

Yoogali Intersection Upgrade

Addendum review of environmental factors

Roads and Maritime Services | May 2019



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Prepared by Roads and Maritime Services


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Executive summary

The proposed modification

Roads and Maritime Services (Roads and Maritime) is proposing to modify the Yoogali Intersection Upgrade by adding right turn lanes to the intersection design (proposed modification). Key features of the proposed modification would include:

- adding right turn lanes for each of the intersection approach roads
- extending the road design along Burley Griffin Way and Kurrajong Avenue
- revising concrete median design to meet design standards
- modifying access to residential properties along Mackay Avenue
- potentially modifying Griffith City Volkswagen dealership carpark and customer access
- constructing of concrete protection over the top of high pressure gas main that crosses Kurrajong Avenue
- modifying the design of the new Irrigation Way bridge structure to remove pedestrian pathway
- removing about 10 additional trees from the northern side of Mackay Avenue and southern side of Irrigation Way
- modifying the table drain along the southern side of Irrigation Way
- modifying gas, water and Telstra utility relocation
- modifying safeguard LV1 that requires the preparation of an Urban Design Framework.

Background

A review of environmental factors (REF) was prepared for the Yoogali Intersection Upgrade on 18 June 2018 (referred to in this addendum REF as the project REF). The project REF was placed on public display between 25 June 2018 and 20 July 2018 for community and stakeholder comment. A submissions report, dated 28 November 2018, was prepared to respond to issues raised.

Need for the proposed modification

The proposed modification is needed to minimise waiting times at the signalised intersection and improve high productivity vehicle safety, access and efficiency as per the project objectives. The proposed work has been developed to address concerns raised by stakeholders during the public exhibition period. Roads and Maritime, Griffith City Council and local industry stakeholders agree it would be beneficial to include right turn lanes on the Mackay Avenue, Kurrajong Avenue, Burley Griffin Way and Irrigation Way approaches.

Proposal objectives

The proposal objectives include:

- allowing for freight efficiency by increasing the intersection and level railway crossing's heavy vehicle capacity

- improving road user safety at both the intersection and level railway crossing

The proposal aims to meet the following key consideration criteria:

- minimise environmental impacts
- minimise community issues and land acquisition impacts
- minimise impacts on utility services
- deliver a solution that complements potential future upgrades
- deliver a value-for-money customer solution.

Options considered

The following options were considered:

Option 1 – Do nothing (existing approved single lane approach design)

Option 1 involves continuing with the project as approved. This includes installing traffic lights at the intersection of Burley Griffin Way, Irrigation Way, Mackay Avenue and Kurrajong Avenue. The upgraded intersection would include single lane approach roads with an additional left turn lane on Mackay Avenue for traffic turning left onto Burley Griffin Way.

The option involves road widening to accommodate heavy vehicle movements, an upgrade to the existing rail crossing on Burley Griffin Way and replacing the Irrigation Way Bridge.

Option 1 meets the objectives of the proposal given it would improve road user safety and improve accessibility for heavy vehicles. In considering community submissions, Roads and Maritime has determined that option 1 is not the preferred option.

Option 2 – Dual lane approach (proposed design)

Option 2 involves adding right turn lanes to each approach road in the intersection design. This option would involve further intersection widening. Extended concrete medians may be included to control vehicle movements around residential and commercial accesses.

Option 2 would improve the efficiency and capacity of the intersection to meet future needs. This was a high priority for stakeholders in submissions received. Option 2 also meets the objectives of the proposal as it would improve current and potential safety issues at the Yoogali intersection.

This option involves a larger project footprint and additional development and construction costs. Additional impact on the environment and the community is expected to be minor. Despite the additional cost, Roads and Maritime considers option 2 to be the best outcome for improved road user safety and traffic efficiency. Option 2 is considered the preferred option.

Statutory and planning framework

The proposed modification is development for the purpose of a road and road infrastructure facility and is being carried out by or on behalf of a public authority. Under clause 94 of *State Environmental Planning Policy (Infrastructure) 2007* the proposed modification is permissible without consent. The proposed modification is not state significant infrastructure or state significant development. The proposed modification can be assessed under division 5.1 of the *Environmental Planning and Assessment Act 1979*. Consent from council is not required.

Community and stakeholder consultation

Roads and Maritime met with Griffith City Volkswagen and affected residents along Mackay Avenue and Irrigation Way. No issues were raised by affected residents. Griffith City Volkswagen strongly opposed the proposed modification to customer access and parking arrangements. Roads and Maritime will continue to consult with Griffith City Volkswagen through the detailed design stage of the proposed modification.

Environmental impacts

The potential environmental impact of the proposed modification is generally the same as identified in the project REF. The additional impact would be minor given the limited scope of the proposed modification. The main environmental impact for the proposed modification is:

Biodiversity

The proposed modification involves removing an additional 10 planted and regrowth native and exotic trees. No tree hollows are present. Additional groundcover would be cleared within the road reserve to allow for the intersection widening.

Summary

Some minor additional soil, dust, odour, noise, access and traffic impacts are expected. These would be effectively managed with standard control measures and continued community consultation. Overall these impacts were assessed as unlikely to be significant.

Justification and conclusion

The proposed modification would improve freight efficiency by increasing the capacity of the intersection for heavy vehicles. Road user safety would also be improved at both the intersection and level railway crossing. The assessment of the proposed modification's impact has concluded:

- the proposed modification is not likely to have a significant impact on the environment
- the proposed modification is not likely to have a significant impact on matters of national environmental significance or the environment of Commonwealth land.

While there would be minor environmental impacts as a result of the proposed modification, they have been avoided or minimised wherever possible through design and site-specific safeguards summarised in section 7. The proposed modification is considered to be justified as the potential impact on the environment is minor with significant improvements to freight efficiency and road user safety.

This addendum REF has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed activity.

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1. Introduction

1.1 Proposed modification overview

Roads and Maritime Services (Roads and Maritime) is proposing to modify the Yoogali Intersection Upgrade by adding right turn lanes to the intersection design (proposed modification). Key features of the proposed modification would include:

- addition of right turn lanes for each of the intersection approach roads
- extension of the road design along Burley Griffin Way and Kurrajong Avenue
- revised concrete median design to meet design standards
- modification of access to residential properties along Mackay Avenue
- possible modification to Griffith City Volkswagen dealership carpark and customer access
- construction of concrete protection over the top of high pressure gas main that crosses Kurrajong Avenue
- modification to the design of new the new Irrigation Way bridge structure to remove pedestrian pathway
- removal of about 10 additional trees from the northern side of Mackay Avenue and southern side of Irrigation Way
- modification to the table drain along the southern side of Irrigation Way
- modification to gas, water and Telstra utility relocation
- modification of safeguard LV1 that requires the preparation of an Urban Design Framework.

The location of the proposed modification is shown in Figure 1-1, the approved work is shown in Figure 1-2 and the proposed modification is shown in Figure 1-3. Chapter 3 describes the proposed modification in more detail.

A review of environmental factors (REF) was prepared for the Yoogali Intersection Upgrade on 18 June 2018 (referred to in this addendum REF as the project REF). The project REF was placed on public display between 25 June 2018 and 20 July 2018 for community and stakeholder comment. A submissions report, dated 28 November 2018, was prepared to respond to issues raised.

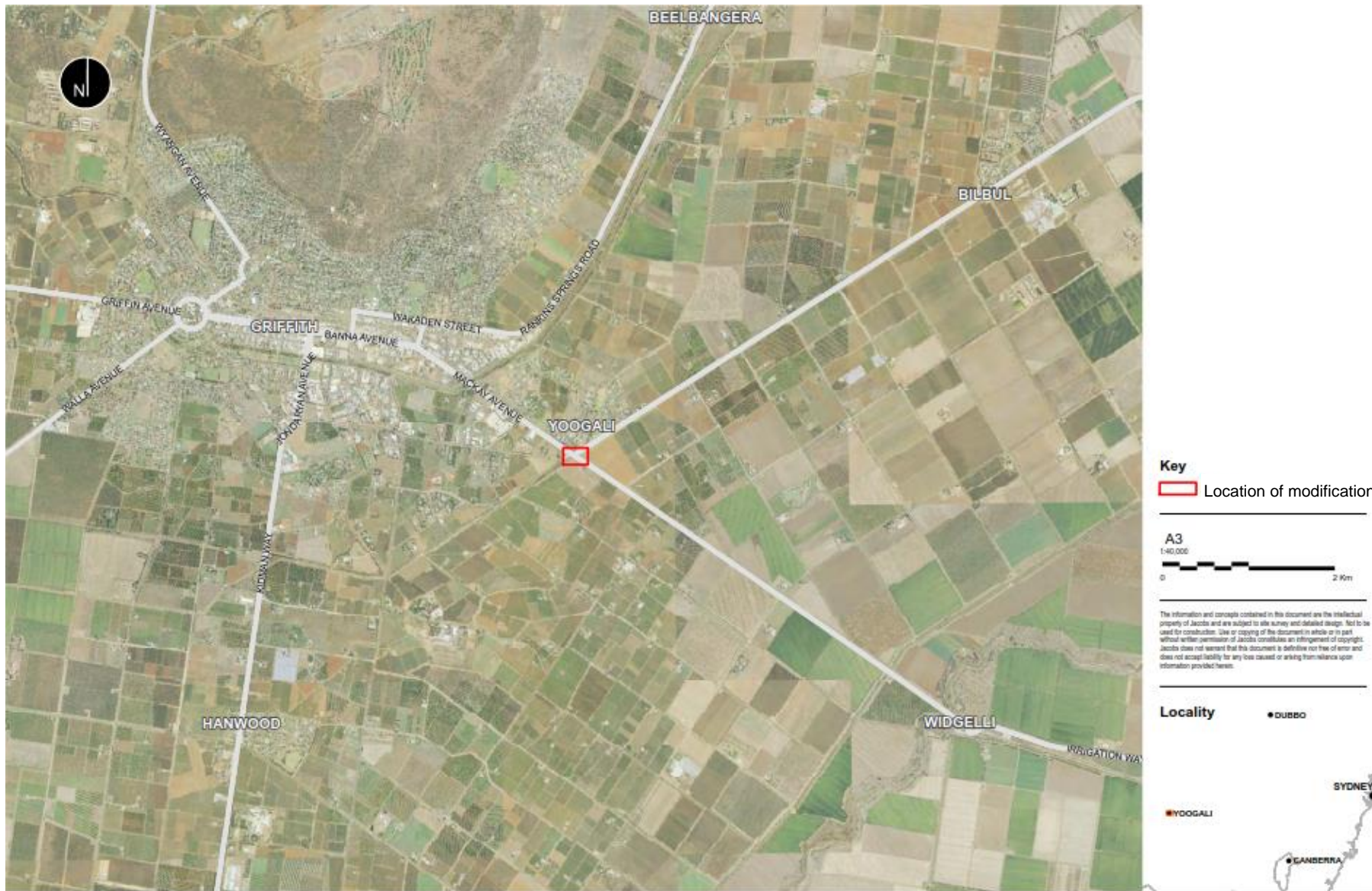


Figure 1-1: Location of the proposed modification



Figure 1-2: Approved work



Figure 1-3: Proposal site and modification

1.2 Purpose of the report

This addendum review of environmental factors (REF) has been prepared by Roads and Maritime South West Region. For the purposes of these works, Roads and Maritime is the proponent and the determining authority under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This addendum REF is to be read in conjunction with the project REF and submissions report. The purpose of this addendum REF is to describe the proposed modification, to document and assess the likely impacts of the proposed modification on the environment, and to detail mitigation and management measures to be implemented.

The description of the proposed work and assessment of associated environmental impacts has been carried out in context of clause 228 of the Environmental Planning and Assessment Regulation 2000, *Is an EIS Required? Best Practice Guidelines for Part 5 of the Environmental Planning and Assessment Act 1979* (*Is an EIS Required?* guidelines) (DUAP, 1995-96), *Roads and Road Related Facilities EIS Guideline* (DUAP, 1996), the *Biodiversity Conservation Act 2016* (BC Act), the *Fisheries Management Act 1994* (FM Act), and the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

In doing so, the addendum REF helps to fulfil the requirements of:

- Section 5.5 of the EP&A Act including that Roads and Maritime examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

The findings of the addendum REF would be considered when assessing:

- whether the proposed modification is likely to result in a significant impact on the environment and therefore the necessity for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning under Division 5.2 of the EP&A Act
- the significance of any impact on threatened species as defined by the BC Act and/or FM Act, in section 1.7 of the EP&A Act and therefore the requirement for a Species Impact Statement or a Biodiversity Development Assessment Report
- the significance of any impact on nationally listed biodiversity matters under the EPBC Act, including whether there is a real possibility that the activity may threaten long-term survival of these matters, and whether offsets are required and able to be secured
- the potential for the proposed modification to significantly impact any other matters of national environmental significance or Commonwealth land and therefore the need to make a referral to the Australian Government Department of the Environment and Energy for a decision by the Australian Government Minister for the Environment on whether assessment and approval is required under the EPBC Act.

2. Need and options considered

2.1 Strategic need for the proposed modification

Chapter 2 of the project REF addresses the strategic need for the project, the project objectives and the options that were considered. The proposed modification described and assessed in this addendum REF is consistent with the strategic need for the project.

The proposed modification is needed to minimise waiting times at the signalised intersection and improve high productivity vehicle safety, access and efficiency as per the project objectives. The proposed work has been developed to address concerns raised by stakeholders during the public exhibition period. Roads and Maritime, Griffith City Council and local industry stakeholders agree it would be beneficial to include right turn lanes on the Mackay Avenue, Kurrajong Avenue, Burley Griffin Way and Irrigation Way approaches.

2.2 Proposal objectives and development criteria

Section 2.3 of the project REF identifies the proposal objectives and development criteria that apply to the proposed modification. There are no additional criteria specific to the proposed modification.

2.3 Alternatives and options considered

The following options were considered:

Option 1 – Do nothing (existing approved single lane approach design)

Option 1 involves a signalised intersection with single lane approaches on the Burley Griffin Way, Irrigation Way and Kurrajong Avenue. Mackay Avenue would include an additional left turn lane for traffic turning left onto the Burley Griffin Way. The option involves intersection widening to accommodate heavy vehicle movements, an upgrade to the existing rail crossing on the Burley Griffin Way and replacement of the Irrigation Way Bridge with a wider box culvert structure. Traffic signals and concrete medians would help control and delineate traffic movements to ensure the safety of road users.

Option 2 – Dual lane approach (proposed design)

Option 2 involves adding right turn lanes to each approach road in the intersection design. This option would involve further intersection widening. Extended concrete medians may be included to control vehicle movements around residential and commercial accesses.

2.4 Preferred option

Option 1 meets the objectives of the proposal as it addresses the safety issues identified at the Yoogali intersection and provides improved accessibility for heavy vehicles. Option 2 presents various benefits in traffic efficiency and intersection capacity for future development that was a high priority for stakeholders during the submissions process. In considering the community submissions, Roads and Maritime has determined that Option 1 is not the preferred option.

Option 2 also meets the objectives of the proposal as it would improve current and potential safety issues at the Yoogali intersection. This option involves a larger project footprint and additional development and construction costs. Additional impact on the environment and the community is expected to be minor.

Despite the additional cost, Roads and Maritime considers option 2 to be the best outcome for improved road user safety and traffic efficiency. The right turn lanes would allow turning vehicles to queue without

interrupting traffic movements through the intersection. Option 2 is considered the preferred option to maximise the efficiency of the intersection.

3. Description of the proposed modification

3.1 The proposed modification

Roads and Maritime is proposing to modify the Yoogali Intersection Upgrade by adding right turn lanes to the intersection design (proposed modification).

The proposed modification is shown in Figure 1-2, Figure 3-1 and Figure 3-2.

Key features of the proposed modification would include:

- addition of right turn lanes for each of the intersection approach roads
- extension of the road design along Burley Griffin Way and Kurrajong Ave Revised concrete median design
- modification of access to residential properties along Mackay Avenue, described further below
- modification to Griffith City Volkswagen dealership carpark and customer access, described further below
- modification to the design of new the new Irrigation Way bridge structure to remove pedestrian pathway
- removal of about 10 additional trees from the northern side of Mackay Avenue and southern side of Irrigation Way, as shown in Figure 3-2. showing proposed tree removal
- modification to the table drain along the southern side of Irrigation Way, described further below
- modification to gas, water and Telstra utility relocation
- modification of safeguard LV1 that requires the preparation of an Urban Design Framework.

Table drain modification

It is proposed to modify the table drain that runs along the southern side of Irrigation Way. The modification involves the following work to divert drainage flow away from the new box culvert bridge and into Main Drain J:

- installation of 600mm diameter pipes in two locations within the table drain
- construction of soil embankments over the pipes. One embankment would act as a landing area for a water main truss bridge that would cross Main Drain J. The second embankment would allow the water main to cross the table drain.

Residential access modification

The proposed modified median design would restrict vehicles heading east on Mackay Avenue from making a right turn into residences on the southern side of Mackay Avenue. Extension of the raised centre median along the right turn bay is required to control and direct traffic into the right turn bay, as a result right turns up to the intersection are restricted.

Griffith City Volkswagen car park and access modification

Option 1 for the intersection upgrade warranted modification of the Griffith City Volkswagen customer access, restricting it to a left-turn entry or relocation to an alternate driveway access to permit right-turn entry. The addition of right-turn bays in the proposed modification extends the concrete median further

along Kurrajong Avenue. Options for access and car parking arrangements have been investigated. The final design would be prepared in accordance with design standards and in consultation with Griffith City Volkswagen.

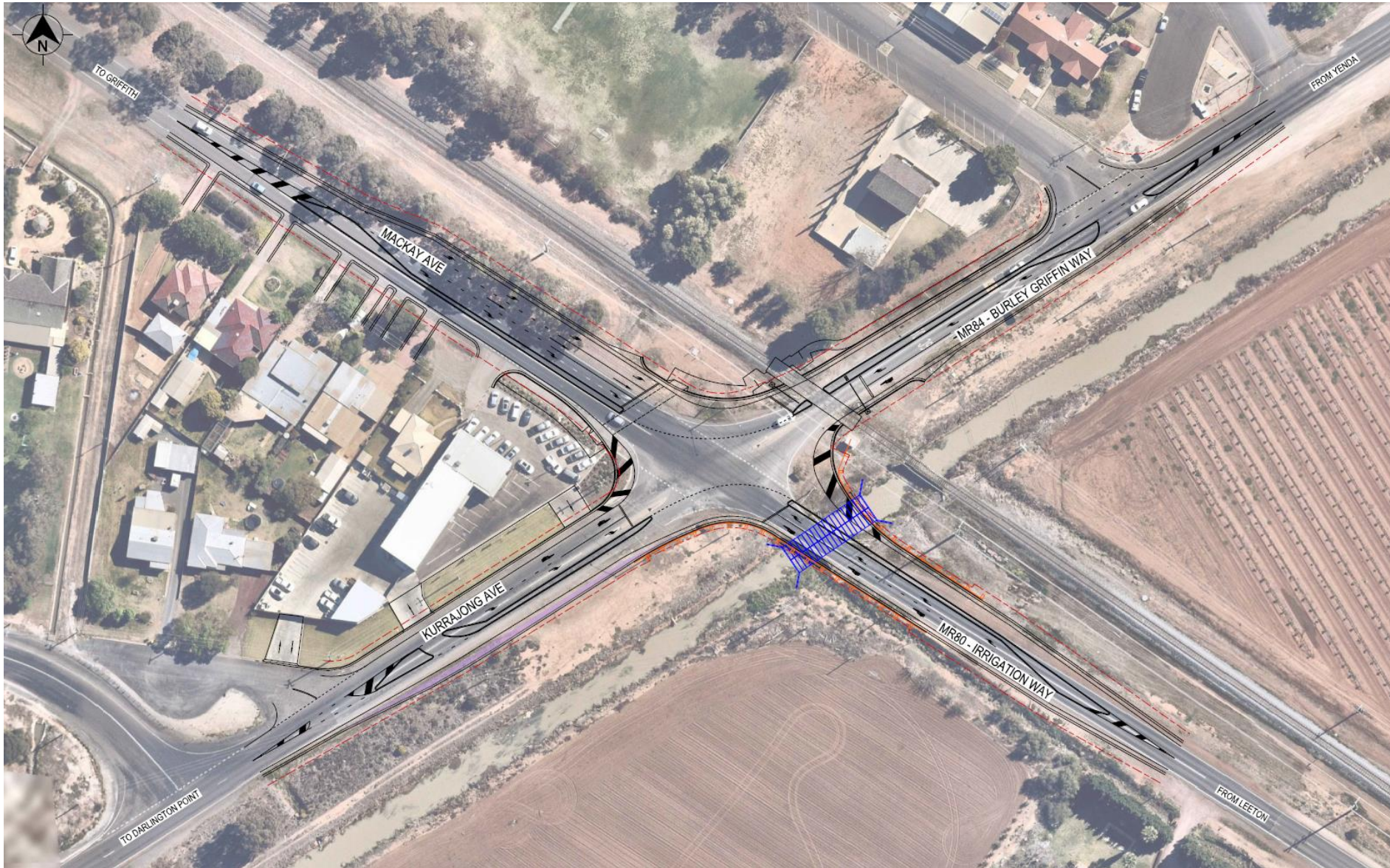


Figure 3-1: Proposed modification - concept design layout

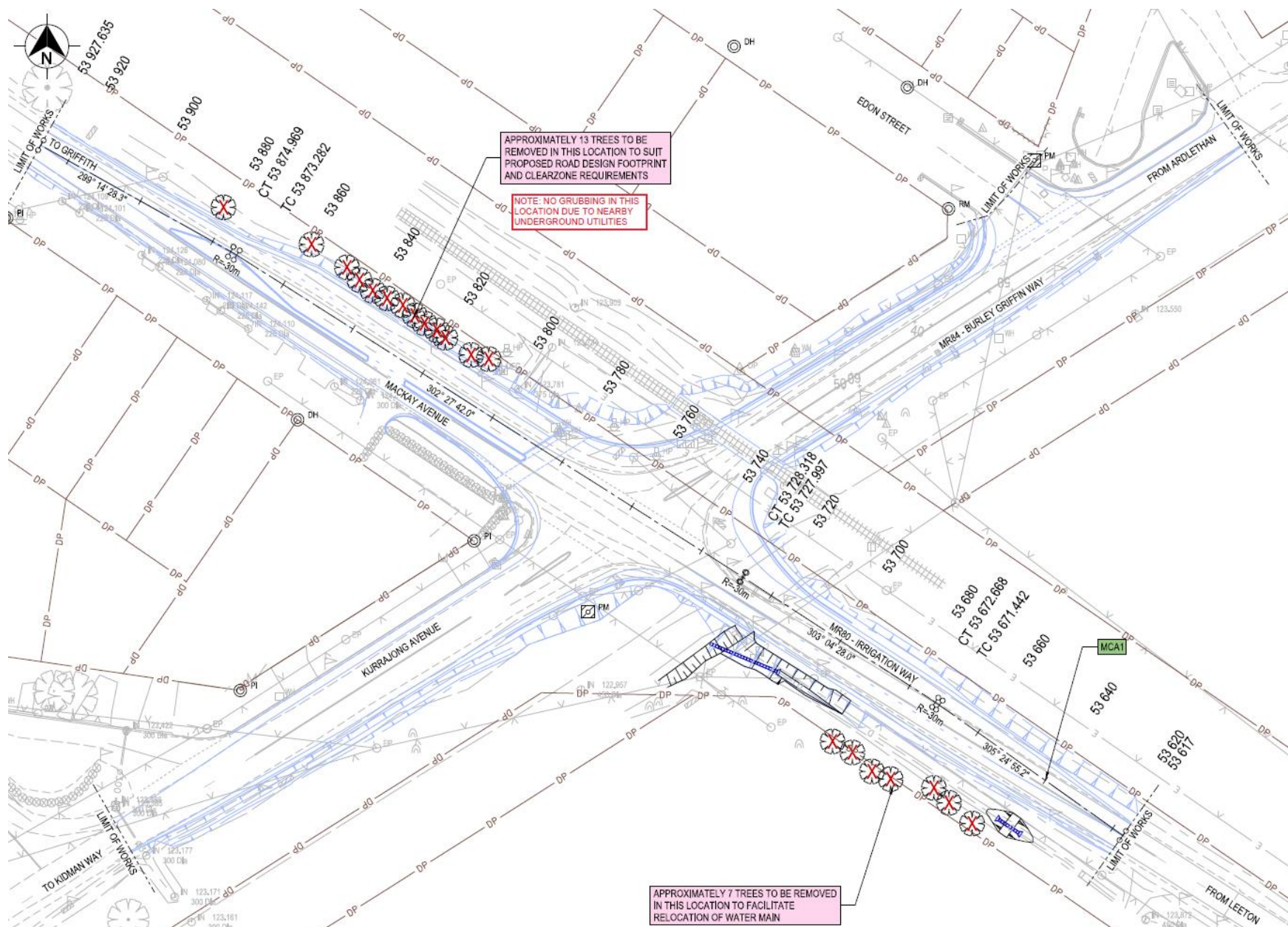


Figure 3-2: Proposed modification - concept design showing proposed tree removal

3.2 Design

3.2.1 Design criteria

Design criteria for the proposed modification includes:

- provide right turning lanes for each approach road suitable for B-double vehicles
- provide B-triple accessibility for turn movements in and out of Irrigation Way when straddling both lanes.

3.2.2 Engineering constraints

Engineering constraints for the proposed modification include:

- customer access needs for Griffith City Volkswagen
- reconfiguration of traffic signalling and detector loops
- rail level crossing dimensions and surface levels
- maintain Main Drain J irrigation water flow during construction
- relocation of utilities attached to the existing Main Drain J bridge structure
- rail corridor approvals for relocation of utilities into the corridor
- integration with future upgrades to Burley Griffin Way.

3.3 Construction activities

3.3.1 Work methodology

The proposed modification would not change general work methodology within the project REF. Options for irrigation water bypass methodologies are clarified in Section 3.3.5.

The methodology for the proposed table drain modification work includes:

- install traffic, erosion and sediment controls
- reshape table drain
- install bedding material and 600mm HDPE drainage pipes within the table drain in two locations
- place and compact earthen fill over the pipes
- stabilise and revegetate the table drain and embankments
- remove traffic, erosion and sediment controls.

3.3.2 Construction hours and duration

No modification to construction hours is proposed. It is anticipated that construction would generally be carried out during standard construction working hours in accordance with the Interim Construction Noise Guideline (DECC, 2009).

- Monday to Friday: 7am to 6pm
- Saturday: 8am to 1pm
- Sundays and public holidays: no work.

To minimise disruption to daily traffic and disturbance to surrounding land owners, business and sensitive receivers, it will be necessary to carry out some work outside of these hours. Asphalt paving is one activity likely to be carried out at night.

Out of hours work would be subject to permitted road occupancy licences (ROLs) and construction staging. Out of hours works would be carried out in line with the procedures contained within the *EPA Interim Construction Noise Guideline* (ICNG) (DECC 2009) and the *Roads and Maritime Construction Noise and Vibration Guidelines* (CNVG) (Roads and Maritime, 2016).

3.3.3 Plant and equipment

The proposed modification would not change plant and machinery that would be used to carry out the work.

3.3.4 Earthworks

The volumes of materials associated with earthwork would be small due to the small scale of the proposed modification. Earthwork requirements would be confirmed during detailed design and with analysis of existing material quality on-site.

3.3.5 Channel bypass for bridgeworks

The proposed modification would not change the general Main Drain J channel water bypass methodology for the bridgework. The project REF assessed the impact of the installation of coffer dams and establishment of pumps and pipes to divert irrigation water around the bridge structure during construction. The bridge construction methodology may adopt a combination of coffer dams and diversion pumps or may only use coffer dams in sections to partially block the channel allowing water flow during construction.

3.3.6 Source and quantity of materials

The proposed modification would involve the use of additional pavement (subbase and base), asphalt, concrete for medians. Additional bulk fill would be needed for channel work.

3.3.7 Traffic management and access

Roads and Maritime, in consultation with John Holland Country Regional Network, has determined that a short-term closure of Burley Griffin Way is required to permit reconstruction of the rail level crossing. Roads and Maritime proposes to direct traffic along Whitton Stock Route Road to access Griffith from the east via Irrigation Way, using the same detour route proposed for the Main Drain J bridge replacement; previously identified and assessed in Section 4 of the REF Submissions Report.

3.4 Ancillary facilities

The proposed modification does not include any additional ancillary sites.

3.5 Public utility adjustment

The following modifications to utilities are proposed and are shown in Appendix A.

Gas mains

It is proposed to relocate a medium pressure gas main (located on the eastern side of Burley Griffin Way) a further 3m east of what is shown on the utility plan in the project REF for a length of 300 metres.

Griffith City Council is evaluating plans to raise the height of Burley Griffin Way north of Edon Street as part of flood protection work. The future council project would require the relocation of the same medium pressure gas main that would be moved during the Yoogali intersection upgrade. For time and cost efficiency purposes, it is proposed to include the relocation of the additional 300-metre length of gas main during the Yoogali intersection upgrade.

Other approved high pressure and medium pressure gas main relocations may also be modified. The proposed main relocation would be subject to detailed design and would be within the proposed modification area.

Water main

Approved water main relocations may be modified, subject to detailed design. The proposed modification would be carried out within the proposed modification area and may include a separate truss bridge for the water main across Main Drain J.

Telstra

Approved Telstra utility relocations may be modified subject to detailed design. The proposed modification would be carried out within the proposed modification area and may include crossing Main Drain J using existing Telstra conduits on the rail bridge.

Storm water

No impacts or modifications to the piped storm water network are planned under the revised scope of works.

3.6 Property acquisition

No property acquisition would be needed for the proposed modification.

4. Statutory and planning framework

4.1 Environmental Planning and Assessment Act 1979

This addendum REF has been completed under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), and describes the expected level of impact of the proposed work. This addendum REF has been prepared to consider whether the proposed modification would have a significant impact on the environment under section 5.5 of the EP&A Act and clause 228 of the Environmental Planning and Assessment Regulation 2000.

4.1.1 State Environmental Planning Policies

State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) aims to facilitate the effective delivery of infrastructure across the State.

Clause 94 of ISEPP permits development on any land for the purpose of a road and/or road infrastructure facilities to be carried out by or on behalf of a public authority without consent.

As the proposed modification is for a road and/or road infrastructure facilities and is to be carried out by Roads and Maritime, it can be assessed under Division 5.1 of the EP&A Act. Development consent from council is not required.

The proposal is not located on land reserved under the *National Parks and Wildlife Act 1974* and does not require development consent or approval under State Environmental Planning Policy (Coastal Management) 2018 (CM SEPP), State Environmental Planning Policy (State and Regional Development) 2011 or State Environmental Planning Policy (State Significant Precincts) 2005.

Part 2 of ISEPP contains provisions for public authorities to consult with local councils and other public authorities prior to the start of certain types of development. Consultation, including consultation as required by ISEPP (where applicable), is discussed in chapter 5 of this addendum REF.

4.1.2 Local Environmental Plans

Griffith Local Environmental Plan 2014

The *Griffith Local Environmental Plan 2014* (the LEP) applies to land within The Griffith City LGA. The proposal area is located within or in the immediate vicinity of land with a number of different zonings, which are listed in Table 4-1 in the project REF. Table 4-1 of the project REF also lists the objectives that apply to each zone, and summarises the consistency of the proposal with these objectives. The proposed modification is consistent with the objectives of the land use zones.

4.2 Other relevant NSW legislation

4.2.1 Protection of the Environment Operations Act 1997

The Protection of the Environment Operations Act 1997 (POEO Act) establishes, amongst other things, the procedures for issuing licences for environmental protection in relation to aspects such as waste, air, water and noise pollution control. The owner or occupier of premises engaged in scheduled activities is required to hold an environment protection licence and comply with the conditions of that licence.

Under Part 3.2 of the POEO Act, the carrying out of scheduled development work as defined in Schedule 1 requires an environmental protection licence. Schedule 1, Clause 35 (road construction) is potentially relevant to the proposal. Road construction is defined by Clause 35(1) as ‘the construction, widening or re-routing of roads, but does not apply to the maintenance or operation of any such road’.

Clause 35(2) specifies that the proposal

‘(2)is declared a scheduled activity if it results in four or more traffic lanes (other than bicycle lanes or lanes used for entry or exit) for at least:

(b) where the road is classified, or proposed to be classified, as a main road (but not a freeway or tollway) under the Roads Act 1993:

(ii) 5 kilometres of their length in any other area’.

As outlined in Section 4.2.2 of the project REF, Burley Griffin Way and Mackay Avenue (MR84) and Irrigation Way (MR80) are classified as State Roads. As the proposal involves the widening of less than five kilometres of Burley Griffin Way, Mackay Avenue and Irrigation Way, it would not fall under Schedule 1 and an environmental protection licence would not be required.

4.2.2 Roads Act 1993

Section 138 of the *Roads Act 1993* (Roads Act) requires consent from the relevant road authority for the carrying out of work in, on or over a public road.

Burley Griffin Way (MR84) and Irrigation Way (MR80) are classified as State Roads. Roads and Maritime is the proponent and relevant roads authority for the proposal.

4.2.3 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act) started on 25 August 2017 and repeals the Threatened Species Conservation Act 1995, the *Nature Conservation Trust Act 2001* and parts of the *National Parks and Wildlife Act 1974*. The BC Act introduces a Biodiversity Assessment Method (BAM) and Biodiversity Offsets Scheme (BOS). The BC Act lists a number of threatened species, populations or ecological communities to be considered in deciding whether a development or activity “likely to significantly affect threatened species”. A development or an activity is likely to significantly affect threatened species if:

a) it is likely to significantly affect threatened species or ecological communities, or their habitats, according to the test in section 7.3 (of the BC Act), or

b) the development exceeds the BOS threshold if the biodiversity offsets scheme applies to the impacts of the development on biodiversity values, or

c) it is carried out in a declared area of outstanding biodiversity value.

The BOS does not apply to development that is an activity subject to environmental impact assessment under Part 5 of the EP&A Act unless the proponent chooses to opt into the BOS. Roads and Maritime have not opted in to the BOS for this proposal. As such, the test of significance detailed in section 7.3 of the BC Act must be used to determine whether the proposal is likely to significantly affect threatened species.

The proposed modification is not likely to significantly impact threatened species, populations or ecological communities or their habitats, within the meaning of the BC Act and therefore a Species Impact Statement (SIS) is not required.

4.2.4 National Parks and Wildlife Act 1974

Sections 86, 87 and 90 of the *National Parks and Wildlife Act 1974* (NPW Act) require consent from Office of Environment and Heritage (OEH) for the destruction or damage of Aboriginal objects.

A search was carried out of the Aboriginal Heritage Information Management System (AHIMS) on 20 March 2018 in accordance with the Due Diligence Code (DECCW 2010:11). This search revealed that there are no previously recorded Aboriginal sites within the proposal area or in proximity to the proposed site compound, stockpile or office.

The proposed modification is unlikely to disturb and Aboriginal items. Refer to Section 6.4 for further information.

4.2.5 Biosecurity Act 2015

The *Biodiversity Act 2015* and its subordinate legislation started on 1 July 2017. The *Biodiversity Act 2015* replaces wholly or in part 14 separate pieces of biosecurity related legislation including the *Noxious Weeds Act 1993*. Under the *Biosecurity Act 2015*, all plants, including weeds are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.

The *Biosecurity Act 2015* and Regulations provide specific legal requirements for high risk activities and State level priority weeds. The State level priority weeds and associated legal requirements relevant to the region are outlined in the Riverina Regional Strategic Weed Management Plan 2017 – 2022 (Riverina Local Land Services, 2017) together with the high risk priority weeds from the regional prioritisation process. As such if present, priority weeds on the site should be assessed and controlled to fulfil the General Biosecurity Duty and minimise biosecurity risks.

4.3 Commonwealth legislation

4.3.1 Environment Protection and Biodiversity Conservation Act 1999

Under the EPBC Act a referral is required to the Australian Government for proposed 'actions that have the potential to significantly impact on matters of national environmental significance or the environment of Commonwealth land. These are considered in Appendix B and Section 6 of the addendum REF.

A referral is not required for proposed road actions that may affect nationally listed threatened species, endangered ecological communities and migratory species. This is because requirements for considering impacts to these biodiversity matters are the subject of a strategic assessment approval granted under the EPBC Act by the Australian Government in September 2015.

Potential impacts to these biodiversity matters are also considered as part of Appendix B and Section 6 of the addendum REF.

Findings – matters of national environmental significance (other than biodiversity matters)

The assessment of the proposed modification's impact on matters of national environmental significance and the environment of Commonwealth land found that there would be no change to the findings of the determined activity and would be unlikely to cause a significant impact on matters of national environmental significance or the environment of Commonwealth land. A referral to the Australian Government Department of the Environment and Energy is not required.

4.4 Confirmation of statutory position

The proposed modification is categorised as development for the purpose of a road and/or road infrastructure facilities and is being carried out by or on behalf of a public authority. Under clause 94 of ISEPP the proposed modification is permissible without consent. The proposed modification is not State significant infrastructure or State significant development. The proposed modification can be assessed under Division 5.1 of the EP&A Act. Consent from Council is not required.

5. Consultation

5.1 Ongoing or future consultation

A summary of consultation carried out with residents and businesses directly affected by the proposed modification is provided in Table 5-1.

Table 5-1 Summary of ongoing consultation

| Group | Consultation | Issue raised | Response / where addressed in addendum REF |
|--|--|--|--|
| Residents - 116, 118, 120, 122, 124 Mackay Ave | <ul style="list-style-type: none">• Face to face door knocking on 21 and 28 February | <ul style="list-style-type: none">• No issues raised | <ul style="list-style-type: none">• Not applicable |
| Residents - 5373 Irrigation Way | <ul style="list-style-type: none">• Face to face meeting | <ul style="list-style-type: none">• No issues raised | <ul style="list-style-type: none">• Not applicable |
| Local Business - Griffith City Volkswagen | <ul style="list-style-type: none">• Face to face meeting on 28 February | <ul style="list-style-type: none">• Strongly opposed proposal to modify customer access and parking arrangements | <ul style="list-style-type: none">• Roads and Maritime would continue to consult with Griffith City Volkswagen through the detailed design stage of the proposed modification. |

Roads and Maritime would continue to consult with Council regarding funding arrangements and the design of utility relocation.

6. Environmental assessment

This section of the addendum REF provides a detailed description of the potential environmental impacts associated with the construction and operation of the proposed modification of the Yoogali intersection upgrade. All aspects of the environment potentially impacted upon by the proposed modification are considered. This includes consideration of the factors specified in the guidelines *Roads and Related Facilities EIS Guideline* (DUAP, 1996) and *Is an EIS required?* (DUAP, 1999) as required under clause 228(1) of the Environmental Planning and Assessment Regulation 2000. The factors specified in clause 228(2) of the Environmental Planning and Assessment Regulation 2000 are also considered in Appendix B.

Site-specific safeguards and management measures are provided to ameliorate the identified potential impacts.

6.1 Construction noise and vibration

6.1.1 Methodology

The project REF construction noise and vibration assessment methodology involved prediction of construction noise levels at sensitive receivers within the proposal area, modelled using the SoundPLAN (Version 7.4) noise modelling software based on the Concawe prediction algorithm. This three-dimensional model accounts for noise source and receiver locations, ground and air absorption as well as any acoustic shielding provided by intervening topography and structures.

Predicted construction vibration levels were generated using methods from the *FTA Guidance Manual for Transit Noise and Vibration Impact Assessment* (US Federal Transit Administration, 2006) and *British Standard 5228-1: 2009 Code of practice for noise and vibration control on construction and open sites* (BS 5228-1:2009).

The Construction Road Traffic Noise Estimator component of the Roads and Maritime Construction Noise Estimator was utilised to assess potential impacts arising from construction traffic. Existing traffic inputs were added with volumes extrapolated, including the estimated additional traffic generated during construction.

6.1.2 Potential impacts

The proposed modification may result in construction activities being carried out up to 10 m closer to sensitive receivers than what was assessed and documented in the project REF. It is unlikely the noise impacts would be different to those assessed in the REF.

6.1.3 Safeguards and management measures

No additional safeguards or management measures are necessary.

6.2 Biodiversity

6.2.1 Existing environment

Landscape context

The study area is located in the far west of the South West Slopes IBRA bioregion within the Lower Slopes subregion (Thackway and Creswell, 1995; National Parks and Wildlife Service, 2003). The study area is wholly within the Cocoparra Ranges and Foothills landscape characterised by steep crested ranges, ridges and hills. However, the study area is better represented as being on alluvial plains with grey to brown clays and clay loams associated with Murrumbidgee Depression Plains landscape (Mitchell, 2002). The study area occurs on a low flat floodplain with deep man-made drainage channels and has been historically cleared for agricultural purposes. The site has been highly modified and disturbed by the installation and maintenance of multiple utility services within a power easement. Small cleared rural properties are adjacent to site.

Vegetation and fauna habitat

Vegetation within the proposed intersection is regularly slashed and has suffered severe dieback, due to the prevalent dry conditions particularly for grasses. Native chenopods and a mix of native and exotic grasses dominate the understory in vegetated areas of the study area.

Native tree plantings occur along the northern side of Mackay Avenue are dominated by Myrtaceous species such as River Red Gum (*Eucalyptus camaldulensis*), Yellow Box (*Eucalyptus melliodora*), Red Box (*Eucalyptus polyanthemos*) and Mugga Ironbark (*Eucalyptus sideroxylon*) and Black Tea Tree (*Melaleuca lanceolata*).

All proposed site office compound and ancillary facility locations are cleared and comprise bare ground or mixed native and exotic grassland with recent agricultural activity observed (ploughing and slashing).

A narrow patch of Grey Box (*Eucalyptus microcarpa*) woodland occurs immediately to the south west of study area along Kurrajong Avenue. Although disturbed in the understorey, it is characterised as Plant Community Type (PCT) Western Grey Box - Poplar Box - White Cypress Pine tall woodland on red loams mainly of the eastern Cobar Peneplain Bioregion (ID 82). This PCT is consistent with the Endangered Ecological Community *Inland Grey Box Woodland in the Riverina NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions* listed under BC Act. It is unlikely to meet listing under the EPBC Act where there is less than 50% native perennial plant cover or less than 10% native grass cover. Due to the disturbed nature of the site and lack of native species, vegetation within the study area cannot be classified into a PCT according to the vegetation information systems classification database (OEH 2018).

No threatened flora and fauna listed under the BC Act and EPBC Act were observed during survey and habitats provide a low likelihood of occurrence.

Some foraging habitat for fauna is present in planted native trees and shrubs which provide shelter and food resources for common native birds such as the White-plumed Honeyeater (*Lichenostomus penicillatus*). Potential nesting habitat for Grey Crowned Babbler (*Pomatostomus temporalis temporalis*) (vulnerable BC Act) is present in dense foliage of Black Tea Tree. However, given the isolation of planted trees to intact woodland habitats these birds generally don't cross large open areas and the study area is unlikely to support this species. The drainage channel provides marginal habitat for some fauna species such as birds, reptiles and frogs. The steep banks and lack of riparian and grassy vegetation are unlikely to provide habitat for threatened frogs such as Growling Grass Frog and Sloane's Froglet. No evidence of

micro-bat habitat was observed and the underside of the bridge is considered unlikely to support local roosting bats due to high levels of light penetration and constant presence of water.

6.2.2 Potential impacts

Construction

The project REF assessed the removal of about 10 native planted trees along Mackay Avenue, shrubs and areas of exotic grassland and native chenopod understorey.

The proposed modification involves the removal of an additional 10 planted and regrowth native and exotic trees. No tree hollows are present. Additional groundcover would be cleared within the road reserve to allow for the intersection widening.

Operation

The proposed modification would not have additional impact to biodiversity during operation.

Significance of impacts

The proposed modification area is located within a highly disturbed industrial urban area with generally low quality vegetation dominated by weed species and planted trees. The modification is not likely to significantly impact threatened species, populations or ecological communities or their habitats, within the meaning of the BC Act or FM Act and therefore a Species Impact Statement is not required.

The modification is not likely to significantly impact threatened species, populations, ecological communities or migratory species, within the meaning of the EPBC Act. No additional safeguards or management measures are necessary.

6.2.3 Safeguards and management measures

No additional safeguards or management measures are necessary.

6.3 Landscape character and visual impact

6.3.1 Existing environment

The visual catchment is largely contained by built form and vegetation of the proposal area. The visual catchment relates to the intersection and road corridor itself. Regional views or vistas are not experienced from within or around the proposals setting.

Refer to the project REF for more detail.

6.3.2 Potential impacts

The proposed modification would have a minor additional impact on landscape character and visual amenity given extra trees would be removed. No additional safeguards or management measures are needed.

The proposed intersection design mainly involves road pavement construction and limited opportunities for urban design exist at this location. The proposal does not involve the use of shotcrete or the construction of noise walls. The requirement for an Urban Design Framework is considered to be unnecessary. The preparation of a Landscaping Plan in accordance with Roads and Maritime guidelines are considered to be adequate for the proposal. It is proposed to modify safeguard number LV1 as shown below.

6.3.3 Safeguards and management measures

Deleted text in the modified safeguard below is in struck-out font.

| Impact | Environmental safeguards | Responsibility | Timing | Reference |
|---------------------------------------|--|----------------|------------------------------------|--------------------|
| Landscape character and visual impact | <p>An Urban Design Framework A Landscaping Plan will be prepared to support the final detailed project design and implemented as part of the CEMP. The Urban Design Plan Landscaping Plan shall address the works proposed within the road corridor and that required within private properties as described in the proposal.</p> <p>The Urban Design Plan will present an integrated urban design and landscape guidelines for the project, providing practical detail on the application of design principles and objectives identified in the environmental assessment.</p> <p>The Plan will include design treatments for:</p> <ul style="list-style-type: none"> • location and identification of existing vegetation and proposed landscaped areas, including species to be used • built elements including retaining walls, bridges and noise walls • pedestrian elements including footpath location, paving types and pedestrian crossings • fixtures such as lighting, fencing and signs • details of the staging of landscape works taking account of related environmental controls such | Contractor | Detailed design / pre-construction | Standard safeguard |

| Impact | Environmental safeguards | Responsibility | Timing | Reference |
|--------|---|----------------|--------|-----------|
| | <p>as erosion and sedimentation controls and drainage</p> <ul style="list-style-type: none"> • procedures for monitoring and maintaining landscaped or rehabilitated areas. <p>The Urban Design Plan Landscaping Plan will be prepared in accordance with relevant guidelines, including:</p> <ul style="list-style-type: none"> • Beyond the Pavement urban design policy, process and principles (Roads and Maritime, 2014) • Landscape Guideline (RTA, 2008) • Bridge Aesthetics (Roads and Maritime 2012) • Noise Wall Design Guidelines (RTA, 2006) • Shotcrete Design Guideline (RTA, 2005). | | | |

6.4 Other impacts

6.4.1 Existing environment and potential impacts

| Environmental factor | Existing environment | Potential impacts |
|--------------------------------|---|--|
| Flooding and hydrology | <p>In the Probable Maximum Flood (PMF) there is extensive flooding around the intersection and Yoogali, however Irrigation Way remains flood free. Burley Griffin Way is flooded between McCormack Road and Mackay Avenue by 0.2-0.5m depth. Kurrajong Avenue, near Oakes Road, is flooded by just over 0.5m, and Mackay Avenue is inundated up to 0.2-0.5m by floodwaters overtopping the rail line. Refer to the project REF for more detail</p> | <p>The project REF determined there would be minimal change to the existing flood behaviour and there would be minimal impact to the community and emergency management response requirements.</p> <p>Given the small scale of change, the proposed modification is not expected to have</p> |
| Soils, water and contamination | <p>Yoogali is located in the Darling Sedimentary Basin, which contains Late Silurian to Early Carboniferous bedrock commonly overlain by extensive deposits of Cainozoic alluvium. The proposal area is shown within the available mapping as being underlain by quaternary age floodplain alluvium comprising clayey silt, sand and gravel. These sediments are likely to be stiff/dense in nature and their thickness is likely to be extensive and hence bedrock would not be anticipated to be encountered during the construction of the proposal.</p> <p>Groundwater levels were recorded at 6.2 metres and 11.1 metres below ground level, and so would not be affected by construction work.</p> <p>The proposal is located within the Main Drain J catchment, which is about 420 km² in size and discharges to Mirrool Creek in the Mirrool Creek Catchment to Barren Box Swamp. The Main Drain J catchment drainage has been modified by</p> | <p>The proposed modification is not expected to have an additional impact on soils, water and contamination. No additional safeguards or management measures are needed</p> |

| Environmental factor | Existing environment | Potential impacts |
|-----------------------|---|--|
| | <p>irrigation infrastructure and Main Drain J serves as the principal drainage channel within the catchment. Within the proposal area, Main Drain J runs in a south-westerly direction paralleling Kurrajong Avenue and Burley Griffin Way and passing beneath Irrigation Way. Existing stormwater runoff in the proposal area is collected by two piped drainage networks which ultimately discharge into the channel of Main Drain J.</p> <p>Refer to the project REF for more detail</p> | |
| Traffic and transport | <p>Of the four intersection approach roads, Mackay Avenue has the highest AADT with 6,473 vehicles per day, and Kurrajong Avenue has the lowest AADT with 2,291 vehicles per day. The peak demand for heavy vehicles occurs after 7am in the morning with about 100 heavy vehicles and 30 B-Double vehicles per day.</p> <p>There are limited numbers of pedestrians and cyclists at present, with no dedicated cycleways or footpaths.</p> <p>Three to five bus services use the intersection every weekday, with no operation on weekends or public holidays. Eight school bus services for Yoogali Public School operate during the school term for the morning and evening periods.</p> <p>Between 2013 and 2017 there were six crashes reported at the Burley Griffin Way, Mackay Avenue, Kurrajong Avenue, Irrigation Way intersection. No fatalities or serious injuries reported.</p> <p>Refer to the project REF for more detail</p> | The proposed modification is not expected to have an additional impact on traffic and transport. No additional safeguards or management measures are needed |
| Operational noise | The proposal area is the meeting point of four major roads – Burley Griffin Way, Mackay Avenue, Irrigation Way and Kurrajong Avenue. The existing intersection is a priority intersection with a ‘Give Way’ control for the side roads – | The proposed modification is not expected to have an additional impact on operational noise. To accommodate the modified intersection design, the change in road alignment would be minor. Burley Griffin Way would be widened slightly to |

| Environmental factor | Existing environment | Potential impacts |
|-------------------------|--|--|
| | <p>Burley Griffin Way and Kurrajong Avenue.</p> <p>The locality is characterised as a rural residential area with pockets of commercial premises. Commercial premises nearby the intersection have been identified to be Griffith City Volkswagen located at the corner of Mackay Avenue and Kurrajong Avenue, a café, general store and beauty salon along Edon Street. Also identified in the vicinity are places of worship and educational facilities.</p> <p>The nearest sensitive receivers are residential dwellings on the southern side of Mackay Avenue, southern side of Irrigation Way and northern side of Edon Street.</p> <p>Refer to the project REF for more detail</p> | <p>the east towards Main Drain J and agricultural land. Irrigation Way would be widened slightly on the northern side towards agricultural land. Mackay Avenue would be widened slightly to the north, away from its closest residences. Kurrajong Avenue would be widened slightly to the east towards agricultural land.</p> <p>No additional safeguards or management measures are needed</p> |
| Aboriginal heritage | <p>A preliminary assessment carried out by Roads and Maritime's Aboriginal Cultural Heritage Officer found that the study area does not contain landscape features that indicate the presence of Aboriginal objects, based on the Office of Environment and Heritage's Due Diligence Code of Practice for the Protection of Aboriginal objects in NSW. Further, the cultural heritage potential of the study area appears to be reduced due to past disturbances and there is an absence of sandstone rock outcrops likely to contain Aboriginal art in the topography around the proposal.</p> <p>Refer to the project REF for more detail</p> | <p>The proposed modification is not expected to have an additional impact on non-Aboriginal heritage. No additional safeguards or management measures are needed</p> |
| Non-Aboriginal heritage | <p>Three heritage items are located within about one kilometre of the proposed modification area. There are no heritage items within 150 metres of the proposed modification area.</p> <p>Refer to the project REF for more detail</p> | <p>The proposed modification is not expected to have an additional impact on non-Aboriginal heritage. No additional safeguards or management measures are needed</p> |

| Environmental factor | Existing environment | Potential impacts |
|---------------------------------------|--|--|
| Landscape character and visual impact | <p>The visual catchment is largely contained by built form and vegetation of the proposal area. The visual catchment relates to the intersection and road corridor itself. Regional views or vistas are not experienced from within or around the proposals setting.</p> <p>Refer to the project REF for more detail</p> | <p>The proposed modification would have a minor additional impact on landscape character and visual amenity given extra trees would be removed. No additional safeguards or management measures are needed</p> |
| Socio-economic | <p>Refer to the project REF for more detail</p> | <p>The proposed modification includes the removal of a pedestrian pathway from the new box culvert bridge design. Irrigation Way links an agricultural area with low density rural dwellings to the village of Yoogali. The current bridge does not provide a pedestrian pathway and there is no known demand for a pedestrian pathway over Main Drain J.</p> <p>The proposed modification is not expected to have an additional socio-economic impact. No additional safeguards or management measures are needed</p> |
| Air quality | <p>The air quality of the study area is considered to be typical of a rural area. The main contributors to air quality are emissions from motor vehicles on the surrounding road network. Other contributors to air quality in the area include domestic wood-fire heaters, use of plant and equipment on productive properties, domestic and commercial aerosol and solvent use.</p> <p>Sensitive receivers in the proposal area include residents whose properties adjoin the proposal area, road users and pedestrians.</p> <p>Refer to the project REF for more detail</p> | <p>The proposed modification is not expected to have an additional impact on air quality. No additional safeguards or management measures are needed</p> |
| Waste and resource use | <p>Refer to the project REF</p> | <p>The proposed modification is not expected to have an additional impact on waste and resource use. No additional</p> |

| Environmental factor | Existing environment | Potential impacts |
|----------------------|----------------------|---|
| | | safeguards or management measures are needed. |

6.4.2 Safeguards and management measures

No additional safeguards or management measures are necessary.

6.5 Cumulative impacts

6.5.1 Potential impacts

Cumulative impacts occur when two or more projects are carried out concurrently and in close proximity to one another. The impacts may be caused by both construction and operational activities, and can result in a greater impact to the surrounding area than would be expected if each project was carried out in isolation.

The project REF identified one solar farm project within three kilometres of the proposed modification area that could be carried out at the same time as the Yoogali Intersection Upgrade work.

Given the small scale of the modification, additional cumulative impact is not expected. No additional safeguards or management measures are needed.

6.5.2 Safeguards and management measures

No additional safeguards or management measures are needed for the proposed modification.

7. Environmental management

7.1 Environmental management plans

A number of safeguards and management measures have been identified to minimise adverse environmental impacts, including social impacts, which could potentially arise as a result of the proposed modification. Should the proposed modification proceed, these management measures would be addressed if required during detailed design and incorporated into the Contractors Environmental Management Plan (CEMP) and applied during the construction and operation of the proposed modification.

7.2 Summary of safeguards and management measures

Environmental safeguards and management measures for the Yoogali Intersection Upgrade project are summarised in Table 7-1. Additional safeguards and management measures identified in this addendum REF are included in bold and italicised font. Deleted safeguards are in struck-out font. The safeguards and management measures will be incorporated into the detailed design phase of the proposed modification, the CEMP and the PEMP and implemented during construction and operation of the proposed modification, should it proceed. These safeguards and management measures will minimise any potential adverse impacts arising from the proposed works on the surrounding environment.

Table 7-1: Summary of safeguards and management measures

| No. | Impact | Environmental safeguards and management measures | Responsibility | Timing | Reference |
|------|--|---|---|------------------------------------|--|
| GEN1 | General - minimise environmental impacts during construction | <p>A CEMP will be prepared and submitted for review and endorsement of the Roads and Maritime Environment Manager before the start of the activity.</p> <p>As a minimum, the CEMP will address:</p> <ul style="list-style-type: none"> any requirements associated with statutory approvals details of how the project will implement the identified safeguards outlined in the REF issue-specific environmental management plans roles and responsibilities communication requirements induction and training requirements procedures for monitoring and evaluating environmental performance, and for corrective action reporting requirements and record-keeping procedures for emergency and incident management procedures for audit and review. <p>The endorsed CEMP will be implemented during the activity.</p> | Contractor / Roads and Maritime project manager | Pre-construction / detailed design | Section 3.1 of QA G36 Environment Protection |

| | | | | | |
|------|-----------------------------------|---|---|------------------------------------|--------------------|
| GEN2 | General - notification | All businesses, residential properties and other key stakeholders (e.g. schools, local councils) affected by the activity will be notified at least five days before the start of the activity. | Contractor / Roads and Maritime project manager | Pre-construction | Standard safeguard |
| GEN3 | General – environmental awareness | <p>All personnel working on site will receive training to ensure awareness of environment protection requirements to be implemented during the project. This will include up-front site induction and regular "toolbox" style briefings.</p> <p>The environmental awareness training is to include (as a minimum):</p> <ul style="list-style-type: none"> • environmentally sensitive locations and/or no go zones • requirement to report and the process for reporting environmental issues on-site • requirement to report and the process for reporting damaged environmental controls • erosion and sediment control measures • incident management process • site staff environmental responsibilities. | Contractor / Roads and Maritime project manager | Pre-construction / detailed design | Standard safeguard |

| | | | | | |
|----|--------------|--|------------|------------------------------------|--|
| B1 | Biodiversity | <p>A Flora and Fauna Management Plan will be prepared in accordance with Roads and Maritime's Biodiversity Guidelines: Protecting and Managing Biodiversity on RTA Projects (Roads and Traffic Authority, 2011) and implemented as part of the CEMP. It will include, but not be limited to:</p> <ul style="list-style-type: none"> • plans showing areas to be cleared and areas to be protected, including exclusion zones, protected habitat features and revegetation areas • requirements set out in the Landscape Guideline (Roads and Maritime, 2008) • pre-clearing survey requirements • procedures for unexpected threatened species finds and fauna handling • procedures addressing relevant matters specified in the Policy and guidelines for fish habitat conservation and management Update 2013 (Department of Primary Industries, 2013) • Protocols to manage weeds and pathogens. | Contractor | Detailed design / pre-construction | Section 4.8 of QA G36 Environment Protection |
| B2 | Biodiversity | Measures to further avoid and minimise the construction footprint and native vegetation or habitat removal will be investigated during detailed design and implemented where practicable and feasible. | Contractor | Detailed design / pre-construction | Standard safeguard |
| B3 | Biodiversity | Pre-clearing surveys would be carried out in accordance with Guide 1: Pre-clearing process of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Traffic Authority, 2011). | Contractor | Pre-construction | Standard safeguard |
| B4 | Biodiversity | Vegetation removal would be carried out in accordance with Guide 4: Clearing of vegetation and removal of bushrock of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Traffic Authority, 2011). | Contractor | Construction | Standard safeguard |

| | | | | | |
|-----|-------------------------------|---|------------|-------------------|--------------------|
| B5 | Biodiversity | Native vegetation would be re-established in accordance with Guide 3: Re-establishment of native vegetation of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Traffic Authority, 2011). | Contractor | Post construction | Standard safeguard |
| B6 | Biodiversity | The unexpected species find procedure is to be followed under Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Traffic Authority, 2011) if threatened ecological communities, not assessed in the biodiversity assessment, are identified in the proposal site. | Contractor | Construction | Standard safeguard |
| B7 | Biodiversity | Exclusion zones would be set up at the limit of clearing (i.e. the edge of the impact area) in accordance with Guide 2: Exclusion zones of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Traffic Authority, 2011). | Contractor | Pre-construction | Standard safeguard |
| B8 | Aquatic impacts | Aquatic habitat would be protected in accordance with Guide 10: Aquatic habitats and riparian zones of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Traffic Authority, 2011) and Section 3.3.2 Standard precautions and mitigation measures of the Policy and guidelines for fish habitat conservation and management Update 2013 (Department of Primary Industries, 2013). | Contractor | Construction | Standard safeguard |
| B9 | Injury and mortality of fauna | Fauna would be managed in accordance with Guide 9: Fauna handling of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Transport Authority, 2011). | Contractor | Construction | Standard safeguard |
| B10 | Invasion and spread of weeds | Weed species would be managed in accordance with Guide 6: Weed management of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Transport Authority, 2011). | Contractor | Construction | Standard safeguard |

| | | | | | |
|-----|--|---|-----------------------------|------------------------------------|---|
| B11 | Invasion and spread of pathogens and disease | Pathogens would be managed in accordance with Guide 2: Exclusion zones of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Transport Authority, 2011). | Contractor | Construction | Standard safeguard |
| B12 | Noise, light and vibration | Shading and artificial light impacts would be minimised through detailed design. | Contractor | Construction | Standard safeguard |
| F1 | Hydrology and flooding | Staging of construction activities within Main Drain J would minimise obstruction of the channel and culverts, and limit the extent of flow diversion required. | Contractor | Detailed design / pre-construction | Standard safeguard |
| F2 | Hydrology and flooding | Detailed design would ensure there is no reduction in the existing waterway area of the Main Drain J culvert structure. | Contractor | Detailed design / pre-construction | Standard safeguard |
| F3 | Hydrology and flooding | Consultation would be carried with Griffith City Council to ensure consistency with the floodplain risk management study and plan developed for the Main Drain J catchment. | Roads and Maritime Services | Detailed design / pre-construction | Standard safeguard |
| SW1 | Soil and water | A Soil and Water Management Plan (SWMP) will be prepared and implemented as part of the CEMP. The SWMP will identify all reasonably foreseeable risks relating to soil erosion and water pollution and describe how these risks will be addressed during construction. | Contractor | Detailed design / pre-construction | Section 2.1 of QA G38 Soil and Water Management |
| SW2 | Soil and water | <p>A site specific Erosion and Sediment Control Plan/s will be prepared and implemented as part of the SWMP.</p> <p>The Plan will include arrangements for managing wet weather events, including monitoring of potential high risk events (such as storms) and specific controls and follow-up measures to be applied in the event of wet weather.</p> | Contractor | Detailed design / Pre-construction | Section 2.2 of QA G38 Soil and Water Management |

| | | | | | |
|-----|-------------------|---|------------|------------------------------------|--|
| SW3 | Contaminated land | <p>A Contaminated Land Management Plan will be prepared in accordance with the Guideline for the Management of Contamination (Roads and Maritime, 2013) and implemented as part of the CEMP. The plan will include, but not be limited to:</p> <ul style="list-style-type: none"> • capture and management of any surface runoff contaminated by exposure to the contaminated land • further investigations required to determine the extent, concentration and type of contamination, as identified in the detailed site investigation (Phase 2) • management of the remediation and subsequent validation of the contaminated land, including any certification required • measures to ensure the safety of site personnel and local communities during construction. | Contractor | Detailed design / Pre-construction | Section 4.2 of QA G36 Environment Protection |
| SW4 | Contaminated land | <p>If contaminated areas are encountered during construction, appropriate control measures will be implemented to manage the immediate risks of contamination. All other works that may impact on the contaminated area will cease until the nature and extent of the contamination has been confirmed and any necessary site-specific controls or further actions identified in consultation with the Roads and Maritime Environment Manager and/or Environment Protection Authority (EPA).</p> | Contractor | Detailed design / Pre-construction | Section 4.3 of QA G36 Environment Protection |
| SW5 | Accidental spill | <p>A site specific emergency spill plan will be developed, and include spill management measures in accordance with the Roads and Maritime Code of Practice for Water Management (Roads and Traffic Authority, 1999) and relevant EPA guidelines. The plan will address measures to be implemented in the event of a spill, including initial response and containment, notification of emergency services and relevant authorities (including Roads and Maritime and EPA officers).</p> | Contractor | Detailed design / Pre-construction | Section 4.3 of QA G36 Environment Protection |

| | | | | | |
|-----|-----------------------|---|------------|------------------------------------|--|
| TT1 | Traffic and transport | <p>A Traffic Management Plan (TMP) will be prepared and implemented as part of the CEMP. The TMP will be prepared in accordance with the Roads and Maritime Traffic Control at Work Sites Manual (Roads and Traffic Authority, 2010) and QA Specification G10 Control of Traffic (Roads and Maritime, 2008). The TMP will include:</p> <ul style="list-style-type: none"> • confirmation of haulage routes • measures to maintain access to local roads and properties • site specific traffic control measures (including signage) to manage and regulate traffic movement • measures to maintain pedestrian and cyclist access • requirements and methods to consult and inform the local community of impacts on the local road network • access to construction sites including entry and exit locations and measures to prevent construction vehicles queuing on public roads • a response plan for any construction traffic incident • consideration of other developments that may be under construction to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic • monitoring, review and amendment mechanisms. | Contractor | Detailed design / Pre-construction | Section 4.8 of QA G36 Environment Protection |
| TT2 | Traffic and transport | Current traffic movements and property accesses are to be maintained during the works. Any disturbance is to be minimised to prevent unnecessary traffic delays. | Contractor | Construction | Standard safeguard |
| TT3 | Traffic and transport | Pedestrian and cyclist access is to be maintained throughout construction. Provision of signposts outlining the pedestrians and cyclists' diversion routes would be displayed during construction. Any temporary pedestrian diversions or footpath closures are to be addressed in the CTMP. | Contractor | Construction | Standard safeguard |

| | | | | | |
|-----|-----------------------|---|------------|------------------------------------|--|
| TT4 | Traffic and transport | <p>Access to appropriate bus stop locations would be maintained during construction, where possible, in consultation with bus operators.</p> <p>Ongoing updates on locations and access to bus stops would be provided to the community during construction period to ensure that disruption is minimised.</p> | Contractor | Construction | Standard safeguard |
| NV1 | Noise and vibration | <p>A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the CEMP. The NVMP will generally follow the approach in the <i>Interim Construction Noise Guideline</i> (ICNG) (Department of Environment and Climate Change, 2009) and identify:</p> <ul style="list-style-type: none"> • all potential significant noise and vibration generating activities associated with the activity • feasible and reasonable mitigation measures to be implemented, taking into account Beyond the Pavement: urban design policy, process and principles (Roads and Maritime, 2014) • a monitoring program to assess performance against relevant noise and vibration criteria • arrangements for consultation with affected neighbours and sensitive receivers, including notification and complaint handling procedures • contingency measures to be implemented in the event of non-compliance with noise and vibration criteria. | Contractor | Detailed design / pre-construction | Section 4.6 of QA G36 Environment Protection |
| NV2 | Noise and vibration | <p>All sensitive receivers (e.g. schools, local residents) likely to be affected will be notified at least five days prior to commencement of any works associated with the activity that may have an adverse noise or vibration impact. The notification will provide details of:</p> <ul style="list-style-type: none"> • the proposal • the construction period and construction hours • contact information for project management staff • complaint and incident reporting • how to obtain further information. | Contractor | Detailed design / pre-construction | Standard safeguard |

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|------|---------------------|---|--------------------|---------------------------------|----------------------|
| NV3 | Noise and vibration | Limit the most noise-intensive construction processes (e.g. pneumatic hammering, pavement sawing, stormwater upgrades) to standard construction hours where possible. | Contractor | Construction | Additional safeguard |
| NV5 | Vibration | The use of vibratory compaction equipment within two metres of underground services should not be undertaken without further investigations. | Contractor | Pre-construction / construction | Additional safeguard |
| NV6 | Vibration | If plant and equipment changes materially from that which has been assessed, a review of construction vibration should be undertaken prior to commencing work. | Contractor | Pre-construction | Additional safeguard |
| NV7 | Traffic noise | Consult with affected resident shown in Figure 4-2 in the Submissions Report, at least two weeks prior to work commencing. | Roads and Maritime | Pre-construction | Additional safeguard |
| NV8 | Traffic noise | Install signage to influence driver behaviour and avoidance of the use of engine compression brakes. | Roads and Maritime | Construction | Additional safeguard |
| NV9 | Traffic noise | Consider reducing the speed of vehicles along a select section of Whitton Stock Route Road. It is noted that this may not be preferable given additional noise may be generated from vehicles braking and accelerating. | Roads and Maritime | Construction | Additional safeguard |
| NV10 | Traffic noise | Where possible, schedule work to minimise the amount of time the detour is in place (keep the Yoogali Road intersection open where certain work can be done under traffic). | Roads and Maritime | Pre-construction / construction | Additional safeguard |

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|-----|-------------------------|--|------------|------------------------------------|---|
| AH1 | Aboriginal heritage | <p>The CEMP prepared for the proposal will provide specific guidance on measures and controls to be implemented to avoid and mitigate impacts to Aboriginal heritage.</p> <p>The CEMP will be prepared in accordance with the Procedure for Aboriginal cultural heritage consultation and investigation (Roads and Maritime, 2011) and Standard Management Procedure - Unexpected Heritage Items (Roads and Maritime, 2015).</p> | Contractor | Detailed design / pre-construction | Section 4.9 of QA G36 Environment Protection |
| AH2 | Aboriginal heritage | <p>The Standard Management Procedure - Unexpected Heritage Items (Roads and Maritime, 2015) will be followed in the event that an unknown or potential Aboriginal object/s, including skeletal remains, is found during construction. This applies where Roads and Maritime does not have approval to disturb the object/s or where a specific safeguard for managing the disturbance (apart from the Procedure) is not in place.</p> <p>Work will only re-commence once the requirements of that Procedure have been satisfied.</p> | Contractor | Detailed design / pre-construction | Section 4.9 of QA G36 Environment Protection |
| H1 | Non-Aboriginal heritage | The CEMP prepared and implemented for the proposal will provide specific guidance on measures and controls to be implemented to avoid and mitigate impacts to Non-Aboriginal heritage. | Contractor | Detailed design / pre-construction | Section 4.10 of QA G36 Environment Protection |
| H2 | Non-Aboriginal heritage | The Standard Management Procedure - Unexpected Heritage Items (Roads and Maritime, 2015) will be followed in the event that any unexpected heritage items, archaeological remains or potential relics of Non-Aboriginal origin are encountered. | Contractor | Detailed design / pre-construction | Section 4.10 of QA G36 Environment Protection |

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|-----|---------------------------------------|---|------------|------------------------------------|--------------------|
| LV1 | Landscape character and visual impact | <p>An Urban Design Framework A Landscaping Plan will be prepared to support the final detailed project design and implemented as part of the CEMP. The Urban Design Plan Landscaping Plan shall address the works proposed within the road corridor and that required within private properties as described in the proposal.</p> <p>The Urban Design Plan will present an integrated urban design and landscape guidelines for the project, providing practical detail on the application of design principles and objectives identified in the environmental assessment.</p> <p>The Plan will include design treatments for:</p> <ul style="list-style-type: none"> • location and identification of existing vegetation and proposed landscaped areas, including species to be used • built elements including retaining walls, bridges and noise walls • pedestrian elements including footpath location, paving types and pedestrian crossings • fixtures such as lighting, fencing and signs • details of the staging of landscape works taking account of related environmental controls such as erosion and sedimentation controls and drainage • procedures for monitoring and maintaining landscaped or rehabilitated areas. <p>The Urban Design Plan Landscaping Plan will be prepared in accordance with relevant guidelines, including:</p> <ul style="list-style-type: none"> • Beyond the Pavement urban design policy, process and principles (Roads and Maritime, 2014) • Landscape Guideline (RTA, 2008) • Bridge Aesthetics (Roads and Maritime 2012) • Noise Wall Design Guidelines (RTA, 2006) • Shotcrete Design Guideline (RTA, 2005). | Contractor | Detailed design / pre-construction | Standard safeguard |
|-----|---------------------------------------|---|------------|------------------------------------|--------------------|

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|-----|------------------------------|---|------------|------------------------------------|--------------------|
| LV2 | Management of works | Works are to be managed in accordance with EIA-N04 Guidelines for visual impact assessment and landscape character assessment (Roads and Maritime, 2013). | Contractor | Construction | Standard safeguard |
| LV3 | Site compound visual impacts | Fencing with material attached (e.g. shade cloth in a colour sympathetic to surrounding area) around the construction compound to screen views of the construction compound from nearby properties. | Contractor | Construction | Standard safeguard |
| LV4 | Worksite | Maintaining the work site in a clean and tidy stage and completing the work within the shortest possible timeframe. | Contractor | Construction | Standard safeguard |
| SE1 | Socio-economic | <p>A Communication Plan (CP) will be prepared and implemented as part of the CEMP to help provide timely and accurate information to the community during construction. The CP will include (as a minimum):</p> <ul style="list-style-type: none"> mechanisms to provide details and timing of proposed activities to affected residents, including changed traffic and access conditions contact name and number for complaints. <p>The CP will be prepared in accordance with the Community Involvement and Communications Resource Manual (Roads and Traffic Authority, 2008).</p> | Contractor | Detailed design / pre-construction | Standard safeguard |
| SE2 | Socio-economic | In the event that utility service interruptions are required as a result of utilities relocation on within the proposal area, residents would be informed prior to any interruptions. | Contractor | Pre-construction / construction | Standard safeguard |
| SE3 | Socio-economic | Fencing with material attached (e.g. shade cloth) would be provided around the construction compound and other areas to screen views of the construction compound from adjoining properties. | Contractor | Pre-construction / construction | Standard safeguard |

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|-----|-------------|---|------------|------------------------------------|--|
| AQ1 | Air quality | <p>The CEMP prepared and implemented for the proposal will address air quality and include, but not be limited to:</p> <ul style="list-style-type: none"> • potential sources of air pollution • air quality management objectives consistent with any relevant published EPA and/or Office of Environment and Heritage (OEH) guidelines • mitigation and suppression measures to be implemented. • methods to manage work during strong winds or other adverse weather conditions • a progressive rehabilitation strategy for exposed surfaces. | Contractor | Detailed design / pre-construction | Section 4.4 of QA G36 Environment Protection |
| AQ2 | Air quality | Measures for dust suppression, including watering or covering exposed areas and stockpiles are to be implemented and be in accordance with the Roads and Maritime Services Stockpile Site Management Guideline (EMS-TG-10). | Contractor | Construction | Standard safeguard |
| AQ3 | Air quality | Disturbed areas will be minimised in extent and rehabilitated progressively. | Contractor | Construction | Standard safeguard |
| AQ4 | Air quality | Stockpiles will be located as far away from residences and other sensitive receivers as possible. | Contractor | Construction | Standard safeguard |
| AQ5 | Air quality | Burning of material on-site is prohibited. | Contractor | Construction | Standard safeguard |
| AQ6 | Air quality | Vehicles transporting waste, spoil or other material that may produce odours or dust will be covered during transport. | Contractor | Construction | Standard safeguard |
| AQ7 | Air quality | Construction works (including the spraying of paint and other materials) during periods of high winds would be modified to avoid drift. | Contractor | Construction | Standard safeguard |

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|------|-------------------|--|------------|--------------|--------------------|
| AQ8 | Exhaust emissions | Visual monitoring of air quality will be undertaken to verify the effectiveness of controls and enable early intervention Work activities will be reprogrammed if the management measures are not adequately restricting dust generation. | Contractor | Construction | Standard safeguard |
| AQ9 | Exhaust emissions | Construction plant and equipment would be maintained in a good working condition in order to limit impacts on air quality. | Contractor | Construction | Standard safeguard |
| AQ10 | Exhaust emissions | Plant and machinery would be turned off when not in use. | Contractor | Construction | Standard safeguard |
| W1 | Waste | A Waste and Resource Management Plan would be prepared as part of the CEMP, which details waste management strategies which are consistent with the Waste Avoidance and Resource Recovery Act 2007 (Australian government, 2007) and the resource management hierarchy principles (in order of priority) of avoidance, resource recovery and disposal. | Contractor | Construction | Standard safeguard |
| W2 | Waste | The Waste and Resource Management Plan would include procedures to classify all waste types in accordance with the Waste Classification Guidelines (EPA, 2014) and NSW legislative requirements and would include procedures for reuse (where feasible) and disposal arrangements for unsuitable excavated material or contaminated material (if encountered). | Contractor | Construction | Standard safeguard |
| W3 | Waste | Waste disposed of off-site would be disposed of to a waste facility that is licensed under the Protection of the Environment Operations Act (NSW, 1997) to receive wastes of that type. | Contractor | Construction | Standard safeguard |
| W4 | Waste | There is to be no disposal or re-use of construction waste on to other land. | Contractor | Construction | Standard safeguard |

| | | | | | |
|-----|---------------------------------|---|--------------------|--|--------------------|
| W5 | Waste | Types of waste collected, amounts, date/time and details of disposal are to be recorded in a waste register. | Contractor | Construction | Standard safeguard |
| W6 | Waste | Cleared weed free vegetation will be chipped and reused on-site as part of the proposed landscaping and to stabilise disturbed soils where possible. | Contractor | Construction | Standard safeguard |
| W7 | Waste | The works area will be kept free of rubbish, with appropriate receptacles provided for waste management and recycling. | Contractor | Construction | Standard safeguard |
| CI1 | Cumulative construction impacts | <p>A CP will be prepared and implemented as part of the CEMP to help provide timely and accurate information to the community during construction</p> <p>The CP will include consultation with Griffith City Council and proponents of the Griffith Solar and Riverina Solar projects to:</p> <ul style="list-style-type: none"> • understand any concurrent development being undertaken within the area • increase awareness of construction timeframes and impacts • coordinate impact mitigation and management (e.g.: respite periods). | Roads and Maritime | Pre-construction / during construction | Standard safeguard |

7.3 Licensing and approvals

All relevant licenses, permits, notifications and approvals needed for the Yoogali Intersection Upgrade and when they need to be obtained are listed in Table 7-2. Additional or changed licenses and approval requirements identified in this addendum REF are indicated by underlined and/or struck out font.

Table 7-2: Summary of licensing and approval required

| Instrument | Requirement | Timing |
|---------------------------------------|--|--------------------------------|
| <i>Water Act 1912</i> (s10 / s18F) | Licence and/or permit for construction or use of a 'work' (eg water conservation, irrigation, water supply, drainage or changing the course of a river) for certain purposes from DPI (Water). | Prior to start of the activity |

8. Conclusion

8.1 Justification

The proposed modification would improve freight efficiency by increasing the capacity of the intersection for heavy vehicles. Road user safety would also be improved at both the intersection and level railway crossing. The assessment of the proposed modification's impact has concluded:

- The proposed modification is not likely to have a significant impact on the environment.
- The proposed modification is not likely to have a significant impact on matters of national environmental significance or the environment of Commonwealth land.

While there would be minor environmental impacts as a result of the proposed modification, they have been avoided or minimised wherever possible through design and site-specific safeguards summarised in Section 7. The proposed modification is considered to be justified as the potential impact on the environment is minor with significant improvements to freight efficiency and road user safety.

8.2 Objects of the EP&A Act

Consideration of the proposed modification in accordance with the objects of the EP&A Act is discussed in Table 8-1.

Table 8-1 Objects of the EP&A Act

| Object | Comment |
|---|--|
| 1.3(a) To promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources. | The proposed modification would continue to provide for road network safety while minimising impacts on the built environment. |
| 1.3(b) To facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment. | The proposed modification has been developed in accordance with ecologically sustainable development principles. |
| 1.3(c) To promote the orderly and economic use and development of land. | Not relevant to the project. |
| 1.3(d) To promote the delivery and maintenance of affordable housing. | Not relevant to the project. |
| 1.3(e) To protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats. | <p>The proposed modification would require the clearing of additional existing vegetation.</p> <p>The potential impacts on vegetation, threatened species, population and ecological communities are not significant, as discussed in Section 6.2.</p> |
| 1.3(f) To promote the sustainable management of built and cultural heritage (including Aboriginal | The proposed modification is not anticipated to have any impact on built or cultural heritage (including |

| Object | Comment |
|--|--|
| cultural heritage). | Aboriginal cultural heritage). Safeguards and management measures have been proposed to reduce the risk of harm to unidentified heritage items found during construction. |
| 1.3(g) To promote good design and amenity of the built environment. | The proposed intersection upgrade is designed to be in keeping with the existing environment and road corridor. |
| 1.3(h) To promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants. | Not relevant to the project. |
| 1.3(i) To promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State. | Not relevant to the project. |
| 1.3(j) To provide increased opportunity for community participation in environmental planning and assessment. | The proposed modification was developed in response to concerns raised during the consultation process of the project REF. Consultation with the community was carried out during the development of the proposed modification. Details of this consultation are provided in Section 5. |

8.2.1 The precautionary principle

The precautionary principle upholds that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

When applying the precautionary principle public and private decisions should be guided by:

- careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment
- an assessment of risk-weighted consequences of various options.

A precondition for the operation of the precautionary principle is that there are threats of serious or irreversible damage to the environment. This REF has demonstrated that such threats are not present for the proposal.

Conservative 'worst case' scenarios were considered while assessing the environmental impact of the proposal. For example, conservative estimates of the number of trees to be removed and the number of construction vehicles were used for the impact assessments. Worst case construction times were also assessed.

Specialist advice in traffic modelling, noise and vibration, biodiversity, flooding and landscape character and visual impact were incorporated for a detailed understanding of the existing environment.

8.2.2 Intergenerational equity

The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

The proposed work would not impact on natural or cultural features to a level that would compromise the health, diversity or productivity of the environment to a level that would impact on future generations.

The proposed work would benefit future generations by ensuring the safety of road users and efficiency of freight movement.

8.2.3 Conservation of biological diversity and ecological integrity

The principle of biological diversity upholds that the conservation of biological diversity and ecological integrity should be a fundamental consideration.

The construction planning outcomes and safeguard and management measures described in Section 7 would minimise the impacts of the proposal on terrestrial biodiversity and ecological integrity of the proposal area and its surrounding landscapes.

8.2.4 Improved valuation, pricing and incentive mechanisms

This principle requires that 'costs to the environment should be factored into the economic costs of a project', and upholds that environmental factors should be included in the valuation of assets and services, such as:

- Polluter pays, that is, those who generate pollution and waste should bear that cost of containment, avoidance or abatement.
- The users of goods and service should pay prices based on the full life cycle of costs or providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste.
- Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

Environmental issues have been considered in the strategic planning for the proposed modification. The environmental goals of the modification have also been pursued in the most cost effective way through the design and construction planning process.

8.3 Conclusion

This addendum REF has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed activity.

This has included consideration where relevant, of conservation agreements and plans of management under the NPW Act, biodiversity stewardship sites under the BC Act, wilderness areas, areas of outstanding value, impacts on threatened species, populations and ecological communities and their habitats and other protected fauna and native plants. It has also considered potential impacts to matters of national environmental significance listed under the Federal EPBC Act.

A number of potential environmental impacts from the proposed modification have been avoided or reduced during the design development and options assessment. The proposed modification as described in the addendum REF meets the project objectives with only minor environmental impact. Safeguards and management measures as detailed in this addendum REF would ameliorate or minimise these expected impacts. The proposed modification would also ensure safe and efficient operation of the intersection well into the future. On balance the proposed modification is considered justified and the following conclusions are made.

Significance of impact under NSW legislation

The proposed modification would not result in a change to the findings of the project REF or submissions report and would be unlikely to cause a significant impact on the environment. Therefore it is not necessary for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning under Division 5.2 of the EP&A Act. A Biodiversity Development Assessment Report or Species Impact Statement is not required. The proposed modification is subject to assessment under Division 5.1 of the EP&A Act. Consent from Council is not required.

Significance of impact under Australian legislation

The proposed modification would not likely cause a significant impact on matters of national environmental significance or the environment of Commonwealth land within the meaning of the EPBC Act. A referral to the Australian Government Department of the Environment and Energy is not required.

9. Certification

This addendum review of environmental factors provides a true and fair review of the proposed modification in relation to its potential effects on the environment. It addresses to the fullest extent possible all matters affecting or likely to affect the environment as a result of the proposed modification.

Gemma Barber

Environment Officer

Roads and Maritime Services

Date:

I have examined this addendum review of environmental factors and accept it on behalf of Roads and Maritime Services.



Tim Keyes

Project Manager

Roads and Maritime Services

Date: 02/05/19

Terms and acronyms used in this addendum REF

| Term / Acronym | Description |
|--------------------|---|
| AusLink | Mechanism to facilitate cooperative transport planning and funding by Commonwealth and state and territory jurisdictions |
| BC Act | <i>Biodiversity Conservation Act 2016</i> (NSW). |
| CEMP | Construction / Contractor's environmental management plan |
| EIA | Environmental impact assessment |
| EP&A Act | <i>Environmental Planning and Assessment Act 1979</i> (NSW). Provides the legislative framework for land use planning and development assessment in NSW |
| EPBC Act | <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth). Provides for the protection of the environment, especially matters of national environmental significance, and provides a national assessment and approvals process. |
| ESD | Ecologically sustainable development. Development which uses, conserves and enhances the resources of the community so that ecological processes on which life depends, are maintained and the total quality of life, now and in the future, can be increased |
| FM Act | <i>Fisheries Management Act 1994</i> (NSW) |
| Heritage Act | <i>Heritage Act 1977</i> (NSW) |
| ISEPP | State Environmental Planning Policy (Infrastructure) 2007 |
| LALC | Local Aboriginal Land Council |
| LEP | Local Environmental Plan. A type of planning instrument made under Part 3 of the EP&A Act. |
| LoS | Level of Service. A qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. |
| NES | Matters of national environmental significance under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> . |
| NPW Act | <i>National Parks and Wildlife Act 1974</i> (NSW) |
| Roads and Maritime | NSW Roads and Maritime Services |
| SEPP | State Environmental Planning Policy. A type of planning instrument made under Part 3 of the EP&A Act. |
| SEPP 14 | State Environmental Planning Policy No.14 – Coastal Wetlands |
| TSC Act | <i>Threatened Species Conservation Act 1995</i> (NSW) |
| QA Specifications | Specifications developed by Roads and Maritime Services for use with road work and bridge work contracts let by Roads and Maritime Services. |

Appendix A

Drawings

Appendix B

Consideration of clause 228(2) factors and matters of National Environmental Significance and Commonwealth land

Clause 228(2) Checklist

In addition to the requirements of the *Is an EIS required?* (1995-96) guideline and the *Roads and Related Facilities EIS Guideline* (DUAP, 1996) as detailed in the addendum REF, the following factors, listed in clause 228(2) of the Environmental Planning and Assessment Regulation 2000, have also been considered to assess the likely impacts of the proposed modification on the natural and built environment.

| Factor | Impact |
|--|---------------------------------|
| a. Any environmental impact on a community? The proposed modification would have an additional positive impact on the community by providing a more efficient intersection. | Minor long-term positive impact |
| b. Any transformation of a locality? It is unlikely the proposed modification would transform the locality. | Nil |
| c. Any environmental impact on the ecosystems of the locality? It is unlikely the proposed modification would have an adverse environmental impact on the ecosystems of the locality. | Nil |
| d. Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality? It is unlikely the proposed modification would reduce the aesthetic, recreational, scientific or other environmental quality or value of the locality. | Nil |
| e. Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations? It is unlikely the proposed modification would have an effect on a locality, place or building having any significance outlined above. | Nil |
| f. Any impact on the habitat of protected fauna (within the meaning of the National Parks and Wildlife Act 1974)? It is unlikely the proposed modification would have an adverse impact on the habitat of protected fauna. | Nil |
| g. Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air? It is unlikely the proposed modification would endanger any species of animal, plant or other form of life. | Nil |
| h. Any long-term effects on the environment? It is unlikely the proposed modification would have any long-term effects (both positive and negative) on the environment. | Nil |
| i. Any degradation of the quality of the environment? It is unlikely the proposed modification would degrade the quality of the environment. | Nil |
| j. Any risk to the safety of the environment? It is unlikely the proposed modification would change the risks posed to the safety of the environment. | Nil |
| k. Any reduction in the range of beneficial uses of the environment? No reduction in the range of beneficial uses of the environment as a result of the proposed modification is expected. | Nil |

| Factor | Impact |
|---|----------------------------------|
| <p>l. Any pollution of the environment?</p> <p>The proposed modification is likely to result in minor additional air and noise pollution from plant and machinery. Pollution would be minor considering the nature and duration of the work.</p> <p>The implementation of management and mitigation measures listed in Section 7 would further reduce expected impact on the environment.</p> | Minor short term negative impact |
| <p>m. Any environmental problems associated with the disposal of waste?</p> <p>The proposed modification would generate negligible additional waste. No problems associated with disposal of waste are expected.</p> | Nil |
| <p>n. Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply?</p> <p>There would be no increased demands on resources (natural or otherwise) that are; or likely to become, in short supply as a result of the proposed modification.</p> | Nil |
| <p>o. Any cumulative environmental effect with other existing or likely future activities?</p> <p>Given the small scale of the proposed modification, the work is unlikely to have additional cumulative impact on the environment.</p> | Nil |
| <p>p. Any impact on coastal processes and coastal hazards, including those under projected climate change conditions?</p> <p>The proposed modification would not have any impact on coastal processes or coastal hazards, including reference to projected climate change conditions.</p> | Nil |

Matters of National Environmental Significance and Commonwealth land

Under the environmental assessment provisions of the EPBC Act, the following matters of national environmental significance and impacts on Commonwealth land are required to be considered to assist in determining whether the proposed modification should be referred to the Australian Government Department of the Environment.

Under the EPBC Act strategic assessment approval a referral is not required for proposed road actions that may affect nationally listed threatened species, populations, endangered ecological communities and migratory species. Impacts on these matters are assessed in detail as part of this addendum REF in accordance with Australian Government significant impact criteria and taking into account relevant guidelines and policies.

| Factor | Impact |
|--|--------|
| a. Any impact on a World Heritage property? The proposed modification would not impact a World Heritage property. | Nil |
| b. Any impact on a National Heritage place? The proposed modification would not have an impact on a National Heritage place. | Nil |
| c. Any impact on a wetland of international importance? The proposed modification would not have an impact on a wetland of international importance (listed under the RAMSAR Convention). | Nil |
| d. Any impact on a listed threatened species or communities? The proposed modification would not have an impact on a listed threatened species or ecological community. | Nil |
| e. Any impacts on listed migratory species? The proposed modification would not have an impact on a listed migratory species protected under an international agreement. | Nil |
| f. Any impact on a Commonwealth marine area? The proposed modification would not have an impact on a Commonwealth marine area. | Nil |
| g. Does the proposed modification involve a nuclear action (including uranium mining)? The proposed modification does not involve a nuclear action. | Nil |
| Additionally, any impact (direct or indirect) on Commonwealth land? The proposed modification would not have an impact (either directly or indirectly) on Commonwealth land. | Nil |

Appendix C

Statutory consultation checklists

Infrastructure SEPP

Certain development types

| Development type | Description | Yes / No | If 'yes' consult with | ISEPP clause |
|--|--|----------|--|---------------|
| Car Park | Does the project include a car park intended for the use by commuters using regular bus services? | No | Griffith City Council Occupiers of adjoining land | ISEPP cl. 95A |
| Bus Depots | Does the project propose a bus depot? | No | Griffith City Council Occupiers of adjoining land | ISEPP cl. 95A |
| Permanent road maintenance depot and associated infrastructure | Does the project propose a permanent road maintenance depot or associated infrastructure such as garages, sheds, tool houses, storage yards, training facilities and workers' amenities? | No | Griffith City Council Occupiers of adjoining land | ISEPP cl. 95A |

Development within the Coastal Zone

| Issue | Description | Yes / No / NA | If 'yes' consult with | ISEPP clause |
|--|--|---------------|-----------------------|---------------|
| Development with impacts on certain land within the coastal zone | Is the proposal within a coastal vulnerability area and is inconsistent with a certified coastal management program applying to that land? | No | Griffith City Council | ISEPP cl. 15A |

Note: See interactive map here: <https://www.planning.nsw.gov.au/policy-and-legislation/coastal-management>. Note the coastal vulnerability area has not yet been mapped.

Note: a certified coastal zone management plan is taken to be a certified coastal management program

Council related infrastructure or services

| Issue | Potential impact | Yes / No | If 'yes' consult with the relevant local council(s). | ISEPP clause |
|------------|--|----------|--|-------------------|
| Stormwater | Are the works likely to have a <i>substantial</i> impact on the stormwater management services which are provided by council? | No | Griffith City Council | ISEPP cl.13(1)(a) |
| Traffic | Are the works likely to generate traffic to an extent that will <i>strain</i> the capacity of the existing road system in a local government area? | No | Griffith City Council | ISEPP cl.13(1)(b) |

| Issue | Potential impact | Yes / No | If 'yes' consult with the relevant local council(s). | ISEPP clause |
|----------------------------|--|----------|--|-------------------|
| Sewerage system | Will the works involve connection to a council owned sewerage system? If so, will this connection have a <i>substantial</i> impact on the capacity of any part of the system? | No | Griffith City Council | ISEPP cl.13(1)(c) |
| Water usage | Will the works involve connection to a council owned water supply system? If so, will this require the use of a <i>substantial</i> volume of water? | No | Griffith City Council | ISEPP cl.13(1)(d) |
| Temporary structures | Will the works involve the installation of a temporary structure on, or the enclosing of, a public place which is under local council management or control? If so, will this cause more than a <i>minor</i> or <i>inconsequential</i> disruption to pedestrian or vehicular flow? | No | Griffith City Council | ISEPP cl.13(1)(e) |
| Road & footpath excavation | Will the works involve more than <i>minor</i> or <i>inconsequential</i> excavation of a road or adjacent footpath for which council is the roads authority and responsible for maintenance? | Yes | Griffith City Council | ISEPP cl.13(1)(f) |

Local heritage items

| Issue | Potential impact | Yes / No | If 'yes' consult with the relevant local council(s) | ISEPP clause |
|----------------|---|----------|---|--------------|
| Local heritage | Is there is a local heritage item (that is not also a State heritage item) or a heritage conservation area in the study area for the works? If yes, does a heritage assessment indicate that the potential impacts to the heritage significance of the item/area are more than <i>minor</i> or <i>inconsequential</i> ? | No | Griffith City Council | ISEPP cl.14 |

Flood liable land

| Issue | Potential impact | Yes / No | If 'yes' consult with | ISEPP clause |
|-------------------|--|-----------------|--|---------------------|
| Flood liable land | Are the works located on flood liable land? If so, will the works change flood patterns to more than a <i>minor</i> extent? | No | Griffith City Council | ISEPP cl.15 |
| Flood liable land | Are the works located on flood liable land? (to any extent). If so, do the works comprise more than minor alterations or additions to, or the demolition of, a building, emergency works or routine maintenance? | No | State Emergency Services Email: erm@ses.nsw.gov.au | ISEPP cl.15AA |

Note: Flood liable land means land that is susceptible to flooding by the probable maximum flood event, identified in accordance with the principles set out in the manual entitled *Floodplain Development Manual: the management of flood liable land* published by the New South Wales Government.

Public authorities other than councils

| Issue | Potential impact | Yes / No | If 'yes' consult with | ISEPP clause |
|-----------------------------------|--|-----------------|------------------------------------|---------------------|
| National parks and reserves | Are the works adjacent to a national park or nature reserve, or other area reserved under the <i>National Parks and Wildlife Act 1974</i> , or on land acquired under that Act? | No | Office of Environment and Heritage | ISEPP cl.16(2)(a) |
| National parks and reserves | Are the works on land in Zone E1 National Parks and Nature Reserves or in a land use zone equivalent to that zone? | No | Office of Environment and Heritage | ISEPP cl. 16(2)(b) |
| Aquatic reserves and marine parks | Are the works adjacent to an aquatic reserve or a marine park declared under the <i>Marine Estate Management Act 2014</i> ? | No | Department of Industry | ISEPP cl.16(2)(c) |
| Sydney Harbour foreshore | Are the works in the Sydney Harbour Foreshore Area as defined by the <i>Sydney Harbour Foreshore Authority Act 1998</i> ? | No | Sydney Harbour Foreshore Authority | ISEPP cl.16(2)(d) |
| Bush fire prone land | Are the works for the purpose of residential development, an educational establishment, a health services facility, a correctional centre or group home in bush fire prone land? | No | Rural Fire Service | ISEPP cl.16(2)(f) |

| Issue | Potential impact | Yes / No | If 'yes' consult with | ISEPP clause |
|------------------------------------|---|----------|---|--------------------|
| Artificial light | Would the works increase the amount of artificial light in the night sky and that is on land within the dark sky region as identified on the dark sky region map? (Note: the dark sky region is within 200 kilometres of the Siding Spring Observatory) | No | Director of the Siding Spring Observatory | ISEPP cl. 16(2)(g) |
| Defence communications buffer land | Are the works on buffer land around the defence communications facility near Morundah? (Note: refer to Defence Communications Facility Buffer Map referred to in clause 5.15 of Lockhardt LEP 2012, Narrandera LEP 2013 and Urana LEP 2011). | No | Secretary of the Commonwealth Department of Defence | ISEPP cl. 16(2)(h) |
| Mine subsidence land | Are the works on land in a mine subsidence district within the meaning of the <i>Mine Subsidence Compensation Act 1961</i> ? | No | Mine Subsidence Board | ISEPP cl. 16(2)(i) |



rms.nsw.gov.au/projects/south-western/Yoogali-intersection-upgrade



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