EPBC Act referral

Australian Government

Department of the Environment and Energy

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Title of proposal	**2019/8608 - Tonkin Highway Extension – Thomas Road to South Western Highway**

Section 1

Summary of your proposed action

1.1 Project industry type Transport - Land

1.2 Provide a detailed description of the proposed action, including all proposed activities

Main Roads Western Australia (Main Roads) is proposing to extend Tonkin Highway from Thomas Road in Oakford, to South Western Highway in Mundijong (the Proposal). The development envelope (DE) is presented in Figure 1 and comprises of approximately 409 hectares of road reserve with a construction footprint of approximately 260 hectares (including batters and drainage basins).

The south-east corridor is an important and fast-growing area of the Perth Metropolitan Area and is faced with increased congestion, higher travel times for freight vehicles and reduced safety outcomes on the existing road network. By 2031, sustained growth in the south-east sub-region the regional population will increase by 35 per cent from the 2008 base level. This additional population will put significant pressure on the existing road network with volumes exceeding recommended capacity.

The Proposal will extend the Tonkin Highway from Thomas Road, Oakford to the South Western Highway, Mundijong including intersections at Thomas, Orton, and Mundijong Roads and South Western Highway and a grade separated interchange (a bridge) at Bishop Road.

Key components of the Proposal include:

- Construction of approximately 14 kilometres of four lane (with the provision of six lanes) dual carriageway from Thomas Road to South Western Highway
- Construction/upgrades of intersections at Thomas Road, Orton Road, Mundijong Road and South Western Highway (with provision for grade separated interchanges).
- A grade separated interchange at Bishop Road and catering for any future freight rail realignment at Mundijong
- A principal shared path for cyclists and pedestrians along the corridor
- Installation of associated road infrastructure, such as lighting, signs, noise and retaining wall, safety barriers, stopping bays and traffic monitoring devices.

The Proposal forms the second portion of the project “Construction and use of the Tonkin Highway Extension from Mills Road West, Gosnells to South Western Highway, Mundijong”. The Proposal was referred to the Western Australian Environmental Protection Authority (EPA) and assessed at Public Environmental Review (PER) level. A decision was made to approve the works under Ministerial Statement 595 on 12 June 2002.

1.3 What is the extent and location of your proposed action?

See Appendix B

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland)

The Proposed Action traverses the Shire of Serpentine-Jarrahdale Local Government Area (LGA) on the Swan Coastal Plain in Western Australia. The Proposed Action commences approximately 30 km south-east from the Perth Central Business District (CBD) and extends to 41 km south-east of the CBD. The total DE extends for 14 km and is approximately 416 ha in area.

Land use adjacent to the Proposed Action includes:

- predominately urban land uses to the east, with Mundijong town site and Mundijong train station situated east, adjacent to the southern portion of the DE
- predominately rural land to the north, west and south, with a section of industrial land to the east in the southern portion of the DE.

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

The proposed action DE is 409 ha .

1.7 Proposed action location

Lot - There are a large number of lots for the proposal. Refer to Appendix 1

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1.8 Primary jurisdiction	Western Australia	

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

☐ Yes ☑ No

1.10 Is the proposed action subject to local government planning approval?

☑ Yes ☐ No

1.10.1 Is there a local government area and council contact for the proposal?

☐ Yes ☑ No

1.11 Provide an estimated start and estimated end date for the proposed action	Start Date	01/06/2021
	End Date	03/12/2023

1.12 Provide details of the context, planning framework and state and/or local Government requirements

The Proposed Action has previously been assessed and approved under Part IV of the Environmental Protection Act 1986 (EP Act), with Ministerial Statement 595 issued in June 2002. The proposal is exempt from requiring a clearing permit under Schedule 6 of the EP Act as it was referred under Section 38 of Part IV of the EP Act and has been formally assessed by the Environmental Protection Authority (EPA).

The Proposed Action predominantly lies within the Perth Metropolitan Regional Scheme (MRS). The MRS is a regional level planning scheme that covers the entire Perth Metropolitan Area. Works associated with this Proposed Action will be conducted within areas currently zoned “Primary Regional Road” or “Other Regional Roads” within the MRS. Main Roads does not require further planning approval to construct roads within these zonings.The proposal will require a Development Approval under the Planning and Development Act 2005 in areas outside of the MRS.

The Proposed Action may require excavation below the water table and temporary dewatering during construction. Depending on the rate and volume of dewatering, a Section 5C licence to abstract groundwater may be required under the Rights in Water and Irrigation Act 1914 (RIWI Act). This licence application will be assessed by the Department of Water and Environmental Regulation (DWER).

There are five registered Aboriginal Heritage sites, as defined by the West Australian Aboriginal Heritage Act 1972, within the DE. As such, a Section 18 consent to disturb an Aboriginal Heritage site/s will be required. Indigenous heritage surveys are currently being undertaken.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders

The Proposed Action has previously been assessed and approved under Part IV of the EP Act with Ministerial Statement 595 issued in June 2002. Extensive consultation was undertaken with State and Local Government and the community prior to the preparation and submission of the Public Environmental Review (Main Roads 2001).

Main Roads has begun to liaise with stakeholders regarding the Tonkin Highway Extension. Meetings are planned with Local Government representatives and residents.

There has been recent consultation with the Gnaala Karla Booja Traditional Owners regarding the project, including additional surveys of the project area.

The Archaeological and Ethnographic surveys are currently underway. These are likely to be finalised in early 2020.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project

The Proposed Action has been previously referred to the WA EPA and assessed under Part IV of the EP Act with Ministerial Statement 595 being issued in 2002. As the Proposal has been formally assessed and approved by the EPA, a clearing permit under Part V of the EP Act is not required. The key environmental factors addressed by the referral includes:

- Flora and vegetation
- Terrestrial environmental quality (including acid sulfate soils)
- Terrestrial fauna
- Inland waters (including dewatering, acid sulfate soils, stormwater runoff)

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- Social surroundings (including visual amenity, noise, heritage).

An Environmental Impact Assessment has been carried out for the proposed action, which includes the assessment of potential impacts to Commonwealth Environmental Factors.

1.15 Is this action part of a staged development (or a component of a larger project)?

☐ Yes ☑ No

1.16 Is the proposed action related to other actions or proposals in the region?

☑ Yes ☐ No

1.16.1 Identify the nature/scope and location of the related action (Including under the relevant legislation)

EPBC 2001/470 (Tonkin Highway – Mills Road West to Thomas Road) was determined to not be a controlled action. This action abuts the current Proposed Action at Thomas Road.

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Section 2

Matters of national environmental significance

2.1 Is the proposed action likely to have any direct or indirect impact on the values of any World Heritage properties?

☐ Yes ☑ No

2.2 Is the proposed action likely to have any direct or indirect impact on the values of any National Heritage places?

☐ Yes ☑ No

2.3 Is the proposed action likely to have any direct or indirect impact on the ecological character of a Ramsar wetland?

☐ Yes ☑ No

2.4 Is the proposed action likely to have any direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

☑ Yes ☐ No

Species or threatened ecological community

Calyptorhynchus latirostris (Carnaby's Cockatoo) - Endangered

Impact

The Proposed Action is within the known distribution (Breeding Range) of Carnaby's Cockatoo and will require the clearing of up 22.1ha of potential foraging habitat representing 7% of the total DE area (Figure 7). The EPBC Referral Guidelines for Three Threatened Black-cockatoo Species (DSEWPaC 2012) states that the following impacts have a high risk of a significant impact upon Black-cockatoos:

- Clearing of any known nesting tree
- Clearing or degradation of any part of a vegetation community known to contain breeding habitat
- Clearing of more than 1 ha of quality foraging habitat
- Clearing or degradation of a known night roosting site
- Creating a gap of greater than 4 km between patches of black cockatoo habitat

In assessing the potential impact to Carnaby's Cockatoo against the referral guidelines, the following information is provided:

- Kirkby (2019) assessed foraging habitat within and adjacent to the DE. Based on the habitat assessment undertaken, up to 28.9 ha of potential foraging habitat suitable for Carnaby's Cockatoo will be impacted, however, no evidence of foraging by Carnaby's Cockatoo was observed. Kirkby (2019) further noted that the absence of foraging evidence from Carnaby's Cockatoo was expected given the limited amount of preferred Banksia species within the DE;
- While no specific habitat quality assessment was undertaken, it is considered that due to overall degraded nature of vegetation within the DE comprising of 24.6 ha assessed to be in a 'Completely Degraded' and 'Degraded' condition and the remaining 8.6 ha in 'Good' and 'Very Good' condition (Woodman 2019), that the majority of the mapped foraging habitat is of a 'Moderate' to 'Low' quality, additional survey work will be completed to determine the quality of habitat;
- The vegetation within the DE is largely degraded consisting of isolated stands of Corymbia calophylla, Eucalyptus marginata and Eucalyptus rudis within cleared fields, narrow bands remnant vegetation associated with drainage lines and road reserves and replanted areas;
- No known Black Cockatoo nesting hollows will be impacted by the Proposal. Approximately 351 Suitable diameter at breast height (DBH) Trees (Suitable DBH Trees) suitable for Carnaby's cockatoo species will be potentially impacted, of which 7 are considered to have suitable hollows present (Figure 6). No evidence of breeding was observed during the survey. Kirkby (2019) discusses that all suitable hollows were either being used by Galah's at the time or were of a smaller size suitable for small parrots;

- No evidence or observations of night roosting was recorded within the DE; and
- Removal of potential foraging habitat within the DE will not create a gap greater than 4 km between patches of Black Cockatoo habitat, with large patches occurring within 1 km to the east of the DE.

Based on the information provided above it is considered unlikely that the Proposed Action will result in a significant impact as defined by the referral guidelines as:
- No known nesting trees are being impacted, nor is any vegetation community known to contain breeding habitat;
- The DE is considered to contain mostly 'low to moderate' quality foraging habitat based on the degraded nature of vegetation within the DE, furthermore, as noted by Kirkby (2019) there was not observed Carnaby Cockatoo foraging evidence within the DE;
- No identified roosting site will be impacted within the DE.

It is considered unlikely that the Proposed Action will adversely affect habitat critical to the survival of Carnaby's Cockatoo given the lack of evidence of their presence and the highly modified landscape within the DE, disrupt the breeding cycle of a population, or decrease the availability or quality of habitat to the extent that the Black cockatoos will decline.

Species or threatened ecological community

Calyptorhynchus baudinii (Baudin’s Cockatoo) (Endangered)

Impact

The Proposed Action is within the known distribution of Baudin’s Cockatoo and will require the clearing of up 22.1 ha of potential foraging habitat representing 7% of the total DE area (Figure 7). The EPBC Referral Guidelines for Three Threatened Black-cockatoo Species (DSEWPaC 2012) states that the following impacts have a high risk of a significant impact upon Black-cockatoos:

- Clearing of any known nesting tree
- Clearing or degradation of any part of a vegetation community known to contain breeding habitat
- Clearing of more than 1 ha of quality foraging habitat
- Clearing or degradation of a known night roosting site
- Creating a gap of greater than 4 km between patches of black cockatoo habitat

In assessing the potential impact to Baudin's Cockatoo against the referral guidelines, the following information is provided:
- Kirkby (2019) assessed foraging habitat within and adjacent to the DE. Based on the habitat assessment undertaken, up to 22.1 ha of potential foraging habitat suitable for Baudin's Cockatoo will be impacted. Evidence of foraging by Baudin's was observed, with Kirkby (2019) noting feeding residue from Marri in 24 locations.
- While no specific habitat quality assessment was undertaken, it is considered that due to overall degraded nature of vegetation within the DE comprising of 24.6 ha assessed to be in a ‘Completely Degraded’ and ‘Degraded’ condition and the remaining 8.6 ha in ‘Good’ and ‘Very Good’ condition (Woodman 2019), that the majority of the mapped foraging habitat is of a ‘Moderate’ to ‘Low’ quality;
- The vegetation within the DE is largely degraded consisting of isolated stands of Corymbia calophylla, Eucalyptus marginata and Eucalyptus rudis within cleared fields, narrow bands remnant vegetation associated with drainage lines and road reserves and replanted areas;
- No known Black Cockatoo nesting hollows will be impacted by the Proposal. Approximately 351 Suitable diameter at breast height (DBH) Trees (Suitable DBH Trees) for all three cockatoo species will be potentially impacted, of which 7 are considered to have suitable hollows present (Figure 6). No evidence of breeding was observed during the survey. Kirkby (2019) discusses that all suitable hollows were either being used by Galah’s at the time or were of a smaller size suitable for small parrots;
- No evidence or observations of night roosting was recorded within the DE; and
- Removal of potential foraging habitat within the DE will not create a gap greater than 4 km between patches of Black Cockatoo habitat, with large patches occurring within 1 km to the east of the DE.

Based on the information provided above it is considered unlikely that the Proposed Action will result in a significant impact as defined by the referral guidelines as:
- No known nesting trees are being impacted, nor is any vegetation community known to contain breeding habitat;
- The DE is considered to contain mostly 'low to moderate' quality foraging habitat based on the degraded nature of vegetation within the DE;
- No identified roosting site will be impacted within the DE.

While it is considered unlikely that the Proposed Action will adversely affect habitat critical to the survival of Baudin's cockatoo, disrupt the breeding cycle of a population, or decrease the availability or quality of habitat to the extent that the Black cockatoos will decline, referral is still considered relevant due to the extent of the Proposed Action.

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Species or threatened ecological community

Calyptorhynchus banksii naso (Forest Red-tailed Black Cockatoo) (Vulnerable)

Impact

The Proposed Action is within the known distribution of Forest Red-tailed Cockatoo (FRTBC) and will require the clearing of up 23.8 ha of potential foraging habitat representing 8% of the total DE area (Figure 7). The EPBC Referral Guidelines for Three Threatened Black-cockatoo Species (DSEWPaC 2012) states that the following impacts have a high risk of a significant impact upon Black-cockatoos:

- Clearing of any known nesting tree
- Clearing or degradation of any part of a vegetation community known to contain breeding habitat
- Clearing of more than 1 ha of quality foraging habitat
- Clearing or degradation of a known night roosting site
- Creating a gap of greater than 4 km between patches of black cockatoo habitat

In assessing the potential impact to FRTBC against the referral guidelines, the following information is provided:

- Kirkby (2019) assessed foraging habitat within and adjacent to the DE. Based on the habitat assessment undertaken, up to 31.9 ha of potential foraging habitat suitable for FRTBC will be impacted, with Kirkby (2019) noting feeding residues from Marri in 85 locations;
- While no specific habitat quality assessment was undertaken, it is considered that due to overall degraded nature of vegetation within the DE comprising of 24.6 ha assessed to be in a 'Completely Degraded' and 'Degraded' condition and the remaining 8.6 ha in 'Good' and 'Very Good' condition (Woodman 2019), that the majority of the mapped foraging habitat is of a 'Moderate' to 'Low' quality;
- The vegetation within the DE is largely degraded consisting of isolated stands of Corymbia calophylla, Eucalyptus marginata and Eucalyptus rudis within cleared fields, narrow bands remnant vegetation associated with drainage lines and road reserves and replanted areas;
- No known Black Cockatoo nesting hollows will be impacted by the Proposal. Approximately 351 Suitable diameter at breast height (DBH) Trees (Suitable DBH Trees) for all three cockatoo species will be potentially impacted, of which 7 are considered to have suitable hollows present (Figure 6). No evidence of breeding was observed during the survey. Kirkby (2019) discusses that all suitable hollows were either being used by Galah's at the time or were of a smaller size suitable for small parrots;
- No evidence or observations of night roosting was recorded within the DE; and
- Removal of potential foraging habitat within the DE will not create a gap greater than 4 km between patches of Black Cockatoo habitat, with large patches occurring within 1 km to the east of the DE.

Based on the information provided above it is considered unlikely that the Proposed Action will result in a significant impact as defined by the referral guidelines as:

- No known nesting trees are being impacted, nor is any vegetation community known to contain breeding habitat;
- The DE is considered to contain mostly 'low to moderate' quality foraging habitat based on the degraded nature of vegetation within the DE;
- No identified roosting site will be impacted within the DE.

While it is considered unlikely that the Proposed Action will adversely affect habitat critical to the survival of FRTBC, disrupt the breeding cycle of a population, or decrease the availability or quality of habitat to the extent that the Black cockatoos will decline, referral is still considered relevant due to the extent of the Proposed Action.

Species or threatened ecological community

Synaphea sp. Serpentine – Critically Endangered

Impact

The Proposed Action will require the clearing of up to 180 Synaphea sp. Serpentine (G.R. Brand 103). Synaphea sp. Serpentine (G.R. Brand 103) occurs over a narrow geographic range from west of Byford to south of Serpentine, growing predominantly in grey-brown sandy-loam or clay in seasonally wet areas (DPaW 2017). The species is known from four populations with a total of 1,328 individuals recorded through surveys undertaken between 2010 and 2012. The impact of the Proposed Action on Synaphea sp. Serpentine has been assessed against the Commonwealth Significant Impact Guidelines 1.1 (DotE 2013) and is summarised below.

Lead to a long-term decrease in the size of an important population of species:

- The Proposed Action is expected to reduce the size of the overall population and reduce the area of occupancy of Synaphea sp. Serpentine by 13.5% with up to 180 individual plants being impacted.
- The Proposed Action is unlikely to fragment the population into two or more populations as all mapped individuals within

the DE will be directly impacted.

- Within the DE individuals of Synaphea sp. Serpentine are clustered within vegetation association S1 (Mid shrubland of mixed species with isolated mid shrubs of Xanthorrhoea preissii and Kingia australis over mid sedgeland of Mesomelaena tetragona and Tetraria octandra on brown sandy loam on flats). Clearing will result in a loss of this habitat known to contain 180 individuals of Synaphea sp. Serpentine, and likely affect habitat critical to the survival of a species.
- As this population is isolated within the DE and will be completely removed it is considered likely that the Proposed Action will disrupt the breeding cycle of an important population.
- Within the DE individuals of Synaphea sp. Serpentine are clustered within vegetation association S1. Clearing will result in a loss habitat known to contain 180 individuals of Synaphea sp. Serpentine. This habitat is considered to be critical to the survival of the species as the presence of 180 individuals is considered to be an important population. Considering this, the Proposed Action is considered likely to result in the modification, and removal of habitat to the extent that the species is likely to decline.
- Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat:
- The Proposed Action is unlikely to introduce invasive species that will be established within the habitat of Synaphea sp. Serpentine. The CEMP will include measures to manage the potential spread of weeds, dieback and feral animals into adjacent retained vegetation that could comprise habitat for the species.
- The Proposed Action is unlikely to introduce diseases that may cause the species to decline. The CEMP will include measures to manage the potential spread of weeds, dieback and feral animals into adjacent retained vegetation that could comprise habitat for the species.

It is considered likely that the Proposed Action will have an impact on Synaphea sp. Serpentine. Further surveys have been undertaken to confirm the presence of Synaphea sp. Serpentine. Results are expected in early 2020 and will assist in further quantifying the expected impact on the species.

Species or threatened ecological community

Synaphea sp. Pinjarra Plain - Endangered

Impact

The proposed action requires clearing within 20m of a known occurrence of Synaphea sp. Pinjarra Plain . Synaphea sp. Pinjarra Plain is known to have a total of 751 individuals within 12 populations in six locations, occurring in a linear band from north of Mundijong to West Coolup. The locations are fragmented and located mostly within road and rail reserves. It is not anticipated that the Proposed Action will directly impact individuals of Synaphea sp. Pinjarra Plain, however two individuals are located within 20 m of the DE and there is potential for these individuals to be indirectly impacted during construction of the Proposed Action.

The potential impact of the Proposed Action on Synaphea sp. Pinjarra Plain has been assessed against the Commonwealth Significant Impact Guidelines 1.1 (DotE 2013) and discussed below.

- The Proposed Action is not expected to reduce the size of an important population or reduce the area of occupancy of Synaphea sp. Pinjarra Plain as there are no individuals within the DE. Two individuals are located in close proximity to the DE.
- The Proposed Action is not expected to fragment an existing important population into two or more populations of Synaphea sp. Pinjarra as the Proposed Action is not intersecting a known important population.
- Within the DE this habitat is associated with vegetation associations W1, W3, S1 and S2. The Proposed Action will result in the clearing of habitat known to be associated with Synaphea sp. Pinjarra Plain. The Conservation advice highlights that within 5 km of the DE, in the suburbs of Serpentine and Mardella, there is suitable habitat present with approximately 430 individuals within nature reserves and road/rail reserves. It is considered likely that the Proposed Action will adversely affect habitat critical to the survival of a species.
- It is considered unlikely that the Proposed Action will disrupt the breeding cycle of an important population.

As discussed previously, habitat associated with this species consists of vegetation associations W1, W3, S1 and S2., the condition of which ranges from 'Degraded' to 'Very Good'. The Proposed Action will result in habitat being removed. The Conservation advice for the species highlights that within 5 km of the DE, in the suburbs of Serpentine and Mardella, there is suitable habitat present with approximately 430 individuals within nature reserves and road/rail reserves. The condition of these areas ranges again from 'Degraded' to 'Very Good' with most sites being considered in 'Very Good' condition. Considering the wider availability of habitat, it is unlikely that the Proposal will modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

- The Proposed Action is unlikely to introduce invasive species that will be established within the habitat of Synaphea sp. Pinjarra Plain. The CEMP will include measures to manage the potential spread of weeds, dieback and feral animals into adjacent retained vegetation that could comprise habitat for the species.
- The Proposed Action is unlikely to interfere with the recovery of the species.

It is considered unlikely that the Proposed Action will have an impact on Synaphea sp. Pinjarra Plain. Further surveys have

been undertaken to confirm the presence of Synaphea sp. Pinjarra Plain. Results are expected in early 2020 and will assist in further quantifying the expected impact on the species.

Species or threatened ecological community

Tetraria australiensis (Vulnerable)

Impact

Tetraria australiensis is a perennial, tufted herb, with stems to 1 m high. The conservation advice states that the species is known from eleven locations between Perth and the South West Capes in south-west Western Australia. The species distribution is severely fragmented with the known populations occurring in isolated remnant pockets of vegetation (DoEE, 2019). There are no accurate total population count for this species with the current estimate at 1455. This is considered inaccurate as the majority of populations have not been surveyed since 1993. The species was recorded as present within the DE by Woodman (2019), however as no counts were taken, data from the Department of Biodiversity, Conservation and Attractions (DBCA) has been used to assess impact. It should be noted that Main Roads will be undertaking a count of this species in spring 2020. The potential impact of the Proposed Action on Tetraria australiensis has been assessed against the Commonwealth Significant Impact Guidelines 1.1 (DotE 2013) and summarised below.

- The Proposed Action will impact an area known to contain 1054 individual, further surveys will confirm numbers, leading to a long-term decrease in the size of an important population of Tetraria australiensis.
- The current area of occupancy for Tetraria australiensis is estimated to be 12.4 ha (DoEE 2019). However, it is considered that this number is inaccurate as it has been based on three subpopulations only. Considering this it is expected that the Proposed Action will reduce the area of occupancy of Tetraria australiensis.
- As the entire surveyed population is within the DE, the Proposed Action is unlikely to fragment the existing important population into two or more populations.
- Within the DE individuals of Tetraria australiensis are clustered within vegetation association S1, considered to represent the herb rich shrublands in clay plan TEC. The Proposal will result in clearing of habitat known to contain 1054 individuals of Tetraria australiensis.
- As this population is isolated within the DE and will be completely removed it is considered likely that the Proposed Action will disrupt the breeding cycle of an important population.
- Clearing for the Proposed Action will result in a loss of habitat known to contain 1054 individuals of Tetraria australiensis. The Proposed Action is considered likely to result in the modification, and removal of habitat to the extent that the species is likely to decline.
- The CEMP will include measures to manage the potential spread of weeds, dieback and feral animals into adjacent retained vegetation that could comprise habitat for the species.
- As the Proposed Action is likely to result in the removal of 1054 individuals of Tetraria australiensis, it considered likely that the Proposed Action will interfere with the recovery of the species.

It is considered likely that the Proposed Action will have a significant impact on Tetraria australiensis. Further surveys have been undertaken to confirm the presence of Tetraria australiensis. Results are expected in early 2020 and will assist in further quantifying the expected impact on the species.

Species or threatened ecological community

Corymbia calophylla – Kingia australis woodlands on heavy soils, Swan Coastal Plain – FCT3a (Endangered)

Impact

The Proposed Action will impact approximately 1.79 ha of vegetation with an affiliation to Corymbia calophylla – Kingia australis woodlands on heavy soils, Swan Coastal Plain woodlands and shrublands, Swan Coastal Plain TEC. The Corymbia calophylla - Kingia australis woodlands on heavy soils of the Swan Coastal Plain ecological community is one of three listed Marri (Corymbia calophylla) dominated plant communities. It is known from forty-one occurrences totalling about 192.5 ha that have been located between Ruabon and Guildford (DoEE 2017).

The impact of the Proposed Action on Corymbia calophylla – Kingia australis woodlands on heavy soils, Swan Coastal Plain TEC has been assessed against the Commonwealth Significant Impact Guidelines 1.1 (DotE 2013) and is summarised below.

- The Proposed Action will impact approximately 1.79 ha of vegetation with an affiliation to Corymbia calophylla – Kingia australis woodlands on heavy soils, Swan Coastal Plain woodlands and shrublands, Swan Coastal Plain TEC. This will result in a reduction of the total known extent of Corymbia calophylla – Kingia australis TEC by 0.9%. Within the local area (Shire of Serpentine-Jarrahdale) there is approximately 47.8 ha of the TEC present (DEC 2011), the Proposed Action will result in a

local reduction in extent by 3.74%.
- The Proposed Action will result in the larger portion of the TEC being impacted with approximately 1 ha of the patch left remaining adjacent the DE, further increasing the distance between patches. The Proposed Action will increase the fragmentation of this occurrence of the TEC.
- The Proposed Action will directly impact up to 1.79 ha of Corymbia calophylla – Kingia australis TEC, the condition of which ranges from 'Degraded' to 'Good'.

The Local extent of the TEC is approximately 47.9 ha, of which 43.3 ha is contained within the Brickwood Reserve managed by the Shire of Serpentine-Jarrahdale for conservation. The Proposed Action will result in net overall loss of less than 1% and It is considered unlikely that the Proposed Action will adversely impact habitat critical to the survival of the TEC.
- The CEMP will include measures to manage ASS, dewatering, stormwater, pollution, sedimentation and dust. It is noted that dewatering (if required) will be localised and temporary and is not expected to significantly affect TEC patches outside of the DE.
- The CEMP and proposed drainage infrastructure (including vegetated basins) will avoid and minimise mobilisation of fertilisers, herbicides or other chemicals or pollutants from the DE into the TEC. This includes use of stormwater drainage and treatment involving biofiltration areas and infiltration basins designed in accordance with the Western Australian Better Urban Water Management framework and Stormwater Management Manual (WAPC 2008). No stormwater runoff generated within the DE will be discharged into any occurrences of Corymbia calophylla – Kingia australis TEC outside of the DE.
- The Proposed Action is expected to cause a substantial change in species composition of this occurrence of an ecological community as the clearing for the Proposed Action (1.79 ha), will reduce the extent of Occurrence 18 by 75.5% and the location of the clearing area is within a narrow corridor.

Further studies have been undertaken to confirm the presence of the Corymbia calophylla – Kingia australis TEC. Results are expected in early 2020 and if presence is confirmed, it is considered likely that the Proposed Action will have a significant impact on the Corymbia calophylla – Kingia australis TEC.

Species or threatened ecological community

Clay Pans of the Swan Coastal Plain (Critically Endangered)

Impact

The Proposed Action will result in removal of up to 1.36 ha of vegetation with an affiliation to the Clay Pans of the Swan Coastal Plain TEC. The Clay Pans of the Swan Coastal Plain ecological community occurs in Western Australia where clay soils form an impermeable layer close to the landscape surface, and wetlands form that rely solely on rainfall to fill and then dry to impervious pans in summer. There are 114 occurrences of the TEC in 50 separate locations occupying a total are of 909 ha (DPaW, 2015). The TEC is comprised of four State listed TECs and one PEC. The four State listed TECs include; Herb rich saline shrublands in clay pans (SCP07 - Swan Coastal Plain community type 7); Herb rich shrublands in clay pans (SCP08 - Swan Coastal Plain community type 8); Dense shrublands on clay flats (SCP09 - Swan Coastal Plain Community type 9); Shrublands on dry clay flats (SCP10a - Swan Coastal Plain Community type 10a). Within the DE this TEC is represented by the WA State listed TEC Herb rich shrublands in clay pans SCP08.

The impact of the Proposed Action on the Clay Pans of the Swan Coastal Plain TEC has been assessed against the Commonwealth Significant Impact Guidelines 1.1 (DotE 2013) and is summarized below.

- The Proposed Action will result in removal of up to 1.36 ha of vegetation with an affiliation to the Clay Pans of the Swan Coastal Plain TEC. Further studies are being conducted to determine the presence of this TEC.
- The Proposed Action will result in a reduction of the total known extent by 0.15%.
- It is considered likely that the Proposed Action will fragment this occurrence of the TEC.
- The Proposed Action will directly impact no more than 1.36 ha of Clay Pan TEC. The total known extent of the TEC is 909.5 ha of which 544.3 ha (59.8%) is contained within conservation reserves. The Proposed Action will result in a reduction of the total known extent by 0.15%. The loss of 0.15% is not considered to be critical to the long-term survival of the community when over 50% is retained in conservation reserve.
- The CEMP will include measures to manage ASS, dewatering, stormwater, pollution, sedimentation and dust. It is noted that dewatering (if required) will be localised and temporary and is not expected to significantly affect TEC patches in the vicinity.
- Given the small scale of the proposed clearing footprint (1.36 ha), the Proposal will not result in an action that may cause a substantial change in the species composition of the occurrence of the overall TEC.
- The CEMP and proposed drainage infrastructure (including vegetated basins) will avoid and minimise mobilisation of fertilisers, herbicides or other chemicals or pollutants from the DE into the TEC. This includes use of stormwater drainage and treatment involving biofiltration areas and infiltration basins designed in accordance with Western Australian Better Urban Water Management framework and Stormwater Management Manual (WAPC 2008). No stormwater runoff generated within the DE will be discharged into TEC patches.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Further studies have been undertaken to confirm the presence of the Clay Pan TEC within the DE. Results are expected in early 2020 and if presence is confirmed, it is considered likely that the Proposed Action will have a significant impact on the Clay Plans of the Swan Coastal Plain TEC.

2.4.2 Do you consider this impact to be significant?

☑ Yes ☐ No

2.5 Is the proposed action likely to have any direct or indirect impact on the members of any listed migratory species or their habitat?

☐ Yes ☑ No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

☐ Yes ☑ No

2.7 Is the proposed action likely to be taken on or near Commonwealth land?

☐ Yes ☑ No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

☐ Yes ☑ No

2.9 Is the proposed action likely to have any direct or indirect impact on a water resource from coal seam gas or large coal mining development?

☐ Yes ☑ No

2.10 Is the proposed action a nuclear action?

☐ Yes ☑ No

2.11 Is the proposed action to be taken by a Commonwealth agency?

☐ Yes ☑ No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage place overseas?

☐ Yes ☑ No

2.13 Is the proposed action likely to have any direct or indirect impact on any part of the environment in the Commonwealth marine area?

☐ Yes ☑ No

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 3

Description of the project area

3.1 Describe the flora and fauna relevant to the project area

Flora

An EPBC Protected Matters Search with a 5km buffer was undertaken as part of the desktop assessment, which identified 18 flora species as likely to occur within 5km of the Proposed Action:

- Andersonia gracilis (flowers August to November) – Endangered
- Anthocercis gracilis (flowers September to October) – Vulnerable
- Caladenia huegelii (flowers August to October) – Endangered
- Diuris micrantha (flowers September to October) – Vulnerable
- Diuris purdiei (flowers September to October) – Endangered
- Drakaea elastica (flowers October to November) – Endangered
- Drakaea micrantha (flowers September to November) – Vulnerable
- Eleocharis keigheryi (flowers August to November) – Vulnerable
- Eucalyptus x balanites (flowers October to December or January to February) – Endangered
- Grevillea curviloba subsp. incurva (flowers August to October) - Endangered
- Lasiopetalum pterocarpum (flowers September to November) – Endangered
- Lepidosperma rostratum (flowers June to July, September to December) – Endangered
- Synaphea sp. Fairbridge Farm (D. Papenfus 696) (flowers September to October) – Critically Endangered
- Synaphea sp. Serpentine (G.R Brand 103) (flowers September to October) – Critically Endangered
- Tetraria australiensis (flowers September to December) – Vulnerable
- Thelymitra dedmaniarum (flowers November to January) – Endangered
- Thelymitra stellata (flowers October to November) – Endangered
- Verticordia plumosa var. ananeotes (flowers November to January) – Endangered.

A reconnaissance vegetation survey was undertaken by Woodman Environmental (2019) for the vicinity of the Proposed Action, which was inclusive of a desktop assessment and field survey component. In addition, a Detailed and Targeted flora and vegetation survey was undertaken on 15th November 2018 by Eco Logical Australia (2019) within Mundijong Road, over an area of road reserve comprising approximately 8.9 ha. This area is known to support or provide potential habitat for a number of conservation significant flora species and communities.

The desktop assessment undertaken by Eco Logical Australia (2019) identified Diuris purdiei (Endangered) as having potential to occur within the survey area, and Tetraria australiensis (Vulnerable) as likely to occur. Synaphea sp. Serpentine (G. R. Brand 103) has previously been recorded within the survey area and was recorded at 109 locations during the Eco Logical Australia (2019) field survey. Synaphea sp. Pinjarra Plain (A. S. George 17182) was recorded at two locations during the field survey.

In total, three EPBC Act listed species were recorded within the DE during the field surveys:

- Synaphea sp. Serpentine (G. R. Brand 103) – Critically Endangered
- Synaphea sp. Pinjarra Plain (A. S. George 17182) - Endangered
- Tetraria australiensis – Vulnerable

Fauna

The Level 1 Fauna and Black Cockatoo Survey (Attachment C and D) included a detailed desktop assessment of the likelihood of threatened and migratory fauna species being present. The desktop assessment indicated that the following Threatened species are likely to occur in the vicinity of the DE:

- Calyptorhynchus latirostris (Carnaby's Cockatoo) - listed as Endangered
- Calyptorhynchus baudinii (Baudin's Cockatoo) – listed as Endangered
- Calyptorhynchus naso banksia (Forest Red-tailed Black Cockatoo) – listed as Vulnerable

A Black Cockatoo Breeding, Feeding and Roosting Habitat Assessment (Kirkby 2019) was conducted in April/May 2019. The survey focused on undertaking a targeted Black Cockatoo assessment of potential habitat within the DE, including assessment of hollows and potential roosting habitat. Opportunistic observations were also recorded.

3.2 Describe the hydrology relevant to the project area (including water flows)

Three layers of aquifer occur beneath the DE. The unconfined or superficial aquifer is the topmost layer and is usually accessed for groundwater abstraction. Beneath the superficial aquifer lies the semi-confined Leederville aquifer. Below the Leederville aquifer lies the confined Yarragadee North aquifer.

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

Depth to groundwater levels range from 2.0 m to 4.8 m below surface level (approximately 24m Australian Height Datum (AHD)) across the DE. The depth of the bottom of the superficial aquifer in the Proposed Action is approximately 15 m below

ground level.

3.2.2 Surface water and wetlands

A total of seven geomorphic wetlands intersect with the Project area (Figure 8), including:

- Multiple Use Wetland 'Armadale Palusplain' (UFI 15797), palusplain
- Multiple Use Wetland (UFI 16021), palusplain
- Conservation Category Wetland 'Abernethy Road Bushland' (UFI 14495), palusplain
- Resource Enhancement Wetland (UFI 14540), creek
- Conservation Category Wetland (UFI 14945), palusplain
- Conservation Category Wetland (UFI 14817), palusplain
- Conservation Category Wetland (UFI 14985), palusplain

The DE is within the Birriga Main Drain catchment which is 7 km west of the DE. The drain is fed by several tributaries which intersect the DE, including the Manjedal, Cardup and Beenyup Brooks and the Oaklands Creek. The Birriga Main Drain feeds into the Serpentine River.

A wetland and drainage mitigation strategy is to be prepared as a requirement of Ministerial Statement 595 to ensure no significant impacts to surface or groundwater occurs as a result of the Proposed Action.

3.3 Describe the soil and vegetation characteristics relevant to the project area

The DE is located in the Swan Coastal Plain subregion as defined by Beard (1981; 1990); which is equivalent to the Swan Coastal Plain Interim Biogeographic Regionalisation for Australia (IBRA) region and SWA-2 IBRA subregion (Commonwealth of Australia 2012). The Swan Coastal Plain subregion consists of a coastal plain of low-lying, often swampy areas and sandhills (generally referred to as the Swan Coastal Plain), with soils consisting of sands or swamp deposits as well as dissected country rising to the duricrusted Dandaragan Plateau on Mesozoics consisting of mainly yellow sandy soils. The geology of the region is Mesozoic to recent sediments of the Perth Basin (Beard 1990).

The DE occurs within the Bassendean and the Pinjarra Soil-Landscape Zones of the Swan Province. The Bassendean Zone is described as consisting of Mid-Pleistocene Bassendean sand and fixed dunes inland from the coastal dune zone, with non-calcareous sands and podsolised soils with low-lying wet areas. The Pinjarra Zone is characterised by alluvial deposits (early Pleistocene to Recent) between the Bassendean Dunes Zone and the Darling Scarp with colluvial and shelf deposits adjacent to the Darling Scarp in clayey to sandy alluvial soils with wet areas (Purdie et al. 2004).

Vegetation within the DE is primarily situated within the Pinjarra 968 association and has been broadly characterised by Beard (1990) as medium woodland of Jarrah (Eucalyptus marginata), Marri (Corymbia calophylla) and Wandoo (Eucalyptus wandoo). The southern portion of the DE is situated within the Pinjarra 3 and West Darling 4 associations, which are described as 'Medium forest; Jarrah-Marri' and 'Medium woodland; Marri and Wandoo'. Vegetation complexes as described by Heddle et al. (1980) within the DE comprise:

- Beermullah Complex – Mixture of low open forest of Casuarina obesa and open woodland of Eucalyptus calophyla – E. wandoo – E. marginata. Minor components include closed scrub of Melalueca spp. and occurrence of Actinostrobus pyramidalis
- Guildford Complex – A mixture of open forest to tall open forest of Eucalyptus calophylla – E. wandoo – E. marginata and woodland of E. wandoo (with rare occurrences of E. lane-poolei). Minor components include E. rudis – Melalueca rhaphiophylla
- Forrestfield Complex – Vegetation ranges from open forest of Eucalyptus calophylla – E. wandoo – E. marginata to open forest of E. marginata – E. calophylla – Allocasuarina fraseriana – Banksia spp. Fringing woodland of E. rudis in the gullies that dissect this landform.

The remaining pre-European extents of the Beermullah, Guildford and Forrestfield Complexes are 6.67% and 5.09% and 12.29% respectively (GoWA 2019). Both the Guildford and Beermullah complexes are below the 10% target for the retention of vegetation complexes within constrained areas of the Swan Coastal Plain (EPA 2000). The Forrestfield Complex has approximately 12.29% of the pre-European extent remaining.

The reconnaissance flora and vegetation survey conducted by Woodman Environmental (2019) identified 13 vegetation units as intact vegetation, with a further 16 units comprising of highly disturbed vegetation or remnant ingenious trees within the DE. Five units of planted vegetation are also present within the DE (Figure 2). A full summary of the vegetation units within the DE is provided within Table 12 of the Woodman (2019) report (Appendix B).

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area

Not Applicable

3.5 Describe the status of native vegetation relevant to the project area

The DE comprises of approximately 33.6 ha of native vegetation which ranges in condition from 'Completely Degraded' to 'Very Good'.

The Level 1 Flora and Vegetation Survey (Woodman, 2019) concluded that vegetation types S1, S2 and S3 have the potential to represent the Clay Pans of the Swan Coastal Plain TEC; W3 the potential to represent Coymbia calophylla –

Xanthorrhoea preissii woodlands and shrubland of the Swan Coastal Plain; and W6 the potential to representing Banksia Dominated Woodlands of the Swan Coastal Plain ecological community , however due to the size of the patch (less than 0.5 ha) and its degraded nature it is considered unlikely.

The targeted spring survey within Mundijong road (Ecological, 2019) found that statistical analyses were inconclusive about the relationship of vegetation within the survey area to the Clay Plans of the Swan Coastal Plain TEC mapped within and in proximity to the survey area. This was due to the degraded condition of the vegetation and high weed prevalence, leading to erroneous statistical outcomes.

A qualitative assessment of landform and structural characteristics suggested some similarities to conservation significant vegetation. Specifically, S1 and S2 indicated a degree of affiliation with FCT8 – Herb rich shrublands in clay pans (component of broader Clay Pans of the Swan Coastal Plain TEC), as they both comprised several typical/key flora species in each stratum and occur on comparable soil/landform.

Ecological (2019) determined via FCT analysis that vegetation representing Coymbia calophylla – Xanthorrhoea preissii woodlands and shrubland of the Swan Coastal Plain (FCT3c) was more closely associated with Corymbia calophylla – Kingia australis woodlands on heavy soils, Swan Coastal Plain – FCT3a. It was also confirmed through FCT analysis that no Banksia Dominated Woodlands of the Swan Coastal Plain TEC is present with the DE at Mundijong Road. Further studies have been engaged to determine if these TEC's are present.

The proposal DE has been mapped as the Southern River Complex and Guildford Complex. The remaining pre-European extent of the Southern River Complex is 18.42% (GoWA 2018), which is above the 10% target for retention of vegetation complexes within constrained areas of the Swan Coastal Plain (EPA 2000). The Guildford Complex has only 5% of the pre-European extent remaining.

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

The gradient within the Proposal DE ranges from approximately 14 metres Australian height datum (mAHD) to 24 mAHD.

The Proposal may result in some localised changes to the existing gradient of the DE to facilitate the creation of new road infrastructure, including road embankments.

3.7 Describe the current condition of the environment relevant to the project area

The majority of the DE is cleared (82%) with the remainder of the DE containing remnant and rehabilitated vegetation comprising native and exotic species, as outlined in Section 3. The DE is substantially covered by cleared freehold land, with the Proposed Action involving expansion of existing infrastructure which currently ends at Thomas Road.

Vegetation condition within the DE was assessed as part of the Level 1 Flora and Vegetation Survey (Woodman 2019) in accordance with the Keighery Scale (1994) and ranges from 'Very Good' to 'Degraded'. Cleared and 'Degraded' areas constitute 210 ha and 39 ha of the DE respectively, which combined represents 97% of the DE. Approximately 2 % of the DE comprises vegetation in 'Good' or 'Very Good' condition. Vegetation condition within the DE is shown in Figure 3.

The Ecological (2019) report, highlighted that within the section of Mundijong Road surveyed, almost one third of the total flora taxa recorded were weeds. Three species including Asparagus asparagoides, Gomphocarpus fruticosus, and Moraea flaccida are Declared Pests listed under the Biosecurity and Agriculture Management Act 2007. Asparagus asparagoides is also listed by the Australian Government as a Weed of National Significance.

3.8 Describe any Commonwealth Heritage places or other places recognised as having heritage values relevant to the project

There are no Commonwealth or State listed Heritage Places within 1 km of the Proposal DE.

3.9 Describe any Indigenous heritage values relevant to the project area

The Proposed Action impacts five registered Aboriginal Heritage sites under the West Australian Aboriginal Heritage Act 1972(site ID 488, 449, 450. 18187 and 18188). As such, a Section 18 consent to disturb an Aboriginal Heritage site/s will be required.

Eight 'Other Heritage Places' (OHPs) is mapped within the DE (Place ID 24991, 16108, 18189 and 17923). Information has been received for the remaining four 'Other Heritage Places' (Place ID 23919, 32616, 37117 and 32617) however these have not yet been assessed to determine if they meet the definition of an Aboriginal Heritage site, under the Aboriginal Heritage Act 1972.

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area

The DE covers numerous parcels of land. The DE is predominantly located within designated road reserves zoned Primary Regional Roads under the Metropolitan Region Scheme (MRS). Additional land tenures are freehold land generally in private ownership (still within areas zoned Primary Regional Roads under the MRS).

Main Roads will undertake consultation with any affected land holders and will acquire all land required for the proposed action prior to commencement of the action through negotiated settlement, or in accordance with powers under the Planning and Development Act 2005.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

3.11 Describe any existing or any proposed uses relevant to the project area

The Proposed Action is located within the designated road reserves zoned Primary Regional Roads under the MRS for future Tonkin Highway extension, however existing land uses within the DE currently consist of grazing and farmland.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 4

Measures to avoid or reduce impacts

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action

The DE represents the maximum extent of disturbance for the Proposed Action. Where possible, vegetation and fauna habitat will be retained during detailed design and construction. The DE will be further refined during design with particular focus on examining opportunities to further reduce the footprint. Options such as steepening batter slopes, reducing median widths, installation of safety barriers will be considered further during detailed design to minimise the clearing footprint. The laydown areas, stockpiles and access tracks will be constructed within existing cleared areas or within the permanent footprint of the works. Where practicable, no native vegetation will be cleared for temporary works outside of the permanent footprint.

The design of the interchange at Mundijong Road is still under consideration and may lead to a reduced impact on the significant flora along Mundijong Road. Further traffic modelling is required to determine the type of interchange required. Main Roads will continue to refine the design in this location in order to minimise the impact on TEC and threatened flora, whilst ensuring that the road design and layout is in accordance with modern safety in design standards.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved

No more than 25.1ha of Black-cockatoo foraging habitat will be cleared, as part of the works.

A total of 490 potential breeding trees occur within the referral area, of these 18 contained hollows. 10 trees contained potential breeding hollows, of which project may remove up to 7, these trees were either occupied by feral bees or supported by galahs at the time of the survey. No more than 351 potential breeding trees will be cleared as part of the proposal.

Main Roads will complete further surveys to confirm the impact to the following species:
- Synaphea sp. Serpentine
- Synaphea sp. Pinjarra Plain
- Tetraria australiensis

Main Roads will complete further surveys to confirm if the project will impact the following Threatened Ecological Communities:
- Corymbia calophylla – Kingia australis woodlands on heavy soils, Swan Coastal Plain – FCT3a
- Clay Pans of the Swan Coastal Plain

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 5

Conclusion on the likelihood of significant impacts

5.1 You indicated the below ticked items to be of significant impact and therefore you consider the action to be a controlled action

- ☐ World Heritage properties
- ☐ National Heritage places
- ☐ Wetlands of international importance (declared Ramsar wetlands)
- ☑ Listed threatened species or any threatened ecological community
- ☐ Listed migratory species
- ☐ Marine environment outside Commonwealth marine areas
- ☐ Protection of the environment from actions involving Commonwealth land
- ☐ Great Barrier Reef Marine Park
- ☐ A water resource, in relation to coal seam gas development and large coal mining development
- ☐ Protection of the environment from nuclear actions
- ☐ Protection of the environment from Commonwealth actions
- ☐ Commonwealth Heritage places overseas
- ☐ Commonwealth marine areas

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action

Not applicable

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 6

Environmental record of the person proposing to take the action

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Explain in further detail

Main Roads is a State Government agency with an assured record of responsible environmental management and performance.

Main Roads has a strong environmental compliance record, with Main Roads remaining in compliance with all conditions of environmental approvals granted under the Environment Protection and Biodiversity Conservation Act 1999 (C'th) and the Environmental Protection Act 1986 (WA).

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application

Main Roads is not subject to any past or present proceedings under Commonwealth or State law for protection of the environment or conservation and sustainable use of natural resources.

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

☑ Yes ☐ No

6.3.1 If the person taking the action is a corporation, provide details of the corporation's environmental policy and planning framework

Main Roads will undertake the Proposal in accordance with their Environmental Policy and EMS.

Main Roads' EMS is independently certified and covers all of their processes and activities that have the potential to impact on the environment. The EMS ensures compliance with Main Roads' environment and heritage compliance obligations, providing the framework for driving environmental requirements throughout leadership, planning, support, operation, performance evaluation and improvement actions. The Proposal, therefore, will be undertaken, monitored and measured in accordance with the Main Roads EMS. Main Roads Environmental Policy commits to protecting and enhancing the natural environmental and social values in all Main Roads activities.

Main Roads Environment Policy and EMS certificate is publicly accessible from: https://www.mainroads.wa.gov.au/OurRoads/Environment/Pages/environmentalmanagement.aspx

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

☑ Yes ☐ No

6.4.1 EPBC Act No and/or Name of Proposal

Main Roads Western Australia has referred approximately 90 projects under the EPBC Act since 2000. This includes the following projects:

- EPBC 2019 8545: Tonkin Highway Upgrade, Guildford Road to Great Eastern Highway(decision pending)
- EPBC 2019/8529: Tonkin Highway Grade Separated Interchanges (Controlled Action)
- EPBC 2019/8471: Bunbury Outer Ring Road Northern and Central Section Project(decision pending)
- EPBC 2018/8367: Mitchell Freeway Extension and Wanneroo Road Upgrade (decision pending)
- EPBC 2018/8346: Indian Ocean Drive Widening, Gingin Shire (Not a Controlled Action)
- EPBC 2018/8316: Roe Highway and Kalamunda Road Interchange Upgrade (Controlled Action)
- EPBC 2018/8315: High Street Upgrade, Fremantle (Not a Controlled Action)
- EPBC 2018/8284: Armadale Road to North Lake Road Bridge Development, Jandakot (Not a Controlled Action)
- EPBC 2018/8279: South Coast Highway Road Widening SLK 14.1 to 18.3, Albany (Not a Controlled Action)
- EPBC 2018/8238: Northam Cranbrook Road Widening, Katanning (Not a Controlled Action)
- EPBC 2017/8110: Wanneroo Road / Ocean Reef Road Grade Separation, Pearsall (Not a Controlled Action)
- EPBC 2017/8035: Great Northern Highway-Bindoon Bypass (Controlled Action)
- EPBC 2017/8015: Upgrading Pinjarra Williams Road (M053) 24 -40 SLK (Not a Controlled Action)
- EPBC 2017/8009: South Coast Highway Widening 8.2-14.16 SLK, Albany (Not a Controlled Action)
- EPBC 2017/7972: Armadale Road Duplication - Tapper to Anstey Road (Not a Controlled Action)
- EPBC 2017/7934: Road widening Kojonup South SLK 254.9 to SLK 266 (Controlled Action)
- EPBC 2017/7907: Albany Highway Crossman Intersection Improvements (Not a Controlled Action)
- EPBC 2017/7884: Indian Ocean Drive Passing Lanes and Widening Works, 52-258 SLK (Not a Controlled Action)
- EPBC 2017/7864: Brand Highway Widening and Passing Lanes Project 34.83-164.3 SLK (Controlled Action)
- EPBC 2016/7811: South Western Highway Upgrade, Padbury Hill Stage 2 SLK 219.45-221.00, Balingup (Not a Controlled Action)

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

- EPBC 2016/7777: South Coast Highway Cheynes East Intersection Upgrade and Realignment (Not a Controlled Action)
- EPBC 2016/7762: Upgrade a section of Albany Highway, Harold Road passing lane (Not a Controlled Action)
- EPBC 2016/7761: Great Northern Highway Muchea to Wubin Upgrade Stage 2, Walebing to Wubin (Controlled Action)
- EPBC 2016/7757: Bowelling curves realignment- Collie Lake King Road 64.76-69.84 SLK (Controlled Action)
- EPBC 2016/7743: Arthur River Road Upgrade (Not a Controlled Action)
- EPBC 2016/7740: Brand Highway road formation and seal widening 51.2-77.5 SLK (Not a Controlled Action)
- EPBC 2016/7732: Ellenbrook Bus Rapid Transit Project (Not a Controlled Action)
- EPBC 2016/7714: Northam to Cranbrook Road Widening 325.9 - 347.4 SLK (Controlled Action)
- EPBC 2016/7698: Maintenance Zone Establishment - Toodyay Goomalling Road, Williams Narrogin Highway and Pinjarra Williams Road, Wheatbelt Region (Controlled Action)
- EPBC 2016/7665: Toodyay Road Widening and Upgrade Project (Controlled Action)
- EPBC 2016/7664: Narrogin Link Road Stage 3 - North Extension (Not a Controlled Action)
- EPBC 2016/7656: Great Northern Highway Muchea to Wubin Upgrade Stage 2 - Muchea North (Controlled Action)

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 7

Information sources

Reference source

Beard, J. S. 1990. Plant life of Western Australia. Kangaroo Press, Perth.

Reliability

Reliable

Uncertainties

None

Reference source

Bureau of Rural Science. 1991. Digital Atlas of Australian Soils. GIS data layer.

Reliability

Reliable

Uncertainties

None

Reference source

Department of Environment and Conservation (DEC) 2011. Interim Recovery Plan 2011-2016 for Corymbia calophylla - Kingia australis woodlands on heavy soil, Swan Coastal Plain. Interim Recovery Plan No. 315. Department of Environment and Conservation, Perth.

Reliability

Reliable

Uncertainties

None

Reference source

Department of the Environment (DoE). 2013. Matters of National Environmental Significance Significant impact guidelines 1.1 – Environment Protection and Biodiversity Conservation Act 1999. Commonwealth of Australia.

Reliability

Reliable

Uncertainties

None

Reference source

Department of the Environment (2019). Synaphea sp. Serpentine (G.R. Brand 103) in Species Profile and Threats Database, Department of the Environment, Canberra. Available from: http://www.environment.gov.au/sprat. Accessed Mon, 25 Nov 2019

Reliability

Reliable

Uncertainties

None

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Reference source

Department of the Environment (2019). Synaphea sp. Pinjarra Plain (A.S. George 17182) in Species Profile and Threats Database, Department of the Environment, Canberra. Available from: http://www.environment.gov.au/sprat. Accessed Tue, 26 Nov 2019

Reliability

Reliable

Uncertainties

None

Reference source

Department of the Environment (2019). Corymbia calophylla - Kingia australis woodlands on heavy soils of the Swan Coastal Plain in Community and Species Profile and Threats Database, Department of the Environment, Canberra. Available from: http://www.environment.gov.au/sprat. Accessed 2019-11-26

Reliability

Reliable

Uncertainties

None

Reference source

Department of the Environment and Energy (DoEE). 2019a Australia's bioregions (IBRA). Available from: https://www.environment.gov.au/land/nrs/science/ibra.

Reliability

Reliable

Uncertainties

None

Reference source

Department of the Environment and Energy (DoEE). 2019b EPBC Act Protected Matters Search Tool (PMST). Available from: http://www.environment.gov.au/epbc/pmst/index.html. Accessed May 2019.

Reliability

Reliable

Uncertainties

None

Reference source

Department of the Environment, Water, Heritage and the Arts, 2008, Approved Conservation Advice for Tetraria australiensis (Southern Tetraria). Canberra: Department of the Environment, Water, Heritage and the Arts. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/10137-conservation-advice.pdf. Accessed November 2019.

Reliability

Reliable

Uncertainties

None

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Reference source

Department of Parks and Wildlife 2015. Clay pans of the Swan Coastal Plain (Community types 7, 8, 9 and 10a - Gibson et al. 1994 and Clay pans with mid dense shrublands of Melaleuca lateritia over herbs) 2015-2020. Interim Recovery Plan No. 354. Perth. Available from: https://www.dpaw.wa.gov.au/images/documents/plants-animals/threatened-species/recovery_plans/Approved_interim_recovery_plans_/communities/claypans_of_the_swan_coastal_plain.pdf. Accessed November 2019.

Reliability

Reliable

Uncertainties

None

Reference source

Department of Parks and Wildlife 2016 Synaphea sp. Pinjarra Plain (A.S. George 17182) Interim Recovery Plan 2016–2021. Interim Recovery Plan No. 363. Department of Parks and Wildlife, Western Australia.

Reliability

Reliable

Uncertainties

None

Reference source

Department of Parks and Wildlife 2017, Serpentine Synaphea (Synaphea sp. Serpentine (G.R. Brand 103)) Interim Recovery Plan 2017–2022. Interim Recovery Plan No. 380. Department of Parks and Wildlife, Western Australia.

Reliability

Reliable

Uncertainties

None

Reference source

Department of Sustainability, Environment, Water, Population and Communities (DSEWPC). 2011. Map 1: Modelled distribution of Baudin's black cockatoo (Calyptorhynchus baudinii). Available at: http://www.environment.gov.au/system/files/resources/895d4094-af63- 4dd3-8dff-ad2b9b943312/files/referral-guidelines-wa-black-cockatoo-map- 1.pdf.

Reliability

Reliable

Uncertainties

None

Reference source

Eco Logical Australia, 2019, Mundijong Road Spring Flora Survey. Prepared for Main Roads Western Australia, April 2019.

Reliability

Reliable

Uncertainties

None

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Reference source

Environmental Protection Authority (EPA). 2000. Environmental Protection of Native Vegetation in Western Australia: Clearing of Native Vegetation, with particular reference to the Agricultural Area. Position Statement No. 2. December 2000.

Reliability

Reliable

Uncertainties

None

Reference source

Geological Survey of Western Australia and Geoscience Australia. 2008. Surface Geology of Australia 1:1,000,000 Western Australia. GIS data layer.

Reliability

Relaible

Uncertainties

None

Reference source

Government of Western Australia (GoWA). 2018. 2017 South West Vegetation Complex Statistics. Current as of October 2017. WA Department of Biodiversity, Conservation and Attractions, Perth. https://catalogue.data.wa.gov.au/dataset/dbca.

Reliability

Reliable

Uncertainties

None

Reference source

Heddle, E. M., O. W. Loneragan and J. J. Havel. 1980. Vegetation complexes of the Darling System in: Atlas of Natural Resources: Darling System, Western Australia. Department of Conservation and Environment, Perth.

Reliability

Reliable

Uncertainties

None

Reference source

Johnstone, R. E., Kirkby, T., and Sarti, K. 2013. The breeding biology of the Forest Red-tailed Black Cockatoo Calyptorhynchus banksii naso Gould in south-western Australia. I. Characteristics of nest trees and nest hollows'. Pacific Conservation Biology 19, 121-142.

Reliability

Reliable

Uncertainties

None

Reference source

Keighery B. J. 1994. Bushland Plant Survey - A Guide to Plant Community Survey for the Community Nedlands, Western Australia, Wildflower Society of WA (Inc).

Reliability

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Reliable

Uncertainties

None

Reference source

Kirkby, T, 2019. Black Cockatoo Breeding, Feeding and Roosting Habitat Assessment, Tonkin Highway Extension. Prepared for Main Roads Western Australia.

Reliability

Reliable

Uncertainties

None

Reference source

Threatened Species Scientific Committee 2018a. Conservation Advice Synaphea sp. Serpentine (G.R. Brand 103). Canberra: Department of the Environment and Energy. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/86879-conservation-advice-15022018.pdf.

Reliability

Reliable

Uncertainties

None

Reference source

Threatened Species Scientific Committee 2018b. Conservation Advice Synaphea sp. Pinjarra Plain (A.S. George 17182). Canberra: Department of the Environment and Energy. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/86878-conservation-advice-15022018.pdf.

Reliability

Reliable

Uncertainties

None

Reference source

Woodman Environmental, 2019, Tonkin Highway Extension (Thomas Road to South Western Highway), Reconnaissance Flora and Vegetation Survey. Prepared for Main Roads Western Australia, October 2019.

Reliability

Reliable

Uncertainties

None

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 8

Proposed alternatives

Do you have any feasible alternatives to taking the proposed action?

Yes ☑ No

Appendix A Attachments

The following attachments have been supplied with this supplied with this EPBC Act Referral:

1. Appendix 1 Proposed Action Location Lot information
2. Figure 1 Site Location
3. Figure 2 Vegetation Association
4. Figure 3 Vegetation Condition
5. Figure 4 Threatened Flora and Ecological Communities
6. Figure 5 Black Cockatoo Trees
7. Figure 6 Black Cockatoo Trees with Hollows
8. Figure 7 Black Cockatoo Foraging Habitat
9. Figure 8 Regional Black Cockatoo Habitat
10. Figure 9 Wetlands and Watercourses
11. Tonkin Extension Mundijong Spring Flora Survey
12. Tonkin Highway Extension Ministerial Statement 595
13. Tonkin Hwy Cockatoo Assessment
14. Tonkin Highway Extension Reconnaissance Flora Survey_