Clearing Desktop Report
CPS 818

We're working for Western Australia.

New Brooking Channel Bridge
GNH - Brooking Channel (1310)
Kimberley
3285

D24#436872
March 2024

Contents

List of Figures

List of Tables

Document Control

Report Compilation & Review	Name and Position	Document Revision	Date
Author:	GRADUATE ENVIRONMENT OFFICER	Draft v1	22/03/2024
Reviewer:	PRINCIPAL ENVIRONMENT OFFICER	Draft v1	22/03/2024
Author:	GRADUATE ENVIRONMENT OFFICER	Draft v2	27/03/2024
Reviewer:	PRINCIPAL ENVIRONMENT OFFICER	FINAL	28/03/2024

1 PROPOSAL

1.1 Purpose and Justification

The bridge over Brooking Channel is a single lane steel/concrete composite bridge built in 1991. The structure is currently no longer fit for purpose and is considered unsafe due to its location in a high traffic area (local and otherwise).

Main Roads is planning to replace the existing structure on alignment with a new dual lane bridge. This work is expected to improve road safety for pedestrians and light/heavy vehicles and to provide local employment opportunities in the wake of the completion of the New Fitzroy River Bridge.

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 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 and enhancing 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

The proposal involves clearing of up to 10 ha of vegetation within a 13.99 ha Development Envelope. This will enable the construction of a dual lane bridge and associated activities. Existing infrastructure will be utilised where practicable. This includes utilisation of the existing camp and site offices at Bindarra Village.

1.3 Proposal Location

The Development Envelope is located on Great Northern Highway (GNH) SLK 2523 to SLK 2524, Brooking Channel Bridge (1310), Fitzroy Crossing, Shire of Derby-West Kimberley as shown in Figure 2. The central coordinate of the proposal is:

Latitude: -18.20316
Longitude: 125.57165

1.4 Clearing Details

Proposed Clearing to be undertaken using CPS 818:
10 ha

Areas of Native Vegetation Clearing:
The areas of native vegetation to be cleared are shown in Figure 3.

Type of Native Vegetation:
The type of vegetation to be cleared under this Proposal is in Poor to Very Good condition, and characterised into two vegetation associations, Fitzroy-Lennard Flood Plains associations 61 and 709. These vegetation associations are described in **Section 3.1** and their distribution in **Table 1**.

Figure 1: Brook Channel Proposal Area

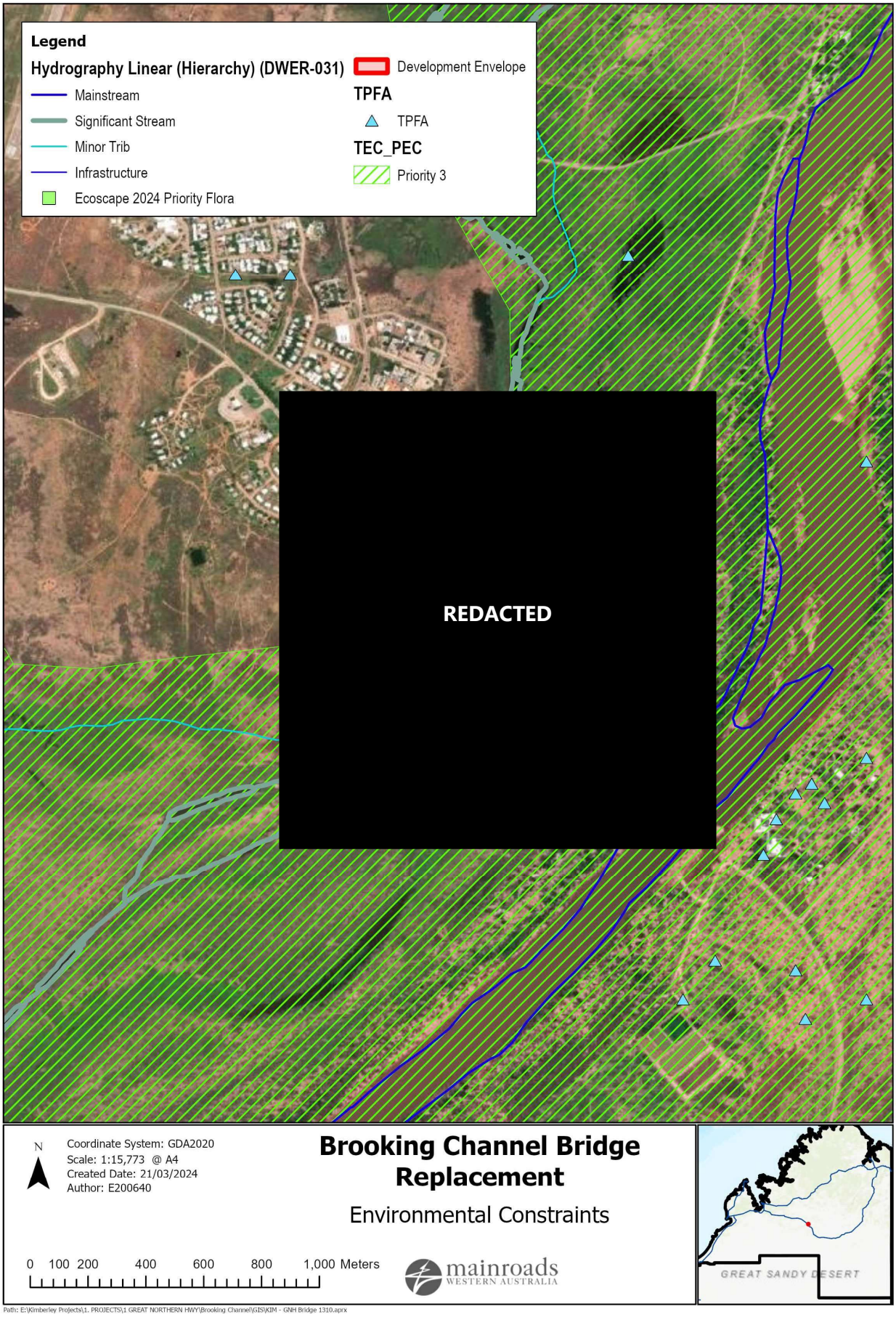


Figure 2. Environmental Constraints.

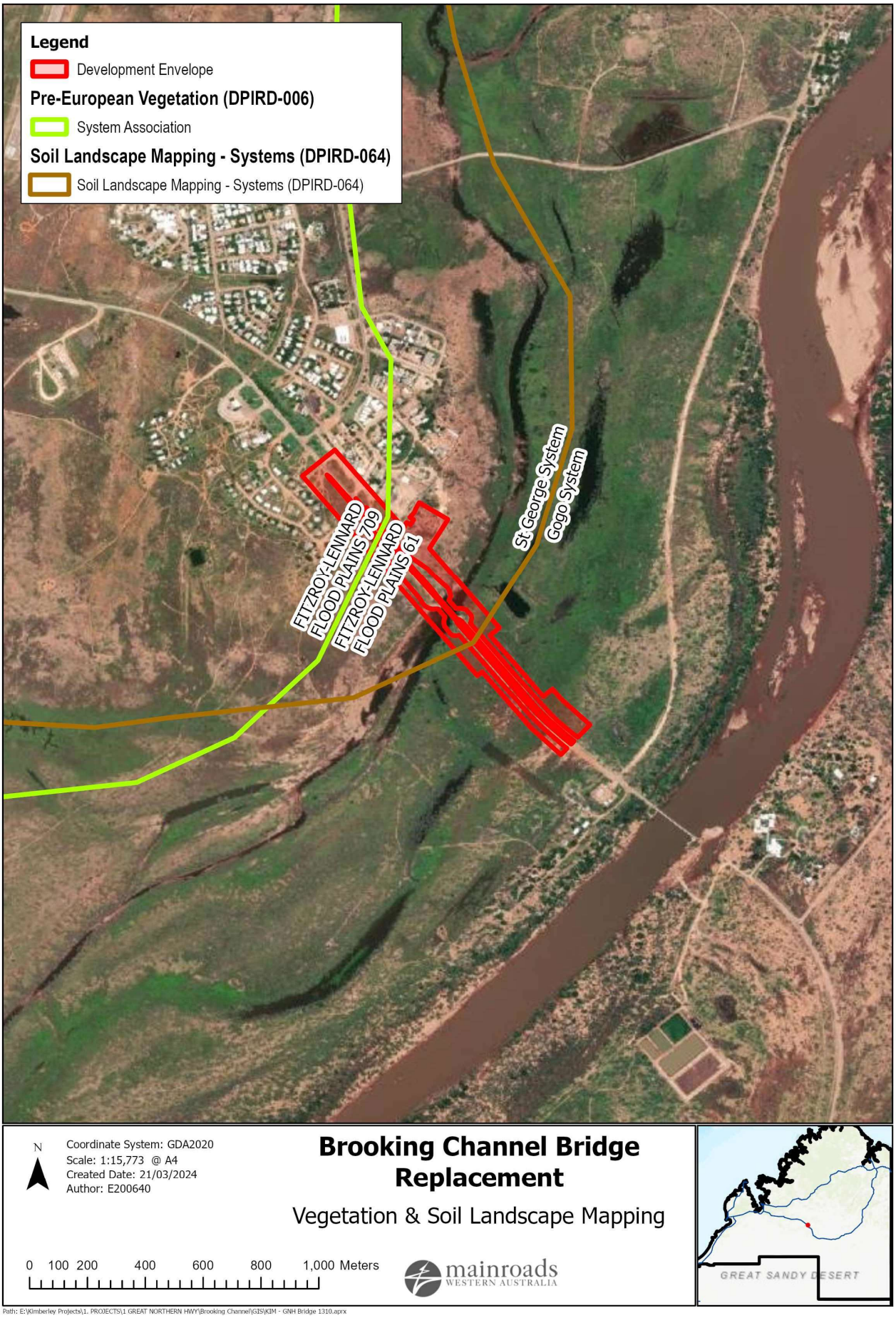


Figure 3. Vegetation and Soil Landscape Mapping.

1.5 Alternatives to Native Vegetation Clearing Considered During Proposal Development

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

- Preferentially locating the new bridge alignment in cleared pasture areas over the existing road reserve, however this was considered cost prohibitive and unrealistic, as riverbanks in this area are all vegetated and significant deviation would require the construction of additional road alignment to reach.
- Upgrading other alternative routes that are less vegetated and environmentally constrained, however, these are not suitable due to longer travel times, sensitive local receptors (such as residences) or other planning issues such as floodplain areas.
- Do not upgrade the bridge, 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.
- 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.

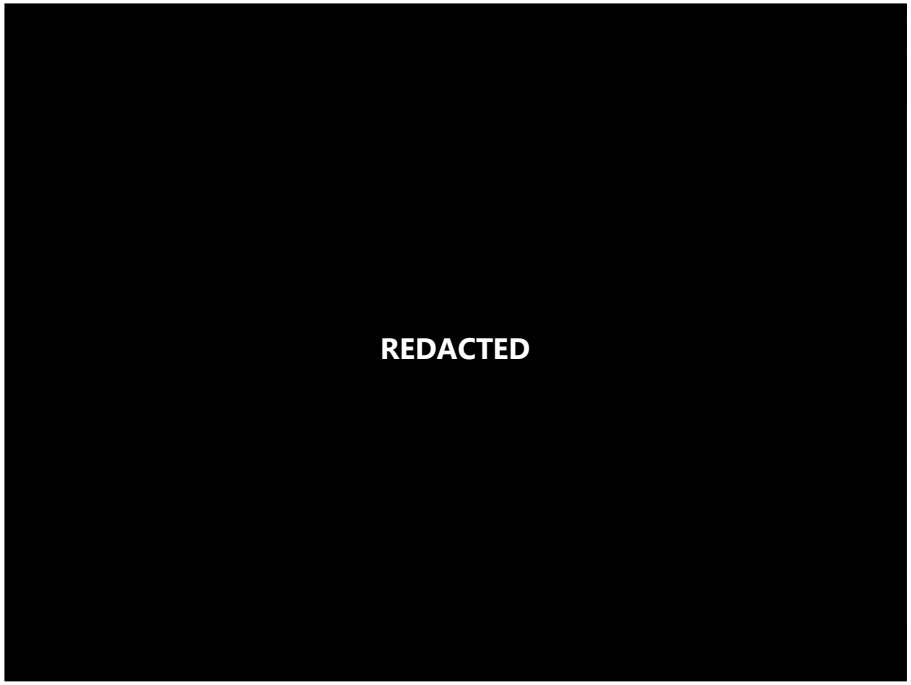
1.6 Measures to Avoid, Minimise, Reduce and Manage Proposal Clearing Impacts

The proposal involves the replacement and upgrade of existing Bridge 1310 infrastructure from the ground up across its 100m expanse in addition to approaches. These upgrades are necessary due to the poor safety of the bridge, with the last works on the bridge being in year 2000, when pedestrian bridges were added. To conduct construction of the new bridge, clearing will be required.

Measures to avoid clearing involve maximising the utilisation of nearby infrastructure, including facilities developed for construction of the Fitzroy River Bridge. These include camp areas, vehicle parking, laydown areas, turnarounds, offices and other associated construction infrastructure.

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
Exclusion of Conservation Significant Species	The Development Envelope has been altered to avoid conservation significant species where practicable as seen in **Plate 1** below.  **Plate 1. Exclusion Zone (10 m) for Priority species identified on site, *Corchorus fitzroyensis* (P3).**
Use of existing cleared areas for access tracks, construction storage and stockpiling	Measures to avoid clearing involve maximising the utilisation of nearby infrastructure, including facilities developed for construction of the Fitzroy River Bridge. These include camp areas, vehicle parking, laydown areas, turnarounds, offices and other associated construction infrastructure.

Design or Management Measure	Discussion and Justification
Drainage modification	Drainage modification will be minimal for the project, as proposed works involve the upgrade of the existing Brooking Channel Bridge. Existing natural drainage/flows will be maintained, however, measures to decrease future erosion of these channels may be implemented if necessary.

1.7 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&D Act)
- *Soil and Land Conservation Act 1945* (WA)
- *Rights in Water and Irrigation Act 1914*
- *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 (Government of WA, December 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** – 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.

- **Development Envelope** – The maximum extent within which the Clearing Area will be located. This envelope larger than the Clearing Area and the Proposal 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.

- **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.

- **Survey Area** – Area covered by the Biological Survey, which is typically larger that the Development Envelope.

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. Results from searches can be found in Appendix 3.

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 7.

2.3 Surveys and Assessments

Biological and targeted surveys were undertaken to inform this CDR and are outlined in Table 2.

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

Consultant & Survey Name	Survey Details
Ecoscape (Feb 2024) New Brooking Channel Bridge Biological Survey	**Survey Area:** 15.94 ha including Brooking Channel Bridge with an additional 83.33 ha Contextual Area (including the Survey Area). **Type:** Detailed and Targeted Flora, and basic and Targeted Fauna. **Timing:** February 2024 – Fieldwork conducted from 19 – 22 February. **Survey Results Shapefile TRIM Ref:** NA **Document TRIM Ref:** D24#395603

3 VEGETATION DETAILS

3.1 Proposal Site Vegetation Description

The Development Envelope encompasses two vegetation associations, Fitzroy-Lennard Flood Plains 61 and 709 (DPIRD–006). These vegetation associations are described as:

- 709: Hummock grassland with scattered shrubs or mallee *Triodia spp*. *Acacia spp*., *Grevillea spp*. *Eucalyptus spp*.
- 61: Coolibah over ribbon/blue grass (rivers) *Eucalyptus microtheca*, *Chrysopogon spp*., *Dichanthium spp*.

Table 3 provides details of the vegetation types within the Development Envelope and the remaining extents of these associations.

Table 3. 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. 61 **FITZROY-LENNARD FLOOD PLAINS**	**Statewide** WA	185,472.52	185,315.67	99.92	0.55
	IBRA Region Dampierland	130,880.70	130,785.16	99.93	0.77
	IBRA Sub-Region Fitzroy Trough	130,664.11	130,568.56	99.93	0.77
	LGA Shire of Derby-West Kimberley	182,467.59	182,310.76	99.91	0.55
Veg Assoc No. 709 **FITZROY-LENNARD FLOOD PLAINS**	***Statewide*** *WA*	75,847.16	75,617.75	99.70	0.74
	IBRA Region Dampierland	61,628.23	61,398.83	99.63	0.91
	IBRA Sub-Region Fitzroy Trough	61,628.23	61,398.83	99.63	0.91
	LGA Shire of Derby-West Kimberley	74,958.59	74,729.18	99.69	0.75

4 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 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 following metrics are considered to be indicators of high biological diversity (as described in DER 2014):

Biodiversity hotspots

DER (2014) lists one Biodiversity Hotspot within the Kimberley region, The North Kimberley. The proposal area does not occur in this area, as it occurs within the Dampier IBRA region as seen in Plate 1. No Biodiversity Hotspots will be impacted by the proposed works.

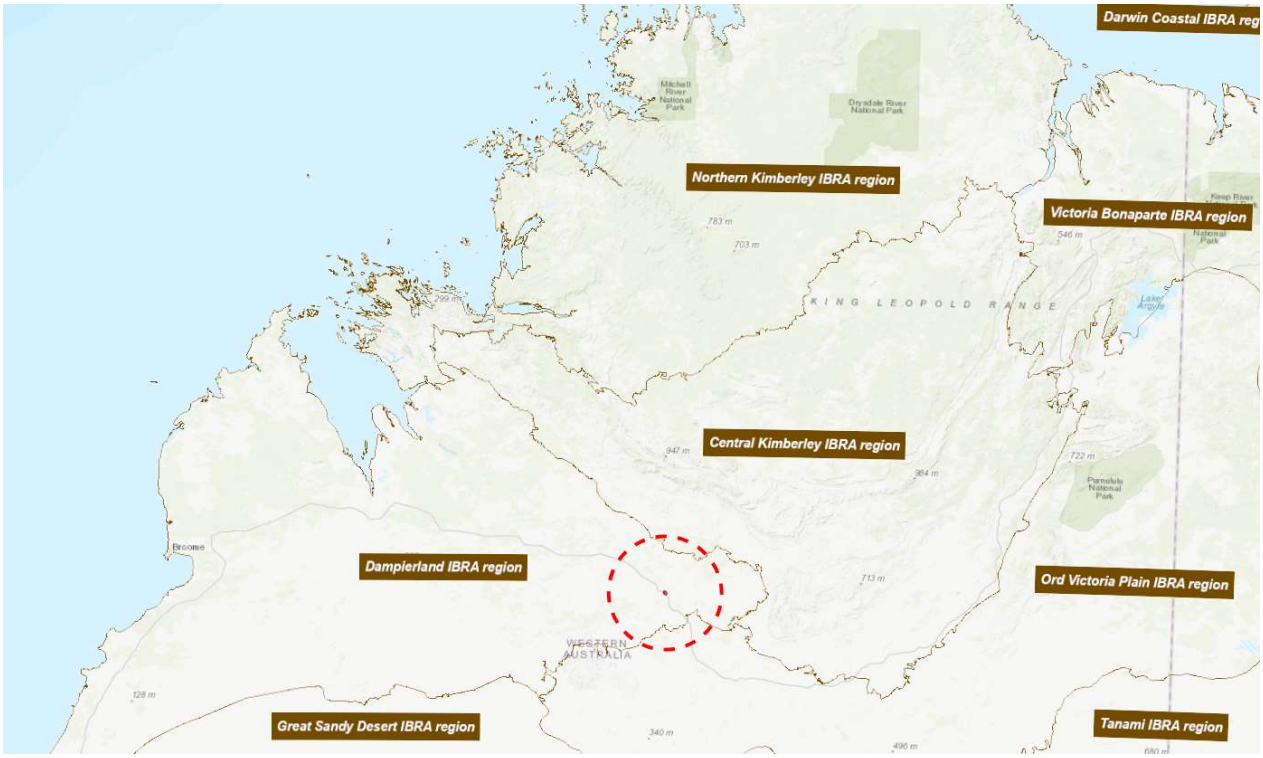


Plate 1. New Brooking Channel Bridge Proposal location and IBRA regions.

Flora and Fauna species diversity, including presence of conservation significant flora and fauna:

Flora

A search within a 40 km radius of the proposal identified 12 flora species of conservation significance. Of these, only one species, *Corchorus fitzroyensis* (P3), was observed by Ecoscape (2024) in their biological survey. In addition, Ecoscape's Likelihood of Occurrence Assessment concluded one other species 'May' occur, *Goodenia sepalosa var. glandulosa* (P3) (Ecoscape 2024). All other species were identified as either 'Unlikely' or 'Very unlikely' to occur. These two species are discussed below.

Corchorus fitzroyensis (P3)- Observed

This species is described as being recorded from: Red-brown sandy clay or sand. Alluvial/colluvial flat, floodplains and edge of watercourses (Ecoscape 2024). This species flowers April – September. *Corchorus fitzroyensis* was identified in Ecoscape's 2024 Survey Area at one location which has been removed from the Development Envelope as seen in Plate . No significant impact to the species is anticipated, as this species has been excised from the Development Envelope, including a 10m buffer area.

Plate 2. *Corchorus fitzroyensis* (P3) excised from the Development envelope using a 10 m buffer with squared off edges.

Goodenia sepalosa var. *glandulosa* (P3) (May Occur)

This species is described as being recorded from: Red sand or loam. *Goodenia sepalosa* var. *glandulosa* flowers from Jan- Dec (Ecoscape, 2024). Whilst Ecoscape's Likelihood of Occurrence Assessment concluded this species 'May' occur in the proposal area based on the presence of

suitable habitat, the Survey was conducted during the species' flowering period, and as such, should have been identified if present. Despite targeted searches, this species was not found to be present. Therefore, no impact to the species is anticipated from the proposed clearing.

Fauna

Desktop searches within a 40 km radius of the proposal identified 28 fauna species of conservation significance. Of these 28 species, two Migratory species were recorded during Ecoscape's February 2024 biological field survey. Whilst not recorded in the February 2024 field survey, Ecoscape's Likelihood of Occurrence Assessment concluded one other species was 'Likely' to occur, and another five 'May Occur' (Ecoscape, 2024). The remaining 20 of the 28 conservation significant species identified from the Study Area were considered 'Unlikely' or 'Very unlikely' to occur. The below list includes the eight conservation significant species assessed as 'Recorded', 'Likely' or 'May Occur':

- Rainbow Bee-eater (*Merops ornatus*) (Recorded) (MI)
- Osprey *(Pandion cristatus)* (Recorded) (MI)
- Wood Sandpiper *(Tringa glareola)* (Likely) (MI)
- Purple-crowned fairy Wren *(Malurus coronatus coronatus)* (May Occur) (EN)
- Caspian Tern *(Hydroprogne caspia*) (May Occur) (MI)
- Glossy Ibis *(Plegadis falcinellus)* (May Occur) (MI)
- Common Greenshank *(Tringa nebularia)* (May Occur) (MI)
- Australian Freshwater Crocodile *(Crocodylus johnstoni)* (May Occur) (OS)

The proposed clearing is unlikely to have a significant impact on any of the above listed species as they are all wetland associated species, and whilst up to 0.27 ha of riparian vegetation clearing is proposed, this is not a significant impact to available habitat in the local or regional area. Synonymous and suitable habitat is available upstream and downstream of the Brooking Channel bridge, in addition to in adjacent water systems such as the Fitzroy River, located 370 m east of the Development Envelope. As such, no significant impact to these species is anticipated from the proposed clearing.

Ecological Community Diversity, including presence of conservation significant communities

The Development Envelope does not intersect any Threatened Ecological Communities (TECs) and none are known to occur within the 40km radius Study Area. The Development Envelope intersects 6.21 ha of a Priority 3 Priority Ecological Community (PEC), the Gogo Land System. This PEC is described as 'active flood-plains with broad levee zones and moderately extensive alluvial back plains of cracking clays with grasslands and grassy woodlands' (DBCA, 2023). Across Western Australia, the Gogo Land System covers approximately 217,951.34 ha. Of the 6.21 ha occurring within the Development Envelope, approximately 4.91 ha is vegetated, as some of this area was previously cleared for the development of road and local community infrastructure.

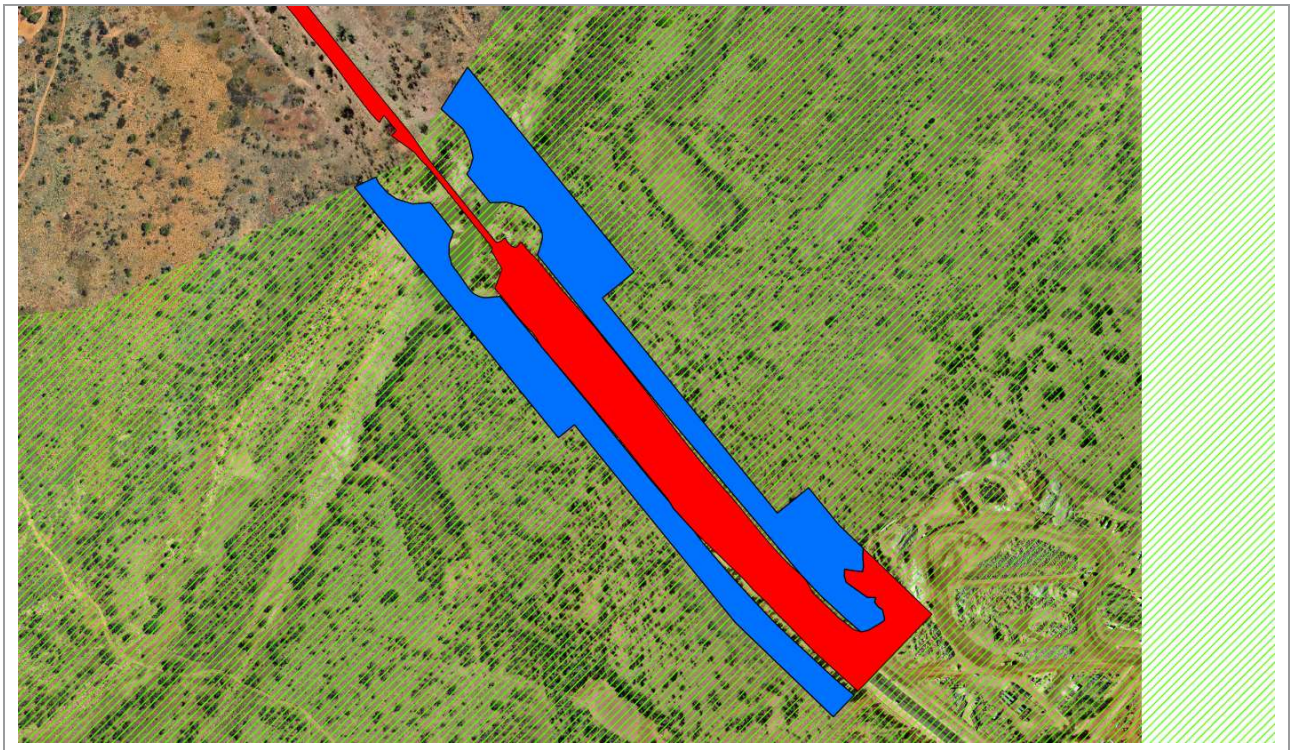


Plate 3. Maximum CPS 818 Clearing (blue) within the PEC, Gogo Land System (P3) (hatched green) and Cleared Area (red).

The proposed clearing will result in a maximum potential impact of 4.91 ha, representing approximately 0.0022% of the mapped extent of the Gogo Land System PEC in Western Australia (217,951.34 ha) (Restricted dataset: DBCA-038). DBCA (2023) describes threats to the PEC as being landscape scale processes, namely agricultural expansion and weed invasion. Ecoscape (2024) noted that the primary drivers of vegetation condition within the survey area were roadside clearing (a localised impact) and weeds, including Declared Weeds (a landscape scale impact), owing to the proximity to Fitzroy townsite. Given the small amount of clearing in relation to the mapped PEC extent and the pre-existing condition of the PEC within the Survey Area, the proposed clearing is unlikely to have a significant impact on the Gogo Land System PEC.

Vegetation Condition

Vegetation within the Survey Area ranged from 'Poor' to 'Very Good', predominantly in 'Very Good' condition. Whilst vegetation in the area is 'Very Good', surrounding vegetation is likely to be in synonymous if not better condition due to the localised impacts of infrastructure of the Fitzroy River Community. Vegetation Associations in the Development Envelope are widespread across the region, with over 99% of the pre-European extent remaining of Associations 61 and 709 at the State, bioregional, subregional and Local Government Area scales. The proposed works would clear up to 10 ha of vegetation across the two vegetation associations. Within the current Local Government Authority extent, the maximum impact to either system from the proposed clearing, would be 8.18 ha (0.0045%) of Vegetation Association 61, or 2.71 ha (0.0036%) of Vegetation Association 709.

The proposed clearing is unlikely to have a significant impact to vegetation condition at a local or regional scale, and proposed works will preferentially utilise existing infrastructure to avoid

clearing of vegetation where practicable. The proposed clearing will not significantly impact the overall vegetation condition in the local or surrounding areas.

Conclusion

On the balance of information available, the Development Envelope consists of common and widespread vegetation types and fauna habitats that are not restricted or unique in a local or regional context. The area does not comprise a high level of flora, fauna or ecological community diversity and the proposed clearing of up to 10 ha of native vegetation in within a Development Envelope of 13.99 ha, will not result in a significant impact on biological diversity.

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

Methodology

- Biological Survey (February 2024)
- DBCA (2023)
- DCCEEW Protected Matters Search Tool Report (March 2024)
- Department of Natural Resources and Environment (2002)
- DER (2014)
- Government GIS Shapefiles:
  - DBCA Threatened and Priority Ecological Community database search (Accessed March 2024)
  - DBCA Threatened and Priority flora database search (Accessed March 2024)
- Natural Resource Management SLIP Soil Systems (Accessed March 2024)
- Statewide Vegetation Statistics (Government of Western Australia 2018)

(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.

Three broad fauna habitat types are present within the proposed clearing area (Ecoscape, 2024):

1) Creekline - New Brooking Channel (water body) surrounded by *Corymbia, Eucalyptus* and *Melaleuca* over an understorey of tussock grassland (dominated by *Chrysopogon* and *Eulalia*) / low forbland. Soil clay with no to little litter, rocky in some areas. No recent fire history.

2) Open shrubland over tussock/hummock grassland - Open shrubland dominated by *Lysiphyllum* and *Acacia* over an understorey of *Triodia* and *Chrysopogon* hummock/tussock grassland. Soil clay / clay loam with minimal litter cover. No recent fire history.

3) Open woodland over tussock grassland - Low open woodland dominated by *Eucalyptus* over an understorey of *Chrysopogon* closed tussock grassland. Soil clay with no to little litter cover. No recent fire history.

Based on review of aerial and streetview imagery and noting that 99% of the pre-European extent of native vegetation remains in the Kimberley (bioregional subregional and Local Government Authority level), fauna habitat within the Development Envelope is likely to be well represented locally and regionally. Surrounding fauna habitat is also likely to be in the same, if not in better condition than the proposed clearing area, which has been impacted by the existing bridge infrastructure and adjacent Fitzroy Crossing townsite. In this context, it is unlikely that the fauna habitats within the proposal area significant habitat for any fauna species.

Ecoscape's (2024) Likelihood of Occurrence Assessment identified the following conservation significant fauna species as 'Recorded', 'Likely' or 'May Occur' in the Brooking Channel survey area:

- Rainbow Bee-eater (*Merops ornatus*) (Recorded) (MI)
- Osprey *(Pandion cristatus)* (Recorded) (MI)
- Wood Sandpiper *(Tringa glareola)* (Likely) (MI)
- Purple-crowned fairy Wren *(Malurus coronatus coronatus)* (May Occur) (EN)
- Caspian Tern *(Hydroprogne caspia*) (May Occur) (MI)
- Glossy Ibis *(Plegadis falcinellus)* (May Occur) (MI)
- Common Greenshank *(Tringa nebularia)* (May Occur) (MI)
- Australian Freshwater Crocodile *(Crocodylus johnstoni)* (May Occur) (OS)

The above avian species utilise a variety of wetland habitats for foraging purposes. The proposal area will impact some riparian vegetation, however, this impact is not significant in the context of the widespread availability of wetland habitat adjacent to the proposal and in nearby watercourses, such as the Fitzroy River. No significant impact to any of these species is anticipated, as the surrounding habitat is likely synonymous and widely available for the species to utilise. The remaining species are addressed below.

Australian Freshwater Crocodile *(Crocodylus johnstoni)* (May Occur) (OS)
Crocodylus johnstoni inhabit freshwater rivers, creeks, artificial lakes and occasionally tidal reaches (DBCA 2024). As such, the species may utilise the watercourse and riverbanks within the

Development Envelope. However, due to the extensive availability of the habitat in the local area, no significant impact to the species is anticipated.

Available information indicates the vegetation, landforms and fauna habitat types present in the Development Envelope are common and widespread both locally and regionally, and there is no known unique or important habitat features such as caves that provide significant habitat for fauna. The proposed clearing of up to 10 ha within a Development Envelope of 13.99 ha is unlikely to significantly impact fauna habitat availability at a local or regional scale.

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

Methodology

- Biological Survey (February 2024)
- DCCEEW Protected Matters Search Tool Report
- Government GIS Shapefiles:
  - DBCA Threatened and Priority fauna database search (Accessed March 2024)
  - Ecological Linkages (Accessed March 2024)
- Species specific conservation listing advice and recovery plans

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

Proposal is not at variance to this Principle.

Desktop searches (Threatened and Priority Flora, WA Herbarium, and EPBC Protected Matters Search Tool) identified no records of Threatened flora species in the Study Area (40 km buffer around the Development Envelope).

Ecoscape's 2024 biological survey did not identify any Threatened flora species and none were considered likely to occur, given the lack of Threatened flora records in the 40km radius Study Area.

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

Methodology

- Biological Survey (February 2024)
- Government GIS shapefiles:
  - DBCA Threatened flora database search (Accessed March 2024)
- Species specific conservation listing advice and recovery plans

(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.

Desktop database searches (EPBC Protected Matters Search Tool report and DBCA Shapefiles) show no known records of Threatened Ecological Communities (TECs) located within 40 km of the Development Envelope.

None of the vegetation types mapped from the Development Envelope correspond to any Commonwealth or State-listed Threatened Ecological Community (Ecoscape, 2024).

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

Methodology

- Biological Survey (February 2024)
- Government GIS shapefiles:
  - DBCA Threatened Ecological Community database search (Accessed March 2024)

(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 proposed clearing area is located in an IBRA bioregion, subregion and Local Government Authority (LGA) that retains over 99% of the pre-European extent of native vegetation (refer to Table 3).

Vegetation Associations in the Development Envelope are widespread across the region, with over 99% remaining of Associations 61 and 709 at all scales as evident in Table 3. The proposed works will clear up to 10 ha of vegetation across the two vegetation associations. Within the current Local Government Authority extent, the maximum impact to either system from the proposed clearing, would be 8.18 ha (0.0045%) of Vegetation Association 61, or 2.71 ha (0.0036%) of Vegetation Association 709.

Due to the minor proposed impact to these vegetation associations (0.0045% and 0.0036%), their widespread occurrence, and significant amount remaining (over 99% of pre- European extent at all scales), no significant impact to these vegetation associations is anticipated.

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

Methodology

- Aerial photography
- Biological Survey (February 2024)
- Government GIS shapefiles:
  - Pre-European vegetation (Accessed March 2024)
  - Vegetation complexes (Accessed March 2024)
- Statewide Vegetation Statistics (Government of Western Australia 2018)

(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 Development Envelope consists of approximately 0.27 ha of native vegetation growing in association with the Brooking Channel riparian zone, as mapped by Ecoscape (2024) and depicted in Plate 4. Vegetation in this area is sparse, with several shrubs and trees present on the creek bed as seen in Plates 5 and 6 below.

Plate 4. Riparian vegetation mapped by aerial imagery (green) within the riparian zone mapped by Ecoscape (dashed white) and Development Envelope (red).

Plate 5. Riparian Vegetation facing Northwest.

Plate 6. Riparian vegetation facing Southwest.

Based on the above, the proposed clearing is at variance to this Principle.

Where practicable, riparian vegetation will be retained. As the proposed clearing is in an area that has previously been disturbed for the construction of the Brooking Channel Bridge and riparian vegetation is likely to be well represented both upstream and downstream of the proposed clearing, no significant residual impact to the watercourse, riparian vegetation or hydrological flow of the watercourse is anticipated.

Methodology

- Aerial photography
- Biological Survey (February 2024)
- Government GIS shapefiles:
  - Ramsar Wetlands (Accessed March 2024)
  - Important Wetlands (Accessed March 2024)
  - Watercourses (Accessed March 2024)
  - RIWI Act Rivers (Accessed March 2024)

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

Proposed clearing is not at variance to this Principle.

One soil type is mapped within the Development Envelope, the North Fitzroy Plains Zone (DPIRD-017). This soil type is described as floodplains and sandplains (with alluvial plains and undulating plains) on Permian sedimentary rocks of the Canning Basin with self-mulching cracking clays, red deep sands, red sandy earths and red/brown non-cracking clays.

Soil landscape mapping for salinity, surface acidity, flooding, water erosion, wind erosion, and waterlogging is not available for the proposed clearing area. However, the dominant soil types within the area indicate a low risk of wind erosion, water erosion, acidification and salinity.

The proposed clearing area includes Brooking Channel and its floodplain that encounters natural flood events and does not exhibit signs of significant land degradation. No significant changes to natural flood regimes or erosion are anticipated from the proposed works.

The DWER/ASRIS Acid Sulphate Soil (ASS) risk mapping indicates that the area is classified as Co(p4), with an extremely low probability of acid sulphate soil occurrence.

The proposed clearing is unlikely to impact existing levels of surface runoff to existing water catchments, and therefore, is unlikely to cause appreciable land degradation.

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

Methodology

- Biological Survey (February 2024)
- Government GIS Shapefiles:
  - Acid Sulphate Soil Risk Map (Accessed March 2024)

(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.

A search of ArcGIS shapefiles indicates no Bush Forever Sites are located within 40 km of the Development Envelope. The nearest Environmentally Sensitive Area (ESA) is the Danggu National Park, located over 15 km northwest of the Development Envelope (DWER -046). The nearest DBCA-managed conservation area is the Warlibirri National Park, located over 2.5 km northwest of the Development Envelope. No impacts to these areas are anticipated from the proposed clearing.

Given the distance of separation, clearing for this proposal will not impact on the environmental values of conservation areas.

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

Methodology

- Biological Survey (February 2024)
- Environmental Offsets Register
- Government GIS Shapefiles:
  - DBCA Legislated Lands and Waters & Lands of Interest (Accessed March 2024)
  - Ramsar Wetlands (Accessed March 2024)
  - Important Wetlands (Accessed March 2024)

(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 at variance to this Principle.

The development envelope is located within the Fitzroy River and Tributaries Surface Water Area, proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act). The Development Envelope also includes the bed and banks of Brooking Channel, a minor non-perennial watercourse where water flows occasionally, usually after heavy rainfall. The proposed clearing will be undertaken in accordance with a Bed and Banks permit, granted pursuant to the RIWI Act, which will minimise the potential for deterioration in the quality of surface water.

With respect to groundwater, the development envelope is located within the Fitzroy Crossing Water Reserve, a Priority 3 Public Drinking Water Source Area (PDWSA) gazetted under the *Country Areas Water Supply Act 1947*. In accordance with the DWER (2021) Water quality protection note 25 '*Land use compatibility tables for public drinking water source areas*', road infrastructure is deemed a compatible and acceptable land use with the PDWSA Priority areas. The proposed clearing is not expected to significantly alter natural groundwater levels (depth) or quality (salinity or pH), given the small extent of clearing proposed and noting that over 99% of the pre-European extent of native vegetation remains at the local, subregional and bioregional scale.

DWER/ASRIS Acid Sulphate Soil (ASS) risk mapping indicates that the area is classified as Co(p4), with an extremely low probability of acid sulphate soil occurrence. No impact from Acid Sulphate Soils is anticipated from the proposed clearing.

For the above reasons, no significant impact to the quality of surface or underground water is anticipated from the proposed clearing.

The proposed clearing is not at variance to this Principle.

Methodology

- Biological Survey (February 2024)
- Government GIS Shapefiles:
  - RIWI Act, Surface Water Areas and Irrigation Districts (Accessed March 2024)
  - CAWSA Part 2A Clearing Control Catchments (Accessed March 2024)
  - RIWI Act, Groundwater Areas (Accessed March 2024)
  - Groundwater Salinity Statewide (Accessed March 2024)
  - Soil Mapping (Accessed March 2024)
  - Acid Sulphate Soil risk mapping (Accessed March 2024)
  - Groundwater Salinity Statewide (DWER-026) (Accessed March 2024)
  - Floodplain Area (DWER-020) (Accessed March 2024)

(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 proposed clearing presents nil to negligible risk of causing or exacerbating the incidence or intensity of flooding, as these works are to upgrade existing river crossing infrastructure. Bureau of Meteorology (BoM) data from Fitzroy Crossing Aero (Station No. 3093) (Lat: 18.18° S Long: 125.56° E) has a median annual rainfall of 680.0 mm per year. The proposed clearing works will not significantly change the existing drainage pathways in the area, nor will they cause damming of water flow in Brooking Channel.

The proposed clearing is not likely to cause or exacerbate the incidence or intensity of flooding.

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

Methodology

- BoM Website (Accessed March 2024)
- Government GIS Shapefiles:
  - Soil Mapping (Accessed March 2024)
  - Contours (Accessed March 2024)

5 REHABILITATION, REVEGETATION & OFFSETS

5.1 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 COMPLIANCE WITH CPS 818

The clearing associated with the proposal is at variance to Clearing Principle (f) and is not at variance, or not likely to be at variance, with the remaining Clearing Principles. Additional management actions under CPS 818 are detailed in Table 4.

Table 4. Summary of Additional Management Actions Required by CPS 818

Impact of Clearing	Yes/No or NA	Further Action Required
1. The CDR indicates that the clearing is 'At Variance' or 'May be at Variance' with one or more of the Clearing Principles.	**Yes**	No further action required. In accordance with Conditions of CPS 818/17, where the clearing is at variance or may be at variance to clearing principle (f) and no other clearing principle, and the area of the proposed clearing is less than 0.5 hectares in size and the clearing principle (f) impacts only relate to: (i) a minor non-perennial watercourse(s); and/or (ii) a wetland that is not a defined wetland the preparation of an Assessment Report is not required.
2. Clearing is at variance or may be at variance with Clearing Principle (g) land degradation, (i) surface or underground water quality **or** (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 **and** (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.

Impact of Clearing	Yes/No or NA	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 Hygiene Checklists (D17#859669) and Vehicle, Plant and Machinery Hygiene Register Template (D23#179551) 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.
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. Standard Vehicle and Plant management actions from Hygiene Checklists (D17#859669) and Vehicle, Plant and Machinery Hygiene Register Template (D23#179551) will be applied.

Impact of Clearing	Yes/No or NA	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 was suitably qualified and had more than three years' experience. No VMP, Dieback Management Plan or Offset Proposal are required.

7 REFERENCES

Bureau of Meteorology Australia. (2024). Climate Averages for Australian Sites – Fitzroy Crossing Aero – Available online from http://www.bom.gov.au/climate/data/index.shtml. Accessed March 2024.

Commonwealth Scientific and Industrial Research Organisation, 2015. Australian Soil Resource Information System (ASRIS). Available online from http://www.asris.csiro.au. Accessed March 2024.

Department of Biodiversity, Conservation and Attractions (2023). Priority Ecological Communities For Western Australia Version 35. Available online from: https://www.dbca.wa.gov.au/wildlife-and-ecosystems/threatened-ecological-communities. Accessed March 2024.

Department of Biodiversity, Conservation and Attractions (2024). Crocodile Information Guide. Available online from: https://www.dbca.wa.gov.au/wildlife-and-ecosystems/animals/crocodile-conservation-and-management Accessed March 2024.

Department of Climate Change, Energy, the Environment and Water (2024). Protected Matters Search Tool Report. Available online from: http://www.environment.gov.au/epbc/pmst/index.html
Accessed March 2024.

Department of Climate Change, Energy, the Environment and Water. (2024). Species Profile and Threats Database. Available online from: http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl. Accessed March 2024.

Department of Environment Regulation (2014). *A guide to the assessment of applications to clear native vegetation under Part V Division 2 of the Environmental Protection Act 1986*. Department of Environment Regulation. Perth, Western Australia.

Department of Natural Resources and Environment (2002). *Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local*. Department of Natural Resources and Environment, Victoria.

Department of the Environment (2013). *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance, Environment Protection and Biodiversity Conservation Act 1999*. Canberra, Australian Capital Territory.

Department of Water and Environmental Regulation (2021). Water quality protection notes 25 - Land use compatibility tables for public drinking water source areas, August 2021

Ecoscape (2024). New Brooking Channel Bridge Biological Survey. Prepared for Main Roads Western Australia, February 2024.

Environmental Protection Authority (2016). *Technical Guide – Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment* (eds. K Freeman, G Stack, S Thomas and N Woolfrey). Perth, Western Australia.

Environmental Protection Authority (2020). *Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment*. Perth, Western Australia.

Government of Western Australia (2011). *WA Environmental Offset Policy*. Perth Western Australia.

Government of Western Australia (2014a). *A guide to the assessment of applications to clear native vegetation Under Part V Division 2 of the Environmental Protection Act 1986*. Department of Environmental Regulation.

Government of Western Australia (2014b). *WA Environmental Offset Guidelines.* Perth, Western Australia.

Government of Western Australia. (2018). 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2024. WA Department of Biodiversity, Conservation and Attractions, Perth. Available online from: https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics

Government of Western Australia (2021). *Native Vegetation Clearing Permits. Application, assessment, and management requirements under Part V Division 2 of the Environmental Protection Act 1986.* Department of Water and Environmental Regulation.

Natural Resource Management in WA. (2024). SLIP portal, Soil-Landscape Mapping. Available online from: http://maps.agric.wa.gov.au/nrminfo/framesetup.asp. Accessed (March 2024).

Western Australian Herbarium. 1998– *FloraBase* - The Western Australian Flora. Department of Biodiversity, Conservation and Attractions. Available online from: https://florabase.dpaw.wa.gov.au/ Accessed March 2024.

8 APPENDICES

Appendix 1: DBCA Threatened Flora and Fauna Database Searches

Figure 4. Brooking Channel Bridge Study Area (40 km).