



Referral of proposed action

What is a referral?

The *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) provides for the protection of the environment, especially matters of national environmental significance (NES). Under the EPBC Act, a person must not take an action that has, will have, or is likely to have a significant impact on any of the matters of NES without approval from the Australian Government Environment Minister or the Minister's delegate. (Further references to 'the Minister' in this form include references to the Minister's delegate.) To obtain approval from the Environment Minister, a proposed action should be referred. The purpose of a referral is to obtain a decision on whether your proposed action will need formal assessment and approval under the EPBC Act.

Your referral will be the principal basis for the Minister's decision as to whether approval is necessary and, if so, the type of assessment that will be undertaken. These decisions are made within 20 business days, provided sufficient information is provided in the referral.

Who can make a referral?

Referrals may be made by or on behalf of a person proposing to take an action, the Commonwealth or a Commonwealth agency, a state or territory government, or agency, provided that the relevant government or agency has administrative responsibilities relating to the action.

When do I need to make a referral?

A referral must be made for actions that are likely to have a significant impact on the following matters protected by Part 3 of the EPBC Act:

- World Heritage properties (sections 12 and 15A)
- National Heritage places (sections 15B and 15C)
- Wetlands of international importance (sections 16 and 17B)
- Listed threatened species and communities (sections 18 and 18A)
- Listed migratory species (sections 20 and 20A)
- Protection of the environment from nuclear actions (sections 21 and 22A)
- Commonwealth marine environment (sections 23 and 24A)
- Great Barrier Reef Marine Park (sections 24B and 24C)
- A water resource, in relation to coal seam gas development and large coal mining development (sections 24D and 24E)
- The environment, if the action involves Commonwealth land (sections 26 and 27A), including:
 - actions that are likely to have a significant impact on the environment of Commonwealth land (even if taken outside Commonwealth land);
 - actions taken on Commonwealth land that may have a significant impact on the environment generally;
- The environment, if the action is taken by the Commonwealth (section 28)
- Commonwealth Heritage places outside the Australian jurisdiction (sections 27B and 27C)

You may still make a referral if you believe your action is not going to have a significant impact, or if you are unsure. This will provide a greater level of certainty that Commonwealth assessment requirements have been met.

To help you decide whether or not your proposed action requires approval (and therefore, if you should make a referral), the following guidance is available from the Department's website:

- the Policy Statement titled Significant Impact Guidelines 1.1 – Matters of National Environmental Significance. Additional sectoral guidelines are also available.

- the Policy Statement titled Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies.
- the Policy Statement titled Significant Impact Guidelines: Coal seam gas and large coal mining developments—Impacts on water resources.
- the interactive map tool (enter a location to obtain a report on what matters of NES may occur in that location).

Can I refer part of a larger action?

In certain circumstances, **the Minister may not accept a referral for an action that is a component of a larger action and may request the person proposing to take the action to refer the larger action for consideration under the EPBC Act (Section 74A, EPBC Act)**. If you wish to make a referral for a staged or component referral, read 'Fact Sheet 6 Staged Developments/Split Referrals' and contact the Referrals Gateway (1800 803 772).

Do I need a permit?

Some activities may also require a permit under other sections of the EPBC Act or another law of the Commonwealth. Information is available on the Department's web site.

Is your action in the Great Barrier Reef Marine Park?

If your action is in the Great Barrier Reef Marine Park it may require permission under the *Great Barrier Reef Marine Park Act 1975* (GBRMP Act). If a permission is required, referral of the action under the EPBC Act is deemed to be an application under the GBRMP Act (see section 37AB, GBRMP Act). This referral will be forwarded to the Great Barrier Reef Marine Park Authority (the Authority) for the Authority to commence its permit processes as required under the Great Barrier Reef Marine Park Regulations 1983. If a permission is not required under the GBRMP Act, no approval under the EPBC Act is required (see section 43, EPBC Act). The Authority can provide advice on relevant permission requirements applying to activities in the Marine Park.

The Authority is responsible for assessing applications for permissions under the GBRMP Act, GBRMP Regulations and Zoning Plan. Where assessment and approval is also required under the EPBC Act, a single integrated assessment for the purposes of both Acts will apply in most cases. Further information on environmental approval requirements applying to actions in the Great Barrier Reef Marine Park is available from <http://www.gbrmpa.gov.au/> or by contacting GBRMPA's Environmental Assessment and Management Section on (07) 4750 0700.

The Authority may require a permit application assessment fee to be paid in relation to the assessment of applications for permissions required under the GBRMP Act, even if the permission is made as a referral under the EPBC Act. Further information on this is available from the Authority:

Great Barrier Reef Marine Park Authority

2-68 Flinders Street PO Box 1379

Townsville QLD 4810

AUSTRALIA

Phone: + 61 7 4750 0700

Fax: + 61 7 4772 6093

www.gbrmpa.gov.au

What information do I need to provide?

Completing all parts of this form will ensure that you submit the required information and will also assist the Department to process your referral efficiently. If a section of the referral document is not applicable to your proposal enter N/A.

You can complete your referral by entering your information into this Word file.

Instructions

Instructions are provided in blue text throughout the form.

Attachments/supporting information

The referral form should contain sufficient information to provide an adequate basis for a decision on the likely impacts of the proposed action. You should also provide supporting documentation, such as environmental reports or surveys, as attachments.

Coloured maps, figures or photographs to help explain the project and its location should also be submitted with your referral. Aerial photographs, in particular, can provide a useful perspective and context. Figures should be good quality as they may be scanned and viewed electronically as black and white documents. Maps should be of a scale that clearly shows the location of the proposed action and any environmental aspects of interest.

Please ensure any attachments are below three megabytes (3mb) as they will be published on the Department's website for public comment. To minimise file size, enclose maps and figures as separate files if necessary. If unsure, contact the Referrals Gateway (email address below) for advice. Attachments larger than three megabytes (3mb) may delay processing of your referral.

Note: the Minister may decide not to publish information that the Minister is satisfied is commercial-in-confidence.

How do I pay for my referral?

From 1 October 2014 the Australian Government commenced cost recovery arrangements for environmental assessments and some strategic assessments under the EPBC Act. If an action is referred on or after 1 October 2014, then cost recovery will apply to both the referral and any assessment activities undertaken. Further information regarding cost recovery can be found on the [Department's website](#).

Payment of the referral fee can be made using one of the following methods:

- **EFT Payments can be made to:**

BSB: 092-009
Bank Account No. 115859
Amount: \$7352
Account Name: Department of the Environment.
Bank: Reserve Bank of Australia
Bank Address: 20-22 London Circuit Canberra ACT 2601
Description: The reference number provided (see note below)

- **Cheque** - Payable to "Department of the Environment". Include the reference number provided (see note below), and if posted, address:

The Referrals Gateway
Environment Assessment Branch
Department of the Environment
GPO Box 787
Canberra ACT 2601

- **Credit Card**

Please contact the Collector of Public Money (CPM) directly (call (02) 6274 2930 or 6274 20260 and provide the reference number (see note below).

Note: in order to receive a reference number, submit your referral and the Referrals Gateway will email you the reference number.

How do I submit a referral?

Referrals may be submitted by mail or email.

Mail to:

Referrals Gateway
Environment Assessment Branch
Department of Environment
GPO Box 787
CANBERRA ACT 2601

- If submitting via mail, electronic copies of documentation (on CD/DVD or by email) are required.

Email to: epbc.referrals@environment.gov.au

- Clearly mark the email as a 'Referral under the EPBC Act'.
- Attach the referral as a Microsoft Word file and, if possible, a PDF file.
- **Follow up with a mailed hardcopy including copies of any attachments or supporting reports.**

What happens next?

Following receipt of a valid referral (containing all required information) you will be advised of the next steps in the process, and the referral and attachments will be published on the Department's web site for public comment.

The Department will write to you within 20 business days to advise you of the outcome of your referral and whether or not formal assessment and approval under the EPBC Act is required. There are a number of possible decisions regarding your referral:

The proposed action is NOT LIKELY to have a significant impact and does NOT NEED approval

No further consideration is required under the environmental assessment provisions of the EPBC Act and the action can proceed (subject to any other Commonwealth, state or local government requirements).

The proposed action is NOT LIKELY to have a significant impact IF undertaken in a particular manner

The action can proceed if undertaken in a particular manner (subject to any other Commonwealth, state or local government requirements). The particular manner in which you must carry out the action will be identified as part of the final decision. You must report your compliance with the particular manner to the Department.

The proposed action is LIKELY to have a significant impact and does NEED approval

If the action is likely to have a significant impact a decision will be made that it is a *controlled action*. The particular matters upon which the action may have a significant impact (such as World Heritage values or threatened species) are known as the *controlling provisions*.

The controlled action is subject to a public assessment process before a final decision can be made about whether to approve it. The assessment approach will usually be decided at the same time as the controlled action decision. (Further information about the levels of assessment and basis for deciding the approach are available on the Department's web site.)

The proposed action would have UNACCEPTABLE impacts and CANNOT proceed

The Minister may decide, on the basis of the information in the referral, that a referred action would have clearly unacceptable impacts on a protected matter and cannot proceed.

Compliance audits

If a decision is made to approve a project, the Department may audit it at any time to ensure that it is completed in accordance with the approval decision or the information provided in the referral. If the project changes, such that the likelihood of significant impacts could vary, you should write to the Department to advise of the changes. If your project is in the Great Barrier Reef Marine Park and a decision is made to approve it, the Authority may also audit it. (See "*Is your action in the Great Barrier Reef Marine Park*," p.2, for more details).

For more information

- call the Department of the Environment Community Information Unit on 1800 803 772 or
- visit the web site <http://www.environment.gov.au/topics/about-us/legislation/environment-protection-and-biodiversity-conservation-act-1999>

All the information you need to make a referral, including documents referenced in this form, can be accessed from the above web site.

Referral of proposed action

Project title:

Great Northern Highway: Muchea to Wubin Upgrade Stage 2 – Muchea North (Old Gingin Road to Chittering Roadhouse)

1 Summary of proposed action

1.1 Short description

Main Roads Western Australia (Main Roads) proposes to upgrade, rebuild and relocate the section of Great Northern Highway (GNH) between SLK 38.6 to SLK 51.4 (Old Gingin Road to Chittering Roadhouse), approximately 63 km north east of Perth.

1.2 Latitude and longitude

Latitude

Longitude

Latitude			Longitude		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
31°	33'	56.33005"	115°	58'	59.60151"
31°	33'	19.68634"	115°	59'	23.95647"
31°	32'	24.09014"	116°	0'	4.23011"
31°	31'	39.68139"	116°	1'	24.5606"
31°	31'	1.23217"	116°	1'	57.4869"
31°	29'	28.45094"	116°	2'	20.07884"
31°	28'	31.81324"	116°	2'	24.10283"
31°	27'	36.62293"	116°	2'	58.83609"
31°	27'	48.34487"	116°	3'	24.19269"
31°	28'	39.19178"	116°	2'	52.06742"
31°	29'	54.68568"	116°	2'	34.85446"
31°	29'	52.03479"	116°	2'	48.12004"
31°	29'	56.73422"	116°	2'	58.90012"
31°	31'	14.76274"	116°	2'	9.76827"
31°	31'	49.6251"	116°	1'	46.88044"
31°	33'	23.57809"	115°	59'	45.13116"
31°	33'	40.88458"	115°	59'	38.52273"
31°	34'	13.59092"	115°	59'	36.9274"

1.3 Locality and property description

The proposed action is located within the Shire of Chittering approximately 63 km north of Perth in Western Australia (WA). The proposed action will be constructed between SLK 38.6 and SLK 51.4.

1.4 Size of the development footprint or work area (hectares)

Approval Boundary - 312 ha
Development footprint – 89 ha within the Approval Boundary, of which 39.8 ha is native vegetation, 7 ha is planted vegetation, and 42.4 ha is pasture/paddock, cleared land or road.

1.5 Street address of the site

Great Northern Highway

1.6 **Lot description**

The proposed action is within the existing GNH road reserve, local road reserves managed by the Shire of Chittering, and the following land parcels:

- Lot M1157 on Diagram 05050
- Lot M 1264 on Diagram 05369
- Lot 3 on Diagram 25291
- Lot 850 on Plan 42736
- Lot 500 on Plan 63597
- Lot 5 on Diagram 36593
- Lot 22 on Diagram 76077
- Lot 11141 on Plan 188697
- Lot 101 on Plan 401347
- Lot 22 on Plan 59350
- Lot 105 on Plan 42252
- Lot 77 on Plan 43751
- Lot 302 on Diagram 96028
- Lot 301 on Diagram 96028
- Lot 81 on Diagram 96040
- Lot 80 on Diagram 96040
- Lot 13 on Plan 13680
- Lot 12 on Plan 13680
- Lot 7 on Diagram 42945
- Lot 9 on Diagram 25711
- Lot M 1920 on Diagram 12777
- Lot 1 on Diagram 25838
- Lot 6 on Diagram 53408
- Lot M 1909 on Diagram 11298
- Lot 83 on Plan 28306
- Lot 9500 on Plan 50560
- Lot 16 on Plan 59609
- Lot M 1957 on Diagram 13411
- Lot 17 on Plan 59610
- Lot 18 on Plan 59611
- Lot 1 on Diagram 19198
- Lot 510 on Plan 43861

An 80 m wide road reserve will be acquired by Main Roads to account for future upgrades to the carriageway. Local access roads, side roads, driveways and some relocated services will be outside of the GNH road reserve with ownership a combination of Shire managed road reserve and private (freehold) land.

1.7 **Local Government Area and Council contact (if known)**

The Proposed action is located within the Shire of Chittering.

1.8 **Time frame**

Construction is proposed to begin in late 2016 and be completed by late 2019.

1.9	Alternatives to proposed action		No
		X	Yes, you must also complete section 2.2
1.10	Alternative time frames etc	X	No
			Yes, you must also complete Section 2.3. For each alternative, location, time frame, or activity identified, you must also complete details in Sections 1.2-1.9, 2.4-2.7 and 3.3 (where relevant).
1.11	State assessment		No
		X	Yes, you must also complete Section 2.5
1.12	Component of larger action		No
		X	Yes, you must also complete Section 2.7
1.13	Related actions/proposals		No
		X	<p>Yes, provide details:</p> <p>The proposed action is related to the following actions/proposals:</p> <ul style="list-style-type: none"> • Miling Straight (EPBC 2015/7584). A referral was submitted on 19 October 2015. It was decided on 12 November that the proposal was not a controlled action. • New Norcia Bypass (EPBC 2015/7523). A referral was submitted on 20 July 2015. It was decided on 31 August that the proposal was not a controlled action. • Upgrade and realignment the GNH between Batty Bog and Walebing (2014/7129). A referral was submitted on 10 February 2014. It was decided on 6 March 2014 that the proposal was not a controlled action. • Upgrade and realignment the GNH between Bindi Bindi and Lyons East Road (2012/6700). A referral was submitted on 2 January 2013. It was decided on 23 January 2013 that the proposal was not a controlled action.
1.14	Australian Government funding		No
		X	<p>Yes, provide details:</p> <p>The proposed action has received funding from both the State and Commonwealth governments. Federal Government funding will make up 80% of the total project funding requirements.</p>
1.15	Great Barrier Reef Marine Park	X	No
			Yes, you must also complete Section 3.1 (h), 3.2 (e)

2 Detailed description of proposed action

2.1 Description of proposed action

Main Roads has established the Great Northern Highway, Muchea to Wubin Integrated Project Team (GNH M2W Team), comprising Main Roads and industry partners Jacobs and Arup to conduct a comprehensive planning review of the full Muchea to Wubin link along the GNH. As part of the wider GNH M2W project, Main Roads proposes to upgrade and improve the section of GNH referred to as Muchea North (Old Gingin Road to Chittering Roadhouse) (Supporting Information Document Figure 1.1), located approximately 63 km north east of Perth in Western Australia (WA).

A planning review of the current GNH and feedback from community consultation has identified a number of deficiencies along the Muchea North (Old Gingin Road to Chittering Roadhouse). These deficiencies include:

- Narrow and substandard road width. The original GNH was constructed with a 8m wide seal on a 10 m formation. Current Main Roads standards require at least a 9m seal on an 11m formation;
- Areas with non-compliant horizontal and vertical geometry. To allow vehicle speeds of 110 km/h (100 km/h for heavy vehicles), these geometry issues require rectification;
- A number of intersections with poor sight distance or inadequate turning provisions; and
- Insufficient clear zone.

Due to the age and condition of the current GNH, and to minimise the environmental impact of the upgrade, the proposed action will largely involve the construction of a new road adjacent to the existing road. The proposed alignment is predominantly to the east of the existing GNH, with a small section between approximately SLK 48.2 to SLK 50.4 constructed to the west of the existing GNH.

A detailed description of the works to be undertaken along Muchea North (Old Gingin Road to Chittering Roadhouse) is provided in Section 2 of the Supporting Information Document.

2.2 Alternatives to taking the proposed action

The following alternatives were considered in relation to the proposed action:

- Do nothing: No works undertaken to upgrade the existing GNH;
- Upgrade on the existing alignment;
- Construction of new carriageway adjacent to the existing GNH (the proposed action).

The upgrade to the Muchea North (Old Gingin Road to Chittering Roadhouse) section is seen as a critical component of the overall upgrade strategy. Not undertaking the proposed action would limit growth of the Bindoon - Chittering area as the existing road becomes increasingly unable to meet the projected traffic demand, the road surface and underlying formation continue to degrade resulting in increased safety concerns, and limits the ability of 53.5 m long vehicles and others (including OSOMs) to travel safely past Wubin to Muchea and vice versa. As such, not undertaking the proposed action was not considered a viable alternative.

Upgrading of the existing GNH was considered as part of the design review process, however the offline option was identified as the most favourable in the majority of scenarios as it reduces the potential impact to current road users during the upgrade works, and allows for rectification of horizontal and vertical geometry issues, and avoidance of black cockatoo habitat and locations of a number of Priority flora species.

Once offline construction was identified as the preferred option, the next decision was whether the offline alignment would be built to the east or west of the existing alignment. Offline realignment to the east was deemed the most suitable general approach due to having a lesser impact on environment (reserves, flora, fauna, waterways) and the number of properties impacted. It also has the best constructability outcome due to being offline and having fewer property entrances to maintain relative to the west side.

An alternative alignment for the entire GNH between Muchea and Bindoon was also assessed, though at a later date than the original options assessment for the Muchea North (Old Gingin Road and Chittering Roadhouse) section. Alternative alignments considered were:

- The previously endorsed route for the Perth to Darwin National Highway (PDNH) to the west of Bindoon;
- Upgrading Brand Highway for 53.3 m long vehicles from Muchea and construction of a new road to link to the existing GNH by:
 - approximately following Mooliabeenee Rd and the PDNH route; or
 - leaving Brand Highway at approximately Boonanarring Nature Reserve to link up with Hay Flat Road; and
- Continuing with the preferred GNH upgrade alignment identified for the Muchea North (Old Gingin Road and Chittering Roadhouse) section then realignment of the GNH to link up with the PDNH route.

The original PDNH route was rejected due to the high number of environmental sensitivities present in the southern area, between Muchea and approximately equal with Chittering Roadhouse. This included Threatened Ecological Communities,

Conservation Estate and land purchased by Main Roads as an environmental offset for another project. Upgrading the Brand Highway with a new road link to the GNH was also rejected, largely due to the longer travel time created by these options and impacts to Boonanarring Nature Reserve for the northern link. This left continuing along the GNH to Chittering Roadhouse as the preferred option.

2.3 Alternative locations, time frames or activities that form part of the referred action

No alternative locations, timeframes or activities form part of this referral.

2.4 Context, planning framework and state/local government requirements

The proposed action will be subject to the regulatory framework outlined below:

- *Environmental Protection Act 1986* (WA)
- *Environmental Protection (Noise) Regulations 1997* (WA)
- *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (WA)
- *Aboriginal Heritage Act 1972* (WA)
- *Heritage of WA Act 1990* (WA)
- *Rights in Water and Irrigation Act 1914* (WA)
- *Wildlife Conservation Act 1950* (WA); and
- *Environmental Protection and Biodiversity Conservation Act 1999* (Cth).

The proposed action will require the following approvals and permits:

- Clearing for the proposed action will be managed under the State Native Vegetation Clearing Permit (NVCP) under Part V of the *Environmental Protection Act 1989* (WA) (EP Act).
- Works associated with the upgrade of the intersection of Reserve Road will require a permit under Section 17 of the *Rights in Water and Irrigation Act 1914* to allow for disturbance of Rocky Creek.
- Approval under Section 18 of the *Aboriginal Heritage Act 1972* will be required for works within the boundary of the Chandala Brook site.

2.5 Environmental impact assessments under Commonwealth, state or territory legislation

The EP Act requires all proposals that are likely to have a significant impact on the environment be assessed by the Environmental Protection Authority (EPA) to determine whether the proposal can be managed to meet the EPA's environmental objectives and whether conditions should be placed on a proponent to provide an added level of certainty that appropriate environmental management will be undertaken.

A Preliminary Environmental Impact Assessment (PEIA) was undertaken for the Muchea North (WP01) and Chittering (WP02) which assessed the proposed alignment against publically available environmental and heritage information, together with the results of ecological surveys undertaken specifically for the project. This PEIA determined that there were unlikely to be any significant impacts to the environment and that assessment by the EPA was not required. This was confirmed during a meeting with the Office of the EPA (OEPA) on 19 May 2015, at which it was agreed that approval under Part V of the EP Act, via the Native Vegetation Clearing provisions, was the appropriate approval pathway for the project.

Approval of the works associated with upgrading Muchea North (Old Gingin Road to Chittering Roadhouse) under Part V of the EP Act will be through an application for a Purpose Permit to clear native vegetation. This application will be submitted to the Western Australian Department of Environment Regulation (DER) and will include a detailed impact assessment in relation to flora, vegetation and fauna habitat values as well as an assessment of the clearing for the proposed action against the Clearing Principles under Schedule 5 of the EP Act.

Where an action is likely to have a significant impact on Matters of National Environmental Significance (MNES) it is required to be referred to the Department of the Environment (DoE) under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) for approval. The proposed action may impact on Carnaby's Black Cockatoo (listed as Endangered under the EPBC Act) and as such has been referred to DoE to determine if the proposed action is a Controlled Action (this document). If it is determined that the action is a Controlled Action, it is proposed that assessment will be undertaken under the provisions of the bilateral agreement via an application to the DER for a Purpose Permit to clear native vegetation.

2.6 Public consultation (including with Indigenous stakeholders)

From the commencement of alignment studies associated with the proposed action, consultation has been undertaken with various parties including:

- The Shire of Chittering;

- Ellen Brockman Integrated Catchment Group;
- Chittering Landcare Group;
- OEPA;
- DoE;
- DER;
- Muchea community;
- Landowners;
- Department of Aboriginal Affairs (DAA); and
- Traditional Owners (TOs) of the Whadjuk People and Yued Noongar dialect groups. These TOs were present during the Aboriginal heritage surveys.

Further consultation will take place as the proposed action progresses.

2.7 A staged development or component of a larger project

This proposed action forms part of the larger Main Roads GNH Muchea to Wubin Stage 2 Upgrade Project. The decision to refer Muchea North (Old Gingin Road to Chittering Roadhouse) upgrade separately to the wider GNH M2W project was taken for the following reasons:

- funding has been committed for the works related to Muchea North (Old Gingin Road to Chittering Roadhouse);
- construction is scheduled to commence in late 2016 with the tender for the construction contract advertised in mid-2016;
- road designs for the remaining alignments are yet to be completed to a sufficient detail for identification and assessment of potential impacts;
- funding has not been fully confirmed for the entire alignment between Muchea and Wubin; and
- sufficient baseline information is not available for the remainder of the alignment in order to complete a robust environmental impact assessment.

It is currently proposed that the remaining construction packages will be grouped into a single approval package. The M2W team will keep DoE apprised of developments in relation to the wider project and the approval strategy going forward.

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

3.1 (a) World Heritage Properties

Description

There are no World Heritage Properties are located adjacent to or within the area of the proposed action.

Nature and extent of likely impact

N/A

3.1 (b) National Heritage Places

Description

There are no National Heritage Places adjacent to or within the area of the proposed action.

Nature and extent of likely impact

N/A

3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)

Description

There are no Wetlands of International Importance (declared Ramsar wetlands) located in, adjacent to or downstream of the area of the proposed action.

Nature and extent of likely impact

N/A

3.1 (d) Listed threatened species and ecological communities

Description

Threatened Ecological Communities

No Threatened Ecological Communities occur within the Approval Boundary for the proposed action.

Threatened Flora

A total of 33 conservation significant flora species were identified in the desktop and literature review, of which 17 are listed as Threatened under the EPBC Act (including one Critically Endangered species, 14 Endangered species and 2 Vulnerable species). The field surveys undertaken by Phoenix (2015) recorded the presence of one flora species listed under the EPBC Act namely, *Darwinia foetida*. This species was recorded outside of the Approval Boundary.

Refer to Section 3.3 of Supporting Information document for further details on threatened flora.

Threatened Fauna

The desktop review identified 21 conservation significant fauna species (excluding migratory species) that may occur in the vicinity of the proposed action. A likelihood of occurrence assessment for these species and has been included in Table 3.5 of the Supporting Information Document.

Based on the field investigations and the likelihood assessment, Carnaby's Black Cockatoo and Forest Red-tailed Black Cockatoo were the only MNES identified as being 'Likely' to occur in the proposed action area. The Forest Red-tailed Black Cockatoo may forage and roost in Approval Boundary for the proposed action but is unlikely to breed as the proposed action is outside of the modelled distribution for this species (Phoenix, 2015; DSEWPaC, 2012). Baudin's Black Cockatoo and Western Quoll were identified as 'possibly' occurring within the Approval Boundary for the proposed action. The proposed action area is outside the known foraging and breeding range for Baudin's Black Cockatoo and suitable habitat for the Western Quoll is considered to be limited and narrow within the proposed action area (Phoenix, 2015).

Black Cockatoos

In accordance with the DoE Referral Guidelines for Three Threatened Black Cockatoo Species (DSEWPaC, 2012), a targeted Black Cockatoo assessment was conducted by Phoenix in the form of a significant tree survey. An initial fauna habitat assessment and significant black cockatoo tree assessment was undertaken on the 16 October to 4 November 2014, from SLK 37.1 to 45.7 (approximately 8.6km) within the road reserve of the Muchea North (Old Gingin Road to Chittering Roadhouse). A more comprehensive Level 1 fauna survey and complete black cockatoo tree assessment was completed in March and April 2015. A final round of field survey was undertaken from 7- 8 October 2015, which included additional areas outside of the existing road reserve not surveyed in 2014. A subsequent site assessment of significant trees (Level 1) was undertaken on 1 and 6 November 2015 with Tony Kirkby (WA Museum), to provide details with respect to breeding habitat for Black Cockatoos.

One conservation significant fauna species of Black Cockatoo, Carnaby's Black Cockatoo (*Calyptrorhynchus latirostris*), was directly recorded in the Approval Boundary for the proposed action on numerous occasions. The proposed action area is within the known breeding range for Carnaby's Black Cockatoo and suitable breeding and foraging habitat has been identified within the proposed Approval Boundary.

The Forest Red-tailed Black Cockatoo may forage and roost in Approval Boundary for the proposed action but is unlikely to breed as the proposed action is outside of the modelled distribution for this species (Phoenix, 2015; DSEWPaC, 2012). No evidence of the Forest Red-tailed Black Cockatoo, either through direct observation of individuals or presence of foraging residues, was recorded during the field surveys (Phoenix, 2015)

Approximately 92.8 ha of suitable Carnaby's Black Cockatoo habitat was mapped within the Approval Boundary by Phoenix (2015). An additional 50 ha of vegetation did not have a habitat value mapped for it, and has been assumed for the purposes of this assessment to be Carnaby's Black Cockatoo habitat. Of the habitat mapped by Phoenix in the Approval Boundary, 76 ha was classified as Quality habitat, generally due to presence of important foraging species (e.g. *Corymbia calophylla* and *Banksia* spp.) and foraging residues.

Refer to Section 3 of the Supporting Information document for further details on threatened fauna species.

Nature and extent of likely impact

Threatened Flora and Ecological Communities

No impacts are anticipated as there have been no Threatened Flora or Ecological Communities recorded within or in proximity to the Approval Boundary.

Threatened Fauna

A total of 1,168 potential breeding trees for Carnaby's Black Cockatoo were recorded within the Approval Boundary during the 2014 and 2015 surveys, of which, 21 contained hollows identified as suitable for use by Carnaby's Black Cockatoo with nine of these identified as previously used by the species (Phoenix, 2015).

Approximately 35.8 ha of suitable habitat for Carnaby's Black Cockatoo will be cleared for the proposed action, in addition to 0.56 ha of vegetation that has not been assigned a habitat value. Inspection of recent aerial photography for the wider area suggests that approximately 25,340 ha of suitable habitat occurs within 10 km of the proposed action. Based on this assessment, the area of habitat impacted by the proposed action is approximately 0.14% of the potentially suitable vegetation present within 10 km of the proposed action. The proposed action is likely to result in the removal of up to 509 potential breeding trees (generally >500mm diameter at breast height). A total of 30 known hollow bearing trees will be cleared as a result of the proposed action, of which 12 contain hollows suitable for Carnaby's Black Cockatoo. Five of these showed evidence of use by Carnaby's Black Cockatoo.

Refer to Section 4 of the Supporting Information Document for further details.

3.1 (e) Listed migratory species

Description

There is the potential for terrestrial migratory bird species such as the Fork-tailed Swift (*Apus pacificus*) and the Rainbow Bee-eater (*Merops ornatus*) to transit or forage in the area. The Cattle Egret (*Ardea ibis*) and the Glossy Ibis (*Plegadis falcinellus*) may occur in low lying areas following suitable rainfall.

Nature and extent of likely impact

No significant impacts on any migratory species are expected as a result of the implementation of this action.

The Fork-tailed Swift is almost exclusively aerial and found to occur in the majority of Australia over inland plains however; this species does not breed in Australia (DoE, 2015b). The species may potentially fly and forage over the proposed action area however, it is unlikely that this species will exclusively use habitat within the proposed Approval Boundary and any impacts will be negligible.

The Rainbow Bee-eater is one of the most common and widespread birds in Australia and is found to inhabit the majority of Australia (DoE, 2015c). The species may utilise habitat within the Approval Boundary for the proposed action area however, any impacts are expected to be minor due to the limited amount of disturbance to preferred habitat required and presence of additional habitat within the local area.

The Cattle Egret is known to use a variety of habitats including swamps and marshes; margins of rivers and lakes; damp or flooded grasslands, pastures or agricultural lands, salt pans and salt lakes; salt marshes; estuarine mudflats, and temperate grasslands (DoE, 2015 d).

The Glossy Ibis is a widespread species occurring across Australia and with a large foraging range. Preferred habitat for the species includes fresh water marshes at the edge of lakes and rivers, flood plains, swamps, wet meadows and cultivated areas under irrigation (DoE, 2015e).

The Fork-tailed Swift is almost exclusively aerial and found to occur in the majority of Australia over inland plains however, this species does not breed in Australia (DoE, 2015b). It is unlikely that this species will use habitat within the proposed Approval Boundary for the action.

Table 4.2 of the Supporting Information document provides an assessment against the significant impact criteria for Migratory species.

3.1 (f) Commonwealth marine area

(If the action is in the Commonwealth marine area, complete 3.2(c) instead. This section is for actions taken outside the Commonwealth marine area that may have impacts on that area.)

Description

The proposed action does not occur within a Commonwealth marine area.

Nature and extent of likely impact

N/A

3.1 (g) Commonwealth land

(If the action is on Commonwealth land, complete 3.2(d) instead. This section is for actions taken outside Commonwealth land that may have impacts on that land.)

Description

The proposed action does not occur on Commonwealth land.

Nature and extent of likely impact

N/A

3.1 (h) The Great Barrier Reef Marine Park**Description**

The proposed action does not occur within the Great Barrier Reef Marine Park.

Nature and extent of likely impact

N/A

3.1 (i) A water resource, in relation to coal seam gas development and large coal mining development**Description**

The proposed action is not related to a coal seam gas or large coal mining development.

Nature and extent of likely impact

N/A

3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, actions taken on Commonwealth land, or actions taken in the Great Barrier Reef Marine Park

3.2 (a)	Is the proposed action a nuclear action?	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment

3.2 (b)	Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment

3.2 (c)	Is the proposed action to be taken in a Commonwealth marine area?	X	No
			Yes (provide details below)
If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(f))			
3.2 (d)	Is the proposed action to be taken on Commonwealth land?	X	No
			Yes (provide details below)
If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(g))			
3.2 (e)	Is the proposed action to be taken in the Great Barrier Reef Marine Park?	X	No
			Yes (provide details below)
If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(h))			

3.3 Other important features of the environment

3.3 (a) Flora and fauna

Flora

A total of 33 conservation significant flora species were identified in the desktop and literature review, of which 17 are listed as Threatened under the EPBC Act (including one Critically Endangered species, 14 Endangered species and 2 vulnerable species) (Phoenix, 2015). A further 18 species are listed under the WC Act (including all of the EPBC Act listed species). This included six Critically Endangered, seven Endangered and five Vulnerable species under the WC Act (Phoenix, 2015). A further 15 species are listed as Priority flora by DPaw (one Priority 1, three Priority 2, six Priority 3 and five Priority 4).

The field surveys undertaken by Phoenix (2015) recorded the presence of one flora species listed under the EPBC Act namely, *Darwinia foetida*. This species was recorded outside of the Approval Boundary. A total of seven flora species listed under the State WC Act or on the Department of Parks and Wildlife (DPaw) Priority Flora list were recorded, as detailed in Table 3.1 and shown on Figure 3.1 of the Supporting Information Document. The most prominent families recorded in the study area included the *Fabaceae*, *Myrtaceae*, *Poaceae*, *Proteaceae*, *Haemodoraceae* and *Asteraceae*.

A desktop review was conducted to identify weed species potentially occurring in the wider Muchea North (Old Gingin Road to Chittering Roadhouse) area, and those classified as Declared Plants under the *Biosecurity and Agriculture Management Act 2007* (BAM Act). A total of 51 weed species were recorded in the survey area, of which three species were identified as Declared Plants (Phoenix, 2015). Refer to Appendix 4 of Phoenix's Muchea North and Chittering Report for a full listing of weed species which may occur within the proposed Approval Boundary.

Fauna

The desktop review identified 21 conservation significant fauna species (excluding migratory species) that may occur in the vicinity of the proposed action. A likelihood of occurrence assessment for these species and has been included in Table 3.5 of the Supporting Information document.

Fauna Habitats

Seven fauna habitats were present in the area of the proposed action:

- Woodland (Jarrah, Marri, Wandoo and/or banksia)
- Cleared and revegetated non-native woodland mosaic
- Shrubland (low heath/scrub);
- Shrubland (thicket);
- Woodland (paperbark or sheoak);
- Forest (Jarrah and/or Marri); and

- Cleared (agriculture, road, infrastructure).

Fauna habitat is variable, ranging from completely degraded areas to good quality habitat). Good quality habitat was recorded in woodland habitats that are contiguous with larger pockets of native vegetation (Phoenix 2015). Low value fauna habitat was associated with areas of degraded vegetation which was narrow and fragmented.

3.3 (b) Hydrology, including water flows

A search of the Department of Water (DoW) Geographic Data Atlas (2015) shows that the Work Package lies within the Swan River System surface water area, which is proclaimed under the *Rights in Water and Irrigation Act, 1914* (RIWI Act). It lies within the Swan River and Tributaries Surface Water Allocation Area within the Ellen Brook sub-catchment, which is within the broader South West Division (DoW, 2015).

A search of the DoW Geographic Data Atlas indicates that the Work Package is located within the Gingin Groundwater Area (proclaimed under the RIWI Act) which covers approximately 6,000 km² of the Northern Perth Basin, extending between Guilderton and Bindoon in the south, to Grey and Moora in the north (DoW, 2015).

3.3 (c) Soil and Vegetation characteristics

Soils

The southern section of the Approval Boundary (approximately SLK 37.1 to SLK 41) is within the Perth subregion (SWA02). This subregion is composed of colluvial and aeolian sands, coastal limestone and alluvial river flats. Limestone supports heath and/or Tuart (*Eucalyptus gomphocephala*) woodlands. Banksia and Jarrah-Banksia woodlands occur on Quaternary marine dunes and Marri woodlands in alluvial flats (Mitchell et al. 2002). Special values of the subregion include rare landscape features such as Holocene dunes and wetlands, Threatened Ecological Communities (TECs) (e.g. tumulus springs), refugia for relictual species (e.g. thrombolite communities), high degree of species diversity and a large number of rare and threatened flora (Phoenix, 2015).

The northern section of the Approvals Boundary is within the Dandaragan Plateau (SWA01) and Northern Jarrah Forrest (JAF01) subregions. The Dandaragan Plateau subregion is a plateau bordered by the Derby and Dandaragan faults with Cretaceous marine sediments mantled by sands and laterites. The Northern Jarrah Forest subregion is the duricrusted plateau of the Yilgarn Craton characterised by Jarrah-Marri forest on laterite gravels. It incorporates the area east of the Darling Scarp, overlying Archaean granite and metamorphic rocks of an average elevation of 300 m, capped by an extensive lateritic duricrust, dissected by later drainage and broken by occasional granite hills. In the east the laterite becomes deeply dissected until it compresses isolated remnants (Williams and Mitchell, 2001).

Vegetation

The proposed action lies within the Dandaragan Plateau subregion and the Perth subregion of the Swan Coastal Plain Bioregion, and the Northern Jarrah Forest of the Jarrah Forest Bioregion. The Dandaragan Plateau is known to exhibit a degree of floristic endemism and contain a large number of threatened flora (Desmond, 2002). The majority of the subregion has been extensively cleared for agricultural purposes and approximately 6.8% of the subregion is in conservation (Desmond, 2002). The Perth subregion is known to contain a high degree of species diversity and includes areas of relatively high ecosystem or species diversity, notably on the eastern side of the coastal plain (Mitchell et al., 2002). This area includes heath and/ or Tuart woodlands and Banksia and Jarrah Banksia woodlands (Mitchell et al., 2002). The Northern Jarrah Forest is characterised by tall open forest in which the dominant overstorey tree is Jarrah (*Eucalyptus marginata*).

Vegetation in the Approval Boundary comprises 18 vegetation associations as detailed in Table 3.2 and shown on Figure 3.2 of the Supporting Information Document. Low to mid woodland associations were most prevalent, representing 13 of the 18 vegetation associations mapped for the survey area (Phoenix, 2015). Areas described as road, cleared (townships, driveways), cleared and planted (non-native species) and pasture accounted for the majority of the area surveyed by Phoenix, and account for approximately 53% of the Approval Boundary.

The condition of vegetation in the Approval Boundary ranged from completely degraded to pristine. A large proportion of the Approval Boundary for the proposed action passes through cleared areas classed as completely degraded (paddocks, roads and other infrastructure) and cleared and revegetated non-native woodlands, which provide little value to fauna in terms of habitat or as ecological corridors. Of the total area bounded by the Approval Boundary, 1.8% (5.77 ha) has been recorded as being in pristine condition (vegetation types 946 and 965). The areas of the vegetation recorded to be in excellent or pristine condition may be considered locally significant as they represent patches of comparatively high native species diversity in otherwise degraded vegetation (Phoenix, 2015).

Vegetation associations that represent less than one percent of the Approval Boundary are also considered to be locally significant, as they have limited representation in the local context (Phoenix, 2015).

3.3 (d) Outstanding natural features

There are no outstanding natural features in the proposed action area.

3.3 (e) Remnant native vegetation

Five of the mapped vegetation types (types 4, 946, 992, 999 and 1008) are considered to constitute underrepresented vegetation as the current extent of these is less than 30% of the pre-European extent (Phoenix, 2015).

3.3 (f) Gradient (or depth range if action is to be taken in a marine area)

The proposed action area is in gently undulating terrain. Hills are located on either side of the proposed action and elevation generally increases from south to north by approximately 170m.

3.3 (g) Current state of the environment

The majority of the land within the proposed Approval Boundary is cleared paddocks and road reserve. The native vegetation present within the proposed Approval Boundary ranged from completely degraded to some small areas of pristine vegetation (Phoenix, 2015). Areas recorded as cleared and planted within the proposed Approval Boundary are considered completely degraded to degraded as it was evident that in the past they had been completely cleared or virtually completely cleared with the subsequent loss of natural values (Phoenix, 2015).

A review of DER's contaminated sites database did not identify any contaminated sites within or adjacent to the proposed Approval Boundary, and a review of CSIRO Atlas of Australia Acid Sulfate Soils (ASS) mapping indicates that the probability of occurrence of ASS is low to extremely low.

3.3 (h) Commonwealth Heritage Places or other places recognised as having heritage values

A search conducted using the EPBC Protected Matters Search Tool identified that no Commonwealth, World Heritage Sites, or National Heritage Sites were listed within the proposed action area.

A search on the Heritage Council of Western Australia's State Heritage Register and the Australian Heritage database did not identify any heritage places within or adjacent to the Approval Boundary for the proposed action.

3.3 (i) Indigenous heritage values

A review of the Department of Aboriginal Affairs (DAA) Aboriginal Heritage Inquiry System (AHIS) database identified the presence of two registered Aboriginal Heritage site within the Work Package namely, the Gingin Brook Waugal Site (Site ID: 200008; historical/mythological site) and the Chandala Brook (Site ID: 21620; mythological site). These sites have been assessed and registered as Aboriginal sites under the *Aboriginal Heritage Act 1972* (AHA Act). Ethnographic and archaeological investigations have been carried out within the Approvals Boundary and no additional sites were identified (BGA, 2016).

3.3 (j) Other important or unique values of the environment

There are no other unique values of the environment that will be affected by, or are within close proximity to, the area of the proposed action.

3.3 (k) Tenure of the action area (eg freehold, leasehold)

Land along the preferred alignment is generally freehold land owned by a number of different land owners. The exceptions are areas of Crown Land, to which Native Title may apply and include; the Barracca Nature Reserve (SLK 44.2 – SLK 44.85) which is managed by DPaW and the Barracca Springs Reserve (SLK 40 and SLK 41) managed by Chittering Landcare. An approximately 80 m wide corridor of land surrounding the alignment will ultimately be acquired by Main Roads from the individual landowners and transferred from freehold land to road reserve.

3.3 (l) Existing land/marine uses of area

The major existing land uses are road/transport and horticultural/agricultural/farming land use.

3.3 (m) Any proposed land/marine uses of area

There are no additional proposed land uses of the area.

4 Environmental outcomes

As described in Section 3.1 and Section 4 of the Supporting Information Document , the proposed action is likely to result in the removal of up to 509 potential breeding trees (>500mm diameter at breast height), including 12 trees with hollows suitable for Carnaby's Black Cockatoo, five of which show evidence of use by the species. In addition, approximately 35.8 ha of potential habitat plus 0.56 ha of unmapped habitat for Carnaby's Black Cockatoo will be cleared for the proposed action

The extent of clearing has been identified with a high degree of accuracy and reliability through the detailed road design process. The extent of habitat for Carnaby's Black Cockatoo and location of potential breeding trees has been established through the baseline survey undertaken by Phoenix and detailed in the survey report (Phoenix, 2015) provided in Appendix B of the Supporting Information Document. Outside of the area covered by the baseline survey, the extent of habitat for Carnaby's Black Cockatoo has not been extensively studied.

The Proponent has worked with specialists to design a project that, where possible, avoids impacts to Carnaby's Black Cockatoo and Forest Red-tailed Black Cockatoo habitat.

Based on the existing levels of information, and the conservation objectives identified in the recovery plan (DPaW, 2013) and conservation summary (Garnett *et al*, 2011) for the species, the following environmental outcome is suggested for Carnaby's Black Cockatoo in relation to the proposed action:

- No nett loss of quality habitat for Carnaby's Black Cockatoo.
- No increase in fragmentation of black cockatoo habitat for the proposed action

Baseline data in relation to habitat quality and location of hollows suitable for use as nesting sites has been provided by the ecological surveys undertaken in 2014 and 2015 (Phoenix, 2015). Accurate locations for hollow bearing trees will be confirmed prior to finalisation of the design and included on design drawings. Milestones, performance criteria, and monitoring and adaptive management will be defined as part of the landscape and revegetation plan developed for the action during the 100% design stage.

5 Measures to avoid or reduce impacts

Impact Avoidance

The initial stages of design took into consideration the location of potential breeding trees and avoided these where practicable. It is not practicable to avoid all known breeding trees due to other project constraints such as links to existing and proposed roads, road geometry, registered indigenous heritage sites, location of existing houses and other structures, and small lot sizes which restrict the physical location of the road in order to avoid splitting these properties into unviable land parcels.

The proposed alignment has been selected to minimise impacts to flora and fauna while achieving the project objectives of improved safety and geometry. The proposed alignment will result in less impact to Carnaby's Black Cockatoo habitat than if the improvement works were to stay online.

In comparison with the proposed action, if upgrades and improvement works were undertaken along the existing alignment, up to 50 ha of suitable habitat and 728 potential breeding trees would be cleared, including three trees containing hollows suitable for use by Carnaby's Black Cockatoo of which two show evidence of use. By constructing the proposed offline alignment as described in Section 2, the amount of Carnaby's Black Cockatoo habitat cleared (as a percentage of that mapped by Phoenix (2015)) has been reduced by approximately 13.8%. Additionally, there is a 15% reduction in the number of potential breeding trees to be removed, however there is an increase in the number of hollow-bearing trees suitable for, or used by, Carnaby's Black Cockatoo that are required to be cleared.

Environmental Management

Table 1 outlines the management measures proposed to avoid, minimise or mitigate potential impacts to Carnaby's Black Cockatoo. While specific measures have not been proposed for Migratory species that may occur within the proposed Approval Boundary, the measures outlined below will assist in minimising potential impacts to these species. The specific management measures outlined below will be included in the Construction Environmental Management Plan for Muchea North (Old Gingin Road to Chittering Roadhouse).

Table 1: Proposed Management Measures

Proposed Management Measure	Effectiveness of Measure	Timeframe
Trees within the Approvals Boundary known to contain hollows suitable for use by Carnaby's Black Cockatoo that are not within the proposed disturbance footprint will not be cleared. These trees will be identified as "no-go" zones in the Construction Environmental Management Plan (CEMP) and Construction Drawings.	Hollow bearing trees showing evidence of previous used by Carnaby's Black Cockatoo for breeding are retained and available or use in future breeding seasons. Additional hollow bearing trees identified as suitable for use by the species are also retained. This will minimise potential impacts to breeding success.	Design and construction
Trees with hollows suitable for use by Carnaby's Black Cockatoo that are proposed to be cleared will be inspected to determine if there are any cockatoos resident prior to removal of the tree. If resident Black Cockatoos are found, the Superintendent will determine an appropriate course of action.	Avoids disruption to the breeding cycle due to construction activities	Pre-construction and construction
The area to be cleared will be accurately pegged/marked on the ground, unless a pegless machine control technology is proposed and approved for use by Main Roads. Where practicable, additional areas required for construction such as laydown areas, stockpile areas and vehicle turn around will be located in cleared areas or areas of non-native vegetation.	Reduces the risk of loss of potential breeding trees and foraging habitat beyond that described in this referral.	Pre-construction, construction, and site rehabilitation/revegetation

Proposed Management Measure	Effectiveness of Measure	Timeframe
In unsurveyed areas where private property driveways are proposed to be located, potential breeding trees and known nesting trees will be identified prior to commencement of construction and the location of driveways will be aligned to avoid trees identified as known nesting trees.	Reduces the risk of loss of potential breeding trees beyond that described in this referral.	Design, pre-construction and construction
Weed and hygiene control measures will be in place during construction. These will include verifying all plant and machinery as clean prior to arrival at site and segregating stripped topsoil according to its weed and disease status.	Hygiene control measures will minimise the potential for spread/introduction of weeds and disease and land degradation associated with this.	Pre-construction, construction, and site rehabilitation/revegetation
During construction, vehicle speed on site will be limited to reduce dust lift off and the risk of vehicle-fauna collisions. Water carts will also be used during construction to reduce dust lift off.	Limiting the speed of vehicles (including mobile plant) will reduce the likelihood and severity of collisions between vehicles/plant and fauna	All site based activities
It is considered unlikely that construction activities will result in injury or death to Carnaby's Black Cockatoo. Any birds injured or killed as a result of construction or rehabilitation/revegetation activities will be reported to the site superintendent (or delegate) who shall determine the necessary steps to be taken, such as reporting deaths to the appropriate regulatory authorities or arranging for transfer of injured animals to wildlife carers. A list of local wildlife rescue organisations and carers will be maintained on site.	Rescue of injured birds will assist in reducing the likelihood of population decline while notifying regulators of Carnaby's Black Cockatoo deaths will assist with tracking population dynamics and overall species statistics.	Construction, and site rehabilitation/revegetation
Topsoil will be stripped and stockpiled separately to vegetation. Where required, topsoil and vegetation stockpiles will be segregated according to their weed status, as per the Topsoil Management Plan for the proposed action.	Reduces the risk of loss of potential breeding trees and foraging habitat beyond that described in this referral.	Construction, and site rehabilitation/revegetation

6 Conclusion on the likelihood of significant impacts

6.1 Do you **THINK** your proposed action is a controlled action?

☐

No, complete section 5.2

☒

Yes, complete section 5.3

6.2 Proposed action **IS NOT** a controlled action.

6.3 Proposed action IS a controlled action

Matters likely to be impacted

<input type="checkbox"/>	World Heritage values (sections 12 and 15A)
<input type="checkbox"/>	National Heritage places (sections 15B and 15C)
<input type="checkbox"/>	Wetlands of international importance (sections 16 and 17B)
<input checked="" type="checkbox"/>	Listed threatened species and communities (sections 18 and 18A)
<input type="checkbox"/>	Listed migratory species (sections 20 and 20A)
<input type="checkbox"/>	Protection of the environment from nuclear actions (sections 21 and 22A)
<input type="checkbox"/>	Commonwealth marine environment (sections 23 and 24A)
<input type="checkbox"/>	Great Barrier Reef Marine Park (sections 24B and 24C)
<input type="checkbox"/>	A water resource, in relation to coal seam gas development and large coal mining development (sections 24D and 24E)
<input type="checkbox"/>	Protection of the environment from actions involving Commonwealth land (sections 26 and 27A)
<input type="checkbox"/>	Protection of the environment from Commonwealth actions (section 28)
<input type="checkbox"/>	Commonwealth Heritage places overseas (sections 27B and 27C)

Based on the assessment presented within this referral form and the Supporting Information document, the proposed action may result in significant impacts to MNES, namely Black Cockatoos (Listed Threatened Species and Ecological Communities). The Proposed Action is unlikely to result in significant impacts to Listed Migratory Species.

The only listed threatened species or ecological community likely to occur in the proposed Approval Boundary for the proposed action are Carnaby's Black Cockatoo and the Forest Red Tailed Black Cockatoo. The proposed action will impact upon suitable foraging and breeding habitat for Carnaby's Black Cockatoo. No direct or secondary evidence of the Forest Red Tailed Black Cockatoo has been recorded from the proposed Approval Boundary and proposed action is at the northern extremity of the species' range. Should this species occur it is likely that it would only use the habitats within the Approval Boundary for foraging and would not breed in the area. As such, it is considered unlikely that there would be significant impacts on this species as a result of the proposed action.

An assessment of the proposed action against the significance criteria outlined in the EPBC Act Significance Impact Guidelines 1.1 – Matters of National Environmental Significance was undertaken (see Section 4 of the Supporting Information document). This assessment found that there are unlikely to be any significant impacts to listed threatened species and communities.

In addition, an assessment of the proposed action against the criteria outlined in the EPBC Act Referral Guideline for Three Species of Black Cockatoo was undertaken. This assessment found that impacts in relation to known nesting trees, breeding and foraging habitat are possible, it is considered unlikely that the proposed action will result in a significant impact at the population level as:

- approximately 25,340 ha of potentially suitable breeding habitat occurs within 10 km of the proposed action;
- The clearing required (35.8 ha of suitable habitat plus 0.56 ha of unmapped habitat) equates to approximately 0.14% of the potentially suitable habitat present within 10 km of the proposed action;
- given the known breeding sites found at the IBAs in the region and the availability of larger, areas of vegetation with 10 km of the proposed action, the habitat to be cleared is not considered critical to the survival of the species; and
- the management measures proposed in Section 4 will further reduce the risk of impacts to Carnaby's Black Cockatoo.

There is the potential for terrestrial migratory bird species such as the Fork-tailed Swift (*Apus pacificus*) and the Rainbow Bee-eater (*Merops ornatus*) to transit or forage in the area. The Cattle Egret (*Ardea ibis*) and the Glossy Ibis (*Plegadis falcinellus*) may occur in low lying areas following suitable rainfall. Assessment against the criteria set out in the Significance Impact Guidelines 1.1 indicates that the proposed action will not have a significant impact on these species.

There are no other MNES relevant to the proposed action.

7 Environmental record of the responsible party

NOTE: If a decision is made that a proposal needs approval under the EPBC Act, the Environment Minister will also decide the assessment approach. The EPBC Regulations provide for the environmental history of the party proposing to take the action to be taken into account when deciding the assessment approach.

	Yes	No
<p>7.1 Does the party taking the action have a satisfactory record of responsible environmental management?</p> <p>Provide details Main Roads has successfully constructed a number of new and upgraded road infrastructure projects in Western Australia while demonstrating responsible environmental management. These include:</p> <ul style="list-style-type: none"> • Bindi Bindi to Lyons East Road, Great Northern Highway Upgrade; • Batty Bog Road to Walebing, Great Northern Highway Upgrade; • Gateway WA - Perth Airport and Freight Access; • Bunbury Port Access Road; and • New Perth to Bunbury Highway. 	X	
<p>7.2 Has either (a) the party proposing to take the action, or (b) if a permit has been applied for in relation to the action, the person making the application - ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?</p> <p>If yes, provide details</p>		X
<p>7.3 If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?</p> <p>If yes, provide details of environmental policy and planning framework</p> <p>Main Roads has an ISO 14001 accredited Environmental Management System (EMS). This includes an Environment Policy and Sustainability Policy. The Main Roads EMS is applied to all projects and contractors are required to comply with the requirements of the EMS</p>	X	
<p>7.4 Has the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?</p> <p>Provide name of proposal and EPBC reference number (if known)</p> <p>Main Roads has referred over 25 proposals under the EPBC Act since January 2013. The 10 most recent referrals are:</p> <ul style="list-style-type: none"> • Muchea to Wubin upgrade stage 2 - New Norcia Bypass (EPBC 2015/7523) • Muchea to Wubin upgrade stage 2 – Miling Straight (EPBC 2015/7584) • Caves Road widening project (EPBC 2015/7475) • Northam Pithara Road widening and sealing (EPBC 2015/7454) • Collie Lake King Rd, Gibbs Siding, road realignment and safety improvements (EPBC 2015/7422) • Albany Highway, expansion of an existing overtaking lane and creation of 4 gravel pits (EPBC 2014/7406) • Demolish and replace Old Mandurah Traffic Bridge (EPBC 2015/7415) • Pinjarra Williams road widening and realignments (SLK 13.8 - 21.5) (EPBC 2014/7368) • To grade separate three intersections on Tonkin Highway (EPBC 2014/7385) • Ngumban Rock Quarry (EPBC 2014/7328) • Tunney Passing Lanes, 30km S of Kojonup, WA (EPBC 2014/7309) 	X	

8 Information sources and attachments

(For the information provided above)

8.1 References

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Brad Goode and Associates (2016). Preliminary Report of an Aboriginal Heritage Survey for the Proposed Great Northern Highway Upgrade, Muchea to Chittering, Western Australia. Prepared for Muchea to Wubin Integrated Project Team (Main Roads WA, Jacobs and Arup). Western Australia.

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Department of the Environment (DoE). (2015a). EPBC Protected Matters Search (Muchea North). Report created on 07/08/15 at <http://www.environment.gov.au/webgis-framework/apps/pmst/pmst.jsf>. DoE, Canberra.

DoE. (2015b) Species Report Card: *Apus pacificus* – Fork-tailed Swift. http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=678

DoE. (2015c) Species Report Card: *Merops ornatus* – Rainbow Bee-eater. http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=670

DoE. (2015d) Species Report Card: *Ardea ibis*– Cattle Egret. http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=59542

DoE. (2015e) Species Report Card: *Plegadis falcinellus* — Glossy Ibis. http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=991

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8.2 Reliability and date of information

The information sources used to inform this referral are both recent and reliable. Database searches and field surveys were undertaken in 2014 and 2015. Field surveys followed regulatory requirements set out in published guidance material.

Additional information was sourced from technical publications from recognised experts in the field of study.

8.3 Attachments

Indicate the documents you have attached. All attachments must be less than three megabytes (3mb) so they can be published on the Department's website. Attachments larger than three megabytes (3mb) may delay the processing of your referral.

		✓ attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the project locality (section 1)	✓	<ul style="list-style-type: none"> Figure 1.1 : Location of the Proposed Action Muchea North (Old Gingin Road – Chittering Roadhouse) Approval Boundary
	GIS file delineating the boundary of the referral area (section 1)		
	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)	✓	<ul style="list-style-type: none"> Figure 3.1 : Vegetation Types Figure 3.2 : Vegetation Condition Figure 3.3 : Carnaby's Black Cockatoo Habitat
If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.5)		
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.6)		
	copies of any flora and fauna investigations and surveys (section 3)	✓	<ul style="list-style-type: none"> Appendix A. Phoenix Flora and Fauna Assessment for Muchea North Report
	technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3 and 4)	✓	<ul style="list-style-type: none"> Muchea North (Old Gingin Road – Chittering Roadhouse) EPBC Act Referral – Supporting Information (GNH-WP01-E-EP-AS-002)
	report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)		

9 Contacts, signatures and declarations

Project title: Great Northern Highway: Muchea to Wubin Upgrade Stage 2 – Muchea North (Old Gingin Road to Chittering Roadhouse)

9.1 Person proposing to take action

1. Name and Title: Norm Fox
A/ Director Major Projects
2. Organisation (if applicable): Main Roads Western Australia
3. EPBC Referral Number (if known):
- 4: ACN / ABN (if applicable): 50 860 676 021
5. Postal address PO Box 6202
East Perth WA 6892
6. Telephone: 0418 958 828
7. Email: norman.fox@mainroads.wa.gov.au
8. Name of designated proponent (if not the same person at item 1 above and if applicable):
9. ACN/ABN of designated proponent (if not the same person named at item 1 above):

COMPLETE THIS SECTION ONLY IF YOU QUALIFY FOR EXEMPTION FROM THE FEE(S) THAT WOULD OTHERWISE BE PAYABLE

- I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:
- ☐ an individual; OR
- ☐ a small business entity (within the meaning given by section 328-110 (other than subsection 328-119(4)) of the *Income Tax Assessment Act 1997*); OR
- ☒ not applicable.

If you are small business entity you must provide the Date/Income Year that you became a small business entity:

Note: You must advise the Department within 10 business days if you cease to be a small business entity. Failure to notify the Secretary of this is an offence punishable on conviction by a fine (regulation 5.23B(3) *Environment Protection and Biodiversity Conservation Regulations 2000 (Cth)*).

COMPLETE THIS SECTION ONLY IF YOU WOULD LIKE TO APPLY FOR A WAIVER

- I would like to apply for a
- ☒ not applicable.

waiver of full or partial fees under Schedule 1, 5.21A of the [EPBC Regulations](#). Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made:

Declaration

I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct.
I understand that giving false or misleading information is a serious offence.
I agree to be the proponent for this action.
I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature



Date

22/2/16

9.2 Person preparing the referral information (if different from 8.1)

[Individual or organisation who has prepared the information contained in this referral form.](#)

Name Lisa Boulden

Title Associate Environmental Consultant

Organisation Jacobs Group (Australia) Pty Ltd

ACN / ABN (if applicable) 37 001 024 095

Postal address PO Box H615, Perth , WA, 6001

Telephone (08) 9469 4667

Email Lisa.Boulden@jacobs.com

Declaration

I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct.
I understand that giving false or misleading information is a serious offence.

Signature



Date

24/2/16