Kwinana Freeway Upgrade (Roe Highway to Mortimer Road)

Application Number: **02987** Commencement Date: **08/07/2025** Status: **Locked**

1. About the project

1.1 Project details

1.1.1 Project title *

Kwinana Freeway Upgrade (Roe Highway to Mortimer Road)

1.1.2 Project industry type *

Transport - Land

1.1.3 Project industry sub-type

Road

1.1.4 Estimated start date *

02/11/2026

1.1.4 Estimated end date *

31/12/2031

1.2 Proposed Action details

1.2.1 Provide an overview of the proposed action, including all proposed activities. *

Main Roads Western Australia (Main Roads) is proposing to widen and upgrade approximately 20 kilometres of the Kwinana Freeway between Roe Highway and Mortimer Road (the Proposed Action; the Proposal) to improve safety, reduce congestion, enhance user journeys and provide better connection to Perth's southern suburbs. These improvements, which includes additional lanes being added to both north and south carriageways, will increase the freeway's capacity, improving road user safety, traffic flow and freight efficiency.

The widening and upgrade of Kwinana Freeway includes the construction of:

- Additional lanes in each direction
- Freeway ramp upgrades
- Noise walls, Principal Shared Paths and other road infrastructure such as safety barriers, drainage structures and landscaping.

The Proposal location and Proposed Action Area (PAA) are shown in Figure 1, page 4 of Att 1-Appendix 1_Figures.

Impacts within the PAA, were assessed, on the assumption that all vegetated areas within the PAA will be disturbed for the Proposed Action activities listed above. The PAA disturbance represents the Proposed Action's direct impacts. These direct impacts to Matters of National Environmental Significance (MNES) are:

The Proposed Action comprises a PAA of 151.07 ha, including 10.70 ha of native vegetation, 48.70 ha of roadside revegetation and 91.67 ha of cleared areas. The Proposed Action is predicted to have the following direct impacts toMatters of National Environmental Significance (MNES):

- Clearing of up to 0.87 ha of Very Good condition Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plan Threatened Ecological Community (Tuart TEC), as well as 2.17 ha of Degraded or worse condition Tuart TEC. (see Att 1-EPBCReferralSupportingDocument, Section 6.3.1, page 56; Figure 12 Att 1-Appendix 1_Figures, pages 20-21).
- Clearing of up to 1.47 ha of Very Good condition Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community (Banksia TEC), as well as 0.95 ha of Good condition and 4.82 ha of Degraded or worse condition Banksia TEC. (see Att 1-EPBCReferralSupportingDocument, Section 6.3.2, page 60; Figure 14, Att 1-Appendix 1_Figures pages 23-24).
- Clearing of up to 16.24 ha of Moderate quality foraging habitat for Carnaby's Cockatoo (Zanda latirostris) (see Att 1-EPBCReferralSupportingDocument, Section 6.3.3, page 64; Figure 16, Att 1-Appendix 1_Figures pages 26-28).
- Clearing of up to 0.92 ha of Moderate – High, 8.43 ha of Low – Moderate, and 6.89 ha of Low quality foraging habitat for Forest Red-tailed Black Cockatoo (FRTBC) (Calyptorhynchus banksii naso) (see Att1-EPBC Supporting Document-2025, Section 6.3.3, page 64; Figure 18 Att 1-Appendix 1_Figures pages 30-32).
- Clearing of up to 12 Potential Black Cockatoo Breeding Trees (>500 mm at breast height), none with hollows. (see Att 1-EPBCReferralSupportingDocument, Section 6.3.3, page 64; Figure 20, Att 1-Appendix 1_Figures pages 34-36).

Construction of the Proposed Action is likely to commence in late 2026. Construction will be undertaken using traditional earth-moving equipment and construction techniques. Construction activities required for the Proposed Action include:

- Earthworks and site preparation, including laydown
- Excavation, dewatering and piling for selected road infrastructure
- Road base and pavement construction
- Intelligent transport systems and lighting
- Drainage improvements
- Landscaping.

Construction of the Proposed Action is likely to adopt a mix of limited earthwork batters (fill and cut) with landscaping and retaining walls. The Proposal will relocate existing utility infrastructure where required from pre-construction works. Lay down areas for construction materials will be established by the contractor in consultation with Main Roads and Local Government Authorities and will be located such that temporary clearing is not required. Construction water will be sourced from groundwater abstraction bores within or in proximity to the PAA.

The Proposed Action has potential to cause indirect impacts to MNES values due to:

- Spread and/or introduction of weeds.
- Spread and/or introduction of pathogens such as Dieback.
- Changes to surface and groundwater hydrology.
- Noise and vibration.
- Dust emissions.

However, with the implementation of the management measures to be developed for the Proposed Action including the development of a Construction Environmental Management Plan (CEMP), the indirect impacts to MNES are predicted to be minor.

1.2.2 Is the project action part of a staged development or related to other actions or proposals in the region?

No

1.2.6 What Commonwealth or state legislation, planning frameworks or policy documents are relevant to the proposed action, and how are they relevant? *

Under the EPBC Act an action will require approval from the minister if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance.

The Proposed Action is predicted to have a significant impact on the following MNES: nationally threatened species and ecological communities.

The following EPBC Act related policy / guidance are applicable to the PA:

1. (Department of the Environment and Energy (DEE) 2019) Approved conservation advice(incorporating listing advice) for the Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain (SCP) ecological community Canberra: Department of the Environment and Energy TSSC, Threatened Species Scientific Committee.
2. DEE (2016). Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the SCP ecological community Canberra: Department of the Environment and Energy TSSC, Threatened Species Scientific Committee.
3. DAWE (2022). Referral guideline for 3 WA threatened black Cockatoo Species Carnaby's Cockatoo (Zanda latirostris), Baudin's Cockatoo (Zanda baudinii) and the Forest Red-tailed Black-cockatoo (Calyptorhynchus banksii naso). Commonwealth of Australia, Canberra.
4. DoE (2013). Matters of National Environmental Significance, Significant Impact Guidelines 1.1, Environment Protection and Biodiversity Conservation Act 1999. Canberra, Australian Capital Territory.

Item 1. was used to assess the significance of the PA's impacts to Tuart Woodlands and Forests of the SCPTEC (Att 1-EPBCReferralSupportingDocument, section 6.3.1.2, page 57).

Item 2. was used to assess the significance of impacts to Banksia Woodlands of the SCP TEC (Att 1-EPBCReferralSupportingDocument, section 6.3.2.2, page 62).

Item 3. was used to assess the significance of the PA's impacts to Carnaby's or FRTBC (Att 1-EPBCReferralSupportingDocument, section 6.3.3.2, page 65).

Item 4. was used to assess the following MNES:

- Tuart woodlands and forests of the SCP: (Att 1-EPBCReferralSupportingDocument, Table 6.4, page 58)
- Banksia Woodlands of the SCP TEC: (Att 1-EPBCReferralSupportingDocument, Table 6.6, page 62)
- Carnaby's Cockatoo and FRTBC: (Att 1-EPBCReferralSupportingDocument, Table 6.8, page 66)

If groundwater abstraction / dewatering and/or bore/well construction/alteration is required for the Proposed Action, licence/s will be obtained from the Department of Water and Environmental Regulation (DWER)under the WA Rights in Water and Irrigation Act 1914.

If the Proposed Action disturbs Aboriginal Heritage sites listed under the WA Aboriginal Heritage Act 1972 a Section 18 consent will be required and obtained before construction occurs.

1.2.7 Describe any public consultation that has been, is being or will be undertaken regarding the project area, including with Indigenous stakeholders. Attach any completed consultation documentations, if relevant. *

Stakeholders that have an interest in the planning and development phase of the Proposal have been consulted. These stakeholders include all three levels of government, regulators, landowners, residents, business owners and operators, environmental groups, special interest groups, communities, and road users.

Further stakeholders may be identified as the planning progresses from early concept design to detailed design and development.

Stakeholder engagement up to June 2025 is documented in Att 1-EPBCReferralSupportingDocument, section 10.4, page 87.

A Community and Stakeholder Engagement (CSE) Plan has been developed to inform the early planning of the Proposed Action. Stakeholder and community engagement is a key input into the planning, development, design and, subject to approvals, construction of the proposed works.

Main Roads will continue to engage with directly impacted property owners, key stakeholders and the wider community regarding the Proposed Action throughout the planning and development phase of the road planning process, subject to any statutory obligations including requirements arising from environmental approvals.

1.3.1 Identity: Referring party

Privacy Notice:

Personal information means information or an opinion about an identified individual, or an individual who is reasonably identifiable.

By completing and submitting this form, you consent to the collection of all personal information contained in this form. If you are providing the personal information of other individuals in this form, please ensure you have their consent before doing so.

The Department of Climate Change, Energy, the Environment and Water (the department) collects your personal information (as defined by the Privacy Act 1988) through this platform for the purposes of enabling the department to consider your submission and contact you in relation to your submission. If you fail to provide some or all of the personal information requested on this platform (name and email address), the department will be unable to contact you to seek further information (if required) and subsequently may impact the consideration given to your submission.

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Alternatively, email us at privacy@awe.gov.au.

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1.3.1.1 Is Referring party an organisation or business? *

Yes

Referring party organisation details

ABN/ACN	50860676021
Organisation name	Main Roads Western Australia
Organisation address	Don Aitken Centre Waterloo Cres, East Perth, WA 6004

Referring party details

Name	Bree Atkinson
Job title	Environmental Officer
Phone	(08)93236189
Email	bree.atkinson@mainroads.wa.gov.au
Address	Don Aitken Centre Waterloo Cres, East Perth, WA 6004

1.3.2 Identity: Person proposing to take the action

1.3.2.1 Are the Person proposing to take the action details the same as the Referring party details? *

Yes

Person proposing to take the action organisation details

ABN/ACN	50860676021
Organisation name	Main Roads Western Australia
Organisation address	Don Aitken Centre Waterloo Cres, East Perth, WA 6004

Person proposing to take the action details

Name	Bree Atkinson
Job title	Environmental Officer
Phone	(08)93236189
Email	bree.atkinson@mainroads.wa.gov.au
Address	Don Aitken Centre Waterloo Cres, East Perth, WA 6004

1.3.2.14 Are you proposing the action as part of a Joint Venture? *

No

1.3.2.15 Are you proposing the action as part of a Trust? *

No

1.3.2.17 Describe the Person proposing the action's history of responsible environmental management including details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against the Person proposing to take the action. *

Main Roads is a State Government agency with an assured record of responsible environmental management and performance.
Main Roads has no regulatory actions against EPBC conditions, or any proceedings against them under State or Commonwealth environmental legislation.
Main Roads has a strong environmental compliance record, with Main Roads remaining in compliance with all conditions of environmental approvals granted under the EPBC Act and the EP Act.
Main Roads operations are undertaken in accordance with an Environmental Policy, which outlines Main Roads overarching objectives for environmental protection, sustainability and continual improvement in environmental performance.
The Environmental Policy is implemented through Main Roads international standard AS/NZS ISO14001:2015-certified Environmental Management System (EMS). Main Roads EMS provides a formalised systematic approach to environmental management for all aspects of the operations (road planning, construction and maintenance).
Main Roads has referred several actions under the EPBC Act and these proposals were located in various regions across WA. The most recent ones are, 2022/9325, 2022/9151, 2021/8967, 2020/8833, 2020/8800,2020/8784, 2020/8769, 2020/8746 and 2020/8725

1.3.2.18 If the person proposing to take the action is a corporation, provide details of the corporation's environmental policy and planning framework

The intent of the Main Roads Environmental Policy is to recognise the importance of the environment and social values, foster strategic relationships and facilitate environmental governance to deliver broad community benefit. See the attached policy 'Att 2-Main Roads Western Australia Environmental Policy' for more detail.

1.3.3 Identity: Proposed designated proponent

1.3.3.1 Are the Proposed designated proponent details the same as the Person proposing to take the action? *

No

1.3.3.2 Is Proposed designated proponent an organisation or business? *

Yes

Proposed designated proponent organisation details

ABN/ACN	50860676021
Organisation name	MAIN ROADS
Organisation address	Don Aitken Centre Waterloo Crescent East Perth 6004 WA Australia

Proposed designated proponent details

Name	Martine Scheltema
Job title	Director Environment and Heritage
Phone	+61 8 9323 4614
Email	martine.scheltema@mainroads.wa.gov.au
Address	Don Aitken Centre Waterloo Crescent East Perth 6004 WA Australia

1.3.4 Identity: Summary of allocation

Confirmed Referring party's identity

The Referring party is the person preparing the information in this referral.

ABN/ACN	50860676021
Organisation name	Main Roads Western Australia
Organisation address	Don Aitken Centre Waterloo Cres, East Perth, WA 6004
Representative's name	Bree Atkinson
Representative's job title	Environmental Officer
Phone	(08)93236189
Email	bree.atkinson@mainroads.wa.gov.au
Address	Don Aitken Centre Waterloo Cres, East Perth, WA 6004

Confirmed Person proposing to take the action's identity

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

Same as Referring party information.

Confirmed Proposed designated proponent's identity

The Person proposing to take the action is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

ABN/ACN	50860676021
Organisation name	MAIN ROADS
Organisation address	Don Aitken Centre Waterloo Crescent East Perth 6004 WA Australia
Representative's name	Martine Scheltema
Representative's job title	Director Environment and Heritage
Phone	+61 8 9323 4614
Email	martine.scheltema@mainroads.wa.gov.au

Address Don Aitken Centre Waterloo Crescent East Perth 6004 WA Australia

1.4 Payment details: Payment exemption and fee waiver

1.4.1 Do you qualify for an exemption from fees under EPBC Regulation 5.23 (1) (a)? *

No

1.4.3 Have you applied for or been granted a waiver for full or partial fees under Regulation 5.21A? *

No

1.4.5 Are you going to apply for a waiver of full or partial fees under EPBC Regulation 5.21A?

No

1.4.7 Has the department issued you with a credit note? *

No

1.4.9 Would you like to add a purchase order number to your invoice? *

No

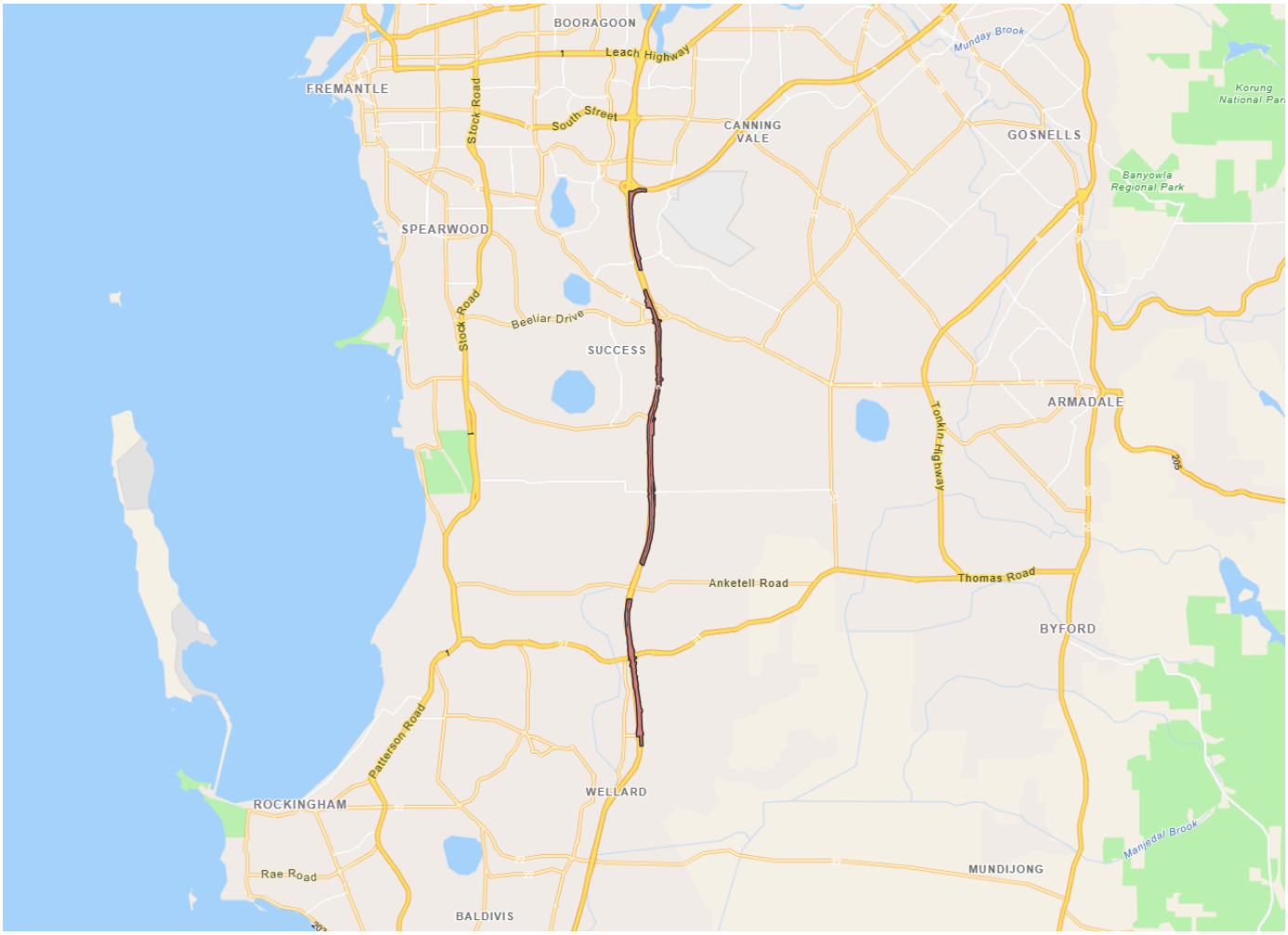
1.4 Payment details: Payment allocation

1.4.11 Who would you like to allocate as the entity responsible for payment? *

Person proposing to take the action

2. Location

2.1 Project footprint



Project Area: 151.18 Ha **Disturbance Footprint:** 151.18 Ha

2.2 Footprint details

2.2.1 What is the address of the proposed action? *

Kwinana Freeway between Roe Highway in the City of Cockburn and Mortimer Road in the City

2.2.2 Where is the primary jurisdiction of the proposed action? *

Western Australia

2.2.3 Is there a secondary jurisdiction for this proposed action? *

No

2.2.5 What is the tenure of the action area relevant to the project area? *

The land within the PAA is reserved as ‘Primary regional roads’ (the existing Kwinana Freeway) and other ‘Primary regional roads’. There are two small areas within the PAA designated ‘Urban’, although their respective land tenure type is ‘Road’. MRS land use within the PAA and in the vicinity of the Proposal is mapped on Figure 2 of Att 1-Appendix 1_Figures, page 5 with the extents in the PAA summarised in Att 1-EPBCReferralSupportingDocument, section 4.1, Table 4.1 on page 14.

3. Existing environment

3.1 Physical description

3.1.1 Describe the current condition of the project area's environment.

The Proposed Action is located within the Perth Metropolitan Region. The current condition of the environment within and adjacent to the PAA is largely degraded, with almost all of the PAA occurring within the disturbance footprint of previous freeway construction projects that took place in the 1990s and early 2000s.

Infrastructure such as roads and urban development were mapped as Cleared and made up the majority of the PAA (91.67 ha, 60.7%). The vegetation within the PAA occurs either side of the Kwinana Freeway and consists mostly of roadside revegetation (48.70 ha, 32.2%), from circa 2002 or earlier, with isolated patches of native vegetation (10.70 ha, 7.1%). (Att 1-EPBCReferralSupportingDocument, Section 4 page 14; Att 1-Appendix 1_Figures Figure 8, pages 13-15).

3.1.2 Describe any existing or proposed uses for the project area.

The land within the PAA is reserved as 'Primary regional roads' (the existing Kwinana Freeway) and other 'Primary regional roads'. There are two small areas within the PAA designated 'Urban', although their respective land tenure type is 'Road'. MRS land use within the PAA and in the vicinity of the Proposal is mapped on Figure 2 of Att 1-Appendix 1_Figures, page 5 with the extents in the PAA summarised in Att 1-EPBCReferralSupportingDocument, section 4.1, Table 4.1 on page 14.

3.1.3 Describe any outstanding natural features and/or any other important or unique values that applies to the project area.

A total of 66 Department of Biodiversity Conservation and Attractions (DBCA) managed lands occur within 5 km buffer of the PAA, comprising 55 Crown freehold DBCA-managed lands, 3 conservation parks, seven nature reserves and one Section 5(1)(h) reserve (Att 1-EPBCReferralSupportingDocument, section 4.1.1, page 14).

While no conservation reserves intersect the PAA, a group of reserves east of The Spectacles do lie to the west of the PAA (identifiers R 53313, 1758/697, 2781/538). DBCA managed land is mapped in Att 1-Appendix 1_Figures, Figure 3, page 6.

3.1.4 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The Kwinana Freeway varies in height from approximately 30 mAHD (at various locations near Berrigan Drive) to approximately 45 mAHD at Roe Highway and Beeliar Drive. Because of the length of road involved, the gradient is generally less than 2%.

The Proposed Action may result in some localised changes to the existing gradient of the PAA to facilitate the creation of new road infrastructure, including road embankments and bridge abutments.

3.2 Flora and fauna

3.2.1 Describe the flora and fauna within the affected area and attach any investigations of surveys if applicable.

A brief description of affected flora and fauna is provided below, based on a biological survey report by GHD in 2025. A detailed flora and vegetation assessment was conducted by GHD along the Kwinana Freeway in a 285.44 ha survey area, which included the majority of the PAA. The northern extent of the PAA, associated with Roe Highway was included within the Contextual Area considered by the survey, which was supplemented by additional surveys completed by GHD along Roe Highway. These surveys included targeted flora searches for significant flora species. (Att 1-Appendix 2_Biological Survey).

Flora

Diversity

Two hundred and twenty vascular flora taxa (including species, subspecies, varieties, forms and specimens not identified to species level) from 54 families and 153 genera, were recorded in the survey area. One-hundred and forty-eight of the flora recorded were native taxa, seven were naturalised and 65 were introduced (Att 1-Appendix 2_Biological Survey Section 4.2.1, page 62).

Significant flora

Desktop searches of the EPBC Protected Matters Search Tool (EPBC PMST), NatureMap, DBCA and WA Herbarium Threatened and Priority flora spatial datasets identified the potential occurrence of 15 significant flora species within a 5 km buffer of the PAA. (Att 1-EPBCReferralSupportingDocument, Section 4.7.3, page 24; Att 1-Appendix 1_Figures, Figure 9, page 16).

No EPBC Act listed flora were recorded within the PAA. Three Priority state listed flora species were recorded, however two of these species are considered naturalised:

- *Jacksonia gracillima* (P3)
- *Grevillea curviloba* listed as Endangered under the BC Act (naturalised)
- *Grevillea olivacea* (P4) (naturalised).

Although *Grevillea curviloba* and *Grevillea olivacea* are Priority state listed flora they are both considered to be planted within the PAA and outside their natural range and habitat. The natural range *of Grevillea curviloba* is north of the survey area around Bullsbrook and Muchea and is found growing in winter wet heaths. The natural range of G. olivacea is north of the PAA in the Geraldton Sandplains and northern part of the SCP (Dandaragan Plateau) IBRA regions, however it is commonly used around the Perth metropolitan area as a horticultural species.

The likelihood of occurrence assessment post-field survey concluded no EPBC Act listed flora are considered likely to occur in the PAA. (Att 1-EPBCReferralSupportingDocument, Section 5.2, page 30)

Introduced species

Two species listed as Weeds of National Significance (WoNs), **Asparagus asparagoides* (Bridal Creeper) and **Opuntia stricta* (Prickly Pear) were recorded in the PAA. These species are also listed as a Declared pest under the state Biosecurity and Agriculture Management Act 2007 (BAM Act) (Att 1-EPBCReferralSupportingDocument, Section 4.7.4, page 24). Four additional Declared pests were recorded in the PAA:

- **Gomphocarpus fruticosus* (DP)
- **Moraea flaccida* (DP)
- **Solanum linnaeanum* (DP)
- **Zantedeschia aethiopica* (DP)

Several common grass weed species were recorded along Kwinana Freeway within the PAA. The GHD survey recorded 64 introduced flora species representing 29.4% of the total flora species recorded. This level of weed incursion is expected to be consistent with the PAA, which this survey mostly represents, considering the high level of previous disturbance and lack of native vegetation remaining.

Fauna

Habitat types

Eight broad fauna habitat types were identified across the survey, including cleared areas that accounts for approximately 60% of the total area. Habitats are generally highly degraded in most areas due to survey area location in an extensively urbanised landscape. Habitat remnants are highly fragmented and subject the long-term degradation due to the effects of weed invasion, landscape modification, and vegetation loss. Habitat present does provide suitable foraging and shelter for several locally occurring significant fauna. (Att 1-EPBCReferralSupportingDocument, Section 4.8, page 24)

Significant fauna

An initial desktop search of the EPBC Act PMST, NatureMap, DBCA Threatened Fauna databases identified the potential occurrence of up to 17 Threatened fauna species. During the GHD field survey three significant fauna species were recorded:

- Carnaby's Cockatoo (*Zanda latirostris*) – Endangered under EPBC Act and BC Act
- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksia naso*) – Vulnerable under EPBC Act and BC Act
- Quenda (*Isoodon fusciventer*) – listed Priority 4 under DBCA.

A likelihood of occurrence assessment for significant fauna presented in the desktop assessment was revised following the field survey. This assessment was refined with consideration to the ecological field observations, including habitat suitability and previous disturbance. No additional Threatened fauna species listed under the EPBC Act were considered likely to occur. (Att 1-EPBCReferralSupportingDocument, Section 5.2, page 30).

3.2.2 Describe the vegetation (including the status of native vegetation and soil) within the project area.

The vegetation characteristics of the area are described in Att 1-Appendix 2_Biological Survey, section 4.1, pages 42 to 51. Vegetation Floristic Community Type mapping is provided in Att 1-Appendix 1_Figures, Figure 7, page 10. Commonwealth listed Threatened Ecological Community (TEC) mapping is provided in Att 1-Appendix 1_Figures, Figure 12, page 20; Figure 13 page 22; Figure 14 page 23; Figure 15 page 25.

Vegetation complexes and units

The broadscale vegetation complexes mapped across the PAA comprise:

- Cottesloe Complex – Central and South - Mosaic of woodland of *Eucalyptus gomphocephala* (Tuart) and open forest of *Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri); closed heath on the Limestone outcrops. This complex covers 7.23 ha of the PAA.
- Herdsman Complex - Sedgelands and fringing woodland of *Eucalyptus rudis* (Flooded Gum) - Melaleuca species. This complex covers 3.29 ha of the PAA.
- Bassendean Complex – Central and South - Vegetation ranges from woodland of *Eucalyptus marginata* (Jarrah) - *Allocasuarina fraseriana* (Sheoak) - Banksia species to low woodland of Melaleuca species, and sedgelands on the moister sites. This area includes the transition of *Eucalyptus marginata* (Jarrah) to *Eucalyptus todtiana* (Pricklybark) in the vicinity of Perth. This complex covers 140.55 ha of the PAA.

1. Infrastructure such as roads and urban development were mapped as Cleared and made up the majority of the PAA (91.67 ha, 60.7%). The vegetation within the PAA occurs either side of the Kwinana Freeway and consists mostly of roadside revegetation (48.70 ha, 32.2%), from circa 2002 or earlier, with isolated patches of native vegetation (10.70 ha, 7.1 %).
2. Five native vegetation types were mapped for within the PAA. Descriptions and representative photographs for native vegetation types are presented in Att 1-EPBCReferralSupportingDocument, Table 4.5, page 19. Three were Banksia woodlands, differentiated by the presence or absence of *Eucalyptus* spp., one was a *Corymbia calophylla* woodland and the fifth represented wetlands. The dominant remnant vegetation type in the PAA is EgBspp. -*Eucalyptus gomphocephala* and *Banksia* spp. woodland with 5.07 ha. This vegetation type was mapped predominately between Anketell and Mortimer Roads where the Spearwood system intersects the PAA. *Corymbia calophylla* woodland (Cc) is the most restricted in extent, occurring adjacent to *Eucalyptus rudis* and *Melaleuca rhaphiophylla* woodland (ErMr) vegetation types. *Corymbia calophylla* woodland made up 0.12 ha of the PAA.

Roadside revegetation was split into seven vegetation types, primarily to assist with Black Cockatoo foraging habitat mapping. Endemic flora species were selected when areas were being revegetated and as a result the revegetation has in some places integrated with remnant native vegetation adjacent to the PAA. Although not to the same condition and diversity as remnant native vegetation some of the revegetation has established enough to be able to be mapped using the same description as the remnant bushland vegetation types BmBa and *Eucalyptus gomphocephala* and *Banksia* spp. woodland (EgBspp). Descriptions and representative photographs for roadside revegetation are shown in Att 1-EPBCReferralSupportingDocument,Table 4.6, page 20. Mixed shrubland was the most dominant roadside vegetation and was mapped in patches along the entire length of the PAA with 31.95 ha.

The condition of the vegetation of the survey was variable and ranged from Very Good to Completely Degraded. Native vegetation ranged from Very Good to Completely Degraded, with 69.3% in Degraded or worse condition. Roadside revegetated areas also ranged from Very Good to Completely Degraded with the majority (93.7%) in Completely Degraded condition. Vegetation condition extent and percentage of the survey area and per vegetation type are quantified in Att 1-EPBCReferralSupportingDocument, Table 4.7 page 23. Vegetation condition within the PAA is mapped in Att 1-Appendix 1_Figures, Figure 8 page 13.

Soils

The PAA area intersects the following unique soil landscape zones.

- Bassendean Zone (212): Mid Pleistocene Bassendean sand. Fixed dunes inland from coastal dune zone. Non-calcareous sands, podsolised soils with low-lying wet areas (133.61 ha of the PAA (88.44%)).
- Perth Coastal Zone (211): Coastal sand dunes and calcarenite. Late Pleistocene to Recent age. Calcareous and siliceous sands and calcarenite (17.46 ha of the PAA (11.56%)).

Significant vegetation

Vegetation types EgBspp., EmBspp. and BmBa showed affinities to significant ecological communities Banksia TEC and Tuart TEC. However, not all patches of these vegetation types met the key criteria set out by Threatened Species Scientific Committee (TSSC, 2016) and Department of Environment and Energy (DotEE, 2019).

A review of the DBCA TEC and PEC database and EPBC Act PMST identified the presence of 18 listed communities previously recorded within (or potentially occurring within as identified by the PMST) the survey area.

The PAA contains 3.04 ha of Tuart Woodlands and Forests of the Swan Coastal Plain TEC (Tuart TEC) and 7.24 ha of Banksia Woodlands of the Swan Coastal Plain TEC (Banksia TEC). However they only meet the condition and biotic thresholds to be considered a patch due to the quality and quantity of the adjacent vegetation outside the PAA. (Att 1-EPBCReferralSupportingDocument Section 5.3, page 44).

3.3 Heritage

3.3.1 Describe any Commonwealth Heritage Places Overseas or other places recognised as having heritage values that apply to the project area.

No places of World, National or Commonwealth Heritage are located within the PAA or the surrounding area.

3.3.2 Describe any Indigenous heritage values that apply to the project area.

Review of the Western Australian Register of Aboriginal Heritage Places and Objects through the Department of Planning, Lands and Heritage (DPLH) Aboriginal Cultural Heritage Inquiry System (ACHIS) has identified that one Aboriginal Heritage Place is situated within the PAA: Place ID 38661, Thomas Road. The place type is listed as Burial; Artefacts / Scatter; Camp; Ritual / Ceremonial; Water Source and intersects the PAA in the vicinity of Thomas Road. The area within the PAA is already largely disturbed by the existing Thomas Road on and off ramps.

An Activity Notice has been submitted to Gnaala Karla Booja with the expectation formal Archaeological and Ethnographic Aboriginal heritage surveys will be required and implemented in consultation with Traditional Owner representatives. The heritage surveys will be undertaken in accordance with the Noongar Standard Heritage Agreement and will incorporate best practice heritage management, as described in the current Australian Burra Charter Practice Notes (2013). If the Proposed Action is to impact this registered site, a Section 18 Approval will be applied for under the Aboriginal Heritage Act 1972.

3.4 Hydrology

3.4.1 Describe the hydrology characteristics that apply to the project area and attach any hydrological investigations or surveys if applicable. *

Groundwater

The PAA occurs above three layers of aquifers, in order from topmost to bottommost layer: the unconfined Superficial Swan aquifer, the confined Leederville aquifer and the confined Yarragadee North aquifer.

The Superficial Swan aquifer receives direct recharge from groundwater infiltration and surface water. The Leederville and Yarragadee North aquifers receive direct recharge where these formations outcrop (not within the location of the Proposal). There is limited interaction between the various aquifers, in terms of water exchange, and groundwater movement and recharge is very slow in the confined aquifers (Leederville and Yarragadee North).

The PAA intersects two Groundwater Areas proclaimed under the Rights in Water and Irrigation Act 1914:

- Jandakot Groundwater Area (101.51 ha (67.19% of PAA))
- Serpentine Groundwater Area (49.56 ha (32.81% of PAA)).

There is one Public Drinking Water Source Area (PDWSAs) proclaimed under the *Metropolitan Water Supply, Sewage and Drainage Act 1909* within the PAA, this being Priority 3 areas of the Jandakot Underground Water Pollution Control Area. Priority 3 areas are designated to manage the risk of water contamination while allowing for higher-intensity land uses like urban and commercial development. Roads are considered a compatible land in this area. THe hydrology of the area within the vicinity of the PAA is shown in Att 1-Appendix 1_Figures, Figure 4, page 7.

Surface water

The desktop study of various databases reported one wetland system of global RAMSAR listing significance occurring within a 5 km buffer of the PAA, the Thomsons and Forestdale Lakes wetland system. Thomson Lake is 1.8 km west of the PAA, between Beeliar Drive and Gibbs Road, while Forestdale Lake is more than 5 km to the east of the PAA. The Proposed Action does not have a direct surface water connection to Thomsons and Forestdale Lakes wetland system. Groundwater flow in the PAA is westerly, away from Forrestdale Lake. Furthermore, given the distance to Thomsons Lake and urban development there is a lack of direct hydrological connectivity.

A further two wetlands listed in the Directory of Important Wetlands in Australia were identified within a 5 km buffer of the PAA, Spectacles Swamp and Gibbs Road Swamp System. The nearest of these is The Spectacles, which is 0.3 km west of the PAA, between Anketell Road and Thomas Road.

Wetlands cover more than 25% of the Swan Coastal Plain, with approximately 75% of these occurring as seasonally waterlogged flats or basins. DBCA (2024b) have mapped geomorphic wetlands on the Swan Coastal Plain, with the PAA intersecting the following extents

- Conservation – nine wetlands, intersecting 0.97 ha (0.64%) of the PAA.
- Resource Enhancement – seven wetlands, intersecting 10.68 ha (7.07%) of the PAA.
- Multiple Use – fifteen wetlands, intersecting 15.00 ha (9.93%) of the PAA.
- Not Applicable – five wetlands, intersecting 9.43 ha (6.24%) of the PAA.

Wetlands in the vicinity of the PAA are shown in Att 1-Appendix 1_Figures, Figure 5, page 8.

4. Impacts and mitigation

4.1 Impact details

Potential Matters of National Environmental Significance (MNES) relevant to your proposed action area.

EPBC Act section	Controlling provision	Impacted	Reviewed
S12	World Heritage	No	Yes
S15B	National Heritage	No	Yes
S16	Ramsar Wetland	No	Yes
S18	Threatened Species and Ecological Communities	Yes	Yes
S20	Migratory Species	No	Yes
S21	Nuclear	No	Yes
S23	Commonwealth Marine Area	No	Yes
S24B	Great Barrier Reef	No	Yes
S24D	Water resource in relation to large coal mining development or coal seam gas	No	Yes
S26	Commonwealth Land	No	Yes
S27B	Commonwealth Heritage Places Overseas	No	Yes
S28	Commonwealth or Commonwealth Agency	No	Yes

4.1.1 World Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.1.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.1.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

No World Heritage properties are in proximity to the Proposed Action. The nearest World Heritage place to the DE is Shark Bay, located approximately 900 km northwest of the PAA.

4.1.2 National Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.2.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.2.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

No National Heritage places are in proximity to the Proposed Action. The closest National Heritage place is Fremantle Prison (former), located approximately 9.7 km northwest of the PAA

4.1.3 Ramsar Wetland

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Ramsar wetland
No	No	Forrestdale and Thomsons Lakes
No	No	Peel-Yalgorup System

4.1.3.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.3.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

There are no Ramsar wetlands within the PAA. Thomsons Lake is 1.8 km west of the PAA, between Beeliar Drive and Gibbs Road, while Forestdale Lake is more than 5 km to the east of the PAA and the Peel-Yalgorup System is more distant and will not be affected (Att 1-Appendix 1_Figures, Figure 5, page 8).

Strict criteria have been imposed for water level management in both Thompsons and Forrestdale lakes. In1992, Environmental Water Provisions (EWPs) were set for a number of wetlands including Forrestdale Lake and Thomsons Lake, and these were updated in 2004 (Maher and Davis, 2009). Any potential groundwater impacts from the PA would be regulated by the State Department of Water and Environment Regulation (DWER).

The Proposed Action does not have a direct surface water connection to Thomsons and Forestdale Lakes wetland system. Groundwater flow in the PAA is westerly, away from Forrestdale Lake. Furthermore, given the distance to Thomsons Lake and urban development there is a lack of direct hydrological connectivity.

4.1.4 Threatened Species and Ecological Communities

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Threatened species

Direct impact	Indirect impact	Species	Common name
No	No	Andersonia gracilis	Slender Andersonia
No	No	Banksia mimica	Summer Honeypot
No	No	Botaurus poiciloptilus	Australasian Bittern
No	No	Caladenia huegelii	King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid
No	No	Calidris acuminata	Sharp-tailed Sandpiper
No	No	Calidris canutus	Red Knot, Knot
No	No	Calidris ferruginea	Curlew Sandpiper
Yes	No	Calyptorhynchus banksii naso	Forest Red-tailed Black-Cockatoo, Karrak
No	No	Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover
No	No	Dasyurus geoffroii	Chuditch, Western Quoll
No	No	Diuris drummondii	Tall Donkey Orchid
No	No	Diuris micrantha	Dwarf Bee-orchid
No	No	Diuris purdiei	Purdie's Donkey-orchid
No	No	Drakaea elastica	Glossy-leafed Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid
No	No	Drakaea micrantha	Dwarf Hammer-orchid
No	No	Eleocharis keigheryi	Keighery's Eleocharis
No	No	Leipoa ocellata	Malleefowl
No	No	Morelotia australiensis	Southern Tetraria
No	No	Numenius madagascariensis	Eastern Curlew, Far Eastern Curlew

Direct impact	Indirect impact	Species	Common name
No	No	Pristis pristis	Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish
No	No	Pseudocheirus occidentalis	Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit
No	No	Rostratula australis	Australian Painted Snipe
No	No	Sternula nereis nereis	Australian Fairy Tern
No	No	Tringa nebularia	Common Greenshank, Greenshank
No	No	Westralunio carteri	Carter's Freshwater Mussel, Ambiguus Mussel
No	No	Zanda baudinii	Baudin's Cockatoo, Baudin's Black-Cockatoo, Long-billed Black-cockatoo
Yes	No	Zanda latirostris	Carnaby's Black Cockatoo, Short-billed Black-cockatoo

Ecological communities

Direct impact	Indirect impact	Ecological community
Yes	No	Banksia Woodlands of the Swan Coastal Plain ecological community
No	No	Empodisma peatlands of southwestern Australia
No	No	Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion
Yes	No	Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community

4.1.4.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.4.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

Biological surveys undertaken by GHD confirmed the presence of the following MNES within the PAA (Att 1-EPBCReferralSupportingDocument, Section 5.3, page 44; Section 5.4, page 49; Section 6.3 page 56). The PAA has the potential to directly impact:

- 3.04 ha of Tuart TEC
- 7.24 ha of Banksia TEC
- 16.24 ha of moderate quality Carnaby's Cockatoo foraging habitat
- 0.92 ha of Moderate – High, 8.43 ha of Low - Moderate and 6.89 ha of Low quality FRTBC foraging habitat
- 12 suitable DBH trees, all without hollows

The Proposed Action has the potential to indirectly impact on significant vegetation, fauna and fauna habitat through:

- introduction and/or spread of weeds
- Introduction and/or spread of *Phytophthora cinnamomi* dieback
- Increased risk of vehicle strike

4.1.4.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

No

4.1.4.6 Describe why you do not consider this to be a Significant Impact. *

Refer to Att 1-EPBCReferralSupportingDocument, Section 6.3, pages 56 to 71 for a full assessment of the significance of potential impacts to Tuart TEC, Banksia TEC and Black Cockatoos arising from the proposed Action based on the criteria in Significant Impact Guidelines 1.1.

Tuart TEC

The Proposal will impact up to 3.04 ha of Tuart TEC, with 2.17 ha mapped as Degraded to Completely Degraded. All the Tuart trees within the Tuart TEC that will be impacted by the proposal are small (less than 500mm DBH), with the majority within roadside vegetation of degraded condition and the remainder of the TEC vegetation being roadside vegetation that occurs within the 30 m buffer of Tuart canopy. Additionally, the Tuart TEC within the PAA only meets the condition and biotic thresholds to be considered a patch due to the quality and quantity of the adjacent vegetation outside the PAA, that occurs within Class A reserve linked to The Spectacles and a Main Road environmental offset site.

Clearing will occur on the edges of three patches that intersect the PAA. All three imp[acted patches will be reduced in size but still meet the size and condition thresholds to remain Tuart TEC patches (Att 1-EPBCReferralSupportingDocument, Section 6.3.1.1, pages 56 to 57).

Based on the assessment against the *Significant Impact Guidelines 1.1* (Att 1-EPBCReferralSupportingDocument, Section 6.3.1.2, pages 57 to 60), the Proposed Action is unlikely to result in a significant impact to Tuart TEC, given no large Tuart trees within the TEC will be impacted, the degraded nature of the majority of the Tuart TEC within the PAA, that the TEC vegetation to be impact is located on the edge of the TEC and that, of the 3.04 ha of TEC being impacted, all but 0.9 ha is in Degraded or worse condition.

Indirect impacts will be avoided through standard construction management practices when implementing the Proposed Action, to prevent significant impacts outside the PAA.

Banksia TEC

Construction of the Proposal is likely to result in the direct loss of up to 7.24 ha of the Banksia TEC, of which 1.47 ha was mapped as being in Very Good condition, and 0.95 ha was mapped as being in Good condition with 4.82 ha mapped as being Degraded or worse condition. Banksia TEC within the PAA is only considered to meet the size and condition thresholds to be considered a patch due to the quality and quantity of the adjacent vegetation outside the PAA.

Clearing will occur on the edges of five patches that intersect the PAA. An assessment was completed to determine whether the remaining vegetation extent within each patch still meets the size/quality thresholds to remain a viable patch (Att 1-EPBCReferralSupportingDocument, Section 6.3.2.1, pages 60 to 61).

Based on the assessment against the *Significant Impact Guidelines 1.1* (Att 1-EPBCReferralSupportingDocument, Section 6.3.2.2, pages 62 to 64), the Proposed Action is unlikely to result in a significant impact to Tuart TEC, given no large Tuart trees within the TEC will be impacted, the degraded nature of the majority of the Tuart TEC within the PAA, that the TEC vegetation to be impact is located on the edge of the TEC and that, of the 3.04 ha of TEC being impacted, all but 0.9 ha is in Degraded or worse condition.

Indirect impacts will be avoided through standard construction management practices when implementing the Proposed Action, to prevent significant impacts outside the PAA.

Black Cockatoos

The impacts from the Proposed Action on Black Cockatoos include the following:

- Clearing of up to 16.24 ha of Moderate quality foraging habitat for Carnaby's Cockatoo
- Clearing of up to 0.92 ha of Moderate – High, 8.43 ha of Low – Moderate, and 6.89 ha of Low quality foraging habitat for FRTBC
- Loss of up to 12 Black Cockatoo suitable DBH trees, of which no trees contained hollows.

Although 12 suitable DBH trees will be impacted, the Proposed Action is unlikely to impact Black Cockatoo breeding given Black Cockatoos are not known to breed in the immediate local area.

Black Cockatoos are highly mobile species and are expected to forage outside the PAA amongst foraging resources in the vicinity (15,968 ha within 12 km) and are not dependent on a particular patch of foraging habitat within the PAA and the Proposed Action will not result in the clearing of important roosting or breeding habitat. Furthermore, clearing will occur over linear patches adjacent to existing cleared and disturbed areas along Kwinana Freeway and will not create a gap of 4 km or more between patches of habitat.

Additionally, a large proportion of the planted Black Cockatoo foraging habitat within the PAA is not aligned with DCCEEW revegetation standards that requires no foraging species to be planted within 10 m of roads to reduce bird – vehicle strikes. Accordingly, following the upgrades, separation distance between traffic and foraging habitat of at least 10 m will be established.

No known roosting sites were recorded within the PAA, nor any evidence of roosting. The closest roosting site occurs approximately 20 m southeast of the northern section of the of the PAA near Roe Highway.

Based on the assessment against the *Significant Impact Guidelines 1.1* (Att 1-EPBCReferralSupportingDocument, Section 6.3.3.2, pages 66 to 71), the Proposed Action is unlikely to have a significant impact to Carnaby's Cockatoo or FRTBC, as it will not impact High quality foraging habitat or known breeding or roosting habitat, with impacted habitat not located consistent with current roadside vegetation requirements,

Indirect impacts will be avoided through standard construction management practices when implementing the Proposed Action, so as to prevent significant impacts within and outside the PAA. The landscaping and roadside vegetation species selection will be designed as to avoid unintended impacts to Black Cockatoos during operation through the introduction of foraging species in close proximity to roads.

4.1.4.7 Do you think your proposed action is a controlled action? *

No

4.1.4.9 Please elaborate why you do not think your proposed action is a controlled action. *

The Proposed Action is not a controlled action as it is unlikely to have a significant impact on the MNES.

The Proposal will impact up to 3.04 ha of Tuart TEC, with 2.17 ha mapped as Degraded to Completely Degraded. All the Tuart trees within the Tuart TEC that will be impacted by the proposal are small (less than 500mm DBH), with the majority within roadside vegetation of degraded condition and the remainder of the TEC vegetation being roadside vegetation that occurs within the 30 m buffer of Tuart canopy.

At a local context the Proposed Action occurs within the range of the TEC with areas of potential TEC lying to the north, south and west of the PAA. The Proposed Action will impact 0.01% of the 25,057 ha of remnant vegetation associated with the TEC identified within 10 km of the PAA.

Additionally, the Tuart TEC within the PAA only meets the condition and biotic thresholds to be considered a patch due to the quality and quantity of the adjacent vegetation outside the PAA, that occurs within Class A reserve linked to The Spectacles and a Main Road environmental offset site. (Att 1-EPBCReferralSupportingDocument, Section 6.3.1.2, pages 57 to 60)

The Proposed Action will impact up to 7.24 ha of Banksia TEC, which is approximately 0.002% and 0.003% of the potential remnant vegetation that represent the TEC overall and, on the SCP, respectively. At a local scale (within 10 km of the PAA) the Proposed Action will impact approximately 0.008% of identified Banksia TEC. The majority of the Banksia TEC impacted is of Degraded or worse condition. Banksia TEC within the PAA is only considered to meet the size and condition thresholds to be considered a patch due to the quality and quantity of the adjacent vegetation outside the PAA. (Att 1-EPBCReferralSupportingDocument, Section 6.3.2.2, pages 62 to 64)

As presented in Att 1-EPBCReferralSupportingDocument, Table 6.8 pages 66 to 69 and Table 6.9, pages 70-71 the Proposed Action is likely to trigger referral, however not likely to result in significant impacts to the two species of Black Cockatoos (Carnaby's Cockatoo and FRTBC), due to the direct impact of clearing less than 1 ha of Moderate – High quality foraging habitat (0.92 ha for FRTBC Cockatoo). Furthermore, a large proportion of the planted Black Cockatoo foraging habitat within the PAA is not aligned with DCCEEW revegetation standards that requires no foraging species to be planted within 10 m of roads to reduce bird – vehicle strikes. Accordingly, following the upgrades, separation distance between traffic and foraging habitat of at least 10 m will be established.

4.1.4.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

Although the PAA is more than 150 ha and covers approximately 20 km, the Proposal has been designed in such a way as to only impact 3.20 ha of vegetation that is in Good or better condition. Furthermore, significant effort has been undertaken to avoid all large trees with only twelve trees with a DBH greater than 500mm potentially impacted.

The Proposed Action is being designed to avoid and/or mitigate impacts to MNES where possible. Measures considered and incorporated in the Proposed Action planning include:

- The PAA avoids additional bisection of patches of TEC.
- Infrastructure associated with the Proposed Action will be contained within the PAA, including road pavements, footpaths, noise walls, stormwater drainage and fencing, reducing impacts to MNES outside the PAA.
- Laydowns areas, stockpiles and access tracks will be constructed within existing cleared areas or within the permanent footprint of the works. No TECs or Black Cockatoo habitat will be cleared for temporary works outside the permanent footprint.
- The detailed design will seek to reduce earthworks (fill height/cut depth), which will reduce the Proposed Action disturbance footprint and potentially reduce clearing impacts to TECs and Black Cockatoo habitat.
- The use of barriers will be considered during the detailed design phase to protect high-quality vegetation, by reducing clearing requirements and potential MNES impacts. Use of steepened batters and retaining will be considered as part of detailed design.
- Clearing and MNES impacts will be minimised during the detailed design process, by implementing measures such as the use of kerbing where appropriate to alleviate the need for table drains, that require a larger clearing footprint.
- Drainage design will maintain existing flow lines/watercourses to avoid impacting retained vegetation and MNES within and adjacent to the PAA..

Further opportunities to reduce the impacts to communities and species may be possible during detailed design and construction works for the Proposed Action, where construction methodology allows.

4.1.4.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

As the impacts of the Proposed Action are not considered to be significant, or a controlled action, offsets are not proposed.

4.1.5 Migratory Species

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Species	Common name
No	No	Actitis hypoleucos	Common Sandpiper
No	No	Apus pacificus	Fork-tailed Swift
No	No	Calidris acuminata	Sharp-tailed Sandpiper
No	No	Calidris canutus	Red Knot, Knot
No	No	Calidris ferruginea	Curlew Sandpiper
No	No	Calidris melanotos	Pectoral Sandpiper
No	No	Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover
No	No	Motacilla cinerea	Grey Wagtail
No	No	Numenius madagascariensis	Eastern Curlew, Far Eastern Curlew
No	No	Pandion haliaetus	Osprey
No	No	Pristis pristis	Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish
No	No	Tringa nebularia	Common Greenshank, Greenshank

4.1.5.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.5.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The results of an assessment of likelihood of significant species (including Migratory Species) occurring within the PAA is provided in Att 1-EPBCReferralSupportingDocument, Table 5.2, page 31.

Desktop searches identified migratory species potentially occurring in the within 5 km of the PAA. Migratory marine species have been discounted from the search as the Proposed Action is not located within marine habitat.

Biological survey completed to inform the Proposed Action did not record any listed migratory species. The PAA lacks suitable habitat for the majority of migratory species with occurrences largely limited to the occasional flyover during seasonal local visits to wetlands.

4.1.6 Nuclear

4.1.6.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.6.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Proposed Action is not a nuclear action.

4.1.7 Commonwealth Marine Area

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.7.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.7.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

There are no direct or indirect environmental impact pathways to Commonwealth Marine Areas associated with implementing the Proposed Action.

4.1.8 Great Barrier Reef

4.1.8.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.8.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Proposed Action is on the Swan Coastal Plain of WA.

4.1.9 Water resource in relation to large coal mining development or coal seam gas

4.1.9.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.9.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Proposed Action does not involve coal seam gas or coal mine development.

4.1.10 Commonwealth Land

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Commonwealth land area
No	No	Commonwealth Land -

4.1.10.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.10.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Proposed Action does not intersect Commonwealth Land.

4.1.11 Commonwealth Heritage Places Overseas

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.11.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.11.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Proposed Action is on the Swan Coastal Plain of WA.

4.1.12 Commonwealth or Commonwealth Agency

4.1.12.1 Is the proposed action to be taken by the Commonwealth or a Commonwealth Agency? *

No

4.2 Impact summary

Conclusion on the likelihood of significant impacts

You have indicated that the proposed action will likely have a significant impact on the following Matters of National Environmental Significance:

None

Conclusion on the likelihood of unlikely significant impacts

You have indicated that the proposed action will unlikely have a significant impact on the following Matters of National Environmental Significance:

- World Heritage (S12)
- National Heritage (S15B)
- Ramsar Wetland (S16)
- Threatened Species and Ecological Communities (S18)
- Migratory Species (S20)
- Nuclear (S21)
- Commonwealth Marine Area (S23)
- Great Barrier Reef (S24B)
- Water resource in relation to large coal mining development or coal seam gas (S24D)
- Commonwealth Land (S26)
- Commonwealth Heritage Places Overseas (S27B)
- Commonwealth or Commonwealth Agency (S28)

4.3 Alternatives

4.3.1 Do you have any possible alternatives for your proposed action to be considered as part of your referral? *

No

4.3.8 Describe why alternatives for your proposed action were not possible. *

Kwinana Freeway is the primary north-south road transport corridor for the southern Perth Metropolitan area and is currently one of the busiest roads in Perth experiencing heavy congestion regularly during peak periods. It was found to be among the 10 worst roads in Australia for delays by Infrastructure Australia, with the 2019 Australian Infrastructure Audit estimating congestion in Perth will cost $3.1 billion per annum in 2031.

With the predicted increase in Perth's population from 2.17 million in 2025 to 3.5 million in 2050, the freeway network south of Roe Highway in its current form will not adequately support future opportunities that depend on it for access, the lane widening and upgrades are required to safely and efficiently service current and future predicted traffic volumes on Kwinana Freeway.

No feasible alternatives for the Proposed Action were identified given the current and predicted traffic congestion issues that affect Kwinana Freeway and that increasing the capacity of the freeway is the only solution.

Although no feasible alternative options are available to alleviate current and future congestion, it should be noted that the Government of Western Australia is continuing to implement an integrated approach to public and freight movement, with the recent extension of the passenger rail network (Thornlie-Cockburn Link) and future consideration for freight rail upgrades.

For example, the Thornlie-Cockburn Link, which was jointly funded by the state and federal governments, is Perth's first east-west domestic train cross line connection, making travel more flexible while providing a higher level of public transport service to Perth's south-eastern suburbs. Connecting the Mandurah and Armadale-Thornlie lines provides additional flexibility for public transport use, resulting in less private vehicles using the road network. The opening of the Thornlie-Cockburn Link will support growth and accessibility across the south-eastern suburbs by providing direct access to employment and recreation opportunities.

5. Lodgement

5.1 Attachments

1.2.1 Overview of the proposed action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1-Appendix 1_Figures.pdf EPBC Referral Supporting Document	19/08/2025	No	High
#2.	Document	Att 1-Appendix 2_Biological Survey.pdf EPBC Referral Supporting Document	18/08/2025	No	High
#3.	Document	Att 1-Appendix 2_Biological Survey_Appendix A_Part1.pdf EPBC Referral Supporting Document	18/08/2025	No	High
#4.	Document	Att 1-Appendix 2_Biological Survey_Appendix A_Part2_Appendix B-F.pdf EPBC Referral Supporting Document	18/08/2025	Yes	High
#5.	Document	Att 1-Appendix 2_Biological Survey_Appendix A_Part2_Appendix B-F_Redacted.pdf EPBC Referral Supporting Document	18/08/2025	No	High
#6.	Document	Att 1-Appendix 3.pdf EPBC Referral Supporting Document	18/08/2025	No	High
#7.	Document	Att 1-EPBCReferralSupportingDocument.pdf EPBC Referral Supporting Document	19/08/2025	No	High

1.3.2.18 (Person proposing to take the action) If the person proposing to take the action is a corporation, provide details of the corporation's environmental policy and planning framework

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 2 - Main Roads Environmental Policy.pdf Main Roads Environmental Policy	01/02/2023	No	High

5.2 Declarations

Completed Referring party's declaration

The Referring party is the person preparing the information in this referral.

ABN/ACN	50860676021
Organisation name	Main Roads Western Australia
Organisation address	Don Aitken Centre Waterloo Cres, East Perth, WA 6004
Representative's name	Bree Atkinson
Representative's job title	Environmental Officer
Phone	(08)93236189
Email	bree.atkinson@mainroads.wa.gov.au
Address	Don Aitken Centre Waterloo Cres, East Perth, WA 6004

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ By checking this box, I, **Bree Atkinson of Main Roads Western Australia**, declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

Completed Person proposing to take the action's declaration

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

Same as Referring party information.

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ I, **Bree Atkinson of Main Roads Western Australia**, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity. *

☑ I, **Bree Atkinson of Main Roads Western Australia**, the Person proposing the action, consent to the designation of **Martine Scheltema of MAIN ROADS** as the Proposed designated proponent for the purposes of the action described in this EPBC Act Referral. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

✔ Completed Proposed designated proponent's declaration

The Proposed designated proponent is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

ABN/ACN	50860676021
Organisation name	MAIN ROADS
Organisation address	Don Aitken Centre Waterloo Crescent East Perth 6004 WA Australia
Representative's name	Martine Scheltema
Representative's job title	Director Environment and Heritage
Phone	+61 8 9323 4614
Email	martine.scheltema@mainroads.wa.gov.au
Address	Don Aitken Centre Waterloo Crescent East Perth 6004 WA Australia

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ I, **Martine Scheltema of MAIN ROADS**, the Proposed designated proponent, consent to the designation of myself as the Proposed designated proponent for the purposes of the action described in this EPBC Act Referral. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *