

Central West Orana Renewable Energy Zone – Port to REZ Road Upgrade Program

Minor works review of environmental
factors – Package 4

September 2024

Acknowledgement of Country





Approval and authorisation

Approved by	Dimitri Perdikaris – Senior Manager Renewables Transportation
Signed	<i>D Perdikaris</i>
Date	13/09/2024

Table of contents

1.	Introduction	1
2.	The proposal	2
2.1	Strategic background	2
2.2	Description	4
2.3	Need and options	12
2.4	Statutory and planning framework	16
2.5	Community engagement and agency consultation	19
3.	Environmental assessment	24
3.1	Soil	24
3.2	Waterways and water quality	29
3.3	Noise and vibration	34
3.4	Air quality	46
3.5	Aboriginal cultural heritage	47
3.6	Non-Aboriginal heritage	49
3.7	Biodiversity	52
3.8	Traffic and transport	67
3.9	Socio-economic	69
3.10	Landscape character and visual amenity	71
3.11	Waste	73
3.12	Climate change and greenhouse gas emissions	74
3.13	Cumulative impact	75
4.	Summary of safeguards and environmental management measures	76
4.1	Safeguards and environmental management measures	76
4.2	Licensing and approvals	78
4.3	Other requirements	78
5.	Certification, review and determination	79
5.1	Certification	79
5.2	Environment and sustainability staff review	80
5.3	Environment and Sustainability staff recommendation	80
5.4	Decision statement	81
5.5	EP&A Regulation publication requirement	81
6.	Definitions	82
7.	References	83
	Appendix A: Consideration of State and Commonwealth environmental factors	84

Appendix B: PACHCI.....	87
Appendix C: Construction noise assessment	89
Appendix D: Aboriginal cultural heritage searches	94
Appendix E: Non-Aboriginal cultural heritage searches.....	98
Appendix F: Biodiversity searches.....	105

Tables

Table 2-1: Proposal location details	4
Table 2-2: Utility adjustments.....	9
Table 2-3: Indicative construction staging and scope	9
Table 2-4: Ancillary facilities	11
Table 2-5: Analysis of options	13
Table 2-6: Assessment against design criteria	14
Table 2-7: Upper Hunter LEP 2013 zoning applicable to the proposal	16
Table 2-8: Warrumbungle LEP 2013 zoning applicable to the proposal	17
Table 2-9: Review of other legislation and environmental planning instruments	17
Table 2-10: Consultation required with Council	19
Table 2-11: Consultation with other public authorities	21
Table 2-12: Notification to council and occupiers of adjoining land	22
Table 3-1: Soil.....	24
Table 3-2: Soil safeguards and management measures.....	27
Table 3-3: Waterways and water quality	29
Table 3-4: Water bodies within the vicinity of the proposal	29
Table 3-5: Waterways and water quality safeguards and management measures.....	33
Table 3-6: Noise and vibration	34
Table 3-7: Out-of-hours construction time periods	38
Table 3-8: Noise affected distances for residential receivers (based on no line of sight) - Paving / asphalting	38
Table 3-9: Predicted noise impact during night-time hours for local road works – R2 category	39
Table 3-10: Minimum working distances for construction vibration	44
Table 3-11: Noise and vibration safeguards and management measures	44
Table 3-12: Air quality	46
Table 3-13: Air quality safeguards and management measures	46
Table 3-14: Aboriginal cultural heritage.....	47

Table 3-15: Aboriginal cultural heritage safeguards and management measures.....	48
Table 3-16: Non-Aboriginal heritage.....	49
Table 3-17: Non-Aboriginal heritage safeguards and management measures.....	51
Table 3-18: Biodiversity.....	52
Table 3-19: Matter of National Environmental Significance	52
Table 3-20: Biodiversity safeguards and management measures.....	66
Table 3-21: Traffic and transport.....	67
Table 3-22: Traffic and transport safeguards and management measures.....	67
Table 3-23: Socio-economic.....	69
Table 3-24: Socio-economic safeguards and management measures	70
Table 3-25: Landscape character and visual amenity	71
Table 3-26: Landscape character and visual amenity safeguards and management measures	72
Table 3-27: Waste	73
Table 3-28: Waste safeguards and management measures	73
Table 3-29: Climate change and greenhouse gas emissions	74
Table 3-30: Cumulative impact	75
Table 4-1: Summary of site-specific safeguards for proposed work	76
Table 4-2: Summary of licensing and approvals required	78
Table 4-3: Other requirements.....	78
Table 5-1: EP&A Regulation publication requirement.....	81
Table 6-1: Definitions	82

Figures

Figure 2-1: Proposed work and program of intersection upgrades	3
Figure 2-2: The proposal – Golden Highway and Vinegaroy Road intersection, Cassilis (I-010)	6
Figure 2-3: The proposal – Golden Highway and Black Stump Way intersection, Leadville (I-013).....	7
Figure 2-4: The proposal – Golden Highway and Castlereagh Highway intersection, Dunedoo (I-014)	8
Figure 3-1: Saline soils within and in proximity to the proposal.....	25
Figure 3-2: Water bodies in the vicinity of the proposal – Golden Highway and Vinegaroy Road (I-010) ...	30
Figure 3-3: Water bodies in the vicinity of the proposal – Golden Highway and Black Stump Way intersection (I-013)	31
Figure 3-4: Water bodies in the vicinity of the proposal - Golden Highway and Castlereagh Highway intersection (I-014)	32
Figure 3-5: Noise sensitive receivers in proximity of Golden Highway and Vinegaroy Road intersection (I- 010).....	35
Figure 3-6: Noise sensitive receivers in proximity of Golden Highway and Black Stump Way intersection (I- 013).....	36
Figure 3-7: Noise sensitive receivers in proximity of Golden Highway and Castlereagh Highway intersection (I-014)	37
Figure 3-8: Noise impact distances during the day-time period (without line of sight) - Golden Highway and Vinegaroy Road intersection (I-010)	40

Figure 3-9: Noise impact distances during the day-time period (without line of sight) - Golden Highway and Black Stump Way intersection (I-013).....	42
Figure 3-10: Noise impact distances during the night-time period (without line of sight) - Golden Highway and Castlereagh Highway intersection (I-014)	43
Figure 3-11: Non-Aboriginal heritage items within the vicinity of the proposal - Golden Highway and Black Stump Way intersection (I-013)	50
Figure 3-12: Tree removal – Golden Highway and Vinegaroy Road intersection (I-010)	54
Figure 3-13: PCT mapping – Golden Highway and Vinegaroy Road intersection (I-010)	55
Figure 3-14: Site photograph of impacted mature trees (shown by red arrows) west of the Golden Highway and Vinegaroy Road intersection (I-010).....	56
Figure 3-15: Site photograph of impacted mature tree (shown by red arrow) west of the Golden Highway and Vinegaroy Road intersection (I-010)	56
Figure 3-16: Site photograph of impacted tree – Golden Highway and Vinegaroy Road intersection (I-010)	57
Figure 3-17: Tree removal – Golden Highway and Black Stump Way intersection (I-013).....	59
Figure 3-18: PCT mapping – Golden Highway and Black Stump Way intersection (I-013).....	60
Figure 3-19: Site photograph of impacted small native tree on the northeast corner of the Golden Highway and Black Stump Way intersection (I-013)	61
Figure 3-20: Site photograph of the four native trees (three small, one large) located on the northeast corner of the Golden Highway and Black Stump Way intersection (I-013).....	62
Figure 3-21: Site photograph of the impacted native tree (shown by red arrow) located on the southern side of Golden Highway	63
Figure 3-22: PCT mapping – Golden Highway and Castlereagh Highway intersection (I-014).....	64

1. Introduction

The purpose of the minor works review of environmental factors (REF) is to describe the proposal, to document the likely impacts of the proposal on the environment, to detail mitigation measures to be implemented and to determine whether or not the proposal can proceed. For the purposes of this work Transport for NSW (Transport) is the proponent and determining authority under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The description of the proposed works and assessment of associated environmental impacts has been undertaken in the context of section 171 of the Environmental Planning and Assessment Regulation 2021, Guidelines for Division 5.1 Assessments (DPE, 2022), the *Biodiversity Conservation Act 2016* (BC Act), the *Fisheries Management Act 1994* (FM Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act).

In doing so the REF helps to fulfil the requirements of section 5.5 of the EP&A Act including that Transport 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 REF would be considered when assessing:

- Whether the proposal is likely to have 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 and Public Spaces 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 potential for the proposal to significantly impact a matter of national environmental significance, including nationally listed threatened biodiversity matters, or the environment of Commonwealth land. Where a significant impact is considered likely on nationally listed biodiversity matters, either the proposal must be reconsidered or a project REF must be prepared.

2. The proposal

2.1 Strategic background

The NSW Government is leading the development of Renewable Energy Zones (REZ) to deliver renewable energy generation and storage, supported by high voltage transmission infrastructure across NSW. REZs will play a vital role in delivering clean, affordable and reliable electricity for homes, businesses and industry in NSW to help replace the State's existing coal power stations as they come to their scheduled end of operational life.

REZs will group new renewable energy generation infrastructure into locations where it can be efficiently stored and transmitted across NSW. Five regions have been identified for the development of REZs; the Central-West Orana, South-West, New England, Hunter-Central Coast and Illawarra regions of NSW. With some of the best renewable energy resources in the world, NSW is in a unique position to benefit from emerging low-cost technologies like wind, solar, batteries and pumped hydro.

The Central West Orana Renewable Energy Zone (CWO REZ) will unlock at least three gigawatts (GW) of new network capacity by the mid-2020s and the NSW Government is proposing to increase the intended network capacity to six gigawatts. Construction of the transmission infrastructure and generation projects in the CWO REZ will require delivery of large and heavy components, most notably wind turbine components, high-voltage transformers, and synchronous condensers.

The proposed generators will use common routes to transport over-sized and/or over-mass (OSOM) components from the Port of Newcastle to the Central West Orana Renewable Energy Zone (CWO REZ). Accordingly, the NSW Government has requested that Energy Corporation (EnergyCo) identify and carry out required upgrades to a number of intersections along the State Road Network to facilitate the transportation of OSOM components by individual generation projects (refer to Figure 2-1) to the REZ.

The proposed modifications of these intersections will be assessed and delivered as five different packages generally divided by local government area (LGA) where practicable. This Minor Works Review of Environmental Factors (MWREF) is the fourth package (Package 4) to be delivered and assesses three intersections in the Upper Hunter and Warrumbungle LGAs.

The proposal assessed in this report is for the modification of intersections only. The operation of the necessary OSOM vehicle movements will be assessed as part of the planning approval for individual generation projects.



Figure 2-1: Proposed work and program of intersection upgrades

2.2 Description

2.2.1 Proposal location

Table 2-1 details the proposal road location and Transport for New South Wales (Transport) information.

Table 2-1: Proposal location details

Location details	
Title	Central West Orana Renewable Energy Zone – Port to REZ Road Upgrade Program. Minor Works Review of Environmental Factors – Package 4
Road name and number	Golden Highway (road number 27), Vinegaroy Road (road number 618), Black Stump Way (road number 55), Castlereagh Highway (road number 18)
Closest crossroad(s)	Golden Highway, Vinegaroy Road, Black Stump Way, Castlereagh Highway
Local government area	Upper Hunter Local Government Area, Warrumbungle Local Government Area
Transport for NSW region	North (I-010) and West (I-013, I-014)

2.2.2 Proposal description

Transport for NSW (Transport), on behalf of EnergyCo, proposes to carry out minor modifications to three intersections in the Upper Hunter and Warrumbungle Shire LGAs (refer to Figure 2-1). The existing intersections at these locations cannot currently cater for the size and length of OSOM components proposed to be transported along these routes. The modifications of these existing intersections are necessary to facilitate the transportation of OSOM components consisting of trailers carrying wind turbine blades and transformers from the Port of Newcastle to the CWO REZ. The proposed intersection upgrades will also provide efficiencies for future traffic to access renewable energy project locations.

Key features of the proposal are described below and shown in Figure 2-2 (Golden Highway and Vinegaroy Road intersection (I-010)), Figure 2-3 (Golden Highway and Black Stump Way intersection (I-013)) and Figure 2-4 (Golden Highway and Castlereagh Highway intersection (I-014)).

Golden Highway and Vinegaroy Road intersection, Cassilis (I-010)

- provision of pavement widening and embankment (new road verge) along the westbound lane of the Golden Highway in the vicinity of the intersection to accommodate installation of a channelised right turn onto Vinegaroy Road and the swept paths of the design vehicles
- resurfacing of the existing Golden Highway and Vinegaroy Road intersection including linemarking to create a channelised right turn from Golden Highway westbound onto Vinegaroy Road
- relocation of a T-intersection direction sign assembly (direction sign and hazard markers), tourism sign and intersection direction sign at the Golden Highway and Vinegaroy Road intersection to be set back onto the new road verge following road widening
- relocation of an advanced direction sign located 250 metres southeast of the Golden Highway and Vinegaroy Road intersection to be set back from the new road verge
- removal of three trees and shrubs located at the western extent of the proposal area to accommodate sight distances for heavy vehicles
- removal of one tree located at the north east corner of the Golden Highway and Vinegaroy Road intersection to accommodate the blade swing of the design vehicles.

Golden Highway and Black Stump Way intersection, Leadville (I-013)

- provision of hardstand on the northeast corner of the Golden Highway and Black Stump Way intersection to accommodate the swept paths of the design vehicles

- relocation of two give way signs on the left and right side of Black Stump Way as it leads into the intersection, with the give way sign on the left to be made removable
- removal of two trees on the northeast corner of the intersection and pruning of a tree on the south side of the Golden Highway.

Golden Highway and Castlereagh Highway intersection, Dunedoo (I-014)

- provision of hardstand on the southeast corner of the Golden Highway and Castlereagh Highway intersection to accommodate the swept paths of the design vehicles
- extension of the existing 600 millimetre diameter pipe culvert and headwall replacement
- relocation of one give way sign on the east side of the Castlereagh Highway and removal of a give way sign on the west side of the Castlereagh Highway.

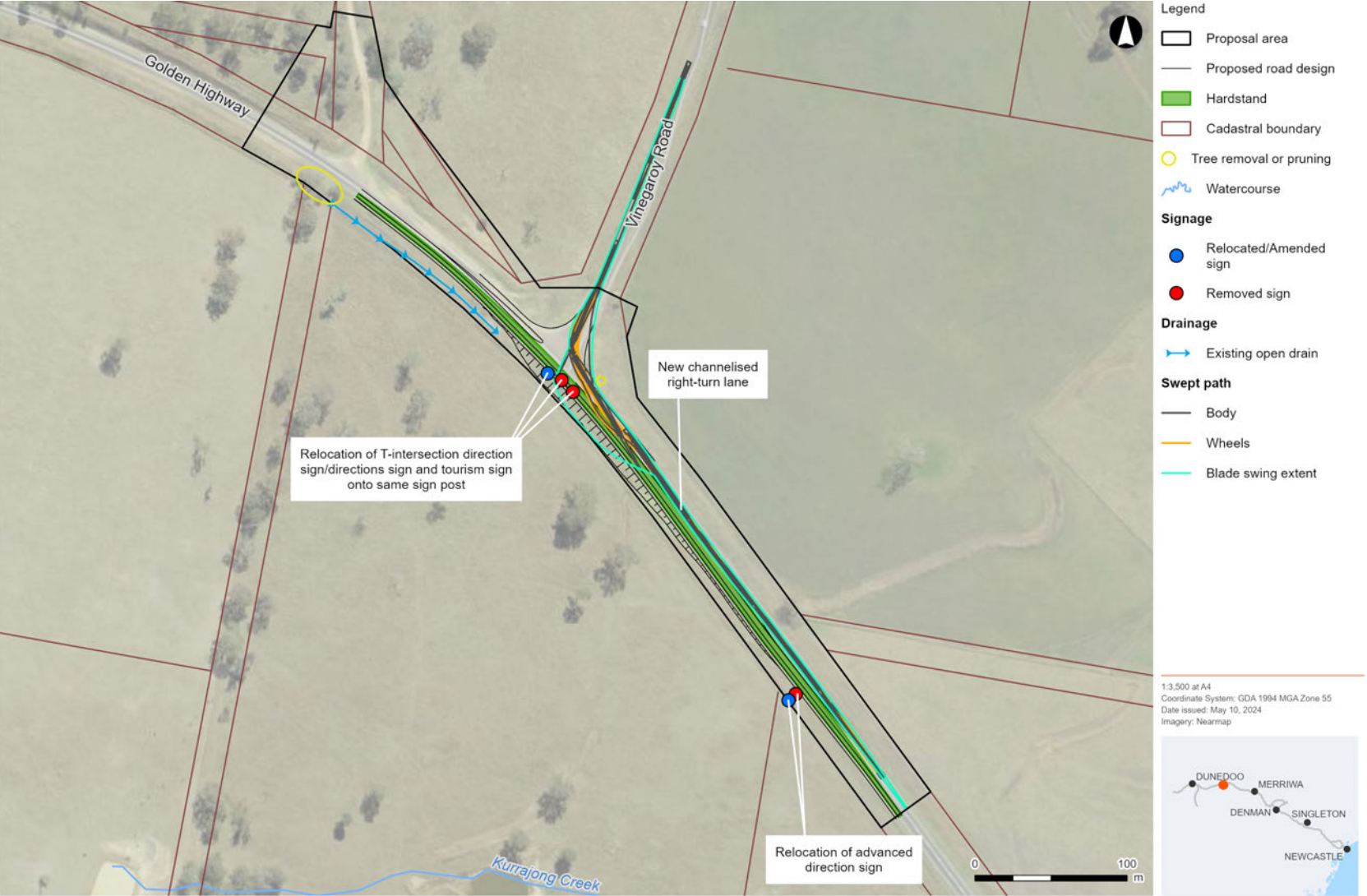


Figure 2-2: The proposal – Golden Highway and Vinegaroy Road intersection, Cassilis (I-010)

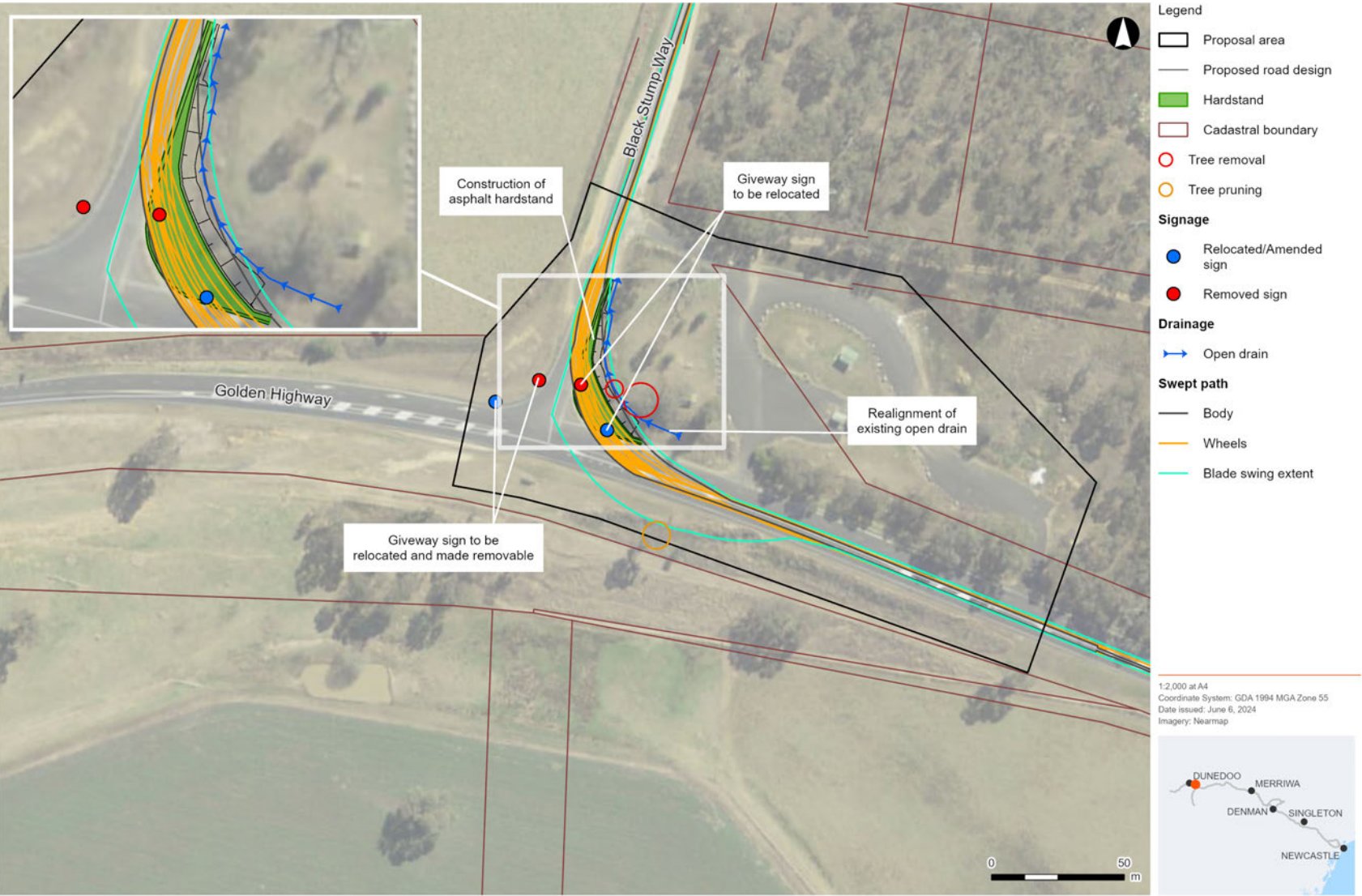


Figure 2-3: The proposal – Golden Highway and Black Stump Way intersection, Leadville (I-013)

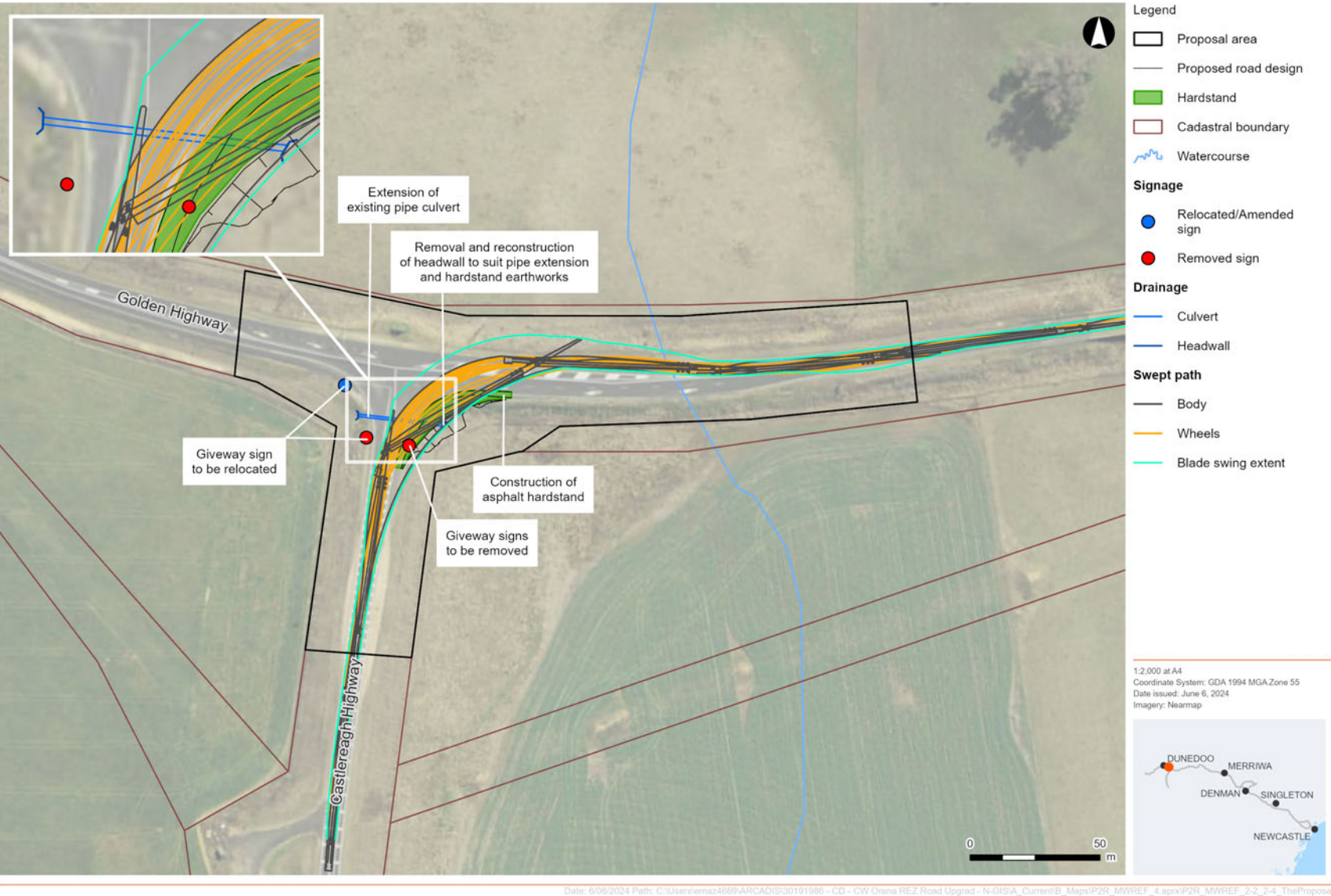


Figure 2-4: The proposal – Golden Highway and Castlereagh Highway intersection, Dunedoo (I-014)

Minor works review of environmental factors

Utility adjustments

Several services are in the vicinity of the proposed works and are detailed in Table 2-2.

Utilities investigations confirmed that none of the identified existing services require relocation or protection.

Table 2-2: Utility adjustments

Location	Owner	Asset	Proposed treatment
Golden Highway and Vinegaroy Road intersection (I-010)	Telstra	Golden Highway southbound conduits	No impact
Golden Highway and Black Stump Way intersection (I-013)	Essential Energy	Overhead distribution	No impact
	Telstra	Golden Highway southern verge conduit	No impact
Golden Highway and Castlereagh Highway intersection (I-014)	Essential Energy	Overhead distribution, 3 cables and low voltage streetlight	No impact
	Telstra	Telstra conduit running along eastbound verge of Castlereagh Highway	No impact
	Telstra	Telstra pit adjacent to hardstand area	No impact

Construction staging

An indicative construction staging, and scope is provided in Table 2-3 with staging to be confirmed during detailed construction planning with the contractor.

Table 2-3: Indicative construction staging and scope

Construction stage	Scope
Enabling works	- traffic redirection, control and management during works - establish environmental controls including exclusion zones and erosion of sediment controls - designation of parking, storage and laydown areas - tree removal and pruning at the Golden Highway and Vinegaroy Road intersection (I-010) and the Golden Highway and Black Stump Way intersection (I-013).
Intersection works	- relocation of existing signage - saw cutting and removal of sections of existing pavement - earthworks for hardstand areas (where required) - earthworks for road widening at the Golden Highway and Vinegaroy Road intersection (I-010) - construction of extended drainage infrastructure including headwall at the Golden Highway and Castlereagh Highway intersection (I-014) - placement of engineered fill, compaction and seal of hardstand areas (where required) - laydown of asphalt and/or construction of pavement (where required) - complete any linemarking adjustments, traffic or wayfinding requirements.
Finishing works	- removal of temporary construction structures, equipment and stockpiles - site cleanup including removal of environmental controls and waste materials - removal of any temporary construction traffic control and management restrictions.

Construction traffic access and management

Construction vehicles would access all proposal areas, including the Golden Highway and Vinegaroy Road intersection (I-010), Golden Highway and Black Stump Way intersection (I-013), and Golden Highway and Castlereagh Highway intersection (I-014), directly via the main roads.

Construction work at the Golden Highway and Vinegaroy Road intersection (I-010) will require altered traffic arrangements that would be confirmed by the construction contractor during detailed design. The likely scenario would involve a contraflow arrangement whereby traffic travelling in both directions alternate use of one lane of the road under traffic control while construction activities are carried out. The alternative arrangement would retain two-way traffic flow but with narrowed lanes, resulting in a potentially longer construction program that would also require nightworks. A hybrid arrangement utilising aspects of both arrangements may also be implemented at different stages of construction, however, any altered traffic conditions would be temporary and not expected for the duration of works. The potential impacts of both arrangements have been considered in this assessment.

Access and use of the rest area at the Golden Highway and Black Stump Way intersection (I-013) would be maintained throughout construction, with laydown and workforce parking to use only a small area (refer to Section 2.2.4). The bus stop on Castlereagh Highway would not be impacted.

Further detail and an assessment of traffic and transport impacts are provided in Section 3.8 (Traffic and transport).

Construction equipment

A range of plant and equipment would be used during construction. The final equipment and plant requirements would be determined by the construction contractor. An indicative list of plant and equipment is provided below:

- | | |
|---------------------|-----------------------------|
| • hand tools | • plate compactor |
| • excavators | • light vehicles |
| • concrete vibrator | • asphalt paver |
| • road trucks | • kerb machine |
| • vacuum truck | • power generator |
| • dump truck | • truck compressor |
| • concrete truck | • vibratory roller |
| • jackhammer | • pavement laying machine |
| • pneumatic hammer | • asphalt truck and sprayer |
| • concrete saw | • smooth drum roller |
| • backhoe. | |

Construction hours

Construction work for the proposal would be prioritised during standard construction hours as follows:

- Monday to Friday: 7:00 am to 6:00 pm
- Saturday: 8:00 am to 1:00 pm
- Sunday and public holidays: No work.

However, to minimise traffic impacts and to ensure the safety of workers, it is expected that activities carried out at the Golden Highway and Vinegaroy Road intersection (I-010) and the Golden Highway and Castlereagh Highway intersection (I-014) would potentially need to be undertaken outside of standard working hours. Any works at these locations would be in accordance with the relevant Road Occupancy Licence (ROL).

Any works with impulsive or tonal noise emissions, as well as any work outside of standard construction hours, would be carried out in accordance with the *Construction Noise and Vibration Guideline* (Transport for NSW, 2023) and EPA *Interim Construction Noise Guideline* (ICNG) (NSW DECC, 2009).

The community would be kept informed of proposed upcoming work and contact information. Any impacted residents or businesses would be consulted regarding the proposed construction hours at least five working days prior to commencement of work.

Property adjustments

No property adjustments are proposed as a part of this proposal.

2.2.3 Proposal objectives and design criteria

The objective of the proposal is to facilitate the safe delivery of OSOM components for individual generation projects from the Port of Newcastle to the Central West Orana Renewable Energy Zone.

The design criteria for the proposal include:

- minimise constructability impacts including utilities and services
- minimise property acquisition
- minimise environmental and social overall impacts.

2.2.4 Ancillary facilities

Table 2-4: Ancillary facilities

Ancillary facilities		
Will the proposal require the use or installation of a compound site? Given the minor works proposed, installation of a compound site would not be required for the proposal. Temporary equipment laydown, materials, stockpiling, workforce parking and small-scale worker amenities would be carried out adjacent to the proposed intersection works, in area of cleared land within the Proposal area and typically within the road reserve. Potential locations of these laydown areas include: • Golden Highway and Vinegaroy Road intersection (I-010): grassed area located immediately northwest of the proposed batter extent along the westbound lane of the Golden Highway • Golden Highway and Black Stump Way intersection (I-013): a small area within the rest area located northeast of the intersection • Golden Highway and Castlereagh Highway intersection (I-014): ancillary facility for the Golden Highway and Black Stump Way intersection (I-013) would be used for this intersection. The areas above are indicative only and would be confirmed by the construction contractor and any alternative or additional laydown areas, would be required to meet the criteria outlined in response to last query in this table below.	Yes ☐	No ☒
Will the proposal require the use or installation of a stockpile site? Any stockpiling required for the proposal would be carried out adjacent to the proposed works in the road reserve or in areas of cleared land. Given the nature of the proposed works, any stockpiles will be relatively small and short-lived.	Yes ☒	No ☐
Are any other ancillary facilities required (e.g. temporary plants, parking areas, access tracks)? Where possible, equipment laydown, workforce parking and small-scale amenities would be located within road reserve areas adjacent to each of the proposed intersection works. Locations would be confirmed by the Contractor prior to construction, but would be required to demonstrate compliance with the following criteria: • located in the road corridor • no vegetation removal • obvious previous disturbance • no ground disturbance required • 50 metres from a permanent watercourse • within existing PACHCI clearance letter footprint (about 50 metres from the proposal area) • away from sensitive receivers. Compliance with these criteria must be demonstrated in accordance with Safeguard G1 in Table 4-1, otherwise further assessment may be required.	Yes ☒	No ☐

Ancillary facilities		

2.2.5 Proposed date of commencement

Subject to approval, construction is expected to commence in quarter 3 of 2024.

2.2.6 Estimated length of construction period

Construction at each intersection, weather permitting, is expected to take about:

- Golden Highway and Vinegaroy Road intersection (I-010) – 11 months
- Golden Highway and Black Stump Way intersection (I-013) – two months
- Golden Highway and Castlereagh Highway intersection (I-014) – two months.

2.3 Need and options

2.3.1 Strategic need

The following intersections along the State road network between the Port of Newcastle and the CWO REZ have space constraints on the safe manoeuvring of the OSOM vehicles including potential conflict with signage and roadside vegetation:

- Golden Highway and Vinegaroy Road intersection (I-010)
- Golden Highway and Black Stump Way intersection (I-013)
- Golden Highway and Castlereagh Highway intersection (I-014).

The proposal would provide additional hardstand, relocate signage, removal and pruning of trees to facilitate the safe delivery of OSOM components from the Port of Newcastle to the CWO REZ. The proposal would align with the objectives of the following local strategic plans:

- Upper Hunter Community Strategic Plan 2032 (Upper Hunter Shire Council, 2022)
- Warrumbungle Shire Council Community Strategic Plan 2022/2037 (Warrumbungle Shire Council, 2022).

Upper Hunter Community Strategic Plan 2032

An objective of the Upper Hunter Community Strategic Plan is for the upgrade and maintenance of the road network and bridges. The proposal would align with the objectives of the Upper Hunter Community Strategic Plan 2032 (Upper Hunter Shire Council, 2022) with the upgrade of Intersection I-010 described above and will be delivered through the themes of a connected community, protected environment, thriving economy, quality infrastructure and responsible governance.

Warrumbungle Shire Council Community Strategic Plan 2022/2037

An objective of the Warrumbungle Shire Council Community Strategic Plan is the readiness for climate change through adaptation and mitigation strategies and ensuring local roads are safe and functional. The proposal would align with this objective with the upgrade of Intersection I-013 & I-014 described above and will be delivered through the themes of caring for the environment, civic leadership, strengthening the local economy and supporting community life.

2.3.2 Assessment background

A Traffic Impact Study and route assessment was carried out by AECOM (2023), on behalf of EnergyCo, to determine the preferred route to transport components to the wind farm development sites. The report concluded that the most efficient and minimal environmental impact route for the transportation of components from the Port of Newcastle to CWO REZ would be via the State Road Network, specifically the route shown in Figure 2-1. The study also identified intersections likely to require upgrades and provide recommendations for further design development.

The three intersections assessed in this report (Package 4) were identified as requiring modification works.

2.3.3 Options considered

Options considered, and the advantages and disadvantages associated with each, are identified below and summarised in Table 2-5.

- **Option 1 'Do nothing':** Undertake no modifications at intersections between the Port of Newcastle and CWO REZ.
- **Option 2 'The proposal':** Undertake intersection upgrades outlines in Section 2.2.2.

Table 2-5: Analysis of options

Objectives	Option 1 'Do-nothing'	Option 2 'The proposal'
To facilitate safe delivery of over-sized and/or over-massed components from the Port of Newcastle to the CWO REZ	Option 1 would involve not undertaking any modifications to the intersections along the proposed transport route. By not undertaking intersection modifications for the transport of components required for the development of renewable projects would be delayed or cancelled. This option would not facilitate the safe delivery OSOM components from the Port of Newcastle to the CWO REZ. Does not meet objective.	Option 2 would provide additional space for OSOM vehicles to manoeuvre through the three intersections while minimising disruption to the general traffic network and broader community. Upgrading of intersections along the existing State Road Network is the most efficient and cost-effective way to meet timeframes for transportation of components for renewable energy projects in CWO. The provision of modifications such as additional hardstand, relocation of signage and utilities would ensure sufficient space for the safe passage of OSOM vehicles while minimising disruption to the general traffic network and broader community. This option meets the objective to facilitate safe delivery of OSOM components from the Port of Newcastle to the CWO REZ. Meets objective.

2.3.4 Design refinements

Consideration was given to minimising impacts to property, existing infrastructure (including road, bridges, rail), utilities, and native vegetation. This process resulted in the following reduction in impacts at the proposal areas:

- Golden Highway and Vinegaroy Road intersection (I-010) – reduction in hardstand and vegetation impacts and avoidance of utility impacts
- Golden Highway and Black Stump Way intersection (I-013) – reduction in hardstand and vegetation impacts and avoidance of utility impacts
- Golden Highway and Castlereagh Highway intersection (I-014) – reduction in hardstand and vegetation impacts and avoidance of utility impacts.

2.3.5 Preferred option

Option 2 is the preferred option as it meets the proposal objective while Option 1 does not.

The preferred option has also been considered against the following design criteria provided in Table 2-6.

Table 2-6: Assessment against design criteria

Design criteria	Option 2 'The proposal'
Minimise construction impacts, including to utilities and services	The proposal would not result in any impacts to existing utilities, as detailed in Table 2-2. Impacts to utilities have been avoided through the design refinement process, including reductions in hardstand compared to the initial scoping designs at the proposal areas. Meets criterion.
Minimise land use and community impacts	The proposal would be carried out primarily within the road reserve. Access to properties within the vicinity of the proposal would be maintained throughout construction. There is an existing gate that adjoins the extended hardstand proposed on the southeast corner of the Golden Highway and Castlereagh Highway intersection (I-014). However, this gate was installed by TfNSW to provide access via the property to assets in the road verge and does not provide direct access to the property from the road network. Access to this private property (Lot 2, DP23936) would be maintained via an existing gate along Castlereagh Highway. Meets criterion.
Minimise property acquisition	No property acquisition is required for the proposal, which has been achieved by restricting the design to the existing road reserve. All construction support activities would occur within the road reserve except for possible use of the portion of the rest area managed by Council in proximity to I-013, however, no works require property acquisition or adjustment. Meets criterion.
Minimise environmental impacts	Environmental impacts are expected from the proposal, such as traffic, noise, air quality, tree removal, and erosion and sediment runoff. With the implementation of safeguards listed in Table 4-1, the environmental impacts would be minor. The proposal would be carried out primarily within the road reserve. No road closures are proposed, and lane occupancy would be managed to minimise traffic disruption. Access to properties within the vicinity would be maintained throughout construction. Impacts to biodiversity have been minimised through the reductions in hardstand area compared to initial scoping designs. Meets criterion.

2.3.6 Justification for the proposal

The proposal is required to facilitate the transportation of OSOM components from Port of Newcastle to the CWO REZ. The existing intersections along the project route are not designed for the transport of these components, hence the need for the proposed intersection works to support the development of renewable energy projects. The proposal would minimise disruption to traffic and the general community by providing sufficient space for the safe passage of OSOM vehicles through the intersections. Modification of the intersection at the Golden Highway and Vinegaroy Road has also incorporated opportunities to maximise efficiency of traffic at this intersection as this will be the main access off the highway network to the Liverpool Range wind farms.

Design of the proposal has considered minimisation of impacts to existing infrastructure, utilities, property, and native vegetation. Residual impacts can be managed through the implementation of nominated safeguards.

2.4 Statutory and planning framework

2.4.1 State Environmental Planning Policy (Transport and Infrastructure) 2021

The State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP (Transport and Infrastructure)) aims to facilitate the effective delivery of infrastructure across the state. This includes roads and road infrastructure facilities.

Section 2.109 of the SEPP (Transport and Infrastructure) permits development on any land for the purpose of a road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent. As the proposal is appropriately characterised as development for the purposes of a road or road infrastructure facilities and is to be carried out by or on behalf of Transport, 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 (Resilience and Hazards) 2021
- State Environmental Planning Policy (Precincts – Eastern Harbour City) 2021
- State Environmental Planning Policy (Precincts – Central River City) 2021
- State Environmental Planning Policy (Precincts – Western Parkland City) 2021
- State Environmental Planning Policy (Precincts – Regional) 2021
- State Environmental Planning Policy (Planning Systems) 2021.

2.4.2 Other relevant legislation and environmental planning instruments

As described above, Section 2.109 of the SEPP (Transport and Infrastructure) permits Transport to carry out development for the purpose of a road without consent. As road development would be permissible in the above land zones, consent from Newcastle or Cessnock Council is not required for the proposal.

Notwithstanding this, the objectives of the land use zones and the proposal's consistency with the objectives listed in each of the Upper Hunter and Warrumbungle LEPs are described below.

Upper Hunter Local Environmental Plan (2013)

The Golden Highway and Vinegaroy Road intersection (I-010) is located within the Upper Hunter LGA, which is subject to the Upper Hunter Local Environmental Plan 2013 (Upper Hunter LEP). The proposal area is located in SP2 Infrastructure and RU1 Primary Production zones under the Upper Hunter LEP. Table 2-7 outlines the objectives applicable to land zoned under Upper Hunter LEP.

Table 2-7: Upper Hunter LEP 2013 zoning applicable to the proposal

LEP zoning	Proposal area location	LEP objectives	Proposal consistency with objectives
SP2 Infrastructure	Golden Highway and Vinegaroy Road intersection (I-010)	• to provide for infrastructure and related uses • to prevent development that is not compatible with or that may detract from the provision of infrastructure.	The proposal would require the upgrade of the Golden Highway and Vinegaroy Road intersection (I-010). The is consistent with the objectives of SP2 Infrastructure.
RU1 Primary production	Golden Highway and Vinegaroy Road intersection (I-010)	• to encourage sustainable primary industry production by maintaining and enhancing the natural resource base • to encourage diversity in primary industry enterprises and systems appropriate for the area • to minimise the fragmentation and alienation of resource lands • to minimise conflict between land uses within this zone and land uses within adjoining zones.	A channelised right turn at this intersection will maintain function of the zoning area including improved access to resource lands and will remain consistent with the objectives of RU1 Primary production.

Warrumbungle Local Environmental Plan 2013

The Golden Highway and Black Stump Way (I-013) and Golden Highway and Castlereagh Highway (I-014) intersections are located in Warrumbungle LGA, which is subject to the Warrumbungle Local Environmental Plan 2013 (Warrumbungle LEP). The proposal areas are located in SP2 Infrastructure and RU1 Primary Production zoned land under the Warrumbungle LEP.

Table 2-8: Warrumbungle LEP 2013 zoning applicable to the proposal

LEP zoning	Proposal area location	LEP objectives	Proposal consistency with objectives
SP2 Infrastructure	Golden Highway and Black Stump Way (I-013) intersection Golden Highway and Castlereagh Highway intersection (I-014)	- to provide for infrastructure and related uses - to prevent development that is not compatible with or that may detract from the provision of infrastructure.	The proposal would require the upgrade of the Golden Highway and Vinegaroy Road intersection (I-010). The proposal is consistent with the objectives of SP2 Infrastructure.
RU1 Primary production	Golden Highway and Black Stump Way (I-013) intersection Golden Highway and Castlereagh Highway intersection (I-014)	- to protect the agricultural value of rural land - to maintain the rural landscape character of the land in the long term - to ensure that development does not unreasonably increase demand for public services or public facilities - to ensure that development for the purposes of extractive industries, underground mines (other than surface works associated with underground mines) or open cut mines (other than open cut mines from the surface of the flood plain) will not- - destroy or impair the agricultural production potential of the land or, in the case of underground mining, unreasonably restrict or otherwise affect any other development on the surface, or - detrimentally affect the quantity, flow and quality of water in either subterranean or surface water systems, or - visually intrude into its surroundings, except by way of suitable screening.	The proposal will not impact on the function of the zoning area and thereby remain consistent with the objectives of RU1 Primary production.

The application of Upper Hunter LEP and Warrumbungle LEP, and other relevant legislation and environmental planning instruments is considered in Table 2-9.

Table 2-9: Review of other legislation and environmental planning instruments

Legislation	Overview	Approval required?
NSW Legislation		
<i>Roads Act 1993</i>	Under this Act, State authorities such as Transport are given the ability to carry out activities such as construction and upgrades on roads in NSW. Section 138 of the Act provides that consent from the appropriate roads authority is required for road work and other work within a road corridor. Consent is typically provided in the form of a Road Occupancy Licence (ROL) obtained by the construction contractor prior to work beginning. This may include temporary closures of roads and regulation of traffic to ensure construction can be completed. As well, this Act permits Transport to acquire	Yes A ROL would need to be obtained by the construction contractor before beginning any work that requires road possession and closures. Transport for NSW is the relevant road authority for the proposed works at Golden Highway and Vinegaroy Road intersection (I-010), Golden Highway and Black Stump Way (I-013) intersection, and Golden Highway and Castlereagh Highway intersection (I-014).

Legislation	Overview	Approval required?
	land for the purposes of road work, in line with the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> .	
<i>Protection of the Environment Operations Act 1997 (POEO Act)</i>	Under this Act, activities listed as 'scheduled activities' under Schedule 1 of the POEO Act require an Environment Protection Licence issued by the Environment Protection Authority (EPA).	No The proposal does not involve a 'scheduled activity' under Schedule 1 of the POEO Act. Accordingly, an Environment Protection Licence is not required for the proposal. However, in accordance with Part 5.7 of the POEO Act, Transport would notify the EPA of any pollution incidents that occur onsite.
<i>Protection of the Environment Operations Regulation 2014</i>	This regulation implements the POEO Act by providing specifications on waste management, transport and disposal.	No The regulation requires all waste to be identified and classified in accordance with the NSW EPA's Waste Classification Guidelines including retainment of appropriate records and disposal dockets.
<i>Waste Avoidance and Resource Recovery Act</i>	The objects of the Act are to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecologically sustainable development and to ensure that resource management options are considered against a hierarchy of the following order: 1. avoidance of unnecessary resource consumption 2. resource recovery (including reuse, reprocessing, recycling and energy recovery) and disposal to provide for the continual reduction in waste generation.	No The Act requires that the resource management hierarchy be adopted to avoid unnecessary consumption, followed by resource recovery and then disposal as a last resort.
<i>National Parks and Wildlife Act 1974 (NPW Act)</i>	This Act provides for the conservation and management of nature and objects, places and features of cultural value. It is the primary legislation for the protection of Aboriginal cultural heritage in NSW. Part 6 of the NPW Act provides protection for all Aboriginal objects and Aboriginal places in NSW. Under Section 90 of the Act, where harm to an Aboriginal object or Aboriginal place cannot be avoided, an Aboriginal Heritage Impact Permit is required before the disturbance of Aboriginal objects or places.	No The proposal is unlikely to disturb any objects of Aboriginal cultural heritage significance (refer to Section 3.5 (Aboriginal cultural heritage)). The Transport <i>Procedure for Aboriginal Cultural Heritage Consultation and Investigation</i> (PACHCI) was followed in that a Stage 1 PACHCI assessment was carried out for the proposal by a Transport Aboriginal cultural heritage advisor and is provided in Appendix B. The outcomes of the assessment concludes that the proposal is unlikely to have an impact on Aboriginal cultural heritage and may proceed in accordance with the environmental assessment.
<i>Heritage Act 1977 (Heritage Act)</i>	This Act provides for the conservation of buildings, work, relics and places that are of historic, scientific, cultural, social, archaeological, architectural, natural or aesthetic significance to the state. Matters protected under the Heritage Act include items subject to an Interim Heritage Order and items listed on the State Heritage Register, the heritage schedules of local council LEPs, and the heritage and conservation registers established under Section 170 of the Heritage Act by NSW state	No The proposal is unlikely to impact any heritage items (refer to Section 3.6 (Non-Aboriginal heritage)). There are no heritage items within the proposal areas. One local heritage item, Denison Town General Cemetery (I24), is located north of the Golden Highway and Black Stump Way intersection (I-013). The proposal is not anticipated to impact the heritage-listed item due

Legislation	Overview	Approval required?
	government agencies (Section 170 Registers). The Heritage Act also provides for the protection of archaeological 'relics', being any deposit, object or material evidence that relates to the non-Aboriginal settlement of NSW and is of State or local heritage significance.	to the distance from excavation, limited scope of work, and lack of vibration intensive activities.
Environmental planning instruments		
<i>Upper Hunter Local Environmental Plan 2013</i> <i>Warrumbungle Local Environmental Plan 2013</i>	The relevant land zones and objectives apply to the proposal: - SP2 – Infrastructure (Road) - RU1 – Primary production	No Developments comprising roads are permitted without consent on land zones SP2 (Infrastructure) and RU1 (primary production). Section 2.109 of Transport and Infrastructure SEPP enables the proposal to be carried out as development permitted without consent and assessed under Part 5 of the EP&A Act. Development consent from Council is not required.

2.5 Community engagement and agency consultation

2.5.1 State Environmental Planning Policy (Transport and Infrastructure) consultation

Part 2.2 of the SEPP (Transport and Infrastructure) contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development. This is detailed in Table 2-10 to Table 2-12.

Table 2-10: Consultation required with Council

Is consultation with Council required under sections 2.10 – 2.12 and 2.14 of the SEPP (Transport and Infrastructure)?		
Are the works likely to have a substantial impact on the stormwater management services which are provided by council? Minor open drain realignment works would be required at the Golden Highway and Black Stump Way intersection (I-013) and the Golden Highway and Castlereagh Highway intersection (I-014), which upon operation would mimic the existing channel profiles and capacity. The culvert located under the Castlereagh Highway at the Golden Highway and Castlereagh Highway intersection (I-014) would also be extended.	Yes ☐	No ☒
Are the works likely to generate traffic to an extent that will strain the capacity of the existing road system in a local government area? The proposed intersection upgrades are minor in scale and as such, substantial traffic impacts during construction are not anticipated. The traffic capacity of the existing road network would remain as existing during operation of the proposal. Refer to Section 3.8 (Traffic and transport) for more information.	Yes ☐	No ☒
Will the works involve connection to a council owned sewerage system? If so, will this connection have a substantial impact on the capacity of the system? The proposed works would not involve a connection to a council owned sewerage system.	Yes ☐	No ☒
Will the works involve connection to a council owned water supply system? If so, will this require the use of a substantial volume of water?	Yes ☐	No ☒

Is consultation with Council required under sections 2.10 – 2.12 and 2.14 of the SEPP (Transport and Infrastructure)?		
Connection to a council owned water supply system is not required. However, water usage would be required on site during construction activities such as the laydown of hardstand, temporary bathrooms, and spray downs of the proposal areas. Water utilised for construction would be transported to the proposal areas when required. All water required for the proposal including but not limited to dust suppression and fill compaction would be sourced from potable town water.		
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 minor or inconsequential disruption to pedestrian or vehicular flow? The existing rest area located north east of the Golden Highway and Black Stump Way intersection (I-013) is partially located within the road reserve and partially within land managed by Warrumbungle Shire Council. As identified in Section 2.2.4 (Ancillary facilities), this rest area would be potentially used during construction as an ancillary facility for Golden Highway and Black Stump Way intersection (I-013) and Golden Highway and Castlereagh Highway intersection (I-014). Use of the rest area would be temporary and would only consist of a small area within the road reserve, allowing unaltered public access to the rest area to be maintained. A consultation letter was issued to the General Manager of Warrumbungle Shire Council seeking comment on the proposal prior to the commencement of works. The letter seeking feedback outlined the nature of the works and that a portion of the rest area would be temporarily used as an ancillary facility during the construction phase. At time of writing, no response has been received from Warrumbungle Shire Council.	Yes ☒	No ☐
Will the works involve more than a minor or inconsequential excavation of a road or adjacent footpath for which council is the roads authority and responsible for maintenance? The proposed works would primarily be limited to the State road reserve where Transport is the roads authority. Notwithstanding, works are considered minor and consultation with Upper Hunter Shire Council or Warrumbungle Shire Council is not required.	Yes ☐	No ☒
Is there 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 minor or inconsequential? There are no heritage items within the proposal areas. The nearest local heritage-listed item is Denison Town General Cemetery, located directly north of the Golden Highway and Black Stump Way intersection (I-013). The heritage assessment carried out in Section 3.6 (Non-Aboriginal heritage) has determined that impacts to this heritage item are not anticipated.	Yes ☐	No ☒
Is the proposal within the coastal vulnerability area and inconsistent with a certified coastal management program applying to that land? As per Clause 6 (3) of SEPP (Coastal Management) 2018, a coastal vulnerability area is identified by a Coastal Vulnerability Map, however as per this clause, none were adopted at commencement of this instrument. Since commencement of this SEPP, no coastal vulnerability areas have been mapped in the vicinity of the proposal as per the interactive map at Coastal management – (nsw.gov.au).	Yes ☐	No ☒
Are the works located on flood liable land? If so, will the works change flooding patterns to more than a minor extent? Publicly accessible flood data and reports for areas in and within the vicinity of the proposal did not confirm whether the proposal areas are on flood prone land. However, given the distance between the Golden Highway and Black Stump Way intersection (I-013), as well as the Golden Highway and Castlereagh Highway intersection (I-014) from Talbragar	Yes ☐	No ☒

Is consultation with Council required under sections 2.10 – 2.12 and 2.14 of the SEPP (Transport and Infrastructure)?		
River is more about 450 metres and 380 metres respectively, it is unlikely that these proposal areas are located within the Talbragar River floodplain. While a drainage line crosses beneath the Golden Highway and Castlereagh Highway intersection (I-014), it is unlikely to be prone to flooding.		
Similarly, the distance to the upper reaches of Kurrajong Creek, a small waterway that eventually leads to Munmurra River, from Golden Highway and Vinegaroy Road intersection (I-010) is about 80 metres to the south and the Munmurra River is about 7 kilometres to the east of the proposal. As such, the proposed upgrade at this intersection is also unlikely to be prone to flooding.		
Whilst flooding is unlikely at the proposed intersection upgrades, the below safeguards are to be implemented to manage any potential flood risk.		

Table 2-11: Consultation with other public authorities

Is consultation with a public authority (other than Council) required under sections 2.13, 2.15 and 2.16 of the SEPP (Transport and Infrastructure)?		
Are the works located on flood liable land? (to any extent) Publicly accessible flood data and reports for areas in and within the vicinity of the proposal did not confirm whether the proposal areas are located on flood prone land. Notwithstanding, given elevation and distance of the proposal from known waterways as described above, the proposal areas are not likely to be located on flood liable land.	Yes ☐	No ☒
Are the works adjacent to a national park, nature reserve or other area reserved under the <i>National Parks and Wildlife Act 1974</i>, or on land acquired under that Act?	Yes ☐	No ☒
Are the works on land in Zone C1 National Parks and Nature Reserves or in a land use zone equivalent to that zone?	Yes ☐	No ☒
Do the works include a fixed or floating structure in or over navigable waters?	Yes ☐	No ☒
Are the works for the purpose of residential development, an educational establishment, a health services facility, a correctional facility or group home in bush fire prone land?	Yes ☐	No ☒
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) The proposal is located within the dark sky region, about 95 kilometres south east from the Siding Spring Observatory. While works would be prioritised during the day for the proposal, night works is likely required at the Golden Highway and Vinegaroy Road intersection (I-010) and Golden Highway and Castlereagh Highway (I-014) intersection. A consultation letter was issued to the Director of Siding Spring Observatory and at the time of writing this MWREF, no response has been received. The letter seeking feedback outlined the nature of the works being undertaken and that lighting would be required for night works at specific intersections, which may temporarily increase the amount of artificial light in the night sky during construction activities. The proposal would have no impact on the dark sky region during the operational phase. Further assessment on potential light pollution is provided in Section 3.10 (Landscape character and visual amenity).	Yes ☒	No ☐
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 Lockhart LEP 2012, Narrandera LEP 2013 and Urana LEP 2011).	Yes ☐	No ☒
Are the works on land in a mine subsidence district within the meaning of the <i>Mine Subsidence Compensation Act 1961</i>?	Yes ☐	No ☒

Is consultation with a public authority (other than Council) required under sections 2.13, 2.15 and 2.16 of the SEPP (Transport and Infrastructure)?		
Are the works on, or reasonably likely to have an impact on, a part of the Willandra Lakes Region Work Heritage Property?	Yes ☐	No ☒
Are the works within a Western City operational area specified in Schedule 2 of the <i>Western Parkland City Authority Act 2018</i> with a capital value of \$30 million or more?	Yes ☐	No ☒

Table 2-12: Notification to council and occupiers of adjoining land

Do Council and occupiers of adjoining land need to be notified under section 2.111 of the SEPP (Transport and Infrastructure)?		
Does the proposal include a car park intended for the use by commuters using regular bus services?	Yes ☐	No ☒
Does the proposal include a bus depot?	Yes ☐	No ☒
Does the proposal include a permanent road maintenance depot or associated infrastructure, such as garages, sheds, tool houses, storage yards, training facilities and workers amenities?	Yes ☐	No ☒
Ancillary activities would be limited to temporary workforce parking and laydown areas within the road reserve (or rest area in the case of the Golden Highway and Black Stump (I-013) and Golden Highway and Castlereagh Highway (I-014) intersections) in proximity to each intersection.		

Consultation with Upper Hunter Shire Council and Warrumbungle Shire Council

Upper Hunter Shire Council and Warrumbungle Shire Council will be consulted as necessary on the proposed upgrades, particularly those relating to traffic management. If any use of the Council managed rest area for the laydown of material is required, Council would be consulted prior to construction.

2.5.2 Other agency and community engagement

Property owners

There is an existing gate that adjoins the extended hardstand proposed on the southeast corner of the Golden Highway and Castlereagh Highway intersection (I-014). However, this gate was installed by TfNSW to provide access via the property to assets in the road verge and does not provide direct access to the property from the road network. Access to this private property (Lot 2, DP23936) would be maintained via another existing gate along Castlereagh Highway, and consultation will be carried out with the property owner and any other relevant stakeholders regarding requirements for access to this gate.

Ongoing or future consultation

Broad community engagement activities were not carried out with the local community due to the minor scope of work and short duration of activities and the general absence of sensitive residential receivers in most locations. However, prior to the commencement of works, Transport would communicate potential traffic and noise impacts to the local community within the area surrounding the proposal. Suitable signage would be installed to inform road users of any changes to traffic conditions prior to, and during, construction. Section 3.3 (Noise and vibration), identified the sensitive receivers subject to notification prior to the commencement of construction works.

Prior to the commencement of works, Transport would communicate with the community via the following communication methods:

- Transport's website
- update to livetraffic NSW
- subscribers to regular emails on upcoming road closures.

3. Environmental assessment

This chapter provides a detailed description of the potential environmental impacts associated with the construction and operation of the proposal. All aspects of the environmental potentially impacted upon by the proposal are considered. This includes consideration of the factors specified in s171 of the Environmental Planning and Assessment Regulation 2021.

The matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) are also considered in Appendix A. Site-specific safeguards are provided to ameliorate the identified potential impacts.

3.1 Soil

Table 3-1: Soil

Description of existing environmental and potential impacts		
Are there any known occurrences of salinity or acid sulfate soils in the area? A review of the SEED Map Viewer (Environment and Heritage Group, 2023) and Australian Soil Resource Information System's (ASRIS, 2018) online Acid Sulfate Soil risk map on 5 December 2023. The search indicates the proposal areas are not located within areas of potential acid sulfate soils occurrence. A search of the eSPADE website (Office of Environment and Heritage, 2023), conducted on the 5 December 2023 identified the Golden Highway and Black Stump Way intersection (0-13) is located in an area of comprising moderate and high salinity hazard, with the Golden Highway and Vinegaroy Road intersection (I-010) and Golden Highway and Castlereagh Highway intersection (0-14) located in areas of moderate salinity hazard (refer to Figure 3-1).	Yes ☒	No ☐

Description of existing environmental and potential impacts



Figure 3-1: Saline soils within and in proximity to the proposal

Description of existing environmental and potential impacts		
Does the proposal involve the disturbance of large areas (e.g., >2ha) for earthworks? The proposal would require some minor excavation of about 0.215 hectares across the three intersections to accommodate the construction of hardstand, road widening, utility adjustments and drainage works.	Yes ☐	No ☒
Does the site have constraints for erosion and sedimentation controls such as steep gradients or narrow corridors? The proposed intersection works would be carried out on a generally flat topography within the existing road and vegetated verge. Works would pose low erosion and sediment risks or constraints. The site elevation ranges between about: 510 to 550 metres Australian Height Datum (AHD) at the Golden Highway and Vinegaroy Road intersection (I-010) 400 to 410 metres AHD at the Golden Highway and Black Stump Way and Golden Highway (I-013) 400 metres AHD at the Castlereagh Highway intersection (I-014). The proposed laydown locations are all situated on flat grades and would not require any exposure of soils to establish. The small extent of exposed soils expected at each of the three intersections indicates that implementation of appropriate erosion and sediment controls would be adequate to manage any potential risks.	Yes ☐	No ☒
Are there any sensitive receiving environments that are located in or nearby the likely proposal area or that would likely receive stormwater discharge from the proposal? Sensitive receiving environments include (but are not limited to) wetlands, state forests, national parks, nature reserves, rainforests, drinking water catchments). It is highly unlikely the proposal would impact upon the National Park and State Conservation Areas located in proximity to the proposal. Durridgere State Conservation Area is located about 1.8 kilometres south-east and Golden River National Park is located about 15 kilometres south of the Golden Highway and Vinegaroy Road intersection (I-010). Cobbora State Conservation Area is about 17 kilometres west of the Golden Highway and Black Stump Way (I-013) and Golden Highway and Castlereagh Highway (I-014) intersections. The following waterways, shown on Figure 3-2 to Figure 3-4, are located near the proposal areas: - a tributary of the Kurrajong Creek is about 80 metres south-east of the Golden Highway and Vinegaroy Road intersection (I-010) - Talbragar River is about 450 metres west of the Golden Highway and Black Stump Way intersection (I-013) and 380 metres east of the Golden Highway and Castlereagh Highway intersection (I-014) - a flood channel crosses beneath the Golden Highway near the Castlereagh Highway intersection (I-014) - the tributaries of the Talbragar River eventually flow into the Macquarie River near Dubbo which is a part of the Macquarie-Castlereagh River catchment which eventually leads to the Murray-Darling basin - the tributary of Kurrajong Creek flows into Four Mile Creek and then into Munmurra River which is a part of the Hunter River catchment which drains east towards Newcastle. As detailed above, about 0.215 hectares of soil in total would be exposed for the construction of the hardstand at each of the proposal areas and road widening at the Golden Highway and Vinegaroy Road intersection (I-010) which has the potential to export sediment to the surrounding waterways. With implementation of safeguards identified in Table 3-2 and Table 3-5, impacts to waterways are likely to be negligible. Extension of an existing culvert and a headwall replacement would be required at the Golden Highway and Castlereagh Highway intersection (I-014), which upon operation would mimic the existing channel profiles and capacity (refer to Figure 2-4).	Yes ☐	No ☒
Is there any evidence within or nearby the likely footprint of potential contamination? A review of the NSW EPA Contaminated Land Register for the Upper Hunter and Warrumbungle LGAs were undertaken on 30 January 2024. There are no known contaminated sites located near the proposal areas. If contamination is encountered the unexpected finds of potential or actual contaminated soils would be managed in accordance with Transport's <i>QA Specification G36 Section 4.2 2022</i>.	Yes ☐	No ☒
Is the likely proposal footprint in or nearby highly sloping landform? Works will primarily be limited to the road reserve. A hill of 100 metres elevation above the intersection is located about 1 km to the east of the Golden Highway and Black Stump Way intersection (I-013). This is unlikely to cause any potential sediment influence into the proposal area as the works are limited to about 0.045 hectares of disturbance at this proposal area.	Yes ☒	No ☐

Description of existing environmental and potential impacts

Is the proposal likely to result in more than 2.5ha (area) of exposed soil?

The total area required for construction would be 9.29 hectares, of which only a limited area would involve soil disturbance. Soil disturbance quantities at each intersection are detailed below:

- Golden Highway and Vinegaroy Road intersection (0-010): 0.125 hectares for the construction of hardstand
- Golden Highway and Black Stump Way intersection (0-013): 0.045 hectares for the construction of hardstand
- Golden Highway and Castlereagh Highway intersection (I-014): 0.045 hectares for the construction of hardstand.

The proposal would require some minor excavation of about 0.215 hectares of soils.

Yes

☐

No

☒

Additional information pertaining to soil and contamination risk.

A desktop database search and review of publicly available information was undertaken to identify the potential for soil impacts. The sources consulted included:

- The NSW Department of Land & Water Conservation Acid Sulfate Soil Risk Maps (DLWC, 1998)
- SEED (Sharing and Enabling Environmental Data) Map Viewer (Environment and Heritage Group, 2023)
- The Australian Soil Resource Information System (ASRIS) maps (2023)
- NSW eSpade Map Viewer (Environment and Heritage Group, 2023).

Construction activities would involve movement and use of vehicles across exposed ground, and transport of materials to and from the proposal areas. There is potential for soil erosion to occur across the proposal footprint. Safeguards would be in place to minimise the potential for soil erosion impacts.

Safeguards

Table 3-2: Soil safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
E1	Soils	Erosion and sediment control measures will be implemented in accordance with the Landcom <i>Managing Urban Stormwater, Soils and Construction Guidelines</i> (the Blue Book)) and maintained to: • minimise sediment moving off-site and sediment laden water entering any water course, drainage lines, or drain inlets • reduce water velocity and capture sediment on site • minimise the amount of material transported from site to surrounding pavement surfaces • divert clean water around the site.	Contractor	Construction
E2	Soils	All erosion and sedimentation controls implemented will be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and records kept and provided on request.	Contractor	Construction
E3	Soils	Erosion and sediment control measures are not to be removed until the works are complete and areas are stabilised.	Contractor	Construction
E4	Soils	Work areas will be stabilised progressively during the works.	Contractor	Construction
E5	Soils	A progressive erosion and sediment control plan is to be prepared for the works.	Contractor	Pre-construction and Construction
E6	Soils	The maintenance of established stockpile sites will be in accordance with Transport's <i>Stockpile Site Management Guideline</i> (EMS-TG-10).	Contractor	Pre-construction and Construction

Numbering	Impact	Environmental safeguards	Responsibility	Timing
E7	Soils	Potential or actual acid sulphate soils will be managed in accordance with Transport's <i>Guidelines for the Management of Acid Sulphate Materials</i> 2005.	Contractor	Construction
E8	Soils	Any saline soils will be managed in accordance with <i>NSW Department of Primary Industries (2014) Salinity Training Handbook</i> .	Contractor	Construction
E9	Contamination	An unexpected finds procedure for potential or actual contaminated soils will be included in the construction environmental management documentation.	Contractor	Construction

3.2 Waterways and water quality

Table 3-3: Waterways and water quality

Description of existing environmental and potential impacts			Yes ☒	No ☐																				
Is the proposal located within, adjacent to or near a waterway? The proposal is located in Macquarie River catchment (Golden Highway and Black Stump (I-013) and Golden Highway and Castlereagh Highway (I-014) intersections) and Hunter River catchment (Golden Highway and Vinegaroy Road intersection (I-010)) and is within the vicinity of several water bodies. These water bodies and their location from the proposal areas are summarised in Table 3-4 and shown in Figure 3-2 to Figure 3-4. Table 3-4: Water bodies within the vicinity of the proposal <table><tr><th>Proposal area</th><th>Name of water body</th><th>Location from the proposal (approximate)</th></tr><tr><td rowspan="2">Golden Highway and Vinegaroy Road intersection (I-010)</td><td>Kurrajong Creek</td><td>80 metres south</td></tr><tr><td>This creek flows into Four Mile Creek and then into Munmurra River, located around 8km to the east and part of the Hunter River catchment, which drains east towards Newcastle</td><td></td></tr><tr><td></td><td>Sandy Creek</td><td>705 metres south-west</td></tr><tr><td>Golden Highway and Black Stump Way intersection (I-013)</td><td>Talbragar River</td><td>450 metres west</td></tr><tr><td rowspan="2">Golden Highway and Castlereagh Highway intersection (I-014)</td><td>Talbragar River</td><td>380 metres east</td></tr><tr><td>Minor drainage line</td><td>Crosses beneath the intersection</td></tr><tr><td></td><td>This drainage line flows into Talbragar River that eventually flows into the Macquarie River near Dubbo, before leading to the Murray-Darling basin.</td><td></td></tr></table> Minor ephemeral drainage lines that run across flat farmland separate the proposal areas from Munmurra River and Talbragar River. Due to the small extent of ground disturbance at the intersections, the flat topography and the vegetated nature of the minor drainage lines, the potential for any substantial sediment transport to the rivers, and sedimentation and associated water quality impacts, is negligible. To minimise any potential impacts, erosion and sediment safeguards listed in Section 3.1 (Soil) would be implemented during construction.					Proposal area	Name of water body	Location from the proposal (approximate)	Golden Highway and Vinegaroy Road intersection (I-010)	Kurrajong Creek	80 metres south	This creek flows into Four Mile Creek and then into Munmurra River, located around 8km to the east and part of the Hunter River catchment, which drains east towards Newcastle			Sandy Creek	705 metres south-west	Golden Highway and Black Stump Way intersection (I-013)	Talbragar River	450 metres west	Golden Highway and Castlereagh Highway intersection (I-014)	Talbragar River	380 metres east	Minor drainage line	Crosses beneath the intersection	
Proposal area	Name of water body	Location from the proposal (approximate)																						
Golden Highway and Vinegaroy Road intersection (I-010)	Kurrajong Creek	80 metres south																						
	This creek flows into Four Mile Creek and then into Munmurra River, located around 8km to the east and part of the Hunter River catchment, which drains east towards Newcastle																							
	Sandy Creek	705 metres south-west																						
Golden Highway and Black Stump Way intersection (I-013)	Talbragar River	450 metres west																						
Golden Highway and Castlereagh Highway intersection (I-014)	Talbragar River	380 metres east																						
	Minor drainage line	Crosses beneath the intersection																						
	This drainage line flows into Talbragar River that eventually flows into the Macquarie River near Dubbo, before leading to the Murray-Darling basin.																							

Description of existing environmental and potential impacts



Figure 3-2: Water bodies in the vicinity of the proposal – Golden Highway and Vinegaroy Road (I-010)

Description of existing environmental and potential impacts



Figure 3-3: Water bodies in the vicinity of the proposal – Golden Highway and Black Stump Way intersection (I-013)

Description of existing environmental and potential impacts



Figure 3-4: Water bodies in the vicinity of the proposal - Golden Highway and Castlereagh Highway intersection (I-014)

Is the location known to flood or be prone to water logging?
Searches of the Upper Hunter Shire LEP and Warrumbungle LEP were carried out on 15 December 2023. Publicly accessible flood data and reports for areas in and within the vicinity of the proposal did not confirm whether the proposal areas are on flood prone land.

Yes ☐ No ☒

Description of existing environmental and potential impacts		
However, given the elevation and distance of the proposal from known waterways as described above, the proposal areas are unlikely to be prone to flooding.		
Is the proposal located within a regulated catchments covered by chapter 6 of State Environmental Planning Policy (Biodiversity and Conservation) 2021 (SEPP (Biodiversity and Conservation))? The proposal areas are not located within any regulated catchments. https://www.planningportal.nsw.gov.au/publications/environmental-planning-instruments/state-environmental-planning-policy-biodiversity-and-conservation-2021 . The nearest regulated catchment to the proposal areas is Hawkesbury-Nepean Catchment, located about 130 kilometres southeast of the Golden Highway and Vinegaroy Road intersection (I-010).	Yes ☐	No ☒
Would the proposal be undertaken on a bridge or ferry?	Yes ☐	No ☒
Is the proposal likely to require the extraction of water from a local water course (not mains)? All water required for the proposal including but not limited to dust suppression and fill compaction would be sourced from potable town water.	Yes ☐	No ☒

Safeguards

Table 3-5: Waterways and water quality safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
W1	Water quality	An emergency spill kit will be kept onsite at all times during works. All staff are to be made aware of the location of the spill kit and trained in its use.	Contractor	Construction
W2	Water quality	If a spill occurs, Transport’s Environmental Incident Procedure 2023 will be followed and the Transport Project Manager notified as soon as practicable.	Contractor	Construction
W3	Water quality	Where possible, siting of laydown areas in higher elevated locations will be prioritised to minimise any potential impacts due to localised flooding.	Contractor	Construction

3.3 Noise and vibration

Table 3-6: Noise and vibration

Description of existing environmental and potential impacts		
Are there any residential properties or other noise sensitive areas near the location of the proposal that may be affected by the work (i.e., church, school, hospital)? The location of existing noise sensitive receivers is shown in the key environmental constraints map in Figure 3-5 to Figure 3-7. The proposal is surrounded by the following sensitive receivers that may be impacted during construction. These are detailed below: - Golden Highway and Vinegaroy Road intersection (I-010): The surrounding land is zoned as primary production (RU1) and infrastructure (SP2). One residential receiver is located about 250 metres south of the proposal area. - Golden Highway and Black Stump Way intersection (I-013): The surrounding land is zoned as primary production (RU1) and infrastructure (SP2). One residential receiver is located about 250 metres south-west of the proposal area. - Golden Highway and Castlereagh Highway intersection (I-014): The surrounding land is zoned as primary production (RU1) and infrastructure (SP2). One residential receiver is located about 830 metres east of the proposal area. No other residential properties or other noise sensitive receivers are in proximity to the proposal that may be affected by the works.	Yes ☒	No ☐

Description of existing environmental and potential impacts



Figure 3-5: Noise sensitive receivers in proximity of Golden Highway and Vinegaroy Road intersection (I-010)

Description of existing environmental and potential impacts



Figure 3-6: Noise sensitive receivers in proximity of Golden Highway and Black Stump Way intersection (I-013)

Description of existing environmental and potential impacts



Figure 3-7: Noise sensitive receivers in proximity of Golden Highway and Castlereagh Highway intersection (I-014)

Description of existing environmental and potential impacts

Is the proposal going to be undertaken only during standard working hours?

Standard working hours

- Monday-Friday: 7:00am to 6:00pm
- Saturday: 8:00am to 1:00pm
- Sunday and Public Holidays: no work.

Construction works would be prioritised during standard construction time periods (daytime) as identified above. In response to a road occupancy licence (ROLs) to manage possible traffic and or safety impacts, or where out-of-hours works can be carried out in accordance with the CNVG and ICNG, then work may be required during evening and night-time as shown in Table 3-7.

Table 3-7: Out-of-hours construction time periods

Period	Monday-Friday	Saturday	Sunday
Out-of-hours (day)	-	7:00 am – 8:00 am	-
Out-of-hours (day an evening)	6:00 pm – 10:00 pm	1:00 pm – 6:00 pm	6:00 pm – 10:00 pm
Out-of-hours (night)	10:00 pm – 7:00 am	6:00 pm – 10:00 pm	10:00 pm – 7:00 am

Yes

☒

No

☐

Is any explosive blasting required for the proposal?

Yes

☐

No

☒

Would construction noise or vibration from the proposal affect sensitive receivers?

The Transport 'Construction Noise Estimator Tool' (Transport noise tool) has been used to assess construction noise and vibration impacts of the proposal. This assessment has been carried out to consider the impacts from multiple construction equipment operating concurrently. The results of the assessment are shown in [Appendix C](#).

The R2 category has been selected for all three intersections in this proposal.

The R2 category is representative of an area with isolated residences within the vicinity of a highway with a speed limit of 100 kilometres per hours.

Construction noise assessment

A distance based (scenario) assessment was selected for each intersection, with either 'local road works' or 'paving / asphaltting' selected as the applicable construction scenarios for the intersections:

- Golden Highway and Vinegaroy Road intersection (I-010): Local road works (out of hours)
- Golden Highway and Black Stump Way (I-013): Paving / asphaltting (standard hours)
- Golden Highway and Castlereagh Highway (I-014): Paving / asphaltting (out of hours)

The predicted noise levels at each receiver are conservative, as they are based on modelling the noise source at the edge of the proposal area at the closest point to the receiver. In reality, the noise source would be further away in most cases, at the location where the pavement works are actually occurring within the proposal area.

Residential receivers

Residential receivers located within noise affected distances have the potential to experience construction noise levels above the rating background level (RBL). Noise affected distances for paving / asphaltting are provided in Table 3-8 for each assessment time period at the selected R2 noise category. Developed settlements (urban and suburban) and no line of site have been assumed in estimating construction noise impacts.

Table 3-8: Noise affected distances for residential receivers (based on no line of sight) - Paving / asphaltting

Noise area category and scenario	Noise affected distances (metres)				
	Standard hours (Day)	Out of hours (Day)	Out of hours (Evening)	Out of hours (Night)	Highly affected distance
R2 (Paving / asphaltting)	115	180	280	425	10

Yes

☒

No

☐

Description of existing environmental and potential impacts

R2 (Local road works)	215	330	500	740	25
-----------------------	-----	-----	-----	-----	----

Based on Table 3-8, the following impacts are expected for R2 category receivers without line of sight to the proposed work:

- during paving / asphaltting activities in the day period, those within 115 metres of the proposal area have the potential to experience levels above the RBL. Night works are expected to impact residential receivers within 425 metres. Receivers within 10 metres may be highly noise affected.
- during local road works in the day period, those within 215 metres of the proposal area have the potential to experience levels above the RBL. Night works are expected to impact residential receivers within 740 metres. Receivers within 25 metres may be highly noise affected.

Golden Highway and Vinegaroy Road intersection (I-010)

Table 3-9 provides the recommended additional mitigation measures for each perception category for residential receivers without line of sight to the proposal area. Table 3-9 is based on the predicted construction noise impacts during night-time for local road works developed settlements (urban and suburban). Figure 3-8 shows the impact distances for each perception level at the assessed intersections.

Table 3-9: Predicted noise impact during night-time hours for local road works – R2 category

Perception	Noise management level, $L_{Aeq(15\text{ min})}$ dBA			
	RBL, dBA	Predicted noise level, dBA	Impact distance (metres)	Recommended additional mitigation measure
Noticeable	35	40	740	N
Clearly audible		45	500	N, R2, DR
Moderately intrusive		55	215	N, PC, SN, R2, DR
Highly intrusive		65	85	AA, N, PC, SN, R2, DR
Highly noise affected		75	25	N, PC, RO

N=Notification, R=Respite Period 2, DR=Duration respite, PC=Phone calls, SN=Specific notifications, AA=Alternative accommodation, RO=Respite offer

The nearest residential receiver to the Golden Highway and Vinegaroy Road intersection (I-010) is located about 250 metres south of the intersection and the receiver is not within line of sight of the proposal area. The residential receiver is located within maximum impact distance of 740 metres (refer to Figure 3-8). As such, this receiver is likely to be noise affected by the proposed construction work during night-time hours. Sleep disturbance is not anticipated for this residential receiver, given that the receiver lies outside of the 180-metre affected distance (refer to assessment in Appendix C). Based on Table 3-9, noise impacts for this receiver are anticipated to be 'clearly audible' (construction noise level above RBL of between 5 and 15 dBA) during night-time hours.

As a result, mitigation measures are required, in line with *Construction Noise and Vibration Guideline*. This is summarised in Table 3-11.

Description of existing environmental and potential impacts

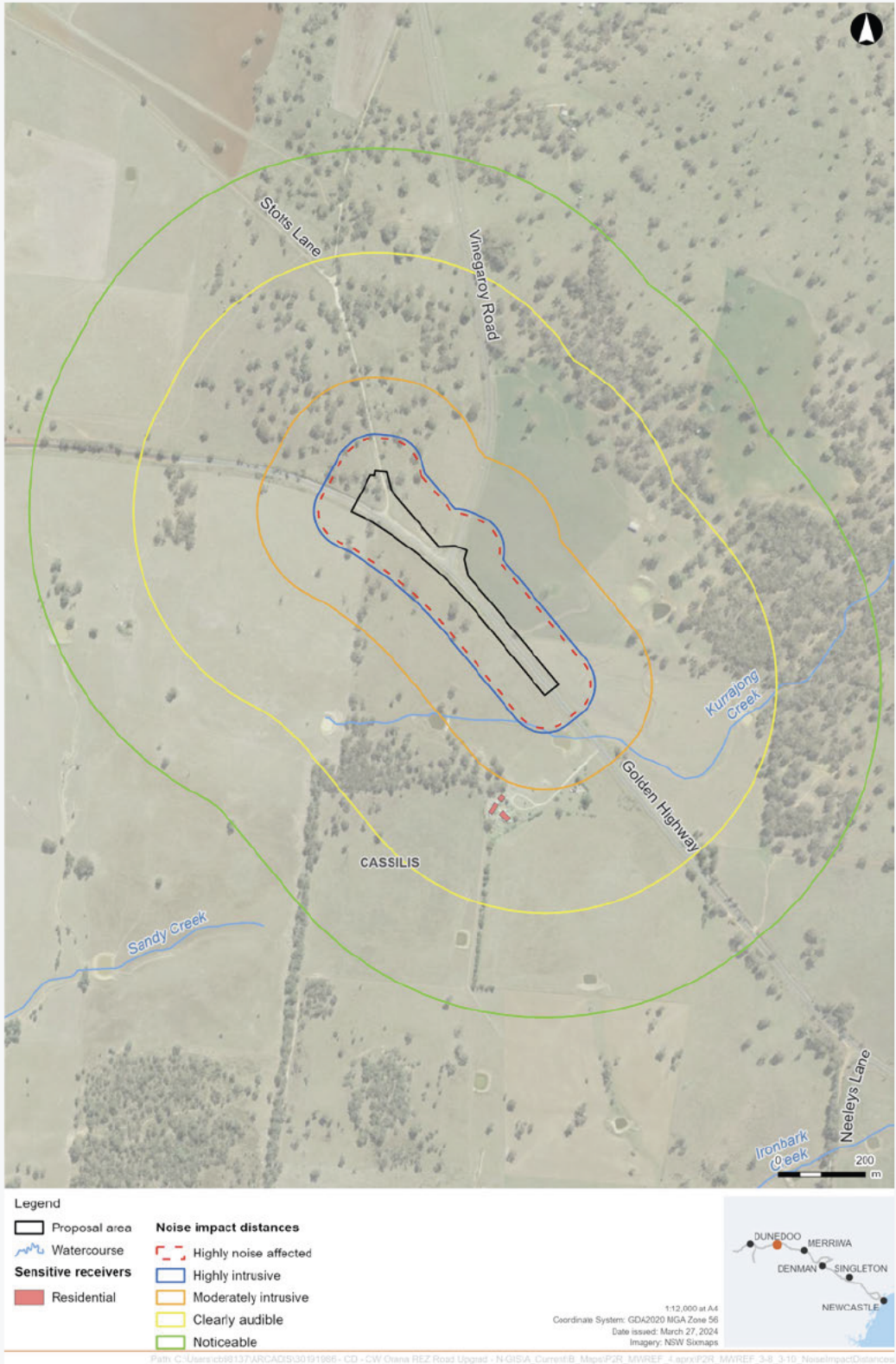


Figure 3-8: Noise impact distances during the day-time period (without line of sight) - Golden Highway and Vinegaroy Road intersection (I-010)

Golden Highway and Black Stump Way intersection (I-013)

Description of existing environmental and potential impacts

The nearest residential receiver to the Golden Highway and Black Stump Way intersection (I-013) is located about 250 metres south-west of the intersection and the receiver is not within line of sight of the proposal area. The residential receiver is located beyond the maximum impact distance of 115 metres (refer to Figure 3-9). As such, this receiver is unlikely to be noise affected by the proposed construction work during standard hours.

Golden Highway and Castlereagh Highway intersection (I-014)

The nearest residential receiver to the Golden Highway and Castlereagh Highway intersection (I-014) is located about 830 metres east of the intersection and the receiver is not within line of sight of the proposal area. The residential receiver is located beyond the maximum impact distance of 425 metres (refer to Figure 3-10). As such, this receiver is unlikely to be noise affected by the proposed construction work during night-time hours.

Description of existing environmental and potential impacts



Figure 3-9: Noise impact distances during the day-time period (without line of sight) - Golden Highway and Black Stump Way intersection (I-013)

Description of existing environmental and potential impacts

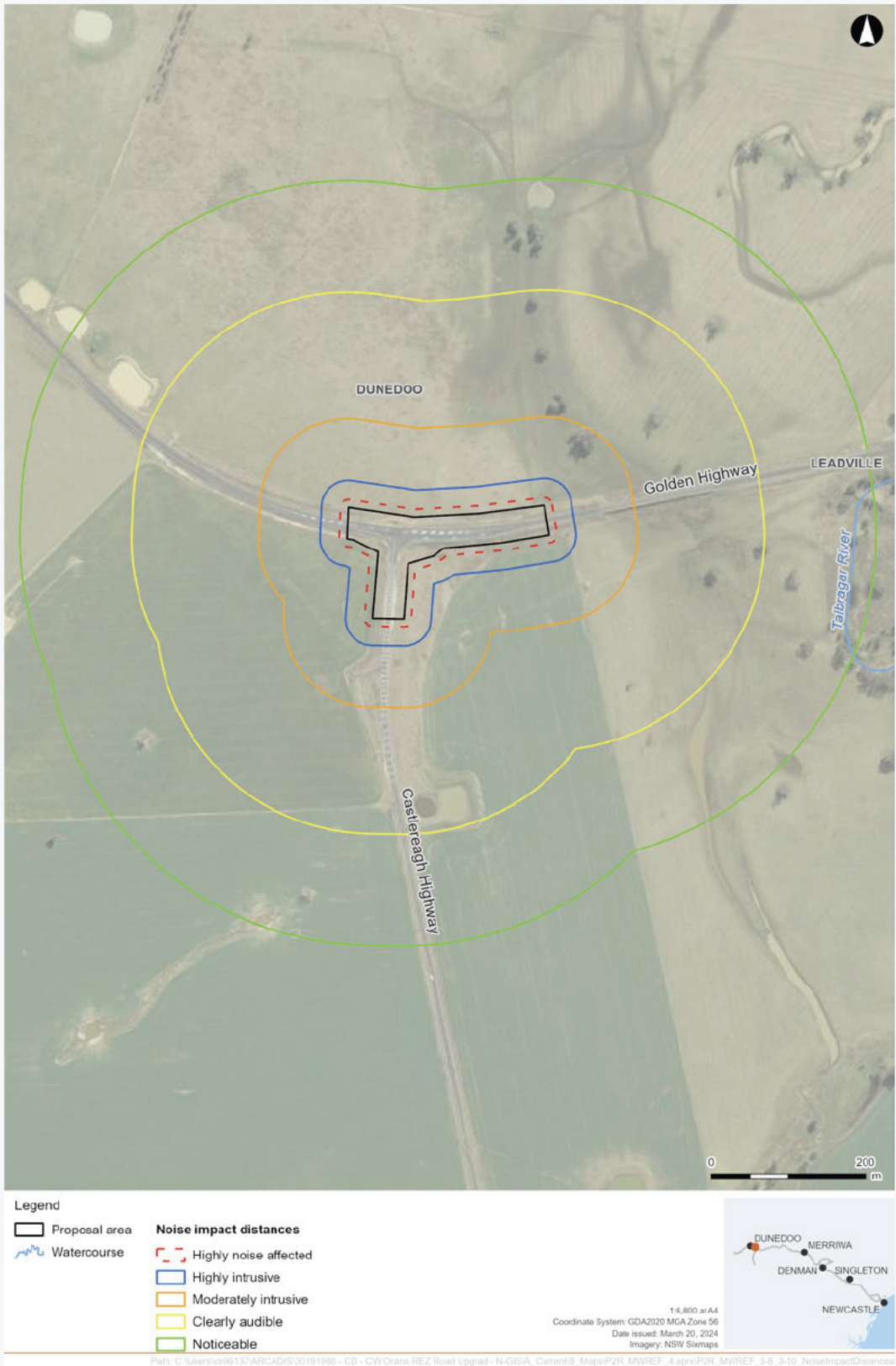


Figure 3-10: Noise impact distances during the night-time period (without line of sight) - Golden Highway and Castlereagh Highway intersection (I-014)

Description of existing environmental and potential impacts

Construction vibration assessment

Construction vibration impacts have been considered based on the minimum working distances for equipment causing vibration. These distances provided in the Construction Noise and Vibration Guidelines (Transport for NSW, 2023) are provided in Table 3-10.

Table 3-10: Minimum working distances for construction vibration

Plant	Appropriate size	Minimum working distance (metres)		
		Structural damage (standard structures)	Structural damage (heritage structures)	Human comfort
Vibratory roller	1-2 tonne	5	14	15 to 20
	2-4 tonne	6	16	20
	4-6 tonne	12	33	40
	7-13 tonne	15	41	100
	13-18 tonne	20	54	100
	>18 tonne	25	68	100
Jackhammer	Hand held	1	2	3

To provide a conservative assessment, potential impacts have been assessed using a vibratory roller (>18 tonnes) with a minimum working distance of 25 metres for standard structures and 68 metres for heritage structures.

No structures or heritage items are the identified minimum working distances for structures, both standard and heritage for all assessed intersections. Additionally, no sensitive receivers are located within the minimum working distance for human annoyance.

Would operation of the proposal alter the noise environment for sensitive receivers? This might include, but not be limited to, altering the line or level of an existing carriageway, changing traffic flow, adding extra lanes, increasing traffic volume, increasing the number of heavy vehicles, removing obstacles that provide shielding including changing the angle of view of the traffic, changing the type of pavement, increasing traffic speeds by more than 10 kilometres per hour or installing audio-tactile line markings.
The operational noise environment at Golden Highway and Vinegaroy Road intersection (I-010) may be slightly altered by the addition of a new channelised right turn from Golden Highway westbound onto Vinegaroy Road. However, sensitive receivers are unlikely to be impacted given the nearest residential receivers are located about 250 metres south and south-west of this intersection.

Yes

☐

No

☒

There are no anticipated operational impacts associated with the other two intersections and will be considered to remain at the background noise levels.

Any noise impacts from OSOM movements for individual generator projects using the proposed upgrades will be assessed and approved as part of their consent requirements.

Would the proposal result in vibration being experienced by any surrounding properties or infrastructure during operation?

Yes

☐

No

☒

There are no anticipated operational vibrational impacts associated with the proposal.

Safeguards

Table 3-11: Noise and vibration safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
NV1	Noise and vibration	Construction noise and vibration will be managed in accordance with the <i>Construction Noise and Vibration Guideline</i> (CNVG) (Transport for NSW, 2023) and <i>Interim Construction Noise Guideline</i> (ICNG) (DECC, 2009).	Contractor	Construction

Numbering	Impact	Environmental safeguards	Responsibility	Timing
NV2	Noise and vibration	All sensitive receivers (e.g. local residents) likely to be affected will be notified at least five working 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: - the project - the construction period and construction hours - impacts and mitigation measures - contact information for project management staff - complaint and incident reporting - how to obtain further information.	Contractor	Construction
NV3	Noise and vibration	Any work with impulsive or tonal noise emissions will be carried out in accordance with the <i>Construction Noise and Vibration Guideline (Roads)</i> (Transport for NSW, 2023) and <i>EPA Interim Construction Noise Guideline (ICNG)</i> (NSW DECC, 2009).	Contractor	Construction
NV4	Noise and vibration	Recommended mitigation measures, as listed in Tables 3-9, will be incorporated into the Contractors Environmental Management Plan and be implemented.	Contractor	Pre-construction Construction

3.4 Air quality

Table 3-12: Air quality

Description of existing environmental and potential impacts		
Is the proposal likely to result in large areas (>2ha) of exposed soils? The total area required for construction would be about 9 hectares, of which only a limited area would involve soil disturbance of about 0.215 hectares for the placement of hardstand at the proposal areas and road widening at Golden Highway and Vinegaroy Road intersection (I-010). Safeguards are provided below which would be used to manage potential air quality impacts near the proposed works area.	Yes ☐	No ☒
Are there any dust-sensitive receivers located within the vicinity of the proposal during the construction period? All three intersections are surrounded by rural land with no dust sensitive receivers located within 250 metres of the proposed works.	Yes ☐	No ☒
Is there likely to be an emission to air during construction? The main activities that may generate dust during construction include earthworks, saw cutting, and vehicle movements. However, there is limited potential for construction-related dust impacts at the proposal areas due to the limited scope of works proposed and distance to the nearest residential receivers.	Yes ☒	No ☐

Safeguards

Table 3-13: Air quality safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
A1	Air quality	Vehicles transporting waste or other materials that have a potential to produce odours or dust will be covered during transportation.	Contractor	Construction
A2	Air quality	Works (including the spraying of paint and other materials) will not be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates on motorist visibility and or worker safety are likely.	Contractor	Construction
A3	Air quality	Plant, vehicles and equipment will be maintained in good condition and in accordance with manufacturer's specifications.	Contractor	Construction
A4	Air quality	Plant and machinery will be turned off when not in use.	Contractor	Construction
A5	Air quality	Visual monitoring of air quality will be undertaken to verify the effectiveness of controls and enable early intervention.	Contractor	Construction
A6	Air quality	Work activities with potential for impact on workers and or motorists will be reprogrammed if the management measures are not adequately restricting dust generation.	Contractor	Construction

3.5 Aboriginal cultural heritage

Table 3-14: Aboriginal cultural heritage

Description of existing environmental and potential impacts		
Would the proposal involve disturbance in any area that has not been subject to previous ground disturbances? The proposed intersection works would primarily be limited to the road corridor. Minor excavation works would be undertaken as part of the construction of hardstand at each proposal area. This area has been previously disturbed and impacts to Aboriginal heritage are considered unlikely.	Yes ☐	No ☒
Has an online Aboriginal Heritage Information Management System (AHIMS) search been completed? Extensive searches of the Aboriginal Heritage Information Management System (AHIMS) were undertaken on 23 November 2023 (refer to Appendix D). The search returned no Aboriginal cultural heritage items at all proposal areas.	Yes ☒	No ☐
Is there potential for the proposal to impact on any items of Aboriginal cultural heritage? The proposal areas would be mostly carried out on existing developed land that is currently used as a roadway. The Transport's <i>Standard Management Procedure: Unexpected Heritage Items</i> will be followed if Aboriginal heritage is encountered during construction.	Yes ☐	No ☒
Would the proposal involve the removal of mature native trees? The proposal would require the removal of three mature native trees located on the southern side of the Golden Highway, about 190 metres northwest of the Golden Highway and Vinegaroy Road intersection (I-010). These trees are mapped as Blakelys Red Gum – Rough-barked Apple shrubby woodland (Plant Community Type (PCT) 1696) (refer to Figure 3-12 to Figure 3-15). An additional native juvenile tree would be removed or pruned south of Vinegaroy Road (refer to Figure 3-12 and Figure 3-16). The proposal would also require the removal of one mature native tree located on the northeastern corner of the Golden Highway and Black Stump Way intersection (I-013). Five small native trees within the vicinity would also require removal (refer to Figure 3-17 to Figure 3-21). None of the impacted trees form part of a heritage listing or have other heritage value. Further assessment of potential impacts to trees is provided in Section 3.7 (Biodiversity).	Yes ☒	No ☐
Is the proposal consistent with the requirements of Transport's Procedure for Aboriginal cultural heritage consultation and investigation (PACHCI)? A Procedure for Aboriginal Cultural Heritage Investigation (PACHCI) was conducted in November 2023. The proposal was assessed as being unlikely to have an impact on Aboriginal cultural heritage based on the following considerations: - the project is unlikely to harm known Aboriginal objects or places - the AHIMS search did not indicate moderate to high concentrations of Aboriginal objects or places in the study area - 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 and the Roads and Maritime Services' procedure - the cultural heritage potential of the study area appears to be reduced due to past disturbance. The Stage 1 PACHCI assessment is provided in Appendix B.	Yes ☒	No ☐
Additional information pertaining to Aboriginal cultural heritage risk. A review of the National Native Title Tribunal was reviewed on 6 December 2023. It was confirmed there are two Native Title Claims within the proposal areas including: - Golden Highway and Castlereagh Highway intersection (I-014): Warrabinga-Wiradjuri #7 Native Claim 2018/002 - Golden Highway and Vinegaroy Road (I-010) and Golden Highway and Black Stump Way intersections (I-013): Gomeroi People Native Claim 2011/006.		

Description of existing environmental and potential impacts

As detailed above, a PACHI letter has been prepared by Transport, that states the proposal was assessed as being unlikely to have an impact on Aboriginal cultural heritage.

Safeguards

Table 3-15: Aboriginal cultural heritage safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
AH1	Aboriginal cultural heritage	If Aboriginal heritage items are uncovered during the works, all works in the vicinity of the find must cease and the Transport for NSW Aboriginal cultural heritage officer and regional environment manager contacted immediately. Steps in Transport’s <i>Standard Management Procedure: Unexpected Heritage Items</i> must be followed.	Contractor	Construction

3.6 Non-Aboriginal heritage

Table 3-16: Non-Aboriginal heritage

Description of existing environmental and potential impacts		
Have online heritage database searches been completed? • Transport (including legacy Roads and Maritime) section 170 register • NSW Heritage database • Commonwealth Heritage List, established under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) • Maritime heritage database • Australian Heritage Places Inventory • Upper Hunter LEP 2013 and Warrumbungle LEP 2013 heritage items. The above searches were completed on 6 December 2023 and are attached in Appendix E. A search of the Transport Section 170 register, NSW State Heritage Register, Commonwealth Heritage List, Maritime heritage database and Australian Heritage Places Inventory did not return any heritage items within the proposal area. One LEP heritage items with local significance were identified in proximity to the proposal areas. These are discussed below.	Yes ☒	No ☐
Are there any items of non-Aboriginal heritage or heritage conservation areas listed on relevant heritage databases/registers that are located within the vicinity of the proposal? A review of the Warrumbungle LEP 2013 and Upper Hunter LEP 2013 was undertaken on 7 December 2023. The following non-Aboriginal heritage item was identified nearby the proposal area: • Golden Highway and Black Stump Way intersection (I-013): I24 Denison Town General Cemetery located 475 metres northeast (refer to Figure 3-11). Given the distance and limited nature of the works the proposal is not anticipated to impact the heritage-listed item.	Yes ☒	No ☐

Description of existing environmental and potential impacts



Figure 3-11: Non-Aboriginal heritage items within the vicinity of the proposal - Golden Highway and Black Stump Way intersection (I-013)

Description of existing environmental and potential impacts		
Is the proposal likely to impact trees that form part of a heritage listing or have other heritage value? The proposal would require the removal of three mature native trees located on the southern side of the Golden Highway, about 190 metres northwest of the Golden Highway and Vinegaroy Road intersection (I-010). These trees are mapped as Blakelys Red Gum – Rough-barked Apple shrubby woodland (Plant Community Type (PCT) 1696) (refer to Figure 3-12 to Figure 3-15). An additional native juvenile tree would be removed or pruned south of Vinegaroy Road (refer to Figure 3-12 and Figure 3-16). The proposal would also require the removal of one mature native tree located on the northeastern corner of the Golden Highway and Black Stump Way intersection (I-013). Five small native trees within the vicinity would also require removal (refer to Figure 3-17 to Figure 3-21). The trees required for removal are not located within the boundary of a heritage listing and do not have any other heritage value.	Yes ☐	No ☒
Is the proposal likely to occur in or near features that indicate potential archaeological remains? The proposal is located within a rural area, adjacent to cleared and grassed land. Due to past disturbance associated with the road construction and the nearest recorded heritage site located 475 metres away, the risk of discovery of heritage items during any excavation is considered low to negligible. Nevertheless, an unexpected heritage finds protocol would be included in the CEMP in the event that a heritage item is discovered.	Yes ☐	No ☒

Safeguards

Table 3-17: Non-Aboriginal heritage safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
H1	Non-Aboriginal heritage	If unexpected archaeological remains are uncovered during the works, all works must cease in the vicinity of the material/find and the steps in Transport's <i>Standard Management Procedure: Unexpected Heritage Items</i> must be followed. Transport for NSW Senior Environment Specialist - Heritage must be contacted immediately.	Contractor	Construction
H2	Non-Aboriginal heritage	If any items defined as relics under the <i>NSW Heritage Act 1977</i> are uncovered during the works, all works must cease in the vicinity of the find and the Transport for NSW Senior Environment Specialist - Heritage contacted immediately.	Contractor	Construction

3.7 Biodiversity

Table 3-18: Biodiversity

Description of existing environmental and potential impacts																						
Have relevant database searches been carried out? • BioNet threatened species records within the locality (e.g. 10km radius) • Regional vegetation mapping and BioNet Vegetation Classification database (including a search by the relevant CMA/s to identify potential TECs present) • NSW WeedWise (DPI) website. • Commonwealth EPBC Act Protected Matters Search Tool (PMST) • NSW DPI Fisheries Spatial Data Portal. The above desktop searches were carried out on 6 December 2023 and are included in Appendix F. Field surveys were carried out by ecologists on 20 and 21 November 2023, and 31 January to 2 February 2024.	Yes ☒	No ☐																				
Did the database searches identify any endangered ecological communities, threatened flora and/or threatened or protected fauna, or migratory species in or within the vicinity of the proposed works? Both Commonwealth and State listed matters must be considered. The NSW OEH BioNet Wildlife Atlas search did not identify endangered ecological communities, threatened flora and/or threatened or protected fauna, or migratory bird species in or within 100 metres of the proposal areas. A review of the threatened species database records within 10 kilometres of the proposal area using NSW OEH BioNet Wildlife search identified threatened fauna species as occurring or having the potential to occur within 10 kilometres of the proposal area. This included: • Golden Highway and Vinegaroy Road intersection (I-010): 13 potential threatened fauna species present under the BC Act and three threatened fauna species under the EPBC Act • Golden Highway and Black Stump Way intersection (I-013): one potential threatened fauna species present under the BC Act and no threatened fauna species under the EPBC Act • Golden Highway and Castlereagh Highway intersection (I-014): one potential threatened fauna species present under the BC Act and no threatened fauna species under the EPBC Act. No fauna listed under the BC Act or EPBC Act have been recorded within one kilometre of the proposal areas. The EPBC PMST identified the following Matters of National Environmental Significance within a one-kilometre radius of the proposal area, detailed in Table 3-19. The PMST search results details the TECs, threatened species and migratory species with the potential to occur in the proposal area, as well as wetlands of international importance (Ramsar). Table 3-19: Matter of National Environmental Significance <table><tr><th>Intersection</th><th>Wetlands of international importance (Ramsar)</th><th>Threatened ecological community</th><th>Threatened species</th><th>Migratory species</th></tr><tr><td>Golden Highway and Vinegaroy Road intersection (I-010)</td><td>None</td><td>6</td><td>34</td><td>10</td></tr><tr><td>Golden Highway and Black Stump Way intersection (I-013)</td><td>None</td><td>3</td><td>38</td><td>10</td></tr><tr><td>Golden Highway and Castlereagh Highway intersection (I-014)</td><td>None</td><td>3</td><td>39</td><td>10</td></tr></table> The DPI Fisheries Spatial Data Portal identified Kurrajong Creek as key fish habitat, located about 730 metres southeast of the Golden Highway and Vinegaroy intersection (I-010). The portal also identified the Eel Tailed Catfish and Southern Purple Spotted Gudgeon as being distributed within the Murray-Darling Basin, including the Talbragar River, and are listed as endangered within NSW.	Intersection	Wetlands of international importance (Ramsar)	Threatened ecological community	Threatened species	Migratory species	Golden Highway and Vinegaroy Road intersection (I-010)	None	6	34	10	Golden Highway and Black Stump Way intersection (I-013)	None	3	38	10	Golden Highway and Castlereagh Highway intersection (I-014)	None	3	39	10	Yes ☒	No ☐
Intersection	Wetlands of international importance (Ramsar)	Threatened ecological community	Threatened species	Migratory species																		
Golden Highway and Vinegaroy Road intersection (I-010)	None	6	34	10																		
Golden Highway and Black Stump Way intersection (I-013)	None	3	38	10																		
Golden Highway and Castlereagh Highway intersection (I-014)	None	3	39	10																		

Description of existing environmental and potential impacts		
The TECs, listed migratory species and threatened fish population within a one-kilometre radius of the proposal areas are unlikely to be affected due to the highly constrained proposal boundary, limited duration and extent of works, and the restriction of most activities to the road reserve. Weeds A review of the DPI Weedwise website was undertaken for the Hunter region. A list of 'priority weeds' present within the Hunter region is provided in Appendix F.		
Does the proposal involve pruning, trimming or removal of any tree/s? Native vegetation has been mapped under the NSW State Vegetation Type Map (SVTM) (DPE, 2023) and shows the PCTs surrounding the proposal areas. Ground truthing carried out during the ecology surveys confirmed the presence of PCTs as shown in Figure 3-13, Figure 3-18 and Figure 3-22. A description of PCTs impacted by the proposal is provided below. The works are exempt from biodiversity offsets under the <i>TfNSW No Net Loss Guidelines</i> (2023) and/or the <i>TfNSW Tree and Hollow Replacement Guidelines</i> (2023), as the trees requiring removal are within the disturbed zone of the existing road (extends to the outside of the table drain). <u>Golden Highway and Vinegaroy Road intersection (I-010)</u> Vegetation removal would be required along the southern side of the Golden Highway, about 190 metres west of the Golden Highway and Vinegaroy Road intersection (I-010) (refer to Figure 3 12 to Figure 3 15) to provide safe sight lines for drivers in the westbound direction. This would include removal of three mature native, endemic trees (<i>Eucalyptus albens</i>, <i>Eucalyptus blakelyi</i>, and <i>Acacia falcata</i>) and a patch of about 26 regenerating <i>Acacia falcata</i> with diameter at breast height (DBH) of <10 centimetres. The vegetation in this location is mapped as Blakelys Red Gum – Rough-barked Apple shrubby woodland (PCT 1696). PCT 1696 is not associated with any TEC, with none of the tree/shrubs to be impacted by the proposal listed under the BC Act or EPBC Act. An additional native tree (<i>Acacia</i> sp.) would be removed or pruned south of Vinegaroy Road (refer to Figure 3 12 and Figure 3 16). The removed trees and their trimmings would be disposed of at an appropriately licenced waste facility.	Yes ☒	No ☐

Description of existing environmental and potential impacts



Figure 3-12: Tree removal – Golden Highway and Vinegaroy Road intersection (I-010)

Description of existing environmental and potential impacts

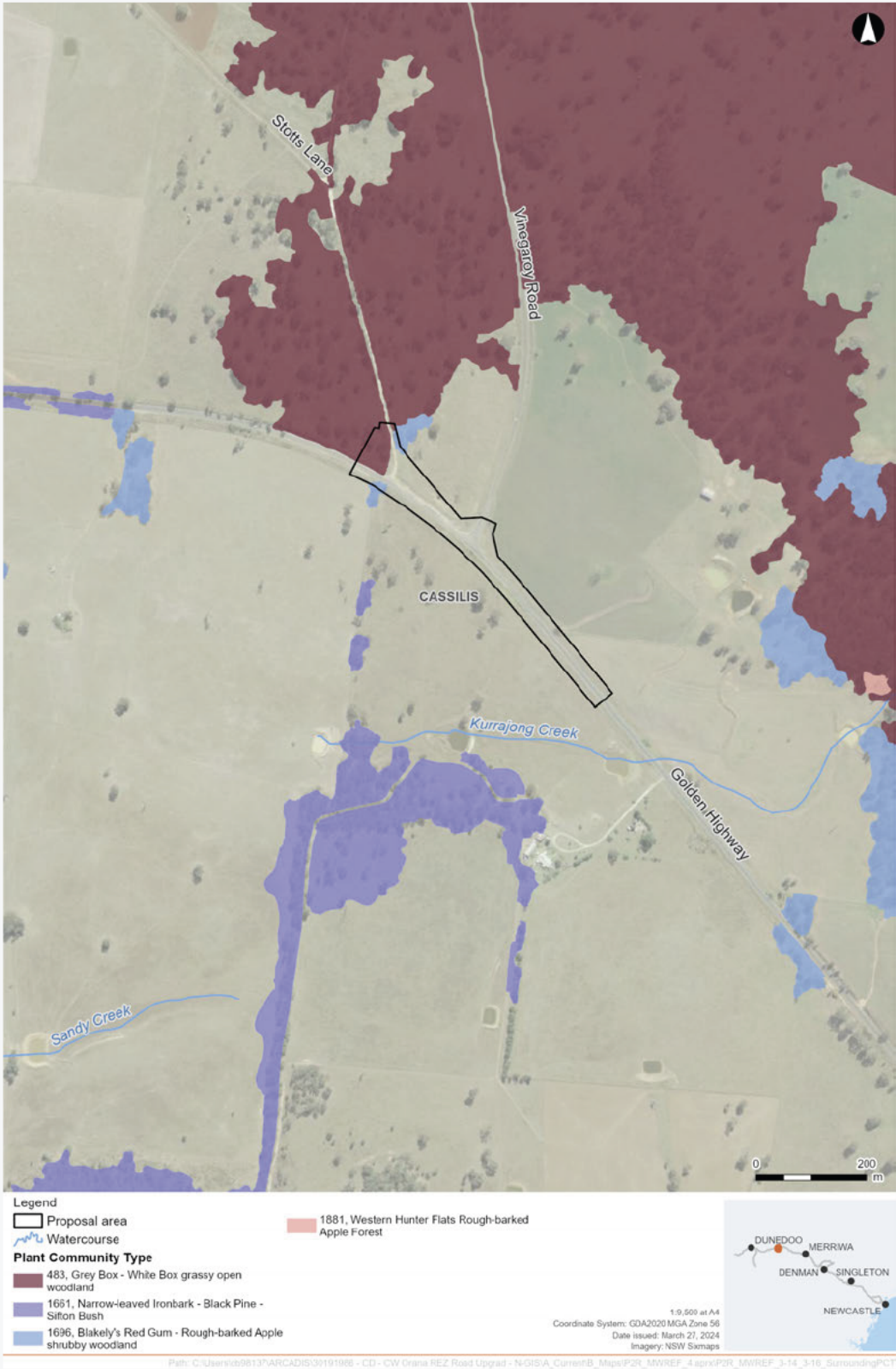


Figure 3-13: PCT mapping – Golden Highway and Vinegaroy Road intersection (I-010)

Description of existing environmental and potential impacts



Figure 3-14: Site photograph of impacted mature trees (shown by red arrows) west of the Golden Highway and Vinegaroy Road intersection (I-010)



Figure 3-15: Site photograph of impacted mature tree (shown by red arrow) west of the Golden Highway and Vinegaroy Road intersection (I-010)

Description of existing environmental and potential impacts



Figure 3-16: Site photograph of impacted tree – Golden Highway and Vinegaroy Road intersection (I-010)

Golden Highway and Black Stump Way intersection (I-013)

One small native tree (*Eucalyptus melliodora*) located on the northeastern corner of the Golden Highway and Black Stump Way intersection (I-013) would be required to be removed to allow for the swept path of design vehicles and realignment of open drain (refer to Figure 3-17 and Figure 3-19). Within the vicinity, one large native tree (*Eucalyptus melliodora*) and three small native trees (comprised of two *Acacia* sp., and one *Melaleuca* sp.) will also require removal (refer to Figure 3-17 and Figure 3-20). The three small native trees are not mapped as PCT.

An additional native tree (*Eucalyptus melliodora*) located on the southern side of Golden Highway will require pruning to allow for the swept path of design vehicles (refer to Figure 3-21).

Description of existing environmental and potential impacts

While PCT Yellow Box grassy woodland and Western Grey Box – cypress pine shrub grass shrub tall woodland (PCT 437) is only mapped within the south eastern extent of I-013, ecology surveys have confirmed that the native eucalypt trees (*Eucalyptus mielliodora*) impacted by the proposal are also a part of PCT 437.

PCT 437 is associated with the TEC White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland and Derived Native Grassland. This TEC is listed as critically endangered under the BC Act and EPBC Act.

Description of existing environmental and potential impacts



Figure 3-17: Tree removal – Golden Highway and Black Stump Way intersection (I-013)

Description of existing environmental and potential impacts

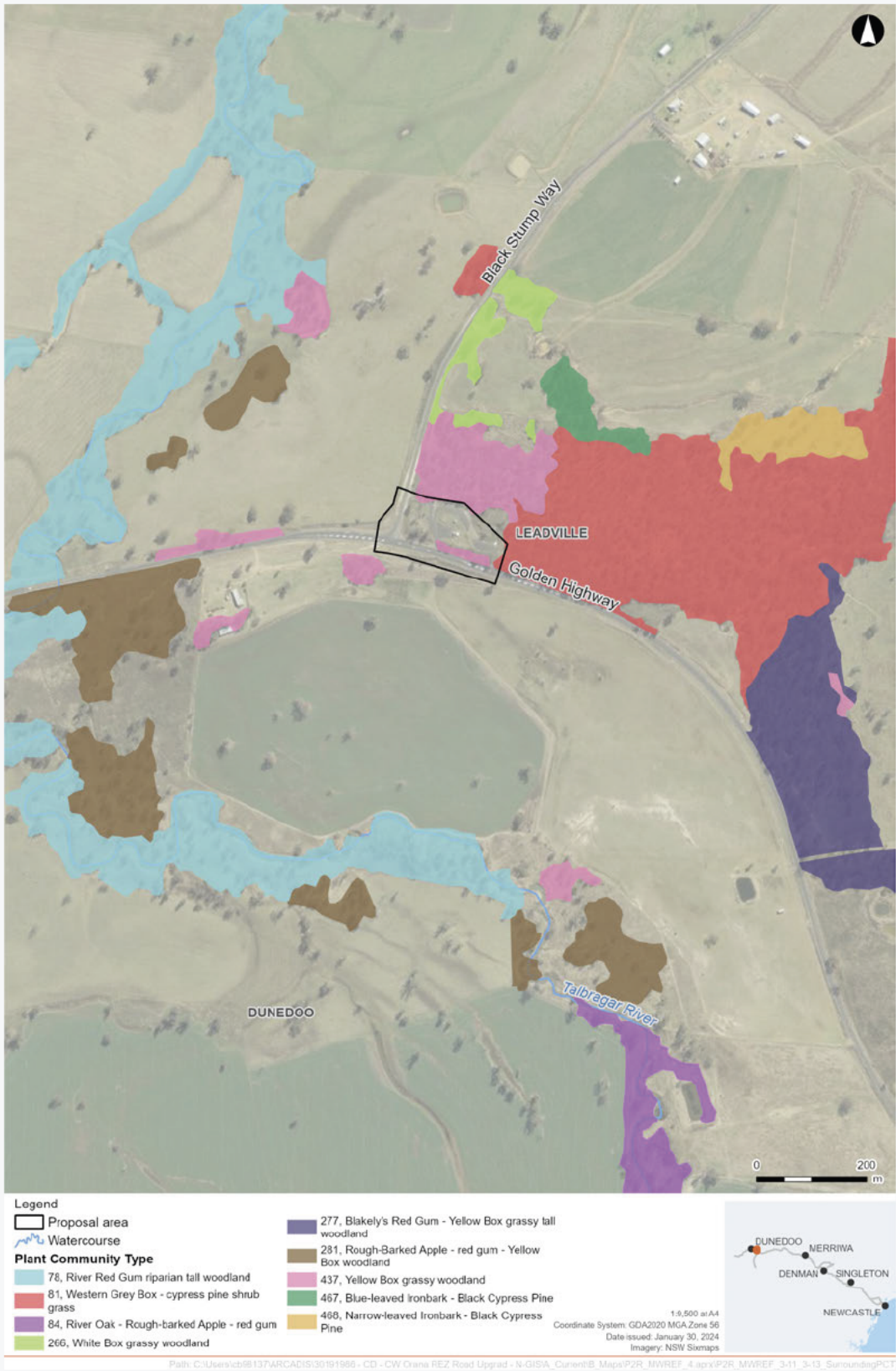


Figure 3-18: PCT mapping – Golden Highway and Black Stump Way intersection (I-013)



Figure 3-19: Site photograph of impacted small native tree on the northeast corner of the Golden Highway and Black Stump Way intersection (I-013)



Figure 3-20: Site photograph of the four native trees (three small, one large) located on the northeast corner of the Golden Highway and Black Stump Way intersection (I-013)

Description of existing environmental and potential impacts



Figure 3-21: Site photograph of the impacted native tree (shown by red arrow) located on the southern side of Golden Highway

Golden Highway and Castlereagh Highway (I-014)
No tree removal is proposed at this intersection.

Description of existing environmental and potential impacts



Figure 3-22: PCT mapping – Golden Highway and Castlereagh Highway intersection (I-014)

Description of existing environmental and potential impacts		
Is the proposal likely to impact nationally listed threatened species, ecological communities or migratory species?	Yes ☐	No ☒
Would the proposal require the removal of any other vegetation? Exotic and native grasses and some small shrubs would be required to be removed at the following interesections: - Golden Highway and Vinegaroy Road intersection (I-010): Native/exotic grasses along the western side of the proposal area - Golden Highway and Black Stump Way intersection (I-013): Native/extoic grasses along the northeast corner of the intersection and northwest of the intersection to accommodate the relocated giveway sign - Golden Highway and Castlereagh Highway intersection (I-014): Native/exotic grasses along the southeast corner of the intersection to accommodate the culvert extension and southeast and southwest of the intersection to accommodate the relocated giveway sign. Construction personnel would be informed of the locations of PCTs within and in the vicinity of the proposal areas. All ancillary facilities would be located away from existing PCTs, within previously disturbed land. Weeds which would need to be cleared would be appropriately disposed of in accordance with requirements under the <i>Biosecurity Act 2015</i> and Guide 6 (Weed Management) of Transport's <i>Biodiversity Management Guideline 2024</i> (Transport for NSW, 2024).	Yes ☒	No ☐
Would the proposal require the removal of any tree hollows? The ecology survey did not indicate the presence of any tree hollows in the impacted trees.	Yes ☐	No ☒
Are there any known areas of outstanding biodiversity value or areas mapped as 'littoral rainforest' or 'coastal wetland' under chapter 2 of SEPP (Resilience and Hazards) in or within the vicinity of the proposed work? The proposal areas are not located within areas mapped as 'littoral rainforest' or 'coastal wetland', with the nearest coastline over 200 kilometres from the proposal areas.	Yes ☐	No ☒
Would the proposal provide any additional barriers to the movement of wildlife? Construction of the proposed works would not provide additional barriers to wildlife movement.	Yes ☐	No ☒
Would the proposal disturb any natural waterways or aquatic habitat? As outlined in Section 3.1 (Soil) and Section 3.2 (Waterways and water quality) the surrounding waterways include: - Tributary of the Kurrajong Creek located 80 metres southeast of the Golden Highway and Vinegaroy Road intersection (I-010) - Talbragar River located 450 metres west of the Golden Highway and Black Stump Way intersection (I-013) and 380 metres east of the Golden Highway and Castlereagh Highway intersection (I-014) - Tributary of the Talbragar River which crosses under the Golden Highway, east of the Golden Highway and Castlereagh Highway intersection (I-014). It is unlikely the proposal would disturb any natural waterways or aquatic habitat based on the small disturbance proposed and distance to the above-mentioned waterways from the proposal.	Yes ☐	No ☒
Would the proposal impact (directly or indirectly) any potential microbat roosting or breeding habitat such as on bridges and culverts? The scope of works is limited to minor upgrades to existing intersections. Though there is the potential for culverts to serve as microbat roosting or breeding habitats, the ecologist survey has confirmed that the existing culvert located on the Golden Highway, at the Golden Highway and Castlereagh Highway intersection (I-014), shows no indication of being a habitat for microbats.	Yes ☐	No ☒

Safeguards

Table 3-20: Biodiversity safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
B1	Biodiversity	If unexpected threatened fauna or flora species are discovered, works will be stopped immediately and follow the Transport's <i>Unexpected Threatened Species Find Procedure</i> in Transport's <i>Biodiversity Management Guidelines (Transport for NSW, 2024) – Guide 1</i> (Pre-clearing process).	Contractor	Construction
B2	Biodiversity	All construction work will be undertaken in accordance with Transport's <i>Biodiversity Management Guideline (Transport for NSW, 2024)</i> .	Contractor	Construction
B3	Biodiversity	The location and extent of all works will be clearly demarcated and communicated to all staff and contractors working within the area during site inductions and daily toolbox talks.	Contractor	Construction
B4	Biodiversity	Vegetation to be retained that could be possibly impacted by the works will be protected in accordance with AS 4970-2009 – <i>Protection of trees on development sites</i> .	Contractor	Pre construction and construction
B5	Trees	Any tree pruning shall be no more than 20% of the canopy cover for each tree.	Contractor	Construction
B6	Trees	Any additional impact to trees from that identified may require further assessment.	Contractor	Pre construction and construction
B7	Trees	Tree removal and pruning will be undertaken by a suitably qualified arborist.	Contractor	Pre-construction
B8	Trees	The location and extent of Plant Community Types (PCTs) within and in the vicinity of the proposal areas will be communicated to all staff and contractors. All ancillary facilities will be situated away from existing PCTs, within previously disturbed land.	Contractor	Pre-construction Construction
B9	Trees	Removal of regenerating <i>Acacia falcata</i> trees at I-010 would be minimised as much as practical during construction.	Contractor	Construction

3.8 Traffic and transport

Table 3-21: Traffic and transport

Description of existing environmental and potential impacts		
Is the proposal likely to result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during construction? Detours and disruptions to traffic flow will likely be required for the tie in of hardstand areas with existing pavement, road signage relocation, road widening, asphaltting and line marking activities. However, any disruptions to traffic will require an ROL to manage traffic and related safety impacts. Construction activities proposed at the Golden Highway and Black Stump Way intersection (I-013) would be carried out during standard construction time period (daytime), while works proposed at Golden Highway and Vinegaroy Road intersection (I-010) and the Golden Highway and Castlereagh Highway intersection (I-014) would need to be undertaken during both standard construction time period (daytime) and outside of standard hours (night-time). A contraflow arrangement is expected to be required during the construction works at the Golden Highway and Vinegaroy Road intersection (I-010). This is a temporary traffic arrangement wherein traffic travelling in both directions use one lane of Golden Highway while construction activities are carried out in the other lane. Temporary traffic controls would be implemented for the duration of the contraflow arrangement and may be supplemented by the use of temporary traffic control signals at each end of the works area. This arrangement would be temporary and would not extend for the full duration of the proposed 11-month construction period for the Golden Highway and Vinegaroy Road intersection (I-010). Alternatively, construction works at this intersection may be carried out while maintaining a two-way traffic flow with narrowed lanes. This would require the use of nightworks with barrier relocation. Methodology would be confirmed by the construction contractor prior to construction and agreed with TfNSW via the Traffic Management Plan (safeguard T1). The agreed traffic arrangements may involve one or a hybrid of these traffic arrangements to minimise impacts to traffic movements. Access to local residences within the vicinity of the proposal areas would be maintained throughout construction. Where required, signage would be provided to divert motorists away from construction activities. Access to the rest area at I-013 would be maintained during construction. There are no cyclist or pedestrian infrastructure within, or in the vicinity of, the proposal areas.	Yes ☒	No ☐
Is the proposal likely to result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during operation? The proposed right turn lane from Golden Highway westbound to Vinegaroy Road would minimally change operational traffic flow. The proposed changes at the Golden highway and Vinegaroy Road intersection (I-010) would support the expected growth in heavy vehicles travelling through this intersection to access the Liverpool Range and Valley of the Winds Wind Farm. However, the proposed design would not result in operational detours. There would be no changes to operational traffic patterns at the other two intersections.	Yes ☐	No ☒
Is the proposal likely to affect any other transport nodes or transport infrastructure (e.g., bus stops, bus routes) in the surrounding area? Existing bus stops and bus routes would remain unaffected by the proposal.	Yes ☐	No ☒

Safeguards

Table 3-22: Traffic and transport safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
T1	Traffic and transport	A Traffic Management Plan shall be prepared by the Contractor and approved by Transport prior to any changes to road user movements, controls or access.	Contractor	Pre-Construction

Numbering	Impact	Environmental safeguards	Responsibility	Timing
T2		The plan shall include controls and procedures to address potential traffic impacts on road users and the environment, with specific regard to local traffic movement requirements and peak traffic volumes during construction.		
	Traffic and transport	Private property accesses will be maintained during the works.	Contractor	Construction
T3	Traffic and transport	Where works affect the free flow of traffic, a ROL will be obtained and a Traffic Control Plan will be prepared in accordance with Transport's <i>Traffic Control at Worksites Manual (2003)</i> .	Contractor	Construction
T4	Traffic and transport	Appropriate signage (such as variable message signs) and supervision will be provided at all times to ensure that all construction work areas are controlled and that unauthorised personnel (e.g. pedestrians) are excluded from work areas.	Contractor	Construction
T5	Traffic and transport	Designated work areas within the road reserve will be delineated prior to the work commencing. This area would be the minimum required for safely undertaking the activity.	Contractor	Construction

3.9 Socio-economic

Table 3-23: Socio-economic

Description of existing environmental and potential impacts		
Is the proposal likely to impact on local business? There are no businesses in the vicinity of the proposal areas. The nearest local businesses to the proposal areas are in Dunedoo, about seven kilometres west of the Golden Highway and Castlereagh Highway intersection (I-014).	Yes ☐	No ☒
Is the proposal likely to require any property acquisition? No property acquisition is proposed for the proposal as detailed in Section 2.2.2 (Proposal description).	Yes ☐	No ☒
Is the proposal likely to alter any access for properties (either temporarily or permanently)? The proposal would require the use of the rest area at the Golden Highway and Black Stump Way intersection (I-013) for materials laydown and workforce parking. Use of the rest area would be temporary and would only consist of a small area, allowing unaltered public access to the rest area to be maintained. There is an existing property access gate that adjoins the extended hardstand proposed on the southeast corner of the Golden Highway and Castlereagh Highway intersection (I-014). This access gate was installed and maintained by TfNSW to access assets in the verge. Access to this private property would be maintained via Castlereagh Highway, and consultation would be carried out with the property owner regarding impacts to this property access gate.	Yes ☒	No ☐
Is the proposal likely to alter any on-street parking arrangements (either temporarily or permanently)? No on-street parking arrangements would be affected by the proposal. As noted above, a portion of the rest area at the Golden Highway and Black Stump Way intersection (I-013) would be temporarily required for materials laydown and workforce parking associated with works at Golden Highway and Black Stump Way intersection (I-013) & Golden Highway and Castlereagh Highway intersection (I-014). Public access and sufficient parking at the rest area would be maintained during intersection works. A project representative will consult with Warrumbungle Shire Council regarding the use of this rest area during construction.	Yes ☐	No ☒
Is the proposal likely to change pedestrian movements or pedestrian access (either temporarily or permanently)? There is no existing infrastructure at the proposal areas that facilitate pedestrian movement and access (e.g. pedestrian crossings). The proposal does not include any provisions for pedestrian infrastructure. Pedestrians would be detoured around the construction works by traffic controllers and signage if required.	Yes ☐	No ☒
Is the proposal likely to impact on any items or places of social value to the community (either temporarily or permanently)? As outlined above, a portion of the rest area at the Golden Highway and Black Stump Way intersection (I-013) would be temporarily required for materials laydown and workforce parking associated with construction works. Public access and sufficient parking at the rest area would be maintained during intersection works.	Yes ☒	No ☐
Is the proposal likely to reduce or change visibility of any businesses, farms, tourist attractions or the like (either temporarily or permanently)? Due to the location of the proposal areas, visibility to local businesses and farms would not be impacted.	Yes ☐	No ☒
Is the proposal likely to impact trees planted by a community group, Landcare group or by council or a tree that is a memorial or part of a memorial group e.g., has a plaque? None of the trees that would be impacted by the proposal, as detailed in Section 3.7 (Biodiversity), are likely to have been planted by any of these groups.	Yes ☐	No ☒
Is the proposal likely to impact trees that form part of a streetscape, an avenue or roadside planting?	Yes ☐	No ☒

Description of existing environmental and potential impacts		
None of the trees that would be impacted by the proposal, as detailed in Section 3.7 (Biodiversity), would be regarded as forming part of a streetscape, avenue or roadside planting.		

Safeguards

Table 3-24: Socio-economic safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
C1	Socio-economic	Complaints received will be recorded and attended to promptly in accordance with the <i>Community Involvement Practice Notes and Resource Manual</i> (RTA, 1998).	Contractor	Construction
C2	Socio-economic	Public access will be maintained to the rest area at the Golden Highway and Black Stump Way intersection (I-013) for the duration of construction.	Contractor	Construction

3.10 Landscape character and visual amenity

Table 3-25: Landscape character and visual amenity

Description of existing environmental and potential impacts		
Is the proposed work over or near an important physical or cultural element or landscape? (For example, heritage items and areas, distinctive or historic built form, National Parks, conservation areas, scenic highways etc.) As outlined in Section 3.6 (Non-Aboriginal heritage), the nearest heritage listed item is the Deniston Town General Cemetery which is located about 475 metres north-northeast of the Golden Highway and Black Stump Way intersection (I-013). The heritage item would not be impacted by the proposal due to the distance between the intersection and the heritage item, limited works and lack of vibration intensive activities proposed.	Yes ☐	No ☒
Would the proposal obstruct or intrude upon the character or views of a valued landscape or urban area? (For example, locally significant topography, a rural landscape or a park, a river, lake or the ocean or a historic or distinctive townscape or landmark) The majority of visual impacts would be caused by equipment associated with the utility adjustment and asphaltting, including signage and construction machinery. This would have the potential to result in visual clutter in the rural landscape during construction. The proposed work is minor in scope and would only occur during the construction phase. The permanent visual alterations to the intersections would primarily be confined to the existing road reserve. As such, though the intersections are located within a rural landscape, the impact on the existing environment would be negligible.	Yes ☐	No ☒
Would the proposal require the removal of mature trees or stands of vegetation, either native or introduced? As outlined in Section 3.7 (Biodiversity), the proposal would require the removal of two trees located about 190 metres northwest of the Golden Highway and Vinegaroy intersection (I-010), on the southwest side of the Golden Highway. An additional tree would be removed/pruned on the south side of Vinegaroy Road. The proposal would also require the removal of two trees located immediately northeast of the Golden Highway and Black Stump Way intersection (I-013). An additional tree on the south side of the Golden Highway would be pruned. Further assessment of potential tree impacts is provided in Section 3.7 (Biodiversity).	Yes ☒	No ☐
Would the proposal result in large areas of shotcrete visible from the road or adjacent properties?	Yes ☐	No ☒
Would the proposal involve new noise walls or visible changes to existing noise walls?	Yes ☐	No ☒
Would the proposal involve the removal or reuse of large areas of road corridor, landscape, either verges or medians? The proposal would involve the construction of about 0.215 hectares of asphalt in total. This is divided as follows: - Golden Highway and Vinegaroy Road intersection (O-010): 0.125 hectares for the construction of the hardstand intersection - Golden Highway and Black Stump Way intersection (O-013): 0.045 hectares for the construction of the hardstand intersection - Golden Highway and Castlereagh Highway intersection (I-014): 0.045 hectares for the construction of the hardstand intersection. However, the proposed works are relatively minor and would not impact large areas of the existing road corridor or landscape.	Yes ☐	No ☒
Would the proposal involve substantial changes to the appearance of a bridge (including piers, girders, abutments and parapets) that are visible from the road or residential areas? No works on existing bridges are proposed.	Yes ☐	No ☒

Description of existing environmental and potential impacts		
If involving lighting, would the proposal create unwanted light spillage on residential properties at night (in construction or operation)? In the event construction works are required outside of standard construction hours, lighting would be directed away from sensitive receivers as per relevant safeguard outlined in Table 3-26. There would no operational lighting impacts.	Yes ☐	No ☒
Would any new structures or features to be constructed, result in over shadowing to adjoining properties or areas? The proposed works are not anticipated to cause overshadowing.	Yes ☐	No ☒
Additional information pertaining to landscape character and visual amenity risk. The proposal is located within the dark sky region (within 200 kilometres of the Siding Spring Observatory), at around 95 kilometres south east from the Siding Spring Observatory. While works would be prioritised during the day, night works will be required at the Golden Highway and Vinegaroy Road intersection (I-010) and Golden Highway and Castlereagh Highway (I-014) intersections. Therefore, lighting would be required for night works at this intersection and thereby temporarily increasing the amount of artificial light in the night sky. To minimise lighting impacts during construction, all lighting used during night works would comply with the <i>Dark Sky Planning Guideline</i> (NSW Department of Planning and Environment, 2023) as per Safeguard L2.		

Safeguards

Table 3-26: Landscape character and visual amenity safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
L1	Lighting	Any task lighting required for construction works will be directed away from sensitive receivers.	Contractor	Construction
L2	Lighting	Any temporary construction lighting required for works during the night-time period will comply with the <i>Dark Sky Planning Guideline</i> (NSW Department of Planning and Environment, 2023).	Contractor	Construction

3.11 Waste

Table 3-27: Waste

Description of existing environmental and potential impacts		
Is the proposal likely to generate >200 tonnes of waste material (contaminated and /or non-contaminated material)? The proposal would require some minor excavation of about 0.215 hectares of soils across the three intersections to accommodate the construction of hardstand, road widening, utility adjustments and drainage works. It is anticipated that >200 tonnes of waste material including concrete, asphalt, green waste and other waste types would be generated from the proposed works. This material is not likely to consist of contaminated material. All waste material would be disposed of at appropriately licensed waste facilities.	Yes ☒	No ☐
Is the proposal likely to require a licence from EPA? The proposal does not include any activities listed under Schedule 1 of the <i>Protection of the Environment Operations Act 1997</i>. An EPL is not required for this proposal.	Yes ☐	No ☒
Is the proposal likely to require the removal of asbestos?	Yes ☐	No ☒

Safeguards

Table 3-28: Waste safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
M1	Waste management	Waste management measures will follow Transport’s <i>Technical Guide: Management of road construction and maintenance waste</i> .	Contractor	Construction
M2	Waste management	The resource management hierarchy detailed by the <i>Waste Avoidance Resource Recovery Act 2001</i> will be adopted, namely avoid unnecessary consumption; resource recovery; disposal as a last resort.	Contractor	Construction
M3	Waste management	All waste will be treated in accordance with Transport’s <i>Waste Minimisation and Management Guidelines</i> (RTA, 1998).	Contractor	Construction
M4	Waste management	Waste material will not to be left on site once the works have been completed.	Contractor	Construction
M5	Waste management	Prior to disposal, all wastes will be identified and classified with the NSW EPA’s Waste Classification Guidelines, with appropriate records and disposal dockets retained for audit purposes.	Contractor	Construction

3.12 Climate change and greenhouse gas emissions

Table 3-29: Climate change and greenhouse gas emissions

Description of existing environmental and potential impacts		
Is the proposal located in an area likely to be permanently or tidally inundated in the future or subject to increased duration and intensity of flooding? As detailed in Section 3.2 (Waterways and water quality), it is unlikely that the area is on flood prone land and therefore, not likely to be permanently or tidally inundated in the future.	Yes ☐	No ☒
Have opportunities for reduced energy consumption during construction and operation been considered. The source and quantity of materials would be determined during the detailed design phase of the proposal and would consider the requirements of the Transport <i>Sustainable Design Guidelines – Version 4.0. Materials</i> would be sourced from local suppliers where practicable.	Yes ☐	No ☒
Greenhouse gas emissions sources during construction are likely to be largest from: • transporting materials to site • plant and light vehicle operations. During operation sources would include: • maintenance of the proposal which includes infrastructure and pavement repairs, and fuel use for the operation of the plant and equipment to perform the maintenance activities • Use of the proposal by vehicles.		

Safeguards

No safeguards have been considered necessary to manage climate change and greenhouse gas emission impacts as the proposal works would have a negligible impact.

3.13 Cumulative impact

Table 3-30: Cumulative impact

Description of existing environmental and potential impacts		
Are there other projects and developments in the study area which could add to potential impacts in both construction and operation? As outlined in Section 2.2.2, the proposal would facilitate the transport of OSOM components from the Port of Newcastle to the CWO REZ. The CWO REZ consists of a series of solar and wind farm developments. The route selection, planning and operation of OSOM vehicle movements would be assessed and approved as part of each individual developer’s respective environmental assessment and subject to the conditions of each relevant approval. As the proposal is required to facilitate the OSOM movements to the REZ, there would be no overlap.	Yes ☐	No ☒

Safeguards

No safeguards related to cumulative impacts are provided, as no potential impact has been identified.

4. Summary of safeguards and environmental management measures

4.1 Safeguards and environmental management measures

This section provides a summary of the site-specific environmental safeguards and management measures identified in described in chapter 3 of this minor works REF. These safeguards will be implemented to reduce potential environmental impacts throughout construction and operation. A framework for managing the potential impacts is provided with reference to environmental management plans and relevant Transport QA specifications. Any potential licence and/or approval requirements required prior to construction are also listed.

Table 4-1: Summary of site-specific safeguards for proposed work

Factor	Safeguards
General	G1. Any ancillary facilities that are not identified in this MWREF must satisfy the criteria outlined in Table 2-4 and reflected in construction environmental management document(s) prior to its use.
Soil	E1. Erosion and sediment control measures will be implemented (in accordance with the Landcom <i>Managing Urban Stormwater, Soils and Construction Guidelines</i> (the Blue Book)) and maintained to: • minimise sediment moving off-site and sediment laden water entering any water course, drainage lines, or drain inlets • reduce water velocity and capture sediment on site • minimise the amount of material transported from site to surrounding pavement surfaces • divert clean water around the site. E2. All erosion and sedimentation controls implemented will be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and records kept and provided on request. E3. Erosion and sediment control measures are not to be removed until the works are complete and areas are stabilised. E4. Work areas will be stabilised progressively during the works. E5. A progressive erosion and sediment control plan is to be prepared for the works. E6. The maintenance of established stockpile sites will be in accordance with Transport's <i>Stockpile Site Management Guideline</i> (EMS-TG-10). E7. Potential or actual acid sulphate soils will be managed in accordance with Transport's <i>Guidelines for the Management of Acid Sulphate Materials</i> 2005. E8. Any saline soils will be managed in accordance with <i>NSW Department of Primary Industries (2014) Salinity Training Handbook</i> E9. An unexpected finds procedure for potential or actual contaminated soils will be included in the construction environmental management documentation.
Waterways and water quality	W1. An emergency spill kit will be kept onsite at all times during works. All staff are to be made aware of the location of the spill kit and trained in its use. W2. If a spill occurs, Transport's Environmental Incident Procedure 2023 will be followed and Transport's Project Manager notified as soon as practicable. W3. Where possible, siting of laydown areas in higher elevated locations will be prioritised to minimise any potential impacts due to localised flooding.
Noise and vibration	NV1. Construction noise and vibration will be managed in accordance with the <i>Construction Noise and Vibration Guideline</i> (CNVG) (Transport for NSW, 2023) and <i>Interim Construction Noise Guideline</i> (ICNG) (DECC, 2009). NV2. All sensitive receivers (e.g. local residents) likely to be affected will be notified at least five working 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: • the project • the construction period and construction hours • impacts and mitigation measures • contact information for project management staff • complaint and incident reporting

Factor	Safeguards
	how to obtain further information. NV3. Any work with impulsive or tonal noise emissions will be carried out in accordance with the <i>Construction Noise and Vibration Guideline (Roads)</i> (Transport for NSW, 2023) and EPA <i>Interim Construction Noise Guideline</i> (ICNG) (NSW DECC, 2009). NV4. Recommended mitigation measures, as listed in Tables 3-9, are to be implemented where appropriate.
Air quality	A1. Vehicles transporting waste or other materials that have a potential to produce odours or dust will be covered during transportation. A2. Works (including the spraying of paint and other materials) will not be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates on motorist visibility and or worker safety are likely. A3. Plant, vehicles and equipment will be maintained in good condition and in accordance with manufacturer's specifications. A4. Plant and machinery will be turned off when not in use. A5. Visual monitoring of air quality will be undertaken to verify the effectiveness of controls and enable early intervention. A6. Work activities with potential for impact on workers and or motorists will be reprogrammed if the management measures are not adequately restricting dust generation.
Aboriginal cultural heritage	AH1. If Aboriginal heritage items are uncovered during the works, all works in the vicinity of the find must cease and the Transport for NSW Aboriginal cultural heritage officer and regional environment manager contacted immediately. Steps in Transport's <i>Standard Management Procedure: Unexpected Heritage Items</i> must be followed.
Non-Aboriginal heritage	H1. If unexpected archaeological remains are uncovered during the works, all works must cease in the vicinity of the material/find and the steps in Transport's <i>Standard Management Procedure: Unexpected Heritage Items</i> must be followed. Transport for NSW Senior Environment Specialist - Heritage must be contacted immediately. H2. If any items defined as relics under the <i>NSW Heritage Act 1977</i> are uncovered during the works, all works must cease in the vicinity of the find and the Transport for NSW Senior Environment Specialist - Heritage contacted immediately.
Biodiversity	B1. If unexpected threatened fauna or flora species are discovered, works will be stopped immediately and follow the Transport's <i>Unexpected Threatened Species Find Procedure</i> in Transport's <i>Biodiversity Management Guideline (Transport for NSW, 2024) – Guide 1</i> (Pre-clearing process). B2. All construction work will be undertaken in accordance with Transport's <i>Biodiversity Management Guideline (Transport for NSW, 2024)</i>. B3. The location and extent of all works will be clearly demarcated and communicated to all staff and contractors working within the area during site inductions and daily toolbox talks. B4. Vegetation to be retained that could be possibly impacted by the works will be protected in accordance with AS 4970-2009 – <i>Protection of trees on development sites</i>. B5. Any tree pruning shall be no more than 20% of the canopy cover for each tree. B6. Any additional impact to trees from that identified may require further assessment. B7. Tree removal and pruning will be undertaken by a suitably qualified arborist. B8. The location and extent of Plant Community Types (PCTs) within and in the vicinity of the proposal areas will be communicated to all staff and contractors. All ancillary facilities will be situated away from existing PCTs, within previously disturbed land. B9. Removal of regenerating <i>Acacia falcata</i> trees at I-010 would be minimised as much as practical during construction.
Traffic and transport	T1. A Traffic Management Plan shall be prepared by the Contractor and approved by Transport prior to any changes to road user movements, controls or access. The plan shall include controls and procedures to address potential traffic impacts on road users and the environment, with specific regard to local traffic movement requirements and peak traffic volumes during construction. T2. Private property accesses will be maintained during the works.

Factor	Safeguards
	T3. Where works affect the free flow of traffic, a ROL will be obtained and a Traffic Control Plan will be prepared in accordance with Transport's <i>Traffic Control at Worksites Manual (2003)</i>. T4. Appropriate signage (such as variable message signs) and supervision will be provided at all times to ensure that all construction work areas are controlled and that unauthorised personnel (e.g. pedestrians) are excluded from work areas. T5. Designated work areas within the road reserve will be delineated prior to the work commencing. This area would be the minimum required for safely undertaking the activity.
Socio-economic	C1. Complaints received will be recorded and attended to promptly in accordance with the <i>Community Involvement Practice Notes and Resource Manual</i> (TRA, 1998). C2. Public access will be maintained to the rest area at the Golden Highway and Black Stump Way intersection (I-013) for the duration of construction.
Landscape character and visual amenity	L1. Any task lighting required for construction works will be directed away from sensitive receivers. L2. Any temporary construction lighting required for works during the night-time period will comply with the <i>Dark Sky Planning Guideline</i> (NSW Department of Planning and Environment, 2023).
Waste	M1. Waste management measures will follow Transport's <i>Technical Guide: Management of road construction and maintenance waste</i>. M2. The resource management hierarchy detailed by the <i>Waste Avoidance Resource Recovery Act 2001</i> will be adopted, namely avoid unnecessary consumption; resource recovery; disposal as a last resort. M3. All waste will be treated in accordance with Transport's <i>Waste Minimisation and Management Guidelines</i> (RTA, 1998). M4. Waste material is not to be left on site once the works have been completed. M5. Prior to disposal, all wastes will be identified and classified with the NSW EPA's <i>Waste Classification Guidelines</i>, with appropriate records and disposal dockets retained for audit purposes.
Climate change and greenhouse gas emissions	None identified.
Cumulative impacts	None identified.

4.2 Licensing and approvals

Table 4-2: Summary of licensing and approvals required

Instrument	Requirement	Timing
<i>Road Occupancy License from Transport for NSW</i>	For any lane closures	Prior to start of construction

4.3 Other requirements

Table 4-3: Other requirements

Requirement	Yes ☒	No ☐
Environmental management plan sent to SMES or their delegate (ESL) for review.		

5. Certification, review and determination

5.1 Certification

This minor works REF provides a true and fair review of the proposal 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 proposal.

Prepared by:

Signature



Name: Tracy Lam
Position: Graduate Environmental Consultant
Company name: Arcadis
Date: 10/09/2024

Minor works REF reviewed by:

Signature



Name: Kate Wiggins
Position: Associate Technical Director
Company name: Arcadis
Date: 10/09/2024

5.2 Environment and sustainability staff review

The minor works REF has been reviewed and considered against the requirements of sections 5.5 and 5.7 of the EP&A Act.

In considering the proposal this assessment has examined and taken into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of that activity as addressed in the minor works REF and associated information. This assessment is considered to be in accordance with the factors required to be considered under section 171 of the Environmental Planning and Assessment Regulation 2021.

The proposal described in this minor works REF will have some environmental impacts which can be ameliorated satisfactorily. Having regard to the safeguards and management measures proposed, this assessment has considered that these impacts are unlikely to be significant and therefore an approval for the proposal does not need to be sought under Division 5.2 of the EP&A Act.

The assessment has considered the potential impacts of the activity on areas of outstanding value and on threatened species, ecological communities or their habitats for both terrestrial and aquatic species as defined by the *Biodiversity Conservation Act 2016* and the *Fisheries Management Act 1994*.

The proposal described in the minor works REF will not affect areas of outstanding value. The activity described in the minor works REF will not significantly affect threatened species ecological communities or their habitats. Therefore, a species impact statement is not required.

The assessment has also addressed the potential impacts of the activity on matters of national environmental significance and any impacts on the environment of Commonwealth land and concluded that there will be no significant impacts. Therefore, there is no need for a referral to be made to the Australian Government Department of Climate Change, Energy, the Environment and Water for a decision by the Commonwealth Minister for the Environment on whether assessment and approval is required under the *Environment Protection and Biodiversity Conservation Act 1999*.

The minor works REF is considered to meet all relevant requirements.

5.3 Environment and Sustainability staff recommendation

It is recommended that the proposal for the Central West Port to Orana Renewable Zone within the Upper Hunter and Warrumbungle LGAs as described in this minor works REF proceed subject to the implementation of all safeguards identified in the minor works REF and compliance with all other relevant statutory approvals, licences, permits and authorisations.

The minor works REF has examined and taken into account to the fullest extent possible all matters likely to affect the environment by reason of the activity in accordance with the EP&A Act, EP&A Regulation and the Guidelines approved under Clause 170 of the EP&A Regulation. The minor works REF has established that the activity is not likely to significantly affect the environment or threatened species, ecological communities or their habitats.

The minor works REF has concluded that there will be no significant impacts on matters of national environmental significance or any impacts on the environment of Commonwealth land.

If the proposal has not commenced within two years of the determination date the SMES must be consulted to identify any new or updated assessment or approval requirements.

Recommended by:

Signature



Name: Jonathon Blizzard

Position: Senior Manager Environment and Sustainability

Date: 13/09/2024

Noted by:

Signature



Name: Dimitri Perdikaris

Position: Senior Manager Renewables Transportation

Date: 13/09/2024

5.4 Decision statement

In accordance with the above recommendation, I certify that I have reviewed and endorsed the contents of this minor works REF, and to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A Regulation and the Guidelines approved under Section 170 of the EP&A Regulation, and the information is neither false nor misleading.

I determine that Transport for NSW may proceed with the activity:

Signature: 

Name: Alistair Lunn

Position: Regional Director West

Date: 16.09.2024

5.5 EP&A Regulation publication requirement

Table 5-1: EP&A Regulation publication requirement

Requirement		
Does this minor works REF need to be published under section 171(4) of the EP&A Regulation?	Yes ☒	No ☐

6. Definitions

Table 6-1: Definitions

Term	Definition
AHIMS	Aboriginal Heritage Information Management System
BC Act	<i>Biodiversity Conservation Act 2016</i>
CEMP	Construction Environmental Management Plan
CWO REZ	Central West Orana Renewable Energy Zone
DBH	Diameter breast height
DECC	Former NSW Department of Environment and Climate Change
DPE	NSW Department of Planning and Environment
DPI	Department of Industries
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	Environmental Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i>
EPL	Environmental Protection Licence
EnergyCo	Energy Corporation of NSW
GW	Gigawatt
FM	<i>Fisheries Management Act 1994</i>
ICNG	Interim Construction Noise Guideline
LEP	Local Environmental Plan
LGA	Local Government Area
MWREF	Minor Works Review of Environmental Factors
NML	Noise management level
NSW OEH	New South Wales Office of Environment and Heritage, now currently known as the New South Wales Environment and Heritage department of the state government
NVMP	Noise and Vibration Management Plan
OSOM	Over-sized and/or over-mass components
PACHCI	<i>TfNSW Procedure for Aboriginal cultural heritage consultation and investigation</i>
PMST	Protected Matters Search Tool
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
RBL	Rating background level
REF	Review of Environmental Factors
REZ	Renewable Energy Zone
ROL	Road occupancy licenses
SEPP (Biodiversity and Conservation)	State Environmental Planning Policy (Biodiversity and Conservation) 2021
SEPP (Transport and Infrastructure)	State Environmental Planning Policy (Transport and Infrastructure) 2021
TEC	Threatened ecological communities
TMP	Traffic Management Plan
TMC	Traffic Management Centre
Transport	Transport for NSW

7. References

AECOM. (2023). *Traffic Impact Study*.

Australian Soil Resource Information System. (202318). *Australian Soil Resource Information System (ASRIS) maps*. Retrieved 5 December, 2023.

DCCEEW. (2023). *Protected Matters Search Tool*. Retrieved from:
<https://pmst.awe.gov.au/#/map?lng=131.52832031250003&lat=-28.671310915880834&zoom=5&baseLayers=Imagery,ImageryLabels>

DPE. (2023). *State Vegetation Type Map*. Retrieved from:
https://geo.seed.nsw.gov.au/Html5Viewer412/index.html?viewer=SEED.SEED&local=en-au&runWorkflow=AppendLayerCatalog&CatalogLayer=SEED_Catalog.318.Flora%20Sites,SEED_Catalog.317.NSW_VegetationFormation_5m,SEED_Catalog.317.NSW_VegetationClass_5m,SEED_Catalog.317.NSW_PlantCommunityType_5m,SEED_Catalog.317.Plant%20Community%20Type%20with%20labels

DPI (2024). *NSW Weedwise*. Retrieved from: <https://weeds.dpi.nsw.gov.au/>

Environment and Heritage Group. (2023). *NSW eSpade Map Viewer*. Retrieved 5 December, 2023, from:
<https://www.environment.nsw.gov.au/eSpade2Webapp/>

NSW DECC. (2009). *Interim Construction Noise Guideline*. Retrieved from:
<https://www.environment.nsw.gov.au/resources/noise/09265cng.pdf>

NSW Government. (2023). *NSW OEH BioNet Wildlife Atlas*. Retrieved from:
https://atlas.bionet.nsw.gov.au/UI_Modules/ATLAS_/AtlasSearch.aspx

Transport for NSW. (2024). *Biodiversity Management Guideline*. Retrieved from:
https://www.transport.nsw.gov.au/system/files/media/documents/2024/best_practice_biodiversity_guidelines.pdf

Transport for NSW. (2023). *Construction Noise and Vibration Guideline*. Retrieved from:
https://www.transport.nsw.gov.au/system/files/media/documents/2023/EMF-NV-GD-0056_Construction_%20Noise_and_Vibration_Guideline%20_Roads.pdf

Transport for NSW. (2023). *No Net Loss Guidelines*.

Transport for NSW. (2023). *Tree and Hollow Replacement Guidelines*. Retrieved from:
<https://www.transport.nsw.gov.au/system/files/media/documents/2024/EMF-BD-GD-0129-Tree-and-hollow-replacement-guidelines.pdf>

Upper Hunter Shire Council. (2022). *Upper Hunter Community Strategic Plan 2032*. Retrieved from:
https://www.upperhunter.nsw.gov.au/files/assets/public/council/documents-and-policies/key-planning-documents/2022/uhs_csp_uh2032.pdf

Warrumbungle Shire Council. (2022). *Warrumbungle Shire Council Community Strategic Plan 2022/2037*. Retrieved from:
https://www.warrumbungle.nsw.gov.au/ArticleDocuments/707/Warrumbungle%20Shire%20Community%20Strategic%20Plan%202022-2037_FINAL.pdf.aspx#:~:text=The%20Community%20Strategic%20Plan%20provides,by%20Council%20into%20the%20future.

Appendix A: Consideration of State and Commonwealth environmental factors

Environmental Planning and Assessment Regulation 2021 section 171(2) factors

The following factors, listed in section 171(2) of the Environmental Planning and Assessment Regulation 2021, have been considered to assess the likely impacts of the proposal on the natural and built environment. This consideration is required to comply with sections 5.5 and 5.7 of the EP&A Act.

Table A1: Consideration of section 171 of the EP&A Regulation factors

Factor	Description of impact	Duration and extent
a) Environmental impact on the community.	The proposed work may cause minor short-term environmental impacts on the community, such as traffic delays on residents however the potential impacts would be minimised with the implementation of the safeguards as detailed in this MWREF.	Short-term, negative (minor), temporary Long-term, positive
b) The transformation of the locality.	The proposal would not transform the locality, as works would be mostly contained within the road corridor and would operate like existing conditions once operational.	Nil
c) Any environmental impact on the ecosystems of the locality.	The proposal is not likely to cause environmental impacts on the surrounding ecosystems. The proposal works would mostly be contained within the road corridor. Tree removal and pruning would be required at the Golden Highway and Vinegaroy Road intersection (I-010) and the Golden Highway and Black Stump Way intersection (I-013). Biodiversity impacts would be managed in accordance with the safeguards detailed in Section 3.7.	Nil
d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality.	Temporary construction works would be required at the proposal but due to the extent and short duration of the works this would not reduce the aesthetic, recreational, scientific or other environmental quality or value of the locality, as works would generally be contained with the existing road formation.	Short-term, negative (minor) and temporary
e) Any effect on any locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations.	The proposal is unlikely to have an effect on a locality, place or building of significance or other special value for present or future generations due to the short-term duration of construction.	Nil
f) Any impact on the habitat of protected	The proposal would not impact on the habitat of protected fauna due to the limited scope of works	Nil

Factor	Description of impact	Duration and extent
fauna (within the meaning of the Biodiversity and Conservation Act 2016).	for the proposed activities and the implementation of the safeguards provided in Section 3 of this MWREF.	
g) Any endangering of a species of animal, plant or other form of life, whether living on land, in water or in the air.	The proposal would not endanger any species of animal, plant or other form of life, whether living on land, in water or in the air due to the limited scope of works for the proposed activities and the implementation of the safeguards provided in Section 3 of this MWREF.	Nil
h) Any long-term effects on the environment	- The proposal would allow the delivery of components to the Orana Renewable Zone which have positive long-term effects on the community providing renewable energy to homes. - There are no anticipated negative long-term effects on the environment from the maintenance works due to the limited scope of these works and the implementation of the safeguards provided in Section 3 of this MWREF.	Positive, long-term
i) Any degradation of the quality of the environment.	The proposal would potentially degrade the quality of the environment during construction with regards to biodiversity, traffic delays, noise, and generation of small volumes of construction waste, however the potential impacts would be minimised with the implementation of the safeguards provided in Section 3.	Short-term, negative (minor) and temporary
j) Any risk to the safety of the environment.	The proposal would be constructed during standard and OOHV which could potentially cause safety risks for road users. However, this will be managed with the implementation of safeguards provided in Section 3.	Short-term, negative (minor) and temporary
k) Any reduction in the range of beneficial uses of the environment.	The proposal would not reduce the range of beneficial uses of the environment.	Nil
l) Any pollution of the environment.	The proposal would potentially cause short-term noise, soil and water quality and air quality impacts to the environment i.e. loud vehicles, dust generation and erosion and sedimentation. However, this will be managed with the implementation of safeguards provided in Section 3.	Short-term, negative (minor) and temporary
m) Any environmental problems associated with the disposal of waste	The waste generated during construction is expected to be minor. This will be contained and disposed to approved recycling facilities or to a licence landfill as detailed in Section 3.	Short-term, negative (minor) and temporary
n) Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply.	The proposal is not expected to require large amounts of resources to construct the proposal.	Nil

Factor	Description of impact	Duration and extent
o) The cumulative environmental effect with other existing or likely future activities.	The proposal is not expected to result in cumulative environmental impacts.	Nil
p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions.	There will be no impacts on coastal processes associated with the proposal.	Nil
q) Applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1	The proposal aligns with the objectives of the Upper Hunter Community Strategic Plan 2032 (Upper Hunter Shire Council, 2022) and the Warrumbungle Shire Council Community Strategic Plan 2022/2037 (2022).	Long-term and positive
r) Other relevant environmental factors	Nil	In considering the potential impacts of this proposal all relevant environmental factors have been considered, refer to Section 3 of this assessment.

Matters of National Environmental Significance

Table A2: Matters of national environmental significance

Environmental factor	Impact
Any impact on a World Heritage property?	Nil
Any impact on a National Heritage place?	Nil
Any impact on a wetland of international importance (often called 'Ramsar' wetlands)?	Nil
Any impact on nationally threatened species, ecological communities or migratory species?	Nil
Any impact on a Commonwealth marine area?	Nil
Does the proposal involve a nuclear action (including uranium mining)?	Nil
Additionally, any impact (direct or indirect) on the environment of Commonwealth land?	Nil

Appendix B: PACHCI

18/ 03/ 2024

Dimitri Perdikaris
76 Victoria Street
Grafton NSW 2460

Dear Dimitri,

Preliminary assessment results for Central West Orana Renewable Energy Zones based on Stage 1 of the *Procedure for Aboriginal cultural heritage consultation and investigation (the procedure)*.

The project sites I-001, I-002, I-003, I-004, I-005, I-006, I-007, I-008, H-009, H-010, I-026 and I-027 as described in the Stage 1 assessment, were assessed as being unlikely to have an impact on Aboriginal cultural heritage. The assessment is based on the following due diligence considerations:

- The project is unlikely to harm known Aboriginal objects or places.
- The AHIMS search did not indicate moderate to high concentrations of Aboriginal objects or places in the study area.
- The study area does not contain landscape features that indicate the presence of Aboriginal objects, based on the Heritage NSW's *Due diligence Code of Practice for the Protection of Aboriginal objects in NSW* and the Transport for NSW's procedure.
- The cultural heritage potential of the study area appears to be reduced due to past disturbance.
- There is an absence of sandstone rock outcrops likely to contain Aboriginal art.

Your project may proceed in accordance with the environmental impact assessment process, as relevant, and all other relevant approvals.

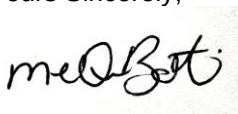
If the scope of your project changes, you must contact me and your regional environmental staff to reassess any potential impacts on Aboriginal cultural heritage.

If any potential Aboriginal objects (including skeletal remains) are discovered during the course of the project, all works in the vicinity of the find must cease. Follow the steps outlined in the Transport for NSW's *Unexpected Archaeological Finds Procedure*.

Safeguard- Due to the proximity of some of the proposed works to areas identified by AHIMS as being 'Aboriginal sites recorded in or near the location', caution must be taken to ensure there is no impact to these sites.

For further assistance in this matter do not hesitate to contact me.

Yours Sincerely,



Merredy Quinn- Bates
Aboriginal Cultural Heritage Officer

Dimitri Perdikaris
Project Manager,
Dear Dimitri,

02/02/2024

Preliminary assessment results for Central West Orana Renewable Energy Zones Golden Hwy. Based on Stage 1 of the Procedure for Aboriginal cultural heritage consultation and investigation (PACHCI), Desktop/ Evaluation on this day 2/02/2024.

The project sites: 1-017 Saxo Rd 1-013 Black Stump Way, 1-014 Castlereagh Hwy, H-023B Bolaro street Dunedoo, 1-015 Spring Ridge Rd , 1-041 Barneys Reef Rd as described in the Stage 1 assessment, was assessed as being unlikely to have an impact on Aboriginal cultural heritage.

The assessment is based on the following due diligence considerations: The project is unlikely to harm known Aboriginal objects or places.

- The AHIMS search did not indicate, moderate to high concentrations of Aboriginal objects and places **inside the study area only**. Ref AHIMS Search
- The study area did not contain a landscape feature that indicated 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* and the Roads and Maritime Services' procedure.
- The cultural heritage potential of the study area appears to be heavily reduced due to current road alignment and past disturbance (Previous Construction and Erosion activities).

Safeguard Conditions: The described activities must be restricted to the project information and if there are any changes to the maintenance methodology, please contact the Aboriginal Cultural Heritage Officer in Western Region, please be vigilant in the consideration for the presence of potential Aboriginal objects when the construction commences.

Your project may proceed in accordance with the environmental impact assessment process as relevant, and all other relevant approvals.

If the scope of your project changes, you must contact me and your regional environmental staff to reassess any potential impacts on Aboriginal cultural heritage.

If any potential Aboriginal objects (including skeletal remains) are discovered during the project, all works in the vicinity of the find must cease. Follow the steps outlined in the Roads and Maritime Services' **Unexpected Heritage Item Procedure**.

For further assistance in this matter do not hesitate to contact me.
Yours sincerely.



Aboriginal Cultural Heritage Officer – Western Region

Appendix C: Construction noise assessment



Transport
for NSW

Please pick from drop-down list in orange cells

Noise area category		R2
RDL or LA90 Background level (dB(A))	Day	45
	Evening	40
	Night	35
LAeq(5minute) Noise Management Level (dB(A))	Day	55
	Day (OOHW)	50
	Evening	45
	Night	40
Scenario		Local road works
Is there line of sight to receiver?		No (behind solid barrier)

Distanced Based Assessment (Construction Scenario)

Steps for Screening Assessment:

1. Schedule noisy works to occur in standard hours where possible or before 11am and implement Standard Measures.
2. Select the representative noise area category. The worksheet titled "Representative Noise Environ." provides a number of examples to help select the noise area category.
3. Select the scenario. If not found in drop-down list, refer to "Source List" and select a representative scenario with similar plant combination.
4. Is there line of sight to receiver? Select the appropriate scenario from the drop down list.

Identify and implement standard mitigation measures where feasible and reasonable. Include any shielding implemented as part of the standard mitigation measures by changing the selection in the 'Is there line of sight to receiver' drop-down list. Solid barrier can be in the form of road cutting, solid construction hoarding, acoustic curtain, timber lapped and capped fence, shipping container, site office, etc. Please note that vegetation and trees are not considered to be a form of solid barrier and any gaps would compromise the acoustic integrity of the solid barrier.

6. Determining if there are any receivers (both residential and non-residential receivers) within the affected distance for each relevant time period. Consider background noise measurements to check assumption in Step #2 if:
 - (a) there are many affected receivers and the impact duration at any one receiver is more than 3 weeks; or
 - (b) there are a few affected receivers and the impact duration at any one receiver is more than 6 weeks.Note that consideration need to be given to the construction staging plan when determining impact duration.
7. Identify if there are any receivers within the additional mitigation measures distances and identify feasible and reasonable measures at each receiver
8. Where night works are involved, identify sleep disturbance affected distance.
9. Document the outcomes of these steps.

(Note that suitable noise management levels for other noise-sensitive businesses not identified in the Construction and Maintenance Noise Estimator should be investigated on a project-by-project basis. Please

Abbreviation	Measure
N	Notification
SN	Specific notifications
PC	Phone calls
IB	Individual briefings
RO	Respite offer
R1	Respite period 1
R2	Respite period 2
DR	Duration respite
AA	Alternative accommodation
V	Verification

Note that spot check verification of noise levels and individual briefings are not required for projects with less than 3 weeks impact duration

Residential receiver			LAeq(5minute) noise level above background (LA90)												LAeq(5minute) 75 dB(A) or greater (Highly affected)			Sleep disturbance L _{max} 65 dB(A) Affected distance (m)
			5 to 10 dB(A)			10 to 20 dB(A)			20 to 30 dB(A)			> 30 dB(A)						
			Noticeable			Clearly audible			Moderately intrusive			Highly intrusive						
			Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	
Undeveloped green fields, rural areas with isolated dwellings	Day	185							N	75	65		N, PC, RO	25	75			
	Day (OOHW)	265				N, R1, DR	185	55	N, R1, DR	75	65	N, R1, DR, PC, SN	25	75	N, PC, RO	25	75	
	Evening	390				N, R1, DR	265	50	N, R1, DR	125	60	N, R1, DR, PC, SN	40	70	N, PC, RO	25	75	
	Night	565	N	565	40	N, R2, DR	390	45	N, PC, SN, R2, DR	185	55	AA, N, PC, SN, R2, DR	75	65	N, PC, RO	25	75	155
	Highly Affected	25													N, PC, RO	25	75	
Developed settlements (urban and suburban)	Day	215							N	85	65	N, PC, RO	25	75	N, PC, RO	25	75	
	Day (OOHW)	330				N, R1, DR	215	55	N, R1, DR	85	65	N, R1, DR, PC, SN	25	75	N, PC, RO	25	75	
	Evening	500				N, R1, DR	330	50	N, R1, DR	140	60	N, R1, DR, PC, SN	45	70	N, PC, RO	25	75	
	Night	740	N	740	40	N, R2, DR	500	45	N, PC, SN, R2, DR	215	55	AA, N, PC, SN, R2, DR	85	65	N, PC, RO	25	75	180
	Highly Affected	25													N, PC, RO	25	75	
Propagation across a valley / over water	Day	280							N	100	65	N, PC, RO	25	75	N, PC, RO	25	75	
	Day (OOHW)	440				N, R1, DR	280	55	N, R1, DR	100	65	N, R1, DR, PC, SN	25	75	N, PC, RO	25	75	
	Evening	685				N, R1, DR	440	50	N, R1, DR	170	60	N, R1, DR, PC, SN	55	70	N, PC, RO	25	75	
	Night	1035	N	1035	40	N, R2, DR	685	45	N, PC, SN, R2, DR	280	55	AA, N, PC, SN, R2, DR	100	65	N, PC, RO	25	75	230
	Highly Affected	25													N, PC, RO	25	75	

Transport
for NSW

Please pick from drop-down list in orange cells

Noise area category		R2
RBL or LA90 Background level (dB(A))	Day	45
	Evening	40
	Night	35
LAeq(15minute) Noise Management Level (dB(A))	Day	55
	Day (OOHW)	50
	Evening	45
	Night	40
Scenario		Paving / asphaltting
Is there line of sight to receiver?		No (behind solid barrier)

Distanced Based Assessment (Construction Scenario)

Steps for Screening Assessment:

1. Schedule noisy works to occur in standard hours where possible or before 11pm, and implement Standard Measures.
2. Select the representative noise area category. The worksheet titled 'Representative Noise Environ.' provides a number of examples to help select the noise area category.
3. Select the scenario. If not found in drop-down list, refer to 'Source List' and select a representative scenario with similar plant combination.
4. Is there line of sight to receiver? Select the appropriate scenario from the drop down list.

Identify and implement standard mitigation measures where feasible and reasonable. Include any shielding implemented as part of the standard mitigation measures by changing the selection in the 'Is there line of sight to receiver' drop-down list. Solid barrier can be in the form of road cutting, solid construction hoarding, acoustic curtain, timber lapped and capped fence, shipping container, site office, etc. Please note that vegetation and trees are not considered to be a form of solid barrier and any gaps would compromise the acoustic integrity of the solid barrier.

6. Determine if there are any receivers (both residential and non-residential receivers) within the affected distance for each relevant time period. Consider background noise measurements to check assumption in Step #2 if:
(a) there are many affected receivers and the impact duration at any one receiver is more than 3 weeks; or
(b) there are a few affected receivers and the impact duration at any one receiver is more than 6 weeks.
Note that consideration need to be given to the construction staging plan when determining impact duration.
7. Identify if there are any receivers within the additional mitigation measures distances and identify feasible and reasonable measures at each receiver
8. Where night works are involved, identify sleep disturbance affected distance.
9. Document the outcomes of these steps.

(Note that suitable noise management levels for other noise-sensitive businesses not identified in the Construction and Maintenance Noise Estimator should be investigated on a project-by-project basis. Please

Abbreviation	Measure
N	Notification
SN	Specific notifications
PC	Phone calls
IB	Individual briefings
RO	Respite offer
R1	Respite period 1
R2	Respite period 2
DR	Duration respite
AA	Alternative accommodation
V	Verification

Note that spot check verification of noise levels and individual briefings are not required for projects with less than 3 weeks impact duration

Residential receiver			LAeq(15minute) noise level above background (LA90)												LAeq(15minute) 75 dB(A) or greater (Highly affected)			Sleep disturbance LAmax 65 dB(A)
			5 to 10 dB(A) Noticeable			10 to 20 dB(A) Clearly audible			20 to 30 dB(A) Moderately intrusive			> 30 dB(A) Highly intrusive						
			Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Affected distance (m)
Undeveloped green fields, rural areas with isolated dwellings	Day	105							N	25	65	N, PC, RO	10	75	N, PC, RO	10	75	185
	Day (OOHW)	155				N, R1, DR	105	55	N, R1, DR	25	65	N, R1, DR, PC, SN	10	75	N, PC, RO	10	75	
	Evening	230				N, R1, DR	155	50	N, R1, DR	60	60	N, R1, DR, PC, SN	20	70	N, PC, RO	10	75	
	Night	335	N	335	40	N, R2, DR	230	45	N, PC, SN, R2, DR	105	55	AA, N, PC, SN, R2, DR	25	65	N, PC, RO	10	75	
	Highly Affected	10													N, PC, RO	10	75	
Developed settlements (urban and suburban)	Day	115							N	35	65	N, PC, RO	10	75	N, PC, RO	10	75	215
	Day (OOHW)	180				N, R1, DR	115	55	N, R1, DR	35	65	N, R1, DR, PC, SN	10	75	N, PC, RO	10	75	
	Evening	280				N, R1, DR	180	50	N, R1, DR	70	60	N, R1, DR, PC, SN	20	70	N, PC, RO	10	75	
	Night	425	N	425	40	N, R2, DR	280	45	N, PC, SN, R2, DR	115	55	AA, N, PC, SN, R2, DR	35	65	N, PC, RO	10	75	
	Highly Affected	10													N, PC, RO	10	75	
Propagation across a valley / over water	Day	140							N	40	65	N, PC, RO	10	75	N, PC, RO	10	75	280
	Day (OOHW)	230				N, R1, DR	140	55	N, R1, DR	40	65	N, R1, DR, PC, SN	10	75	N, PC, RO	10	75	
	Evening	365				N, R1, DR	230	50	N, R1, DR	80	60	N, R1, DR, PC, SN	20	70	N, PC, RO	10	75	
	Night	675	N	575	40	N, R2, DR	365	45	N, PC, SN, R2, DR	140	55	AA, N, PC, SN, R2, DR	40	65	N, PC, RO	10	75	
	Highly Affected	10													N, PC, RO	10	75	



Overview of additional mitigation measures

After standard noise mitigation measures have been applied noise levels may still exceed noise management levels. The Construction and Maintenance Noise Estimator will indicate which additional measures apply. Note that assistance from Roads and Maritime Communication and Stakeholder Engagement is available to coordinate and deliver community consultation and notification. The team also has the latest noise fact sheets and letter templates.

The range of additional measures are described below. Note in instances where there are many receivers above the NML it may not be practical to discuss the project with every receiver recommended below. Instead the community should be proactively engaged so they have an incentive to participate in discussion. Support from the community may be demonstrated from surveys, online feedback, contact phone numbers and community events.

Longer term impacts

During long term works or at fixed sites the additional mitigation measures above may become less effective. In these situations at-receiver noise mitigation may be considered where feasible and reasonable if options for at source noise mitigation and management measures have been exhausted.

At receiver mitigation may include temporary window and door screens, temporary localised shielding or permanent forms of mitigation. Feasible and reasonable considerations for providing at-receiver treatments should include:

Abbreviation	Measure	Description
N	Notification (letterbox drop or equivalent)	Advance warning of works and potential disruptions can assist in reducing the impact on the community. The notification may consist of using variable message sign, letterbox drop (or equivalent), web site / social media or a combination to distribute information detailing work activities, time periods over which these will occur, impacts and mitigation measures. Notification should be a minimum of 5 working days prior to the start of works. The approval conditions for projects may also specify requirements for notification to the community about works that may impact on them.
SN	Specific notifications	Specific notifications are letterbox dropped (or equivalent) to identified stakeholders no later than 5 working days ahead of construction activities that are likely to exceed the noise objectives. The specific notification provides additional information when relevant and informative to more highly affected receivers than covered in general letterbox drops. This form of communication is used to support periodic notifications, or to advertise unscheduled works.
PC	Phone calls	Phone calls detailing relevant information made to identified/affected stakeholders, who have provided their contact details, within seven calendar days of proposed work. Phone calls provide affected stakeholders with personalised contact and tailored advice, with the opportunity to provide comments on the proposed work and specific needs. Where the resident cannot be telephoned then an alternative form of engagement should be used.
IB	Individual briefings	Individual briefings are used to inform stakeholders about the impacts of high noise activities and mitigation measures that will be implemented. Project representatives would visit identified stakeholders at least 48 hours ahead of potentially disturbing construction activities. Individual briefings provide affected stakeholders with personalised contact and tailored advice, with the opportunity to comment on the project. Where the resident cannot be met with individually then an alternative form of engagement should be used.
RO	Respite offer	Respite Offers should be considered where there are high noise and vibration generating activities near receivers. As a guide work should be carried out in continuous blocks that do not exceed 3 hours each, with a minimum respite period of one hour between each block. The actual duration of each block of work and respite should be flexible to accommodate the usage of and amenity at nearby receivers. The purpose of such an offer is to provide residents with respite from an ongoing impact. This measure is evaluated on a project-by-project basis, and may not be applicable to all projects, or or when duration respite has been agreed (see below)
R1	Respite Period 1	Out of hours construction noise in out of hours period 1 shall be limited to no more than three consecutive evenings per week except where there is a Duration Respite. For night work these periods of work should be separated by not less than one week and no more than 6 evenings per month
R2	Respite Period 2	Night time construction noise in out of hours period 2 shall be limited to two consecutive nights except for where there is a Duration Respite. For night work these periods of work should be separated by not less than one week and 6 nights per month. Where possible, high noise generating works shall be completed before 11pm.
DR	Duration respite	Respite offers and respite periods 1 and 2 may be counterproductive in reducing the impact on the community for longer duration projects. In this instance and where it can be strongly justified it may be beneficial to increase the work duration, number of evenings or nights worked through Duration Respite so that the project can be completed more quickly. Transport staff should engage with the community where noise levels are expected to exceed the NML to demonstrate support for Duration Respite.
AA	Alternative accommodation	Alternative accommodation options may be offered (as a last resort) to residents living in close proximity to construction works that are likely to experience highly intrusive noise levels. The specifics of the offer will be identified on a project-by-project basis, however an AA offer is unlikely to be made for maintenance works. Additional aspects for consideration shall include whether the highly intrusive activities occur throughout the night or before midnight.
V	Verification	Verification may be required for building or asset condition where works are likely to cause vibration impact or for noise levels following reasonable complaints. See Appendix F of the Construction Noise and Vibration Guideline for more details.

Predicted airborne $L_{Aeq(15min)}$ noise level at receiver			Additional mitigation measures	
Perception	dB(A) above RBL	dB(A) above NML	Type ¹	Mitigations levels ²
All hours				
75dBA or greater			N, V, PC, RO	HA
Standard hours: Mon–Fri (7am–6pm), Sat (8am–1pm), Sun/Public Holiday (Nil)				
Noticeable	5 to 10	0	-	NML
Clearly audible	10 to 20	< 10	-	NML
Moderately intrusive	20 to 30	10 to 20	N, V	NML+10
Highly intrusive	> 30	> 20	N, V	NML+20
OOHW Period 1: Mon–Fri (6pm–10pm), Sat (7am–8am & 1pm–10pm), Sun/Pub Holidays (8am–6pm)				
Noticeable	5 to 10	< 5	-	NML
Clearly audible	10 to 20	5 to 15	N, R1, DR	NML+5
Moderately intrusive	20 to 30	15 to 25	V, N, R1, DR	NML+15
Highly intrusive	> 30	> 25	V, IB, N, R1, DR, PC, SN	NML+25
OOHW Period 2: Mon–Fri (10pm–7am), Sat (10pm–8am), Sun/Public Holiday (6pm–7am)				
Noticeable	5 to 10	< 5	N	NML
Clearly Audible	10 to 20	5 to 15	V, N, R2, DR	NML+5
Moderately intrusive	20 to 30	15 to 25	V, IB, N, PC, SN, R2, DR	NML+15
Highly intrusive	> 30	> 25	AA, V, IB, N, PC, SN, R2, DR	NML+25
Notes ¹ (refer to detailed descriptions in Table C1 above): 1. AA = Alternative accommodation V = Validation of predicted noise levels IB = Individual briefings N = Notification box drops PC = Phone calls SN = Specific notifications R1 = Respite period 1 R2 = Respite period 2 DR = Duration respite 2. All affected receivers				

Ground vibration - minimum working distances from sensitive receivers

As a guide, minimum working distances from sensitive receivers for typical items of vibration intensive plant are listed in the table below. The minimum distances are quoted for both cosmetic damage (refer to BS 7385:2-1993 for light-framed residential type structures and DIN 4150-3:2016 for fragile or heritage type structures) and human comfort (refer to EPA's Assessing Vibration - a technical guideline). The minimum working distances for cosmetic damage must be complied with at all times, unless otherwise approved by Roads and Maritime or under the environmental license as relevant.

Recommended minimum working distances for vibration intensive plant from sensitive receiver

Plant item	Rating / Description	Minimum working distance		
		Cosmetic damage		Human Response
		Light-framed structure (BS 7385)	Heritage and other sensitive structures (DIN 4150)	EPA's Vibration Guideline
Vibratory Roller	< 50 kN (Typically 1-2 tonnes)	5 m	14 m	15 m to 20 m
	< 100 kN (Typically 2-4 tonnes)	6 m	16 m	20 m
	< 200 kN (Typically 4-6 tonnes)	12 m	33 m	40 m
	< 300 kN (Typically 7-13 tonnes)	15 m	41 m	100 m
	> 300 kN (Typically 13-18 tonnes)	20 m	54 m	100 m
	> 300 kN (> 18 tonnes)	25 m	68 m	100 m
Small Hydraulic Hammer	(300 kg - 5 to 12t excavator)	2 m	5 m	7 m
Medium Hydraulic Hammer	(900 kg - 12 to 18t excavator)	7 m	19 m	23 m
Large Hydraulic Hammer	(1600 kg - 18 to 34t excavator)	22 m	60 m	73 m
Vibratory Pile Driver	Sheet piles	20 m	50 m	100 m
Pile Boring	≤ 800 mm	2 m (nominal)	5 m	7 m
Jackhammer	Hand held	1 m (nominal)	2 m	3 m
Profiler	Wirtgen W210	4 m	-	-
Asphalt Paver	Vogele Super 1800-3	1 m	-	-
Steel Drum Roller	Hamm HD70 (Oscillating Mode)	2 m	-	-
Steel Drum Roller	Hamm HD70 (Static Mode)	1 m	-	-

The minimum working distances are indicative and will vary depending on the particular item of plant, local geotechnical conditions and the dominant frequency of the construction vibration levels. They apply to cosmetic damage of typical light-framed residential buildings and heritage/fragile buildings and assume that construction vibration could include low frequency content associated with the increased risk of cosmetic damage. Vibration monitoring is recommended to confirm the minimum working distances at specific sites. Additionally, detailed analysis based on the frequency dependent guideline vibration levels in BS 7385:2-1993 and DIN 4150-3:2016 may be utilised in conjunction with site specific measurements to derive alternative cosmetic damage objectives and minimum working distances. For heritage listed / fragile structures, specialist advice from an appropriately qualified structural engineer who is familiar with heritage structures is required to support any proposed relaxation of the initial cosmetic damage screening criterion. Any such relaxation shall be approved by Roads and Maritime or under the environmental license as relevant.

Operational aspects of some receivers may be highly sensitive to noise and vibration over and above typical noise and vibration allowances based on annoyance and human comfort. For highly sensitive receivers (eg, high technology facilities with sensitive equipment, recording studios and cinemas), specific assessment is required to ensure satisfactory operation of the facility and determine if any mitigation or management measures are required to minimise the potential impacts. Some guidance where building contents contain sensitive equipment may be found in these additional references:

* Australian Standard 2834-1995 Computer Accommodation, Chapter 2.9 Vibration, p16

* Gordon CG Generic Vibration Criteria for Vibration Sensitive Equipment Proceedings of International Society for Optical Engineering (SPIE), Vol. 1619, San Jose, CA, November 4-6, 1991, pp. 71-85

* ASHRAE Applications Handbook (SI) 2003, Chapter 47 Sound and Vibration Control, pp47.39-47.40

* ISO 8569 1996 Measurement & Evaluation of Shock & Vibration Effects on Sensitive Equipment in buildings

In relation to human comfort (response), the minimum working distances in the above table relate to continuous vibration. For most construction activities, vibration emissions are intermittent in nature and for this reason, higher vibration levels, occurring over shorter periods are allowed (see EPA's Assessing Vibration: a technical guideline). Where the predicted vibration levels for construction activities exceed the human comfort objectives, the procedures in Appendix C of the Construction Noise and Vibration Guideline are to be followed in order to mitigate the potential impacts at sensitive receivers.

Appendix D: Aboriginal cultural heritage searches

Appendix E: Non-Aboriginal cultural heritage searches

Search Results

42 results found.

Barrington Tops Wilderness Area Salisbury Rd	Dungog, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Belltrees House Gundy Moonan Flat Rd	Belltrees via Scone, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Ben Halls Gap State Forest Morrisons Gap Rd	Ben Halls Gap via Nundle, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Bow Palaeontological Site Merriwa Cassilis Rd	Merriwa, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Burning Mountain Nature Reserve New England Hwy	Wingen, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Cassilis Public School Coolah Rd	Cassilis, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Cedar Brush Nature Reserve Sparkes Creek Rd	Scone, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Fitzgerald Bridge New England Hwy	Aberdeen, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Gaol & Police Residence Murulla St	Murrurundi, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Glenalvon Group New England Hwy	Murrurundi, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)

Glenalvon Homestead New England Hwy	Murrurundi, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Glenalvon Old Cottage New England Hwy	Murrurundi, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Glenalvon Stables New England Highway	Murrurundi, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Gondwana Rainforests of Australia	Lismore, NSW, Australia	(Listed place) National Heritage List
Gondwana Rainforests of Australia	NSW, Australia, QLD, Australia	(Declared property) World Heritage List
Goulburn River National Park Kerrabee Rd	Sandy Hollow, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Indigenous Place	Merriwa, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Indigenous Place	Sandy Hollow, NSW, Australia	(Removed from Register or IL) Register of the National Estate (Non-statutory archive)
Invermein Moonbi Rd	Scone, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Kelvinside, Outbuildings and Surrounds Rouchel Rd	Aberdeen, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
M Campbell and Company Stores (former) & Outbuilding New England Hwy	Aberdeen, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Merriwa Showground Dutton St	Merriwa, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)

Merriwa Urban Conservation Area	Merriwa, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Mount Wingen (Burning Mountain) Area New England Hwy	Wingen, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Murrurundi Civic Group Mount St	Murrurundi, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Murrurundi Courthouse & Police Station 3 Murulla St	Murrurundi, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Murrurundi Urban Conservation Area	Murrurundi, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Old Cassilis Woolshed Golden Hwy	Cassilis, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Police Station Group Branksome St	Cassilis, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Pump House, Boiler House and Well Rouchel Rd	Aberdeen, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Railway Station Susan St	Scone, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Royal Hotel Buccleugh St	Cassilis, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Scone Courthouse (former) & Theatre 41 Kingdon St	Scone, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)

Scone Grammar School Kingdon St	Scone, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Scone Post Office 117 Liverpool St	Scone, NSW, Australia	(Listed place) Commonwealth Heritage List
Segenhoe Homestead and Outbuildings Segenhoe Rd	Scone, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
St Aubins Arms 245 Kelly St	Scone, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
St Aubins House St Aubins Rd	Scone, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
St Pauls Anglican Church 3 Mount St	Murrurundi, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
St Pauls Rectory 3 Mount St	Murrurundi, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Village of Cassilis	Cassilis, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Wingen Maid Nature Reserve	Wingen, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)

Report Produced: Thu Mar 21 19:18:36 2024

Search Results

15 results found.

Binnaway Nature Reserve	Binnaway, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Chalk Mountain Area	Bugaldie, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Coolah Courthouse and Police Station 74 Binnia St	Coolah, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Coonabarabran Courthouse Dalgarno St	Coonabarabran, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Dapper Nature Reserve (1984 boundary)	Goolma, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Dunedoo Railway Station and Yard Group Bolaro St	Dunedoo, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Goolhi Graves Goolhi Rd	Old Goolhi Station, Mullaley, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Goonoo State Forest	Dubbo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Indigenous Place	Coonabarabran, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Narangarie Quarry Geological Site Narangarie Rd	Coolah, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)

Pilliga Nature Reserve (1980 boundary)	Newell Hwy	Coonabarabran, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Warrumbungle National Park	John Renshaws Pkwy	Coonabarabran, NSW, Australia	(Listed place) National Heritage List
Warrumbungle National Park (1980 boundary)	John Renshaws Pkwy	Coonabarabran, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Warrumbungles	Oxley Hwy	Coonabarabran, NSW, Australia	(Rejected Place) Register of the National Estate (Non-statutory archive)
Weetalibah Nature Reserve		Weetaliba, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)

Report Produced: Thu Mar 21 19:20:01 2024



Australian Government

Department of Climate Change, Energy,
the Environment and Water

- [About us](#)
- [Contact us](#)

You are here: [Home](#) » [Heritage](#) » [Heritage Publications](#) » [Photo database](#)

Australian heritage photographic library search results

Query details

Location: upper hunter

Results: No records were found which satisfied your search request.

[Contact us](#) [Accessibility](#) [Disclaimer](#) [Privacy](#) 

- [Home](#)
 - [Heritage](#)
 - [Photo database](#)

Photographic resources

- [Begin a new search](#)

**For further information
please contact:**

Heritage Mailbox:
heritage@dcceew.gov.au

Key

Links to another web site
Opens a pop-up window



Australian Government

**Department of Climate Change, Energy,
the Environment and Water**

- [About us](#)
- [Contact us](#)

You are here: [Home](#) » [Heritage](#) » [Heritage Publications](#) » [Photo database](#)

Australian heritage photographic library search results

Query details

Location: warrumbungle

Results: No records were found which satisfied your search request.

[Contact us](#) [Accessibility](#) [Disclaimer](#) [Privacy](#) 

- [Home](#)
 - [Heritage](#)
 - [Photo database](#)

Photographic resources

- [Begin a new search](#)

**For further information
please contact:**

Heritage Mailbox:
heritage@dcceew.gov.au

Key

Links to another web site
Opens a pop-up window



Upper Hunter Local Environmental Plan 2013

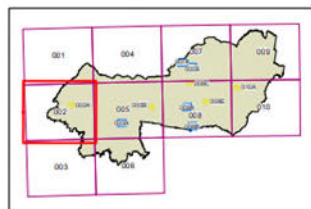
Heritage Map - Sheet HER_002

Heritage

- Conservation area - General
- Item - General
- Item - Archaeological

Cadastre

- Cadastre 15/10/2012 © Land and Property Information (LPI)



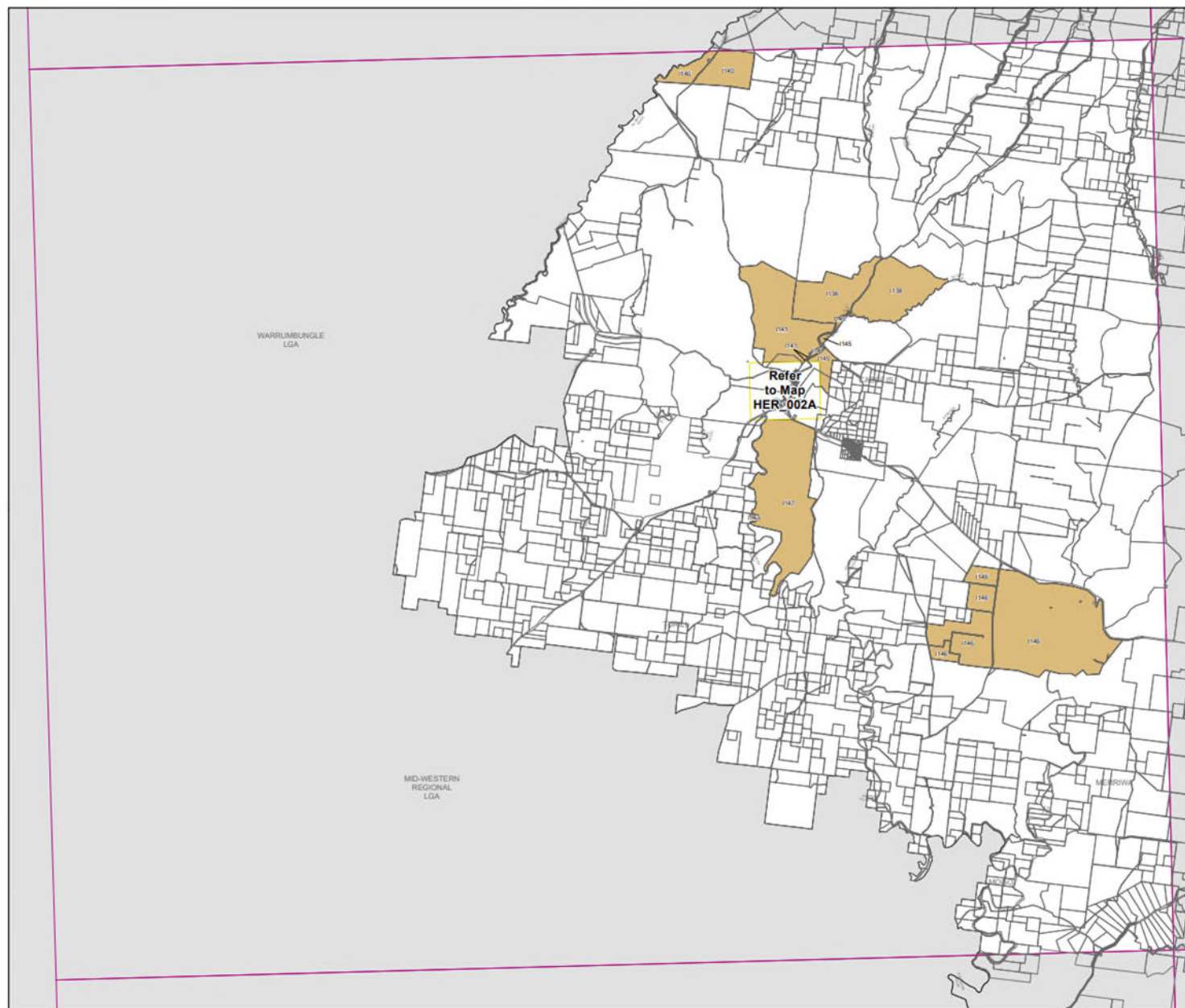
N

0 2 4 6 Kilometres

Projection: GDA 1994
MGA Zone 56

Scale: 1:160,000 @ A3

Map identification number: 7620_COM_HER_002_180_20131204



Appendix F: Biodiversity searches

DPI Weedwise Search – Hunter region ‘priority weeds’

Definitions

Prohibition on certain dealings: Must not be imported into the state, sold, bartered, exchanged or offered for sale.

Regional recommended measure: Land managers should mitigate the risk of the plant being introduced to their land. Land managers should mitigate spread of the plant from their land. A person should not buy, sell, move, carry or release the plant into the environment. Land managers should reduce the impact of the plant on assets of high economic, environmental and/or social value.

Exclusion zone: An exclusion zone is established for all land in the region, except the core infestation which includes all urban centres of the Hunter region.

Prohibited Matter: A person who deals with prohibited matter or a carrier of prohibited matter is guilty of an offence. A person who becomes aware of or suspects the presence of prohibited matter must immediately notify the Department of Primary Industries

Control Order: Owners and occupiers of land on which there is species must notify the local control authority for the area if the species is part of a new infestation on the land, destroy all species on the land ensuring that subsequent generations of species are destroyed; and keep the land free of species. A person who deals with a carrier of species must ensure the plant (and any seed and propagules) is not moved from the land; and immediately notify the local control authority of the presence of the plant on the land, or on or in a carrier.

Scientific Name	Common name	Biosecurity duty
<i>Opuntia leucotricha</i>	Aaron's bear prickly pear	Prohibition on certain dealings Regional recommended measure
<i>Lycium ferocissimum</i>	African boxthorn	Prohibition on certain dealings Regional recommended measure
<i>Eragrostis curvula</i>	African lovegrass	Regional recommended measure
<i>Olea europaea subsp. cuspidata</i>	African olive	Exclusion zone
<i>Alternanthera philoxeroides</i>	Alligator weed	Prohibition on certain dealings
<i>Eichhornia azurea</i>	Anchored water hyacinth	Prohibited Matter
<i>Sagittaria calycina</i> var. <i>calycina</i>	Arrowhead	Regional recommended measure
<i>Asparagus virgatus</i>	Asparagus fern	Regional recommended measure
<i>Tamarix aphylla</i>	Athel pine	Prohibition on certain dealings.
<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i>	Bitou bush	Prohibition on certain dealings
<i>Centaurea x moncktonii</i>	Black knapweed	Prohibited Matter
<i>Robinia pseudoacacia</i>	Black locust	Exclusion zone
<i>Salix nigra</i>	Black willow	Prohibition on certain dealings
<i>Rubus fruticosus</i> species aggregate	Blackberry	Prohibition on certain dealings Regional recommended measure
<i>Opuntia rufida</i>	Blind cactus	Prohibition on certain dealings Regional recommended measure
<i>Heliotropium amplexicaule</i>	Blue heliotrope	Regional recommended measure
<i>Vinca major</i>	Blue periwinkle	Regional recommended measure
<i>Chrysanthemoides monilifera</i> subsp. <i>Monilifera</i>	Boneseed	Prohibition on certain dealings
<i>Cylindropuntia fulgida</i> var. <i>mamillata</i>	Boxing glove cactus	Prohibition on certain dealings Regional recommended measure
<i>Asparagus asparagoides</i>	Bridal creeper	Prohibition on certain dealings
<i>Asparagus declinatus</i>	Bridal veil creeper	Prohibited matter
<i>Schinus terebinthifolius</i>	Broad-leaf pepper tree	Regional recommended measure
<i>Orobancha</i> species	Broomrapes	Prohibition matter
<i>Cylindropuntia tunicata</i>	Brown-spined Hudson pear	Regional recommended measure
<i>Opuntia microdasys</i>	Bunny ears cactus	Prohibition on certain dealings Regional recommended measure
<i>Cabomba caroliniana</i>	Cabomba	Prohibition on certain dealings Regional recommended measure
<i>Cinnamomum camphora</i>	Camphor laurel	Regional recommended measure

Scientific Name	Common name	Biosecurity duty
<i>Austrocylindropuntia cylindrica</i>	Cane cactus	Prohibition on certain dealings Regional recommended measure
<i>Genista monspessulana</i>	Cape broom	Prohibition on certain dealings Regional recommended measure
<i>Dolichandra unguis-cati</i>	Cat's claw creeper	Prohibition on certain dealings Regional recommended measure
<i>Opuntia schickendantzii</i>	Chicken dance cactus	Prohibition on certain dealings Regional recommended measure
<i>Nassella neesiana</i>	Chilean needle grass	Prohibition on certain dealings Regional recommended measure
<i>Celtis sinensis</i>	Chinese celtis	Regional recommended measure
<i>Persicaria chinensis</i>	Chinese knotweed	Regional recommended measure
<i>Triadica sebifera</i>	Chinese tallow tree	Exclusion zone Regional recommended measure
<i>Asystasia gangetica</i> subsp. <i>micrantha</i>	Chinese violet	Control Order
<i>Asparagus africanus</i>	Climbing asparagus	Prohibition on certain dealings Regional recommended measure
<i>Asparagus plumosus</i>	Climbing asparagus fern	Prohibition on certain dealings
<i>Erythrina crista-galli</i>	Cockspur coral tree	Regional recommended measure
<i>Opuntia stricta</i>	Common pear	Prohibition on certain dealings Regional recommended measure
<i>Hyparrhenia hirta</i>	Cooltai grass	Regional recommended measure
<i>Barleria repens</i>	Coral creeper	Regional recommended measure
<i>Cotoneaster glaucophyllus</i>	Cotoneaster	Regional recommended measure
<i>Ageratina adenophora</i>	Crofton weed	Regional recommended measure
<i>Hygrophila polysperma</i>	East Indian hyrophila	Regional recommended measure
<i>Amelichloa caudata</i>	Espartillo-broad kernel	Regional recommended measure
<i>Amelichloa brachychaeta</i>	Espartillo-narrow kernel	Regional recommended measure
<i>Myriophyllum spicatum</i>	Eurasian water milfoil	Prohibition matter
<i>Austrocylindropuntia subulata</i>	Eve's needle cactus	Prohibition on certain dealings Regional recommended measure
<i>Senecio madagascariensis</i>	Fireweed	Prohibition on certain dealings
<i>Genista linifolia</i>	Flax-leaf broom	Prohibition on certain dealings
<i>Asparagus densiflorus</i>	Foxtail fern	Prohibition on certain dealings
<i>Limnobium laevigatum</i>	Frogbit	Prohibition matter
<i>Galenia pubescens</i>	Galenia	Exclusion zone
<i>Andropogon gayanus</i>	Gamba grass	Prohibition matter
<i>Solanum chrysotrichum</i>	Giant devil's fig	Regional recommended measure
<i>Sporobolus fertilis</i>	Giant Parramatta grass	Regional recommended measure
<i>Sporobolus pyramidalis</i>	Giant rat's tail grass	Regional recommended measure
<i>Arundo donax</i>	Giant reed	Regional recommended measure
<i>Gloriosa superba</i>	Glory lily	Regional recommended measure
<i>Ulex europaeus</i>	Gorse	Prohibition on certain dealings Regional recommended measure
<i>Cestrum parqui</i>	Green cestrum	Regional recommended measure
<i>Salix cinerea</i>	Grey sallow	Prohibition on certain dealings
<i>Asparagus aethiopicus</i>	Ground asparagus	Prohibition on certain dealings Regional recommended measure
<i>Baccharis halimifolia</i>	Groundsel bush	Regional recommended measure
<i>Harrisia</i> species	Harrisia cactus	Regional recommended measure
<i>Hieracium</i> species	Hawkweeds - Hieraciums	Prohibited matter
<i>Pilosella</i> species	Hawkweeds – Pilosellas	Prohibited Matter
<i>Gleditsia triacanthos</i>	Honey locust	Regional recommended measure
<i>Equisetum</i> species	Horsetails	Regional recommended measure
<i>Cylindropuntia pallida</i>	Hudson pear	Prohibition on certain dealings Regional recommended measure
<i>Hydrocotyle ranunculoides</i>	Hydrocotyl	Prohibited Matter
<i>Hygrophila costata</i>	Hygrophila	Recommended management measure

Scientific Name	Common name	Biosecurity duty
<i>Hymenachne amplexicaulis</i> and hybrids	Hymenachne	Prohibition on certain dealings Regional recommended measure
<i>Vachellia karroo</i>	Karoo acacia	Prohibited Matter
<i>Heteranthera reniformis</i>	Kidney-leaf mud plantain	Regional recommended measure
<i>Pilosella piloselloides</i>	King devil hawkweed	Prohibited Matter
<i>Bassia scoparia</i>	Kochia	Prohibited Matter
<i>Clidemia hirta</i>	Koster's curse	Prohibited Matter
<i>Pueraria lobata</i>	Kudzu	Regional recommended measure
<i>Lagarosiphon major</i>	Lagarosiphon	Prohibited Matter
<i>Lantana camara</i>	Lantana	Prohibition on certain dealings Regional recommended measure
<i>Pereskia aculeata</i>	Leaf cactus	Regional recommended measure
<i>Ludwigia longifolia</i>	Long-leaf willow primrose	Regional recommended measure
<i>Ludwigia peruviana</i>	Ludwigia	Regional recommended measure
<i>Anredera cordifolia</i>	Madeira vine	Prohibition on certain dealings
<i>Berberis lomariifolia</i>	Mahonia	Regional recommended measure
<i>Prosopis</i> species	Mesquite	Prohibition on certain dealings
<i>Nassella tenuissima</i>	Mexican feather grass	Prohibited Matter
<i>Miconia</i> species	Miconia	Prohibited Matter
<i>Mikania micrantha</i>	Mikania vine	Prohibited Matter
<i>Mimosa pigra</i>	Mimosa	Prohibited Matter
<i>Asparagus macowanii</i>	Ming asparagus fern	Regional recommended measure
<i>Ageratina riparia</i>	Mistflower	Regional recommended measure
<i>Bryophyllum</i> species	Mother-of-millions	Regional recommended measure
<i>Pilosella officinarum</i>	Mouse-ear hawkweed	Prohibited Matter
<i>Caesalpinia decapetala</i>	Mysore thorn	Regional recommended measure
<i>Carduus nutans</i> subsp. <i>nutans</i>	Nodding thistle	Regional recommended measure
<i>Pilosella aurantiaca</i>	Orange hawkweed	Prohibited Matter
<i>Leucanthemum vulgare</i>	Oz-eye daisy	Regional recommended measure
<i>Cortaderia</i> species	Pampas grass	Regional recommended measure Exclusion zone
<i>Parkinsonia aculeata</i>	Parkinsonia	Prohibition on certain dealings Control Order
<i>Parthenium hysterophorus</i>	Parthenium weed	Prohibited Matter Prohibition on certain dealings
<i>Echium plantagineum</i>	Paterson's curse	Exclusion zone
<i>Bocconia frutescens</i>	Plume poppy	Regional recommended measure
<i>Annona glabra</i>	Pond apple	Prohibited Matter
<i>Vachellia nilotica</i>	Prickly acacia	Prohibited Matter
<i>Austrocylindropuntia</i> species	Prickly pears	Prohibition on certain dealings Regional recommended measure
<i>Cylindropuntia</i> species	Prickly pears	Prohibition on certain dealings Regional recommended measure
<i>Opuntia</i> species	Prickly pears	Prohibition on certain dealings Regional recommended measure
<i>Crotalaria beddomeana</i>	Rattlepod	Regional recommended measure
<i>Toxicodendron succedaneum</i>	Rhus tree	Regional recommended measure
<i>Opuntia elata</i>	Riverina pear	Prohibition on certain dealings Regional recommended measure
<i>Cylindropuntia imbricata</i>	Rope pear	Prohibition on certain dealings Regional recommended measure
<i>Cryptostegia grandiflora</i>	Rubber vine	Prohibited Matter
<i>Sagittaria platyphylla</i>	Sagittaria	Prohibition on certain dealings Regional recommended measure
<i>Salvinia molesta</i>	Salvinia	Prohibition on certain dealings Regional recommended measure
<i>Cytisus scoparius</i> subsp. <i>scoparius</i>	Scotch broom	Prohibition on certain dealings Regional recommended measure
<i>Euphorbia paralias</i>	Sea spruce	Regional recommended measure
<i>Gymnocoronis spilanthoides</i>	Senegal tea plant	Regional recommended measure
<i>Nassella trichotoma</i>	Serrated tussock	Prohibition of certain dealings

Scientific Name	Common name	Biosecurity duty
		Regional recommended measure
<i>Chromolaena odorata</i>	Siam weed	Prohibited Matter
<i>Limonium hyblaenum</i>	Sicilian sea lavender	Regional recommended measure
<i>Asparagus falcatus</i>	Sicklethorn	Regional recommended measure
<i>Solanum elaeagnifolium</i>	Silverleaf nightshade	Prohibition on certain dealings Regional recommended measure
<i>Opuntia monacantha</i>	Smooth tree pear	Prohibition on certain dealings Regional recommended measure
<i>Asparagus scandens</i>	Snakefeather	Prohibition on certain dealings Regional recommended measure
<i>Juncus acutus</i>	Spiny rush	Regional recommended measure
<i>Limnolobos spongia</i>	Spongeplant	Prohibited Matter
<i>Centaurea stoebe</i> subsp. <i>micranthos</i>	Spotted knapweed	Prohibited Matter
<i>Hypericum perforatum</i>	St John's Wort	Regional recommended measure
<i>Solanum sisymbriifolium</i>	Sticky nightshade	Regional recommended measure
<i>Heterotheca grandiflora</i>	Telegraph weed	Regional recommended measure
<i>Opuntia aurantiaca</i>	Tiger pear	Prohibition on certain dealings Regional recommended measure
<i>Ailanthus altissima</i>	Tree-of-heaven	Regional recommended measure
<i>Solanum viarum</i>	Tropical soda-apple	Control Order
<i>Opuntia tomentosa</i>	Velvety tree pear	Prohibition on certain dealings Regional recommended measure
<i>Trapa species</i>	Water caltrop	Prohibited Matter
<i>Eichhornia crassipes</i>	Water hyacinth	Prohibition on certain dealings Regional recommended measure
<i>Pistia stratiotes</i>	Water lettuce	Regional recommended measure
<i>Stratiotes aloides</i>	Water soldier	Prohibited Matter
<i>Heteranthera zosterifolia</i>	Water star grass	Regional recommended measure
<i>Opuntia robusta</i>	Wheel cactus	Prohibition on certain dealings Regional recommended measure
<i>Rubus niveus</i>	White blackberry	Regional recommended measure
<i>Salix species</i>	Willows	Prohibition on certain dealings
<i>Striga species</i>	Witchweeds	Prohibited Matter
<i>Tecoma stans</i>	Yellow bells	Regional recommended measure
<i>Limnolobos flava</i>	Yellow burrhead	Prohibited Matter



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 07-Dec-2023

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	6
Listed Threatened Species:	34
Listed Migratory Species:	10

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	18
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	5
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Hunter estuary wetlands	150 - 200km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities	[Resource Information]
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps. Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.	

Community Name	Threatened Category	Presence Text	Buffer Status
Central Hunter Valley eucalypt forest and woodland	Critically Endangered	Community may occur within area	In feature area
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community may occur within area	In feature area
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community may occur within area	In feature area
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community may occur within area	In feature area
Weeping Myall Woodlands	Endangered	Community may occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community may occur within area	In feature area

Listed Threatened Species			[<u>Resource Information</u>]
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act. Number is the current name ID.			
Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat likely to occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat known to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In feature area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area	In feature area
MAMMAL			
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat likely to occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
PLANT			
Androcalva procumbens [87153]	Vulnerable	Species or species habitat may occur within area	In feature area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area	In feature area
Homoranthus darwinioides [12974]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lepidium aschersonii Spiny Peppercross [10976]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Ozothamnus tessellatus [56203]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area	In feature area
Swainsona murrayana Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat may occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Vincetoxicum forsteri listed as Tylophora linearis [92384]	Endangered	Species or species habitat may occur within area	In feature area
REPTILE			
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Delma impar Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Listed Migratory Species [Resource Information]			
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species	[Resource Information]		
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat may occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Pterodroma cervicalis White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat may occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Liverpool Range Wind Farm Project	2022/09416		Assessment	In feature area
Controlled action				
Liverpool Range Wind Farm (btwn Coolah & Cassilis), NSW	2014/7136	Controlled Action	Post-Approval	In buffer area only
Valley of the Winds wind farm	2020/8668	Controlled Action	Assessment Approach	In feature area
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				
Aerial baiting for wild dog control	2006/2713	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Bioregional Assessments				
SubRegion	BioRegion	Website		Buffer Status
Hunter	Northern Sydney Basin	BA website		In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

[© Commonwealth of Australia](#)

Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 08-Dec-2023

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	38
Listed Migratory Species:	10

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	17
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	1
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	800 - 900km upstream from Ramsar site	In feature area
Riverland	800 - 900km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	1000 - 1100km upstream from Ramsar site	In feature area
The macquarie marshes	200 - 300km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities	[Resource Information]
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps. Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.	

Community Name	Threatened Category	Presence Text	Buffer Status
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area	In feature area
Weeping Myall Woodlands	Endangered	Community may occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species			[<u>Resource Information</u>]
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act. Number is the current name ID.			
Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat may occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In feature area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area	In feature area
FISH			
Galaxias rostratus Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow [84745]	Critically Endangered	Species or species habitat may occur within area	In feature area
Maccullochella macquariensis Trout Cod [26171]	Endangered	Species or species habitat may occur within area	In feature area
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area	In feature area
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In feature area
MAMMAL			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat may occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In feature area
PLANT			
Androcalva procumbens [87153]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area	In feature area
Lepidium aschersonii Spiny Peppercress [10976]	Vulnerable	Species or species habitat may occur within area	In feature area
Prasophyllum petilum Tarengo Leek Orchid [55144]	Endangered	Species or species habitat may occur within area	In feature area
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Swainsona murrayana Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat may occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Vincetoxicum forsteri listed as Tylophora linearis [92384]	Endangered	Species or species habitat may occur within area	In feature area

REPTILE

Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Delma impar Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat may occur within area	In feature area

Listed Migratory Species [[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area

Migratory Terrestrial Species

Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat may occur within area	In buffer area only

Migratory Wetlands Species

Scientific Name	Threatened Category	Presence Text	Buffer Status
Actitis hypoleucos Common Sandpiper [59309]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]		Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species	[Resource Information]		
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat may occur within area overfly marine area	In buffer area only
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

EPBC Act Referrals			[Resource Information]	
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

[© Commonwealth of Australia](#)

Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 08-Dec-2023

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	39
Listed Migratory Species:	10

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	17
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	1
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	800 - 900km upstream from Ramsar site	In feature area
Riverland	800 - 900km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	1000 - 1100km upstream from Ramsar site	In feature area
The macquarie marshes	200 - 300km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities	[Resource Information]
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps. Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.	

Community Name	Threatened Category	Presence Text	Buffer Status
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area	In feature area
Weeping Myall Woodlands	Endangered	Community may occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species			[<u>Resource Information</u>]
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act. Number is the current name ID.			
Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat may occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lophochroa leadbeateri leadbeateri Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo [82926]	Endangered	Species or species habitat may occur within area	In buffer area only
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In feature area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area	In feature area
FISH			
Galaxias rostratus Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow [84745]	Critically Endangered	Species or species habitat may occur within area	In feature area
Maccullochella macquariensis Trout Cod [26171]	Endangered	Species or species habitat may occur within area	In buffer area only
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In feature area
MAMMAL			
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat likely to occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In feature area
PLANT			
Androcalva procumbens [87153]	Vulnerable	Species or species habitat may occur within area	In feature area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area	In feature area
Lepidium aschersonii Spiny Peppercress [10976]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Prasophyllum petilum Tarengo Leek Orchid [55144]	Endangered	Species or species habitat may occur within area	In feature area
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area	In feature area
Swainsona murrayana Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat may occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area
Vincetoxicum forsteri listed as Tylophora linearis [92384]	Endangered	Species or species habitat may occur within area	In feature area

REPTILE			
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Delma impar Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat may occur within area	In feature area

Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area

Migratory Terrestrial Species			
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species	[Resource Information]		
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat may occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

EPBC Act Referrals			[Resource Information]	
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

[© Commonwealth of Australia](#)

Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111

You are here: [Home](#) > Species sightings search results

Search results

Which species or group?

- ☒ All entities ☐ Animals ☐ Plants ☐ Fungi ☐ Communities ☐ Threats ☐ Endangered populations ☐ Search for a species or group of species (e.g. birds)

No records found

Search criteria: Public Report of all Valid Records of Commonwealth listed Entities in selected area [North: -31.99 West: 149.44 East: 149.54 South: -32.09] returned 0 records for 0 species.

Report generated on 7/12/2023 5:06 PM.



You are here: [Home](#) > Species sightings search results

► Search results

Which species or group?

- ☒ All entities ☐ Animals ☐ Plants ☐ Fungi ☐ Communities ☐ Threats ☐ Endangered populations ☐ Search for a species or group of species (e.g. birds)
-

No records found

Search criteria: Public Report of all Valid Records of Commonwealth listed Entities in selected area [North: -31.99 West: 149.43 East: 149.53 South: -32.09] returned 0 records for 0 species.

Report generated on 7/12/2023 5:09 PM.



