

Clearing Assessment Report / Vegetation Management Plan (VMP) – CPS 818

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Western Australia.*

Bridge 4482 – Replacement Works
O'Brien Road, Gidgegannup, City of Swan
Metropolitan Region
EOS # 3615

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1 PROPOSAL

1.1 Purpose and Justification

Main Roads Western Australia (Main Roads) proposes to replace Wooroloo Bridge (No. 4482) from a one-lane bridge with a new two-lane bridge (the Proposal). The replacement of Bridge 4482 with a two-lane bridge will improve the safety of the infrastructure for its users, as it is part of the two-lane O'Brien Road. The Proposal will also require the establishment of an access track adjacent (south) of the Wooroloo Bridge. Ground disturbance, including the clearing of remnant native vegetation, within the Wooroloo Brook will be necessary to accommodate the access track and for the construction of the new two-lane bridge and its abutments.

1.1.1 Main Roads Approach to Road Safety and the Environment

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

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

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

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

1.2 Proposal Scope

The Proposal will require up to 0.46 ha of remnant native vegetation clearing within a Development Envelope of 0.85 ha.

The Proposal will include the road closure of O'Brien Road and diversion of traffic via Reserve Road and Berry Road; the establishment of an access track adjacent (south) of Wooroloo Brook (No. 4482); the removal of existing abutments and piers; the construction of two new abutments for the new bridge; and the construction of its steel composite concrete deck.

The ground disturbing works will consist of excavation within Wooroloo Brook to accommodate the Bridge's construction and abutments, and native vegetation clearing within Wooroloo Brook to establish the access track.

1.3 Proposal Location

The Proposal is located mostly within the road reserve of O'Brien Road, in Gidgegannup, within the City of Swan (116.1157419°E 31.7305202°S), as shown on **Figure 1**.

1.4 Clearing Details

Proposed Clearing to be undertaken using CPS 818/17:

The Proposal will require up to 0.46 ha of remnant native vegetation clearing within a Development Envelope of 0.85 ha.

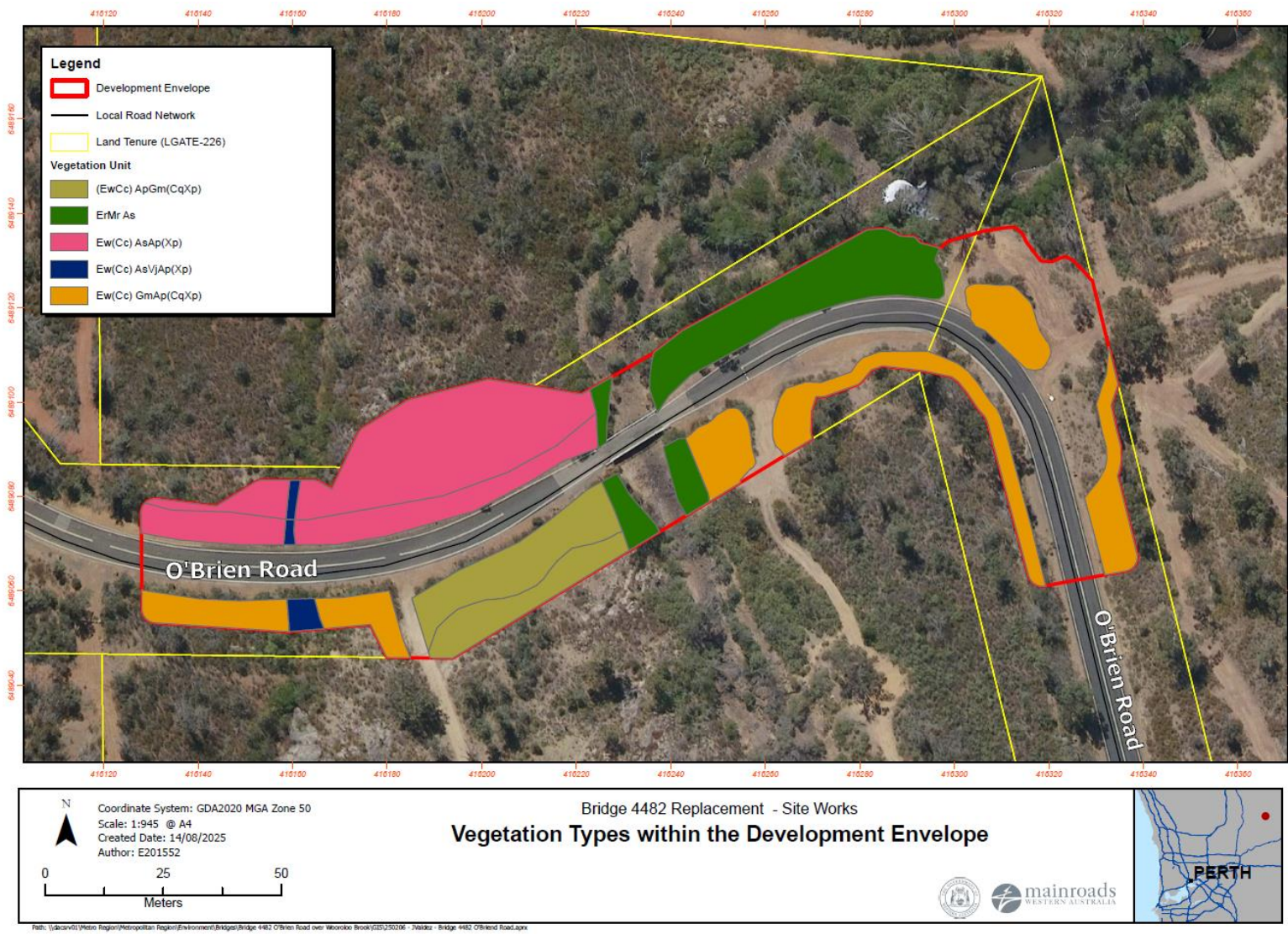
Areas and Types of Native Vegetation Clearing:

The areas and types of native vegetation to be cleared are shown in **Figure 2**.

Figure 1. Development Envelope Locality Map



Figure 2. Vegetation Types within the Development Envelope



1.5 Alternatives to Native Vegetation Clearing Considered During Proposal Development

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

- 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.
- Do not replace 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 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
Alternative alignment located within pasture or degraded areas	The Proposal Area is situated within a locality that has not undergone a lot of vegetation clearing other than the established roads and gravel access tracks, and is surrounded by remnant vegetation. There are no alternative routes to reduce the amount of clearing required. Utilising an alternative alignment to increase road safety would lead to greater environmental impact than replacing the one-lane bridge with a two-lane bridge.
Simplification of design to reduce number of lanes and/or complexity of intersections	Not applicable to this Proposal, given it involves the replacement of a single-lane bridge with a two-lane bridge to increase its safety and efficacy, and is a part of a two-lane road.
Use of existing cleared areas for access tracks, construction storage and stockpiling	The Proposal will utilise areas that are already disturbed as much as practically possible to reduce the extent of native vegetation clearing required. Particularly, existing cleared areas on the eastern portion of the Proposal Area, near the bend, will be utilised as laydown areas. Approximately 46% of the Development Envelope (0.39 ha of 0.85 ha) consists of areas devoid of native vegetation.
Drainage modification	Drainage modification will be minimal for the Project, given that it is for the replacement of an existing Bridge over Wooroloo Brook. Natural drainage and flows will be maintained.

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 and D Act)
- *Soil and Land Conservation Act 1945* (WA)
- *Rights in Water and Irrigation Act 1914* (WA) (RIWI Act)
- *Aboriginal Heritage Act 1972* (WA).

Environmental Protection Policies:

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

Other relevant policies and guidance documents:

- Environmental Offsets Policy (Government of Western Australia, 2011)
- A guide to the assessment of applications to clear native vegetation (DER, 2014)
- Procedure: Native vegetation clearing permits (DWER, 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.
- EPBC Act Matters of National Environmental Significance, Significant Impact Guidelines 1.1 (DoE, 2013).
- Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-Tailed Black Cockatoo (DAWE, 2022)

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 818/17.

To comply with CPS 818/17, 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:

- **Native Vegetation Clearing Area (Clearing Area)** – The maximum amount of native vegetation to be cleared for the Proposal that will accommodate the designed earthworks and, typically, a nominal buffer to allow for the safe movement of machinery during construction. The Clearing Area for this Proposal is 0.46 ha.
- **Development Envelope** – The maximum extent within which the Clearing Area will be located. This envelope is larger than the Clearing Area to allow for minor changes to the Proposal footprint as the design process continues, and to account for minor and unexpected changes that may occur during construction, such as working to avoid a large tree or encountering buried boulders or services. This flexibility allows the site personnel to make modifications to the Proposal to avoid areas that may contain better environmental values. The CAR has assessed all environmental values within the Development Envelope as though all of these values will be impacted, up to the amount specified within the Clearing Area. The Development Envelope for this Proposal is 0.85 ha.
- **Study Area** – Area covered by the Desktop Assessment. The Study Area for the Proposal is confined to a local area of a 5 km radius.
- **Survey Area** – Area covered by the Biological Survey, which is typically larger than the Development Envelope.

2.2 Desktop Assessment

A desktop assessment of the Proposal Area 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 10**.

2.3 Surveys and Assessments

Biological and targeted surveys conducted for the proposal are outlined in **Table 2** and a summary of the findings in these reports is presented in **Sections 3.1** to **3.5**.

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

Consultant and Survey Name	Survey Details
Main Roads (2025) <i>Diplolaena andrewsii</i> Targeted Flora Survey	Survey Area: A 50 m buffer was added to the Proposal's Development Envelope, and this served as the Survey Area around Bridge 4482 O'Brien Road (SLK 11.1 – SLK 11.4). Type: Main Roads conducted a targeted flora survey to locate any occurrences of the Threatened <i>Diplolaena andrewsii</i> within the surroundings of Bridge 4482 O'Brien Road. Timing: The Survey was conducted on 21 August 2025. Survey Results Shapefile TRIM Ref: D25#855469 Document TRIM Ref: D25#855335
Kirkby (2025) Detailed Survey of Possible Black Cockatoo Breeding Hollows at O'Brien Road, Gidgegannup. Bridge 4482 Replacement Area	Survey Area: The Consultant was engaged to assess seven trees within and surrounding the Development Envelope (estimated 2.25 ha area around O'Brien Road SLK 11.2 – 11.3, over Wooroloo Brook) that Biologic (2024) identified as having "Unsure", "Potential" or "Likely" Black Cockatoo hollows. Type: The Consultant undertook a single visit to inspect seven trees and determine the suitability of hollows for use by Black Cockatoos and determine if there is evidence of Black Cockatoo use. The survey utilised binoculars, a pole camera, and/or a drone. Timing: The Survey was undertaken on 22 June 2025. Survey Results Shapefile TRIM Ref: N/A Document TRIM Ref: D25#654026
Biologic (2024) Bridge 4482 O'Brien Road, Gidgegannup: Biological Survey	Survey Area: 7.52 ha Survey Area on O'Brien Road SLK 11.2 – 11.3, over Wooroloo Brook. Approximately 6.1 ha consists of native vegetation. The Survey Area encompasses both sides of the road reserve between SLK 11.0 and SLK 11.7, including Crown Reserve R26864 on both sides of the road reserve. Type: Single-season detailed and targeted flora and vegetation survey, basic vertebrate fauna survey, and black cockatoo habitat assessment. Timing: Field surveys were undertaken on 18 October 2023 and 16 November 2023 for the detailed flora and vegetation survey and basic vertebrate fauna survey, and targeted black cockatoo habitat. The 16 November 2023 survey specifically targeted the Threatened orchid <i>Thelymitra dedmaniarum</i>. Survey Results Shapefile TRIM Ref: D24#713575 Document TRIM Ref: D24#713572

3 SURVEY RESULTS

In accordance with CPS 818 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 and Analysis of Flora and Vegetation Surveys

Flora

Biologic's desktop assessment identified 18 conservation significant flora taxa as "Previously recorded", "Highly likely", "Likely", or "Possible" to occur in the Survey Area. Biologic's Post Survey Likelihood of Occurrence Assessment determined only five taxa warrant further consideration, with one considered "Possible", three "Previously recorded" and one "Confirmed". These five taxa were:

1. *Diplolaena andrewsii* (T) – Previously recorded
2. *Thelymitra dedmaniarum* (T) – Previously recorded
3. *Darwinia pimeliodes* (P4) – Previously recorded
4. *Acacia oncinophylla* subsp. *oncinophylla* (P3) - Confirmed
5. *Drosera occidentalis* (P4) - Possible

Of the above five taxa, only *Acacia oncinophylla* subsp. *oncinophylla* was recorded in the Survey Area during Biologic's (2024) field surveys. This species was recorded as two individuals from one point location, approximately 10 m south of the Development Envelope. Given that no individuals were located in the Development Envelope, this species is not expected to be significantly impacted by the proposed clearing.

In total, the Survey identified 117 confirmed vascular flora taxa (87 native and 30 introduced), representing 90 genera from 39 families. This total included no Threatened flora taxa and one Priority flora taxa (*Acacia oncinophylla* subsp. *oncinophylla*), as outlined above. Sixteen records were indeterminate due to the plant material being sterile or lacking sufficient identifying material. However, none of these undefined specimens were deemed to be potentially significant.

Main Roads' review of Biologic's (2024) report noted that only the July 2006 WAHerb record of *Diplolaena andrewsii*, approximately 50 m south of the Development Envelope, was discussed. However, DBCA's TPFL GIS layer indicates that there is another record of *D. andrewsii*, dated March 2021, roughly 30 m south of the Development Envelope and 20 m north of the aforementioned WAHerb record. Biologic (2024) suggested that *D. andrewsii* populations would have been killed by the intense Wooroloo bushfire in February 2021, but added that the species could regenerate from soil-stored seeds. Although Biologic's Spring 2023 Targeted survey did not find any occurrences of *D. andrewsii*, it is possible the species could have germinated from seed since then. Accordingly, Main Roads conducted a targeted flora survey on 21 August 2025 to verify the presence of the Threatened *D. andrewsii* around the Development Envelope. A total of 13 flowering individuals of *D. andrewsii*, from two point locations, were recorded during Main Roads' (2025) targeted flora survey, all of which were located more than 50 m south of the Development Envelope.

Thirty introduced flora taxa, comprising 24 genera from 11 families, were recorded in the Survey Area. Biologic (2024) also detected two unconfirmed taxa that are introduced genera: *Gladiolus* sp. *indet* and *Watsonia* sp. *indet*. None of these are listed as a Weed of National Significance (WoNS). One introduced taxon, the *Echium plantagenium* (Patterson's curse), is listed as a Declared Pest (DP) in WA under the BAM Act and is classified as s22(2) – Exempt. Six introduced flora are mapped within the Development Envelope:

- *Avena barbata* (Bearded oat)
- *Briza maxima* (Blowfly grass)
- *Briza minor* (Shivery grass)
- *Ehrharta longiflora* (Annual veldt grass)
- *Gladiolus* sp. indet
- *Hypochaeris glabra* (Smooth cat's ear)

Biologic (2024) mapped six vegetation types within the Survey Area. The vegetation types were from drainage line (D01, D02) and hill (H01, H02, H03, H04) landforms, while the mapping units were cleared land (Cl) and water (W). None of these vegetation types were found to be representative of any Threatened or Priority Ecological Communities (TECs/PECs).

Of these six vegetation types, all occur within the Development Envelope, with the exception of H03: EwCc ApTlto. **Table 3** provides a summary of the vegetation types within the Survey Area and the Development Envelope.

Table 3. Summary of Native Vegetation Types within the Survey Area and Development Envelope (Biologic, 2024)

Vegetation Code & Description	Survey Area Extent (ha)	Development Envelope Extent (ha)	Condition
D01: ErMr As <i>Eucalyptus rudis</i> subsp. <i>rudis</i> mid open woodland over <i>Melaleuca raphiophylla</i> , <i>Acacia saligna</i> tall shrubland over <i>Astartea leptophylla</i> , <i>Melaleuca viminea</i> mid sparse shrubland over grasses and forbs.	0.638 (8.5%)	0.092 (10.80%)	Good
D02: Ew(Cc) AsVjAp(Xp) <i>Eucalyptus wandoo</i> subsp. <i>wandoo</i> ($\pm$ <i>Corymbia calophylla</i>) mid to low open woodland over <i>Acacia saligna</i> , <i>Viminaria juncea</i> , <i>Acacia pulchella</i> var. <i>pulchella</i> ($\pm$ <i>Xanthorrhoea preissii</i>) mid to tall closed shrubland over <i>Opercularia vaginata</i> low isolated forbs with <i>Aira cupaniana</i> low isolated grasses.	0.074 (1%)	0.007 (0.84%)	Good/ Very Good
H01: Ew(Cc) GmAp(CqXp) <i>Eucalyptus wandoo</i> subsp. <i>wandoo</i> ($\pm$ <i>Corymbia calophylla</i>) mid open woodland over <i>Grevillea manglesii</i> , <i>Acacia pulchella</i> var. <i>pulchella</i> , ($\pm$ <i>Calothamnus quadrifidus</i> , <i>Xanthorrhoea preissii</i>) mid to tall shrubland over low isolated clumps of shrubs and forbs.	2.188 (29.1%)	0.129 (15.25%)	Good/ Very Good
H02: Ew(Cc) AsAp(Xp) <i>Eucalyptus wandoo</i> subsp. <i>wandoo</i> ($\pm$ <i>Corymbia calophylla</i>) mid to low open woodland over <i>Acacia saligna</i> , <i>Acacia pulchella</i> var. <i>pulchella</i> , <i>Xanthorrhoea preissii</i> , <i>Calothamnus quadrifidus</i> subsp. <i>quadrifidus</i> mid to tall closed shrubland over <i>Opercularia vaginata</i> low isolated forbs with <i>Aira cupaniana</i> low isolated grasses.	1.275 (16.9%)	0.165 (19.45%)	Very Good
H03: EwCc ApTlto <i>Eucalyptus wandoo</i> subsp. <i>wandoo</i> , <i>Corymbia calophylla</i> mid open woodland (in landscape, open regrowth) over <i>Acacia pulchella</i> var. <i>pulchella</i> , <i>Trymalium odoratissimum</i> , <i>Trymalium ledifolium</i> var. <i>lineare</i> , <i>Viminaria juncea</i> mid to tall closed shrubland over <i>Hibbertia commutata</i> low isolated shrubs over mixed grasses and forbs.	0.649 (8.6%)	None	Good
H04: (EwCc) ApGm(CqXp) <i>Eucalyptus wandoo</i> subsp. <i>wandoo</i> , <i>Corymbia calophylla</i> mid open woodland over <i>Acacia pulchella</i> var. <i>pulchella</i> , <i>Grevillea manglesii</i> , <i>Calothamnus quadrifidus</i> , <i>Xanthorrhoea preissii</i> mid to tall shrubland over low isolated clumps of shrubs and forbs on granite outcrops.	1.253 (16.7%)	0.070 (8.28%)	Very Good
Other mapping units			
Cleared Cleared areas, including O'Brien Road and gravel tracks	1.196 (15.9 %)	0.359 (42.39%)	Cleared
Water	0.251 (3.3 %)	0.025 (2.99%)	N/A
Total	7.52 (100 %)	0.85 (100%)	

3.2 Summary and Analysis of Fauna Surveys

Biologic (2024) conducted a basic vertebrate fauna survey and habitat assessment for black cockatoos. Biologic identified 31 vertebrate fauna species through direct observation and secondary evidence, such as diggings and scats. These included six mammals, four of which are introduced, and 25 bird species, with two being introduced. Two conservation significant fauna species were recorded from the Survey: quenda (P4) and Carnaby's Black Cockatoo (EN). None of these fauna records are located within the Development Envelope as indicated by the spatial data from Biologic.

Three broad fauna habitats were delineated within the Survey Area by Biologic (2024); these are summarised in **Table 4**.

Table 4. Summary of Fauna Habitats in the Survey Area and Development Envelope (Biologic 2024)

Fauna Habitat	Distinguishing Characteristics	Condition and Spatial Context	Survey Area Extent (ha) and (% of Survey Area)	Development Envelope Extent (ha) and (% of Development Envelope)
Acacia Shrubland with Wandoo	Acacia mid to tall closed shrubland dominated by <i>Acacia saligna</i> and <i>Acacia pulchella</i> var. <i>pulchella</i> , <i>Xanthorrhoea preissii</i> mid to tall closed shrubland over isolated clumps of shrubs, forbs and grasses with scattered <i>Eucalyptus wandoo</i> subsp. <i>wandoo</i> ($\pm$ <i>Corymbia calophylla</i>).	This habitat covers a high proportion of the Survey Area. This habitat ranges from good (e.g. at the road verge) to very good. Some regrowth is present.	5.440 (72.34)	0.372 (43.82)
Flooded Gum Woodland	<i>Eucalyptus rudis</i> subsp. <i>rudis</i> mid open woodland over <i>Melaleuca rhaphiophylla</i> , <i>Acacia saligna</i> tall shrubland over grasses and forbs. This habitat is indicative of wetter soils and water courses. Some of this habitat may be seasonally inundated, temporarily.	This habitat type occurs on either side of the Medium Drainage Line. This habitat is in good condition.	0.638 (8.51)	0.092 (10.80)
Medium Drainage Line	This habitat type incorporates a small section of Wooroloo Brook. It may provide foraging and dispersal habitat for frogs as well as small mammals, reptiles and aquatic species.	The small section of Wooroloo Brook divides into one minor perennial watercourse, which extends northwards from the centre of the Survey Area.	0.251 (3.32)	0.025 (2.99)
N/A	Existing cleared areas	Completely Degraded areas devoid of vegetation, including the existing road maintenance zone, existing access tracks and other disturbances	1.196 (15.96)	0.360 (42.39)
TOTAL			7.52 (100)	0.85 (100)

Black Cockatoos

Twenty-nine natural nests are confirmed to be within 5 km of the Survey Area, all of which are near the Walyunga National Park to the west. Two recorded artificial hollows, last used in 2023, are also within six to 12 km of the Survey Area. According to ArcGIS searches, the nearest Black Cockatoo Breeding Site is situated ~3.7 km northeast of the Development Envelope (GIS Data: BC_WTBC_Breedsite). Given these reasons, as well as the Survey Area being within the modelled distribution and breeding range for Carnaby's Black Cockatoo and Forest Red-Tailed Black Cockatoo, Biologic (2024) was tasked to conduct a targeted Black Cockatoo habitat assessment. The results of Biologic's Black Cockatoo foraging habitat quality assessment are summarised below:

Carnaby's Black Cockatoos were observed on five occasions during Biologic's field survey (2024), some of which were sighted foraging. A total of 5.44 ha of the Survey Area was classified as "High Quality" Carnaby's Black Cockatoo foraging habitat by Biologic; this wholly consisted of the Acacia Shrubland with Wandoo fauna habitat. The amount of this fauna habitat within the Development Envelope is 0.372 ha. The Survey Area contains 0.89 ha of "Medium Quality" foraging habitat for Carnaby's Black Cockatoo and is mapped within the Flooded Gum Woodland (0.64 ha) and the Medium Drainage Line fauna habitat (0.25 ha). The Proposal will remove up to 0.092 ha of the Flooded Gum Woodland fauna habitat, while no clearing is proposed within the Medium Drainage Line given that this is not a vegetated habitat type.

No sightings of the Forest Red-tailed Black Cockatoo were recorded during the Biologic (2024) field survey. Although *Corymbia calophylla* (marri) trees occur within the Survey Area for Forest Red-tailed Black Cockatoo foraging, these trees are sparse. Biologic (2024) suggests that the only foraging habitat within the Survey Area for the Forest Red-tailed Black Cockatoo is "Low Quality" and makes up 6.33 ha of the Survey Area. Biologic also reported that no night roosts or breeding trees for the Forest Red-tailed Black Cockatoo are confirmed within 12 km of the Survey Area. Biologic suggests that the Forest Red-tailed Black Cockatoo's Likelihood of Occurrence (LOO) within the Survey Area is considered Possible; they note, however, that this would only be from occasional visits to forage on the sparse resources within the Acacia Shrubland with Wandoo fauna habitat.

Given that the Survey Area is situated at the northern edge of the distribution for Baudin's Black Cockatoo and no recent records of this species occurring in the vicinity of the Survey Area, this species is considered to be Unlikely to occur. Biologic (2024) further supports this claim by stating that the foraging, roosting, and breeding habitat within the Survey Area is of low value for Baudin's Black Cockatoo.

Main Roads has commissioned Australia Black Cockatoo Specialists (ABCS) to provide a species list for plant species utilised by Black Cockatoos: "*Plants used by Black Cockatoos in the South-West of Western Australia*" (ABCS, 2025).

The resultant list has been compiled from a variety of sources, including 18 referenced publications (including Bamford and Groom) and the professional expertise of the author, Rick Dawson. The comprehensive list of flora species utilised by Black Cockatoo identifies a High, Medium, or Low value to each of the three Black Cockatoo species for the factors of foraging, roosting, and nesting.

Utilising this species list, Main Roads is able to conduct a detailed analysis of the foraging value of species present within vegetation types which occur in the Development Envelope. This information

is subsequently able to be used in the development of a site condition score to inform a foraging assessment model, which also incorporates site context and stocking rate.

Main Roads uses the Bamford Scoring Tool (BCE 2020) to assign a numerical value that accurately reflects the significance of foraging habitat for Black Cockatoos within the site-specific Development Envelope, instead of the broader Survey Area, as rated by Biologic (2024). This tool was applied to the present Proposal to assess the foraging habitat value for Carnaby's Black Cockatoo and Forest Red-tailed Black Cockatoo; the scores of which and their justifications are provided in **Table 5** and **Table 6**.

Table 5. Carnaby's Black Cockatoo Foraging Habitat Value Assessment Using the Bamford Scoring Tool

Carnaby's Black Cockatoo Foraging Habitat Value Assessment				
Fauna Habitat Type and Amount Cleared	Scoring Tool Component	Score	Score Value Description	Justification of Score
Acacia Shrubland with Wandoo (0.372 ha)	Site Condition	3 (Low to Moderate)	Eucalypt Woodland with Marri <10% projected foliage cover.	This habitat contains occasional wandoo and marri trees scattered around (Biologic, 2024). Wandoo is a low-value foraging species for Carnaby's Cockatoo, whilst Marri is a high-value species (Australian Black Cockatoo Specialists, 2025).
	Site Context	0	Local breeding known/likely <0.1%	The nearest recorded White-Tailed Black Cockatoo breeding site is located approximately 3.7 km northeast. The total area of native vegetation extent (DPIRD-005) within a 15 km radius of the Development Envelope is approximately 34,379.22 ha; the 0.372 ha clearing would account for <0.0001%.
	Species Stocking Rate	1	Carnaby's Black Cockatoo is seen or reported regularly, and/or there is abundant foraging evidence.	Carnaby's Cockatoos were observed foraging in this habitat type for prolonged periods during the field survey. There are previous records of this species in the area.
	Total	4		
Flooded Gum Woodland (0.092 ha)	Site Condition	1 (Negligible to Low)	Scattered specimens of known food plants, but projected foliage cover <2%.	Habitat contains some instances of <i>Acacia saligna</i> (mid-storey). <i>A. saligna</i> is a low-value foraging resource for Carnaby's Cockatoo, according to Australian Black Cockatoo Specialists (2025). Flooded gum (<i>E. rudis</i>) is not a known foraging resource for Carnaby's Cockatoo, according to Australian Black Cockatoo Specialists (2025).
	Site Context	0	Local breeding known/likely <0.1%	The nearest recorded White-Tailed Black Cockatoo breeding site is located approximately 3.7 km northeast. The total area of native vegetation extent (DPIRD-005) within a 15 km radius of the Development Envelope is approximately 34,379.22 ha; the 0.092 ha clearing would account for <0.0001%.
	Species Stocking Rate	1	Carnaby's Black Cockatoo is seen or reported regularly, and/or there is abundant foraging evidence.	Carnaby's Black Cockatoos were observed foraging in this habitat type for prolonged periods during the Biologic (2024) field survey. There are previous records of this species in the area.
	Total	2		

Table 6. Forest Red-Tailed Black Cockatoo Foraging Habitat Value Assessment Using the Bamford Scoring Tool

Forest Red-tailed Black Cockatoo Foraging Habitat Value Assessment				
Fauna Habitat Type and Amount Cleared	Scoring Tool Component	Score	Score Value Description	Justification of Score
Acacia Shrubland with Wandoo (0.372 ha)	Site Condition	1 (Negligible to Low)	Scattered specimens of known food plants, but projected foliage cover <1%.	Contains occasional marri trees (a high-value foraging resource for Forest Red-tailed Black Cockatoos); however, they are sparse. Foraging resource was not observed in the mid/understorey stratum (Biologic, 2024).
	Site Context	0	Local breeding unlikely <1%	The nearest recorded Forest Red-tailed Black Cockatoo breeding site is located approximately 17.8 km southeast. The total area of native vegetation extent (DPIRD-005) within a 15 km radius of the Development Envelope is approximately 34,379.22 ha; the 0.372 ha clearing would account for <0.0001%.
	Species Stocking Rate	0	Forest Red-tailed Black Cockatoo is seen or reported regularly, and/or there is abundant foraging evidence.	Forest Red-tailed Black Cockatoo feeding or evidence was not observed during the field survey. There are limited previous records of this species in the vicinity of the Survey Area.
	Total	1		
Flooded Gum Woodland (0.092 ha)	Site Condition	0 (Nil)	This habitat does not contain foraging resources for Forest Red-tailed Black Cockatoos (Biologic, 2024).	The Flooded Gum Woodland habitat contains some instances of <i>Acacia saligna</i> (mid-storey). Neither <i>Acacia saligna</i> nor Flooded gum (<i>E. rudis</i>) is a known foraging resource for Forest Red-tailed Black Cockatoos (Australian Black Cockatoo Specialists, 2025).
	Site Context	0	Local breeding unlikely <1%	The nearest recorded Forest Red-tailed Black Cockatoo breeding site is located approximately 17.8 km southeast. The total area of native vegetation extent (DPIRD-005) within a 15 km radius of the Development Envelope is approximately 34,379.22 ha; the 0.092 ha clearing would account for <0.0001%.
	Species Stocking Rate	0	Forest Red-tailed Black Cockatoo is seen or reported regularly, and/or there is abundant foraging evidence.	Forest Red-tailed Black Cockatoo feeding or evidence was not observed during the Biologic (2024) field survey. There are limited previous records of this species in the vicinity of the Survey Area.
	Total	0		

Biologic (2024) recorded 60 potential breeding trees (defined as a tree with a Diameter at Breast Height > 300 mm for *Eucalyptus wandoo* and *Eucalyptus salmonophloia* and > 500 mm for other tree species known to support Black Cockatoo breeding) within the Survey Area; none of these 60 trees had evidence of breeding or roosting. Of the 60 DBH trees recorded within the Survey Area, seven trees, which Biologic has identified as *Eucalyptus wandoo*, are situated within the Development Envelope and will potentially be cleared. Biologic (2024) reported that two of these seven trees had hollows that warranted further assessment to determine their suitability for use by Black Cockatoos.

Kirkby (2025) was subsequently engaged by Main Roads to undertake an inspection of the trees with hollows that Biologic (2024) had categorised as "Unsure", "Likely", or "Potential" for Black Cockatoo suitability. This inspection included the two trees within the Development Envelope, as well as trees outside the Development Envelope but in the vicinity of it, to assess hollow suitability for use by Black Cockatoos. In summary, Kirkby (2025) concluded that none of the trees had suitable hollows for use by Black Cockatoos, except for one, which is located approximately 16 m north of the Development Envelope and will therefore not be impacted by the proposed clearing.

4 DESKTOP ASSESSMENT OF VEGETATION

4.1 Desktop Vegetation Description

Table 7 and **Table 8** list the remaining extent of the broadly mapped Pre-European Vegetation Associations and Heddle/Mattiske Vegetation Complexes that are mapped to occur within the Development Envelope.

Table 7. 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. 4 Medium woodland; marri & wandoo	Statewide WA	1,054,279.89	284,102.41	26.95	6.43
	IBRA Bioregion Jarrah Forest	1,022,712.69	277,087.18	27.09	6.45
	IBRA Sub-region Northern Jarrah Forest	614,200.82	197,903.81	32.22	9.85
	Local Government Authority City of Swan	24,646.46	13,306.64	53.99	19.77

4.2 Vegetation Complexes and Representation

The vegetation complexes within the Development Envelope are provided in **Table 8**.

Table 8. Vegetation Complexes (Heddle/Mattiske) within the Development Envelope

Heddle/Mattiske Veg Complex	Pre-European Extent (ha)	Current Extent (ha)	% Remaining
Helena 2	16,339.34	12,984.83	79.47

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 to Principles (b) and (f) and is not at variance, or not likely to be at variance, to 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.

Flora and Vegetation

A total of 117 vascular flora taxa (comprising 87 native taxa and 30 introduced taxa), representing 90 genera from 39 families, were confirmed by Biologic (2024). Sixteen records were indeterminate due to plant material being sterile or lacking sufficient identifying material. None of these undefined specimens are considered to be potentially significant.

Biologic (2024) did not record any Threatened flora species, despite targeting two species previously recorded in the Survey Area. Threatened flora are further assessed under Clearing Principle (c).

Two individuals of Priority 3 flora species *Acacia ostenii* subsp. *ostenii* were recorded from one point location, approximately 10 m south of the Development Envelope and therefore will not be directly impacted by the proposed clearing. Whilst the Development Envelope provides a small amount of suitable habitat for *Acacia ostenii*, subsp. *ostenii*, the species is known from 42 WAHerb records and occurs across three IBRA bioregions (Avon Wheatbelt, Jarrah Forest and Swan Coastal Plain), having a broad distribution from Mogumber in the north to Bridgetown in the south (Biologic, 2024), a distance of approximately 380 km. On this basis, the Development Envelope is unlikely to be significant for the local or regional existence of this species..

Drosera occidentalis (P4) was not recorded by Biologic (2024), however their post survey Likelihood of Occurrence Assessment considers it 'possible' to occur in the Survey Area (and by extension, the Development Envelope). The species is a small, inconspicuous herb, hence the dense undergrowth in the Survey Area may have obscured individuals from detection (Biologic, 2024). Based on proximity to nearest records (approximately 500 m) and the presence of suitable habitat, its occurrence in the Development Envelope cannot be entirely ruled out. However, habitat preferences for this species are described as grey clayey sand, flats and winter wet depressions (Biologic, 2024). The proposed clearing of 0.46 ha is unlikely to be significant for the local or regional existence of this species, given suitable habitat is not likely to be locally or regionally restricted.

Darwinia pinifolia (P4) was not recorded by Biologic (2024); however, their post-survey Likelihood of Occurrence Assessment notes it has previously been recorded in the Survey Area. Based on the prior record and the presence of suitable habitat, its occurrence in the Development Envelope cannot be entirely ruled out. However, habitat preferences for this

species are described as loam, sandy loam and granite outcrops (Biologic, 2024). The proposed clearing of 0.46 ha is unlikely to be significant for the local or regional existence of this species, given that suitable habitat is not likely to be locally or regionally restricted.

The proposal will require the clearing of up to 0.46 ha of native vegetation, which comprises five vegetation types, ranging from Good to Very Good, as outlined in [Table 3](#). None of the vegetation types are representative of any Threatened Ecological Community or Priority Ecological Community (TEC/PEC), with the nearest known TEC or PEC being situated approximately 5 km west: the *Banksia woodlands of the Swan Coastal Plain* (EPBC Act: EN & DBCA: P3).

From a flora, vegetation and ecological community perspective, the native vegetation within the Development Envelope is not likely to comprise a high level of biological diversity given it does not contain TECs, PECs, Threatened flora or Priority flora and represents less than 0.0077% of the approximate 5,972 ha of native vegetation remaining within a 5 km radius of the Development Envelope, according to the native vegetation extent GIS dataset.

Fauna

Fauna habitat within the Development Envelope amounts to 0.46 ha and comprises:

- Acacia Shrubland with Wandoo – 0.372 ha
- Flooded Gum Woodland – 0.092 ha

The Medium Drainage Line fauna habitat, which amounts to 0.025 ha of the Development Envelope, encompasses Wooroloo Brook and does not require any clearing.

Biologic (2024) recorded 31 species of vertebrate fauna during their field survey, including six mammals, four of which are introduced, and 25 bird species, two are introduced. Two conservation significant fauna species were observed within the Survey Area: the quenda (P4) and the Carnaby's Black Cockatoo (EN). Both observations are outside of the Proposal Area, according to the spatial data provided by Biologic. In addition to the two conservation significant fauna species recorded in the Survey Area, a number of other conservation significant mammal and avian species may occasionally visit the Development Envelope, or utilise it for foraging and dispersal activities. The significance of the fauna habitat is further discussed in Clearing Principle (b). The faunal assemblage in the small Development Envelope (46 % of which is devoid of native vegetation) is not likely to be high in comparison to the approximate 5,972 ha of remnant native vegetation present within a 5 km radius, given there are better quality, expansive areas such as Walyunga National Park to the west, north-west and south, and the Reen Road Nature Reserve to the east.

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

Methodology

- Biologic (2024)
- Government GIS Shapefiles:
 - DBCA Threatened and Priority Ecological Community database search (Accessed July 2025)
 - DBCA Threatened and Priority flora database search (Accessed July 2025)
 - Ecological Linkages (Accessed July 2025)

(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 at variance to this Principle.

The Development Envelope contains approximately 0.372 ha of Acacia Shrubland with Wandoo and 0.092 ha of Flooded Gum Woodland fauna habitat, totalling approximately 0.46 ha. These habitat types provide suitable and potentially suitable habitat for a range of fauna species, including several species of conservation significance, which are further discussed below. However, in the context of the local area which retains nearly 6,000 ha of remnant native vegetation within a 5 km radius of the Development Envelope, including large tracts of better quality native vegetation in the Walyunga National Park to the west, north-west and south, and the Reen Road Nature Reserve to the east, habitats in the Development Envelope are not likely to be critical for any fauna species.

Carnaby's Black Cockatoo (*Zanda latirostris*) - EN

Biologic (2024) reported that twenty-nine natural nests are confirmed to be within 5 km of the Survey Area, which are all near the Walyunga National Park to the west; additionally, two artificial hollows last used in 2023 were recorded within six to 12 km of the Survey Area. In addition, thirteen known night roost sites occur within 12 km of the Survey Area, and there are over 90 records of the species (most after the year 2000) within 5 km of the Survey Area, including four within the Survey Area, indicating the species is relatively common in the local area. These records are spread throughout native bushland in the local region and are not restricted to a singular remnant patch or reserve (Biologic, 2024).

Carnaby's cockatoos were observed on five occasions during the Biologic (2024) field survey, comprising one flock of sixteen individuals and one flock of six individuals, as well as two sightings of two individuals and one sighting of a sole individual. Some of these individuals were observed foraging and feeding. No evidence of breeding was recorded during the field survey.

The Development Envelope contains seven suitable DBH Wandoo trees classified as 'breeding habitat'; however, none of the trees contained hollows suitable for Black Cockatoo breeding, and none showed signs of use (Biologic, 2024; Kirkby, 2025). The proposed clearing will result in the loss of up to 0.372 ha of Acacia Shrubland with Wandoo and 0.092 ha of Flooded Gum Woodland. As presented in **Table 5**, this represents 'low-moderate' and 'negligible-low' value foraging habitat for Carnaby's Cockatoo in the context of the extent of potential foraging habitat available in the local area.

The proposed clearing of 0.46 ha of native vegetation will not have a significant residual impact on Carnaby's Cockatoo breeding, roosting or foraging habitat as it is small relative to the available habitat in the local area and is unlikely to disrupt the breeding cycles or modify, destroy, isolate or decrease the availability of quality of habitat to the extent that the species is likely to decline.

Forest Red-tailed Black Cockatoo (*Calyptrorhynchus banksii naso*) - VU

Biologic (2024) noted there are no known night roosts or breeding records for this species within 12 km of the Survey Area. The Survey Area (and by extension, the Development Envelope) contains low-quality foraging habitat (only occasional marri trees) for this species. The Forest Red-tailed Black Cockatoo was rated as a possible, occasional foraging and dispersal visitor.

The proposed clearing will result in the loss of up to 0.372 ha of Acacia Shrubland with Wandoo. As presented in **Table 6**, this represents a 'negligible-low' value foraging habitat for Forest Red-tailed Black Cockatoo in the context of the extent of potential foraging habitat available in the local area.

The proposed clearing of 0.46 ha of native vegetation will not have a significant residual impact on Forest Red-tailed Black Cockatoo breeding, roosting or foraging habitat as it is small relative to the available habitat in the local area and is unlikely to disrupt the breeding cycles or modify, destroy, isolate or decrease the availability of quality of habitat to the extent that the species is likely to decline.

Quenda (*Isoodon fusciventer*) – Priority 4

Quenda has been previously recorded in the Biologic (2024) Survey Area on three occasions, with a further 15 records within 5 km of the Survey Area, including seven records from the nearby Paruna Sanctuary and three records from Walyunga National Park. Secondary evidence (diggings) was recorded once during the Biologic (2024) survey. The species has a broad distribution, occurring along coastal margins in Western Australia, ranging from Yanchep to Cape Le Grand and inland to Wyalcatchem and Hyden (Pentland, 1999 cited in Biologic, 2024). The habitat for the species is described as jarrah forest and swamp habitats, in dense vegetation around wetland fringes and heathland (Cooper, 1998; Woinarski *et al.*, 2014, cited in Biologic, 2024).

Whilst the habitat in the Development Envelope is suitable for Quenda residency, including breeding, foraging and dispersal, the habitat is not restricted to the Development Envelope and the proposed clearing is unlikely to significantly impact breeding, foraging or dispersal habitat for the species, given the ample availability of suitable habitat in the local area. Clearing will be undertaken in a slow, progressive manner towards adjacent native vegetation to allow any individuals present within the area being cleared to move into adjacent native vegetation ahead of the clearing activity.

Chuditch (*Dasyurus geoffroii*) - VU

The nearest Chuditch record is approximately 4.44 km west of the Biologic (2024) Survey Area from the Walyunga National Park, twenty years ago. Biologic (2024) concluded that the habitat in the Survey Area (including the Development Envelope) has limited suitability for this species and noted that no denning habitat is present. The species is a possible, occasional foraging/dispersal visitor and would not be dependent on the Development Envelope given its limited habitat suitability, lack of denning habitat and availability of better-quality habitat in the surrounding local area.

Peregrine Falcon (*Falco peregrinus*) - OS

Biologic (2024) noted that this species may visit the Survey Area to forage primarily in the Flooded Gum Woodland and over the Medium Drainage Line habitat. Frequency of occurrence would be dependent on proximity of nesting. No suitable nesting habitat was recorded within the Survey Area. The Peregrine Falcon is a very wide-ranging species and would not be dependent on the small amount of potential habitat in the Development Envelope. It was rated as a possible occasional foraging/dispersal visitor only (Biologic, 2024).

Water Rat (*Hydromys chrysogaster*) - Priority 4

Biologic (2024) report that the only nearby previous record of this species is from Wooroloo Brook, approximately 1.39 km south of the Survey Area from 2019. Whilst the species may possibly occur in the Medium Drainage Line habitat, no native vegetation clearing is proposed in this habitat type as it is not vegetated. The Wooroloo Brook catchment covers approximately 536 square kilometres and spans three Local Government Authorities (City of Swan and Shires of Northam and Mundaring) (Gidgegannup Information, 2025), therefore the small extent of Medium Drainage Line habitat in the Development Envelope (0.025 ha) is not likely to be significant for this species in the context of similar or better quality habitat likely to be available both upstream and downstream throughout the Wooroloo Brook catchment.

Western brush Wallaby (*Notamacropus irma*) - Priority 4

Biologic (2024) notes that two previous records of this species occur near the Survey Area; the closest was recorded in 2008 and is located approximately 2.16 km north of the Survey Area.

Whilst the western brush wallaby was not recorded within the Biologic (2024) Survey Area, it was concluded by Biologic (2024) that they have the potential to occur within the Acacia Shrubland with Wandoo and Flooded Gum Woodland habitats. The species may forage and disperse throughout these areas, especially where the vegetation is less dense. The proposed clearing is unlikely to significantly impact habitat for the species, given the ample availability of suitable habitat in the local area. Clearing will be undertaken in a slow, progressive manner towards adjacent native vegetation to allow any individuals present within the area being cleared to move into adjacent native vegetation ahead of the clearing activity.

Tammar wallaby (*Notamacropus eugenii derbianus*) - Priority 4

Biologic (2024) notes that four records of tammar wallabies occur to the west of the Survey Area. The closest record was from 2017 and located approximately 3.77 km west of the Survey Area. This species was also reintroduced via assisted colonisation to Paruna Sanctuary, located approximately 4 km to the north-east of the Survey Area (Woinarski et al., 2014, cited in Biologic, 2024).

Whilst Tammar wallabies were not recorded within the Biologic (2024) Survey Area, it was concluded by Biologic (2024) that they have the potential to forage and disperse through the Survey Area (and by extension, the Development Envelope), particularly within Acacia Shrubland with Wandoo and Flooded Gum Woodland habitat. The proposed clearing is unlikely to significantly impact habitat for the species, given the ample availability of suitable habitat in the local area. Clearing will be undertaken in a slow, progressive manner towards adjacent native vegetation to allow any individuals present within the area being cleared to move into adjacent native vegetation ahead of the clearing activity.

Fork-tailed Swift (*Apus pacificus*) - MI

Biologic (2024) noted that this species may infrequently occur within the airspace above all habitats of the Survey Area during foraging and/or migratory activities; however, it is unlikely to land or nest. As such, habitat within the Development Envelope is not likely to be significant for this species.

Baudin's Black Cockatoo (*Zanda baudinii*) - EN

Biologic (2024) noted that the Survey Area is located at the northern edge of the distribution for Baudin's cockatoo (DAWE, 2022), and there are no recent confirmed records of this species close

to the Survey Area. Additionally, the foraging, roosting, and breeding habitat in the survey area is of low value for Baudin's cockatoo. The species was rated as unlikely to occur in Biologic's likelihood of occurrence assessment.

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

Methodology

- Biologic (2024)
- Gidgegannup Information (2025)
- Kirkby (2025)
- Government GIS Shapefiles:
 - DBCA Threatened and Priority fauna database search (Accessed July 2025)
 - Ecological Linkages (Accessed July 2025)

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

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

According to DBCA's Threatened and Priority Flora Database, *Thelymitra dedmaniarum* (T) has previously been recorded within the Development Envelope; however, this 2014 record is on the established road formation. Furthermore, its description states that the actual location of this record is 330 m south of the Wooroloo Brook Bridge, which is outside of the Development Envelope. Biologic's (2024) survey further supports this notion, given that they did not record any individuals of the *T. dedmaniarum* or any other Threatened flora within the Development Envelope or greater Survey Area. Advice from a research associate at the Western Australian Herbarium suggests *Thelymitra dedmaniarum* is locally extinct, with no individuals recorded in the Survey Area for 10 years (Biologic, 2024).

Diplolaena andrewsii (T) was previously recorded in the Survey Area in 2006 and was therefore targeted by Biologic (2024) during their October and November 2023 field surveys. A March 2021 TPFL record also occurs approximately 35 m south of the Development Envelope. This species is an erect shrub that grows up to 1 m tall and flowers from July to October. It has been recorded from loam, clay, granite outcrops, and hillsides and is known from 22 WA Herb and 16 TPFL records, most of which occur in John Forrest National Park. According to the conservation advice, *Diplolaena andrewsii* is killed by fire and regenerates from soil-stored seed. Given that the entire Survey Area was burnt by intense fire during the Wooroloo fires in 2021, individuals would have died. The known locations of *Diplolaena andrewsii* were searched to identify if any remaining/young individuals still occur after the fire. No individuals were recorded at the time of the survey, despite the Biologic field team having previous experience searching for and identifying this species.

Although Biologic's Spring 2023 Targeted survey did not find any occurrences of *D. andrewsii*, it is possible the species could have germinated from seed since then. Accordingly, Main Roads conducted a targeted flora survey on 21 August 2025 to verify the presence of *D. andrewsii* around the Development Envelope. A total of 13 flowering individuals of *D. andrewsii*, from two point locations, were recorded during Main Roads' (2025) targeted flora survey, all of which were located more than 50 m south of the Development Envelope.

Biologic's post-survey Likelihood of Occurrence (LOO) assessment concluded that, apart from the two previously recorded Threatened flora species discussed above, no other Threatened flora species were likely to occur in the Survey Area.

Given that both *Thelymitra dedmaniarum* and *Diplolaena andrewsii* were adequately searched for and not found in the Development Envelope by Biologic (2024) and also Main Roads (2025) in the case of *D. andrewsii*, it is considered unlikely that the small Development Envelope includes habitat necessary for the continued existence of either of these two Threatened flora species.

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

Methodology

- Biologic (2024)
- Main Roads (2025)
- Government GIS shapefiles:
 - DBCA Threatened flora database search (Accessed July 2025)

(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 databases indicate that no Threatened Ecological Communities (TECs) are within or in the vicinity of the Development Envelope.

None of the vegetation types mapped within the Development Envelope or greater Survey Area by Biologic (2024) are representative of any TECs.

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

Methodology

- Biologic (2024)
- Government GIS shapefiles:
 - DBCA Threatened Ecological Community database search (Accessed July 2025)

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

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

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

The Development Envelope occurs within the Jarrah Forest IBRA Bioregion, which retains approximately 53.25 per cent of the pre-European vegetation extent (Government of Western Australia, 2019) (see Table 7).

The vegetation proposed to be cleared is broadly mapped as Vegetation Association 4 – Medium woodland; marri & wandoo. The remaining extent of this Vegetation Association is below the 30% retention target at the Statewide and IBRA Bioregion scales (26.95 per cent and 27.09 per cent, respectively). However, the extent remaining is above the 30 per cent retention target at the IBRA Subregion and Local Government Authority scales (32.22 percent in the Northern Jarrah Forest IBRA Subregion and 53.99 per cent in the City of Swan) (Government of Western Australia, 2019) (see Table 7).

Approximately 5,972.26 ha of native vegetation remains within a 5 km radius of the Development Envelope. The clearing of up to 0.46 ha of native vegetation equates to a decrease of approximately 0.0077% and will not cause the remaining extent of Vegetation Association 4 to drop below the 30% threshold at the IBRA Subregion or Local Government Authority scales. The native vegetation in the Development Envelope 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 likely to be at variance to this Principle.

Methodology

- Commonwealth of Australia (2001)
- Government GIS shapefiles:
 - Pre-European vegetation (Accessed July 2025)
 - Vegetation complexes (Accessed July 2025)
 - Government of Western Australia (2019)

(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 includes a drainage landform type, the Wooroloo Brook, with approximately 0.092 ha of vegetation type D01: ErMr As proposed to be cleared (**Table 3**). Biologic (2024) state that this vegetation type comprises vegetation typically associated with major rivers and wetlands in the Jarrah Forest, including *Eucalyptus rudis* subsp. *rudis* (flooded gum), *Melaleuca viminea*, and *Melaleuca raphiophylla* (swamp paperbark).

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

Where practicable, riparian vegetation will be retained. Riparian vegetation type D01: ErMr As is likely to be well represented both upstream and downstream of the Development Envelope, given that the Wooroloo Brook catchment covers approximately 536 square kilometres and spans three Local Government Authorities (City of Swan and Shires of Northam and Mundaring) (Gidgegannup Information, 2025). In terms of local context, the 0.092 ha vegetation clearing of riparian vegetation equates to approximately 15% of the total amount of the D01 vegetation type within the Survey Area. Accordingly, no significant residual impact on the watercourse or the riparian vegetation is anticipated.

Methodology

- Biologic (2024)
- Gidgegannup Information (2025)
- Government GIS shapefiles:
 - Geomorphic Wetlands (Accessed July 2025)
 - Ramsar Wetlands (Accessed July 2025)
 - Important Wetlands (Accessed July 2025)
 - Watercourses (Accessed July 2025)
 - RIWI Act Rivers (Accessed July 2025)

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

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

The Development Envelope is situated within the Murray Valley System (255Mv); this landscape system is described as deeply incised valleys with red loamy earths, shallow duplexes and rock outcrop and jarrah-marri-wandoo forest and woodland with mixed shrubland and occurs from the Avon Valley to Harvey (Western Darling Range) (Biologic, 2024).

The Proposal will also include native vegetation clearing within areas mapped as having:

- Low salinity risk (L1 <3% of map unit has a moderate to high salinity risk or is presently saline).
- Flood Risk
 - Western portion of Development Envelope – (L1 <3% of map unit has a moderate to high flood risk).
 - Eastern portion of Development Envelope– (M1 10-30% of map unit has a moderate to high flood risk).
- Water logging risk (L1 <3% of map unit has a moderate to very high waterlogging risk).
- Water erosion risk
 - Western portion of Development Envelope– (M1 10-30% of map unit has a high to extreme water erosion risk).
 - Eastern portion of Development Envelope– (M2 30-50% of map unit has a high to extreme water erosion risk).
- Wind erosion risk
 - Western portion of Development Envelope– (L2 3-10% of map unit has a high to extreme wind erosion risk).
 - Eastern portion of Development Envelope– (M2 30-50% of map unit has a high to extreme wind erosion risk).
- Land instability risk (L1 <3% of map unit has a moderate to high hazard).

Desktop mapping indicates the Development Envelope has an extremely low probability of acid sulfate soil occurrence (CSIRO ASRIS), with the closest area that is mapped as having a high probability of occurrence situated approximately 4.7 km southwest.

As outlined above, soils within the Development Envelope have a low risk of land degradation, other than water and wind erosion. Clearing and bridge replacement works are scheduled to occur from mid-October 2025, when Wooroloo Brook is expected to be dry, thereby reducing the potential for water and wind erosion. Based on the proposed scheduling, combined with standard construction environmental management measures to minimise erosion, such as those outlined in the Vegetation Management Plan, the minimal amount of clearing proposed is not likely to cause appreciable land degradation.

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

Methodology

- Biologic (2024)
- Government GIS Shapefiles:
 - Acid Sulfate Soil Risk Map (Accessed July 2025)
 - Soil landscape land quality – Water Erosion Risk (Accessed July 2025)
 - Soil landscape land quality – Wind Erosion Risk (Accessed July 2025)
 - Soil landscape land quality – Salinity Risk (Accessed July 2025)
 - Soil landscape land quality – Surface Acidity (Accessed July 2025)
 - Soil landscape land quality – Waterlogging Risk (Accessed July 2025)
 - Soil landscape land quality – Flood Risk (Accessed July 2025)

(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.**

Desktop databases indicate that the nearest conservation area is located approximately 870 m northwest of the Development Envelope (Walyunga National Park). Due to the distance between the nearest conservation area and the Development Envelope, impacts are not anticipated.

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

Methodology

- Government GIS Shapefiles:
 - DBCA Legislated Lands and Waters & Lands of Interest (Accessed July 2025)
 - DBCA Lands of Interest (Accessed July 2025)
 - Geomorphic Wetlands (conservation category wetlands only) (Accessed July 2025)
 - Ramsar Wetlands (Accessed July 2025)
 - Important Wetlands (Accessed July 2025)

(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.

The Development Envelope intersects with the Wooroloo Brook and is within the mapped RIWI Act Proclaimed Surface Water Area, the Swan River System. Given that the proposed works will require ground disturbance, such as clearing within Wooroloo Brook, a Bed and Banks Permit will be required. The proposed clearing and bridge replacement works will occur in dry conditions only, reducing potential impacts to the watercourse and downstream environment. Excavations within the bed and banks of Wooroloo Brook will be minor, with most occurring within the two abutment areas. The conditions of the RIWI Act Bed and Banks permit, to be obtained from DWER, will be complied with, further reducing potential impacts to surface water quality. Standard construction environmental management measures to minimise erosion, such as those outlined in the Vegetation Management Plan, will also reduce the risk of adverse impacts to surface water quality.

Desktop databases indicate that no mapped Public Drinking Water Source Areas (PDWSA), proclaimed Groundwater Areas under the RIWI Act, or *Country Areas Water Supply Act 1947* (CAWSA) Clearing Control Catchments occur within 5 km of the Development Envelope. The clearing of up to 0.46 ha of native vegetation is unlikely to cause deterioration in the quality of underground water, given the extent of native vegetation remaining in the local area (approximately 5,972.26 ha remains within a 5 km radius of the Development Envelope).

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

Methodology

- Government GIS Shapefiles:
 - RIWI Act, Surface Water Areas and Irrigation Districts (Accessed July 2025)
 - CAWSA Part 2A Clearing Control Catchments (Accessed July 2025)
 - RIWI Act, Groundwater Areas (Accessed July 2025)
 - Soil landscape land quality - Salinity Risk (Accessed July 2025)
 - Groundwater Salinity Statewide (Accessed July 2025)
 - Soil Mapping (Accessed July 2025)
 - Acid Sulfate Soil risk mapping (Accessed July 2025)
 - Soil landscape land quality - Subsurface Acidification Risk (Accessed July 2025)

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

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

The nearest weather station that provides climate data representative of conditions in the Development Envelope is Bickley Station (#009240), located approximately 36 km south. The Development Envelope is located in a region characterised by cool, wet winters and warm, relatively dry summers. According to Bureau of Meteorology (BoM) climate data from Bickley station, the annual average rainfall is 1,089 mm, primarily from May to September, with 843.1 mm recorded during these months (BoM, 2025).

The proposed clearing is scheduled to commence from mid-October 2025, during which the Development Envelope is expected to experience dry conditions outside of the peak rainfall period for the region.

Furthermore, the small extent of proposed clearing is associated with bridge replacement works and will not obstruct natural flows of surface water or exacerbate the incidence or intensity of flooding. Clearing and bridge replacement works will be conducted in compliance with a Bed and Banks permit, to be issued by DWER pursuant to the RIWI Act, further reducing the likelihood of the proposed clearing leading to flooding.

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

Methodology

- Biologic (2024)
- BoM (2025)
- Government GIS Shapefiles:
 - Soil Mapping (Accessed July 2025)
 - Contours (Accessed July 2025)
 - Soil landscape land quality - Waterlogging Risk (Accessed July 2025)
 - Soil landscape land quality - Flood Risk (Accessed July 2025)

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. A Vegetation Management Plan (VMP) has been developed to manage and minimise vegetation clearing for the Proposal (refer to Appendix 2).

7 REHABILITATION, REVEGETATION AND OFFSETS

7.1 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.

7.2 Offset Proposal

In accordance with CPS 818/17 condition 11(a), as the proposal is at variance to Principle b) an offset proposal is required to be provided to the CEO for approval, unless advised in writing by the CEO that an offset proposal is not required.

In accordance with CPS 818 condition 11(a), Main Roads is seeking an exemption from submitting an offset proposal.

8 STAKEHOLDER CONSULTATION

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

9 COMPLIANCE WITH CPS 818

Table 9 summarises what further pre-clearing impact assessment is required in accordance with CPS 818.

Table 9. 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	1. Clearing Report to be published on website and submissions sought for 21 days. 2. Submissions invited from relevant parties, including the LGA, the owner or occupier of the land and other stakeholders in accordance with Condition 8 of CPS 818. 3. VMP has been completed, refer to Appendix 2. 4. An offset exemption has been requested, for approval by DWER. 5. Summary of submissions and a statement addressing each of those submissions to be published on website.
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	Works will be within a region that has rainfall greater than 400mm and is within the South of the 26 th parallel. However, Standard Vehicle and Plant management actions from Annexure 204B (TABLE 204B.9.1), Hygiene Checklists and Vehicle, Plant and Machinery Hygiene Register Template 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.

OFFICIAL

Impact of Clearing	Yes/No or NA	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 Specialists who undertook the biological assessments were suitably qualified and had more than three years' experience.
9. Did an environmental specialist prepare the Assessment Report and any other associated documentation including the VMP, Dieback Management Plan or Offset Proposal?	Yes	The Environmental Specialist preparing the Assessment Report and any other associated documentation including the VMP, Dieback Management Plan or Offset Proposal was suitably qualified and had more than three years' experience.

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Main Roads (2025). Environmental Site Inspection Report: *Diplolaena andrewsii* Targeted Flora Survey. Unpublished report, August 2025.

11 APPENDICES

Appendix 1: CPS 818 condition 8 (e) (iii) Biological Surveys and Field Assessment Executive Summary and Report Conclusions

Biologic (2024) - Bridge 4482 O'Brien Road, Gidgegannup: Biological Survey – Report to Main Roads Western Australia

Executive Summary

Main Roads is planning ongoing future maintenance and refurbishment works at Bridge 4482. The bridge runs east to west on O'Brien Road in the suburb of Gidgegannup, at SLK 11.39. The survey area is 7.52 ha, of which approximately 6.1 ha is native vegetation.

Main Roads commissioned Biologic to undertake a single-season detailed and targeted flora and vegetation survey, basic vertebrate fauna survey, and black cockatoo habitat assessment in the survey area.

The survey area was severely impacted by the Wooroloo bushfire in February 2021. Fire is a natural environmental factor that plays an important role in the reproduction and regeneration of jarrah forest plant communities; however, the Wooroloo bushfire was particularly intense and has altered vegetation in the survey area.

Flora and Vegetation

Fourteen flora sites were sampled across the survey area; three quadrats, six relevés and five vegetation mapping notes. In total, 117 confirmed vascular flora taxa were recorded within the survey area, representing 90 genera from 39 families. The flora taxa recorded comprises 87 native flora taxa and 30 introduced taxa.

One Priority flora taxon was recorded during the current survey; *Acacia ocnophylla* subsp. *ocnophylla* (P3). Two individuals were recorded from one point-location. Thirty introduced flora taxa, representing 11 families, were recorded in the survey area. One introduced taxon is listed as a declared pest in WA under the BAM Act; *Echium plantagineum* (Patterson's Curse).

Six vegetation types and two mapping units were described in the survey area. The vegetation types were from drainage line (D01, D02) and hill (H01, H02, H03, H04) landforms, while the mapping units were either cleared land (Cl) or water (W).

Vegetation type H01 was the most dominant vegetation, covering 29.1% of the survey area. Mapped vegetation covered 6.1 ha and ranged from Very Good to Good condition. Primary disturbances were sealed road, gravel tracks, and introduced flora, as well as evidence from the Wooroloo bushfire in 2021.

No vegetation types recorded from the study area were found to be representative of Threatened or Priority ecological communities. Vegetation type H01 provided habitat for *Acacia ocnophylla* subsp. *ocnophylla* (P3). Drainage vegetation D01 contained mesophytic/ hydrophytic flora taxa and may therefore have local significance for ecological function and linkages in the landscape.

Vertebrate Fauna

Three broad fauna habitats were mapped within the survey area:

- Acacia Shrubland with Wandoo (5.44 ha, 72.34%).
- Flooded Gum Woodland (0.64 ha, 8.51%)
- Medium Drainage Line (0.25 ha, 3.32%)

The remainder of the survey area (1.20 ha, 15.96%) was comprised of existing cleared areas. The habitats present within the survey area extend broadly into the study area and regional surrounds.

A total of 5.44 ha (72.29%) of the survey area was categorised as “High Quality” foraging habitat for Carnaby’s cockatoo. The “High Quality” foraging habitat was comprised exclusively of Acacia Shrubland with Wandoo. No High or Medium Quality foraging habitat was present for forest red-tailed black cockatoo. The survey area contributes to the native vegetation linkages in the local region and likely forms part of a dispersal corridor.

A total of 80.85% (6.08 ha) of the survey area was considered potential night roosting habitat for black cockatoos. These areas were comprised of Acacia Shrubland with Wandoo and Flooded Gum Woodland. No evidence of night roosting was observed during the current survey, although Carnaby’s cockatoo individuals were observed day-roosting. Thirteen known night roost sites occur within 12 km of the survey area; however, more are likely to occur.

No active black cockatoo nests or evidence of occupation by black cockatoo were recorded during the field survey. A total of sixty potential breeding habitat trees (based on diameter at breast height) were recorded within the survey area, comprising 49 wandoo and 11 flooded gum trees. Thirteen hollows were recorded during the field survey within 12 trees, most in wandoo. Only six of the 13 hollows recorded were considered likely ($n = 1$) or potentially suitable ($n = 5$) for black cockatoos. Twenty-nine confirmed natural nests made by Carnaby’s cockatoo are within 5 km of the survey area, all in the vicinity of Walyunga National Park to the north-east (DBCA, 2023e). In addition, two artificial hollows are present within six to 12 km of the survey area; these were last used in 2023. Forest red-tailed black cockatoos have a low likelihood of breeding in the survey area due to its location in the northerly extent of the species’ distribution and the lack of large marri trees preferred by the species for breeding. Nevertheless, it is possible that forest red-tailed black cockatoos could use the hollows in the wandoo trees within the survey area as this species can use any trees with suitable hollows for breeding.

Thirty-one species of vertebrate fauna were recorded during the field survey from direct observation or secondary evidence (i.e. diggings, scats, nut chewings). This comprised of six mammal species (four introduced) and 25 bird species (introduced). Two significant species were recorded within the survey area, namely Carnaby’s cockatoo (*Zanda latirostris* – Endangered EPBC Act and BC Act) and quenda (*Isodon fusciventer* – Priority 4 DBCA).

Following an assessment of occurrence for the 29 significant vertebrate fauna species (those listed under the EPBC Act, BC Act, and/or by the DBCA) identified in the desktop assessment, seven species were considered Possible to occur, namely the chuditch (*Dasyurus geoffroyi* – Vulnerable EPBC Act and BC Act); tammar wallaby (*Notamacropus irma* – Priority 4 DBCA); water rat (*Hydromys chrysogaster* – Priority 4 DBCA); Pacific swift (*Apus pacificus* – Migratory EPBC and BC Act); forest red-tailed black cockatoo (*Calyptorhynchus banksii naso* – Vulnerable EPBC Act and BC Act); and peregrine falcon (*Falco peregrinus* – Specially Protected BC Act).

Critical and / or supporting habitats for all significant species occurring, or potentially occurring, in the Survey Area are in the natural habitat types comprising, Acacia Shrubland with Wandoo, Flooded Gum Woodland, and Medium Drainage Line.

The Bridge 4482 O'Brien Road, Gidgegannup: Biological Survey – Report to Main Roads Western Australia (2024) does not include a conclusion.

Kirkby (2025) - Detailed Survey of Possible Black Cockatoo Breeding Hollows at O'Brien Road Gidgegannup Bridge 4482 Replacement Area

This report is a memo-style report that does not include an executive summary or report conclusions section.

Relevant results of this report are summarised in Section 3.2 of this Clearing Assessment Report.

Main Roads (2025) – Environmental Site Inspection Report: *Diplolaena andrewsii* Targeted Flora Survey

This report is a memo-style report that does not include an executive summary or report conclusions section.

Relevant results of this report are summarised in Section 3.1 of this Clearing Assessment Report.

Appendix 2: Vegetation Management Plan

BRIDGE 4482 REPLACEMENT WORKS - O'BRIEN ROAD OVER WOOROLOO BROOK

Purpose and Scope

This Vegetation Management Plan (VMP) has been prepared by Main Roads for the purpose of managing native vegetation clearing impacts associated with the Bridge 4482 Replacement Works - O'Brien Road over Wooroloo Brook.

The Main Roads Western Australia (Main Roads) Metropolitan Region proposes to replace Wooroloo Bridge (No. 4482) from a one-lane bridge with a new two-lane bridge (the Proposal). The replacement of Bridge 4482 with a two-lane bridge will improve the safety of the infrastructure for its users, as it is part of the two-lane O'Brien Road. The Proposal involves the establishment of an emergency access track adjacent (south) of the Wooroloo Bridge 4482. Ground disturbance, including the clearing of remnant native vegetation, within the Wooroloo Brook will be necessary to accommodate the emergency access track and for the construction of the new two-lane bridge and its abutments.

The Proposal will require up to 0.46 ha of remnant native vegetation clearing within a Proposal Area of 0.85 ha.

In specified circumstances, Main Roads VMP is required to be approved by Department of Water and Environmental Regulation (DWER) as a condition of the Main Roads Statewide Clearing Permit CPS 818/17.

Actions, and their relevant timeframes, from this VMP will be documented within the relevant Tender Documentation (Specifications), such as:

- Specification 204 Environmental Management
- Specification 301 Vegetation Clearing and Demolition
- Specification 303 Materials and Water
- Specification 304 Revegetation
- Specification 304 Rehabilitation of Disturbed Areas.

Once the Contract has been awarded, the Superintendent's Contract Management Team (or equivalent roles) are to ensure that the requirements are implemented by the Contractor.

Avoiding, Mitigating and Managing the Impacts of Clearing

A number of measures were undertaken to during the development and design of the proposal to reduce its impact the environment.

For further information on the alternatives that were considered during the proposal development, please go to Section 1.5 of the Clearing Assessment Report for the proposal.

For further information on the measures undertaken to avoid, minimise, reduce and manage the proposal's clearing impacts, please go to Section 1.6 of the Clearing Assessment Report for the proposal.

VMP Actions

General vegetation management actions to be undertaken is shown in Appendix 2.1: General Vegetation Management Actions for Clearing.

Appendix 2.1: General vegetation management actions for clearing

Management Action	Responsibility	Timing
The Contractor must ensure plant, machinery and equipment, is cleaned down prior to arrival to the site.	Superintendent	During construction
Vehicle hygiene inspection checklists will be utilised to manage potential weed/dieback spread on earth-moving machinery.	Superintendent	During construction
No known dieback infested soil, mulch, fill or other material will be permitted into the works area.	Superintendent	During construction
All Clearing must be undertaken in such a way to allow fauna to move out of the Clearing area.	Superintendent	During construction
The Limits of Vegetation Clearing will be demarcated on site prior to the commencement of clearing to prevent entry into areas of native vegetation.	Superintendent	During construction
Natural drainage pathways will not be obstructed from stockpile gravel, crushed rock and excavated material.	Superintendent	During construction
All recently cleared, exposed and loose surface areas shall be protected from wind, water and soil erosion.	Superintendent	During construction
The Contractor will ensure that clearing of native vegetation is only undertaken in dry conditions, unless otherwise approved and / or directed by the Superintendent.	Superintendent	During construction
All Special Environmental Areas will be pegged in accordance with Main Roads' Drawing 201928-0001-1 Construction Peg Colour Code (https://www.mainroads.wa.gov.au/globalassets/technical-commercial/technical-library/standard-contract-drawings/vegetation/construction-environmental-management/201928-0001-construction-peg-colour-code-drawing.pdf?v=49bd3b).	Superintendent	During construction
The Contractor must develop and detail a Site induction training program as part of the CEMP that includes as a minimum, the significant environmental impacts, actual or potential, of work activities associated with the Contract	Superintendent	During construction

The above actions will be documented within Specifications 204 and 301.

Main Roads' preclearing **Hold Point** applies to all projects that require vegetation clearing, as documented within Specification 301 (301.12 PRE-CLEARING PROCESS). Accordingly, all Hold Point actions must be signed off prior to clearing commencing. This Hold Point comprises the following actions:

1. Prior to the commencement of any clearing operations, the Contractor must certify for the Superintendent's verification and approval that the following activities have been completed in accordance with the relevant specification:
 - a) The pegging of limits of vegetation clearing has been undertaken.
 - b) The pegged vegetation clearing area does not exceed the Limits of Vegetation Clearing.
 - c) Mature trees have been conserved as far as practicable.
 - d) The pegging of special environmental areas has been undertaken.
 - f) All pre-clearing weed control has been undertaken.
 - g) All pre-clearing fauna operational controls have been undertaken.
 - h) All pre-clearing dieback operational controls have been undertaken.
 - i) Suitable and unsuitable topsoil zones have been identified.
 - j) Vegetation and topsoil stockpile locations have been identified.
 - o) All clearing machinery is compliant with controls.

Monitoring and Maintenance Program

The Superintendent's Contract Management Team shall monitor the implementation of management actions that are a **Hold Point**. **Hold Point** actions must be signed off by the Superintendent's Representative to confirm it has occurred and recorded within the Superintendent's Contract Management Plan.

Non-Compliance

Non-compliance with management actions will trigger corrective actions, preventative actions and/or an incident investigation. Non-compliances will be recorded with Main Roads incident management system and reviewed by Main Roads Manager Environment.

The need for reporting non-compliances with VMP management actions to DWER will be determined as part of an incident investigation.

Revegetation

Revegetation will be undertaken in accordance with Condition 9 of CPS 818. Relevant requirements from Condition 9 have been incorporated into Project Revegetation Plan Template. The elements to be implemented by the Contractor will be incorporated into the relevant Specification 304.