weather events are a significant component of the Kimberley climate. Tropical cyclones and tropical storms can bring heavy and sustained rainfall, particularly in the months leading up to and during the wet season. It is common for a large proportion of the region's rainfall to be recorded in one single event, leading to extensive flooding of rivers, creeks and roadways.

No watercourses or wetlands occur within the Development Envelope. The nearest watercourses are a minor non-perennial watercourse, approximately 70 m from the Development Envelope in the Nellie Spring Floodway area.

The proposed clearing will take place outside of the wet season to reduce the potential escalation of flooding, waterlogging or erosion. No changes to the existing levels of natural flooding are anticipated given the minor extent of clearing proposed. As noted above, climatic conditions are the main factor influencing flooding and the small amount of proposed clearing will have no measurable influence on flood regimes in the area.

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- BoM (2026)
- Government GIS Shapefiles:
 - Soil Landscape Mapping – Systems (DPIRD-064) (Accessed March 2026)
- 10 metre contours (DPIRD-073) (Accessed March 2026)

6 REHABILITATION, REVEGETATION AND OFFSETS

6.1 Revegetation and Rehabilitation

No temporary clearing will be undertaken as part of the Proposal activities and therefore no revegetation or rehabilitation will be conducted under CPS 818.

6.2 Offset Proposal

No offset proposal is required as the proposed clearing will not result in significant residual impacts to native vegetation within the region.

7 STAKEHOLDER CONSULTATION

Main Roads will undertake stakeholder consultation in accordance with CPS 818 Condition 8.

8 COMPLIANCE WITH CPS 818

The clearing associated with the proposal is unlikely to be, or is not at variance with the Clearing Principles. Additional management actions under CPS 818 are detailed in Table 8 .

Table 8. Summary of Additional Management Actions Required by CPS 818

Impact of Clearing	Yes/No or NA	Further Action Required
1. The CAR indicates that the clearing is 'At Variance' or 'May be at Variance' with one or more of the Clearing Principles.	No	No further action required.
2. Clearing is at variance or may be at variance with Clearing Principle (g) land degradation, (i) surface or underground water quality <u>or</u> (j) the incidence of flooding.	No	No further action required.
3. Clearing is at variance with Clearing Principle (g) land degradation, (i) surface or underground water quality <u>and</u> (j) the incidence of flooding.	No	No further action required.
4. The Proposal involves clearing for temporary works (as defined by CPS 818).	No	No further action required.
5a. Proposal is within a Region that: • has rainfall greater than 400mm; and, • is South of the 26th parallel; and, • works are necessary in 'Other than dry conditions'; and, • works have potential for uninfested areas to be impacted.	No	Standard Vehicle and Plant management actions from Annexure 204B (TABLE 204B.9.1), <u>Hygiene Checklists (D17#859669)</u> and <u>Vehicle, Plant and Machinery Hygiene Register Template (D23#179551)</u> will be applied
5b. Do the proposed works require clearing within or adjacent to DBCA managed lands in non-dry conditions?	No	No further action required.
6. Main Roads has been notified by DWER or an environmental specialist that the area to be cleared is susceptible to a pathogen other than dieback.	No	No further action required.

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Impact of Clearing	Yes/No or NA	Further Action Required
7. Weeds are likely to spread to and result in environmental harm to adjacent areas of native vegetation that are in good or better condition.	No	No further action required.
8. Did an environmental specialist conduct the survey or field assessment?	Yes	The Environmental Specialist undertaking the biological assessments was suitably qualified and had more than three years' experience.
9. Did an environmental specialist prepare the Assessment Report and any other associated documentation including the VMP, Dieback Management Plan or Offset Proposal?	Yes	The Environmental Specialist preparing the Assessment Report and any other associated documentation including the VMP, Dieback Management Plan or Offset Proposal was suitably qualified and had more than three years' experience.

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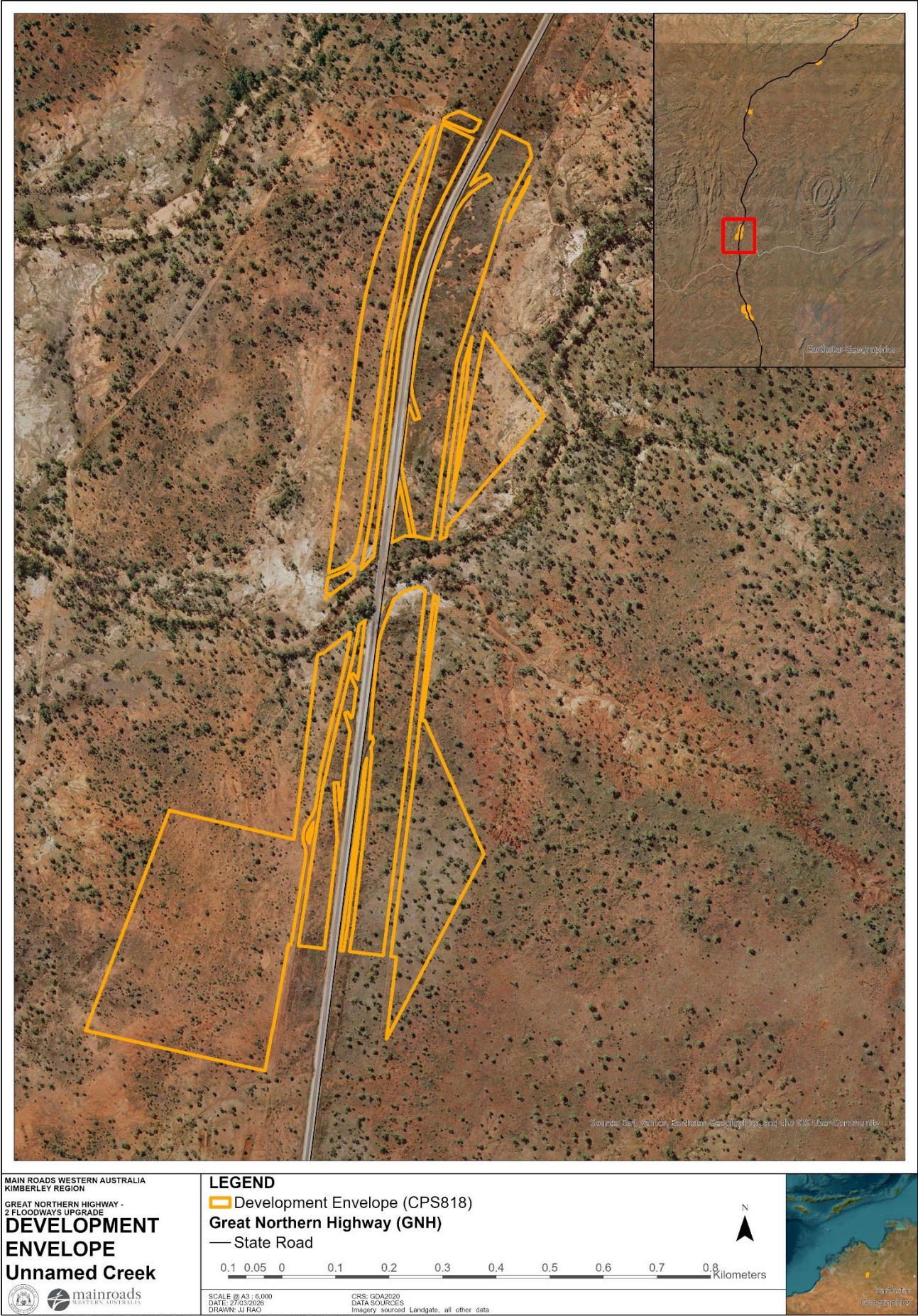
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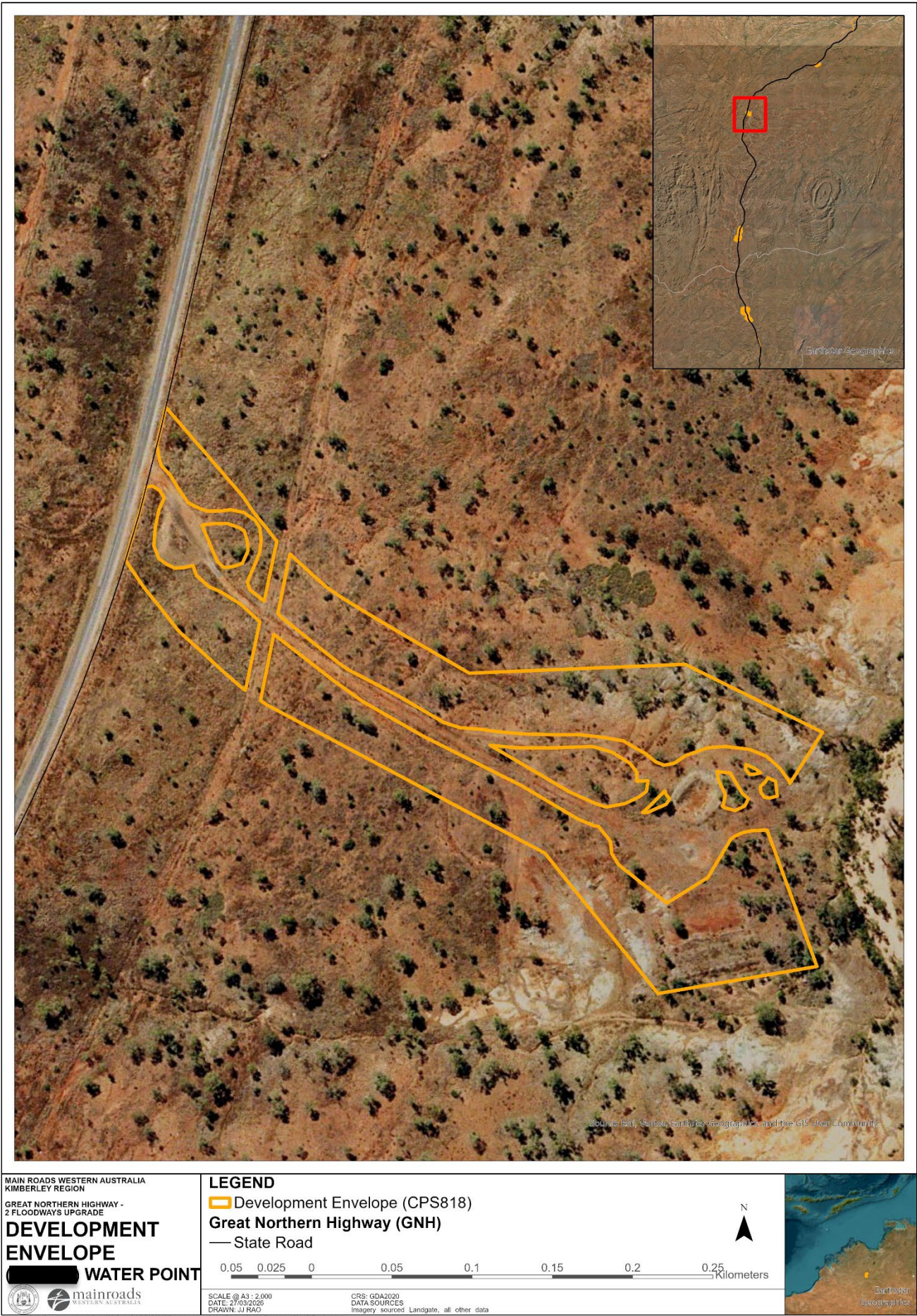
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10 APPENDICES

APPENDIX 1: PROJECT OVERVIEW – MAP SERIES









APPENDIX 2: VEGETATION WITHIN DEVELOPMENT ENVELOPE

