Clearing Assessment Report – CPS 818

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Bridge [REDACTED] Replacement
SLK [REDACTED]

Northwest Coastal Highway (H007)
Midwest

EOS: 2492

D24#369546
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1. PROPOSAL

1.1 Purpose and Justification

The purpose of this Clearing Assessment Report (CAR) is to provide a report detailing the assessment of native vegetation clearing that is proposed to be undertaken using the Statewide Clearing Permit CPS 818 issued to Main Roads Western Australia (Main Roads).

The CAR outlines the key activities associated with the project, the existing environment and an assessment of native vegetation clearing. This assessment provides an evaluation of the vegetation clearing impacts associated with the project using the ten Clearing Principles, and the strategies used to manage vegetation clearing.

Main Roads Western Australia (Main Roads) plans to undertake future upgrades of Bridge [REDACTED], along Northwest Coastal Highway (SLK [REDACTED]), 15 km north of Geraldton. The existing reinforced concrete overlay (RCO) is nearing the end of its serviceable life. This is compounded by the poor vertical and horizontal road geometry at this bridge. Therefore, the plan is to replace the entire 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'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 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 scope of works broadly includes:

- Geotechnical investigation, including ground disturbance and clearing of an access track as part of the project development.
- Construction of a side-track, or realignment of the bridge/road locally.
- Demolition of the existing bridge
- Construction of the new bridge and widening of the road width to 11m (from 9m)
- Extending the bridge barriers further off-bridge

1.3 Proposal Location

The development envelope is located on Northwest Coastal Highway, located at approximately SLK [REDACTED], in the Shire of Chapman Valley. The nearest townsite is Geraldton, located approximately 15 km south of the proposed bridge realignment.

The location of the proposed works is shown in Figure 1.

1.4 Clearing Details

Proposed Clearing to be undertaken using CPS 818: 1.71 ha.

Areas of Native Vegetation Clearing:
The areas of native vegetation to be cleared are shown in Figure 2.

Type of Native Vegetation:
Based on the Biological assessment undertaken by [REDACTED] (2024), five vegetation types and two additional mapping units were defined for the development envelope:

- **CoMr:** *Casuarina obesa* (Â± *Melaleuca rhaphiophylla*) low open woodland with emergent *Eucalyptus camaldulensis* mid trees over **Lycium ferocissimum* tall sparse shrubland over highly disturbed understorey dominated by introduced grasses and herbs, including **Hordeum marinum*, **Oxalis pes-caprae*, **Avena barbata*, **Ehrharta longiflora*.
- **AaAs:** *Acacia acuminata, Acacia saligna* tall sparse shrubland to scattered shrubs with emergent *Eucalyptus camaldulensis* low trees over **Cenchrus setaceus, *Bromus diandrus, *Hordeum marinum, *Cenchrus echinatus* low open tussock grassland with **Ricinus communis, *Lupinus cosentinii* mid to low scattered herbs.
- **Aa:** *Acacia acuminata* tall sparse shrubland to tall scattered shrubs over variously dominated mid-storey of *Grevillea pinaster, Grevillea triloba, Acacia tetragonophylla* over **Cenchrus setaceus, *Bromus diandrus, *Avena barbata, *Cenchrus ciliaris* low to mid open tussock grassland.
- **AaGaLfAs:** *Acacia acuminata, Grevillea argyrophylla, *Lycium ferocissimum, Acacia saligna* tall open to sparse shrubland over **Cenchrus setaceus, *Cenchrus ciliaris, *Eragrostis curvula, *Ehrharta longiflora, *Bromus diandrus* mid tussock grassland.
- **AaAsLf:** *Acacia acuminata, Acacia saligna, *Lycium ferocissimum* tall sparse shrubland to scattered shrubs with planted *Eucalytpus* spp. over **Cenchrus setaceus, *Bromus diandrus, *Avena barbata* mid tussock grassland with **Lupinus cosentinii, Sonchus oleraceus* low to mid sparse herbland.
- **Cl**: Cleared areas, including gravel tracks and dwellings.
- **Hwy**: North-West Coastal Highway and sealed roads.

The type of vegetation present within the development envelope which is subject to clearing under this Proposal is shown in Figure 2.

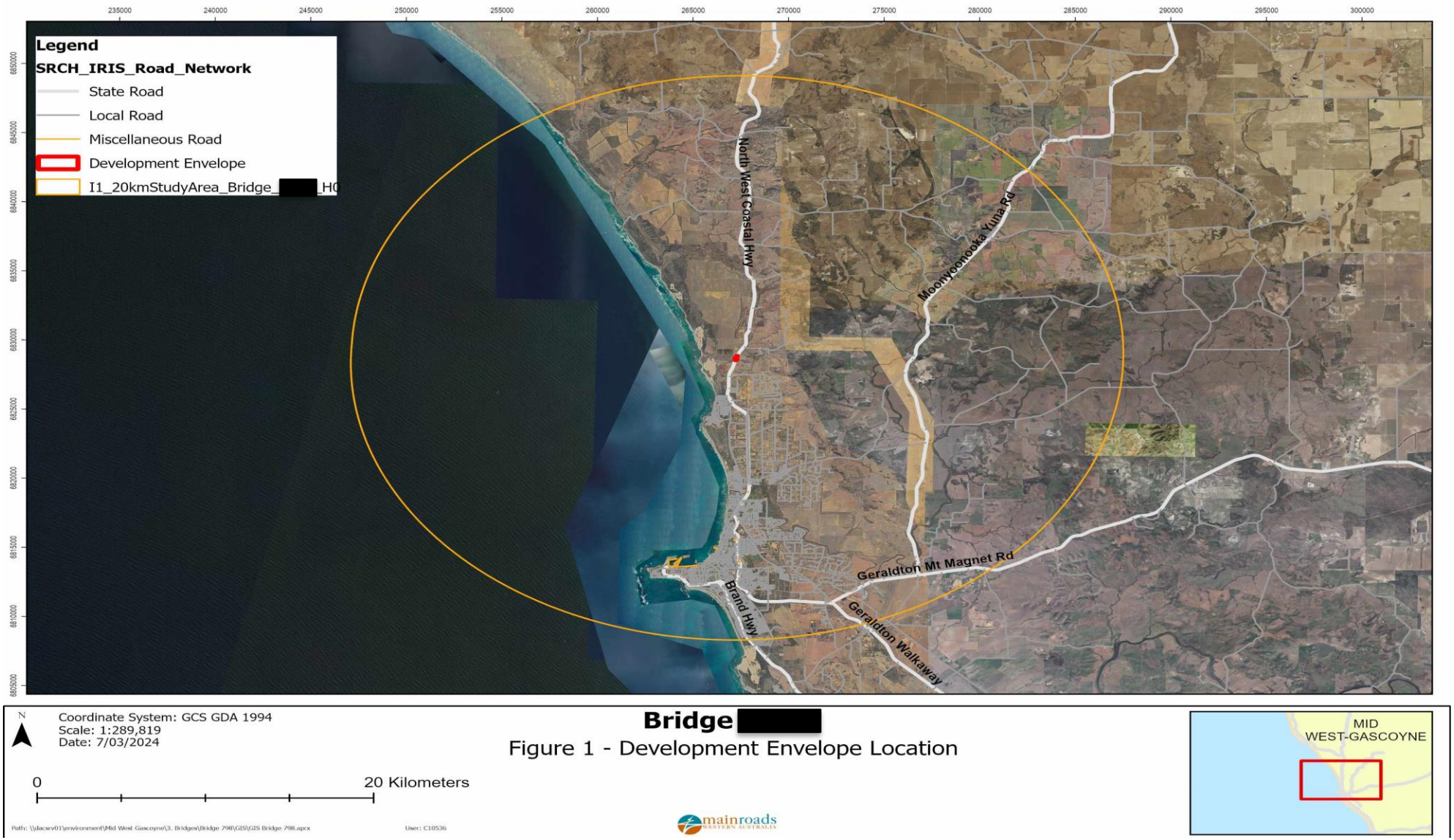

Figure 1. Bridge [REDACTED] Development Envelope Location

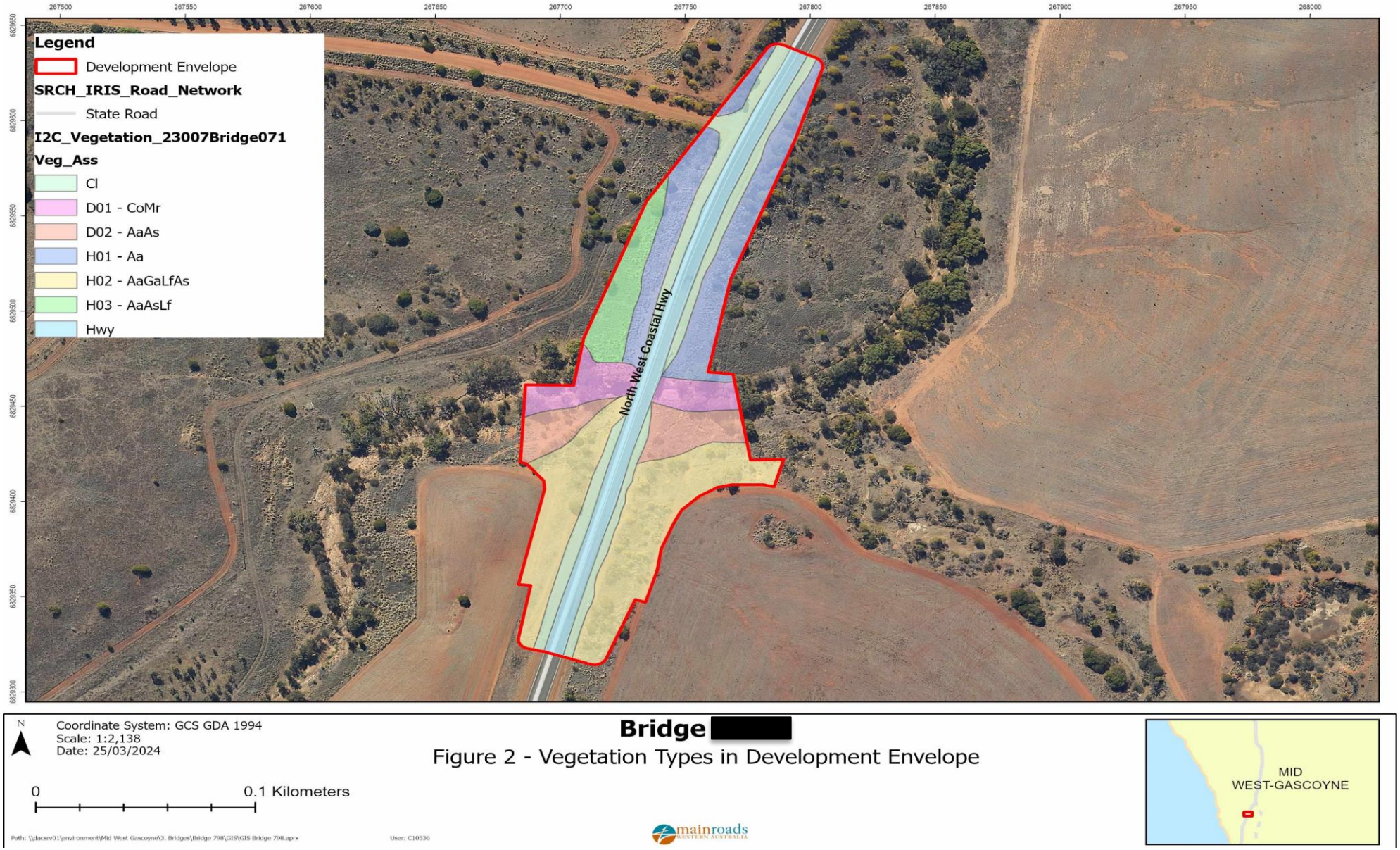

Figure 2. Bridge [REDACTED] Development Envelope and associated Vegetation Types.

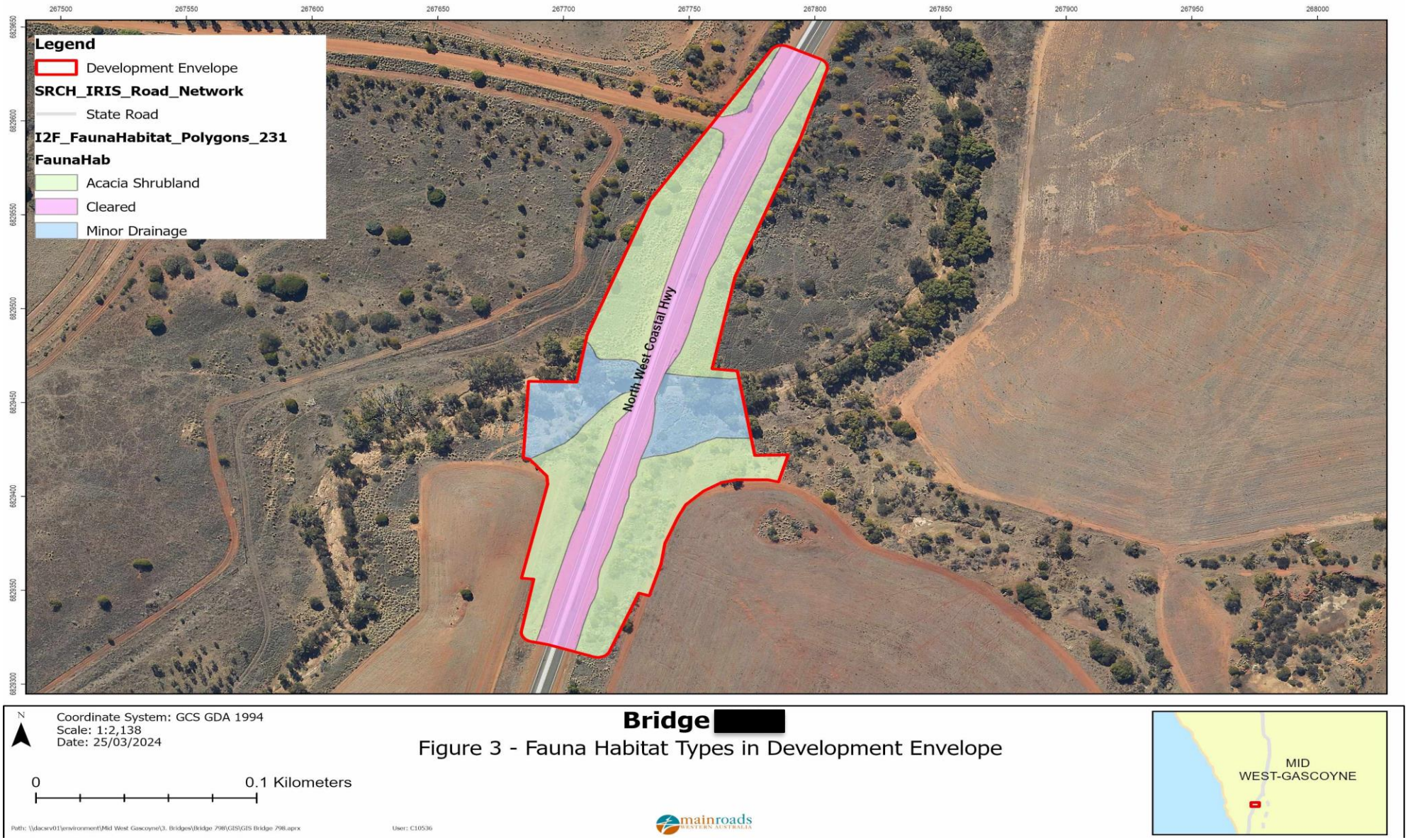

Figure 3. Bridge [REDACTED] Development Envelope and associated Fauna Habitat Types.

1.5 Alternatives to Native Vegetation Clearing Considered During Proposal Development

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

- 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 bridge realignment works.

The only alternative to clearing was to not construct the bridge, however this will potentially result in a poorer safety outcome and may result in future fatalities or serious injuries.

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

The design and management measures implemented to avoid and minimise the clearing impacts by the Proposal include the following:

- Clearing will be limited to only what is required within the future bridge footprint.
- The Development envelope has been reduced to the extent practicable by maximising use of pre-existing cleared areas to minimise the extent of native vegetation clearing required.
- Important environmental values will be avoided where possible.

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
Steepen batter slopes	Batters were steepened where possible, in line with design standards, to minimise the clearing footprint.
Installation of safety barriers	The installation of safety barriers at the bridge and associated road approaches are proposed. Batter slopes behind the proposed barriers at the road approaches to the bridge, were steepened, reducing the clearing impact.
Installation of kerbing	Kerbing has been considered and implemented in the design, where possible.
Preferential use of existing cleared areas for access tracks, construction storage and stockpiling	Additional vegetation clearing will be avoided as the site office, materials storage areas, construction vehicles/machinery and access tracks will be located on previously disturbed or cleared areas, where possible.
Drainage modification	Bridge and road drainage will be maintained and will be in keeping with the existing drainage.

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* (WA)
- *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 Assessment Report (CAR).

The CAR 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:

- **Development envelope** – The maximum extent within which the clearing area will be located. The CAR has assessed all environmental values within the development envelope as though all these values will be impacted, up to the amount specified. The development envelope for this proposal is 1.71 ha, as shown in Figure 2.

- **Study Area** – Area covered by the Desktop Assessment. The Study Area for the Proposal is confined to a local area of a 20km radius.

- **Survey Area** – The area covered by the Biological Survey. The area surveyed by [REDACTED] (2024) was 9.67 ha.

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

The following surveys/assessments were undertaken to inform this CAR:

- Bridge [REDACTED] North West Coastal Highway SLK [REDACTED] ([REDACTED] 2024)

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 3.1 to 3.2.

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

Consultant & Survey Name	Survey Details
[REDACTED] (2024) Bridge [REDACTED] North West Coastal Highway SLK [REDACTED] Biological Survey	**Survey Area:** Survey area comprised approximately 9.67 ha and was situated between SLK 17.15 and 18.05 (15 km north of Geraldton). **Type:** Detailed vegetation, flora and fauna survey. The survey identified and mapped the dominant vegetation units, assessed vegetation condition and completed opportunistic searches for conservation significant fauna taxa. Targeted searches of conservation significant flora were conducted in suitable habitat. **Timing:** Fieldwork conducted on 11 September 2023. **Survey Results Shapefile TRIM Ref:** D24#338314 **Document TRIM Ref:** D24#338438

3. SURVEY RESULTS

In accordance with CPS 818/17 condition 8 (e) (iii), a copy of the relevant sections of the executive summary and report conclusions from the Biological survey and/or field assessments are provided in Appendix 1.

3.1 Summary of Flora and Vegetation Surveys

Main Roads required a Biological survey to delineate key flora, fauna, soil and surface water values (wetlands) and potential sensitivity to impact for the proposal. [REDACTED] was engaged by Main Roads to undertake a detailed flora and vegetation survey, including a targeted survey for Threatened and Priority flora to support environmental impact assessment documentation, approvals and potential development. The total extent of the survey area was 9.67 hectares (ha), including the assessment of 0.23 relevé sites per hectare, surveyed on 11 September 2023, which corresponds with the recommended timing of the primary season of a flora survey in the Midwest and Interzone botanical province.

The key findings of the Biological survey are detailed below:

- Twelve flora sampling sites were completed across the survey area; two relevés and ten vegetation mapping notes. The field survey identified 73 confirmed vascular flora taxa within the survey area, representing 62 genera from 30 families. This total is comprised of 43 native flora taxa and 30 introduced taxa.
- One Priority flora taxon was recorded from the survey area during the current detailed survey; *Grevillea triloba* (P3), 63 individuals were recorded from 28 point-locations.
- Thirty introduced taxa, representing 12 families, were recorded in the survey area. Two introduced flora are listed as Weeds of National Significance (WoNS) under the Biodiversity and Agriculture Management Act 2007 (BAM Act); **Lycium ferocissimum* (African Boxthorn) and **Tamarix aphylla* (Athel Tree).
- One introduced taxon is listed as a declared pest in WA under the BAM Act; **Echium plantagineum* (Patterson's Curse).

The survey mapped six vegetation types within the survey area:

- **CoMr:** *Casuarina obesa* (Â± *Melaleuca rhaphiophylla*) low open woodland with emergent *Eucalyptus camaldulensis* mid trees over **Lycium ferocissimum* tall sparse shrubland over highly disturbed understorey dominated by introduced grasses and herbs, including **Hordeum marinum*, **Oxalis pes-caprae*, **Avena barbata*, **Ehrharta longiflora*.
- **AaAs:** *Acacia acuminata, Acacia saligna* tall sparse shrubland to scattered shrubs with emergent *Eucalyptus camaldulensis* low trees over **Cenchrus setaceus, *Bromus diandrus, *Hordeum marinum, *Cenchrus echinatus* low open tussock grassland with **Ricinus communis, *Lupinus cosentinii* mid to low scattered herbs.
- **Aa:** *Acacia acuminata* tall sparse shrubland to tall scattered shrubs over variously dominated mid-storey of *Grevillea pinaster, Grevillea triloba, Acacia tetragonophylla* over **Cenchrus setaceus, *Bromus diandrus, *Avena barbata, *Cenchrus ciliaris* low to mid open tussock grassland.
- **AaGaLfAs:** *Acacia acuminata, Grevillea argyrophylla, *Lycium ferocissimum, Acacia saligna* tall open to sparse shrubland over **Cenchrus setaceus, *Cenchrus ciliaris, *Eragrostis curvula, *Ehrharta longiflora, *Bromus diandrus* mid tussock grassland.
- **AaAsLf:** *Acacia acuminata, Acacia saligna, *Lycium ferocissimum* tall sparse shrubland to scattered shrubs with planted *Eucalytpus spp*. over **Cenchrus setaceus, *Bromus diandrus, *Avena barbata* mid tussock grassland with **Lupinus cosentinii, Sonchus oleraceus* low to mid sparse herbland.
- **Cs:** **Cenchrus setaceus* mid tussock grassland with emergent **Washingtonia* sp. tall shrubs.

Four additional mapping units were described in the survey area:

- **Pa01:** Paddocks/pasture either supporting crops or grazing stock with paddock weeds.
- **Pa02:** Paddocks/pasture supporting scattered *Acacia acuminata* shrubs over **Cenchrus setaceus* and other paddock weeds.
- **Cl:** Cleared areas, including gravel tracks and dwellings.
- **Hwy:** North-West Coastal Highway and sealed roads.

There were no plant communities observed within the survey area that corresponded to any Commonwealth (EPBC Act) or State (*Biodiversity Conservation Act 2016*) listed Threatened Ecological Community (TEC), nor any state listed Priority Ecological Community (PEC).

There are no vegetation types in the survey area representative of the significant vegetation communities recorded in the database searches (Section 4.1). There are no vegetation types in the survey area representative of restricted vegetation from the Northampton 413 vegetation association; there are no vegetation types with *Acacia neurophylla* or with cover definition of "*Acacia* species thicket". There are no vegetation types locally or regionally significant due to resembling significant or restricted communities.

Native vegetation covered 40.6% of the Survey Area, with the remaining area mapped as either 'Cleared' or Completely Degraded. Native vegetation was all recorded as Degraded condition (Keighery, 1994). Primary disturbances were tracks and infrastructure/ pastoral related disturbances or roadside vegetation.

3.2 Summary of Fauna Surveys

Fauna habitat assessments were undertaken to describe and map fauna habitat types with the potential to support significant fauna species within the survey area. After assessing the various vegetation types, soil units, and landforms, three broad fauna habitat types were identified within the survey area:

- Acacia Shrubland (5.21 ha, 53.79%);
- Minor Drainage (1.53 ha, 15.84%); and
- Pasture (1.50 ha, 15.47%).

The remainder of the survey area was mapped as Cleared and did not constitute any fauna habitat type (1.44 ha, 14.91%).

Twenty-three species of vertebrate fauna were recorded within the survey area during the field survey, comprising five mammal species (including four introduced species), 17 bird species (including two introduced), and one reptile species. No significant species were recorded during the field survey.

Four introduced species were recorded during the field survey, including two records of cat (*Felis catus*), two records of red fox (*Vulpes vulpes*), one record of rabbit (*Oryctolagus cuniculus*), and one record of a house mouse (*Mus musculus*). While not unexpected, the presence of these species is likely to have detrimental impacts on recorded and potentially occurring native species.

No Carnaby's Cockatoo individuals or evidence of the species' occurrence was recorded within the survey area during the field survey. If present, the species would occur as transient individuals or flocks during migration periods between breeding and non-breeding regions, utilising the Acacia shrubland and pasture habitats for foraging and/or night roosting.

4. VEGETATION DETAILS

4.1 Proposal Site Vegetation Description

The Development envelope and surrounds consist of native vegetation with high disturbance.

A Biological survey conducted over the proposed bridge alignment mapped five native vegetation associations and two additional mapping units within the development envelope ([REDACTED] 2024), as described in Table 3.

The condition of the native vegetation within the development envelope is all classed as 'Degraded'.

Table 3. Summary of Vegetation Types and other mapping units within Development envelope and survey area

Vegetation Type	Extent within Development envelope (ha)	Total Extent Mapped (ha) within Survey Area
Drainage **D01** **CoMr:** *Casuarina obesa* (Â± *Melaleuca rhaphiophylla*) low open woodland with emergent *Eucalyptus camaldulensis* mid trees over **Lycium ferocissimum* tall sparse shrubland over highly disturbed understorey dominated by introduced grasses and herbs, including **Hordeum marinum*, **Oxalis pes-caprae*, **Avena barbata*, **Ehrharta longiflora*.	0.13	1.3
Drainage **D02** **AaAs:** *Acacia acuminata, Acacia saligna* tall sparse shrubland to scattered shrubs with emergent *Eucalyptus camaldulensis* low trees over **Cenchrus setaceus, *Bromus diandrus, *Hordeum marinum, *Cenchrus* echinatus low open tussock grassland with **Ricinus communis, *Lupinus cosentinii* mid to low scattered herbs.	0.14	0.2
Hillslope **H01** **Aa:** *Acacia acuminata* tall sparse shrubland to tall scattered shrubs over variously dominated mid-storey of *Grevillea pinaster, Grevillea triloba, Acacia tetragonophylla* over **Cenchrus setaceus, *Bromus diandrus, *Avena barbata, *Cenchrus ciliaris* low to mid open tussock grassland.	0.33	2.8
Hillslope **H02** **AaGaLfAs:** *Acacia acuminata, Grevillea argyrophylla, *Lycium ferocissimum, Acacia saligna* tall open to sparse shrubland over	0.48	1.2

**Cenchrus setaceus, *Cenchrus ciliaris, *Eragrostis curvula, *Ehrharta longiflora, *Bromus diandrus* mid tussock grassland.		
Hillslope **H03** **AaAsLf:** *Acacia acuminata, Acacia saligna, *Lycium ferocissimum* tall sparse shrubland to scattered shrubs with planted *Eucalytpus* spp. over **Cenchrus setaceus, *Bromus diandrus, *Avena barbata* mid tussock grassland with **Lupinus cosentinii, Sonchus oleraceus* low to mid sparse herbland.	0.11	1.2
Hillslope **H04** **Cs:** **Cenchrus setaceus* mid tussock grassland with emergent **Washingtonia* sp. tall shrubs	0	0.05
Pastoral **Pa01:** Paddocks/pasture either supporting crops or grazing stock with paddock weeds	0	0.5
Pastoral **Pa02:** Paddocks/pasture supporting scattered *Acacia acuminata* shrubs over **Cenchrus setaceus* and other paddock weeds	0	1.01
Highway and sealed roads **Cl:** Cleared areas, including gravel tracks and dwellings,	0.26	0.8
Highway and sealed roads **Hwy:** North-West Coastal Highway and sealed roads.	0.26	0.7
Total	**1.71**	**9.76**

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. 413	**Statewide**	1,748.2	334.1	19.1	0.7
	IBRA Bioregion *Geraldton Sandplains*	1,748.2	334.1	19.1	0.7
	Local Government Authority *Shire of Chapman Valley*	1,748.2	334.1	19.1	0.7

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 at variance with principle (f) and not at, or not likely to be at variance, with the remaining 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.

Assessment

The proposal requires the clearing of up to approximately 1.71 ha of native vegetation in 'Degraded' condition. Pre-existing cleared areas comprise approximately 30% (0.52 ha) of the total development envelope, in the form of gravel tracks, paddocks and the Northwest Coastal Highway Road and associated infrastructure.

Desktop database searches indicate that one EPBC Act listed Threatened Ecological Community (TEC) and two Priority Ecological Communities (PECs) occur within 20 km of the survey area: 'Subtropical and Temperate Coastal Saltmarsh' (Vulnerable) and 'Coastal sands dominated by *Acacia rostellifera, Eucalyptus oraria* and *Eucalyptus obtusiflora*' (Priority 1) and '*Frankenia pauciflora* low open shrublands in swales' (Priority 1). No vegetation types recorded during the detailed flora and vegetation survey were representative of TECs or PECs ([REDACTED], 2024).

[REDACTED] (2024) identified 73 vascular flora taxa within the Bridge [REDACTED] survey area, representing 62 genera from 30 families. This total is comprised of 43 native flora taxa and 30 introduced taxa (introduced flora accounted for over 40% of the total plant taxa recorded) One Priority flora taxon was recorded from the survey area; *Grevillea triloba* (P3), with 63 individuals recorded from 28-point locations. Of these, nine-point locations were recorded within the development envelope. No Threatened flora species were recorded during the survey, and no Threatened species were considered likely to occur within the proposed clearing area.

Grevillea triloba (P3) is a diffuse or spreading shrub, 1-1.5 m in height with white/pink flowers. This species is generally found occurring on sandy loam, sandstone or limestone, lateritic soils. *Grevillea triloba* (P3) occurs in the South-west Botanical Province and in the Geraldton Sandplains IBRA region with distribution extending 100 km north of the survey area (Western Australian Herbarium, 1998-). This taxon is known from 59 records at the Western Australian Herbarium with records as far back as Drummond in 1850-1851 and collections lodged frequently through to the latest in 2017. More than half of the records described the density estimate as frequent, common or abundant; many of these observed 50 or more than 100 individuals at the point of collection ([REDACTED], 2024).

Three vegetation types, H01, H02 and D02, provided habitat for *Grevillea triloba* (P3). Of these, vegetation types H01 and H02 held the largest populations of *G. triloba* most prominent along the roadside of North West Coastal Highway. The remaining vegetation type, D02, had only one record observed. *Grevillea triloba* is common in roadside areas and may be considered a coloniser following disturbance.

Two broad fauna habitats consisting of native vegetation were mapped within the development envelope: Acacia Shrubland (0.92 ha, 54%) and Minor Drainage (0.27 ha, 16%). The remainder of the development envelope was mapped as Cleared (0.52 ha, 30%). The habitats present within the development envelope extend broadly into the survey area, context area and regional surrounds and are unlikely to be representative of higher levels of fauna diversity than other remnant vegetation locally or regionally.

Twenty-three species of vertebrate fauna were recorded within the survey area during the field survey, comprising five mammal species (including four introduced species), 17 bird species (including two introduced), and one reptile species. No Threatened, Priority or Specially Protected fauna species were recorded.

Although one Priority flora species was recorded in the development envelope, [REDACTED] (2024) noted that approximately 20% of the herbarium specimens stated degraded or disturbed areas of roadsides, breakaways, or parking areas in the collecting notes, suggesting this species thrives in habitat with high disturbance. Western Australian Herbarium records for *Grevillea triloba* span a distance of over 150km north to south and it has regularly been recorded in large numbers where it does occur. Nineteen (19) of the 28 locations where [REDACTED] (2024) recorded *G. triloba* are located outside of the Development Envelope and won't be impacted by the proposed clearing. In this context, it is unlikely that the small proposed clearing area represents significant habitat for this species or that its conservation status will be adversely affected by the proposed clearing.

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

Methodology

- Atlas of Living Australia (2022)
- Biological Survey ([REDACTED], 2024)
- DBCA shapefiles
- Department of the Environment (2015)
- Main Roads GIS Shapefiles

(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.

Assessment

A fauna field survey has been undertaken, comprising the mapping of fauna habitat and opportunistic observations of fauna ([REDACTED], 2024).

The development envelope comprises two fauna habitat types: Acacia Shrubland (0.92 ha, 54%) and Minor Drainage (0.27 ha, 16%). The remainder of the development envelope was mapped as Cleared (0.52 ha, 30%). The Acacia Shrubland habitat provides potentially suitable habitat for a range of fauna species, is widespread throughout the survey area and is considered generally common at a local and regional scale ([REDACTED], 2024). The Minor Drainage habitat type provides an ephemeral water source, foraging and dispersal habitat for a range of fauna species. The habitat type is not restricted to the development envelope or survey area, with drainage channels continuing to the coast from sources such as Chapman River and Skeleton Gully to the east, facilitating fauna movements through the landscape.

Twenty-three species of vertebrate fauna were recorded within the survey area during the field survey, from direct observation and/or secondary evidence (i.e. diggings, scats, burrows). This comprised five mammal species (including four introduced species), 17 bird species (including one introduced), and one reptile species. All species recorded during the field survey have previously been recorded within the surrounding area and were identified in the desktop review. No significant species or evidence of their occurrence was recorded within the survey area during the field survey ([REDACTED], 2024).

Four introduced species were recorded during the field survey, including two records of cat (*Felis catus*), two records of red fox (*Vulpes vulpes*), one record of rabbit (*Oryctolagus cuniculus*), and one record of a house mouse (*Mus musculus*). While not unexpected, the presence of these species is likely to have detrimental impacts on recorded and potentially occurring native species.

<u>Assessment of Conservation Significant Fauna</u>

No significant species were recorded within the survey area during the field survey ([REDACTED], 2024). Although some significant bird species may infrequently occur in the airspace above the survey area, they are likely to only be transient movements due to the lack of suitable habitat.

No Carnaby's Cockatoo individuals or evidence of the species' occurrence was recorded within the survey area during the field survey. Furthermore, the development envelope is located outside the modelled breeding range of Carnaby's Cockatoo (DCCEEW, 2022). If present, the species would occur as transient individuals or flocks during migration periods between breeding and non-breeding regions, utilising the Acacia shrubland and pasture habitats for foraging and/or night roosting ([REDACTED], 2024). The development envelope is unlikely to constitute significant habitat for the Carnaby's Cockatoo in a local or regional context.

Based on the above, while the development envelope contains habitat that may potentially support native fauna, the habitat is well represented within the adjacent and surrounding areas. The development envelope is not considered to comprise, or be necessary for, the maintenance

of a significant habitat for fauna. Clearing will not result in the long-term decline or significantly reduce the available habitat and is therefore, not likely to have a significant impact.

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

Methodology

- Biological Survey ([REDACTED], 2024)
- DBCA shapefiles
- DCCEEW (2022)

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

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

Assessment

No Threatened flora species have previously been recorded in the proposed clearing area and none were identified during [REDACTED] September 2023 detailed and targeted survey. [REDACTED] post-survey likelihood of occurrence assessment considered no Threatened flora species are likely to occur in the Bridge [REDACTED] survey area. This conclusion was based on the lack of Threatened flora recorded during the field survey and the habitat present being unsuitable due to grazing pressures, prior clearing and weed density.

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

Methodology

- Biological Survey ([REDACTED] 2024)
- EPBC Database Search
- DBCA shapefiles

(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.

Assessment

[REDACTED] desktop assessment identified one Threatened Ecological Community (TEC) as previously recorded within the study area (within a 20 km radius of the survey area):

'Subtropical and Temperate Coastal Saltmarsh' (listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*). The nearest known occurrence of this TEC to the Bridge [REDACTED] survey area is approximately 8.7 km south.

However, [REDACTED] (2024) did not identify any TEC's within the development envelope during the Bridge [REDACTED] Biological survey.

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

Methodology

- Biological Survey ([REDACTED] 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 likely to be at variance to this Principle.

Assessment

The proposed clearing area is located within the Geraldton Hills (GES01) subregion of the Geraldton Sandplains (GES) bioregion, as defined by the Interim Biogeographic Regionalisation for Australia (IBRA) ([REDACTED], 2024). Based on 1:250,000 scale mapping, the project lies within Pre-European Vegetation Association Northampton 413: Shrublands; *Acacia neurophylla* & Acacia species thicket.

The National Objectives and Targets of 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 area (Perth & Peel) where 10% representation should be maintained.

Vegetation association 413 has 19.1% of its pre-European extent remaining at state, IBRA Bioregion and Local Government level (see Table below).

Table 5. Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre–European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
Veg Assoc No. 413	**Statewide**	1,748.2	334.1	*19.1*	0.7
	IBRA Bioregion *Geraldton Sandplains*	1,748.2	334.1	*19.1*	0.7
	Local Government Authority *Shire of Chapman Valley*	1,748.2	334.1	*19.1*	0.7

Although the proposed clearing area is broadly mapped as consisting of a Pre-European Vegetation Association with less than 30% of its pre-European extent remaining, [REDACTED] (2024) finer scale mapping of the Bridge [REDACTED] survey area noted there are no vegetation types in the survey area representative of the Northampton 413 vegetation association and there are no vegetation types with *Acacia neurophylla* or with cover definition of "*Acacia* species thicket". There are no vegetation types locally or regionally significant due to resembling significant or restricted communities. In this context, the degraded vegetation in the development envelope is unlikely to be significant as a remnant of native vegetation in an area that has been extensively cleared.

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

Methodology

- Aerial photography
- Biological Survey ([REDACTED] 2024)
- Commonwealth of Australia (2001)

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

Proposed clearing is at variance to this Principle.

Assessment

[REDACTED] (2024) mapped two vegetation types within the development envelope that represent vegetation associated with drainage areas of the Buller River; a minor river where water flows for only parts of the year, usually after heavy rainfall:

CoMr: *Casuarina obesa* (Â± *Melaleuca rhaphiophylla*) low open woodland with emergent *Eucalyptus camaldulensis* mid trees over **Lycium ferocissimum* tall sparse shrubland over highly disturbed understorey dominated by introduced grasses and herbs, including **Hordeum marinum*, **Oxalis pes-caprae*, **Avena barbata*, **Ehrharta longiflora* – 0.13 hectares of this vegetation type was mapped within the development envelope, representing approximately 10% of the 1.3 hectares of this vegetation type mapped from the 9.67 ha survey area.

AaAs: *Acacia acuminata, Acacia saligna* tall sparse shrubland to scattered shrubs with emergent *Eucalyptus camaldulensis* low trees over **Cenchrus setaceus, *Bromus diandrus, *Hordeum marinum, *Cenchrus* echinatus low open tussock grassland with **Ricinus communis, *Lupinus cosentinii* mid to low scattered herbs – 0.14 hectares of this vegetation type was mapped within the development envelope, representing approximately 70% of the 0.20 hectares of this vegetation type mapped from the 9.67 ha survey area.

Taxon *Eucalyptus camaldulensis* was observed at both of these vegetation types with sedges and other riparian vegetation *Casuarina obesa* and *Melaleuca rhaphiophylla* ([REDACTED], 2024).

Given there is 0.27 ha of riparian vegetation within the development envelope, the proposed clearing is at variance to this Principle. However, significant residual impacts are not expected from the proposed clearing given the degraded condition of the minor drainage vegetation, and noting it is not restricted to the development envelope and occurs both locally and regionally. The proposed clearing of 0.27 ha of drainage vegetation represents approximately 18% of the 1.5 ha of drainage vegetation (D01 and D02) mapped from [REDACTED] 2024 survey area. This impact further reduces when considering the extent of drainage vegetation within [REDACTED] 500m context area, where drainage vegetation in the development envelope only represents 3% of the 8.1ha drainage vegetation present in the context area. At the scale of the Buller River catchment (an area of approximately 3,390 hectares), impacts to riparian vegetation are not significant.

Methodology

- Biological Survey ([REDACTED] 2024)
- Directory of Important Wetlands (DCCEEW 2022).
- Government GIS shapefiles
    - Ramsar Wetlands (Accessed 28 February 2024)
    - Important Wetlands (Accessed 28 February 2024)
    - Watercourses (Accessed 28 February 2024)
- Aerial imagery (ImageNow)
    - Accessed 28 February 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 likely to be at variance to this Principle.

Assessment

Soils of the Geraldton Hills subregion in the Geraldton-Northampton area are divided by the Darling Fault (line extending through Mullewa and Three Springs). The soils of the context and survey area consist of two broad soil landscape units, BC1 (riverine plains) to the south and Uc2 (dissected lateritic plateau) to the north (CSIRO, 1967).

The soils of the development envelope have been broadly mapped as occurring in the Northampton System, which comprises narrow valleys with gently undulating to rolling rises and low hills with an integrated drainage system (GIS Database).

DPIRD (2023) mapping indicates that the proposal area presents the following land degradation risk:

Risk Percentage	Information
<3%	Moderate to high land instability risk
<3%	Moderate to high flood risk
3-10%	Moderate to very high waterlogging risk
<3%	High to extreme water erosion risk
3-10%	High to extreme wind erosion risk

The table above indicates more than 90% of the proposal area is unlikely to be at risk of land instability, flooding, waterlogging, water erosion or wind erosion. Furthermore, a review of CSIRO shapefiles indicates that the probability of occurrence of acid sulfate soils is extremely low.

Based on the above, the proposed clearing of 1.71ha of degraded vegetation adjacent to the existing highway and bridge infrastructure is not likely to cause appreciable land degradation. The proposed clearing is not likely to be at variance to this Principle.

Methodology

- Biological Survey ([REDACTED] 2024)
- CSIRO (1967)
- Government GIS Shapefiles (DPIRD, Natural Resource Information (WA) (arcgis.com))
  - Acid Sulphate Soil Risk Map – (Accessed 19/02/2024)
  - Soil landscape land quality – Water Erosion Risk (Accessed 19/02/2024)
  - Soil landscape land quality – Wind Erosion Risk (Accessed 19/02/2024)
  - Soil landscape land quality – Salinity Risk (Accessed 19/02/2024)
  - Soil landscape land quality – Surface Acidity (Accessed 19/02/2024)
  - Soil landscape land quality – Waterlogging Risk (Accessed 19/02/2024
- Soil landscape land quality – Flood Risk (Accessed 19/02/2024)

(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 likely to be at variance to this Principle.

Assessment

A search of ArcGIS shapefiles indicates no nature reserves, conservation areas or Bush Forever Sites are located within the development envelope.

The nearest conservation area is the Wokatherra Nature Reserve (R 39276), located approximately 2 km southeast of the development envelope.

Based on the distance to the nearest conservation area, the proposed clearing is not likely to be at variance to this Principle.

Methodology

- Landgate GIS Cadastre Shapefiles (Accessed 28 February 2024)
- Government GIS Shapefiles:
    - DBCA Legislated Lands and Waters & Lands of Interest (Accessed 28 February 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 likely to be at variance to this Principle.

Assessment

There are no permanent surface water features or nationally important wetlands in the proposal area or surrounds (GIS Databases; [REDACTED], 2024). The proposal area is not located within or in close proximity to any Public Drinking Water Source Areas (PDWSAs) or *Country Areas Water Supply* (CAWS) *Act 1947* clearing control catchments (GIS Database).

The proposed clearing area includes 0.27 hectares of degraded riparian vegetation growing in association with the Buller River; a minor non-perennial watercourse that runs diagonally in a south-westerly direction through the proposal area, discharging into the Indian Ocean less than 2km to the west (GIS Database; [REDACTED], 2024). The Buller River is approximately 10km in length, originating approximately 7-8km northeast of the proposal area. It is unlikely that the small extent of clearing associated with this minor non-perennial watercourse will cause deterioration in the quality of surface or underground water in the context of the Buller River Catchment, which is approximately 33.9 square kilometres / 3, 390 hectares.

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

Methodology

- Biological Survey ([REDACTED] 2024)
- DWER and DBCA shapefiles
- Government GIS Shapefiles:

- RIWI Act, Surface Water Areas and Irrigation Districts (Accessed 28 February 2024)
- RIWI Act, Groundwater Areas (Accessed 28 February 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 likely to be at variance to this Principle.

Assessment

The climate of the Geraldton Hills IBRA subregion is characterised as a Mediterranean climate with cool wet winters and warm, relatively dry summers (Desmond & Chant, 2003). Average annual rainfall for this subregion ranges between 300 and 500 millimetres (mm), with seven to eight dry months per year. The long-term mean annual rainfall recorded at the nearest weather station, Geraldton Town Weather Station, is 445.3 mm, (length of record 1877 to 2023), with the majority of rainfall received between May and September (359.1 mm) each year (BoM, 2023).

[REDACTED] (2024) observed some sample sites within the Bridge [REDACTED] survey area to be naturally prone to pooling water and flooding. A relatively small area of riparian vegetation will be impacted (0.27 ha), and this is unlikely to significantly impact surface water run off or exacerbate the incidence or intensity of flooding.

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

Methodology

- Bureau of Meteorology (BOM, 2023)
- Biological Survey ([REDACTED] 2024)
- Government GIS Shapefiles:
    - Contours (Accessed 28 February 2024)

6. VEGETATION MANAGEMENT

Main Roads will avoid clearing native vegetation where possible. Where clearing cannot be avoided then this clearing is kept to a minimum.

7. REHABILITATION, REVEGETATION & OFFSETS

7.1 Revegetation and Rehabilitation

Only the required amount of vegetation will be cleared to facilitate the bridge construction and associated infrastructure. No temporary clearing will be undertaken as part of the Proposal activities and therefore no revegetation or rehabilitation will be conducted under CPS 818.

7.2 Offset Proposal

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

8. COMPLIANCE WITH CPS 818

Table 6 summarises what further pre-clearing impact assessment is required in accordance with CPS 818.

Table 6. 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.	**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 stakeholder submissions are not required to be sought and approval of the Assessment Report by the CEO 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.
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 Principal Environmental Management Requirements (PEMRs) and Hygiene Checklists will be applied.

Impact of Clearing	Yes/No or NA	Further Action Required
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.
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 Assessment Report was prepared by an environmental specialist. No VMP, Dieback Management Plan or Offset Proposal was required to support the Assessment Report for this Proposal.

9. REFERENCES

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